

High Risk Medicines – Feeling the PINCH!



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Overview

Development of alerts for HRMs as a change management tool

- increased awareness of medicines that are high risk
- decreased potential for harm to patients

Survey

- impact of alerts within health services
- changes made
- systemic barriers
- future directions

PINCHS

- **P**otassium, **I**nsulin, **N**arcotics, **C**hemotherapy, **H**eparin and **S**ystems

Purpose of developing alerts

Change management (Kotter)

1. create urgency
2. form a guiding coalition
3. create a vision for change
4. communicate the vision
5. remove obstacles
6. create short term wins
7. build on the change
8. anchor the change

Change management – create a sense of urgency

`.....an order for **oral** liquid potassium chloride was drawn up in a syringe to be given to a patient via an **enteral feed tube**

.....the nurse proceeded to give the **oral** potassium chloride through the **intravenous** line.....

....the patient required resuscitation and spent 5 days in ICU'

Change management – Form a guiding coalition – High Risk Medicines Working Party

Mrs Sue Kirsa (chair)	Director of pharmacy	Peter MacCallum Cancer Centre
Dr John Buckley	GP	General Practice Victoria
Prof. Trisha Dunning	Chair in nursing	Deakin University and Barwon Health
Mr John Jackson	Board member	Pharmaceutical Society of Australia
Ms Helen Leach	Senior Advisor	Department of Health
Ms Anne Leversha	Director of Pharmacy/Senior Lecturer	Latrobe Regional Hospital/Monash University
Prof. Roger Nation	Director Faculty for Anti-infective Drug Development and Innovation	Austin Health
Dr Mary O'Reilly	Head of Infectious Diseases	Box Hill Hospital
Ms Catherine Rokahr	Senior Advisor	Department of Health
Ms Melita VanDeVreede	Chair	VicTAG QUM working party
Dr Allison Williams	Postdoctoral Research Fellow & Lecturer	School of Nursing, University of Melbourne

Guiding coalition - methodology

- literature review
- consultation with healthcare experts
- formatting with communications expert
- endorsement by the VMAC
- dissemination to chief executive officers, quality managers, doctors, nurses and pharmacists
- development of the website
- survey
- thematic analysis

The screenshot displays a web browser window showing the Victorian Government Health Information website. The page is titled "Quality Use of Medicines" and features a navigation menu on the left with categories such as "QUM home", "Initiatives", "Medication incidents", "National Inpatient Medication Chart", "High risk medicines", "Standing orders", "QUM Indicators Initiative", "Partnerships & collaboration", "VMAC membership and strategy", "Research", "Links", "Site map", and "Contact us". The main content area is titled "High risk medicines" and includes a definition of high risk medicines (HRM) as those with a heightened risk of causing significant or catastrophic harm when used in error. It lists categories of HRM: P - potassium, I - insulin, N - narcotics, C - chemotherapy, H - heparin, and S - systems. Below this, there is a section for the "High risk medicine alert system" with a table listing alert details.

High Risk Medicine	Alert and location
Potassium	<ul style="list-style-type: none">• Potassium – Australian Commission on Safety and Quality in Healthcare (ACSQHC), South Australia (SA), Victoria (VIC), Western Australia (WA), UK
	<ul style="list-style-type: none">• Subcutaneous insulin

Methodology - website

High risk medicines: Quality Use of Medicines - Victorian Government Health Information, Australia - Microsoft Internet Explorer p

Address <http://www.health.vic.gov.au/qum/initiatives/frm.htm>

- warn healthcare professionals about serious known medication risks
- outline the action required to minimise risks
- provide tools to facilitate risk minimisation

Note: Audit tools are provided to assist organisations in evaluating local practice. The Department of Human Services does not require data to be submitted.

High Risk Medicine	Alert and location
Potassium	<ul style="list-style-type: none">• Potassium – Australian Commission on Safety and Quality in Healthcare (ACSQHC), South Australia (SA), Victoria (VIC), Western Australia (WA), UK
Insulin	<ul style="list-style-type: none">• Subcutaneous insulin<ul style="list-style-type: none">◦ Subcutaneous Insulin - Alert (51kb, pdf)◦ Subcutaneous Insulin - Audit tool (338kb, word)
Narcotics	<ul style="list-style-type: none">• Fentanyl patch notice, Victoria (VIC) (48kb, pdf)• Fentanyl patches – New South Wales (NSW)• National Patient Safety Agency (NPSA) alerts National Health Service (NHS) to risks with high dose morphine and diamorphine injections• Oxycodone alert regarding the range, strength and variable rates of release of oxycodone products available - New South Wales (NSW)• Pethidine in emergency departments: promoting evidence based prescribing (246kb, pdf) Available from the The Medical Journal of Australia website.
Chemotherapy	<ul style="list-style-type: none">• Methotrexate - UK
Heparin (and other anticoagulants)	<ul style="list-style-type: none">• Enoxaparin – Queensland (QLD)• Medication Safety Self Assessment for antithrombotic therapy• Warfarin - NSW• Actions that can make anticoagulant therapy safer - UK• Unfractionated Heparin – Alert (89kb, pdf)• Unfractionated Heparin – Audit Tool (79kb, pdf)• Unfractionated Heparin - Audit Tool (363kb, MS Word)
Systems	<ul style="list-style-type: none">• Clinical Handover - Victorian Quality Council• Promoting safer measurement and administration of liquid medicines via oral and other enteral routes - UK• NSW TAG recommendations for terminology, abbreviations and symbols used in the prescribing and administration of medicines (283kb, pdf)• Wrong route administration of oral liquid medicines• Wrong Route Administration of Oral Liquid Medicines - Alert (as at July 2008) (61kb, pdf)• Wrong route administration of oral liquid medicines - Audit tool (as at July 2008) (387kb, MS Word)

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Change management – Create a vision for change

Quality use of
medicines alert

WRONG ROUTE ADMINISTRATION OF
ORAL LIQUID MEDICINES

Contributing factors

Recommendations

Moving from potential harm to safe care

Actions

Roles and responsibilities

Vision for change

Endorsed by the
Victorian Medicines Advisory Committee (VMAC)

Quality use of medicines alert

WRONG ROUTE ADMINISTRATION OF ORAL LIQUID MEDICINES

Attention	Chief executive officers (CEOs), directors of medical services, doctors, nurses and pharmacists		
Alert	ORAL LIQUID MEDICINES administered via the WRONG ROUTE can be FATAL or cause SERIOUS HARM		
Date	February 2008	Issue	Vol.1. No.1
Further information	www.health.vic.gov.au/vmac/projects/hrm.htm		

Case studies

How oral medicines administered via the wrong route can be fatal or cause serious harm

Australian case examples

An order for oral liquid potassium chloride (KCl) was drawn up in a syringe to be given to a patient via an enteral feeding tube. IV medications were also drawn up in syringes and taken to the patient's bedside in the same kidney dish. Two nurses prepared and checked this patient's medication. The second nurse was called away. The nurse attending the patient proceeded to give the oral KCl through the IV line

Introduction

Critical incidents have occurred when oral liquid medicines have been administered via both the intravenous (IV) and subcutaneous (SC) routes.

Error – an example

A dose of a liquid medicine intended for oral administration was measured using an IV syringe and inadvertently administered via the IV route.

Contributing factors

- Devices designed specifically for accurate measurement of doses of oral liquid medicines may not be readily available on the ward.
- Syringes used to prepare oral liquid medicines are easily connected to access devices for other routes of administration, for example, IV cannulas, IV tubing.
- Multiple formulations of the same drug are available for different routes of administration.
- Interruptions may occur between preparing a dose and administering it to a patient.
- Patients may have nasogastric (NG) and IV lines running simultaneously.
- Oral and IV medications are transported to the patient's bedside in the same container.

Recommendations

Change management –remove obstacles and create short term wins



Change management – build on and anchor the change



High Risk Medicines Alerts - Survey

Designed to gain feedback on:

- increased awareness
- improved patient safety
- change
- relevancy
- perceived barriers
- proposed areas for future
- format and content of alerts
- future directions

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Survey results – respondents



Pharmacists 53%



Nurses 31%



Doctors 3%

Others 5%

Survey results

The alerts were:	Agree	Neutral	Disagree
useful for effecting change	86%	12%	2%
increased awareness	87%	11%	2%
Relevant	71%	24%	5%
considered to improve patient safety	90%	8%	2%
considered to assist us in identifying areas for improvement	86%	12%	2%

Survey results

Describe changes made in your organisation...



Survey results

Themes:

- stocks rationalised and labelling reviewed
- policies procedures and protocols reviewed
- orientation and education materials revised
- charts revised

Survey results (insulin) – you told us....

'....the alert prompted a meeting between the medication safety officer, head of endocrinology and principal diabetes educator. All protocols were collated and reviewed and the range of stocks in the clinical areas were reviewed. An audit was done of all the fridges and their insulin stock. Our action plan included regular review and circulation of any incidents involving insulin. Orientation and educational material for junior doctors was reviewed and we conducted a trial of stickers on drug charts to alert staff 'type 1 diabetic – adjust dose but do not withhold...'

'....changes made to the way insulin stored at ward level. Advice to GP's re prescribing in units rather than 'u' – this has been difficult to implement as GPs do not believe they have to prescribe in units even when provided with recommendations....'

Survey results (wrong route administration) – you told us....

'....oral dispenser were introduced in September 2008. There was an extensive education program and promotion of the use of oral dispensers. I believe the use of oral dispensers has become standard practice at our hospital. We completed the audit tool and followed up presence of dispensers and medicine caps in all clinical areas 3 months after implementation...'

Survey results (heparin) – you told us...

- *'....as a result of the audit we are reviewing our heparin protocol – possibly changing to 25,000 units in 250ml (previously our protocol was 25,000 units in 100ml). It has also created discussion and consideration on how we prepare heparin infusions. We do not keep 25,000 unit ampoules in ward areas and infusions are made up by nursing staff. We are currently considering pre-mixed infusions if they continue to be available but some concerns with respect to storage space, expiry, potential confusion with other large volumes. We are currently reviewing our thromboprophylaxis guidelines with the introduction of a computerised tool as a result of the audit we have incorporated a specific question about heparin induced thrombocytopenia...'*

Survey results – systemic barriers

Perceived barriers:

- resources
- processes for changing policies and procedures
- availability of materials
- no governing body to influence change to GP practice
- drugs in focus rarely used



Survey results – systemic barriers – you told us...

'... lack of availability of an insulin chart to go with the NIMC was a barrier. We adapted the Queensland chart for use at our organisation...'

'...the alert recommended that a pre mixed bag of heparin is used. However, the only commercially available premixed bags are 1000 units in 500ml, which is not suitable for the indications. Statewide negotiation should be made to make appropriate strength premixed bags commercially available ...'

'... Heparin is rarely used in my organisation...'

Survey results – suggestions for future alerts

- insulin infusions
- setting iv pumps for administration of drugs
- management of cytotoxic therapy and protection of health care workers
- opioids: morphine, oxycodone, hydromorphone, pethidine
- medication allergy recording
- omission of medications
- clinical handover
- information bulletin could also include other areas of concern nationally
- labelling and packaging
- nasogastric feeding

Survey results – recommendations for improvement

Alert



- increasing awareness
- recognition that they don't apply to all hospitals
- acknowledging that specific competencies are unworkable
- timing in relation to chart development
- extending the dissemination network
- focusing on neonatal ng needs
- providing a draft hypoglycaemic policy
- enabling on-line completion of the audit tool

Survey results - recommendations for improvement

Audit tool



- recognition that small units use HRM infrequently
- making less labour intensive
- timing to synchronise with other tools such as insulin charts
- providing an on-line tool
- conducting a staff survey
- provide common guidelines or education tools
- develop an audit tool to audit patient histories for compliance in documentation

Further comments

- tailor to suit large and small health services
- audit tool valuable
- useful and timely
- nurses adopt changes more readily than doctors
- several alerts – took up med safety wp time

Summary

- Alerts were effective in increasing awareness and creating change to potentially improve patient safety
- Valuable information provided to guide future directions

Acknowledgements

Thank you to:

High Risk Medicines Working Party

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Questions?

