MEDICATION SAFETY

The Australian Commission on Safety and Quality in Health Care

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Included in this issue:

National Labelling Recommendations for User-applied Labelling of Medicines, Fluids and Lines

Many health facilities are implementing, or have implemented, the *Labelling Recommendations*. Issues which arise during implementation, and which cannot be managed by reference to the *Labelling Recommendations*, are considered by the Labelling Recommendations Reference Group and outcomes are recorded in the *Labelling Recommendations Issues Register*.

The *Labelling Recommendations Issues Register* should be read as a supplement to the *Labelling Recommendations*. The Issues Register is available on the Commission web site at www.safetyandquality.gov.au/our-work/medication-safety/user-applied-labelling/issues-register/ It is intended that a third edition of the *Labelling Recommendations* will be developed in 2013 and which will incorporate information from the Issues Register.

Other support materials are available at www.safetyandquality.gov.au/our-work/medication-safety/user-applied-labelling/support-materials/

These will be updated from time to time but not as frequently as the *Labelling Recommendations Issues Register* and the *Labelling Recommendations Frequently Asked Questions*.

Currently several trials are underway to test the *Labelling Recommendations* in specialist areas. These include testing pre-printed, sterile line labels in perioperative areas, cardiac catheter labs and intensive care units.

The results of the trials will be available shortly and final reports will be made available on the Commission web site.

National Subcutaneous Insulin Form

Insulin prescribing and administering in acute care, and blood glucose level management, are national safety and quality issues. Insulin is a high risk drug. It accounts for around 15% of the highest risk incidents (actual and potential) experienced in acute care [1]. In addition, blood glucose level management of diabetics admitted to hospital for intercurrent illness is often poor [1]. This can compromise the resolution of the patient's intercurrent illness as well as their diabetic status.

As part of its medication management standardisation work, the Commission proposes nationally piloting a suite of materials in Australian hospitals to improve the safety of insulin prescribing and administering in acute care. The materials will include:

- A subcutaneous insulin form that incorporates prescribing, administering and reconciling of insulin and blood glucose level (BGL) monitoring
- Implementation (including educational) resources
- Audit tool, audit tool user guide and audit training materials.

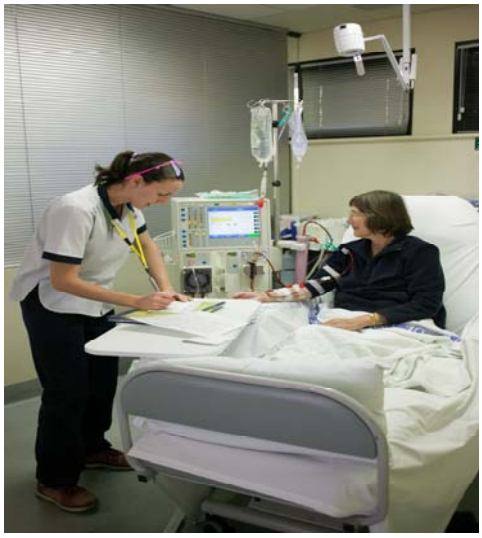
The pilot will test whether, through implementation of the form and associated materials, and in the context of BGL control education, that safety can be improved as a result of the safety features embedded in the standard form without compromising BGL control.

The form has been developed following heuristic analysis of 37 insulin forms provided to the Commission by public and private acute services. The analysis identified weaknesses in the existing forms from a human factors perspective, identified a superior form and proposed changes to improve its usability.

Hospitals will be invited to participate in the pilot shortly. The pilot is planned to run for six months and is expected to conclude in April 2013.

The report and further details are available from the Commission web site at www.safetyandquality.gov.au/our-work/medication-safety/medication-chart/national-subcutaneous-insulin-chart/

1. Kerr M. Inpatient Care for People with Diabletes: The Economic Case for Change: National Health Service, 2011:52.



National Interim Residential Medication Administration Chart

In Australia nearly 9% of hospital inpatients aged 65 years and older are discharged to residential aged care facilities (RACFs). Research has identified patients discharged to residential aged care facilities as having a high risk of adverse medicine events in the immediate post-discharge period. The most common errors are missed doses. Causes include lack of a current medication chart based on accurate discharge medication information which has been reconciled, and suitably packed medicines.

A number of effective local initiatives have reduced the risk for older patients discharged to RACFs. Each of the initiatives involves a new model of care based on an interim residential medication administration chart issued by the discharging hospital and which accompanies the patient back to their residential aged care facility along with a supply of medicines in an appropriate format.

The Commission is building on these local initiatives by developing a standard solution with national application. The solution will include:

- A *National Interim Residential Medication Administration Chart* (NIRMAC)
- Encouraging jurisdictional legal clear paths to allow RACF staff to administer dispensed medicines from the form
- Describing a new model of care
- Communicating the new model of care and the NIRMAC.

Project outcomes are expected to be available for implementation by health services late in 2012.

Medication Reconciliation: WHO High 5s Project Update

The Australian Commission on Safety and Quality in Health Care is the lead technical agency for the World Health Organization's High 5s Project in Australia.

The aim of this five year, multi-country collaborative is to test the feasibility of implementing standard operating protocols

(SOP) for specific patent safety solutions in a range of hospitals and countries.

There are 13 health services across five Australian states participating in the Australian High 5s collaborative implementing the medication reconciliation SOP. Formal implementation commenced in April 2010.

Phased implementation of the SOP initially focuses on patients aged 65 years or older admitted to hospital through the emergency department. The SOP promotes a formalised multidisciplinary medication reconciliation process with clinicians partnering with patients to:

- obtain an accurate and comprehensive medication history;
- verify this history with one or more sources;
- reconcile the history with medicines ordered and resolving any discrepancies; and
- provide an accurate list of medicines and any changes when care is transferred.

The process aligns with Australian practice. [1, 2]

As part of the project evaluation, performance measure data is collected monthly on the percentage of eligible patients with medicines reconciled within 24 hours of admission and the quality of the medication reconciliation process. Hospitals can compare their own results with national and international averages.

Australia has an interesting mix of hospitals participating in the High 5s Project. Some have been conducting medication reconciliation for a number of years while others are just commencing their journey. As a result there is considerable variation in the rate of eligible patients with medicines reconciled within 24 hours of admission depending on the stage of implementation, resources available and the spread of the intervention in the organisation. Between February 2011 and February 2012 rates for the percentage of eligible patients with medications reconciled within 24 hours of admission ranged from 16% to 94% across participating hospitals with an average of around 50%. (See Figure 1 for latest aggregated results).

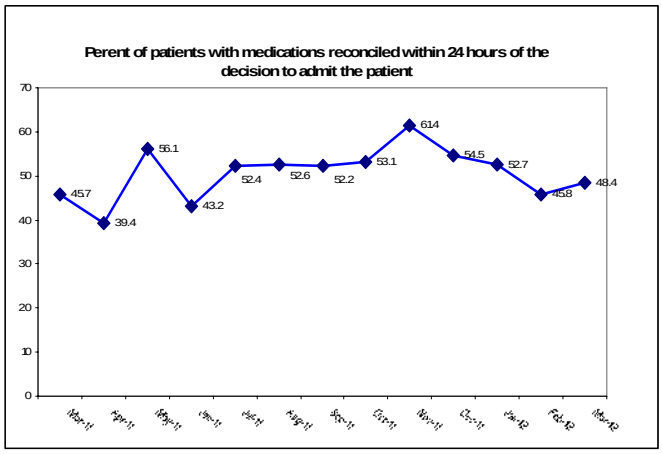


Figure 1 Aggregate results for rate of eligible patients with their medicines reconciled within 24 hours ***(eligible patients are patients aged 65 years and over admitted to inpatients units through the Emergency Department (ED).***

The project is now in its third year and results indicate the quality of medication reconciliation is high with hospitals reporting rates for discrepancies observed after medication reconciliation of less than 0.3 per patient on average.

Other components of the evaluation plan include completion of an implementation experience questionnaire and analysis of medication reconciliation related adverse events. The results of the High 5s Project will be published at its conclusion.

A range of resource materials has been developed to assist with implementation of medication reconciliation. These are available for use by all health services from www.safetyandquality.gov.au/our-work/medication-safety/medication-reconciliation

References

1. Australian Pharmaceutical Advisory Council, *Guiding principles to achieve continuity in medication management*. 2005, Commonwealth of Australia: Canberra.
2. SHPA Standards of Practice for the Provision of Medication Reconciliation August 2007, J Pharm Pract Res 2007; 37 (3): 231-3.

The High 5s Project, established by WHO in 2007, is an international collaboration carried out in seven countries: Australia, Germany, France, the Netherlands, Singapore, Trinidad & Tobago and the United States of America, and coordinated by the WHO Collaborating Centre on Patient Safety, The Joint Commission. Its mission is to facilitate implementation and evaluation of standardized patient safety solutions within a global learning community, to achieve measurable, significant and sustainable reductions in high risk patient safety problems. www.high5s.org

Consumer resources for medication reconciliation

The Commission and NPS Better Choices Better Health have jointly developed a resource to highlight to consumers the importance of knowing about the medicines they use and having an up-to-date medicines list.

The A5 consumer information wallet (figure 2) provides helpful tips on how patients can help prevent medicine errors at admission and discharge, changing wards or seeing different health professionals. An NPS Medicines List is included.

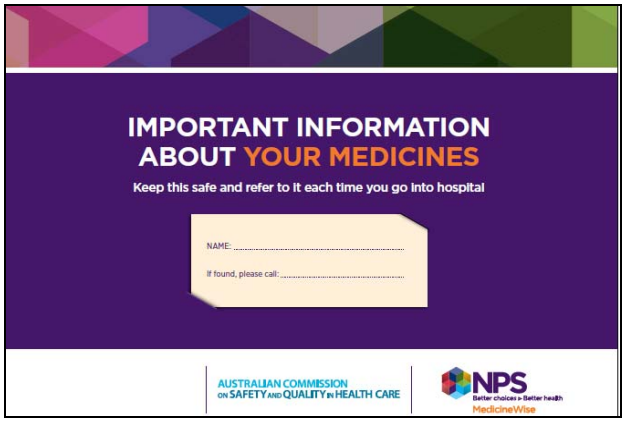


Figure 2: Consumer Information Wallet: Important information about your medicines

The printed wallets are designed to be provided to patients on discharge and can hold the discharge medicines list and other medicines information e.g. Consumer Medicines Information.

An A4 sheet with the same key messages as the consumer information wallet is also available for download from the Commission's web site at www.safetyandquality.gov.au/our-work/medication-safety/medication-reconciliation

Limited copies of the printed wallets are available from the Commission. Contact Helen Stark on helen.stark@safetyandquality.gov.au to order copies.

NPS has a range of educational materials for consumers as part of their *Be MedicineWise* campaign. These are available at www.nps.org.au/consumers

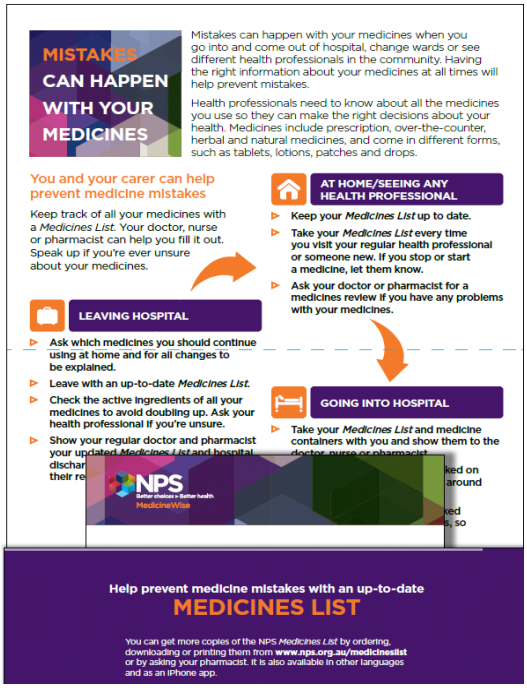


Figure 3: A4 Consumer Information Sheet: Mistakes can happen with your medicines

NIMC VTE Pilot

The Commission is conducting the second phase pilot of a draft *National Inpatient Medication Chart* (NIMC) with a pre-printed venous thromboembolism (VTE) risk assessment and prescribing section. The section has been modified following feedback from the phase 1 pilot. Currently there are gaps between VTE prophylaxis evidence and practice and evidence suggests that point of prescribing prompts increase the rate of VTE risk assessment and appropriate prophylaxis prescribing.

The aim of the NIMC VTE Pilot Phase 2 is to evaluate further the effectiveness and safety of a pre-printed VTE section in the NIMC on improving VTE risk assessment documentation and appropriate prophylaxis prescribing for hospitalized adult patients.

There are 23 hospitals across five jurisdictions participating in the pilot including large tertiary referral hospitals, regional/district and metropolitan hospitals and private hospitals. The pilot is due to conclude at the end of November with results available in February 2013. Pending the final report of the pilot, a revised version of the NIMC with VTE prophylaxis section is expected to be available for implementation nationally in mid 2013.

NIMC 2012 National Audit starts 1 August

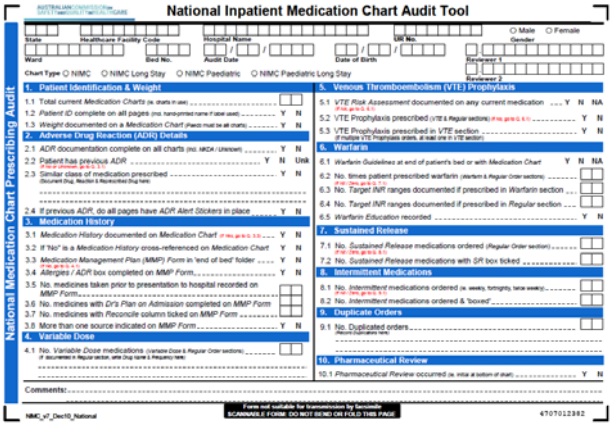
National NIMC auditing will take place from 1 August to 30 September 2012. Hospitals using the NIMC are invited to participate in the audit to identify areas of practice requiring improvement, to compare with peer hospitals and to track practice improvements over time.

Hospitals can collect audit data using the paper-based *NIMC Audit Form*, the *NIMC Audit Spreadsheet* or enter it directly into the web-based *NIMC Audit System* available at www.safetyandquality.gov.au/nimcaudit.

All staff involved in auditing the NIMC are encouraged to complete auditor education before commencing auditing. The education materials will be available shortly.

For more information on the NIMC 2012 National Audit, visit the Commission web site at www.safetyandquality.gov.au/internet/safety/publishing.nsf/Content/NIMC_2012-NationalAudit or email nimc.audit@safetyandquality.gov.au

You can also contact your local State or Territory representative, or quality coordinator, for further information on participating in the *NIMC 2012 National Audit*.


National Inpatient Medication Chart Audit Tool

National Medication Chart Prescribing Audit

1. Patient Identification & Weight
2. Adverse Drug Reaction (ADR) Details
3. Medication History
4. Variable Dose
5. Venous Thromboembolism (VTE) Prophylaxis
6. Warfarin
7. Sustained Release
8. Intermittent Medications
9. Duplicate Orders
10. Pharmaceutical Review

Full NIMC national auditing is expected to occur every two years (with the next in 2014) and at the same time of year, with possible partial audits conducted in the years in between.

NIMC in psychiatric facilities

In late 2011, the Commission conducted a survey of NIMC users in psychiatric acute care facilities. The survey looked at NIMC issues raised by a number of health professionals working in psychiatric acute services. The survey also considered the appropriateness of the NIMC for use in that setting.

The survey was open from July to November 2011. Survey report recommendations include:

- Continuing to use the NIMC in acute psychiatric services to maintain the benefits of standardisation
- Developing an educational resource highlighting standardised processes for charting PRN and depot medicines on the NIMC
- Making a national clozapine titration chart available
- Investigating inclusion of patient photos on the NIMC.

The report on the Commission survey is available on the Commission web site at www.safetyandquality.gov.au/our-work/medication-safety/medication-chart/acute-psychiatric-services-survey/

The Commission will work on the report recommendations throughout 2012 and 2013. Progress will be available from the Commission web site and reported in future Medication Safety Updates.

National Safety and Quality Health Service Standards

Australian Health Ministers endorsed the *National Safety and Quality Health Service* (NSQHS) *Standards* in September 2011 as the basis for a new accreditation model for high risk health services.

The NSQHS Standards are intended to drive improvement in safety and quality for patients. They also provide a clear statement of the level of care consumers can expect from health services.

Accreditation is a process that can provide a public marker of safe and good quality health care. An *Australian Safety and Quality Health Service Accreditation Scheme* has been developed which will build on the strengths of the current accreditation arrangements, improve its effectiveness and promote national coordination.

State and Territory health departments act as regulators for health service organisations and determine how the NSQHS Standards will be implemented in their jurisdictions.

From early 2013 hospitals and day procedure services will be assessed against the NSQHS Standards as part of their accreditation processes.

NSQHS Standard 4: Medication Safety aims to ensure competent clinicians safely prescribe, dispense, administer and monitor appropriate medicines to informed patients and carers.

The standard includes 5 criteria:

- Governance for medication safety;
- Documentation of patient information;
- Medication management processes;
- Continuity of medication management; and
- Communicating with patients and carers.

A full copy of the Medication Safety Standard is contained in the NSQHS Standards. It includes the criteria, elements and actions required for health services to meet the Standard.

Commission tools and resources to assist health services implement the Medication Safety Standard include:

- NIMC and support materials;
- *National Terminology, Abbreviations and Symbols to be used in the Prescribing and Administering of Medicines in Hospitals*;
- National *Medication Management Plan* form and support materials;
- *National Recommendations for User-applied Labelling of Injectable Medicines, Fluids and Lines*;
- *National Tallman Lettering List*; and
- Medication safety alerts.

A number of other standards contain criteria that are relevant to medication safety including *Patient Identification and Procedure Matching, Clinical Handover* and the two overarching standards; *Governance for Safety and Quality in Health Service Organisations* and *Partnering with Consumers*.

The NSQHS Standards, fact sheets and other information to support health services implement the NSQHS are available from the Commission web site. Guides to implementation are in development and will be available shortly.

Further information is available from the Commission web site at www.safetyandquality.gov.au/our-work/accreditation/

Prescribing as required "PRN" medicines, opioids

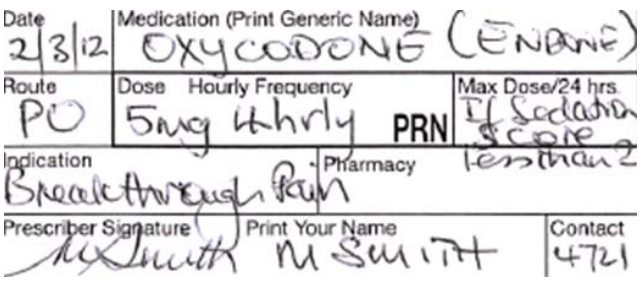
The *NIMC User Guide* has been amended to:

- Clarify that the PRN medicine order section for 'Max dose/ 24 hours' should indicate the total amount of the medicine which may be administered in 24 hours for PRN doses only. It is the prescriber's responsibility to check whether there are existing regular medication orders to avoid duplication of therapy.
- Allow prescribers to use sedation scores to limit the maximum dose of PRN opioid (narcotic) to be administered

Individual opioid requirements vary greatly and the use of PRN opioids for the treatment of acute pain requires careful management if pain is to be controlled and adverse events avoided. The Australian and New Zealand College of Anaesthetists and Faculty of Pain Medicine recommend titrating the opioid dose to the patient's sedation score in preference to specifying a maximum daily dose.[3].

The *NIMC User Guide* has been amended to allow the sedation score to be specified in the 'Max Dose/24 hrs' box to indicate whether further doses of opioid can be administered. Where this practice is introduced the hospital policy, or guideline, must specify a standard sedation scoring system and nursing and medical staff should be familiar with the sedation scale used.

Using the 4 point sedation scale of 0 to 3 published by the Victorian Quality Council, the PRN order could specify "if sedation score less than 2" as shown in the example below. The use of error-prone symbols "**<**" should be avoided.



3 The Working Group of the Australian and New Zealand College of Anaesthetists and Faculty of Pain Medicine (2010), *Acute Pain Management: Scientific Evidence (3rd edition)*, ANZCA & FPM, Melbourne.

4. Victorian Quality Council. (2007) Acute Pain Management Measurement Toolkit. From http://www.health.vic.gov.au/qualitycouncil/downloads/apmm_toolkit.pdf

Caution when ordering nutritional supplements on the NIMC

The *National Inpatient Medication Chart* (NIMC) is not designed for charting and recording the administration of oral or enteral nutritional supplements. Its use for these purposes has been shown to cause:

- confusion between nutritional supplements and medicines with the potential for patients to receive medicines in error e.g. *Pulmocare* has been mistaken for the corticosteroid inhaler *Pulmicort* and amino acid liquid *Nepro* mistaken for the antiepileptic medication *Keppra*
- delays in the provision and administration of nutrition to patients if the NIMC is sent to the pharmacy for dispensing.

Some health services use a separate clinical nutrition chart for ordering and recording the administration of nutritional supplements.

Other health services have elected to use the NIMC for ordering and recording regular administration of nutritional supplements. Generally for those patients who are unable to meet their nutritional requirements through oral diet, regular supplements or snacks.

Health services that choose to use the NIMC for ordering nutritional supplements should undertake a risk assessment of their process and

have a local policy, or procedure, on ordering and recording the administration of nutritional supplements. The same requirements that apply to safer prescribing and administration of medicines on the NIMC apply to ordering and recording administration of nutritional products on the NIMC.

More information on managing the risks from ordering and recording administration of nutritional supplements on the NIMC is available at www.safetyandquality.gov.au/our-work/medication-safety/medication-chart/support-material/ordering-nutritional-supplements/

New private hospital NIMC and day surgery chart

The Commission has made available a new version of the private hospital NIMC and two versions of the private hospital day surgery NIMC.

The PRN section of the private hospital NIMC has been redrafted to match that in the standard NIMC (that is, recording administration horizontally). This was a change requested by private hospitals at the *National Private Hospital NIMC Round Table* convened by the Commission on 24 May 2011.

A private hospital day surgery NIMC has been developed at the request of day surgery facilities. It is a specialist version of the NIMC and includes tear-offs for supply and PBS claiming. A version without tear-offs is also available.

Use of a standard medication chart in private acute services and day procedure services reinforces the national status of the NIMC and contributes to other benefits such as inclusion of the standard chart in health professional curricula. It also standardises medication charting across public and private sectors which reduces unfamiliarity of medication charts and associate processes for health professionals working across the sectors. Private hospital NIMC resources and information are available from the Commission web site at www.safetyandquality.gov.au/our-work/medication-safety/medication-chart/private-hospital-and-private-hospital-day-surgery-nimc/

"Wrong patient" medication errors

25% of patient identification incidents in Australia are medicines administered to the wrong patient, almost twice as many as wrong procedure errors (mostly phlebotomy incidents) and three times as many as mislabelled pathology or medical imaging orders. [5]

"Wrong patient" medication errors can occur at any point in the patient's journey – not just when medicines are administered to patients. For example when prescribing, affixing the patient ID label to the medication chart, dispensing, and when monitoring patients. [6]

NSQHS Standard 5 – Patient Identification and Procedure Matching requires health service organisations to have explicit processes to correctly match patients with their intended care using at least three approved patient identifiers. These processes should extend to using three identifiers in all patient associated tasks in the medication use process when: [6]

- Medicines are prescribed
- Pharmacists and technicians enter/verify orders and dispense medicines
- Medicines are administered
- Medicines are collected from the pharmacy by patients or carers
- Diagnostic, pathology test results are received, given, and/or documented (results that may be relied upon when medicines are prescribed).

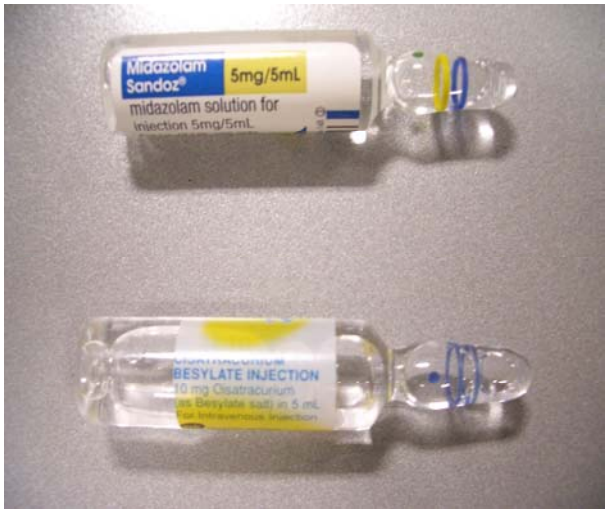
The three approved identifiers are the patients' name, medical record number (URN) and date of birth. For outpatients e.g. patient or carers collecting medicines from the pharmacy the

patient's address may be used in place of the URN.

5. Thomas MJW, Runciman WB. Mapping the limits of safety reporting systems in health care — what lessons can we actually learn? *Medical Journal of Australia* 2011;194(12):635-39.
6. ISMP. Oops, sorry, wrong patient! A patient verifiifation process is needed everywhere, not just at the bedside. ISMP Medication Safety Alert: Institute of Safe Medication Practice, 2011.

Look alike incident in anaesthesia

The Commission has been alerted to an incident involving midazolam and mivacurium ampoules in which a patient was inadvertently administered the neuromuscular depolaring agent mivacurium when the sedative midazolam was ordered. The ampoules look very similar. See below.



Anaesthesia is a high risk area for medication errors with drug administration errors occurring around once in 135 anaesthetics. [7] As anaesthetists both prescribe and administer medicines the usual check in the administration process is removed, increasing the responsibility of the anaesthetists to be diligent and develop safe practices. The Australian and New Zealand College of Anaesthetists have developed G*uidelines for the safe administration of injectable drugs in anaesthesia* .[8] These excellent guidelines outline a range of strategies for reducing the risk of error when handling and administering medicines in anaesthesia. These include:

- purchasing decisions (including avoiding look alike packaging and labelling)
- safe storage of anaesthesia drugs in the anaesthetic workspace and during anaesthesia
- labels
- drawing up and checking drugs.

Health services and day procedure services are encouraged to implement the guidelines in their organisations.

7. Webster CS Merry AF, Larsson L, McGrath KA, Weller J. The frequency and nature of drug administration error during Anaesthesia. Anaesthesia and Intensive Care 2001;29:494-500
8. ANZCA Guideline PS51 (2009) – Guidelines for the Safe Administration of Injectable Drugs in Anaesthesia.

Review of the *Indicators for Quality Use of Medicines in Australian Hospitals*

The Commission is reviewing the *Indicators for Quality Use of Medicines in Australian Hospitals* which were developed in 2007 by the NSW Therapeutic Advisory Group. The indicators are process indicators that measure compliance with processes of care related to medicines management that have been shown to improve health outcomes. They are thus surrogate measure for these health outcomes.

The indicators address six therapeutic domains:

- Antithrombotic therapy
- Antibiotic therapy
- Medication ordering
- Pain management
- Continuity of care
- Hospital-wide medication policies

The review will ensure that the indicators remain current and incorporate the latest evidence and guidelines.

In addition, the Commission has asked that additional indicators be developed for psychiatric services and medication reconciliation.

The indicators will assist hospitals and other high risk health services to acquit elements of *National Safety and Quality in Health Care Standard 4: Medication Safety*.

The project will conclude in March 2013.

Electronic Medication Management Systems: A Guide to Safe Implementation 2nd Edition

A second edition of the guide to safe implementation of electronic medication management systems has been released.

The Commission led a process of testing and validating the first edition of the guide through on-site engagement with hospitals and agencies implementing EMM both in the public and private sectors.

The second edition of the guide has been:

- Validated in public and private hospitals
- Informed by the experiences of previous Australian EMMS hospital implementations, and extensive stakeholder consultation.

The guide provides guidance on the activities required for safe and effective implementation of EMMS in Australian hospitals.

The revised guide is available from the Commission web site at www.safetyandquality.gov.au/our-work/medication-safety/electronic-medication-management-systems/ In addition, an updated implementation planning template is also available along with a document outlining specialist functions.

New on line learning resources

Antimicrobial Prescribing Modules

The Commission has worked with NPS Better Choices, Better Health to develop a series of antimicrobial prescribing training modules. The modules are designed for new prescribers (e.g. medical postgraduate years 1 & 2). The first three modules will be available shortly on the NPS web site www.nps.org.au They include

- Surgical prophylaxis
- Cather associated urinary tract infection
- Bacteraemia

These educational modules form part of our work to reduce antimicrobial resistance through effective antimicrobial stewardship programs. For further information, go to our web site at www.safetyandquality.gov.au/our-work/healthcare-associated-infection/antimicrobial-stewardship/

Medication Safety Modules

The NPS has released a series of on line learning modules on medication safety. The content of the modules covers the various causes of medication errors and is designed to equip health professionals with the knowledge and skills to help prevent errors from occurring in the workplace.

The modules on what individuals can do to increase safety for their patients. The modules are suitable for doctors, pharmacists and nurses working in hospitals and undergraduate students. The modules can be accessed from www.nps.org.au/health_professionals/online_learning/medication_safety