

Victorian Travelling Fellowship
Program 2005-06

**Report on patient safety
systems in emergency
healthcare – June 2006**

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Introduction and acknowledgements

This report outlines my findings from the Victorian Travelling Fellowship program 2005-2006 which was funded by the Department of Human Services and the Victorian Quality Council. The subject of this travelling fellowship was patient safety systems in emergency healthcare.

There is growing evidence to show that error in healthcare places a significant burden on patients and the Victorian healthcare system. For example, the Consultative Committee on Road Traffic Fatalities report in 2003 demonstrated that up to a third of trauma related deaths and disabilities are preventable or potentially preventable. The same report found that 55 per cent of errors made in the management of trauma patients occur in the emergency department phase of care.

This fellowship offers an opportunity to introduce innovative approaches to patient safety to Victorian emergency departments, which may lead to improved patient and cost saving outcomes.

During this fellowship I visited seven healthcare institutions and specialist patient safety centres across the United States of America identified for their innovation and dedication to advancing safe patient care. This fellowship tour was undertaken from 31 March-13 May 2006.

I would like to thank the Department of Human Services and the Victorian Quality Council for facilitating this opportunity to explore innovative patient safety initiatives within the United States.

In addition, I wish to acknowledge the support of Bayside Health and staff members including Cathie Steele, Leanne Smith, Sue Evans, Michelle Gardner, Gwenda Peters, Jacqueline Williams and Mark Fitzgerald for their advice and ideas prior to my departure.

In particular I would like to thank Nathan Farrow, Project Manager of the Trauma Reception and Resuscitation Project, who has given invaluable support and guidance throughout this fellowship.

Project summary

Top three outcomes

- Leadership in collaboration with all healthcare professionals is the key to the promotion and successful implementation of a culture of patient safety.
- Dedicated infrastructure and ongoing financial and policy support are required to empower healthcare professionals at all levels to make ongoing changes to improve patient safety.
- Education to improve patient safety needs to be multidisciplinary and needs to begin at the undergraduate level.

Main activities undertaken

- Crew Resource Management training at the Paediatric Intensive Care Unit (PICU), Duke University Hospital.
- Observed patient safety rounds in the Emergency Department, Durham Regional Hospital.
- Observed in the Human Factors Engineering Laboratory, R Adam Cowley Shock Trauma Center.
- Observed video audit of trauma for teaching purposes - R Adam Cowley Shock Trauma Center.
- Reviewed adverse event reporting systems.
- Observed clinical management and patient safety processes in the R Adam Cowley Shock Trauma Center and University of Michigan Emergency Department.
- Visited a VA hospital to observe bar code medication administration (BCMA) system, computerised physician order entry (CPOE) and use of an electronic medical record.
- Attended National Patient Safety Foundation 8th Annual Congress.
- Formal presentations on innovative patient safety research in Victoria, the Trauma Reception and Resuscitation Project to the Institute for Safe Medication Practices, National Center for Patient Safety and Human Factors Engineering Laboratory – R Adams Cowley Shock Trauma Center.
- Interviewed multiple patient safety personnel at major emergency departments and trauma centres in the United States (US).
- Interviewed multiple key personnel at leading patient safety institutions.

Major learnings

- The emergency department is a working environment that poses unique barriers to the development of a systems approach to safety.
- Barriers to implementing a culture of safety in the emergency department can be overcome.
- Developing a culture of safety is a complicated and lengthy process, which requires commitment and cooperation from all staff, beginning with the leadership of the hospital.
- Patient safety initiatives need to be aligned with ongoing performance management of staff members.
- Transparency and open disclosure is a challenge for healthcare professionals: this can be overcome with comprehensive training and a

culture of safety in which healthcare workers support each other through this process.

- Patient safety systems are in varying stages of development in the US, which is reflected by different levels of infrastructure and program development to support patient safety. A major challenge to the development of a successful patient safety system identified through this study was the difficulty disseminating high-level safety initiatives to frontline staff.
- Initiatives that have been presented as solutions for medication errors, such as computerised physician order entry (CPOE) and bar code medication administration (BCMA) need to be implemented with caution. It has been reported that unforeseen complications from these systems can impair patient safety.

Study conclusions with applicability to the Victorian health system

- Further research needs to be conducted to more clearly define causes of error in the emergency department. Once causes of errors have been identified systems and strategies can be developed to mitigate them
- Patient safety principles and practices need to be included as a core part of the undergraduate curriculum for all healthcare workers
- The development of multidisciplinary patient safety curriculum for healthcare workers is more likely to enhance communication and collaboration between disciplines
- Funding and resources to implement Crew Resource Management training is required throughout the healthcare system. It has shown to be an effective tool to improve communication between healthcare disciplines and reduce errors caused by poor communication
- A well-structured and coordinated approach to programs of patient safety would benefit the Victorian healthcare system. Frontline staff should be included in the identification and development of patient safety initiatives.
- Patient safety outcome measures need to be standardised to assess improvement across the healthcare system

Study sites

Institute for Safe Medication Practice

University of Maryland Medical System
R Adams Cowley Shock Trauma Center

MedSTAR – Washington Hospital Center

Duke University Health System
Patient Safety Center

VA National Center for Patient Safety

University of Michigan Health System

8th Annual NPSF Patient Safety Congress



Institute for Safe Medication Practices

Demographics

The Institute for Safe Medication Practices (ISMP), based in suburban Philadelphia is the only non-profit organisation devoted entirely to medication error prevention and safe medication use in the United States. ISMP represents over 30 years of experience in helping healthcare practitioners in patient safety and is at the forefront of ongoing research to improve the medication use process. The organisation is known and respected worldwide as the premier resource for impartial, timely, and accurate medication safety information. ^[1]

The ISMP is very active in promoting safe medication practices and has significant influence with institutions that include Joint Commission of Accreditation of Healthcare Standards (JCAHO) and the Institute for Healthcare Improvement (IHI). Their information and research is disseminated through a number of avenues including:

- newsletters
 - printed and via the website
- alerts and advisories
- lectures
- publication of articles
- advise regulatory boards
- website.

Activities undertaken

Interview with Susan Paparella, RN, MSN Director Consulting Services

Susan Paparella is a consultant attending hospitals by invitation to discuss ways to decrease error and improve patient safety within the hospital. She emphasises that her role is advisory with a focus on encouraging and assisting clinicians to implement patient safety initiatives they bring forward. A review is normally undertaken about 12 months following implementation.

The purpose of this approach is twofold. When the institution drives change it has proved more successful. Secondly, the ISMP is not a regulatory organisation and is careful to avoid this role in order to continue a wide-ranging influence in advising hospitals and helping to prepare for Joint Commission on Accreditation of Healthcare Standards (JCAHO).

I observed a follow up interview with Ms Paparella and a regional hospital patient safety officer whose facility had been reviewed by ISMP four months beforehand. The hospital was experiencing difficulty with computerised

physician order entry (CPOE). Ms Paparella reported that CPOE is only effective when it is programmed correctly and the institution has adequate information technology support. Ms Paparella cautioned that some solutions, such as electronic medication support systems, could lead to the introduction of error as clinicians can become over reliant on them and less vigilant in their checking regime.

Ms Paparella outlined characteristics of institutions where a blameless culture was evident. Some of these characteristics were:

- institutions with progressive management
- transparency
- open communication.

The importance of effective communication creating an environment where people feel safe to question orders and near misses was discussed. Ms Paparella recommended the use of crew resource management training (CRM) to train hospital personnel in effective communication skills.

Interview with Hedy Cohen Vice President

The ISMP is a not-for-profit organisation, which was formed by Ms Cohen's husband, Michael Cohen, who is a pharmacist. As a not-for-profit organisation, the ISMP maintains an arms length working relationship with regulatory bodies.

The mission of the ISMP is to reduce patient harm from preventable adverse drug events by:

- establishing a non-punitive culture
- promoting shared accountability
- disseminating knowledge about systems-based causes of error
- encouraging internal/external frontline voluntary reporting.

Ms Cohen discussed the numerous medication safety initiatives that the ISMP is responsible for. Some key initiatives discussed were:

- removal of potassium chloride concentrate from patient care areas
- highlighting dangerous drug abbreviations
- elimination of free flow infusion pumps
- national alert for concentrated electrolytes
- 'Tallman lettering'.

Interview with Michelle Mandrack, RN, BSN Medication Safety Specialist

Ms Mandrack is a medication safety specialist who attends consultations with Ms Paparella. Ms Mandrack spoke about the challenges of medication safety and the key elements of an assessment when a consultation at a hospital is performed.

Traditional methods of medication safety, such as the 'six rights'+ have proved inadequate in preventing harm because they:

- require the individual practitioner to be right 100 per cent of the time

- place the onus of responsibility on the nurse to 'catch' errors
- name, blame, shame, train
 - emphasis is only on personal responsibility, autonomy and individual accountability
- concentrate on 'active failures'* where the patient/caregiver interaction occurs, whilst contributing factors, 'latent failures'#, often originate in the area of organisational policies, procedures and resource allocation.

Ms Mandrack believes the utilisation of human factor principles are essential to the development of effective patient safety solutions because they identify elements of a clinician's work environment, which contribute to error.

An effective approach to medication safety encompasses the following elements:

- emphasis on the multifactorial nature of errors
- assumption that errors will occur
- emphasis on caregiver interaction
- 'just culture' environment
- focus on the blunt end (latent failures) not the sharp end (active failures)
- emphasis on systems, not on people.

Ms Mandrack discussed a number of contributing factors to medication error:

- verbal orders
- ambiguous orders
- look alike and sound alike medications
- drug storage, stock and standardisation
- standardisation of devices
- environmental factors
- lack of patient education
- high-risk patients.

Ms Mandrack ranked, in order, the error reduction strategies that the ISMP employ:

1. forcing functions and constraints
2. automation and computerisation
3. standardisation and protocols
4. checklists and double-check systems
5. rules and policies
6. education and information.

Interview with Matthew Grissinger, RPh, FASCP Medication Safety Analyst

Mr Grissinger is responsible for managing the error reporting databases and establishing trends in the causes of error and flagging serious adverse events that need to be disseminated to the wider healthcare community. Mr Grissinger discussed the error reporting system at the ISMP, as well as the for-profit patient safety reporting system (PSRS) arm that enables the collection of data from all Pennsylvania hospitals. The adverse event reporting system at the ISMP is done anonymously and reporting via the website is encouraged to facilitate input from interested healthcare professionals worldwide.

Some key points Mr Grissinger discussed were:

- Reporting is essential because of the need to know the nature of the problem before a solution can be sought. ISMP is the only body that has a policy of following up directly with the clinician reporting the error, or near miss. Accordingly, they prefer that contact details be provided when incidents are reported. Moreover, the heavy workloads common to emergency departments (ED) traditionally leads to an under-reporting of instances of error in comparison with other departments within the medical facility.
- No trends have emerged that are specific to ED error. The types of ED medication errors occurring are not seen to be unique in the healthcare arena.

Interview with Allen J. Vaida, PharmD, FASHP Executive Director

According to Mr Vaida any patient safety initiatives proposed by an organisation should be considered for implementation within the ED setting. He stressed it is important to be aware that the ED is not seen as unique in this regard. Historically, he said, ED has had a strong resistance to implementing change. Indeed, there is a culture that defers change due to the perceived urgency of day-to-day operational requirements within ED.

Improvements in patient safety require clinicians to be open to change and to adopt a consultative approach in their practice. This approach facilitates a growing improvement in patient safety and can help move towards a systems approach.

Interview with Susan M. Proulx, PharmD President Medical Error Recognition and Revision Strategies (Med- E.R.R.S[®]) Inc. (A subsidiary of the ISMP)

Med-E.R.R.S[®] is a wholly owned subsidiary of the Institute for Safe Medication Practices (ISMP). Med-E.R.R.S assists global pharmaceutical and healthcare technology companies in evaluating the safety of their products and services, both pre-launch and post-marketing.

Ms Proulx stated that during the product development stage, Med-E.R.R.S could assist pharmaceutical companies to develop trademarks and package labelling, designed to lower the risk of medication errors. The process can also be applied to assist technology companies in improving the safety of their medication use systems. After launch, Med-E.R.R.S is available to monitor adverse events to determine whether a medication error is the cause of the event.

The Med-E.R.R.S staff consists of healthcare professionals with extensive experience in clinical settings. They complete a HFMEA (healthcare failure modes effects analysis) on the medication administration process to assess where an error may occur, for example, involving the particular label design,

or a name the company had adopted. Med-E.R.R.S integrates their knowledge and experience with the input of clinicians in the field to systematically analyse potential trademarks, packaging and technology. Frontline practitioners are engaged to assess handwriting samples in order to highlight any complication with a particular drug name.

Resources

www.usp.org

www.ismp.org

www.med-errs.com

<http://www.psa.state.pa.us/psa/cwp/view.asp?a=1165&q=441808&psaNav=%7C>

Presentation - Trauma Reception and Resuscitation Project and Victorian Travelling Fellowship, to the staff at ISMP



The presentation outlined the objectives of the Victorian Travelling Fellowship and the Trauma Reception and Resuscitation Project. The purpose was to disseminate innovative research that is being conducted in Victoria and share patient safety solutions, which can be translated to other contexts.

Key lessons learned

- Many patient safety strategies in operation elsewhere can be adapted to the emergency department environment, including medication strategies.
- Traditional methods of preventing medication error, such as the 'five rights', are inadequate.
- A systems approach is central to identifying causes of error and eliciting solutions because the cause of medication error is multifactorial.
- 'Don't micromanage the frontline', empower clinicians to make changes in their own environment.
- Staff who are actively working at the bedside are in a prime position to identify processes, or equipment, that may lead to an error and to propose solutions likely to mitigate errors.
- Acceptance of change is increased if frontline clinicians are involved in developing or implementing the change.
- Emergency departments need to change the mindset that all procedures are an emergency. Strategies such as elimination of verbal orders can be adapted to an emergency department setting to facilitate patient safety.
- CPOE and BCMA have proven to be a success in reducing medication error. However, it is important to learn from institutions that have implemented these systems to avoid problems that have been encountered.

Suitability for adaptation to our practices and the Victorian healthcare system

- Develop education programs and facilitate culture change in the emergency department to enable the implementation of strategies that are translated from other healthcare settings.
- When implementing computerised solutions to improve medication administration safety, consult with institutions that have installed them in the past to avoid unforeseen complications that may reduce the systems effectiveness.
- Engaging frontline clinicians in the development of policies and procedures for the Victorian healthcare system may assist with acceptance of new policies and culture change.

+ 'Six rights': right drug, right dose, right time, right route, right patient, right reason.

* 'Latent conditions' are inevitable resident pathogens within the system.

'Active failures' are the unsafe acts committed by people who are in direct contact with the patient or system.

REFERENCE: Reason, J. Human error: models and management. British Medical Journal 2000; Vol 320; pp 768-770.

[¹] <http://www.ismp.org/about/Default.asp> accessed on 12th June



University of Maryland Medical System

Demographics

The University of Maryland Medical Center (UMMC) is a major teaching hospital in downtown Baltimore that provides a full range of health care to more than 300,000 patients each year from Maryland and the Mid-Atlantic region. It is a referral center for the most serious conditions in adults and children, including cancer, trauma, heart disease, neurological disorders and organ transplants.

- The Medical Center is the academic centrepiece of the University of Maryland Medical System (UMMS), a regional, non-profit network that also includes two community hospitals and three specialty hospitals, as well as outpatient sites for primary and specialty care throughout Maryland.
- The Medical Center is composed of University Hospital, University of Maryland Marlene and Stewart Greenebaum Cancer Center, the R Adams Cowley Shock Trauma Center and the University of Maryland Hospital for Children.
- All of its physicians are on the faculty of the University of Maryland School of Medicine.

The R Adams Cowley Shock Trauma Center is a seven-floor hospital dedicated to the treatment of trauma patients. It treats more than 7,000 critically ill and injured patients each year who arrive by helicopter or ambulance -- and more than 96 per cent survive. The facility provides the highest level of trauma care in Maryland. Shock Trauma is the designated statewide referral center for head and spinal cord injuries, multi-system trauma, and severe orthopaedic injuries.

The Maryland Patient Safety Center is a collaboration of hospitals across Maryland, including UMMC, which aim to bring healthcare providers together to identify best practice and improve patient safety.^[2]

Activities undertaken

Patient safety initiatives at UMMC are developed from the Joint Commission on Accreditation of Healthcare Organisations (JCAHO) patient safety goals. One of the JCAHO safety goals requires the completion of a failure mode effects analysis (FMEA) on one high-risk process per year. This year's high-risk process is administration of insulin and dietary requirements. Discussions at the University of Maryland Medical System did not reveal a dedicated patient safety system.

UMMC has an anonymous voluntary reporting system. This is a voice mail system where staff can leave anonymous reports of adverse events or near misses that have occurred. Confidentiality is promised if the reporters' details are supplied. Adverse events or trends that need to be investigated

are reported back to the department where the adverse event occurred. Quarterly reports are given to administration.

Identified benefits of the anonymous voluntary reporting system were:

- increases leadership awareness of difficulties staff face in the work environment
- provides nurses with an avenue to report concerns without fear of recrimination.

The quality department provides a one and a half hour presentation on patient safety in a new staff members' orientation. This includes explanation of a systems approach to patient safety and the theory behind how human error occurs.

Interview with Assistant Professor Stephen M. Schenkel, MD, MPP, about the Maryland Patient Safety Center

Assistant Professor Steven Schenkel is an instructor in the Division of Emergency Medicine and one of the founding organisers of the Maryland Statewide Emergency Department Patient Safety Collaborative; an initiative of the Maryland Patient Safety Center. I was able to interview him during my visit to UMMC.

The Maryland Patient Safety Center is part of a unique approach to patient safety developed by the Maryland Health Care Commission in response to legislation passed by the Maryland General Assembly in 2001. The Center brings together health care providers to study the causes of unsafe practices and put practical improvements in place to prevent errors. The approach combines limited mandatory reporting of serious adverse events to the state health department with voluntary systems and improvement activities coordinated by a statewide patient safety centre.

The Centre also facilitates collaboration between providers so they can learn from each other and prevent errors before they are made. It provides educational conferences and seminars in patient safety activities such as root cause analysis (RCA) and failure mode effects analysis (FMEA).

The centre is responsible for voluntary adverse event reports from across the state, which establishes trends and best practice. Feedback is given to individual hospitals as well as in patient safety advisories.

The Emergency Department Patient Safety Collaborative commenced in January 2006. The collaborative aims are to establish trends in practices that may threaten patient safety as well establish solutions to prevent errors occurring.

Assistant Professor Schenkel identified 'time pressures, overflow and access, critically ill patients, multiple consultations and information gaps' as some of the challenges which contribute to errors in the emergency department (ED) and pose barriers when trying to improve patient safety. Assistant Professor Schenkel believes reduction of error in the ED depends upon facilitating flow and the embedding of a culture of safety in the emergency department. Some interventions he suggested that can be used to promote a systems

approach to safety in the ED include: patient safety rounds and a 'glitch book' to allow ED staff to voice their safety concerns.

The collaborative is in the early stages of planning, initially all participants in the collaborative will complete the AHRQ (Agency for Healthcare Research and Quality) culture survey to assess the safety culture in their ED and then develop and work through strategies together to improve patient safety.

Reference and resources

www.urgentmatters.com

www.marylandpatientsafety.org

Human Factors Engineering (HFE) and video audit of trauma

The HFE Research Programme is affiliated with the R Adams Cowley Shock Trauma Center. The aim of this program is to use technological interventions and human factors interventions to improve care.

Discussions with staff of the Human Factors Engineering (HFE) Laboratory at the R Adams Cowley Shock Trauma Center

During my visit to UMMS I met with the Human Factors Engineers that work in this research program. Ayse Gurse, a Human Factors Engineer, completed her PhD looking at factors that effect an ICU nurse's work environment and make their work more difficult. We discussed the importance of incorporating human factors principles when planning a new policy or process to help identify human factors in an individuals work environment, which may negatively affect outcome. Jake Seagull, another Human Factors Engineer, emphasised that it is not always necessary to have complicated expensive systems to improve work processes; well-designed simple artefacts/tools to improve work processes will work as effectively.

Video audit is used as a quality improvement tool at the R Adam Cowley Shock Trauma Center. The software system designed at Shock Trauma allows audit of trauma cases in real time facilitating a more efficient audit process. Events that would be missed in real time observation can be reviewed on video. Currently they are looking at teamwork in trauma resuscitations in the Shock Trauma Center.

The HFE Laboratory also use video audit as a teaching tool. An example of this is the video they use to teach central line insertion. By reviewing videos of central venous catheter (CVC) insertions they were able to identify human factors that caused deviations in sterile protocol and develop a CVC insertion process that would avoid breaks in the sterile field. This CVC insertion method was then taped on a video and used as an education tool to improve patient safety and was shown to decrease central line infection.

Resources

<http://hfrp.umm.edu/>

Mackenzie, C. F and Xiao, Y. Video techniques and data compared with observation in emergency trauma care. Qual. Saf. Health Care 2003; 12; 51-57. Downloaded from qhc.bmjournals.com on 19 June 2006

Interview with Robbi Hartsock, Trauma Coordinator – R Adams Cowley Shock Trauma Center



Ms Hartsock is the trauma coordinator for the R Adams Cowley Shock Trauma Center and her role is multifactorial. In relation to patient safety she is responsible for ensuring the quality of care provided at the Shock Trauma Center is best practice and meets the standards set by regulatory bodies.

Ms Hartsock has demonstrated innovation in the improvement of quality of care and patient safety for patients who attend regional trauma services. She had noted a number of errors in patient management when patients were transferred from facilities with less experience in trauma management than the Shock Trauma Center. By providing constructive feedback and appropriate education to these regional referral services she has demonstrated a reduction in error of 75 per cent in this patient population.

Presentation - Trauma Reception and Resuscitation Project and the Victorian Travelling Fellowship



Professor Colin Mackenzie from the National Study Center for Trauma and Emergency Medical Systems and University of Maryland, and Yian Xiao from the Human Factors Research Programme at the R Adam Cowley Shock Trauma Center, is the international liaison working with the Trauma Reception and Resuscitation Project at The Alfred Hospital, Melbourne, Victoria.

The presentation outlined the progress of the Trauma Reception and Resuscitation Project and objectives of the Victorian Travelling Fellowship. This helps to further develop international networks and share information of innovative patient safety initiatives in Australia.

Observation in the R Adam Cowley Shock Trauma Center



There is a strong influence on patient safety at UMMS, driven by quality and research departments.

A common theme identified during my study tour was the difficulty disseminating high-level initiatives down to the frontline staff. Whilst they demonstrated a high level of clinical expertise, my discussions revealed a

lack of conceptual understanding of a systems approach to patient safety.

Key lessons learned

- HFE is an essential tool to a proactive understanding of the elements that lead to human error and developing solutions to help avoid these errors.
- Where possible, processes that are implemented to improve patient safety should be simple.
- Frontline clinicians should be involved in the design and implementation of all new processes.
- Effective leadership is important in promoting a systems approach to patient safety.
- The implementation of a culture of safety in the emergency department is complicated by the unique barriers of the emergency environment. These potential barriers include time pressures, acuity of patients, bed access, multiple consultations and information gaps, for example unconscious patients with no friends or family to give their history.
- Video audit of trauma is a valuable teaching and research tool, which can be utilised to improve patient outcomes.
- Collaboration between emergency departments can be used to establish best practice and identify common trends that cause error.

Suitability to our own practice and the Victorian healthcare system

- Employ human factors engineers in the hospital to assist in the design and implementation of new policies and processes.
- Utilise the potential of video audit as a research and quality improvement tool. We are able to use video audit in wider situations than America due to the less litigious nature of Australian healthcare. The use of video audit in the US is limited to quality improvement, as they are not allowed to use video audit for research purposes.
- The Maryland Statewide Emergency Department Patient Safety Collaborative is funded by the government and was established to improve patient safety in the emergency department. A similar program could be developed in Victoria to identify trends and establish best practice across Victorian emergency departments.

[2] http://www.umm.edu/center/fact_sheet.html accessed on the 2nd June 2006.



Washington Hospital Center

Demographics

Washington Hospital Center located in Northwest Washington, is the largest private hospital in the nation's capital. A member of MedStar Health, the not-for-profit Hospital Center is licensed for 907 beds. It offers services in primary, secondary and tertiary care for both adult and paediatrics.

MedSTAR (Medical Shock Trauma Acute Resuscitation) is the Level I Trauma Center at Washington Hospital Center, this service saw 1,183 patients in the fiscal year of 2005. The MedSTAR helicopter medivac program participates in more than 3,500 flights per year.

The emergency department is separate from the Level 1 trauma center, with 69,165 Emergency department visits including 18,459 admissions in 2005.
[3]

Activities undertaken

Interview with Susan Kennedy, BSN Trauma Coordinator Trauma Services ATLS Program Manager



As a Trauma Coordinator, Ms Kennedy's role is multi faceted. Her role, in regards to patient safety, includes investigating adverse events, identifying patient cases to be presented at the morbidity and mortality conference and reporting key performance indicators to the governing body of MedSTAR. Ms Kennedy was not aware of a specific patient safety program that was conducted at Washington Hospital Centre (WHC) however they have a designated

Patient Safety Officer working at the hospital.

The Joint Commission on Accreditation of Healthcare Organisations National Patient Safety Goals motivates patient safety initiatives.

WHC has its own internal review processes and has a morbidity and mortality committee. All deaths, unanticipated operating theatre visits, returns to ICU and inappropriate admissions are presented for discussion by the trauma unit. Any incidents that are deemed preventable are referred to the Trauma Quality of Care Committee.

All incidents in the trauma unit are logged. They have a computer system that contains patient information such as lab results, radiology films and scanned emergency charts. Parameters that are set out in the American

College of Surgeons Resources for Optimal Care of the Trauma Patient are measured. The electronic records allow identification of trends that may have a common source leading to errors.

The trauma service at WHC is currently in a process of transition with the recent appointment of a new medical director. System evaluation, identifying areas needing improvement and the setting of goals for the future are currently underway.

The issue of translating patient safety initiatives across hospitals was raised. Susan warned there was considerable variation in populations between hospitals requiring careful evaluation of any patient safety initiatives to ensure compatibility with the particular hospital system.

Interview with Christina M. Emrich, RN, MS Quality Coordinator Quality Resources

Ms Emrich is responsible for the occurrence reporting database and implementation of JCAHO standards within the hospital. Ms Emrich says patient safety is difficult to define, as it is such a broad area.

- One of Washington Hospital Centers' foremost initiatives supporting blameless culture is anonymous occurrence reporting.
- An electronic occurrence reporting system is in place, which documents errors and adverse events. The word 'incident' has been removed from reporting because of perceived negative connotations. The data is used to drive performance improvement and identify changes that need to be made.
- Error is defined by JCAHO standards.

There are a number of patient safety initiatives at WHC including:

- falls assessment on admission
- restraint policy
- high risk medication policy – high risk medications are kept in a specific location and access is double checked
- SBAR (situation background analysis/assessment review) is a tool used to improve communication at hand over.

WHC has received a grant for a program termed 'Expecting Success' that aims to improve cardiac care for the Latino and African American population. Part of the program involves collaboration between primary care providers and the acute care hospital. A significant source of error is the information gaps identified when patients present to the emergency department, a problem compounded by an altered conscious state, or being non-English speaking. Medical records are linked to provide continuity of information resulting in improved outcomes in emergency departments. Linking of the primary care record and the acute service has helped bridge significant areas of information deficit, benefiting both the patient and the overall running of the ED.

Resources

<http://www.jointcommission.org/>

<http://www.ihl.org/ihl>

<http://www.whcenter.org/>



Interview with Ann M. Madden Director of Critical Care Services

Ann M. Madden is responsible for the leadership and operational management of the critical care services including emergency, intensive care and theatre. She stated there is no dedicated safety program in the emergency department; however there are a number of patient safety initiatives that WHC is currently focussing on. These include:

- restraint policy
 - appropriate use of restraints, avoiding use where possible with a view to managing patients with a less invasive approach
 - monitoring whilst patients are restrained
- high risk medication administration
 - segregate high risk medication
 - double check high risk medication
- falls risk assessment
 - sitters for high risk patients in the emergency department
- 'hand offs' from emergency to other hospital departments
 - in the process of changing from a faxed report to a verbal one
 - verbal handover allows for the receiving staff to ask questions
 - Systematic approach to hand over
 - SBAR situation based analysis response
- Equipment Committee
 - ensure adequate training
- respond and investigate any JCAHO safety alerts
- telemetry
 - patients used to be sent to wards without telemetry being attached, an omission identified through occurrence reporting
 - telemetry now has to be applied in the emergency department.

Current challenges to patient safety in the emergency department and WHC include:

- staffing
 - 70 ED nurses, 74 per cent of staff are agency
 - low level of senior staff
 - maintaining training in disaster preparedness with high turnover of staff
 - assignment despite objection – nurses can report to the union if they feel their patient load is unsafe
- difficulty instituting policies in large institutions
 - for example, the implementation of a policy to transport critically ill patient to CT was delayed for over a year because of conflicts

- amongst the many personnel that needed to agree and sign off on the policy
- bed block – emergency department access
- lack of critical care beds
- plan
 - employing a nurse educator in the department has served to increase staff retention
 - build strong management structure
 - advertise via different avenues
 - negotiate remuneration – enterprise bargaining agreements in the US.

Key lessons learned

- Experienced staff and adequate staffing levels are an essential element of a working environment, which provides safe patient care. A high degree of staff retention is critical in maintaining a culture of patient safety.
- Standards that are imposed by regulatory bodies, such as JCAHO, appear to use the majority of resources allocated to patient safety. Whilst there is value in the national standardisation of patient safety goals, hospitals require both the resources and the autonomy to identify and address organisation specific patient safety issues.
- Linking the primary care provider and the acute care hospital record helps to bridge some of the information gaps that occur when patients present to the emergency department. Information gaps have been identified as a significant source of error in the emergency department. One of the aims of the 'Expecting Success Programme' is to bridge information gaps for 'cardiac care' patients who present to the ED. This is a promising initiative that is yet to show improvements in patient care.
- Electronic records provide continuity of information transfer between departments.
- Electronic records allow for identification of common trends in adverse events and causes of error.
- Review of adverse events and unexpected outcomes should be multi-disciplinary to facilitate a systems based approach.

Suitability of application to our practices and the Victorian healthcare system

- The retention of senior staff and provision of adequate staffing is a well established, but implicit, prerequisite of safe patient care. Staffing levels need to be established as an explicit patient safety standard.
- It is essential hospitals be provided with adequate resources to allow them to better focus on patient safety. Standardisation of priorities is a major factor and includes initiatives such as the JCAHO patient safety goals. However, there is a critical need to allow scope for hospitals to identify problems unique to their institutions and to develop the solutions to overcome sources of error. This could be achieved with the provision of funding to set up a dedicated patient safety centre within each hospital.

[3] <http://www.whcenter.org/body.cfm?id=155> accessed on the 2nd June



Duke University Health System (Duke Patient Safety Center)

Demographics

Duke University Hospital is an 800 bed academic tertiary medical centre serving both adults and paediatrics. It is an international referral centre for certain treatments, for example oncology. It is also a regional referral centre.

The Duke University Health System (DUHS) is made up of Duke University Hospital (DUH) the flagship, Duke Raleigh 160 beds and Durham Regional 350 beds, the latter a community regional hospital serving approximately 50,000 patients in the ED per year.

DUHS also provides ambulatory services consisting of Duke Health Community Care (home health, hospice, and infusions at home), private diagnostic clinics (hospital based physicians practices) and Duke Affiliated Physicians (community based physicians).

The Duke Patient Safety Center (DPSC) opened in November 2004 it is responsible for all institutions that make up the Duke University Health System.

Activities undertaken

Interview with Michael Alton, Administrative Director Duke Patient Safety Center



Mr Alton described DUHS as relatively unique as it has a dedicated patient safety office that is solely responsible for patient safety. Most hospitals I visited have a patient safety officer that is required to perform other duties. Duke has a patient safety officer and separate quality control department in addition to the staff at the Duke Patient Safety Center.

The focus of the DPSC is to prevent harm to the patient, not on elimination of all error. This philosophy shows a willingness to tolerate error as long as it does not harm the patient. The DPSC has three focuses for patient safety in 2006 that are headed 'Just culture, team training, transparency and open disclosure.'

Additionally, DPSC has a number of methods for identifying patient safety initiatives and projects that they will integrate with existing systems. At the national level these include:

- JCAHO and the National Patient Safety Goals
- external reporting.

At the hospital level the initiatives include:

Six Sigma: Six Sigma stands for six standard deviations (sigma is the Greek letter used to represent standard deviation in statistics) from the mean. Six Sigma methodologies provide the techniques and tools to improve the capability and reduce the defects in any process. It was started in Motorola, in its manufacturing division, where millions of parts are made using the same repetitive process. Six Sigma methodologies are designed to improve any existing business by a constant review and re-tuning process. Today, Six Sigma can be applied to many fields, such as services, medical and insurance procedures and call centres, to achieve this, Six Sigma uses a methodology known as DMAIC (define opportunities, measure performance, analyse opportunity, improve performance and control performance).

Reference and resources

http://sixsigmatutorial.com/Six-Sigma/Six-Sigma-Tutorial.aspx?ref=aw&gclid=C0ngws-yzoUCFSI_Cwod8nMr1g

Balanced Scorecard: in 1992, Robert S. Kaplan and David Norton introduced the balanced scorecard (BSC), a concept for measuring a company's activities in terms of its vision and strategies. It gives managers a comprehensive view of the performance of a business.

It is a strategic management system that forces managers to focus on the important performance metrics that drive success. The system consists of four processes:

1. Translating the vision into operational goals.
2. Communicate the vision and link it back to individual performance.
3. Business planning.
4. Feedback and learning and adjusting the strategy accordingly.

Reference and resource

http://en.wikipedia.org/wiki/Balanced_scorecard

Dashboards: to provide performance measures for areas of priority. Dashboards can be used as a living document to watch progress over time.

Failure Mode Effects Analysis (FMEA): to prospectively analyse for potential causes of error in policies and procedures.

Root Cause Analysis (RCA): to retrospectively analyse an adverse event and systems issues that may have caused the error.

At a local level these include:

- Voluntary reporting system
 - this computerised reporting system can provide anonymity, and is used to identify trends of adverse events and highlight areas of priority for patient safety.
- Patient Safety Walkrounds™
 - identify areas of concern for frontline staff.
- Unit based local safety teams made up of the following staff members:
 - medical director
 - nursing director
 - nurse manager
 - pharmacist
 - respiratory therapist
 - patient resource manager
 - clinical nurse specialist
 - nurse practitioner
 - fellow
 - staff nurses.
- Safety core team.

Mr Alton believes it is seen to be essential that patient safety projects are driven from the top down, with input from the bottom up to provide the ownership and support required from all sections of the healthcare institution. The involvement of frontline clinicians at all levels of policy development and the implementation of initiatives is critical and the aforementioned model applied by DPSC incorporates these features.

Just culture or blameworthy culture: Mr Alton said the DPSC prefer the term just or blameworthy culture to blameless culture because they believe it is more descriptive of the culture they hope to achieve. Staff are charged with being accountable for their actions; a deliberate failure to follow policy renders the clinician accountable. It was emphasised that the implementation of a just culture (blameworthy culture) requires details of expectations and accountability to be in place. This necessitates the establishment of patient safety priorities and rules to define what is at risk and what constitutes reckless behaviour. There must be an expectation that the action is effected without exception and not to do so would be aberrancy. For example, hand washing between each patient contact has to be an expectation, where failure would not be tolerated and punitive action would ensue if other methods, such as counselling and coaching, were unsuccessful in changing behaviour.

Transparency and disclosure: Mr Alton identified transparency and disclosure as a key initiative of the patient safety center. This initiative is still in an introductory phase, with training planned for completion at the Institute for Healthcare Communication. This course outlines methods for disclosing medical error and adverse events in a way that is best for the patient and the institution. A physician who has had the training will then be charged with the training of colleagues.

The DPSC stance in regard to transparency and disclosure is that once an error is identified it needs to be disclosed to the patient/family. Even minor

incidents that touch the patient are to be disclosed, not just those where harm has occurred.

Barriers identified to implementing a culture of safety:

- existing culture
- effecting a balance between an overly punitive and overly protective culture
- oversight or regulatory bodies need to be supportive of the hospital or departmental culture.

Patient safety in the emergency department: Mr Alton asserts that patient safety principles and practices implemented by the DPSC are translatable to an emergency department setting. He believes that it is important that staff change their mindset that all care in emergency is urgent, to allow for implementation of initiatives, such as pausing before procedures to ensure adequate and correct preparation and the elimination of verbal medical orders. Standardising the environment and having the infrastructure and policies in place to mitigate common causes of error can avoid error in a true emergency situation.

Measuring outcomes: As the DPSC has been open for only 18 months, a clear definition of outcome measures from patient safety initiatives has not yet been defined. However, they are in the process of developing methods of measuring outcomes using statistical analysis. Currently, they rely on anecdotal evidence to assess outcomes. Patient safety rounds also provide direct feedback from clinicians at the bedside to assess whether a safety initiative has achieved a successful outcome.

Some of the outcome measures currently used include safety culture surveys, reduction in unit based adverse drug events and length of stay and increase in patient satisfaction.

Involvement of the family in a culture of safety: The DPSC is investigating the concept of allowing patients and families to use the voluntary reporting system to report adverse events. Patients and family members are currently involved at DPSC as members of the Patient Advisory Board.

Other Initiatives: Computer physician order entry (CPOE) has been implemented across the hospital in the adult departments, but is yet to be deployed in the paediatric departments. Introduction to the latter has been problematic due to the varied dosage ranges in paediatric medicine. According to Mr Alton, a study from a Pittsburgh Children's Hospital showed an increase in morbidity and mortality after the implementation of CPOE. The construction of the system is critical to militate against unforeseen errors. CPOE has reduced medication error caused by transcribing and handwriting errors. DUHS also has a PIXAS, which is an electronic storage system. Eventually DPSC plans to integrate PIXAS and CPOE so as to only permit removal from PIXAS what was authorised through CPOE.

Automated surveillance is a system that originated at Duke and is a computer based program scrutinising pathology results and medications,

which sends out alerts to nominated staff via email if an administration error is detected.

Interview with Karen Frush, MD Chief Patient Safety Officer Duke University Patient Safety Centre



Ms Frush is the Chief Patient Safety Officer for the DUHS, and is responsible for improving patient safety across the DUHS. Ms Frush emphasised the key to the success of a patient safety program is achieving a critical balance between regulatory needs and frontline requirements with input from frontline staff essential to success. Her aim as Chief Patient Safety Officer is the development of a patient safety culture, where all healthcare professionals accept responsibility for patient safety individually.

Team training is a pilot project that was funded by a Duke University endowment. The plan for the first year is to run the pilot team training program in the PICU and then move it across the three emergency departments in DUHS as well as two North Carolina emergency departments and two South Carolina emergency departments.

Ms Frush emphasised that the development of patient safety programs requires structure, for example, core and local safety teams to progress the implementation of changes. It is contended that the implementation of safety initiatives in ED should not be seen as exceedingly complex. All medical environments have a high degree of complexity and risk.

Crew Resource Management (CRM) training in the paediatric intensive care unit (PICU)

During my visit to Duke University Hospital (DUH) I attended the CRM training for the PICU. Currently this is a pilot program but if it proves to be successful it will be implemented across the DUHS. CRM training incorporates a number of elements, these include:

- a focus on teamwork
- communication
- flattening of hierarchy
- managing error
- situational awareness
- facilitates a very open culture with regard to error and safety.

CRM training was first developed in the aviation industry. The marked improvement in aviation safety has led to the question of whether the safety techniques used in the aviation industry can be applied to healthcare.

Awad (et al 2005) reports poor communication among health care providers can result in catastrophic medical errors that were preventable or avoidable. Awad (et al 2005) reported on CRM principles that were successfully implemented in the operating room to ensure a safer environment with

decreased adverse events. These same principles can be translated to an emergency department setting.

Mr Alton said successful CRM training is dependent on all involved parties taking ownership and accepting responsibility. He believes it is important that team training is taught early in the curriculum. By teaching team training at the undergraduate level, in a multi-disciplinary collaboration, communication is enhanced between the disciplines.

SBAR (situation–background–assessment–request and recommendation) was incorporated into the CRM training. SBAR provides a standardised framework for communication between members of the health care team every time patient management is discussed. It establishes the expectation that specific information based elements will be communicated every time a communication about a patient occurs. This is a communication framework that could readily be translated to the emergency department.

Reference

Awad, S. S, Fagan, S. P, Bellows. M. D, Albo, D, Green-Rasghad, Beverly, De La Garza, M. and Berger, D. H. Bridging the communication gap in the operating room with medical team training. The American Journal of Surgery. 190(2005; 770 – 774.

Patient Safety Rounds at Durham Regional: During my visit to DUHS, I attended patient safety rounds at the Durham Regional Hospital Emergency Department. Access to beds and frequent overflow were identified as the most significant barriers to patient safety in the ED by staff at Durham Regional. Staff reported difficulty standardising care in the emergency department, because of ill-defined boundaries affecting patient treatment and the continual pressure on resources.

Patient Safety WalkRounds™ allow senior leaders to demonstrate their commitment to patient safety and hear concerns about patient safety from the frontline staff.

Mr Alton gave an outline of some tips to facilitate quality Patient Safety WalkRounds™:

- Get a commitment from senior executives to participate for an hour every week. They may be rescheduled but never cancelled.
- Keep discussions focused on safety - do not dilute the safety message by trying to cover other topics.
- Involve all the senior executives in the organisation, not just the chief executive officer.
- Communicate with managers so they understand why senior executives are visiting their departments.
- Make sure that senior executives follow up and provide feedback to staff about issues raised during the WalkRounds™.
- Institute regular safety briefings. Communicate details of issues raised in the briefings (with names of the contributing staff members withheld) to the executives to discuss on their WalkRounds™.

The questions that are asked on WalkRounds™ are taken from work by Alan Frankel, Boston and the Institute for Health Improvement (IHI).

Key lessons learned

- This visit to the DPSC reinforced the need for a systems approach to patient safety.
- Staff members feel more empowered and are more likely to participate when they initiate a solution or are involved in the implementation of an initiative.
- Crew Resource Management is an effective model to improve team communication.
- SBAR is one model of communication that could be investigated as a tool to improve communication between healthcare workers.
- In view of the many competing demands in patient safety it is important to identify priorities for patient safety and follow them through.
- Business models, such as Six Sigma and Balanced Scorecard, are used to identify priorities for patient safety initiatives as well as providing a framework for implementation of the initiatives.
- 'Just culture' surveys identify areas of culture that need changing in an institution for it to achieve a culture of safety.
- Measurement of outcomes of patient safety initiatives need time to develop. DPSC has implemented a number of patient safety initiatives, however to date the success of these changes has only been measured anecdotally.

Suitability to our practice and the Victorian healthcare system

- Establish a pilot program of patient safety rounds and CRM training in a Victorian emergency department.
- Establish a dedicated body funded and devoted to the advancement of systems approach to patient safety. This is critical because the skills required to introduce a culture of patient safety requires education, motivation and follow up, supported by a department trained in these skills. Ultimately the institution or department is responsible to implement the change; whilst the patient safety centre staff has responsibility for motivation and training.
- Evaluate business models, such as Six Sigma, Balanced Scorecard and dashboards, to see if they are translatable to the Victorian healthcare system to be used as a tool to identify and implement patient safety initiatives.
- Emergency departments need to identify errors of priority to improve patient safety through the collection of adverse events reports and research into common causes of error in emergency healthcare.



National Center for Patient Safety

Demographics

The VA National Center for Patient Safety (NCPS) was formed in 1999 to develop and promote a culture of safety throughout the Veterans Health Administration. The head office is located in Ann Arbor, Michigan.

Nationally, the goal of the NCPS is to reduce and prevent inadvertent harm to patients as a result of their care.

Patient safety managers at 157 VA hospitals and patient safety officers at 21 VA regional headquarters participate in the program^[5].

Activities undertaken

Presentation by Beth King Program Manager VA NCPS

Ms King is a Program Manager for the VA in Michigan. Program managers at the VA visit facilities, provide national training and support and help develop patient safety within the VA hospital network. Program managers also have special projects that are intended for national application. Ms King gave an introduction about the VA National Centre for Patient Safety.

Ms King believes the bottom line for patient safety is culture change. She outlined a plan for cultural change and development of a systems approach to patient safety in an organisation.

- Process design:
 - reduce reliance on memory and vigilance
 - simplify
 - standardise
 - checklists
 - forcing functions
 - eliminate look-alike and sound-alikes.
- Organisational:
 - increase feedback
 - teamwork
 - drive out fear
 - leadership commitment
 - improve direct communication.

Ms King reported an expert advisory panel was convened to establish the NCPS they created the following plan:

- Establish a voluntary reporting system
 - confidential and de-identified

- non-punitive.
- Reports should emphasise narratives:
 - pre-determined data fields limit the diversity of data collected.
- Interdisciplinary review teams:
 - a true systems based approach.
- Prompt feedback.

Ms King outlined some challenges to applying a systems based approach to patient safety in healthcare:

- medicine views error as failings which deserve blame and fault
- train and blame mentality
- blind adherence to rules
- medicine emphasises knowledge
- corrective action focuses on the individual
- no blood, no foul policy – that is, if no direct harm occurs to the patient then it is not considered a problem.

The following points were outlined as requirements to establish a culture of safety:

- reporting system
 - encourage more and active reports
 - need to remove fear and demonstrate benefit
- acceptance of a systems approach
- appropriate view of blameworthy behaviour
- solutions must be user centred
- improve communication.

Ms King outlined some patient safety lessons learned by the VA:

- cannot mandate cultural change; support must be won
- communication is the key
 - personal communication not e-mail
 - must be driven by the leadership group
- target upper and middle management first
- design systems to suit the needs of the front-line as a first priority
- actions must demonstrate that patient safety is a real priority, not just one paid 'lip service'. Safety related duties should be to the forefront, not just an afterthought
- safety is the foundation upon which quality is built.

Presentation by Tina Nudell Education Project Manager

Tina Nudell is responsible for patient safety education programs for the VA hospitals and the NCPS. These programs are mainly run for patient safety managers at the VA hospitals; however, the training is open to other healthcare personnel who wish to attend.

They provide training and resources for:

- healthcare failure mode and effect analysis (HFMEA)
- patient safety improvement/root cause analysis (RCA)
- patient safety – how can leaders make a difference.

Organise conferences:

- National VA Patient Safety Managers Conference
- Patient Safety Officers Conference.

Non-VA training:

- American Hospital Association Toolkit
- Patient Safety Improvement Corps: An AHRQ/VA Partnership.

The NCPS are generous with information and offer to train healthcare personnel outside the VA. The NCPS employees espouse clear leadership and acceptance of patient safety culture and ideas as the key to moving forward.

Presentation by John Gosbee, MD, MS Director Patient Safety Information Systems

Dr Gosbee, in conjunction with other NCPS staff, has developed a patient safety curriculum for residents in VA hospitals. The NCPS believe there is a demonstrable need for training for health professionals in patient safety. Currently the program is only for residents.

Dr Gosbee stressed the importance of RCA in a systems approach to patient safety. Incorporating front line clinicians in RCA is essential as they are in a prime position to identify day-to-day situations that are potential sources of error. He believed participation in RCA should be multidisciplinary. It has been noted at the VA hospitals that there is infrequent participation in RCAs by residents, he believes this may be for two reasons:

- unable to secure time away from the clinical environment to perform non-clinical duties
- residents and leaders do not recognise RCAs as an important part of a resident's role.

Presentation by Edward Dunn, MD Director Policy and Clinical Affairs

Dr Dunn is responsible for the development of policies and initiatives to improve patient safety at an organisational level. He spoke about the importance of team training. Communication failure is a leading source of adverse events in healthcare. The Joint Commission on Accreditation of Healthcare Organisations (JCAHO) identified communication failure as a pivotal factor in over 70 per cent of more than 3000 sentinel events reported since 1995. The IOM report, 1999, '*To Err is Human: Building a Safer Healthcare System*', recommends teamwork training to improve communication in all healthcare organisations, '...establish team training for personnel in all critical care areas...using proven methods such as Crew resource Management (CRM) training techniques employed in aviation.'

The NCPS began developing a Medical Team Training (MTT) program in 2003 designed to introduce communication tools to professionals working in VA institutions, with the expectation they will integrate these tools in the clinical workplace.

Dr Dunn said team training requires commitment from all levels of employees and he will not agree to perform team training unless all senior management are 'on board', including the chief executive officer.

Presentation by Bryanne Patail Biomedical Engineer

Bryanne is responsible for the alert and advisory process of the VA hospitals. He monitors other alerts and advisories that are submitted by other bodies, for example, FDA, as well as drawing from adverse event reports to be appraised of further hazards.

The definitions of VHA recall notices, patient safety alerts and patient safety advisories are as follows:

- Patient safety alerts disseminate urgent notices that require immediate, specific action on the part of the recipient to address actual or potential threats to the life, or health of VA patients and staff.
- Patient safety advisories are issued when a potential threat, due to equipment design, product failure, procedural issues or training, has been identified; actions that are more general in nature; and implementation may be subject to local judgement.
- Recalls are issued to notify the field of unsafe, or defective medical devices, medical products, drugs, food and food service products, or prosthetics, that may present an actual or potential threat to health or life and must be corrected or removed from service. Sometimes recalls are done through a patient safety alert or advisory.

Presentation by Linda Williams, RN, MSI Human Factors

Linda Williams looks after the 'Hands on Museum'. The purpose of this display is to illustrate to clinicians that problems arise not from a lack of skill or ability, but from a dysfunctional system or device.

Linda spoke about the role of human factors in patient safety and some of the challenges that a human factors engineer needs to be mindful of when implementing patient safety solutions:

- RCA teams often conclude that patient safety solutions should be based on warning signs, training and asking clinicians to be 'more careful'. These solutions are not based on a systems approach and place the onus on the clinician to avoid error.
- Professionals develop clever and creative 'work arounds' when they encounter something in their environment that is unsafe or does not work as expected. 'Work arounds' are defined as a method of avoiding an obstacle and or potential threat to patient safety enabling staff to continue patient care.
- Familiarity with a system tends to make people reluctant to correct systems issues.

The purpose of Human Factors design is to better understand normal human performance and design things correctly to mitigate error.

Presentation by Eric Stalhandske, MPP, MHSA Program Manager

Mr Stalhandske discussed the business case for patient safety and provided a handout, including a formula describing how to assess cost benefit ratio and the cost effectiveness ratio. He gave a number of examples illustrating the cost benefit of reducing adverse events. It is important to establish a business case to ensure resources are being utilised effectively to better promote patient safety initiatives.

Mr Stalhandske and Amelia Landesman, a Statistical Assistant, also presented the falls toolkit, which they have developed for all VA hospitals. This was a culmination of two years of work. They collected data on falls across the VA hospitals. Analysis resulted in a number of recommendations, which are being implemented throughout the VA hospital system. Mr Stalhandske and Ms Landesman are now in the process of evaluating the effectiveness of the toolkit in reducing falls.

Resources

<http://www.patientsafety.gov/SafetyTopics/fallstoolkit/index.html>

Joe De Rosier, PE, CSP Program Manager

Mr De Rosier discussed the role of HFMEA in patient safety. HFMEA should be run as a prospective exercise every time a new process is implemented. The VA NCPS offers training in the HFMEA process. NCPS has developed a rapid reference book, which guides healthcare professionals step by step through the HFMEA process.

Resources

DeRosier Joseph; Stalhandske, Erik; Bagian, James. Nudell, Tina. Using Healthcare Failure Mode Effects Analysis. The Joint Commission on Accreditation of Healthcare Organisations 27:248-267, 2002:
www.patientsafety.gov/HFMEA_JQI.html

Hazard Analysis and Critical Control Point Principles and Application Guidelines.
www.cfsan.fda.gov/~comm/nacmcfp.html

Presentation by Scott McKnight, Biostatistician, and Diana Grayson, Computer Program Developer

Mr McKnight is a biostatistician and is responsible for extracting, analysing and managing the many sources of NCPS data. Ms Grayson is the lead developer of computer programs at NCPS; she developed the incident reporting database called SPOT (named after the dog mascot on the database). The NCPS has numerous adverse events reporting databases.

SPOT is both a database and an RCA tool. Data for incidents is entered and scored; the score alerts the patient safety officer at the VA if there is need to do an RCA on an event. Some incidents trigger mandatory RCAs, for example, falls.

The reporting system does not have mandatory text boxes to encourage narrative descriptions of an event. The program analysts believe narrative descriptions are more informative than predetermined information fields because narratives do not limit the information that the reporter provides.

Program analysts then code the data; a natural language word processor detects themes and words that are commonly used together. This enables trends in error reporting to be identified.

Ms McKnight and Ms Grayson accept that persons reporting do not report all incidents; the key aim of error reporting is to look for trends, the collection of data on 100 per cent of all errors is not essential to a successful outcome.

**Presentations by:
Carol Samples, Lesley Taylor, Dana Patterson, Kathleen Dropp
Programme Analysts**

Program analysts look for common themes from the adverse event reports. The identified theme is then analysed and a report is provided to the facility with recommendations for changes that can be implemented. The analyst's job is not to mandate how the institution implements their changes, but to provide guidance. The analysts also rate the viability of the solution implemented.

Visit to the Ann Arbor VA Hospital

Meeting with JoEllyn Smith, Patient Safety Manager, and Gabriel Perez, Director of Medicine, at the Ann Arbor VA Hospital

JoEllyn is the Patient Safety Manager and is responsible for reviewing error reports from the Ann Arbor VA Hospital. She gave a tour of the hospital and introduction to innovative computer systems, BCMA and CPOE that had been installed to improve patient safety.

The BCMA has been successful in reducing medication errors, especially those related to missed doses and the administration of an incorrect drug, to a patient. However, it does not eliminate all medication errors and implementation has been quite time consuming. When first implemented, medication administration time went from 15 minutes to 45 minutes; but has now been reduced to 25 minutes.

The CPOE has reduced errors in the administration of drugs due to transcription error but cannot reduce all medication error, for example, wrong route administration.

The patient safety reporting system (PSRS) is somewhat complicated, the VA hospital network has three different systems of reporting adverse events some more time consuming than others.

This visit illustrated the benefits of CPOE and BCMA in reducing some errors in relation to medication. However, it should be noted when applying technological solutions to reduce medical error it is unlikely one system will eliminate all errors and the introduction of these systems to improve patient safety can often be time consuming and complicate traditional methods of medication administration. These ideas should be weighed against the benefits of improving patient safety when considering which system to implement.

Presentation - Trauma Reception and Resuscitation Project and the Victorian Travelling Fellowship

The presentation was given to all the staff at the NCPS. The staff was very interested to hear about innovative safety initiatives from Australia. The presentation outlined the progress of the Trauma Reception and Resuscitation Project and objectives of the Victorian Travelling Fellowship. The presentation helped to further develop international networks and share information from innovative patient safety initiatives in Australia.

Key lessons learned

- It is essential that training in patient safety practices and principles is implemented and becomes part of the curriculum for health professionals.
- Education for hospitals, healthcare professionals and leaders on how to implement applicable patient safety is important to the successful implementation of patient safety systems.
- Systems, initiatives and improvements require a dedicated group of specialists in patient safety.
- Hospitals need to be monitored and supported in their endeavours to continue with their safety programs.
- CPOE and BCMA are effective methods of reducing medication error. However, caution needs to be exercised in their implementation. Lessons should be learnt from institutions that have implemented these solutions to avoid inherent pitfalls.
- RCA and HFMEA are important tools that the NCPS uses to retrospectively and prospectively assess causes of error and systems that may be implemented to avoid error.

Suitability to our practice and the Victorian healthcare system

- Develop a curriculum for patient safety for all health professionals. This should be instigated at both the undergraduate levels as well as within the healthcare institutions on an ongoing basis.

- Provide funding for an independent patient safety body to provide the hospitals with resources on how to implement a systematic approach to improving patient safety.
- CPOE and BCMA systems need to be assessed in the context of the Victorian health system whilst consulting with institutions that have installed them in the past to avoid unforeseen complications that may reduce the systems effectiveness.

References:

[5] <http://www.va.gov/ncps/> accessed on 2 June 2006.



University of Michigan Health System

Demographics

The University of Michigan Health System (UMHS) includes the University of Michigan Medical School and its faculty group and research facilities, three University of Michigan Hospitals (C.S Mott Children's Hospital, University Hospital and Women's Hospital), numerous community health centres, more than 120 outpatient clinics, the M-CARE managed care organisation and the Michigan Health Corp.

The Emergency Department (ED) at the University Hospital is an adult and paediatric service that has recorded over 72,000 visits in the year 2005.

Activities undertaken

Interview with Jeffrey Desmond MD, Service Chief and Clinical Assistant Professor, Emergency Department

Dr Desmond believes there is a strong focus on safety in the Emergency Department at the University of Michigan Hospital. They have a Trauma Quality of Care Committee that reviews outstanding issues that arise from the weekly conference. Outstanding issues are usually those that would be deemed preventable deaths. These reviews are multidisciplinary with attendance from trauma, emergency, orthopaedic, neurosurgery, radiology, emergency nursing and emergency faculty. This reinforces a systems approach towards review of error and the implementation of the strategies to avoid recurrence.

Dr Desmond stated that one of the biggest elements of a safe culture is developing an understanding within the team, empowering them to take action to eliminate unsafe practices. He says that leadership is fundamental to providing the right environment for staff to participate fully in this process.

The medical resident program at UMHS includes education about 'just culture' and patient safety. This helps to ensure future medical leaders are aware of the requirements in their work to foster a culture of safety. This teaching is not yet included in the nursing orientation, but there is a probability it will be added in the future.

Dr Desmond believes a key element of providing an environment of patient safety in the ED is standardisation of care.

We discussed a number of challenges that inhibit the implementation of new practices to improve patient safety. These include:

- Dissemination of information to a large group of staff members. For example, the ED staff have developed pathways in the ED for emergency presentations that are low frequency but result in high morbidity, they have found despite extensive education campaigns all staff have not absorbed the message.
- Standardising processes and sustaining a change is complex, especially in an academic institution where many medical interventions in the emergency department do not carry an established level of evidence.
- It is difficult to get physicians to agree on a standard of care because there are usually a variety of valid approaches to achieve the same outcome.
- Physicians often use the excuse that emergency medicine is a complex process and cannot be standardised. Dr Desmond disagrees with this saying the majority of situations involve multiple interventions that are common to the emergency care process.

Interview with Kathleen Lanava, RN, CNOR Consultant Risk Management



Ms Lanava believes that risk management is both reactive and proactive at the UMHS. All staff in the risk management department except one has a background in nursing. Kathleen is a nurse and an attorney. They are changing the focus of risk management to become more clinically focussed.

Ms Lanava quoted a saying in risk management that 'hurt feelings go to patient relations, hurt bodies go to risk management'. This helps staff differentiate between the incidents that need to be referred to risk management and those that are referred to patient relations.

Ms Lanava states that UMHS has a policy of full disclosure at this hospital. Risk management plays a large role in teaching regarding full disclosure, as well as facilitating meetings and the support of clinicians and families through the process. The risk management department is striving to encourage a blameless culture.

In the state of Michigan, since 1991, patients who believe that their care has been mismanaged or resulted in harm must give the UMHS written notice within six months of the incident occurring. Once risk management have received a notice of intent, an internal review is undertaken within the department in which the incident occurred before being sent to the medical liability review committee. If the investigation reveals no fault by the hospital, they will defend their physicians and their care vigorously. This has resulted in a decrease of cases being brought against the hospital. Prior to 2002, UMHS provided payouts to patients/families if there was a legal dispute regarding medical care provided, even if the hospital was not at fault.

A significant element of a blameless culture is a reporting system. The UMHS have a computerised and anonymous reporting system. They receive many

more reports with names than not. They then set up alerts to go to nurse managers and clinical directors of each department. Managers who receive alerts can filter them to only receive alerts that they are particularly interested in, for example, frequency of falls.

The reporting system is also used to identify trends in adverse events that may have been occurring on a specific ward or department. For example, reporting systems in the ED identified a problem with patients deteriorating in the waiting room. The solution implemented to address this problem included allocating a nurse to the waiting room during busy periods.

Ms Lanava believes it is very important to educate and raise awareness with nurses about the importance of reporting both actual adverse events as well as near misses. Consequently, risk management liaison nurses have been appointed in each department. It is their responsibility to raise awareness about incident reporting, documentation, legal issues and transparency and disclosure.

Risk management gives regular presentation on open disclosure for the ED. They perform mock scenarios of situations and simulate how they would disclose an adverse event to the family.



Interview with Skip Campbell, MD Chief of Clinical Affairs Professor of General Surgery

Professor Campbell, the Chief of Clinical Affairs, believes patient safety is a main priority of the executive level of management and he has implemented many patient safety initiatives at UMHS. Professor Campbell advised that the first step in developing a culture of patient safety in an institution is to complete a patient safety survey. This gauges patient safety attitudes in the organisation and ascertains what needs to change. The survey used by UMHS is called the Patient Safety Attitude Questionnaire.

The survey results provided insights into how people viewed patient safety culture and it showed a large disparity between departments of the hospital. Departments such as ED, OR and ICU were seen as less safe than outpatients units.

Professor Campbell, in conjunction with the Executive Committee, has developed a patient safety policy that focuses on the following:

1. Speaking up about patient safety concerns. A policy has been written to formalise the process of all staff speaking up without recrimination.
2. A full disclosure policy encourages staff to be honest and forthcoming in all cases if they have made a mistake.
3. Completion of patient safety rounds every two weeks. Executive level leadership visits a different unit/department every fortnight. The group is made up of a member of every discipline at the executive level: chief of nursing, pharmacy safety liaison, chief of staff and a layperson (currently a wife of a patient who was harmed as a result of an adverse event).

Communication between multidisciplinary teams is an essential component when implementing a systems approach to patient safety. Professor Campbell said that team training (Crew Resource Management) was run as part of a grant in the obstetrics and gynaecological department. Anecdotal reports showed this training was thought to be beneficial.

Professor Campbell advised that specific personnel need to be allocated to safety issues. He believes this is separate from the quality department and risk management staff. Consequently he has employed a patient safety officer and he rates this initiative very highly.

Professor Campbell said that one of the barriers to promoting a culture of patient safety in the ED is lack of regular feedback for emergency doctors. UMHS has established a feedback mechanism to provide physicians with follow up regarding the outcome of their patient in relation to the care provided.

Interview with Nancy Mamolen, RN, BSN, MSN Nurse Manager Emergency Department

Ms Mamolen believes one of the keys to patient safety is a multidisciplinary approach. Another essential element is supportive leadership. Ms Mamolen cites instances in which physicians have been fired for treating staff poorly as an example of strong leadership. Termination of employment would only occur after coaching and disciplinary action. Ms Mamolen said the medical staff at UMHS is very supportive of nurses.

In her role as nurse manager, Ms Mamolen attends interviews for new doctors and faculty meetings. This is evidence of the multidisciplinary approach at UMHS. In the doctor interviews she is aware her role is advisory, but usually her opinion as to the suitability of an applicant accords with the agreement reached within the group.

Ms Mamolen emphasised the importance of recruitment and retention of staff in the maintenance of a safe working environment for patients. She employs a number of strategies to retain staff. She reports only six per cent of nurses leave UMHS all together, with some of these staff remaining at UMHS in other roles.

Ms Mamolen believes that recruitment of well-experienced staff is essential to ensuring patient safety. All nursing staff employed in the ED has at least two to three years of emergency experience. Graduates are an exception; they work in a supernumerary capacity for six months with clinical support and class time. In return they are asked to give a two-year commitment when they commence the graduate program.

Some of the other patient strategies that the UMHS employ include a Continuous Quality Improvement Committee that targets specific topics, for example, temperature in trauma patients.

Automated nurses' notes have multiple functions including documentation of care provided, a legal record and billing document. Having predetermined order sets promotes standardisation of care. Automated notes can be used

to improve practice as reminders and prompts can be written in as fields that need to be completed. UMHS does not have a completely electronic record as physicians still write on paper notes.

Ms Mamolen believes if you take the blame out of error, people feel supported. Medication error is usually a systems problem or an education issue. Most of the time people are mortified if their actions result in a significant error. Ms Mamolen also believes the majority of time these issues can be resolved through education.

**Maureen Thompson, RN, MSN
Patient Safety Officer
Adjunct Lecturer
School of Nursing
Staff Associate – Medical Centre, UMHS Chief of Clinical
Affairs**

Ms Thompson's main job is focusing on facilitating physician participation in patient safety initiatives. Ms Thompson facilitates the implementation of safety initiatives that require physician input.

Ms Thompson emphasised the importance given at UMHS to patient safety rounds in the improvement of patient safety. Chief of Staff (COS) Skip Campbell, is a participant in patient safety rounds and is seen to value the experience highly as it permits an expeditious solution to many problems arising from the micro level. Familiarisation with departments at the micro level is a benefit of patient safety rounds.

Patient safety rounds are performed away from the clinicians working environment. Ms Thompson believes this allows clinicians to focus on the patient safety round whilst excluding the distractions arising in their work environment.

Ms Thompson conducts 'culture surveys' to gauge each department's progress in developing a culture of safety. The surveys help identify areas where the department is deficient in implementing plans designed to lead to a culture of safety. Survey types used include the Sexton survey, the AHRQ survey and the CGC survey.

The National Quality Forum (NQF) has published the 30 items seen to be the focus of patient safety. When local initiatives are added, the volume of information affecting patient safety is almost overwhelming, but there is significant overlap with features of JCAHO, IHI and NQF prominent.

Ms Thompson recommends approaching prioritisation of patient safety needs by focusing on the issues that are supportable by evidence. She also recommended that mastering the National Quality Forums list of 30 items should be a priority, before moving on to other aspects of safety.

She warned that affecting significant improvement in patient safety is a drawn out process. Success was dependent on fostering a culture of reporting that was being affected at UMHS, despite the intractable minority with an inherent dislike of divulging adverse events.

Key lessons learned

- The effective implementation of new processes of care in the emergency department necessitates proactive change management strategies.
- All staff working in the emergency department has a responsibility to practice and promote patient safety.
- There is a need to develop strategies for disseminating information to large groups.
- Leadership is fundamental in promoting a systems approach to patient safety.
- Retention of staff and senior clinicians is essential to maintain continuity and experience, which facilitate a systems approach to patient safety.
- Patient safety theory should be taught in undergraduate education and orientation in all hospitals.
- Patient safety education should be multidisciplinary to encourage collaboration.
- Patient safety education initiatives should emphasise to healthcare clinicians the importance of their role in the implementation of a patient safety culture.
- Good communication and teamwork is essential to improve patient safety in the emergency department. Team training is one way to facilitate improved communication and teamwork.
- Incident reporting is an important tool for emergency departments to identify causes of adverse events at the local level, providing the basis for developing initiatives that are relevant to the department.
- 'Loop closure' is important. Expressing appreciation to those reporting and providing feedback to reporting staff on outcomes via the nurse manager is vital in fostering a culture of reporting.
- Use rapid cycle feedback to ensure that clinicians do not lose interest arising from a lack of feedback and possible ridicule from reporting incidents.
- Constructive feedback to emergency staff regarding patient management and outcomes can be used to highlight areas of patient safety that may need improvement as well as recognition and reinforcement of safe patient care.
- The promotion of a systems approach to patient safety is important and can be achieved with items in newsletters and articles that are visible within the department.
- Patient safety rounds are an effective tool to promote patient safety and identify patient safety concerns at the frontline.
- Transparency and disclosure are key elements of effective patient safety systems.
- It is important to focus on improving areas of safety that have evidence to support them.
- Emergency medicine needs to establish a list of priorities for patient safety to better focus and utilise limited resources and plan the development of patient safety systems.
- Risk Management encompasses both proactive and reactive elements.
- Whilst studying patient safety systems at the varying institutions it became apparent that there is a large amount of cross over between risk management, quality and patient safety. Differences exist in the motivation to achieve a culture of safety in these disciplines. However, all these disciplines share a common goal of improving patient safety. Boundaries of the responsibilities of these disciplines need to be explored

in relation to patient safety as one method of consolidating and conserving expensive healthcare resources.

Suitability to our practice and the Victorian healthcare system

- It is the responsibility of the leadership group to provide the structure required to promote a culture of safety. For example, reporting systems, feedback, training in communication skills, interdisciplinary patient safety education and support for their implementation are all aspects of healthcare designed to improve patient safety.
- It is essential to empower clinicians by providing them with the infrastructure to promote a culture of patient safety. For example, rapid cycle feedback shows where the reporting of an incident has helped to improve patient safety.
- Review current research and establish areas of priority for improving patient safety in emergency departments. Identify areas that may need further research to develop a comprehensive list of patient safety priorities.
- Explore the use of patient safety rounds as a method of identifying priorities for patient safety initiatives in the emergency department.
- Defining risk management, quality and patient safety and their application in the healthcare environment and uncovering how they overlap would help to delineate priorities for patient safety initiatives and conserve expensive resources.



National Patient Safety Foundation – Conference

Activities undertaken

Plenary session

Leadership in Action – Creating a Remarkable Experience

Ann Rhoades is President of PeopleInk[©], former Executive Vice President of People for Jetblue Airways, and Vice President of the People Department, Southwest Airlines.

Ms Rhoades' presentation was titled 'Creating a CareLeader' culture. She said that high performing organisations are value based. She stated that from day one, leadership should outline the expectations and values of their organisation to new staff. This ensures everyone is working to achieve the same goals.

'Culture is what people do when no one is looking'. The leadership group should define behaviours; it is not about what you say but what you do. If you ask people to be caring you need to exhibit care for your staff.

One way the leadership group at Jetblue create a supportive environment is to have a caring fund where staff deduct \$1 from their pay a week to be drawn upon for staff that may be having a hard time.

Ms Rhoades said that it is very important to have the best people working for you. Hiring is an opportunity to recruit and hire good people. If you hire staff members that share the same values as the organisation they can be expected to exhibit consistent behaviour across the organisation. This can be achieved with behavioural interviewing techniques.

Employees who do not share the organisation's values will have to leave. It is essential to remove disruptive people because they undermine the values of an organisation. Conversely it is essential to keep good workers. In the exit interview find out why they are leaving and do everything you can to keep workers that share the organisations cultural values.

Ms Rhoades believes it is important to involve your employees in recruiting and hiring. This means, for example, the involvement of staff nurses in the hiring of staff nurses. She gave two reasons for this, peers are likely to be better informed of the applicant's background and it shows their input in the selection is valued, whilst assisting to smooth the entry of the new workmate. Additionally, Ms Rhoades states that it is not enough just to hire suitable people. It is important to support staff to find solutions to problems. When people put forward a solution they are happier and the solution is more likely to be successful.

It is important that staff know the business of the company; through explaining the operation of their job and its effect on the business/hospital. Ms Rhoades emphasised the need for immediate feedback where an employee has reported a safety issue, or has been identified as doing something extraordinary. They are immediately acknowledged with a letter of appreciation.

At Jetblue they have a performance management system where front line workers review the chief executive officer (CEO). The CEO visits 25 Jetblue stores per week to discuss concerns of front line staff. It is important not just to walk around, but also to actually stop and listen to what your employees have to say.

Ms Rhoades acknowledges it is not always easy to create a safety culture in all organisations. It is important to do the best you can in your environment.

She believes that empowering people facilitates decision-making and change in the areas where mistakes occur. To be a high performance organisation a systems approach is essential. You need to tell your employees what is expected and have systems in place to create the most rewarding experience possible. Success depends upon the relationships you build with your staff and patients.

Organisations only stay great because management strives, knowing there is always a better model of achieving outcomes.

Disclosure and Apology – Stories from Doctors and Patients

Lucian L. Leape, MD, Adjunct Professor of Health Policy, Harvard School of Public Health, Distinguished Advisor, NPSF
Jo Shapiro, MD Brigham and Women's Hospital.

Jo Shapiro is a surgeon whose patient experienced an adverse event during surgery. The patient consequently sued Dr Shapiro. Dr Shapiro talked about her experience of disclosing an error to a patient. She raised a number of points that show how challenging transparency and disclosure are for medical personnel:

- Physicians are in crisis when an error has occurred; they are not necessarily in a mindset where they can talk to the patient. They need coaching through the disclosure process.
- 'Just culture' has to be in place before true transparency and disclosure is implemented.
- Physicians are not supportive of each other when an error occurs.

Lucian Leape discussed:

- why we give an apology
- why patients have a right to an apology
- what is an apology
- reasons apologies fail
- barriers to transparency
- the power of apology
 - it's the right thing to do ethically
 - it's the right thing to do medically
 - It heals the wound
 - for the patient

- for the caregiver.

Our time, Our watch, Our work; Nurse Leaders in Action

Timothy Porter O'Grady, EdD, APRN, FAAN, Senior Partner, Tim Porter O'Grady Associates, Inc.

Kathleen M. Bartholomew, RN, RC, MN, Clinical Nurse Manager, Orthopaedics, Swedish Medical Center.

Caryl Z Lee, RN, MSN Program Manager, VA National Center for Patient Safety.

Nellie Robinson, RN, MS, Vice President, Patient Service, Children's National Medical Center.

This session provided an opportunity for a leadership dialogue from a variety of perspectives around emerging issues of patient care and safety. The panel of experts conducted a question and answer dialogue with the audience to explore challenging and real time issues related to the future of safe patient care.

Are patients better off today than four years ago?

They are unsure if patients are better off due to the dearth of measures of standard patient safety outcomes. Emerging issues that threaten patient safety are the growing nursing shortage, growing physician shortage in certain specialities and the growing technology burden.

There are a number of initiatives in the patient safety movement that have shown improvement, for example, decreased infection in central line insertion. There is also the growing acceptance of the fact that error is not inevitable and can be reduced with a systems approach to patient safety.

Why can't we just fix it?

Barriers identified which impede the implementation of a true systems approach to patient safety included:

- fragmentation of modern healthcare
- physician driven health system
- differing regulations between States and regulatory bodies
- nurse managers feel a 'pull' between their staff and the executive.

Some methods that may assist a systems approach to patient safety include:

- employing informed and enthusiastic staff
- having the right equipment
- well developed policies and procedures
- effective communication
- competencies defined for staff
- leader to have the support of frontline staff and an understanding of the work involved at the bedside
- teach staff how to communicate in critical environments
- teach nurses how to communicate and confront each other
- utilise HFE at the frontline.

How do we alter our current work practices?

We have to make the healthcare environment a safe one to facilitate reporting.

40 per cent to 60 per cent of the work we do in healthcare is wasted in the form of unnecessary documentation and rework. Nursing time needs to be redirected to be more patient centred.

How do we improve communication between health disciplines?

This can be achieved by developing an interactive curriculum between nursing and medical students. It is important that this is done at the undergraduate level so the different disciplines are aware of issues that may impede a culture of patient safety.

Dr Garber Grant – University of Minnesota runs an interdisciplinary forum for patient safety across the health science faculty. VA NCPS runs a patient safety curriculum for resident teaching only; they plan to extend this to nurses.

Breakfast roundtable

Patient safety research debate

Evidence for Safe Practices: How much and what kind?

Lucian Leape, MD, Adjunct Professor of Health Policy, Harvard School of Public Health, Distinguished Advisor, NPSF

Kaveh G. Shojania, MD, Clinical Scientist, Ottawa Health Research Institute
Jeffrey B. Cooper, PhD (Moderator), Director, Biomedical Engineering Partners Healthcare system, Inc., Associate Professor of Anaesthesia, Harvard Medical School, Board of Governors, NPSF.

Dr Shojania discussed a number of arguments advanced against the need for research and then explained why most of these arguments were unfounded. Some arguments against stringent research into patient safety included:

- the urgency of the need to address patient safety problems is counterproductive to the completion of a randomised-controlled trial
- asking for evidence for a patient safety solution seems unnecessary even obtuse
 - implementing new practices is not simple, it is often very difficult
- patient safety initiatives are not a source of harm
 - this has been found to be untrue, for example, some hospitals have deteriorating outcomes after the implementation of CPOE
 - some patient safety solutions, such as CPOE and BCMA, can complicate simple processes, if they are not well designed
- too costly to evaluate safety interventions
 - CPOE systems cost US\$10–40 million, it is more cost effective to test a system than to introduce an ineffective system.

Professor Leape discussed the need for patient safety research and changes that will make patient safety research robust and useful.

- clinical research needs to be performed at the application level
- research needs to be conducted at the implementation phase

- knowing how much data to collect
 - collect just enough data to know that what is being implemented is safe and useful and then collect enough data to ensure a worthwhile difference is being made
- the biggest mistake made in patient safety is not collecting adequate data to show outcomes
 - better measures are required to assess outcomes
 - there is a need to develop standard patient safety indicators
 - global measures need to be developed.

Breakout session

Designing/Adopting Innovative Solutions

Systems in Health Care: Fundamental Concepts Necessary for Designing and Implementing Innovative Technologies and Solutions

Pascale Carayon, PhD, Centre for Quality and Product Improvement, Department of Industrial and Systems Engineering, University of Wisconsin-Madison.

The definition of human factors according to the International Ergonomics Association (IEA): human factors or ergonomics is the scientific discipline concerned with the understanding of interactions among humans. It encompasses other elements of a system and the profession that applies theory, principles, data and methods in order to optimise human wellbeing and overall system performance.

The IOM report *Crossing the Quality Chasm*, 2001, outlined the different levels of the healthcare system. These are:

- Level D – healthcare environment
- Level C – healthcare organisation
- Level B – micro systems of care
- Level A – patients.

Ms Carayon reported that the 'biggest impact is at the micro level, in the hope that an impact is made at the macro level'. The most intractable problems occur between micro systems, not just between two micro systems but within a multitude of micro systems, often impacting on patients with chronic diseases'.

Human factors drive a review of all elements that make up the model of a work system. These elements include technology and tools, tasks, person, organisation and environment. It is important to design system elements correctly and be aware of how they fit together.

Ms Carayon said that most work evolves, but really should be designed. Human factors theory provides the tools to do this.

Ms Carayon conducted a study looking at intensive care (ICU) nurses and the barriers they encountered during a shift that contributed to an increased workload. An example of a barrier was distractions emanating from family

members. The expectation that families were to be allowed in the ICU at any time is an example of a new policy that was introduced without considering the impact it would have on the working environment. Ms Carayon said it is very important to understand the work environment that is subject to improvement and empower staff to provide a solution applicable to their own environment.

It is very important to be aware that there is a significant difference between the task and how people perceive carrying it out. Ms Carayon conducted a study at one hospital where bar code medication administration (BCMA) was in place. Even though one function of the BCMA was to standardise medication administration, the study showed the existence of 18 different ways of performing medication administration within the BCMA system. It is not possible to get one right sequence adopted; there will always be 'work arounds'. The key is to provide systems that prevent 'work arounds' that could lead to harm. The science of human factors provides the theory to identify 'work arounds' that may cause harm and the solutions to prevent them.

Ms Carayon believes solutions to human factors problems should be everyone's job not just a section dedicated to quality improvement. Employees should always understand human factors in an organisation. However, to avoid bias emanating from hindsight it is important to maintain an independent voice as well.

Ms Carayon discussed the implementation of HFE expertise in the healthcare area. She sees part the role of HFE as anticipating unforeseen negative consequences. One of the challenges to implementing HFE to the healthcare environment includes adapting HFE methods to the reality of healthcare systems.

Ms Carayon quoted Jon Gosbee from the NCPS saying that HFE should be a core competency of anyone with significant involvement in patient safety activities.

Resources

Human factors website: <http://www2.fpm.wisc.edu/seips/>
International Ergonomics Association (IEA) www.iea.cc
Ergonomics in Design – Human Factors Magazine
Human Factors and Patient Safety Handbook, Author - Pascale Carayon.
E-mail: carayon@engr.wisc.edu
Phone: 0011 1 608-265-0503

Breakout session

Partnering with Patients and Families

Disclosing Unexpected Outcomes and Medical Errors

Sandra W. Reifsteck RN, MS, FACMPE
Regional Consultant Institute for Healthcare Communication

The objectives of this session were to:

- understand the rationale for openness
- appreciate others' perception of a situation
- consider steps to take before, during and after an unanticipated outcome
- practice the disclosure skills

Disclosure in the United States is a JCAHO standard: JCAHO standard RI.1.2.2

'The responsible licensed independent practitioner or his or her nominee clearly explains the outcome of any treatment or procedure to the patient and, when appropriate, the family, whenever outcomes differed significantly from the anticipated outcomes'.

According to Ms Reifsteck open disclosure is controversial. She outlined a number of pros and cons for disclosure.

Pros:

- patients and families want and expect it
- fiduciary and ethical responsibility
 - AMA and ACP code of ethics
- required by professional and accrediting bodies mandated in some states in the US
- may reduce costs of claims and suits
- reduces legal risk of 'fraud' complaint for concealment.

Cons:

- makes patients more aware of problems
- could increase the number of claims
- potential impact on our personal/institutional reputations
- causality is hard to establish
- very hard to do emotionally and practically.

When speaking to a family regarding an unanticipated outcome, Ms Reifsteck outlined the following steps:

- anticipate; start with expression of sympathy
- listen to and understand; the patient and family are upset
- empathise and normalise their thoughts and feelings without defensiveness
- apologise
- then offer to explain.

If an investigation concludes medical/system error caused injury, Ms Reifsteck outlined the following steps for disclosure:

- truth, transparency and teamwork
- empathy for the patient/family experience
- apology and accountability to prevent
- management of all aspects
- patient care
- emotional support for all involved
- ongoing communication and help in recovery from injury (for example, medical, practical, financial)

During the process of transparency and disclosure it is important to balance the patient's rights to information with the organisations rights to confidentiality.

Resources

www.sorryworks.net

Institute for Healthcare Communication
New Haven, Connecticut
www.healthcarecomm.org

Breakout session

Leadership and Accountability

From Idea's to Results: The ABC's of Implementing a Patient Safety Program

Cathie Furman is Vice President, Quality and Compliance at the Virginia Mason Medical Centre.

Ms Furman outlined a number of steps in the process of building a patient safety program. This was based on her experience of developing a patient safety program at Virginia Mason Medical Center. The steps are as follows:

- commitment from the board
- build a business case
- develop a strategic plan
 - Virginia Mason used the Toyota Production System which they have modified into the Virginia Mason Production System
- leadership effectiveness
 - trust
 - responsibility and accountability
 - culture of feedback
 - clarity of expectations
 - compact
 - job descriptions
- all staff in the organisation were trained in giving and receiving feedback
- develop a culture of safety
 - Virginia Mason Hospital started their culture change in 2002; they are still not where they would like to be
 - they define culture as 'how things get done round here'
 - barriers to developing a culture of safety in healthcare
 - blame, denial, scapegoats
 - hierarchical structure
 - lack of trust, fear, victimisation
 - frustration and anger
 - helplessness, hopelessness and resignation
 - apathy
 - promote a culture of reporting
 - train and support workforce in their role
 - engage patients and families in safety

- increase interactions with staff around patient safety using safety walk arounds
- increase the amount and quality of feedback to staff
- recognise and reward behaviours and activities that improve patient safety
- recognise and reward reporting of errors and near misses
- use a culture of safety survey to measure your organisation
 - Agency for Healthcare Research and Quality (AHRQ) survey
 - to change culture you need to know what it is
- have a well-defined management method or the process of implementing a patient safety system will be random
 - Virginia Mason Production System Tools
 - 5S - know exactly where your tools are when you need them
 - zero defects is the only acceptable standard
 - 'stopping the line' – all employees are able to inspect, halt and remedy errors at the source
- Some of their successes
 - medication errors have dropped since CPOE
 - zero avoidable codes since introduction of MET
- provide resources
 - appoint a project manager for each initiative
 - create community of knowledge sharing
 - explicit job description and competencies for project managers
- measure your outcomes
- report results
- relentlessly improve processes.

Breakout session

Patient Safety Research

Recovery from Medical Errors: The Critical Care Nursing Safety Net

Jeffrey M. Rothschild, MD, MPH.
 Division of General Medicine
 Brigham and Women's Hospital
 Harvard Medical School

The aim of this research was to study the incidence and types of near miss events that are intercepted by critical care nurses. Additionally, the researchers wanted to study the nurse/physician interaction from the perspective of critical care nurses who have recently protected a patient from a near miss event.

Mr Rothschild reports there is little data on the role of nurses in patient safety. Patient safety is embedded in a nurse's daily activities without realising what errors they prevent.

The study showed that nurses play an important role in the detection and reduction of errors.

Mr Rothschild outlined some of the conditions that reduce error recovery by nurses. These are:

- insufficient staffing
 - reduced nurse-to-patient ratios
- extended work schedules
- reduced educational levels
- taking nurses away from the bedside
 - unintended consequence of a recent CPOE study
- poor collaboration between nurses and physicians
 - hierarchal communication
 - unilateral decision-making.

Mr Rothschild presented some ways to improve error recovery by nurses. These are:

- organisational culture
 - continued vigilance
 - empowerment for nurses to interrupt and correct
 - encourage communication with joint rounds
 - physician attitudes and behaviour
 - rapid response team to empower nurses, allowing them to request medical assistance immediately.

Mr Rothschild proposed some steps for the future to further explore the ability of nurses to detect error. These include:

- learn from nurses who have been successful in recovering errors
 - what are the facilitators to recovering an error
- identify ways to improve nurses ability to detect error
- assess cost benefit of varying nurse patient ratio's
- IT to develop systems that generate early warning signals
 - research into trends that may indicate deterioration in a patient's condition.

Breakout session

Leadership and Accountability

Strategies to address Barriers to building a Safety Culture

Edgar H. Schein
National Patient Safety Foundation
San Francisco

Mr Schein identified three levels of cultural barriers:

- barriers deriving from larger systems
- barriers deriving from occupational sub cultures
- barriers deriving from individual career anchors of members of occupations.

Seven leadership issues in confronting barriers identified were:

- safety must be accepted as part of the business strategy
- some barriers to improving safety are cultural and must be managed
- leaders must set clear targets and make them non-negotiable
- the process of changing culture must involve the population that has to change

- leaders must educate members of subcultures to each others point of view in order to get alignment, for example, nurses and doctors
- leaders must ensure that reward and discipline systems are in line with the behavioural targets
- leaders must lead by example.

Resources

Schein, E. Career anchors, 3rd Ed. Jossey-Bass/Pfeiffer, 2006
 Schein, E. Organisational Culture and Leadership, 3rd Ed, Jossey-Bass, 2004.

Breakout session

Partnering with Patients and Families

Partnering with Patients and Families to improve patient safety

Bev Johnson, President/CEO Institute for Family Centered Care
 Dee Dee Vallier, Family Adviser
 Pat Sodomka, senior Vice President, Medical College of Georgia

The Institute for Family Centred Care believes that patient and family centred care provides a framework and strategies for quality and safety.

Inclusion of patients as partners of healthcare delivery is a JCAHO standard. Safety, therefore, cannot be viewed in isolation; patients and families need to be involved if a systems approach to safety is to be implemented.

The Medical College of Georgia (MCG) involves family members and patients in all planning for the hospital. Patients and family members helped to design the hospital. A family adviser is involved in teaching nurses and doctors at the local university. They are currently in the process of consulting with family and patient advisers to alter the nursing and medical curriculum. This is expected to take about two years.

Key lessons learned

- Empower workers to make their own solutions to problems.
- Establishing a patient safety program requires careful planning and is a time consuming process.
- Ten years on from the IOM report there is increased awareness of the need for a systems approach to patient safety and its importance in establishing a culture of patient safety. However there is still much work to be done before we have standardised patient safety programs across all healthcare institutions.
- Patient safety measures need to be developed and standardised to be able to illustrate how patient safety has improved.
- Leadership that is committed to developing a culture of safety is fundamental to implementing a successful patient safety program.
- A systems approach to patient safety requires the participation of all members of a team from management to staff.

- It is important to have input from patients and families in the development and implementation of a patient safety program to facilitate a comprehensive systems approach.
- HFE is an effective tool to assist in the development of policies and procedures which reduce error and mitigate harm to patients.
- Identifying error and preventing harm to patients have been identified as key roles of the critical care nurse.
- Transparency and disclosure has a number of advantages and disadvantages for both the institution and the patient. The policy for transparency and disclosure needs to be developed so the best outcome is achieved for both the patient and the institution.

Suitability to our practice and the Victorian healthcare system

- Involve frontline clinicians in the development of policies and procedures to improve patient safety.
- Consult with patients and families to involve them in the development of patient safety initiatives and achieve a comprehensive systems approach to patient safety.
- Develop standardised core measures to document improvements in patient safety.
- Research needs to be conducted in emergency to identify areas that impact upon workload and contribute to errors or adverse events. By identifying common causes of error we are better able to design systems that avoid repetition of these same errors.
- HFE principles could be included in medical, nursing and pharmacy curricula as a way of establishing these principles in the everyday development and execution of work practices.
- Application of Crew Resource Management training can be implemented as a tool to improve teamwork and communication.

Improving the Victorian healthcare system

Impact on my work practice

This study tour has increased my understanding of a systems approach to patient safety and highlighted many patient safety initiatives in the United States of America. Some of the lessons learned include an increased understanding of patient safety, HFE principles and their application in the healthcare environment, and barriers and solutions for implementing patient safety initiatives such as the Trauma Reception and Resuscitation Project.

These new understandings can be applied through:

- the software development process of the Trauma Reception and Resuscitation Project
- updating or revision of the project's change management plan
- increased emphasis on patient safety as a core objective of the Trauma Reception and Resuscitation Project.

My commitment to this fellowship, and the plan for dissemination of my findings, will see me act to increase awareness of the key findings of my Victorian Travelling Fellowship and educate those in positions of influence to embrace and implement the key elements of a systems approach to patient safety.

As part of my fellowship I can feedback to ED management and the Bayside Health Executive about my findings with a view to generating increased awareness, understanding and interest in patient safety at an executive level.

This study tour has reinforced the need to educate frontline clinicians about their role in the promotion and development of safe patient care practices.

Ideally hospitals and/or educational institutions should have dedicated staff to educate health professionals in the wide range of ways clinicians can have a direct impact on patient safety within their department. I believe my current role can be seen as a precursor to a specific patient safety role. Therefore I believe I could contribute to such education in the future, through:

- Educating frontline clinicians about the importance of reporting both latent conditions and adverse events.
- Promoting the importance of incident reporting as a method of identifying causes of error, ways to alleviate the impact of the errors and avoid recurrence of these errors in the future.
- Encouraging input of frontline clinicians in the development of policies and procedures to ensure a systems approach to patient safety.
- Participating in initiatives to improve patient safety such as: Crew Resource Management training, patient safety education programs and patient safety rounds.

Impact at an organisational level

This study tour highlighted to me the fundamental need for a leadership group committed to developing a culture of safety before a successful patient safety program can be implemented.

Bayside Health's draft strategic plan 2006-2010 incorporates providing safe and high quality services including:

- continuous improvement and quality
- leadership and governance
- using adverse events to minimise harm and maximise learning
- working in partnership with patients and consumers.

This provides a strong foundation for the development of a plan for a specific program in patient safety with a focus on developing leadership in patient safety and affecting cultural and systems change. Development of a patient safety program requires a top down, bottom up approach with involvement of the already established CREPS (Monash University) and Community Participation Program at Bayside Health.

One of my original objectives of this fellowship was to establish a funding proposal for a patient safety management system and concurrent research program at The Alfred. For this to be a success it would require strong organisational support at an executive, research and consumer/community level.

There are a number of key strategies or initiatives that can be supported or initiated at an executive level as part of a specific patient safety program, these include:

- Enhancing the culture of incident reporting by providing acknowledgement of incident reports to those reporting, and then also giving them timely feedback on the outcome of their reports.
- The use of rapid cycle feedback from local managers to ensure clinicians do not lose interest arising from a lack of feedback and possible ridicule from reporting incidents.
- Evaluate avenues to provide multidisciplinary feedback to emergency department staff regarding patient management and outcomes, to highlight areas of care that may need improvement and recognition and reinforcement of safe patient care.
- Performing patient safety rounds to identify patient safety issues at the micro level, and promote the organisations commitment to the improvement of patient safety.
- Involve frontline staff in the development of policies and procedures to improve patient safety.
- Encourage frontline staff to identify ways to improve patient safety and support them in the implementation of these initiatives.
- Utilise human factors theory in the development of policies and procedures to proactively understand elements of a process within the work environment, which may lead to human error. This will enable the development of more effective strategies to avoid these errors.
- Implementation of an education program for staff that highlights the importance of a systems approach to patient safety through the use of newsletters and articles in publications within the organisation.

- The provision of interdisciplinary training programs about effective communication skills, such as, Crew Resource Management training (this is already in the beginning phase at The Alfred in a number of departments).

Improvement of the Victorian healthcare system (short to medium term)

A variety of initiatives identified during my study tour, which would benefit the Victorian health system as a whole, are:

- Establish clear policies and definitions for patient safety priorities for the Victorian Healthcare system.
- Explore initiatives, such as the Maryland Statewide Emergency Department Patient Safety Collaborative, to assess if a similar program could be developed in Victoria to identify trends and establish best practice in patient safety across Victorian emergency departments.
- Evaluate business models, such as Six Sigma, balanced scorecard and dashboards, to see if they are translatable to the Victorian healthcare system and can be used as a tool to identify and implement patient safety initiatives.
- Identify methods the Department of Human Services can utilise to support, encourage and/or mandate executive leadership in patient safety in Victorian Health services.
- Establish a dedicated body funded and devoted to the advancement of a systems approach to patient safety. This is critical because the skills required to introduce a culture of safety requires expertise, education, motivation and review supported by a department trained in these skills.
- Identify areas of priority to improve patient safety in the emergency department through research into common causes of error and collection of adverse event reports.
- Engage the input of frontline clinicians when developing policies and procedures to identify micro system issues.
- Engage Human Factors Engineers, when implementing new policies and procedures to proactively identify elements of a process that may be prone to human error and assist in the development of processes, which can avoid these errors.
- Enhancing communication and collaboration between disciplines through the development of multidisciplinary patient safety curriculum for healthcare workers.
- The inclusion of patient safety practices and principles as a core part of the undergraduate curriculum for all healthcare workers.

Sharing and promoting the project

An important objective of my travelling fellowship is to raise awareness of the key elements required to develop a patient safety program and the need for a systems approach to patient safety. Prior to my departure I arranged a number of meetings with key department heads at The Alfred to discuss how I would disseminate the findings of my travelling fellowship on my return to Australia.

I plan to provide monthly in-services to staff in the emergency department, to raise awareness of the need for a systems approach to patient safety and outline the role of frontline clinicians in improving patient safety. These in-services will be held every second Wednesday of the month, commencing in August and will continue for the duration of my contract (August 2007) or until additional funding is available.

I have had preliminary discussions with the Co-Director of Neurosciences and Medicine Directorate at The Alfred to discuss the possibility of presenting at the Nursing Audit and Safety Alfred Committee (NASA), which is chaired by the Director of Nursing. The outcome of this discussion is pending.

My current role in the National Trauma Research Institute (NTRI) enables direct contact with research staff working in the emergency and critical care environments. I plan to provide an in-service to staff of the NTRI which will promote the need for a systems approach to patient safety and highlight the need for research in to the causes of error within the emergency department setting. Negotiations for this in-service have tentatively been arranged for September 2006. Additionally, I plan to submit an abstract to the National Trauma Research Institute Symposium to be held on the 5th December, abstracts close on September 30th.

On a national level I plan to disseminate the results of my fellowship through a number of avenues. An abstract submitted for the 4th Australasian Conference on Safety and Quality in Healthcare in Melbourne on the 21 – 23rd August has been accepted for a poster presentation.

Prior to my departure, I spoke to the Executive Officer of the Centre for Research Excellence in Patient Safety (CREPS) and discussed publishing a synopsis of my findings in the quarterly newsletter the Australian Patient Safety Bulletin. The next issue is due in October 2006.

Furthermore, I have submitted an abstract to the Trauma 2006 conference to be held from 28 September – 1st October, on the Gold Coast, Queensland. Notification of the status of my abstract submission is expected in late June.

Finally, my dissemination plan includes submission of articles to the Emergency Nurses Journal and Emergency Medicine Australasia Journal in November 2006 and February 2007 respectively.

Glossary of terms

AHRO SURVEY	Agency for Healthcare Research and Quality Survey
5S	Methodology for organising the manufacturing workplace for cleanliness, safety, ergonomics
ACP	American College of Physicians
AMA	American Medical Association
BCMA	Bar Code Medication Administration
CPOE	Computerised Physician Order Entry
CREPS	Center for Research Excellence and Patient Safety
CRM training	Crew Resource Management training
ED	Emergency Department
FMEA	Failure Modes Effect Analysis
HFE	Human Factors Engineering
HFMEA	Health Failure Mode Effects Analysis
IEA	International Ergonomics Association
IHI	Institute for Healthcare Improvement
IOM	Institute of Medicine
ISMP	Institute for Safe Medication Practices
JCAHO	Joint Commission on Accreditation of Healthcare Organisations
M-CARE	Health Insurance at University of Michigan
MET	Medical Emergency Team
MHCC	Maryland Healthcare Commission
MTT	Medical Team Training
NCPS	National Center for Patient Safety
NOF	National Quality Forum
NTRI	National Trauma Research Institute
PA PSRS	Pennsylvania Patient Safety Reporting System
RCA	Root Cause Analysis
SBAR	Situation Background Analysis/Assessment Review
UMHS	University of Michigan Health Service
VA	Veterans Affairs
VA PSRS	Veterans Affairs Patient Safety Reporting System
WHC	Washington Hospital Center