

MEDICATION SAFETY

The Australian Commission on Safety and Quality in Health Care

ISSUE 1 • JANUARY 2009

National Inpatient Medication Chart 2009

A revised National Inpatient Medication Chart (NIMC) is now available for implementation by hospitals from January 2009. A 2009 long-stay version (for acute care) is also available. Both low and high resolution versions can be found in the Medication Safety Program section of the Commission web site at www.safetyandquality.gov.au

The new NIMC 2009 is the outcome of a quality improvement project undertaken during 2008. This included an evaluation of existing audit data, consultation with users and a workshop. A full report on the quality improvement project is available below.

The NIMC 2009 version contains several changes identified through the quality improvement process including:

- Moving the patient identification box on page 1 to give more room for the first prescriber to print the patient's name;
- Aligning the warfarin and variable dose medication administration times with the regular medication administration times;
- Adding "Controlled release" to the definitions in the sustained release box;
- Swapping the patient ID box and the adverse drug reaction (ADR) sticker space on page 4 so it aligns with the page 1 layout and allows the use of ADR stickers designed to be applied to two pages.

In addition, jurisdictions can remove the discharge medication section from the NIMC. This will be reflected in the *Jurisdictional Guidelines for Local Management of the NIMC* (also available on the Commission website).

Paediatric versions of the NIMC

On 5 December 2008, Health Ministers endorsed use of paediatric versions of the NIMC and the NIMC long-stay chart for all children in Australian hospitals.

The charts are similar to the existing NIMC but with some additional paediatric safety features including:

- Dose calculation box;
- Provision for double signing of doses administered; and
- Additional space for recording weight, height, body surface area and gestational age.

Warfarin and variable dose sections have been removed.

The charts and associated materials were developed by Children's Hospitals Australasia and recommended for national use by the Commission's NIMC Oversight Committee.

The charts are available in the Medication Safety Program section of the Commission web site www.safetyandquality.gov.au Implementation, audit and education materials are also available on the website.

PAEDIATRIC MEDICINE CHART of

Facility/Service: _____ ADDITIONAL CHARTS
Ward/Unit: IV Fluid BC
 Inhalation Ch

ONCE ONLY MEDICATION

Date Prescribed	Medicine (Print Generic Name)	Route	DOSE	Date/Time to be given	Signal

National Terminology, Abbreviations and Symbols for Prescribing and Administering Medicines in Australian Hospitals

On 5 December 2008, Health Ministers agreed a national terminology, abbreviations and symbols for prescribing and administering medicines in Australian hospitals.

The document is available from the Medication Safety Program section of the Commission web site

www.safetyandquality.gov.au for implementation from January 2009. The standard was developed by the NSW Therapeutic Advisory Group and is a useful adjunct to the NIMC.

Unclear or dangerous terminology, abbreviations and symbols risk patient safety. A national standard represents agreement on which terminology, abbreviations and symbols should be used and which to avoid. It is part of a national effort to reduce the risk of, or harm from, medication error through standardising practice.

Most States and Territories, and many private facilities, are already using the standard. Hospitals are encouraged to incorporate the standard into their protocols, practices and education programs.

NIMC quality improvement project

The Commission undertook an NIMC quality improvement project during 2008. With over two years use since implementation, it was time to evaluate the use of the chart and its safety features. The main outcome of the project is the NIMC 2009 version.

Main observations from the project are:

- Overall the NIMC has been well implemented with minimal variation;
- While recognising that a national chart may compromise local functionality from time to time, most NIMC users support the patient safety gains obtainable from national standardisation; and
- The inability of GP prescribing software to create a medication order consistent with the NIMC is impeding its use in rural and remote acute facilities.

NIMC quality improvement process

Data was collated from audits provided by States and Territories. Pre-NIMC pilot data on 21,000 medication orders, involving 1,770 patients in 31 sites, was compared with data from more than 35,000 medication orders, involving more than 2,860 patients from more than 300 sites collected after NIMC implementation.

Further information was sought from individuals, hospitals and all jurisdictions. Over 400 individual responses were received, raising over 700 issues.

Analysis results

From the data available, it appears that introduction of the NIMC has resulted in improved safety in some important aspects of prescribing and administering of medicines in some jurisdictions. These include:

- Improved documentation of medications that previously caused adverse drug reactions;
- Reduced prescribing of medications that previously caused adverse drug reactions;
- Improved documentation of controlled release formulations;
- Some improvement in the completeness and clarity of medication name, route, dose, administration time and frequency; and
- Improved documentation of PRN medications indications and maximum doses.

However, opportunities for medication error and possible adverse drug events remain as a result of incomplete or unclear documentation of certain aspects of prescribing and medication-related patient information. This was especially so in areas such as the description of adverse drug reactions and PRN dose frequency information.

Jurisdictional representatives on the NIMC Oversight Committee stressed the need for ongoing and coordinated management of the NIMC locally and nationally as well as ongoing education about the NIMC and its use, layout and safety features.

Using the analysis results

Analysis of the information and views provided by users identified 52 main issues which were categorised into 26 major themes. Eight changes were recommended for an NIMC 2009 version. A further 15 changes were recommended for possible trialling, piloting and incorporation in an NIMC 2010 version.

Workshop on 3 September 2008

The recommendations were considered by the NIMC Oversight Committee at a workshop held in Adelaide. In addition to Committee members, all States, the ACT and the private sector nominated clinicians (doctors, nurses and pharmacists) to participate in the meeting, some of whom were specifically drawn from district and rural facilities.

Clinicians strongly supported standardised charting generally and the NIMC specifically.

Agreement was reached in three areas:

- immediate modifications to create an NIMC 2009 version;
- changes to be trialled for possible inclusion in an NIMC 2010 version; and
- a national audit tool and guidebook.

Changes identified for study or trialling and possible inclusion in a 2010 NIMC version include:

- developing a standard medication admission history / reconciliation tool;
- using the section for recording 'medication taken prior to presentation to hospital' for VTE risk assessment;
- changing variable drug dosing to twice daily dosing;
- a separate anti-coagulation chart or a separate section within the current chart – for both warfarin and heparin; and
- a four page version of the NIMC to enable GP prescribing systems to print orders in the NIMC format.

Outcomes of the 3 September 2008 NIMCO Committee workshop are available on the Commission website, as are the outcomes from all NIMC Oversight Committee meetings.

A national audit tool and audit guidebook was also agreed and will be available on the Commission website.

Private Sector NIMC

Private sector representatives attending the 3 September 2008 workshop met separately and agreed key elements for a private sector version of the NIMC.

The private sector has particular issues implementing the standard NIMC because of Pharmaceutical Benefits Scheme prescription requirements.

The new private sector NIMC partly resolves the issue through the following design features:

- the chart to be printed onto heavy card with 3 part NCR pages stapled at the inside crease and to the rear page to accommodate PBS prescriptions;
- the format of page one to be identical to the standard NIMC and printed directly to the heavy card;
- the Variable Dose, Warfarin and Regular Medications sections to be printed on NCR paper and stapled to the inside of the card;
- the format of the Variable Dose and Warfarin order sections to be identical to the NIMC except the dose time for warfarin will be 1800;
- resolution of the format of the Regular Medications order section to accommodate both administration and dispensing instructions;
- reintroduction of 'indication' to the regular medication order section; and
- the format of page four [PRN section] to be modified to accommodate PBS prescribing and to be printed on NCR paper in order to include prescriptions.

The private sector NIMC will be available in the Medication Safety Program section of the Commission web site

www.safetyandquality.gov.au



Literature review: Medication safety in acute care in Australia

As part of the Commission's scoping study of national medication management, Associate Professor Libby Roughead and Dr Susan Semple prepared a literature review of Australian studies on medication safety in acute care published since 2002. This review provides an update to the former Australian Council for Safety and Quality in Health Care's *Second National Report on Patient Safety 2002 – Improving Medication Safety*.

Key findings of the review include:

- Estimated incidence of medication-related hospital admissions remains at 2-3%;
- Approximately 50% of these are potentially preventable;
- Medication errors are the second most common incidents reported in hospital incident monitoring systems (with omission and overdose the most frequent); and
- 75% of oncology patient hospital admissions are associated with an adverse drug reaction of which 48% are potentially preventable (1 study).

The review:

- Enhances the evidence base for the proposition that systems factors are major contributors to medication error;
- Demonstrates that limited research is available on assessing the impact of an integrated set of activities on medication safety and that none of the research used adverse drug events to measure patient outcomes.

Both the literature review and the Second National report on Patient Safety – Improving Medication Safety (2002) are available on our web site www.safetyandquality.gov.au.



Windows into Safety and Quality in Health Care 2008

Windows into Safety and Quality in Health Care

The Commission's *National Report 2008: Windows into Safety and Quality in Health Care* is available on our web site www.safetyandquality.gov.au.

The report provides an overview of safety and quality in the Australian health system in 2008. It focuses on the current priority areas of the Commission and gives a picture of the kind of healthcare safety and quality Australian patients experienced in 2008 and what their experience could be in the future.

Medication safety is addressed in Chapter 4: *Medication Safety – Will adverse drug events be reduced?* and is available as a separate document on the web site.

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