

# Australian Patient Safety Bulletin

Newsletter of the NHMRC Centre for Research Excellence in Patient Safety

February 2006 Issue 2

In this, the second issue of the Australian Patient Safety Bulletin, a number of articles have been included which relate to how quality of care is measured. Measuring quality is proposed as a key action area for the newly established Australian Commission on Safety and Quality in Health Care (the Commission).<sup>1</sup>

The agreement to establish the Commission reflects the importance that all Health Ministers place on continuing to improve the safety and quality of health care in Australia. Professor Diana Horvath has been appointed as its Chief Executive and has begun working in this new role, and it is expected that the membership of the Commission itself will be announced shortly. The CRE will be seeking to align its research priorities with the Commission's strategic objectives.

## April Seminar

The important and emerging field of research focusing on monitoring quality of care in hospitals is the focus of our next seminar, to be held on the 10th April 2006. Speakers at this seminar will include Professor Diana Horvath and Professor Stephen Duckett. Details of the seminar can be found on our website at [www.CREPatientSafety.org.au](http://www.CREPatientSafety.org.au).

The NHMRC Centre for Research Excellence in Patient Safety ran its first seminar in December 2005. The one day seminar was attended by 120 delegates from around Australia. Speakers included Professor Bruce Barraclough (Australian Council for Safety and Quality in Health Care), Professor Richard Smallwood (University of Melbourne), Professor Michael Ward (The University of Queensland), Associate Professor Steve Bolsin (Barwon Health), Associate Professor Chris Reid (Monash University), Mr Gil Shardey (Monash Medical Centre), Ms Alison McMillan (Department of Human Services), Professor Ken Hillman (Simpson Centre for Health Services Research, University of NSW), and Professor Penny Sanderson (The University of Queensland). Presentations for each speaker can be accessed via our website.

The intention of both the seminar series and these newsletters is to raise awareness, provoke debate, and disseminate important and evidence-based research findings in the field of safety and quality.

Comments are welcome and can be made to [CREinPatientSafety@med.monash.edu.au](mailto:CREinPatientSafety@med.monash.edu.au).

<http://www.CREpatientsafety.org.au>



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The CRE in Patient Safety is funded by the Australian Council for 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 are Bayside Health, University of Queensland, La Trobe University, Melbourne Health, Austin Health, Southern Health, Wimmera Health Care Group, ACT Health, ANU Centre for Health Stewardship, Victorian Institute of Forensic Medicine, CSIRO, Medical Defence Association of Victoria and Peninsula Health.



## Using unplanned admission to an ICU as a measure of patient safety

Haller G, Myles P, Wolfe R, Weeks AM, Stoelwinder J, McNeil J. *Validity of unplanned admission to an Intensive Care Unit as a measure of patient safety in surgical patients. Anesthesiology 2005; 103: 1121-9.*

Clinical indicators, sometimes referred to as quality indicators, are often used as screening tools in hospitals to detect quality and safety issues. This is usually done by peer reviewing medical records flagged by indicators. The clinical indicator "Unplanned admission to an intensive care unit (ICU) within 24 hours of procedure with an anaesthetist in attendance" is an example of one these clinical indicators.<sup>2</sup>

The aim of this study was to demonstrate whether or not the clinical indicator, "Unplanned admission to an Intensive Care Unit (ICU) within 24 hours of procedure with an anaesthetist in attendance" is a highly specific measure of undesirable adverse events and as a consequence, a measure of patient safety. The hypothesis was that if this was determined to be a valid measure, the need for medical record review could be avoided.

The Victorian study was undertaken at a major tertiary hospital between October 1995 and December 2000. Two groups were identified; those surgical patients who had an unplanned admission to ICU within 24 hours of a procedure with an anaesthetist in attendance (study group) and those surgical patients who were not admitted to ICU post operatively (reference group). Patients undergoing cardiac surgery, transplants and post road trauma surgery were excluded as they were often routinely scheduled for postoperative ICU admission and may have confounded the analysis.

The study compared intraoperative incidents or near misses, risk adjusted mortality and risk-adjusted length of stay between the two groups. All data used had been routinely collected throughout this five year study period on surgical patients by anaesthetists in attendance during the procedure and double checked by the quality assurance manager before being integrated in the study cohort of 44,130 patients used for the study.

**Results:** There were 201 surgical patients who had an unplanned admission to the ICU and 43,929 surgical patients in the reference group. Study group patients had a 2-12-fold increased likelihood of undesirable adverse events occurring during anaesthesia. They also had an excess mortality, on average 3 times the reference group. Their median length of stay in the hospital was 8 times the reference group. This represented a likelihood of staying longer in the hospital if patients had an unplanned admission to the ICU, of 1.7 to 2.3 times the reference group (risk adjusted hazard ratios of 0.41(95% CI, 0.23–0.77) to 0.58 95% CI, 0.37–0.93).

These findings provide strong support for the validity of the indicator "Unplanned admission to an intensive care unit (ICU) within 24 hours of procedure with an anaesthetist in attendance" as a specific measure of undesirable adverse events and patient safety.

**Take home message:** Hospitals should routinely collect and report on this clinical indicator as a measure of patient safety. Because these are relatively rare events, practical issues such as how to benchmark still need to be determined.

## Using clinical decision support to assist in appropriate prescribing

Samore MH, Bateman K, Alder SC, et al. *Clinical decision support and appropriateness of antimicrobial prescribing: a randomized trial. JAMA 2005; 294:2305-2314.*

Getting clinicians to follow evidence-based guidelines is difficult. There is evidence that up to half of all antibiotics prescribed in the community are given to people with viral infections, and therefore are not clinically indicated. The aim of this study was to test whether guidelines could assist general practitioners (GPs), emergency department physicians, internists, paediatricians, and nurse practitioners in appropriately prescribing antibiotics for respiratory tract infections.

For purpose of analysis, respiratory tract infections were categorized according to whether antibiotics were (1) never indicated (acute bronchitis and colds/upper respiratory tract infections); (2) sometimes indicated (sinusitis and uncharacterised otitis media and pharyngitis; and (3) always indicated (streptococcal pharyngitis, acute otitis media and pneumonia).

The study had two arms -

1. *A community intervention:* Promotional material (posters and brochures explaining that viral infections do not need antibiotics) were distributed to pharmacies and doctors' surgeries. Postcards and fridge magnets with the same message were distributed to all households with a child under the age of six years. This was followed by the development and widespread community distribution of a self-help guide for consumers to help them manage their respiratory tract infection without antibiotics.

2. *A clinical decision support tool intervention:* Guidelines on the management of acute respiratory tract infections were integrated into a clinical decision support tool (CDST) and made available for use by clinicians and patients. The CDST was available as either a program on a handheld personal digital assistant (PDA) or a paper-based flow chart for use by clinicians, or as a flip chart to be used by patients in conjunction with their clinician.

Communities in Utah and Idaho were cluster randomized into three groups;

1 - *CDST group*, which received both the community intervention and the clinical decision support tool (n=6).

2 - *Community intervention-only group*, which received only the community intervention (n=6).

3 - *Non-study reference group*, which was used to compare pharmacy data with both the community intervention-only group and the CDST group.

Three time intervals were compared; baseline (Jan-Sept 2001), the first year of the intervention (Jan-Sept 2002) and the second year after the intervention (Jan-Sept 2003).

In the CDST group, primary care physicians were visited by a project team member to outline the project and how to use the CDST. Incentive to contribute was offered by way of a free PDA or US\$3 for each patient recruited (up to 200 patients per clinician). All doctors were invited to attend an education session in which responsible antibiotic prescribing was discussed.

Changes in prescribing practices were assessed using (1) chart review of random records in both the CDSS and the community intervention-only group and (2) analysis of retail pharmacy data (antibiotic stock turnover) in the three study communities.

#### Results:

*Community intervention:* Between 83 and 100% of clinicians and pharmacies participated in the distribution of educational material.

*Clinical Decision support tool intervention:* The recruitment rate was 71%. Forty five percent of clinicians attended the education session. Even though the majority (54%) used only the PDA, half did not contribute data until the second study year. Only 40% used the flowchart and 5% used the patient-initiated flip chart.

*Chart review:* Charts of 79% of primary care physicians in the 12 communities (groups 1 and 2) were audited. A total of 13,081 respiratory tract infection visits between January 2001 and September 2003 were identified. At baseline, neither the frequency of prescribing nor the distribution of antimicrobial classes differed significantly between the community groups.

In the CDST group inappropriate antibiotic prescribing for those in the category for which antibiotics were never indicated fell from 35% at baseline to 24% after 2 years. In the community intervention-only group prescribing fell from 40% to 38%. The estimated relative risk reduction was 32% in CDSS group and 5% in community intervention-only group.

*Retail pharmacy data:* Antibiotic dispensing habit did not change significantly during the first intervention year for either the community intervention-only or the CDST group. During the second year, antibiotic dispensing decreased 10% in the CDSS group, increased 1% in the community-intervention-only group and increased 6% in the non-study group. Prescriptions for macrolide class antibiotics (mostly azithromycin) fell most dramatically in the CDSS group (12% in the 1<sup>st</sup> year and 28% in the 2<sup>nd</sup> year) while remaining stable in the other communities. This class of antibiotic is not a first line treatment for any of the common upper respiratory tract infections.



**Take home message:** The use of clinical decision support in the primary care environment decreased inappropriate antibiotic prescribing for viral respiratory tract infections and improved antibiotic selection. However, the time and effort was great and sustainability is questionable. The use of such tools in general practice to encourage compliance with evidence-based guidelines needs further research.

## Anticoagulant therapy - how well is it managed?

Tapson VF, Hyers TM, Waldo AL et al. Antithrombotic therapy practices in US hospitals in an era of practice guidelines. *Arch Intern Med* 2005; 165: 1458-63

Thrombosis is the single most common cause of death. Antithrombotic or anticoagulation therapy guidelines exist for primary and secondary thrombosis prevention. In this study primary thrombosis prevention was evaluated in patients admitted with a diagnosis of atrial fibrillation (AF) and those requiring orthopaedic surgery (total knee replacement (TKR) or total hip replacement (THR) or hip fracture repair). Secondary thrombosis prevention was evaluated in patient diagnosed as having had an acute myocardial infarction (AMI), deep vein thrombosis (DVT) or pulmonary embolus (PE).

Twenty five medical records in each hospital were randomly selected for patients with an ICD code relating to (1) AF; (2) Orthopaedic surgery; (3) AMI; and (4) DVT/PE.

**Results:** A total of 3778 medical records were reviewed from 21 teaching, 13 community and 4 Veterans Affairs hospitals (44 invited) located in 28 different US states.

*Management of AF patients (n=945):* Most patients hospitalised with AF (n=814, 86%) were classified as having a high stroke risk using the American College of Chest Physicians' risk stratification model.<sup>3</sup> In the high risk group, 55% received warfarin, 24% received aspirin and 21% received no treatment. Despite recognition that AF is responsible for up to 25% of strokes in people aged 75 to 84 years, aspirin was the only anticoagulant prescribed for 25% of patients aged over 75 years. No guidelines recommend aspirin for stroke prevention in those older than 75 years or others in the high-risk group. Of the 45% of high risk patients not receiving warfarin, 43% had no documented contraindications (e.g. high risk of falls, neuropsychiatric impairment, previous bleed, ulcer disease, or aneurysm). Of those receiving no treatment at all, 19% were receiving non-steroidal anti-inflammatory agents and 3% were on clopidogrel bisulfate (anticoagulant).

*Management of patients undergoing orthopaedic surgery (n=928):* Within the orthopaedic group, 39% had a TKR, 31% had THR, and 31% had a hip fracture. Guidelines recommend warfarin and low molecular weight heparin (LMWH) be administered for up to 28 days in the THR and hip fracture surgery setting for prophylaxis against DVT. Inadequate prophylaxis was administered in 14% of patients: 8% received only aspirin and 6% received no prophylaxis. Patients who had a hip fracture were less likely than joint replacement recipients to receive prophylaxis (87% vs 97%)

or to be discharged on anticoagulation medication (53% vs 73%). The mean duration of prophylaxis was less than five days.

**Management of AMI patients (n=966):** Early administration of aspirin is recommended to prevent secondary vascular events and death following AMI. Only 75% of patients who did not have a history of peptic ulcer disease or bleeding received aspirin within 8 hours of an event or had received it in the previous 24 hours prior to hospitalisation.

**Management of patients with DVT/PE (n=939):** Most patients (60%) received parenteral unfractionated heparin (UH). LMWH was used on 56% of patients, and only 8% received adjusted-dose subcutaneous unfractionated heparin. To maintain adequate anticoagulation, guidelines recommend that when bridging from UH or LMWH to oral anticoagulation such as warfarin, the international normalized ratio (INR) should be at least 2 for 2 consecutive days before it is ceased. Only 51% of patients commencing warfarin had an INR of greater than 2 for 2 consecutive days before parenteral administration was ceased.

**Take home message:** Monitoring the complexities of anticoagulation is difficult and not done very well. As discussed in the accompanying editorial<sup>3</sup> we need to develop better, simpler ways of doing it.

## Effect of a flow chart on prevention of unnecessary blood transfusions

Müller U, Exadaktylos A, Roeder C, et al. Effect of a flow chart on use of blood transfusions in primary total hip and knee replacement: prospective before and after study. *BMJ* 2004;328(7445): 934-8

Blood transfusions have several potentially fatal hazards. As such, there has been increasing recognition of the need to prevent unnecessary blood transfusions.

In this study, the use of a flow chart in reducing unnecessary allogeneic and autologous blood transfusions in patients undergoing total hip and total knee replacement was tested. The one-page flow chart was based on guidelines published by the American Association of Anesthesiology and the American College of Physicians, and was developed in consultation with physicians, consultant anaesthetists, orthopaedic surgeons and haematologists. It was distributed to staff in the orthopaedic unit and was enclosed in all charts of patients undergoing total hip or knee replacements for a 12 month period (October 1999-September 2000). The number of blood transfusions during this period was compared with blood transfusions received during the year prior to the study (October 1998- September 1999).

**Results:** The percentage of patients receiving blood transfusions decreased from 35% at baseline to 20% for allogeneic blood (OR=0.2, 95%CI=0.1-0.4), from 29% to 6% for autologous blood (OR=0.14, 95%CI: 0.06-0.33) and from 60% to 25% for any blood transfusion (OR=0.007, 95%CI: 0.003-0.14). The proportion of patients receiving blood transfusions contrary to guidelines published by the

American College of Physicians decreased from 44% to 16% (difference=-27.9%, 95%CI: -43.2—12.5). The number of blood units fell from 200 to 102 for allogeneic blood and from 127 to 25 for autologous blood.

As expected, the intervention led to a greater number of patients in the intervention period having a blood haemoglobin level below 90 g/l. Two episodes of uncomplicated angina pectoris occurred; one in the baseline period and the other during the study period. This intervention resulted in a saving of AU\$238 per operation.

Because there was a historical control group, and changes could have reflected general attitude changes over time, blood transfusion trend data was investigated at a regional and nation level. No clear time trends emerged which supported findings that changes were as a result of the intervention.

**Take home message:** Implementation of a simple flow chart which was widely distributed, had support from local opinion leaders and required no major changes resulted in a 40% reduction in blood transfusions for patient undergoing total joint replacements. This should be tested in a local Australian setting.



## Monitoring quality in US hospitals

Williams SC, Schmaltz, SP, Morton DJ, et al. Quality of care in US hospitals as reflected by standardized measures, 2002-2004. *N Eng J Med* 2005; 353:255-64.

The Joint Commission on Accreditation of Healthcare Organizations (JCAHO) accredits more than 90% of acute care medical-surgical hospital beds in the US. In July 2002, 3377 hospitals were required to submit performance data on at least two of the four categories: acute myocardial infarction (AMI), heart failure, pneumonia, and pregnancy-related conditions. Pregnancy-related data is not reported in this article. The performance data was designed to permit valid comparisons of health care organisations through the establishment of a national comparative database.

Data was self-reported by each hospital to JCAHO. In most hospitals it was collected through medical record review of all eligible patients, however for hospitals with larger numbers of eligible patients, subset random sampling was used to reduce reviewer burden.

Measures included:

**For AMI patients:** (1) Whether aspirin was given within 24 hours of admission, (2) Whether aspirin was prescribed on discharge, (3) Whether patients were discharged on ACE inhibitors if indicated, (4) Whether beta-blockers were prescribed within 24 hours after admission; (5) Whether beta-blockers were prescribed at discharge; (6) Whether patients were counselled on smoking cessation strategies, (7) Mean time to thrombolysis, (8) Mean time to PCI and (9) Inpatient death.

*For pneumonia:* (1) Whether oxygenation assessment was performed within 24 hours of admission, (2) Mean time to antibiotic commencement, (3) Whether blood cultures were taken prior to initial antibiotics being administered; (4) Whether patients were counselled on smoking cessation strategies; (5) Whether pneumococcal screening, vaccination or both was provided at discharge.

*For heart failure:* (1) Whether patients were discharged with instructions regarding medication, diet, weight, worsening of symptoms, follow-up and activity; (2) Whether patients had left ventricular function assessed, (3) Whether patients were prescribed ACE inhibitors at discharge if indicated; (4) Whether patients were counselled on smoking cessation strategies.

This article reports only results from hospitals who had participated in the program for the full 2 year study period (n=3087). A total of 1473 hospitals submitted data for AMI, 1797 for pneumonia and 1946 for heart failure.

**Results:** On a national scale, 15 of the 18 standardized measures demonstrated a significant trend of improvement over the study period. No measure showed significant deterioration. However, for the indicators measuring whether heart failure patients received discharge instructions and whether patients admitted for pneumonia received indicated pneumococcal vaccination, compliance at the end of the 18 month study period was only marginally higher than 50%. Performance indicators that showed no significant change between the first and last quarter were mean time to thrombolysis (62 mins vs 54 mins, p=0.53), blood cultures taken for pneumonia patients (82% vs 83%, p=0.31) and inpatient death from an AMI (9% vs 8%, p=0.58). With regard to AMI death, this may be because four of the eight process issues for AMI address discharge issues, and also because process measures are more sensitive to differences in quality than comparisons of outcomes (death). The magnitude of improvement in the 15 categories ranged from 3% to 33% with a faster rate of improvement seen among low-level performers at baseline.

Receiving quarterly national comparative data may have encouraged poorer performing hospitals to improve performance. However, because there was no concurrent control group improvement in outcomes cannot be definitively attributed to the feedback of results provided by JCAHO. Other incentives during this time period may have also impacted on results. The improvement may simply reflect better documentation rather than better performance.

**Take home message:** From all accounts, it appears that standardized measurement of key processes and outcomes can lead to improved clinical performance. Another interesting study has shown that it is difficult to attribute improvement to particular programs such as this one, because hospitals often have a number of quality improvement exercises running simultaneously.<sup>5</sup>

## Bar coding - experience in two US hospitals

*Wright AA, Katz IT Bar Coding for patient safety. N Eng J Med 2005; 353(4): 329-31.*

This article discusses the cost and impact of implementing bar coding for medication in a US hospital. Prior to implementing the bar coding system, a prospective study of more than 1000 patients was undertaken to identify medication errors.<sup>6</sup> This study demonstrated that key causes of medication adverse events were illegible handwriting, inadvertently selecting the wrong drug from the shelf, inappropriate dosing and drug interactions. Thirty nine percent of errors were due to incorrect prescribing by physicians, but half were caught by pharmacists or nurses. Nurses made almost as many mistakes but these were less likely to be corrected because there were fewer checkpoints between the nurse and the patient.

A bar coding system was implemented in two US hospitals at a cost of approximately AU\$13,400,000 in start up expenses and AU\$1,340,000 annually. Medication orders written by the doctor were transmitted to the pharmacy, where a bar code was generated for each drug. After a pharmacist verified the order, the labelled medication was sent to the ward, where it and the patient identification bracelet were scanned to check that orders correlated.

An extensive education campaign was undertaken to address the concern that (1) it would disrupt nursing workflow patterns, (2) technology might be difficult for some to use and (3) it might limit nurses' autonomy.

**Results:** Complaints included delay in having the system respond in emergency situations. Early data (no time frame) suggested that the system has resulted in a reduction in medication errors of 50%, preventing approximately 20 dispensing errors per day that had potential to harm patients.

**Take home message:** Although this type of technology is likely to become mainstream, its cost is staggering in this study. More work on feasibility should be performed in Australia

## PDA technology in health

*Baumgart DC. Lancet 2005; 366: 1210-22*

Personal digital assistant (PDA) technology is rapidly infiltrating health. More than half of all doctors younger than 35 years in developed countries used a PDA in 2003. This article reviews current technology and discusses how PDAs can be used to enhance clinical practice and medical education. It identifies safety and security concerns with the use of wireless and digital technology. It also provides links to some informative websites where PDA software can be downloaded.

*In clinical practice:* The rapidly changing field of medicine means that text books and white-coat reference books are often outdated at the time of publication, particularly in relation to drug therapy. PDAs enable rapid propagation of information. Although having data available does not

necessarily means that it will be used, PDAs do provide a library shelf full of books to be stored in a clinician's pocket. In the clinical setting it has been demonstrated that patients feel comfortable having their physicians use a PDA to reference material.



Clinical applications of PDAs include (1) being used to cross check drugs with medical records and pharmacy systems so as to ensure that the right patient receives the right drug at the right time (2) storing and transmitting virtual ECGs; (3) emergency and mass casualty triage; (4) data management of research participants; and (5) data collection for infection control purposes, including enforcement of institution-specific rational antibiotic use. When paediatricians in the US were surveyed about how they used their PDA, 80% used it as a drug reference, 67% used it for scheduling, 61% used the medical calculations programs, 8% wrote prescriptions using it and 4% used it for billing purposes.

*In medical education:* PDAs are used by medical students and junior doctors to maintain a log of patient encounters and procedures to assist in identifying gaps in clinical skills and in the education curriculum. A randomised controlled study has demonstrated that medical students who used clinical decision support tools on PDAs were more likely than those using pocket cards containing guidelines to consult guidelines, use evidence during and after patient consultations, discuss evidence on ward rounds and have confidence in clinical decision making.

**Take home message:** PDAs offer huge potential to reduce error by improving accessibility to, and use of current knowledge.

## The 100,000 Lives Campaign

Berwick DM, Calkins DR, McCannon CJ, Hackbarth AD. The 100,000 Lives Campaign: setting a goal and a deadline for improving health care quality. *JAMA* 2006; 296(3): 324-27.

The Institute of Healthcare Improvement (IHI) launched a campaign in December 2004 with the goal of saving 100,000 lives among patients in US hospitals through improving safety and effectiveness of health care. The deadline has been arbitrarily set 18 months later, on June 14, 2006. Hospitals voluntarily elect to join the campaign online through the IHI website. Six interventions which have been shown to be effective were proposed to achieve this goal:

1. *Deploy rapid response teams:* Having medical emergency teams (MET) within hospitals able to respond to deteriorating patients before a cardiac arrest occurs.

Members of the team have critical care expertise. Success of METs in improving outcomes is not well established (see review in October 2005 bulletin).

2. *Deliver reliable evidence-based care for acute myocardial infarction (AMI):* Key components of AMI care include early administration of aspirin, aspirin at discharge, early administration of beta-blocker, beta-blocker at discharge, angiotensin-converting enzyme inhibitor or angiotensin-receptor blockers at discharge for patients with systolic dysfunction, timely initiation of reperfusion (thrombolysis or percutaneous coronary intervention) and smoking cessation counselling.

3. *Prevent adverse drug events through medication reconciliation:* A recent study suggests that more than half of all hospital medication errors occur at interfaces of care (eg when patient transfers between ED and ward, between hospitals, or between hospital and home). Medication reconciliation occurs when medication is reviewed and tracks medication given before and immediately after transfer.

4. *Prevent central line infections:* Five components of care appear to be important in reducing risk of CVC infection: hand hygiene, maximal barrier precautions, chlorhexidine skin antiseptics, optimal catheter selection (subclavian vein is best) and daily review of the CVC with prompt removal of unnecessary lines.

5. *Prevent surgical site infections:* Four components of care are recommended to prevent surgical site infection: guideline-based use of prophylactic antibiotics, appropriate hair removal (NOT shaving), peri-operative glucose control for cardiac surgery and ICU patients and peri-operative normothermia for colorectal surgery patients.

6. *Prevent ventilator-associated pneumonia:* Four components of care are recommended for patients receiving mechanical ventilation: elevation of head of the bed to between 30° and 45° daily, "sedation vacation" and daily assessment of readiness to extubate, peptic ulcer disease prophylaxis and deep vein thrombosis prophylaxis.

The campaign requires hospitals to compare mortality rates on a monthly basis from January 2005 to June 2006 with the same month in the year 2004. Monthly lives saved are aggregated across all months and participating hospitals, with a national casemix adjustment applied to adjust for change in patient acuity between 2004 and 2005.

This article does not provide any details of how many lives have been "saved" to date. More than half of all US hospitals have enrolled in the program.

**Take home message:** These strategies to reducing mortality are not new. The novel approach of counting lives saved (even accounting for the crudeness of the measurement) seems to have generated interest and it will be interesting to find out how many lives have actually been saved in June this year.

## Communication failures at handover

Arora V, Johnson J, Humphrey HJ, Meltzer DO. *Communication failures in patient sign-out and suggestions for improvement: a critical incident analysis. Qual Saf Health Care 2005; 14: 401-7.*

Failure in communication accounts for 60% of root causes of sentinel events reported to Joint Committee on Accreditation of Healthcare Organisations



(JCAHO). Handover of information from one healthcare worker to another has been identified as a particularly vulnerable period, because the process of information transfer is often variable and unstructured. The impact of poor handover is that the clinicians assuming responsibility for the patient's care may be unfamiliar with crucial information about their illness or treatment regime.

In this study, 26 interns in an acute care US hospital were interviewed after receiving handover from another intern. They were asked to comment on any near misses or adverse events that took place either as a result of poor written or verbal handover from the preceding shift. They were also asked to describe the most severe adverse event they could recall in the past year due to sub-optimal handover and to suggest areas for improvement.

The normal process for handover in this hospital involved interns printing out a handover sheet which they wrote notes and test results on during their shift. Information from these sheets was verbally summarized by departing intern to the oncoming intern sometimes in face to face contact and sometimes over the phone.

**Results:** Twenty five incidents were reported relating to the preceding shift and 21 worst incidents for the preceding year. Following review of these incidents, communication errors were divided into two main categories: those due to content omission and those resulting from failure-prone communication processes.

**Content omission:** this includes incidents resulting from a failure to report (1) an active medical problem; (2) medication or a treatment being received by the patient; or (3) pending or ordered diagnostic tests or consultation. Omission of the patient's code status was a commonly reported event.

**Failure-prone communication processes:** this includes situations where lack of face-to-face contact was cited as a contributing factor or incidents where illegible or unclear notes were implicated in the event.

Communication errors nearly always led to a perception by interns that they were working in the dark. Unnecessary and duplicated tests or procedures were often the result of this uncertainty.

Suggestions to improve the handover process included having the outgoing intern (1) handover face-to-face with the oncoming intern; (2) anticipate to the oncoming intern who might need assistance; (3) report only pertinent information; and (4) report in a thorough, systematic manner.

The authors suggest that written handover sheets should contain a code status (e.g. not for active resuscitation) and that education should focus on how to communicate effectively. Categories developed for communication errors as part of this study (the "taxonomy") could be informative in evaluating educational and system-based interventions to improve the quality of handover.

**Take home message:** Understanding what goes wrong as a result of ineffective handover is the first step towards designing a better system. This study represents very soft data. Clearly, more work in this area is warranted .

## What's in the news

### US Food and Drug Administration (FDA) Media Release January 18 2006

A revision to the format of prescription drug information ("package insert") will give healthcare professionals clear and concise prescribing information. Revised for the first time in more than 25 years, the package insert will provide a summary outlining the most important information about a product, prominently displayed at the top of the page. It will typically be half a page in length and will provide a concise summary of information about specific areas including: Boxed Warning, Indications and Usage, and Dosage and Administration; and will refer the healthcare professional to the appropriate section of the Full Prescribing Information.

### Reprocessing single use items Washington Post, December 11, 2005

A growing number of U.S. hospitals are saving money by reusing medical devices designated for one-time use, ignoring the warnings of manufacturers, which will not vouch for the safety of their reconditioned products.

Because of the rising cost of health care and medical supplies, reprocessing is regarded by an increasing number of hospital administrators as a cost effective way to provide a high quality product. Reprocessors say their reconditioned devices can cost hospitals about half as much as a new single-use device. In addition to economic savings, environmental savings are substantial. According to the big three reprocessors in the US, hospital waste last year was reduced by 935 tons, with 4.6 million single-use only devices being refurbished.

The FDA allows manufacturers to choose between getting approval for a device to be used once or multiple times. Companies are frequently choosing one-time use, which means their products do not have to be as sturdy, their liability is diminished after the first use and they are ensured a steady stream of replacement orders.

Device makers say that items are "single-use only" because they typically contain difficult-to-access areas that create barriers to cleaning and permit blood, tissue or other bodily fluids to contaminate the reprocessed device, allowing

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## SEMINAR

### Monitoring the quality of care in hospitals

The recently released Report of the Review of Future Governance Arrangements for Safety and Quality in Health Care<sup>6</sup> highlighted that a key responsibility for the newly established Australian Commission on Safety and Quality in Health Care will be to show measureable improvement across a number of key indicators in the quality of health care received by patients in Australia.

This seminar discusses what quality indicator data is currently being collected, how it is being used and where gaps exist in monitoring performance in hospitals. Professor Stephen Duckett will discuss the reform of Queensland Health, and in particular the use of performance measurement in monitoring quality. An exciting list of speakers will guarantee a highly informative and interesting day.

**Date:** Monday 10th April

**Location:** AMREP Seminar Room, Alfred Hospital Prahran, Victoria, 3181 (map and parking available at <http://www.med.monash.edu.au/epidemiology/about/contacts.html>)

**Cost:** \$55 (inclusive of GST)

Full details, including the programme, and registration methods can be accessed via our website: <http://www.CREpatientsafety.org.au>.

### What's in the news? *cont from page 7*

potential transmission of viral and bacterial infections. The FDA began requiring only last year that hospitals report whether a malfunctioning device had been reprocessed. Hospitals are not required to tell patients that reconditioned devices will be used in surgery - surgeons themselves often do not know. Single-use devices have malfunctioned during reuse, according to federal records and interviews. In one instance, an electrode from a catheter broke off in a patient's heart. In another, a patient's eyeball was impaled.

Reprocessors have changed their position on patient consent in recent months. At first they said they saw no need to inform patients when single-use devices are reused, because they are safe. Now they say they would support such informed consent as long as hospitals also disclose the risks of new devices.

#### **Doctor substitutes for a leaner health system** **Sydney Morning Herald 12 December 2005**

A hospital staff crisis necessitates a radical rethink of the roles of doctors and nurses. The outdated traditions governing demarcation of roles for doctors, nurses and health workers in hospitals is being challenged to cater for the looming huge increase in health needs from an ageing population.

With the shortage of health care workers, there is recognition that dispensing medicine or taking temperatures does not need more than 10 years of medical training, and those who do have that much training can probably be put to better use.

The use of allied health professionals and nurses could save huge amounts spent on education, training and wages, according to Professor Stephen Duckett. Nurses can substitute for GPs in many primary care tasks, for resident medical officers in intensive care units, and can undertake high-level triage and treatment functions in hospital emergency departments. In the US, nurse

anaesthetists are increasingly being used, a position opposed by the Australian Medical Association (AMA). The AMA states that any change in health and medical job classifications would invariably endanger patient safety

Physician's assistants, already part of the US health system, are being introduced in the UK and are being proposed in Australia. In the UK, physician's assistants work at a level equivalent to a junior doctor under supervision of a doctor. Roles include staffing GP clinics, treating low-level conditions such as fevers, fractures and cuts.

The key to introducing a substitute workforce was to maintain the expertise of each occupation, but strip away the rigid demarcations that had evolved in the system, said the deputy director of Sydney University's industrial relations research centre, John Buchanan.

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