A Tool to Improve Medication Reconciliation & Communication

Muscillo N[1], Ogilvie M[2], Arndt K[3], Lum E[1]

[1]QH Safe Medication Practice Unit

[2]Redland Hospital & [3]Boonah Hospital

Queensland Government

Queensland Health

Overview

- Background
  - Medication Reconciliation
  - Development of Tool
- Tool
- Implementation
  - Regional Hospital
  - Rural Hospital
- Results

Medication Reconciliation

- Purpose
  - To ensure patients receive all **intended medicines**
  - To avoid **common errors** of transcription, omission, commission, duplication, drug-drug and drug-disease interactions

Medication Reconciliation 4 Steps

1. Obtain and document medication history
2. Confirm medication history
3. Compare medication lists and act on issues identified
4. Transfer verified information

Background

- Medicine errors result in approximately 140,000 hospital admissions per year (2-3% of all admissions)[1]
- Over half of all hospital medication errors occur at the interfaces of care[2]
- On admission, 1 in 2 patients have one regular medication omitted unintentionally[3,4,5] leading to:
  - Approx 33% moderate discomfort/clinical deterioration[5]
  - Approx 6% severe discomfort/clinical deterioration[5]

References:- (1) ACSQH, Second nation report on patient safety: improving medication safety (2) Elwyn G, Forster AJ, Freeman GK (2005) (3) Stowasser DA (2000) (4) Lum E (2002) (5) Cornish P, Knowles S, Marchesano R, et al. (2005)

Baseline Audit 2004/05 (n=902)

- **Up to 5 medication histories documented per patient per admission**[6]
  - Duplication of effort
  - 9 possible QH forms
  - Do not correspond
- **Medication list often not complete** (omissions, no dosages or frequency)
- Section on Statewide Medication Chart was under utilised (<20%)

Reference: - (6) QH Sites Baseline Audit 2004/2005 (SMPU)

Medication Reconciliation Tool

2005

- Development of Medication History and Reconciliation on Admission (MH&R) Form
  - Prompts to ensure
    - Completeness
    - Confirmation
    - Reconciliation
  - Kept at end of bed
- 9 pilot sites

Queensland Government

MEDICATION HISTORY & RECONCILIATION ON ADMISSION

CHECKLIST

MEDICATION LIST LEGEND

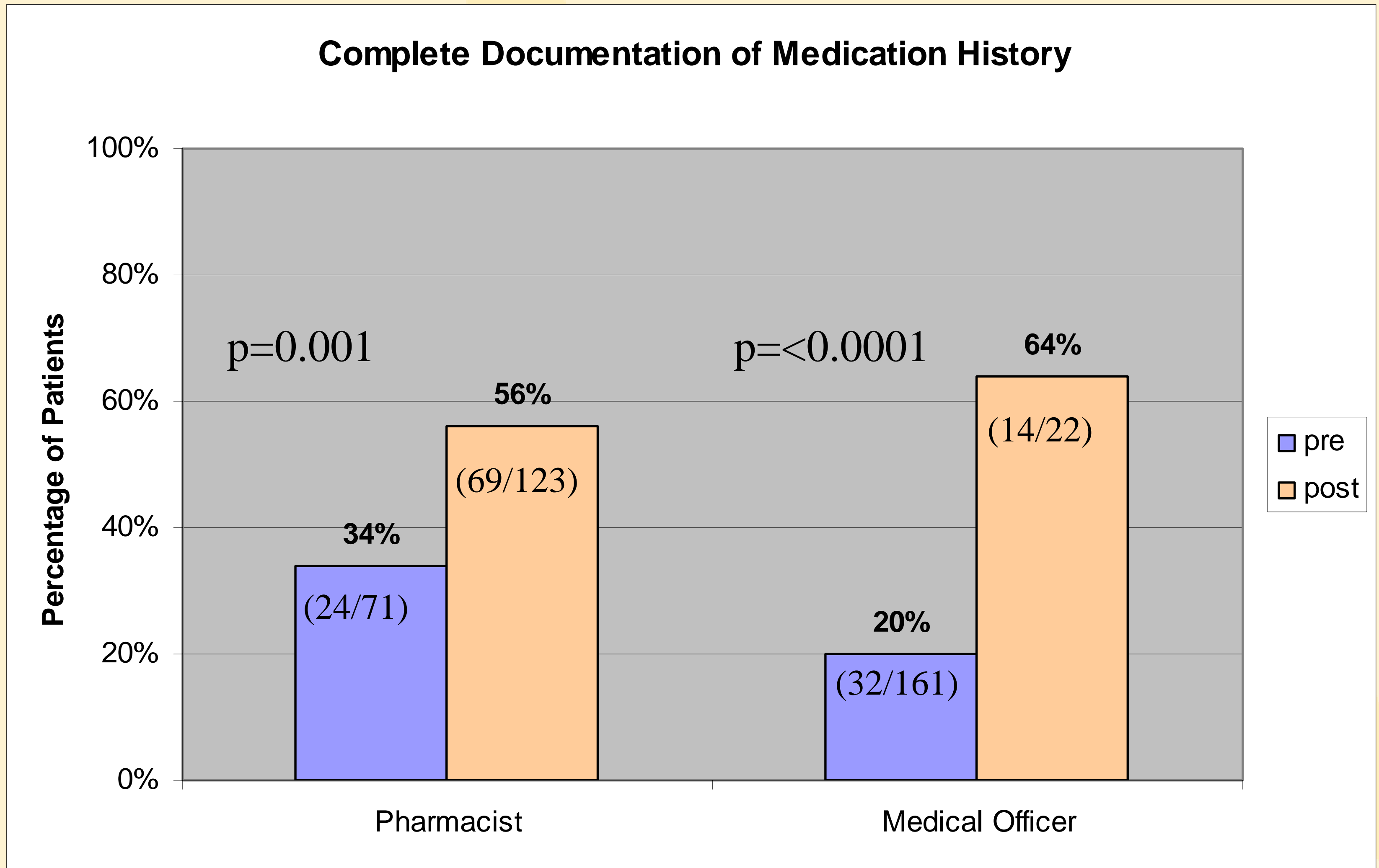
MEDICATION LIST

NOT FOR ADMINISTRATION

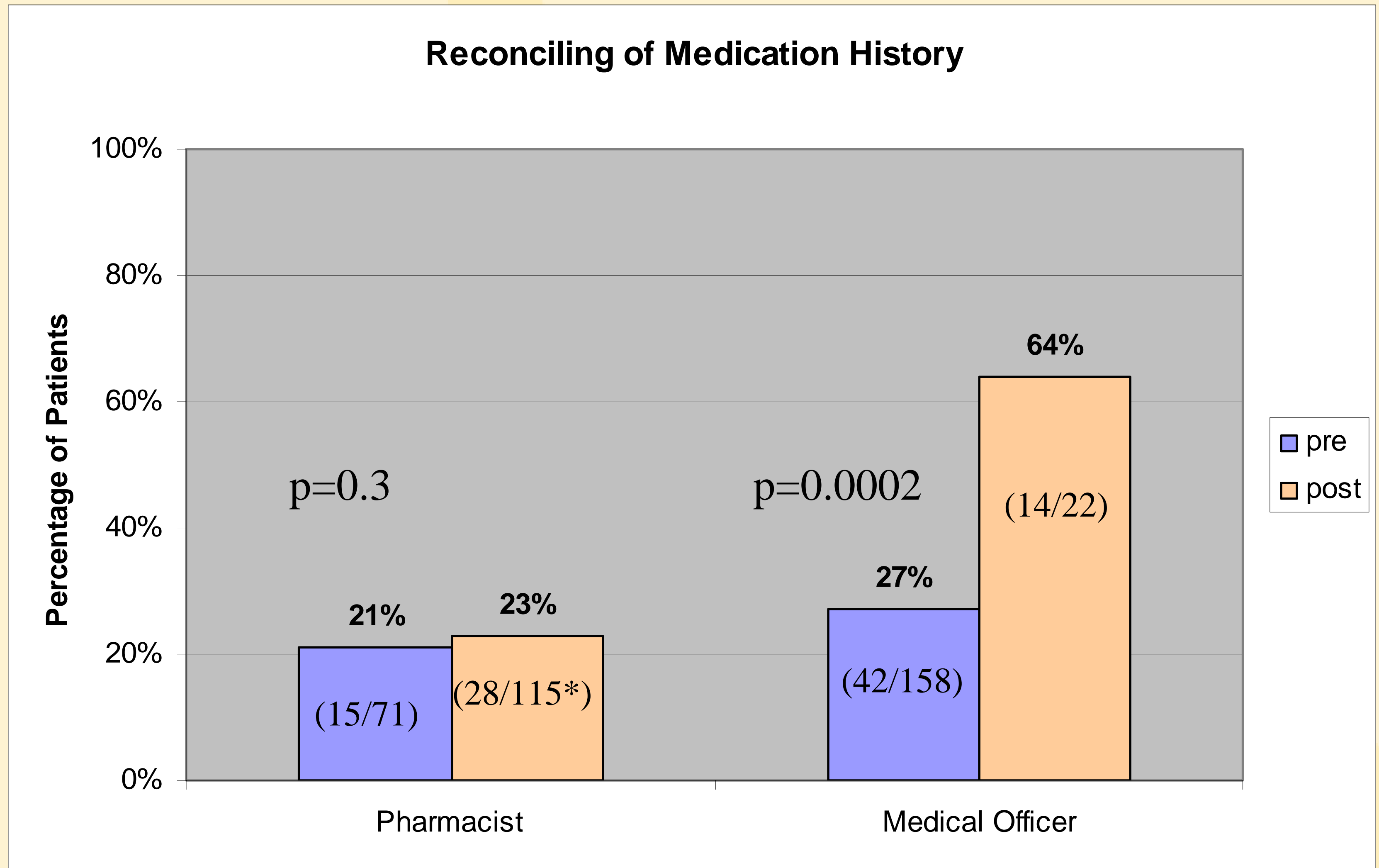
KEEP WITH ACTIVE MEDICATION CHART - DO NOT REMOVE

MEDICATION HISTORY AND RECONCILIATION ON ADMISSION

Completeness of Medication History Documentation



Patients with all medicines reconciled



* 8 patient histories had missing data

Findings

- Little change in number of patients with all medicines reconciled when pharmacists completed the form
  - No area to document any clarification obtained from prescriber
  - No standardised method to facilitate communication with admitting MO

Medication Action Plan and Handover (MAP) form

- Developed from previous single page MH&R form
  - Prompts to ensure
    - Completeness
    - Confirmation
    - Reconciliation
  - Kept at end of bed
- Improve communication
- Improve documentation
- Facilitate
  - Pharmaceutical review
  - Clinical Handover of medication issues

(Affix patient identification label here and overleaf)

ALLERGIES & ADVERSE DRUG REACTIONS (ADR)

URN:
Family name:
Given names:
Address:
Date of birth:
Sex: ☐M ☐F

1st Clinician to Print Patient Name and Check Label Correct

Queensland Government
Queensland Health

MEDICATION ISSUES AND ACTION PLAN

Facility/Service:
Date of admission: / /
Ward / Clinic:
Consultant:

Date / Time	Issue Identified	Proposed Action	Person Responsible	Date of Action	Result of Action
		Issue identified by: Contact number:			
		Issue identified by: Contact number:			
		Issue identified by: Contact number:			
		Issue identified by: Contact number:			
		Issue identified by: Contact number:			
		Issue identified by: Contact number:			
		Issue identified by: Contact number:			

DO NOT WRITE IN THIS BINDING MARGIN

MEDICATION ACTION PLAN AND HANDOVER

KEEP WITH ACTIVE MEDICATION CHART - DO NOT REMOVE

Please see over

Medication History

- Capture of complete & accurate medication history on admission.
- Form is kept in bedside folder so other clinicians have easy access

Med hx – pg 3

MEDICINES TAKEN PRIOR TO PRESENTATION TO HOSPITAL

Date	Medicine Generic name (Trade name) / Strength / Form / Route	Dose	Frequency	Indication (confirm with patient)	How long or when started	Source of information	Initials & Profession	Dr's Plan On Admission ✓: Continue w: Withhold ×: Cease Δ: Change	Reconcile ✓
23/2	Asasantin SR	200/25	BD	Thins Blood	>2yrs	C	NC RN	✓	✓
	Digoxin	250mcg	daily	HF	6 mths	"		✓	✓
	Perindopril	2.5mg	daily	HF/HTN	>2yrs	"		✓	✓
	Atorvastatin	40mg	nocte	High chol.	>2yrs	"		✓	✓
	Metoprolol	25mg	BD	HTN	>2yrs	"		✓	✓
	Omeprazole	20mg	daily	Indigestion	>2yrs	"		✓	✓
	Thyroxine	100mcg	daily	Hypothyroid	>10yrs	"		✓	✓
24/2	Temazepam	10mg	nocte prn	Aids sleep	>10yrs	CP	NS RN	✓	✓
	Pulmicort turbuhaler	400mcg	ii bd	Prevent asthma	>5yrs	CP		✓	✓
	Movicol	i	prn	constipation	6 months	"		✓	✓
	Ventolin	ii	prn	Asthma	>10yrs	"		✓	✓

RECONCILE WITH MEDICATION CHART

NOT FOR ADMINISTRATION

‘Dr’s Plan’ column done on admission enables medication reconciliation with med chart

MAP form

Reconcile with the Medication Chart

- To ensure patient receives all intended medications
  - Reconcile column

MAP form

PLUS
Confirmation & Issues

- Confirmation
  - to achieve completeness and accuracy of the medication history
- Issues
  - Changes made when discrepancies identified
  - Pharmaceutical review issues identified & resulting changes
  - Clinical Handover

Standard Process/Procedure Improves Safety

MAP – pg 2

Checklists

- Suspect Drug Related Issues
  - Lists areas requiring consideration
- Medication History Checklist
  - Lists type of medicines which may be overlooked

MEDICATION ISSUES AND ACTION PLAN *Continued from page 1*

Date / Time	Issue Identified	Proposed Action	Person Responsible	Date of Action	Result of Action
		Issue identified by: Contact number:			
		Issue identified by: Contact number:			

SUSPECT DRUG RELATED ISSUES *Could your patient be:*

- Experiencing a symptom that could be an ADE or ADR
- Experiencing a drug interaction (including complementary medicines)
- Not receiving required medication (indication untreated, non-compliant, not administered, not available)
- Receiving unnecessary medication (no indication)
- Not receiving the 'correct' therapy (failure to order, optimisation, incorrect formulation, timing)
- Exposed to a contraindication (drug-disease, drug-allergy, drug-patient, drug-food, drug-test)
- Receiving a dose too large
- Receiving a dose too small
- Receiving a dose too rapid
- Incorrectly receiving a medication that requires specific administration method

GENERAL INFORMATION

Carer / Next of Kin Details *(name, relationship to patient, address, phone, mobile phone):*

Fred Raymond (Son) 0711 369 9999

General Practitioner Details *(name, address, phone, fax, email):*

Dr S Tucker
Tucker Medical Centre
Maypole Ph: 7778 39210

Community Pharmacist Details *(name, address, phone, fax, email):*

Maypole Central Pharmacy Ph: 7778 68419

MEDICATION HISTORY CHECKLIST

- ☐ Prescription medicines
- ☐ Sleeping tablets
- ☐ Inhalers, puffers, sprays, sublingual tablets
- ☐ Oral contraceptives, hormone replacement therapy
- ☐ Over-the-counter medicines
- ☐ Analgesics
- ☐ Gastrointestinal drugs *(for reflux, heartburn, constipation, diarrhoea)*
- ☐ Complementary medicines *(e.g. vitamins, herbal or natural therapies)*
- ☐ Topical medicines *(e.g. creams, ointments, lotions, patches)*
- ☐ Inserted medicines *(e.g. nose/ear/eye drops, pessaries, suppositories)*
- ☐ Injected medicines
- ☐ Recently completed courses of medicine
- ☐ Other people's medicine
- ☐ Social and recreational drugs
- ☐ Intermittent medicines *(eg. weekly or twice weekly)*
- ☐ Ask the patient if they have had a recent Home Medicine Review
- ☐ Assess compliance by asking:
  1. "People often have difficulty taking their pills for one reason or another.. have you had any difficulty taking your pills?"
  2. "About how often would you say you miss taking your medicines?"

Back Page of MAP

- Medication Risk Assessment
  - Informs discharge process
  - Ensure patient receives support required to manage medicines at home
- Checklists
  - Discharge Checklist
    - Own medicines
    - Supply issues
  - Medication Liaison and Followup

MEDICATION RISK ASSESSMENT

Level of Independence

- Looks after own medication: ☐ Yes ☑ No
  - If no, who is responsible: Son
- Lives in Nursing Home: ☐ Yes ☑ No
- Uses dose administration device i.e. spacers, inhaler devices: ☐ Yes ☑ No
- Uses administration aid (specify): ☐ Yes ☑ No
- Uses medication record: ☐ Yes ☑ No
- Other information: DMR & ? dosette on discharge

Patient Assessment

- Can read: ☑ Yes ☐ No
- Can see/read labels: ☑ Yes ☐ No
- Can understand English: ☑ Yes ☐ No
  - If no, language spoken is:
- Can open bottles: ☑ Yes ☐ No
- Can measure liquids: ☐ Yes ☐ No ☑ No: an issue
- Other information:

MEDICATION DISCHARGE CHECKLIST

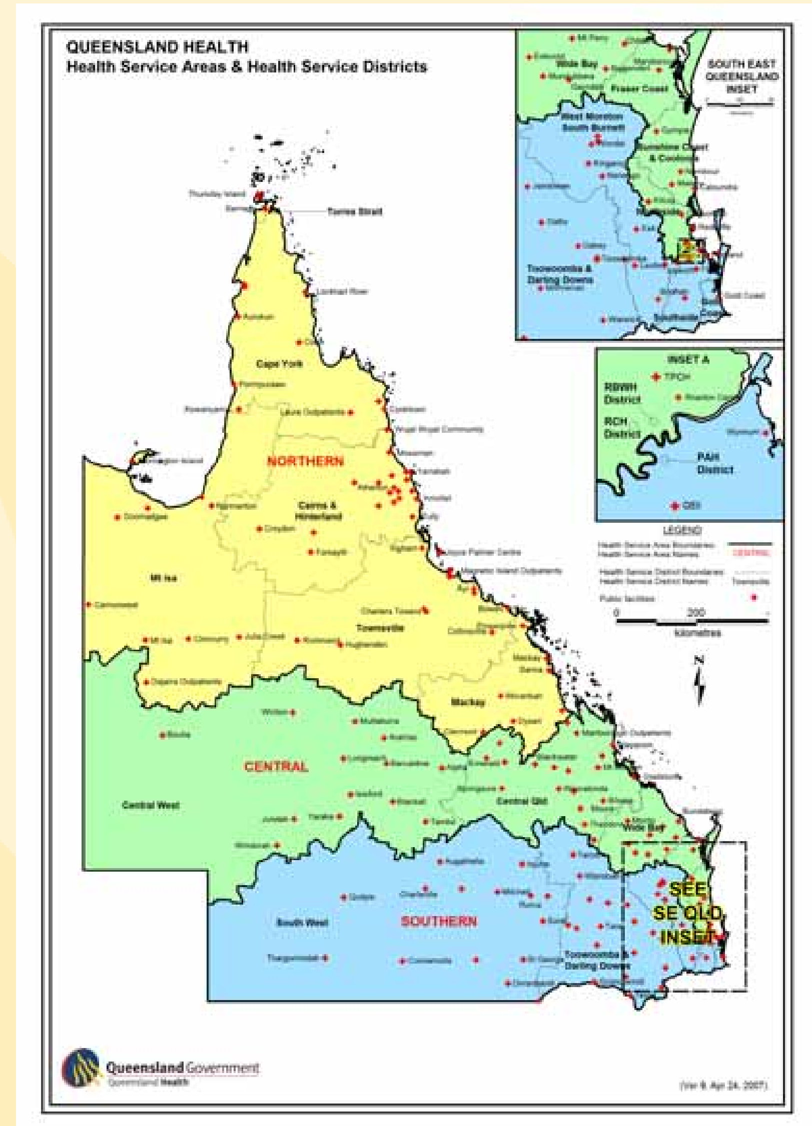
Task	Date Completed	Initial	Comments
Discharge script(s) reviewed and reconciled by pharmacy			
Discharge summary written			
Retrieve OWN medications (fridge, CD cupboard etc.) and send to pharmacy			
Review OWN medications: ☑ Have been stored appropriately and are suitable for re-issue ☐ Are updated with appropriate labelling ☐ Are removed and destroyed if no longer prescribed ☐ Patient has granted permission for destruction of drugs no longer prescribed ~~Pharmacist~~ / RN Signature: NS Date: 23/2/07			Thyroxine at home in fridge.
Review patient's repeat prescriptions			
Return imprest items to imprest cupboard			
Resolve supply issues for items that are non-SDL, non-PBS, clinical trial etc			
Dispense / supply medications and reissue OWN medications (ensuring sufficient medication to next review or visit)			
Prepare Discharge Medication Record (DMR)			
Prepare Discharge Folio (include DMR, CMIs and other information)			
Deliver medications and discharge folio to patient			
Counsel patient / carer about medications (including ongoing supply arrangement)			
Ensure medication issues have been resolved			
MEDICATION LIAISON AND FOLLOWUP			
Discharge Medication Liaison Profile sent to: ☐ GP ☐ Community Pharmacist ☐ Nursing Home/Hostel ☐ Other:			
Medication Action Plan sent to: ☐ GP ☐ Community Pharmacist ☐ Nursing Home/Hostel ☐ Other:			
Requested GP to consider referral for Home Medicines Review because: ☐ Difficulty managing medicines ☐ Suspected non compliance ☐ Inability to manage drug related therapeutic devices ☐ Taking more than 5 medicines ☐ Taking more than 12 doses per day ☐ Significant changes to medication regimen during admission ☐ Medication requiring therapeutic monitoring ☐ Other:			

Aim

To introduce the Medication Action Plan and Handover (MAP) form to facilitate medication reconciliation and communication in two non-metropolitan hospitals

Pharmacy services across the state

- 116 acute QH hospitals
  - 42 have pharmacist/s employed on site
  - 16/42 sole pharmacist
- 74 acute hospitals with **no** pharmacist/s
  - 16 have limited pharmacist support (e.g. regular visits, outreach service)
- 67+ outpatient/primary health care centres where sole nurse/health worker supply medicines



Method

Two non-metropolitan hospitals

- **Regional Hospital, 140 Beds, 5.3 FTE Pharmacists**
  - Implementation by senior clinical pharmacist
  - Extensive education sessions for medical, pharmacy & nursing staff
  - Work practice changes to incorporate use of wireless LAN technology

Method

- **Rural Hospital, 30 beds, No on site pharmacist**
  - Implementation by acting Director of Nursing, Nurse educator & Clinical Nurse
  - Medication History Training and Competency Assessment Module was used as a training resource
  - MAP form implemented after initial training had been completed

Medication History Module

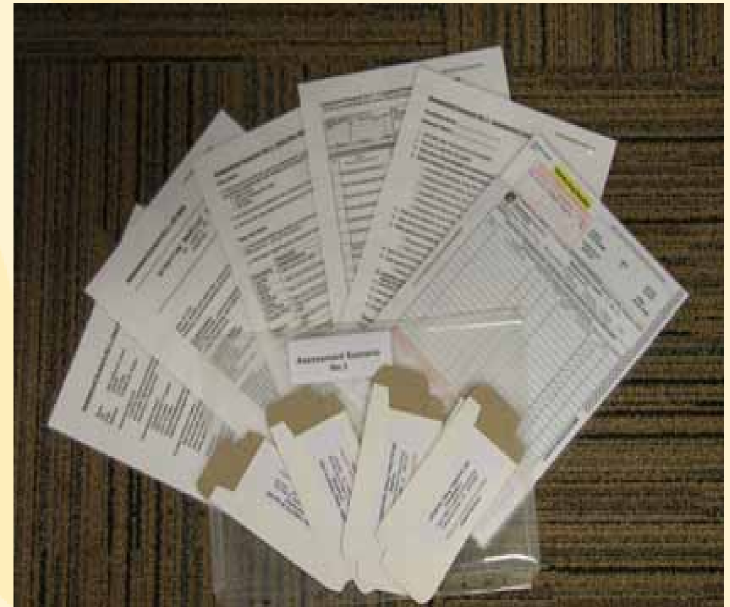
- Focuses on obtaining and documenting an accurate and complete medication history
- Contents
  - Facilitator guide
  - Self-directed Learning Material
  - PowerPoint Presentation Material
  - Scenario & Assessment Material

Module Components

- Training resources
  - Medication history video demonstrating effective communication skills using role-play examples
  - Facilitator video demonstrating the assessment process and feedback
  - Literature review, practice standards, presentation slide notes
- Assessment materials to undertake a simulated patient interview
  - Includes MAP form to record medicines

Assessment materials

- Patient based scenario
  - Case notes
  - Medication chart
  - Discharge prescription
  - Patient's own medicines
  - Doctor's plan
- Competency assessment tool



Assessment tool for modules

Safe Medication Practice Unit

Practice Scenario No.1 - Assessment Tool

Candidate Name:.................................

Assessor Name:.................................

	Yes	No
1. Provides clear introduction to consultation	☐	☐
2. Agrees on agenda with patient	☐	☐
3. Asks about drug allergies including drug name, reaction and date	☐	☐
4. Elicits following information about prescribed medication:	☐	☐
☐ *Perindopril (Coversyl) 2.5mg Tab x 1 mane*		
☐ *Warfarin (Marevan) 3mg Tab x 1 evening*		
☐ *Digoxin (Lanoxin) 62.5mcg Tab x 1 mane*		
☐ *Metformin (Diabex) 1000mg Tab x 1 bd*		
☐ Isosorbide Mononitrate *(Imdur) 120mg Tab x 1 mane*		
☐ *Glyceryl Trinitrate 600mcg Tab x 1 SL prn*		
5. Asks about indication for use	☐	☐
6. Asks about length of treatment of prescribed medication	☐	☐
7. Asks about non-prescribed medication	☐	☐
☐ *Paracetamol 500mg x 2 prn*		
☐ *Hydrocortisone cream prn*		
8. Asks about complementary medication	☐	☐
☐ *St John's Wort dose x1 for a couple of days*		
9. Uses appropriate sources for information i.e. patient, medicines and GP letter	☐	☐
10. Assesses and questions the patient on non-compliance	☐	☐
11. Identifies the need to confirm the dose of metformin with the GP and prescribing hospital doctor	☐	☐
12. Allows patient to ask questions	☐	☐
13. Uses appropriate questioning to obtain relevant information from the patient	☐	☐
14. Reconciles the admission history with the current medication chart	☐	☐

Essential criteria are 3, 4, 7& 11. Candidates must also achieve minimum 10/14 criteria.

OVERALL COMPETENT	**Yes**	**No**
	☐	☐

Comments:

Tool specific for each scenario

- Predetermined criteria
- Lists specific medications

Successful completion

- Essential criteria and minimum criteria must be achieved

Evaluation of MAP Implementation

- Pre and Post retrospective review of patient records to compare
  - Completeness of documentation of patients' medicines on admission
  - Medicines on admission with the prescribed medicines
- Survey was conducted with clinicians
  - Measure satisfaction with the form
  - Feedback/Comments

Documentation of medication history on admission

Completeness of information

- Recording drug name, dose and frequency

Did not review

- Accuracy of medication history
  - No patient interview

Pre

Post

Progress Notes

Med Chart

MAP Form

Results – Patients with all medicines documented completely

	Pre Audit	Post Audit (On MAP)
Regional Hospital (Pharmacist)	14/19 (74%)	26/32 (81%)
Rural Hospital (RN)	1/3 (33%)	11/21 (52%)

Comparing medicines on admission with the prescribed medicines

- Ascertain whether the documented histories and plan correlated with the medicines prescribed on admission

- Medicines were considered to match if the drug name, dose and frequency were clearly written onto the medication chart in accordance with:-
  - Documented plan
  - Clinical situation

- When a pharmacist or nurse had documented a medication history evidence of changes to admission medications in relation to the history documented were accepted as a match

Results – Patients with all medicines reconciled

	Pre Audit	Post Audit (MAP)
Regional Hospital (Pharmacist)	7/19 (37%)	19/32 (59%)
Rural Hospital (RN)	1/3 (33%)	16/21 (76%)

Patients with all medicines reconciled - MO vs MAP

	Pre Audit	Post Audit (MAP)
Regional Hospital	11/30 (37%) (MO)	19/32 (59%) (Pharmacist)
Rural Hospital	6/10 (60%) (MO)	16/21 (76%) (RN)

Limitations

- Retrospective Audit – no patient interview
- Reconciliation could only be accurately measured if plan for each medicine was documented
- Subjective decisions were made when no plan was available
- May have been less obvious reason for an intentional omission or change
- Difficult to match sample size

Survey results

	Useful communication tool	Issue page was useful
Regional Hospital	32/39 (82%)	29/39 (74%)
Rural Hospital	6/10 (60%)	7/10 (70%)

Survey comments

Regional Hospital

- Medication list and issue/action plan useful (Consultant)
- Complete drug history useful. Good communication and documentation (Resident)
- Good tool for communication among Dr/Pharmacist/Nurses
- Useful for preparing DMR on discharge (Pharmacist)

Rural Hospital

- Current medication, issues and action plan most useful areas of form
- Using this form really highlighted patient's lack of knowledge of their medication. Concerned of added workload for nurses
- Good resource on discharge

Differences/Complications

Regional Hospital

- Pharmacists documented medicines on admission directly into electronic format while interviewing patient
- Patient was interviewed in the ward after medication chart had already been written

Rural Hospital

- Nurses documented medicines on admission manually onto the MAP form
- Patient was interviewed in Emergency Department before medication chart was written
- Larger proportion of transfer patients

Lessons Learnt

- Local Implementer/Driver
- Requirement for continual education sessions for MOs, and nurses
- Involvement of multidisciplinary team to review and assist changes in processes
- Work practice procedure required for transfer patients
- Advantages and disadvantages with use of electronic version

Conclusion

The Medication Action Plan and Handover (MAP) form has been shown to be useful in both a nurse and a pharmacist site to assist communication of medication related information and improve medication reconciliation.

Thank you