Medication safety in Australia
an overview

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Australian Commission on Safety and Quality in Health Care
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Medication safety and quality

- “Medications are the most prevalent health therapy in Australia. In any two week period, around seven in ten Australians will have taken at least one medicine. For older Australians, that increases to nine in ten.”
- Windows into Safety and Quality in Health Care 2008
Medication safety and quality

Medicines can cause harm

• **Adverse drug reactions** (Preventable, non-preventable)

• **Medication errors**
  • Knowledge based (Lack of knowledge)
  • Rules based (Bad rule, misapplying a good rule)
  • Action based (Slips e.g. selecting wrong drug)
  • Memory based (Lapses e.g. forgetting pt allergic)

• Aronson JK *Medication errors: what are they, how do they happen, and how to avoid them.* Q J Med 2009 102:513-521
Medication safety reports

Preventing Medication Errors

**Medication errors: problems and recommendations from a consensus meeting**

*Abstract:*

Medication errors are a major cause of patient harm in healthcare settings. The Institute of Medicine has estimated that medication errors are responsible for 1.5 million preventable hospitalizations and 7,000 deaths per year in the United States. This consensus meeting was convened to address the issue of medication errors and to develop recommendations for improving medication safety.

**Recommendations:**

1. Develop and implement a comprehensive medication error reporting system to capture and analyze data on medication errors.
2. Improve communication between healthcare providers and patients regarding medication orders and administration.
3. Implement computerized provider order entry systems to reduce the risk of medication errors.
4. Educate healthcare professionals about the causes and consequences of medication errors.
5. Develop and implement standardized medication reconciliation processes at the time of hospital admission.
6. Establish a culture of safety in healthcare organizations to foster open communication and learning from medication errors.

**Conclusions:**

Medication errors are a complex problem that requires a multifaceted approach involving improvements in medication order, administration, and communication processes. By implementing evidence-based recommendations, healthcare organizations can significantly reduce the incidence and impact of medication errors, thereby improving patient safety.
Medication safety and quality

International/National Organisations

- WHO, World Health Alliance
- Institute of Safe Medication Practice (ISMP)
- ISMP – Canada
- National Patient Safety Agency (NHS)
- International Medication Safety Network – 20 member organisation

Publications

- Newsletters
- Books
- Safety alerts
- Websites
Medication Safety Participants

**National**
- Therapeutic Goods Administration (TGA)
- Australian Drug Reactions Advisory Committee
- Australian Pharmaceutical Advisory Council
- Pharmaceutical Health and Rational Use of Medicines Committee
- Australian Institute of Health and Welfare
- National Electronic Health Transition Authority
- Professional Associations
- Consumer Associations
- Industry Associations
- Hospital Associations
- Health Insurance Agencies

**Aust Commission on Safety & Quality in Health Care**
- National Prescribing Service
- Australian Patient Safety Agency
- Australian Council on Healthcare Standards
- National Health and Medical Research Council
- National Institute on Clinical Studies
- Centre for Research Excellence in Patient Safety

**Clinical Excellence Commission**
- Greater Metropolitan Clinical Taskforce
- NSW TAG SAFER Medicines Group
- Incident Information Management System (IIMS)
- NSW Healthcare Complaints Commission
- Professional Registration Boards
- Universities
- Joint TAGs

**NSW Health Branches:**
- Health Performance
- Quality and Safety
- Pharmaceutical Services
- Public Health
- Infection Control
- Nursing
- Strategic Information Management
- Area Clinical Governance Units
- Area and Local Drug and Therapeutics Committees
- Area and Local Patient Safety Committees
- Local Medication Safety Committees
Australian Commission on Safety and Quality in Health Care

- Established in 2006
- Reports to Health Ministers
- Remit across public, private, acute and primary
- Nine priority programs including medication safety
- Lead and coordinate safety and quality in health care
National Medication Safety and Quality Scoping Study Committee Report

• 45 recommendations for action working with other organisations

Medication scoping study

Literature reviews

– Update previous national report on medication safety 2002
  • Australian acute care sector
  • Extent and causes of medication incidents and adverse events
  • Strategies and activities for improving medication safety
– NPS review of medication safety in Community

AUSTRALIAN COMMISSION ON SAFETY AND QUALITY IN HEALTHCARE
Medication related admissions approx 2-3%¹

Approx 190,000 hospital admissions/year associated with medicines ²

Cost estimate $660/year ²

1. Roughead EE, Semple SJ *Medication safety in acute care in Australia* 2008
Extent of medication problems

- Approx 50% are potentially preventable \(^1\)
- Up to 30% admissions patients >75 years medication related \(^1\)
- 74% oncology admissions associated with an adverse drug event \(^1\)
- 5 fold increase in ADR associated admissions over 1981-2002 \(^1\)
- 5% patients on warfarin INR >5, 1% abnormal bleeding \(^3\)

\(^1\) Roughead EE, Semple SJ. *Medication safety in acute care in Australia* 2008
Extent of medication problems

Psychotropic drugs 41% no outcome Documented

Administration errors rate 5% - 18%

IV infusion errors 18% (>75% rate errors)

2% – 5% drug charts contain prescribing errors

11.6% error rate with CPOE

Pts with CrCl 40ml/min

45% scripts for renally excreted drugs inappropriate dose
Causes of medication errors

21 prescribing errors by hospital interns

Contributors

Environmental factors (Workload, skill mix) 90%
Team factors (Communication, supervision) 76%
Individual factors (knowledge and skills, motivation) 76%
Task factors (Med chart design, protocols, test results) 76%
Patient factors (pt condition, communication) 62%

Causes of medication errors

29 medication errors
  21 slips and lapses (Prescribing, dispensing, administration)
  8 knowledge based (Prescribing)

Contributors
  Individual, team, patient and environmental
  Inadequate knowledge
    Difficulty accessing protocols or guidelines  23%
    Difficulty accessing drug dosing information  23%
    Unfamiliar drug  27%
  Communication problems  30%
  Unfamiliar with patient  31%

Nichols P et al. Learning from error: identifying contributory causes of medication errors in an Australian Hospital. MJA 2008;188: 276-279
Causes of medication errors

Administration errors
Contributing factors
• Interruptions\(^1\)
• Poor communication\(^1\)
• Environmental factors\(^1,2\)
  – Stress, high workload

High level of knowledge protective against errors\(^2\)

National Medication Safety and Quality Scoping Study Report

- Endorsed by Commission
- 45 recommendations for action working with other organisations
- Recommendations prioritised to inform Commission Medication program
- Medication Reference Group established
- Provide national focus for medication safety and quality

National focus for medication safety and quality

- Permanent Commission program
- Medication Reference Group
- National Inpatient Medication Chart Oversight Committee
- Jurisdictional medication safety network
- Links into all health care settings through:
  - Interjurisdictional Committee
  - Private Hospital Sector Committee
  - Primary care Committee
National focus for medication safety and quality

Priority areas for action

• Medication accuracy at transitions in care/medication reconciliation
• Lead identification and development of standardisation initiatives
• Standards for user applied labels for medicines in hospitals
• Additional standard medication charts
  – Insulin, residential care, e-version for GPs in rural sector
• Guidance document on safe e-medication management (e-prescribing/administering) systems
  – Requirements, implementation, “look and feel”
• Share lessons nationally through safety alerts, bulletins
National focus for medication safety and quality

Priority areas for advocacy

– E – health

– Education and competency in safe medication practice
Proposed National Safety and Quality framework

Consultation – July – Sept 2009
Final report 2010
22 strategies to provide safe and high quality care for patients and consumers
The Role of a National Safety and Quality Framework

• Basis of strategic and operational safety and quality plans
• Mechanism for refocusing activities, reviewing investments and designing goals
• Promote discussion with consumers, clinicians, managers, researchers and policy makers.
## 1. Patient centered

<table>
<thead>
<tr>
<th>Safe, high quality health care is always patient focused:</th>
<th>What it means for me as a patient or consumer:</th>
<th>Strategies for action by health systems and providers:</th>
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<tbody>
<tr>
<td>This means providing care that is respectful of and responsive to individual preferences, needs and values. It means a partnership between consumers, family, carers and their healthcare providers. Processes of care are designed to optimise the patient experience.</td>
<td>I can access high quality care when I need it.</td>
<td>▪ Develop service models which improve access to health care for patients.</td>
</tr>
<tr>
<td>I can access high quality care when I need it.</td>
<td></td>
<td>▪ Increase health literacy.</td>
</tr>
<tr>
<td>I can obtain and understand health information, so that I can make decisions about my own care and participate in ensuring my safety.</td>
<td></td>
<td>▪ Involve patients so that they can make decisions about their care and plan their lives.</td>
</tr>
<tr>
<td>My health care is coordinated because people and systems work in partnership with me.</td>
<td>▪ Enhance continuity of care. ▪ Minimise risks at handover</td>
<td>▪ Provide case management for complex care.</td>
</tr>
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<td>▪ Minimise risks at handover</td>
<td>▪ Facilitate patient-centred service models</td>
<td>▪ Promote healthcare rights.</td>
</tr>
<tr>
<td>I know my healthcare rights</td>
<td></td>
<td>▪ Inform and support patients who are harmed during health care.</td>
</tr>
<tr>
<td>If I am harmed during health care, it is dealt with fairly. I will get an apology and a full explanation of what happened.</td>
<td></td>
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Strategy 1.5 Enhance continuity of care
Strategy 1.6 Minimise risk at handover

What we know
- High risk of harm with failures in clinical handover
- Readmission rate $\uparrow$ 2.3 x when $\leq$ 1 medicine omitted on discharge
- 50% medication errors occur at interfaces of care
- Up to 70% variation between medicines taken before admission and ordered on admission
- Medication reconciliation $\downarrow$ errors by 70 – 80%

What we are doing
- Medication reconciliation
  - National medication admission history/medication reconciliation elements/form (MAP)
  - Implementation tools
  - Draft health standard on medication safety
    - Accurate medication history
    - Accurate list of medication provided on transfer of care.
  - WHO High 5s Collaborative project

Strategy 1.6.d: Ensuring process in place .. so medication history is available on admission to hospital, during transfer, and at discharge and summaries of care given to clinicians and patients
## 2. Driven by information

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| This means enhancing knowledge and evidence about safety and quality. Safety and quality data are collected, analysed and fed back for improvement. Action is taken to reduce unjustified variation in standards of care, and to improve patients' experiences and clinical outcomes. | **My care is based on the best knowledge and evidence.** | • Reduce unjustified variation in standards of care.  
• Collect and use data to improve safety and quality. |
| **My clinical outcomes and experiences are used to build the evidence base for care and for strategies designed to improve care.** | | • Learn from patients’ and carers’ experiences.  
• Encourage and apply research that will improve safety and quality.  
• Continually monitor the effects of healthcare interventions. |
Strategy 2.1 Reduce unjustified variation in standards of care

**Strategy 2.1.a Embed g’lines in clinical practice (including in e-decision support tools)**
**Strategy 2.1.b Systematic monitoring of compliance with g’lines, safety protocols**
**Strategy 2.1.c Every g’line contains relevant indicators**

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<th>What we are doing</th>
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<td>• Gaps in practice</td>
<td>• VTE prevention</td>
</tr>
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<td>– Private sector program</td>
</tr>
<tr>
<td>– VTE incidence 135 x greater in hospitalised patient</td>
<td>– Assessment of effect of inclusion of VTE assessment/prescribing section on NIMC</td>
</tr>
<tr>
<td>– 5 – 92% high risk patients receive VTE prevention</td>
<td>• HAI Program</td>
</tr>
<tr>
<td>• Antimicrobial use</td>
<td>• Antimicrobial Stewardship Committee</td>
</tr>
<tr>
<td>– Inappropriate antimicrobial use drives development of resistance.</td>
<td>– Publication on evidence for stewardship activities</td>
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<td>– Hospital acquired infection with MRO leads to increased morbidity, mortality and costs (healthcare and societal).</td>
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Strategy 2.2 Collect and use data to support safety and quality

• What we are doing
  • Developing national indicator set
  • Promoting QUM indicators
## 2. Organised for safety

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  ▪ Managers recognise their responsibilities for safety.  
  ▪ Governments recognise their responsibilities for safety |
| Our money funds a safe and efficient health system. | ▪ Restructure funding models to support safe, appropriate care.  
  ▪ Support and implement e-health.  
  ▪ Design facilities, equipment and work processes for safety. |
| I know that when something goes wrong, actions are taken to prevent it happening to someone else. | ▪ Take action to prevent or minimise harm from healthcare errors. |
Strategy 3.5 Clinicians recognise their responsibility for safety

What we know

- 0% interns in NSW felt adequately trained to prescribe medicines in intern year
- 84% wanted more pharmacology as undergrads
- Drug dose calculation skills performance score lower than score deemed adequate
  - 72.5% vs 91.6%
- Rate of 5.8 significant error prone abbreviations per 100 prescriptions

What we are doing

- Liaising with NPS re development of national safe medication practice learning packages
- National abbreviations

AUSTRALIAN COMMISSION ON
SAFETY AND QUALITY IN HEALTHCARE

National terminology, abbreviations and symbols to be used in the prescribing and administering of medicines in Australian hospitals

Strategy 3.1.g: All clinicians participating in safety and quality education during initial training and throughout their professional practice
2. Organised for safety

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AUSTRALIAN COMMISSION ON SAFETY AND QUALITY IN HEALTHCARE
Strategy 3.5 Support and implement E Health

- **What we know**
  - Potential for ↑risk harm with e-systems
    - without decision support (11.6% items with errors vs 5.0% in handwritten orders)
  - Implementation of e-prescribing and CDSS
    - Requires highly organised approach
    - Systems need to be integrated
  - Lack of standards for e-CDSS in Australia

- **What we are doing**
  - Working with NEHTA
  - Developing:
    - User requirements and procurement guide for hospital EMM systems
    - An implementation toolkit for hospitals
    - An optimal look-and-feel user interface, building on the National Inpatient Medication Chart (NIMC).
  - NEHTA Medication Reference Group

Strategy 3.5.c: *Enabling safety and quality experts to assist with procurement and implementation of electronic systems.*
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AUSTRALIAN COMMISSION ON SAFETY AND QUALITY IN HEALTHCARE

Safe and high quality health care for Australia
Strategy 3.6 Design equipment and work processes for safety

“Systems solutions, such as standardisation, or making things as routine as possible, are recognised as the best way to overcome slips and lapses, which are the most common cause of medication errors in acute care.”


- **What we know**
  - Standard medication chart (NIMC) (Pilot – 31 hospitals)
    - ↑ ADR documentation 21% vs 50%
    - ↑ indication documentation for PRN orders 13% vs 26%
    - ↑ target INR documentation 95 vs 71%
  - NIMC
    - 6% ↑ in overall compliance
Strategy 3.6 Design equipment and work processes for safety

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• What we are doing
  • National audit of NIMC
  • Further NIMC development
  • Anticoagulant chart
  • Insulin and BGL monitoring forms
  • Residential aged care medication form
  • Community medication form
  • Migrating to e-environment
1. Patient focused

• What we know
  • Labelling study in 4 hospitals
    – Approx 40% syringes not labelled
    – 18% - 57% invasive line labelled
  • 74% oncology admissions associated with an ADR
    – 47% preventable
    – 19% rated ADR at “totally changing my life”

• What we are doing
  • Standards for parenteral medicines user applied labels
  • Working with NSW CEC to:
    – Make Medication Safety Self Assessment tools national
    – Expanding Medication Safety Self Assessment tools to new practice areas
2. Organised for safety

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Strategy 3.7 Take action to prevent or minimise harm from healthcare errors

What we know
- Medication errors second most frequently reported errors
- Few "sentinel" events
- Drugs most often reported
  - Analgesics
  - Anticoagulants
- Greater harm with high risk drugs

What we are doing
- Sharing lessons nationally
  - Alert page on Commission website
  - Identifying need for medication safety alerts, guidance
  - Med Safety Update
- Medication safety standard – risk assessment of medication systems
Research in medication safety

Australia

– Barcoding
– Automated distribution systems
– Integrated systems approach

Research priorities in patient safety

- WHO global priorities
- High
  - Communication, coordination of care
  - Safety culture
  - Cost effectiveness of risk reducing strategies
- Other topics
  - Better indicators and monitoring tools
  - Re-engineering procedures using human factors
  - Health information technology including CPOE
  - Incorporating patient’s opinions in the research agenda
Australian Commission on Safety and Quality in Health Care medication program

www.safetyandquality.gov.au

Email: mail@safetyandquality.gov.au
References