

# Australian Patient Safety Bulletin

Newsletter of the NHMRC Centre of Research Excellence in Patient Safety

October 2008 Issue 10

## Upcoming seminars

### Transfusion Safety: Tackling the 'Real' Risks

The last three decades have focused on addressing blood safety (safety of the product) with less attention given to the overall transfusion safety (safety of the entire therapy). The result is that while the risk of transfusion-transmitted diseases has declined rapidly, the process of blood transfusion still presents many patient safety concerns which need to be tackled. Overall responsibility for the transfusion process occurs at the hospital level and involves multiple interactions and the potential for error.

This seminar will help you to identify key risk areas in your transfusion process and provide you with ideas to maximise your role in risk reduction initiatives.

#### Who should attend?

This seminar will be of value to health service administrators, those working in government at a policy level and to quality and safety professionals who want to learn more about transfusion risk.

**Venue:** Laby Theatre, David Caro Building

The University of Melbourne, VIC, 3010

**Seminar date:** Wednesday 19th November, 2008

**Seminar time:** 09.30 - 4.00pm.

(Registration opens at 09.00)

**Cost** - \$150 per person (incl. of GST)

Further venue details, accommodation and parking information can be found on our website at:

[www.CREpatientsafety.org.au](http://www.CREpatientsafety.org.au). Phone enquiries to Catherine Pound 03 9903 0891 or Peta McLaughlin 03 9903 0245.

### Using tools to make clinical handover safe:

#### A practical workshop

The Australian Commission on Safety and Quality in Health Care is hosting a one day workshop on clinical handover. This workshop is an opportunity to learn and share information about some of the new tools being developed by clinical handover projects from around Australia. These evidence-based clinical handover solutions are being developed for use across health care settings by teams participating in the National Clinical Handover Initiative.

**Date:** Monday, 24th November 2008

**Time:** 9.30am - 4.00pm (registration from 9.00 am)

**Venue:** Stamford Plaza Adelaide

**Registration fee:** \$210

Telephone enquiries to Sarah White (02) 9263 3591 or email: [sarah.white@safetyandquality.gov.au](mailto:sarah.white@safetyandquality.gov.au)



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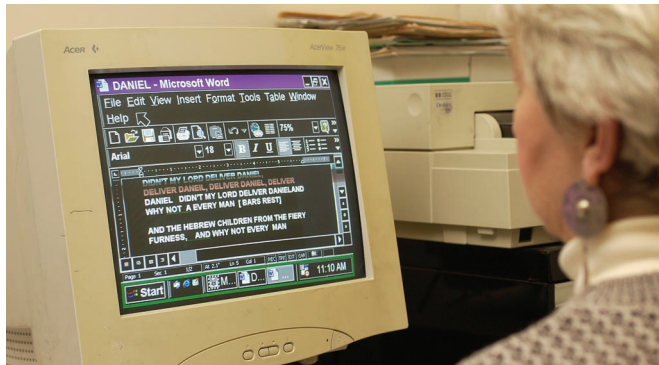
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The CRE in Patient Safety is funded by the Australian Commission on Safety and Quality in Health care and designated as a NHMRC Centre of Research Excellence. The CRE is based in the Department of Epidemiology & Preventive Medicine, Monash University, Alfred Hospital.

Collaborating institutions include: Bayside Health, University of Queensland, Melbourne Health, Southern Health, Wimmera Healthcare Group, ACT Health, ANU Centre for Health Stewardship, Victorian Institute of Forensic Medicine, CSIRO, Medical Defence Association of Victoria, Peninsula Health, Queensland Health, Australian Centre for Health Innovation, South Australian Department of Health, Western Australian Department of Health, Australian Institute for Health and Welfare (AIHW), Commonwealth Department of Health and Ageing, Australian Council for Healthcare Standards (ACHS), Victorian Department of Human Services, Monash University Department of General Practice, Clinical Excellence Commission, Melbourne Pathology, Peter MacCallum Cancer Centre, Princess Alexandra Hospital, Boston University (US), Veterans' Affairs (US), Imperial College School of Medicine.(UK), Bergen University (Norway).

## Educating seniors to be patient safety advocates in primary care



Elder NC, Regan SL, Pallerla H, Levin L, Post DM, Cegala DJ. Educating seniors to be patient safety self-advocates in primary care. *J Patient Saf* 2008; 4(2):106-112

The authors of this article explain that most advice to patients regarding advocating for their own safety is related to their hospital care, but most health care is delivered in the outpatient, primary care setting. They have designed an education intervention to train elderly patients, a group especially at risk of medical errors but often uncomfortable or unable to communicate with their physicians, to be self-advocates for safer care in a primary care setting. The purpose of the study described in the article is to measure the impact of a pilot-test of this intervention in terms of self-reported self-advocacy attitudes and behaviours.

Sixty-one elderly people, recruited from the community, took part in the 2-part educational program that included an interactive group session incorporating discussion of patient experience and training in patient safety practice in primary care, and an individual communication training session. Intervention effectiveness was assessed using a validated 21-question written survey (the Seniors Empowerment and Advocacy in Patient Safety [SEAPS] survey), which participants completed before and after attending the education sessions. Survey scores were compared pre-and post-intervention, for the whole cohort and for demographic subgroups, in terms of total score, and four subscales measuring behaviours, attitudes, self-efficacy (confidence in one's ability to act) and outcome efficacy (belief that actions will be a benefit). Notes of patient comments taken during education sessions were analysed qualitatively to uncover themes relating to patient comfort with self-advocacy training.

**Results:** Comparison of the pre - and post-intervention survey scores for the whole cohort showed that the mean total survey score and the mean total score for each subscale increased significantly after participation in the intervention, with the greatest improvements seen in outcome efficacy and self-efficacy. Analysis of survey scores by demographic characteristics (sex, race, education, frequency of doctors' visits) showed improvement for all groups except for those with more than a high-school education, who had a significantly higher pre-intervention score. Qualitative analysis of participants' comments revealed that all believed they had learned new skills and ideas which would improve their encounters with physicians. A major limitation of this study is that only self-reported data has been collected. The authors suggest that future research is needed in which doctor-patient interactions are analysed to confirm actual changes in patient behaviour and safety outcomes.

**Take home message:** Evaluation of an educational intervention designed to train elderly patients to be self-advocates for safer care in a primary care setting has shown that participants improved their self-advocacy attitudes and self-reported behaviours. However, further research is needed to confirm any actual changes in patient behaviour and improved patient safety associated with this intervention.

## Registries to monitor clinical outcome

Scott IA. Why we need a national registry in interventional cardiology. *MJA* 2008; 189(4):223-7

In an era of technological advances with development of less invasive surgical techniques, the health community needs assurance that such interventions produce outcomes of benefit to all involved – patients, providers and funding agencies. Systematic collection of information about patients undergoing specific procedures enables monitoring and benchmarking of outcomes to enable improvement in the safety and quality of care. This can be achieved through the development of registries which collect and analyse information to objectively inform and facilitate warranted changes in clinical practice.

Recent less invasive techniques to manage coronary artery syndromes include Percutaneous Coronary Intervention (PCI) and Drug Eluting Stents (DES). Although these interventions have been reported to improve patient outcomes in multiple clinical trials, disparities are evident when compared with data in the international registry literature. Such inconsistencies could arise from underlying differences in patient groups, procedures or follow-up time periods being compared.

With the prevalence of coronary heart disease in Australia, the rapid increase in PCI and use of DSE is not surprising. However it is unclear whether this popularity in fact reflects evidence-based medicine, improves population health and delivers a positive return on investment. In terms of determining such efficacy, data from randomised controlled trials constitute the highest level of evidence, and remain the gold standard for comparing treatments. Although comprehensive databases such as registries lack the same degree of scientific rigour, providing the data collection is consistent and methodologically sound, they do represent a more accurate account of everyday clinical care.

Development of a registry has a number of requirements:

- Adequate funding for establishment and ongoing maintenance costs;
- Universal participation by all relevant healthcare providers;
- Agreement on data to be collected, the process of collection and analysis, outcomes and follow-up to be measured;
- Management with independent analysis and auditing by a research institution; and
- Appropriate governance and respect for patient privacy.

Evaluation and monitoring of safety and long term efficacy of new techniques and technology such as PCI and DSE would be possible with the initial use of clinical trial outcomes in conjunction with information gleaned from a national clinical registry.

**Take home message:** National registries have the capacity to monitor and assess outcomes of novel techniques and therapeutic agents. Information gleaned from such databases is vital to quality improvement programs to assess the safety of new drugs and procedures. This facilitates the identification of best clinical practice and maximisation of population health in a cost effective way.

## Public perceptions of Australia's doctors, hospitals and health care systems

Hardie EA, Critchley CR. *Public perceptions of Australia's doctors, hospitals and health care systems. MJA 2008; 189(4): 210-14.*

To obtain a detailed picture of public opinion on health care providers and the health care system, the researchers conducted a national survey in 2007. They assessed the public's trust in family doctors, specialists, alternative practitioners, public and private hospitals, private health insurers and Medicare. The researchers also measured public attitudes towards the current Australian health system and alternatives of a wider-reaching taxpayer funded public system versus a user-pays system, similar to that currently favoured in the US.

**Method:** Participants were English-speaking residents over 18 years of age, randomly selected from the electronic White Pages across all states and territories. Of 7,409 phone calls, 800 interviews were completed. The researchers used a survey as a data collection tool, which included questions about the respondents' level of private health cover, frequency of visits to health care practitioners, health care industry experience, demographic information and trust and attitude rating sets.

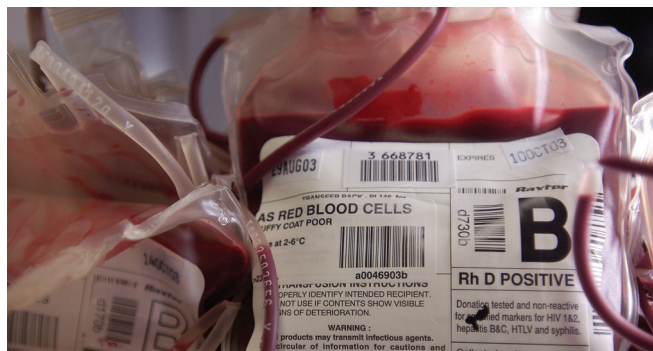
**Results:** The study found 'fairly high' levels of confidence in the Australian health care system, with GPs regarded as more trustworthy than specialists or hospitals, and all medical practitioners and hospitals trusted more than alternative non-traditional practitioners. Women favoured alternative practitioners slightly more than men. Paradoxically, the sample had higher trust in private compared with public hospitals but greater trust in public than private health insurance systems. Respondents with private health cover had a slightly greater trust in the private system and held stronger pro-private attitudes. In summary, the results appear to endorse the current health system, overall signalling weak pro-private attitudes and very strong pro-public attitudes. Although the respondents endorsed the current mix of private and public options, an improved public health system, supported by taxes, was favoured over a US-style user-pays system.

Few studies have assessed public trust in health care providers and systems. This study mirrors findings from previous European studies and a 2007 Australian survey.<sup>1</sup> However, the study has some weaknesses. The reliability and validity of the single-items rating methodology employed by this and previous studies has not been evaluated. Furthermore, in this study the demographic data was representative only in terms of education and health cover. The sample did not match population distribution of age, sex or state/territory. Younger adults (18-37 year age group) were under-represented, and women made up 64% of the sample. In terms of states and territories, New South Wales, Victoria and Queensland were underrepresented.

**Take home message:** Australians prefer a publicly funded health system over a US-style user-pays method but would like to see improvements to the current system to provide quality care for all. These findings support a mandate for a more socially equitable health care system in Australia.

1 Australian Centre for Emerging Technologies and Society. Swinburne National Technology and Science Monitor. <http://www.swinburne.edu.au/lss/acets.monitor.html>

## Changes in practice and organisation surrounding blood transfusion



Taylor CJC, Murphy MF, Lowe D, Pearson M. *Changes in practice and organisation surrounding blood transfusion in NHS trusts in England 1995-2005. Qual Saf Health Care 2008; 17:239-243.*

It is a commonly held public perception that transmission of disease is the most serious risk involved in blood transfusion. However, the greatest risk to patients of mortality and morbidity following a blood transfusion is through human error.<sup>1</sup>

Transfusion of an incompatible unit of red cells is a potentially fatal event and may also cause significant morbidity. Reporting of transfusion mishaps (haemovigilance) is undertaken in many countries but is likely to underestimate the real extent of the problem with "near-misses" and transfusion errors not involving incompatible blood types less likely to be reported.

Attention to detail, adherence to protocols, accurate patient identification and monitoring of patients during transfusion are all essential in ensuring patient safety. This article reports on the results of a series of audits of transfusion practice in the UK between 1995 and 2005.

**Results:** The audits assessed adherence to recommended procedures surrounding blood transfusion such as steps taken to adequately identify patients and monitoring during transfusion. Despite a slightly different, although overlapping, set of hospitals at each of the audits, it was possible to infer that attention to and awareness of transfusion safety had increased over the years. For example, the percentage of patients wearing identification wristbands increased from 72% to 94% from 1998 to 2005. However the percentage of patients reported as not having any observations taken during the transfusion remained static at around 13-14% between 1995 and 2005. Unfortunately the study does not correlate adverse transfusion events in these hospitals over the time, so it is not possible to assess whether any real improvements in transfusion safety have been made. The authors conclude that measurable progress had been made in transfusion infrastructure and bedside transfusion practice.

**Take home message:** The greatest risk to patients from blood transfusions is related to human error rather than transmission of disease. Patient safety issues in blood transfusion are manifold, complex and difficult to address. Attention to detail, adherence to protocols, accurate patient identification and monitoring of patients during transfusion are all essential in ensuring patient safety.

1 NB Patient safety and blood transfusion is the subject for the forthcoming CRE-PS Seminar in November

## The Team Climate Inventory: Application in hospital teams

Ouwens M, Hulscher M, Akkermans R, Hermens R, Grol R, Wollersheim H. *The Team Climate Inventory: application in hospital teams and methodological considerations. Qual Saf Health Care* 2008; 17: 275-280.

The way that teams function is an increasingly important focus for patient safety. There is mounting evidence that it is team work (e.g. non-technical skills) rather than task work (e.g. clinical competencies) skills that are often critical in determining overall effective or ineffective performance in health care. This study, conducted by a team of Dutch researchers which included Richard Grol, focuses on attempting to validate the Team Climate Inventory (TCI). Thus, this paper helps to highlight the importance, not only of structural aspects of teams (e.g. composition, size and workload) but processes (e.g. communication, coordination), which have been shown to be influenced by the underlying climate of teams across a number of different domains, including healthcare.

The TCI is a 44-item questionnaire, based on theoretical models of team climate and innovation by Anderson and West.<sup>1</sup> It has been tested in many different contexts (such as management, social services, and oil companies) but never before with hospital teams. Two types of hospital teams participated in this study: (1) mono-disciplinary teams of nurses (n = 355 nurses); and, (2) multi-disciplinary quality-improvement teams (n = 69 nurses and doctors). Exploratory and confirmatory factor analyses revealed the TCI's five-factor structure and moderate data fit, similar to results in other non-health settings. The TCI also discriminated between nursing and quality improvement teams (with mean scores significantly higher, i.e. more positive, for quality improvement teams), but the researchers in this study are careful to remind us that these teams differed greatly in structure and that this is more likely to have contributed to any differences.

**Take home message:** Studies around team performance of mono- and multi-disciplinary teams in healthcare are proliferating. Work such as this, which highlights ways to measure the impact of climate on overall team functioning, is important. This study shows that the TCI is a valid, reliable and discriminating self-report measure of team climate in hospital teams. Further research in health settings is needed in order to estimate its usefulness as a quality-improvement tool or as a predictor of quality-improvement outcomes.

1 Anderson NR, West MA. Measuring climate for work group innovation: development and validation of the team climate inventory. *J Organ Behav* 1998;19:235-58.

## Guideline implementation in allied health professions

Hakkennes S, Dodd K. *Guideline implementation in allied health professions: a systematic review of the literature. Qual Saf Health Care* 2008; 17:296-300.

The objectives of this review were to identify studies that evaluate the effects of the introduction of clinical guidelines for allied health professionals and to estimate the effectiveness of strategies used to implement and disseminate guidelines. Studies were only included if change in the allied health practitioners' behaviour or patient outcomes were included. After review 14 studies

(27 papers) were included and eight of these focused on pharmacists. Methodological quality of the studies varied widely. In most studies the effects reported for patient and process outcomes were small and in favour of the intervention group with the results varying widely both within and between interventions. All but four of the studies focused on educational interventions, thereby neglecting other identified barriers to change. Multi-faceted interventions were no more effective than single intervention strategies and effects of the same strategy varied across trials.

The reviewers conclude there is no evidence supporting a set guideline implementation strategy for allied health professionals. They note the importance of first identifying specific barriers to change and developing strategies to deal with these barriers where allied health professionals aim to improve the quality and safety of healthcare through clinical guideline implementation. When measuring effectiveness of implementation strategies, professions should consider the use of both patient and process outcomes and choose outcomes that reflect their aims.

**Take home message:** When considering implementing clinical guidelines, allied health professionals need to identify specific barriers to change in their target group and develop a strategy that aims to address these barriers and is suitable for the particular organisational context.

## Maximising patient safety improvements - an approach to setting priorities and anticipating system effects

Sine DM, Northcutt N. *Interactive qualitative assessment of patient safety culture survey scores. J Patient Saf* 2008; 4(2): 78-83.

Safety culture metrics and their value in informing patient safety interventions remain controversial in the healthcare arena. Sine and Northcutt's study aimed to better identify opportunities to improve patient safety through comparing scores from a validated healthcare safety culture survey with a 'map' of safety culture developed using Interactive Qualitative Analysis (IQA) techniques. Safety culture surveys typically provide percentage positive scores which can then be ranked in order of importance between discrete elements of safety culture (for example teamwork across units, communication, response to error). In contrast, IQA techniques are based on the assumption that changing one or more elements within a system will have a positive or negative cascade effect on other system elements.

Phase one of the study administered the Agency for Healthcare Research and Quality (AHRQ) Hospital Survey on Patient Safety Culture to 2 medical units in a medium sized urban hospital setting. The number of respondents to this survey was not reported. The survey assessed employee attitudes to 12 pre-identified elements of safety on a Likert-type scale. The findings were rank ordered on percentage positive scores. Phase 2 of the study used a 12 person focus group of 'occupationally representative' employees from the same two medical units. Whilst nurses, nursing assistants and a unit secretary were included in this group, there were no doctors, allied health clinicians, administrators or technical / support staff involved. The group process involved brainstorming and discussion to clarify and achieve consensus on the meaning of the 12 pre-determined safety culture elements. Group members then identified the relationships between elements of safety culture according to whether they influenced (given a nominal value of positive 1) or were influenced by (given a nominal value of negative 1)

each of the other elements. The sum of these nominal values resulted in an overall ( $\Delta$ ) value. Positive  $\Delta$ s were considered drivers of safety culture because they were influenced by more elements than influenced them. Negative  $\Delta$ s were considered to be outcomes elements of safety culture because they were influenced by more elements of safety culture than they influence each of the other elements.

**Results:** In phase 1 of the study, the three top ranked elements identified were 'teamwork within units', 'management support for patient safety' and 'organizational learning'. In phase 2 of the study, 'management support of patient safety', 'supervisor expectations and actions' and 'communication openness' were found to be the main driving elements of safety culture. 'Hospital handoffs (handovers) and transitions', 'organizational learning' and 'response to error' were the three main outcome elements of patient safety culture. On this basis, Sine and Northcutt developed a graphic representation of influences between elements of safety culture and their ranked order of importance.

In their comparison / analysis of these two approaches, they argue that a plan for improving patient safety should be maximised if resources are directed towards low-ranked patient safety culture elements that are also drivers. According to this IQA, 'Feedback and communication about errors' was the third lowest ranked element of patient safety culture, the fourth strongest driver and therefore represents a priority in improving patient safety culture that is most likely to succeed.

**Take home message:** When allocating resources to improve patient safety, it is important to appreciate which patient safety culture elements are drivers and which are outcomes. Additionally, there is value in understanding how safety culture elements influence each other, including those that operate in a potentially recursive manner.

## Effect of dissemination of evidence in reducing injuries from falls



*Tinetti ME, Baker DI, King M, Gottschalk M, Murphy TE, Acampora D, Carlin BP, Leo-Summers L, Allore HG. Effect of dissemination of evidence in reducing injuries from falls. N Engl J Med 2008; 359:252-61.*

Independence plays a vital role in the ability of older adults to participate meaningfully in society. Fall-related injuries can lead to a downward slide that can result in a loss of independence. Fall prevention efforts offer one approach to reducing health disparities among older adults.

There have been several trials of fall prevention strategies; however despite this evidence few efforts have been made to evaluate translation of this research into clinical practice. Additionally, there is a need to show that fall prevention strategies are effective in real settings, outside of the controlled environment of clinical trials. Tinetti et al. have thus compared the rates of serious fall-related injuries and the fall-related use of medical

services among persons who were 70 years of age or older in a region of Connecticut where clinicians had been exposed to interventions to change clinical practice (intervention region) and in a region where clinicians had not been exposed to such interventions (usual-care region).

**Results:** During the evaluation period, the adjusted rates of serious fall-related injuries and fall-related use of medical services were 9% and 11% lower, respectively, in the intervention region than in the usual-care region. The rate of fall-related use of medical services rose in both regions, although the rate of injuries declined. The authors recommend that their findings be replicated in other studies. Nevertheless, they suggest that the dissemination of evidence to clinicians about fall prevention, when coupled with practice-change interventions, results in the adoption of effective strategies to prevent falls and may reduce the number of falls and injuries.

**Take home message:** The findings of this study show that there is a strong need to emphasise fall prevention strategies to clinicians. This must be coupled with the implementation of specific changes and adoption of strategies that can prevent falls-related injuries from occurring. There is a need to improve the transfer of evidence from randomized, controlled trials into practice, and to evaluate the effectiveness of interventions in real-world settings.

## Quality of dying in New Zealand hospitals

*Glasgow JL, McLennan SR, High KJ, Celi LAG. Quality of dying in a New Zealand hospital. Qual Saf Health Care 2008; 17: 244-248.*

The need for quality care of dying patients and their families is well documented. However, development of metrics to measure the quality of this care has lagged behind other aspects of hospital care.

The aim of this study was to examine aspects of end-of-life care and identify deficiencies in quality of care. Retrospective chart review of 200 consecutive patient deaths (excluding neonatal deaths) in 2003 was undertaken to evaluate communication, avoidance of unnecessary interventions and symptom control, some of the identified dimensions of a "good death". The researchers could not devise metrics to evaluate the dimensions of strengthening relationships with family and friends, achieving a sense of control, and relieving burden on others.

**Results:** Mean duration of the terminal hospitalisation was 7.64 days (range 1-69 days). Surgical procedures were performed on 20% of patients during their terminal admission, and other invasive procedures on 21.5%. Nineteen per cent of patients were admitted to ICU during this hospitalisation. No attempt was made to evaluate the appropriateness of these procedures. Communication with families regarding the patient's terminal status and discussion regarding end-of-life options were documented in 81% and 82% of medical records respectively; 74% of patients had a Do Not Resuscitate (DNR) order in place when they died. No information was provided on timing of communication/discussions or establishment of DNR order. Families of 60.5% of patients were present at the time of death. Pain status was documented in 70% of patients' notes, with 96% of those in whom pain was documented described as pain free. Other symptoms were not well documented. The researchers did not mention whether assessment tools were routinely used in the hospital to evaluate pain and/or other symptoms.

At least superficially, the results suggest a higher quality of end-of-life care than indicated in several previous studies, almost

all conducted in the USA: fewer patients were admitted to ICU, communication with families was widely documented as having taken place, and pain appeared to be well managed in the majority of patients. Management of other symptoms was highlighted as an area where quality could be improved. There are several limitations in using hospital records in this way, however. Most notably, the quality of communication cannot be evaluated, and families' perceptions may be at odds with those of clinicians. The metrics used in this study require validation, and consideration needs to be given to developing and implementing indicators that reliably measure other aspects of care in this area.

**Take home message:** How patients die in the hospital is as important as more traditional indicators used to measure the quality of hospital care delivery. The findings of this study suggest that some aspects of end-of-life care at the study hospital were managed adequately, but little is known of other aspects; these latter are difficult to measure using information from the patient chart. Other metrics are required to assess these other aspects of care.

## Public reporting of antibiotic timing: Lessons from a flawed performance measure



Wachter, RM, Flanders SA, Fee C, Pronovost PJ. Public reporting of antibiotic timing in patients with pneumonia: lessons from a flawed performance measure. *Ann Int Med* 2008; 149:29-32

In many areas of medical care, such as stroke, trauma or myocardial infarction, time-based quality measures have continued to gain appeal. As such, the quality of care for common Emergency Department presentations, such as community acquired pneumonia (CAP) is increasingly being assessed with time-based measures. Time to first antibiotic dose (TFAD) for patients with CAP has become a widely used performance measure, largely due to reports of rapid antibiotic administration improving CAP outcomes.

Based on several retrospective studies, the Medicare National Pneumonia Project and the Infectious Disease Society of America (IDSA) supported administration of the first antibiotic dose within 4 hours. The Joint Commission and the Centres for Medicare and Medicaid Services (CMS) selected this measure as part of a suite of performance measures and have publicly reported hospital performance on this indicator since 2002. In 2006, TFAD became the subject of a number of pilot pay-for-performance programs.

Following implementation of this measure, a number of studies were published primarily from Emergency Medicine that suggested potential problems with the TFAD measure. Uncertain patient presentations and inconclusive chest radiographs led to appropriate delays in TFAD (which were classified as "poor quality care"), while others reported the measure resulted in antibiotic administration to patients without a final diagnosis of CAP. From these studies,

diagnosis while the American Thoracic Society and the IDSA released guidelines that removed time specific TFAD measures. In response, the Joint Commission extended the 4 hour antibiotic administration requirement to 6 hours, which has been the publicly reported measure of CAP antibiotic performance since April 2008.

From the TFAD measurement experience, the authors suggest five key lessons that may inform future use and reporting of performance measures:

1. Retrospective studies of process-outcome links are important but need to be complemented (where possible) with prospective trials that assist in assessing the "benefits, harms and costs of implementation".
2. Bands of performance measures should be considered that remove some of the pressures of an "all-or-none" approach, which may result in inappropriate treatment of non-indicated patients.
3. Development of quality measures needs to include those who ultimately will be assessed by the measure.
4. Quality measures such as TFAD need to be revisited, possibly at 1 to 2 years following implementation, to assess their validity, reliability, cost effectiveness and impact on quality of care.
5. It is important that the processes and personnel involved in developing quality metrics and in policy development are clearly visible to all stakeholders.

**Take home message:** Unintended consequences of performance measures can and do happen, despite the best intentions of those developing and using such tools. In an era where pay-for-performance schemes are becoming increasingly popular it is essential that deficiencies in the measurements themselves are identified and addressed quickly and sensibly. Future efforts at developing quality metrics may benefit from reviewing the pitfalls of previously implemented performance measures.

## Integrating palliative and critical care: Evaluation of a quality improvement intervention

Curtis JR, Treece PD, Neilsen EL, Downey L, Shannon SE, Braungardt T, Owens D, Steinberg KP, Engleberg RA. Integrating palliative and critical care: Evaluation of a quality improvement intervention. *Am J Respir Crit Care Med* 2008; 178: 269-275.

In the United States, the majority of in-hospital deaths take place in the Intensive Care Unit (ICU). The need to improve the quality of care for such patients is well documented. A number of studies have suggested that interventions to improve communication with families in the ICU can improve end-of-life care. However a limitation of these past studies was that the only outcome assessed was the patient's length of stay in the ICU before death. No studies have assessed the effect on patient-centred or family-centred outcomes. The main objective of this study was to evaluate the effectiveness of a multifaceted quality improvement intervention to improve end-of-life care in the ICU.

The authors performed a single hospital, pre-post evaluation of an interdisciplinary, multifaceted intervention designed to improve ICU clinicians' ability to provide palliative and

end-of-life care to critically ill patients and their family members. The intervention targeted the clinicians and the hospital, not patients or family members. The quality improvement intervention was based on self efficacy theory in which the researchers anticipated that changes in knowledge, attitude and behaviours would result in improvements in palliative and end-of-life care in the ICU. The interventions were clinician education, local champions, academic detailing, feedback to clinicians and system support. Families' views were sought through completion of The Quality of Dying and Death (QODD) questionnaire, a validated tool for evaluating patients' experiences at the end of life, and a Family Satisfaction in the Intensive Care Survey (FS-ICU), both mailed to families 4 to 6 weeks after the patient's death. The QODD was also completed by the nurse caring for the patient at the time of death. The response rate for family members was 55% (275/496). The nurses' response rate was 89% (523/590).

**Results:** The primary outcome (family QODD) showed a trend toward improvement (pre 62.3; post 67.1 out of a possible 100) but the finding was not statistically significant ( $p=0.09$ ). Family satisfaction increased but not significantly. The nurse outcome measure (QODD) showed a significant improvement (pre 63.1; post 67.1;  $p < 0.01$ ), possibly related to sample size. It is unclear whether these changes represent a clinically significant difference. Median length of ICU stay was lower in the post-intervention group. The study did not determine whether clinicians' behaviour did actually change as a result of the intervention.

**Take home message** The intervention utilised in this study resulted in only a small improvement in quality of end-of-life care, as assessed by nurses and families. Testing of the intervention in other settings is warranted, but should include assessment of actual behavioural changes. Far more work is required in this area. Improving family perceptions and satisfaction may require interventions that have more direct contact with family members.

## Improving handover in clinical care



Berkenstadt H, Haviv Y, Tuval A, Shemesh Y, Megrill A, Perry A, Rubin O, Ziv A. Improving handoff communications in critical care: utilizing simulation-based training toward process improvement in managing patient risk. *Chest* 2008; 134: 158-162.

Clinical handover is well documented as a point at which patient safety can potentially be jeopardised, and this issue is currently receiving much attention, both in Australia and overseas. The study described in this paper was inspired by a medication administration error that was at least partly attributable to deficiencies in the nursing handoff (handover) process.

The study, conducted in a 5-bed medical step-down unit treating both ventilated and non-ventilated patients, involved the development and evaluation of a 2 part intervention for handoff improvement. The intervention consisted of implementation of a written checklist/protocol for the handoff, and simulation-based handoff training (which included the opportunity to practice the proper use of the handoff protocol in simulation, and identification and prevention of clinical errors) in a full-day teamwork and communication workshop. Nursing shift handoffs were observed before and 6-8 weeks following implementation of the intervention, and data from the two periods compared.

The use of simulation-based medical education (SBME) is a method which has been used extensively over the past decade in healthcare as well as in team crisis resource management training and has benefits in offering a reproducible, standardised, objective setting for formative (debriefing) and summative (testing) assessment of participants without causing direct physical or psychological harm to patients in the process.

**Results:** Although some improvements were noted following the simulation based education, this was not shown across all parameters. There was an increased incidence of communication behaviours such as the communication of patient physiological parameters (heart rate, blood pressure, oxygen saturation, fluid balance, laboratory results), patient medical orders (mechanical ventilation orders, sedation orders, continuous medication infusion orders, feeding orders) and treatment goals for the next shift. However, there were no significant differences in the incidence of physical handover behaviours such as checking of equipment (eg mechanical ventilators, syringe pumps, monitoring system alarms).

There are a number of limitations to the study. Interpersonal problems of the nursing staff in the department were identified as a potential contributing factor in the adverse event that prompted the study; however neither this nor any other aspects of workplace culture were investigated. The impact of culture may be one of the reasons for the lack of change in physical behaviours following the intervention. Similarly, other environmental factors (eg staff mix, workload, interruptions) were not studied, and thus important data may have been excluded.

**Take home message:** Handover is a complex process and deficiencies are likely to be multifactorial. In this study, some improvements were noted following simulation-based education and the implementation of a checklist, but some problems persisted. More work is required to develop sustainable, reproducible methods of ongoing monitoring of the process.

## Exclusion of patients from pay-for-performance targets by English physicians

Doran T, Fullwood C, Reeves D, Gravelle H, Roland M. Exclusion of patients from pay-for-performance targets by English physicians. *N Engl J Med* 2008; 359: 274-284

Pay-for-performance programs – whereby physician reimbursement or health facility funding is dependent on performance measures – have been introduced in several countries. In one such program in the United Kingdom (UK), 25% of the income of primary care practitioners is tied to the quality of care. Several potential unintended and undesirable consequences of pay-for-performance programs have been identified, including provision of unnecessary or inappropriate treatment to maximise income, and refusal of

care to “difficult” patients. One approach to preventing these consequences is exclusion of inappropriate patients from calculations of quality indicators, termed exception reporting. However this approach is controversial, as it enables the possibility of “gaming” – excluding patients because the targets were not achieved, rather than for an acceptable clinical reason.

This paper describes the analysis of data on all 65 clinical indicators (relating to 10 diseases) used in the second year of this program, extracted from the electronic records of 8105 family practices. Rates of exception reporting and associations with characteristics of patients and medical practices were determined.

**Results:** Rates of exception reporting were low overall (median 5.3%), although there were wide variations between practices (0-28.3%). Exception rates were higher for indicators relating to treatment provision and achievement of target levels of intermediate outcomes than to those relating to routine monitoring or offering treatment. Patient and practice charact -

-eristics had only a modest influence on exception rates. There was no correlation between rates of exception reporting and available financial rewards for individual indicators.

The results were encouraging, showing little evidence of widespread gaming. Within the UK, a monitoring system is in place to conduct annual inspections of all trusts, although detailed investigations are carried out only on statistical outliers. While gaming by individual practices cannot be ruled out, it appears unlikely that it would have escaped detection. The study was limited by the lack of data on the reasons for exclusions, and on patterns of exclusion by physicians, nurses and practice managers.

**Take home message** The overseas experience of pay-for-performance programs can provide important lessons for the Australian healthcare system. The model described in this study appears to be a feasible system, safe-guarding against inappropriate treatment while not leading to increased costs or abuse of the program.

## Clinical registries and quality measurement

Dr Sue Evans (Centre of Research Excellence in Patient Safety)

There is considerable interest at present in monitoring the quality of the Australian health system. Clinical registries provide one means of doing this. Clinical registries are databases that systematically collect health-related information on individuals who are:

1. treated with a particular surgical procedure, device or drug (e.g. joint replacement);
2. diagnosed with a particular illness (e.g. stroke); or
3. managed via a specific healthcare resource (e.g. treated in an intensive care unit).

Many of the major clinical registries established in Australia were developed initially as research resources, and have relied on the leadership of small groups of innovative clinicians and their special societies. This process has led to Australia having some world leading registries, albeit mostly with limited funding and fragile governance processes. However, with registries increasingly seen as a fundamental driver of quality improvement, it is necessary to consider new approaches to the funding, organization information and technical aspects of these resources. Recognising the important role that registries play in monitoring care, the Australian Commission for Quality and Safety in Health Care commissioned (1) the NHMRC Centre of Research Excellence in Patient Safety to write Guidelines for the establishment and management of clinical registries and (2) the National e-Health Transition Authority (NeHTA) to outline the IT infrastructure which should be in place to support registries. This article provides some information from the Guidelines<sup>1</sup> and focuses on the role that registries play in monitoring and improving quality of care.

Clinical registries identify and investigate variation in processes and clinical outcomes. Factors leading to such variability can then be investigated further, often with targeted studies, with the ultimate aim of improving patient care. They can drive quality improvement in many ways: indirectly through the fostering of competition, or more directly through evaluating compliance with best practice guidelines and through informing policy areas such as regulation and pricing policy. Where data are collected on devices, registries also have a role to play in post market surveillance and notification. Where they have been introduced at a state or national level, registries have become one of the most clinically valued tools for quality improvement.<sup>2</sup>

Registries improve care, in part by arming clinicians with information about how their outcomes benchmark with others, both locally and (sometimes) overseas. As long term data repositories, registries have the ability to capture data on conditions or events which occur sporadically or rarely among populations. Longitudinal data also provide an ability to act as an early warning system if quality deteriorates.

The high quality of the data provides credible information which engages the common desire of clinical teams to be the best. They also provide the potential for units to learn from those with the best results.

Data must be regarded as credible by clinicians if they are to drive change in practice. Data used to monitor the quality of care must be capable of taking into account the basic requirements of accuracy and reproducibility that underpin reliable clinical data. Having good quality data is not, in itself, sufficient to improve quality of care. Systems must be in place to ensure that data are analysed in a timely manner with clinical interpretation on findings, and then fed back to appropriate personnel/bodies to ensure that appropriate action occurs.

Registry data should inform clinical practice, policy development and resource allocation. Because clinical registries improve care, the ultimate beneficiaries are the patients.

1 McNeil JJ, Evans S, Crammond B, Cameron P. Guidelines for the establishment and management of clinical registries. Draft version 2.2008. Available at: <http://www.crepatientsafety.org.au/registries/guidelinesmay08.pdf>.

2 Eynet Sweden. Handbook for Establishing Quality Registries. Sweden: Eynet Sweden, 2005.