



# Medication reconciliation – the South Australian approach

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## Background

- > **Continuity of care** issues are well recognised contributors to adverse events arising from medication use
- > **Transitions between settings** are particularly risky:
  - Home to a care setting eg admission to hospital
  - Care setting to home ie on discharge
  - One care setting to another eg acute to sub-acute or rehab, ward to ward, ICU to ward
- > **Continuity of medications** is a key component of continuity of care



# Hospital studies show

## On admission

- > at least one error in 10-67% of medication histories<sup>1</sup>
- > omission of a regular medication - 46%
- > potential for moderate–severe patient harm or clinical deterioration in 40%
- > increased LOS and suboptimal treatment

## On discharge

- > Unintentional discrepancies in up to 50% of discharge regimens<sup>2</sup>
- > Readmission 2.3 times more likely if one or more medicine omitted<sup>3</sup>

<sup>1</sup> Arch Intern Med. 200;165:424-29

<sup>2</sup> Qual Safe in Health Care 2006;15:122-6

<sup>3</sup> JPPR 2002;32:133-40.



# Medication Reconciliation

- > Proven to be an effective tool to improve continuity of medication management
- > IHI
  - 100k Lives Campaign (5Million Lives)
- > JCAHO
  - organisations must have a process in place
- > WHO
  - High 5 Patient Safety Solution
- > British, Canadian initiatives
- > Australia
  - Safer Systems Saving Lives Campaign
  - High 5's Project



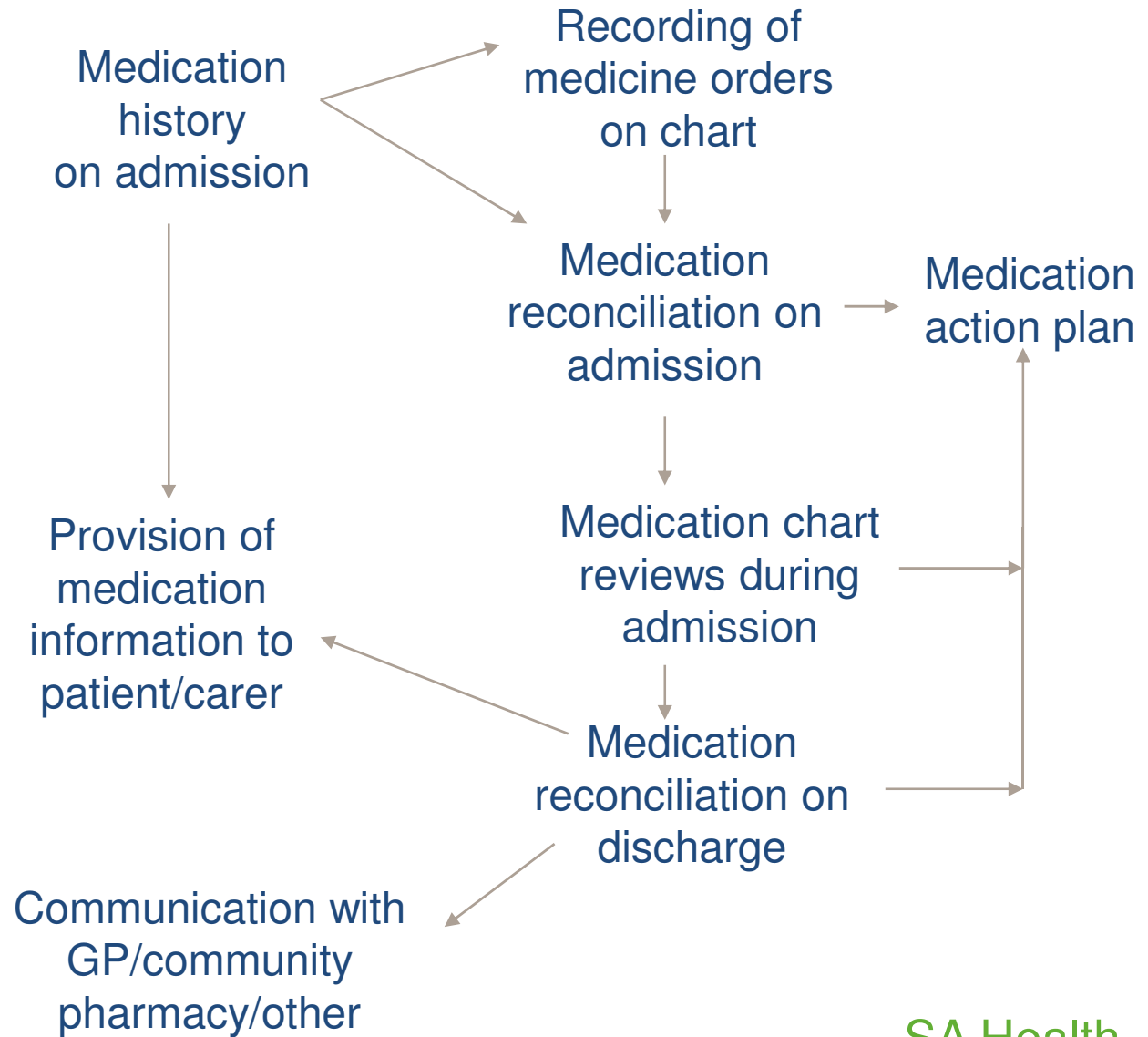
## What is medication reconciliation?

- > ..the standardised process of obtaining a complete & accurate medication history & in the context of the plan for care comparing it to admission, transfer or discharge medication orders. Discrepancies are brought to the attention of the prescriber and if changes are made, they are documented <sup>6</sup>.
- > ....At the end of the episode of care, verified information should be transferred to the next care provider <sup>7</sup>.. and to the patient.

<sup>6</sup> SHPA Standards of Practice. August 2007, J Pharm Pract Res 2007; 37 (3): 231-3

<sup>7</sup> CEC, Medication Reconciliation (Draft paper)

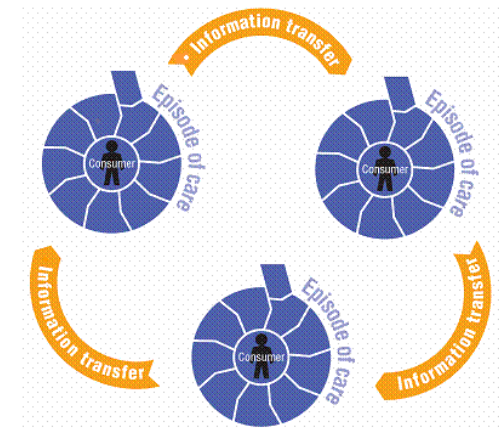
# Medication Reconciliation



# APAC Guiding Principles

to achieve continuity in medication management

- > Provide guidance and strategies for preventing medication errors transitions across care settings
- > SA forum to discuss potential strategies for implementation late '90's
- > No progress due to lack of resources



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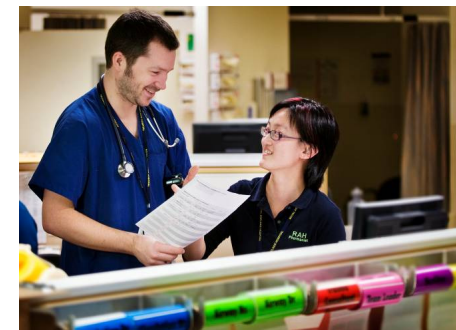


## Pharmaceutical Reforms in SA

- > Agreement to participate – PBS & APAC
- > staged implementation APAC principles commenced in 2007
- > resourced by new pharmacist FTE
- > ↑ pharmacy trainee positions
- > KPIs and timeframe for implementation of each principle developed
- agreed by C'wealth and SA Health
- > incorporated into Health Service Level Agreements

# Measuring APAC

- > 21 key performance indicators
  - 12 clinical, 9 policy
  - detailed definitions and measurement
  - based on existing indicator sets eg NSWTAG, SHPA
- > Pilot
- > Baseline data collection
  - existing data eg NIMC audits
  - targeted reviews
- > Scope
  - all admitted patients



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# Medication Reconciliation and APAC

Medication history on admission

Recording of medicine orders on chart

4.2 Percentage of pts with a complete & accurate list of medicines documented and reconciled within 24hrs of adm

Medication reconciliation on admission

Medication action plan

4.3 Percentage of pts with a correctly completed record of prior adverse drug reactions and allergy documented within 24hrs of adm

5.2 Percentage pts reviewed by clinical pharmacist within 24hrs of adm

Provision of medication information to patient/carer

Medication chart reviews during admission

7.2 Percentage pts that receive appropriate information about their medicines prior to discharge

5.3 Percentage admitted days pts receive medication review by clinical pharmacist

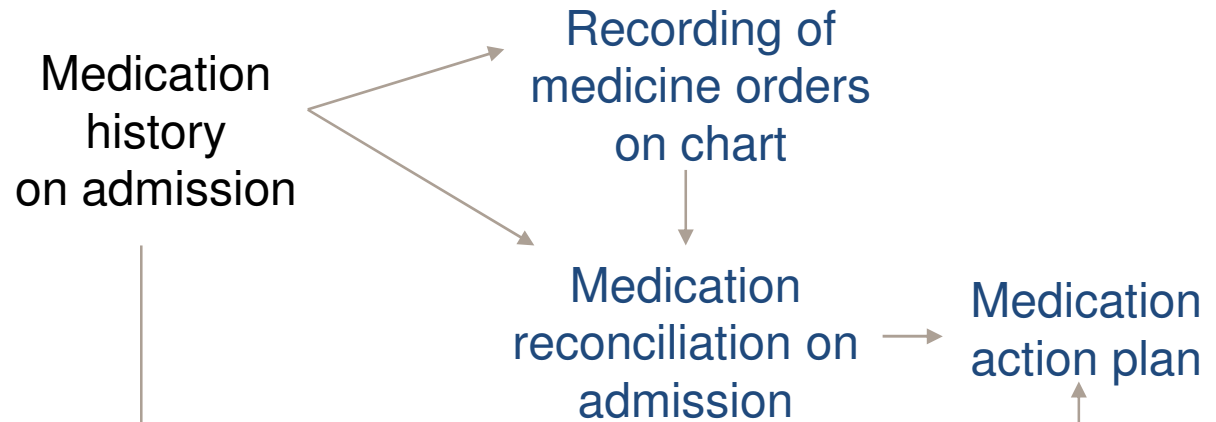
9.2 Percentage of discharge summaries documenting an accurate medication list & reasons for changes

Communication with GP/pharmacy/other

Medication reconciliation on discharge

8.2 Percentage discharge Rx reconciled by clinical pharmacist prior to dispensing

# Medication Reconciliation and APAC



5.4 Percentage pts with INR >4, order reviewed / adjusted prior to next dose

7.3 Percentage pts commenced on warfarin that receive appropriate counselling & written drug information prior to discharge

Provision of medication information to patient/carer

5.5 Percentage pts with toxic / sub-therapeutic aminoglycoside level reviewed / adjusted prior to next dose

Medication chart reviews during admission

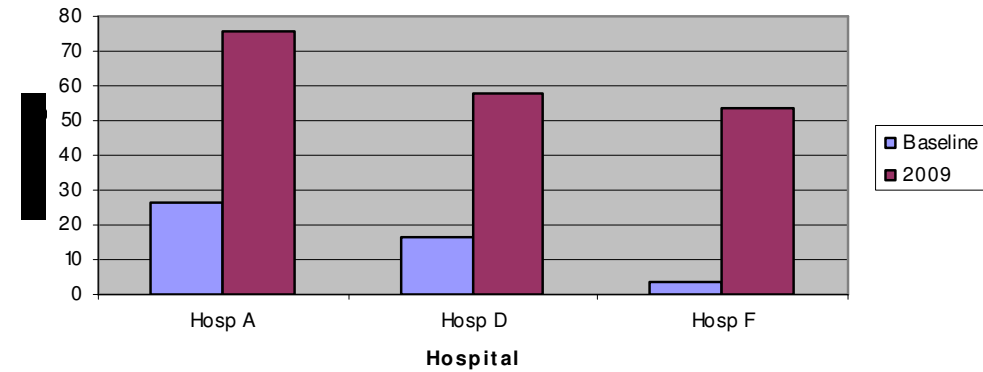
discharge

6.2 Percentage pts on salbutamol at discharge given an action plan & copy sent to primary care clinician

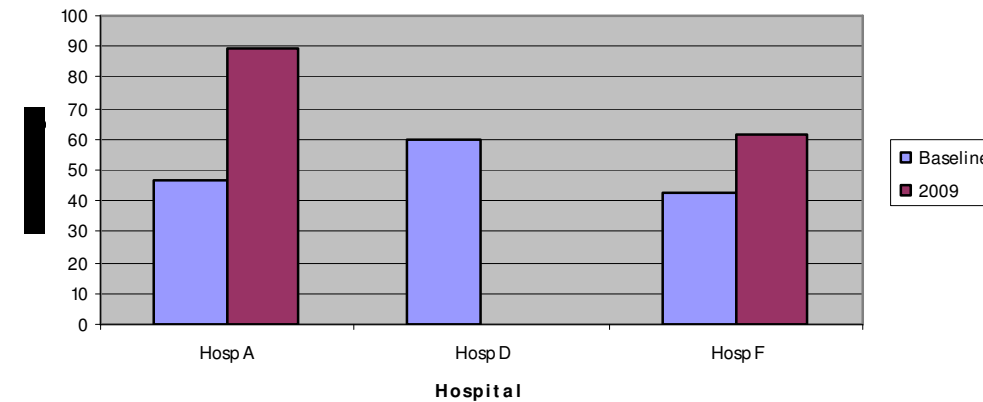
Communication with GP/pharmacy/other

# Results – to date

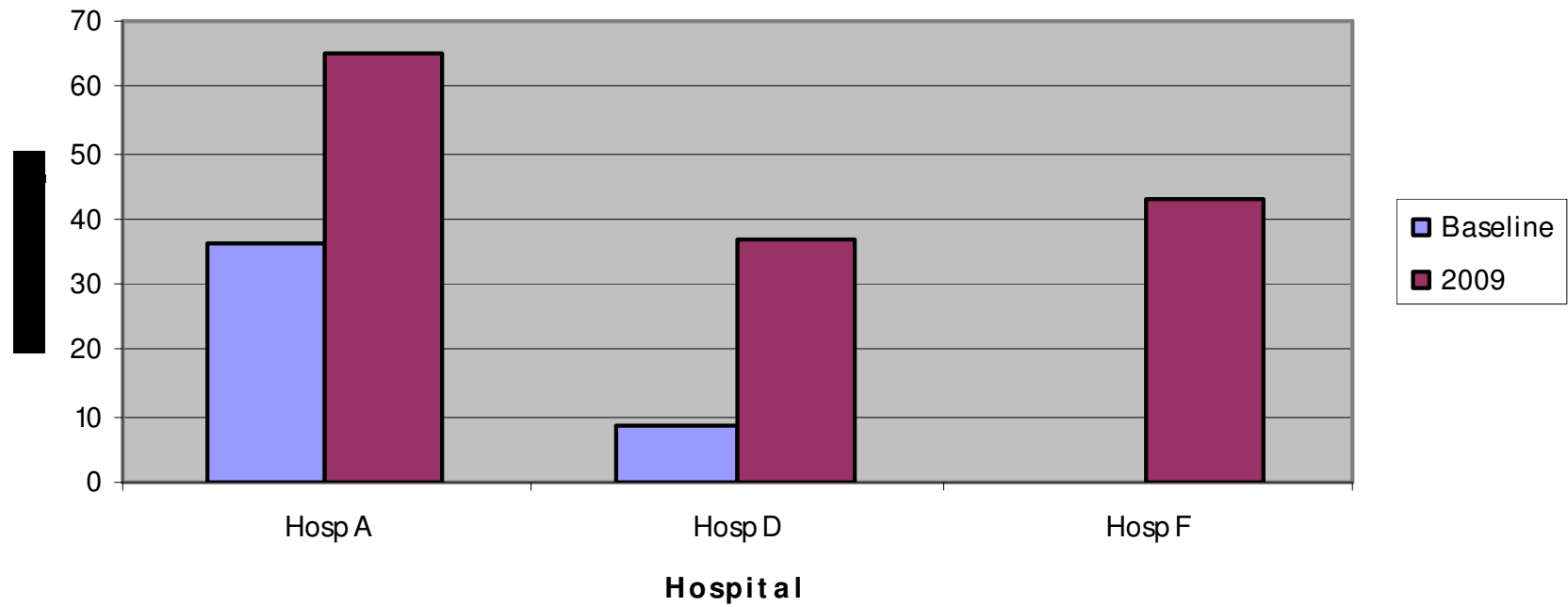
## 4.2 Accurate Medication History within 24 hours - complete & verified



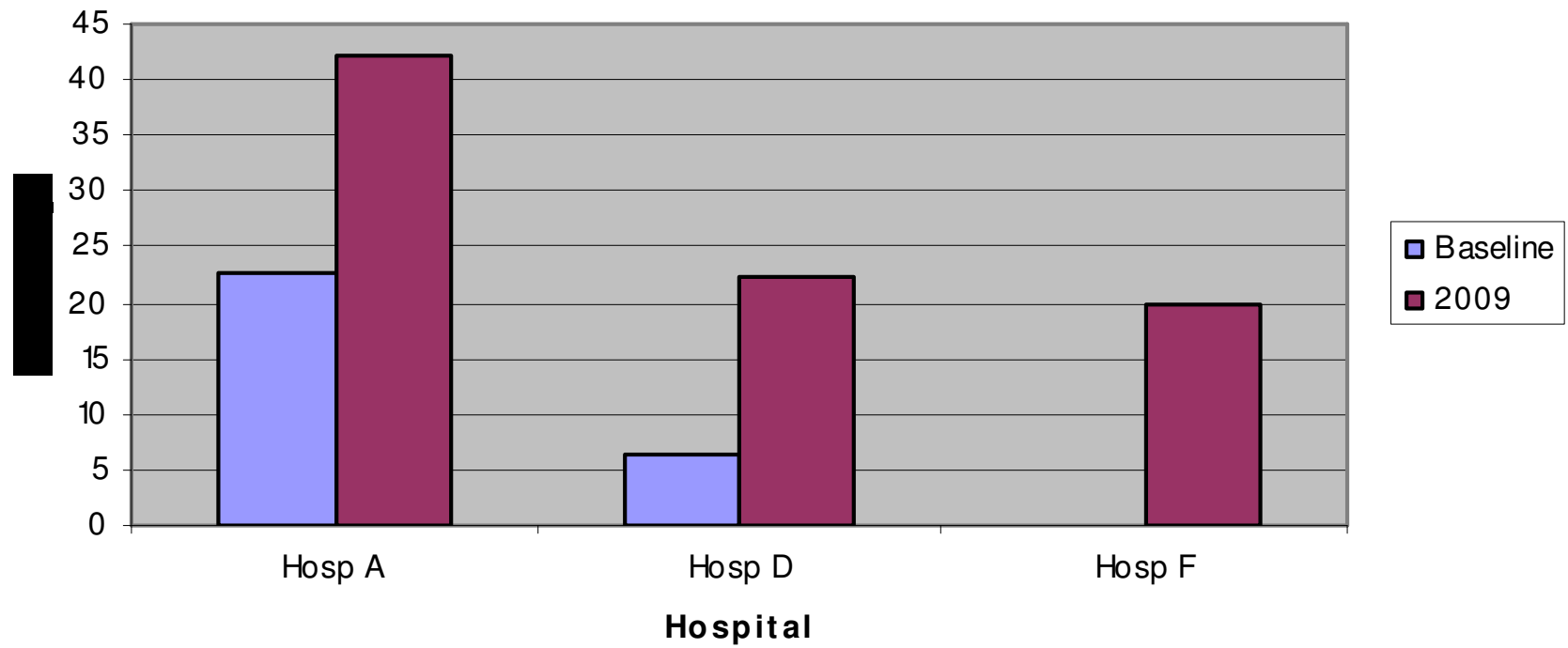
## 4.3 ADR Documented within 24 hours



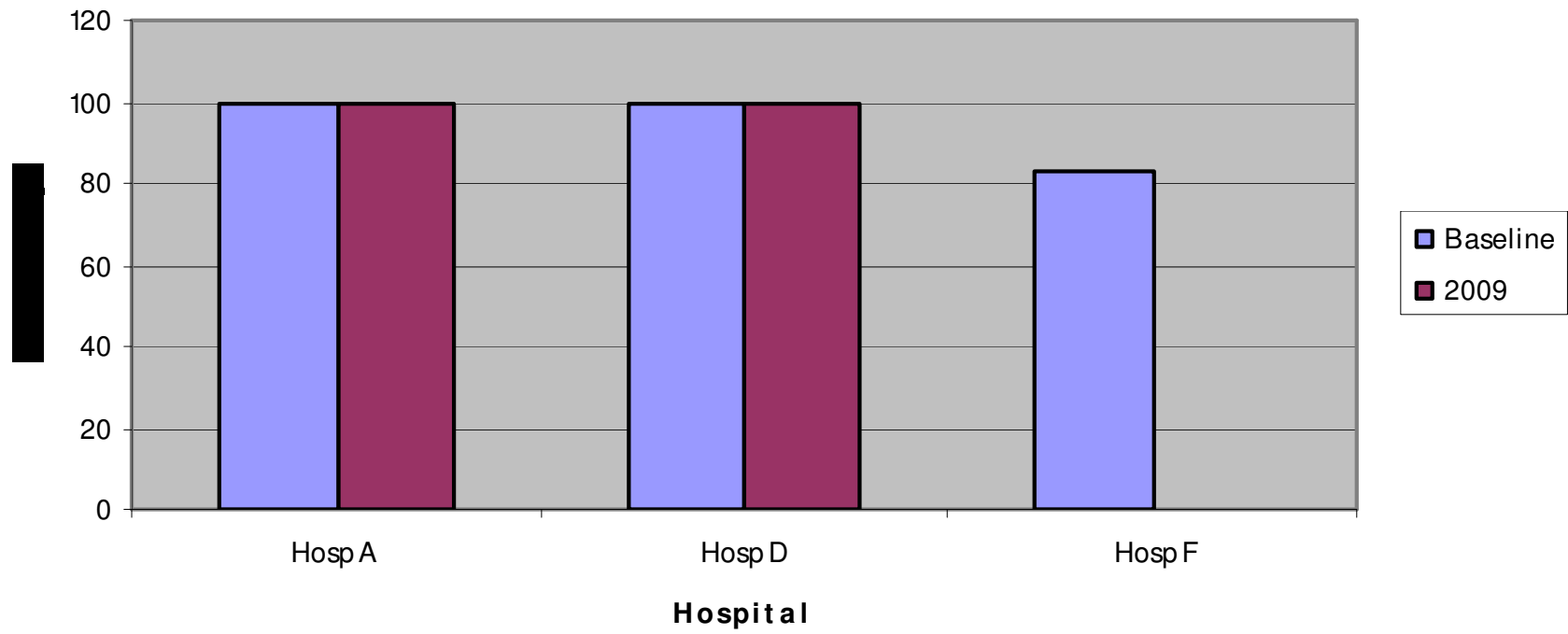
## 5.2 Pharmacist review within 24 hours



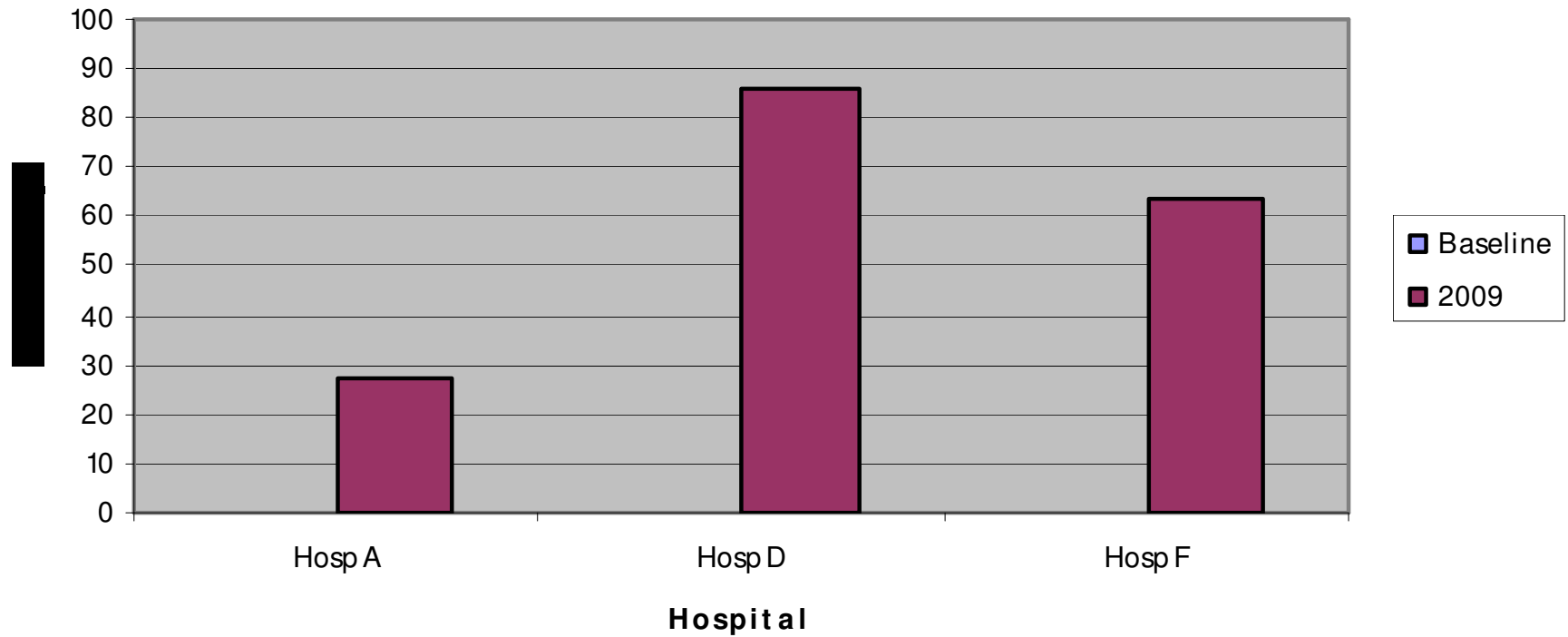
### 5.3 Daily review per patient



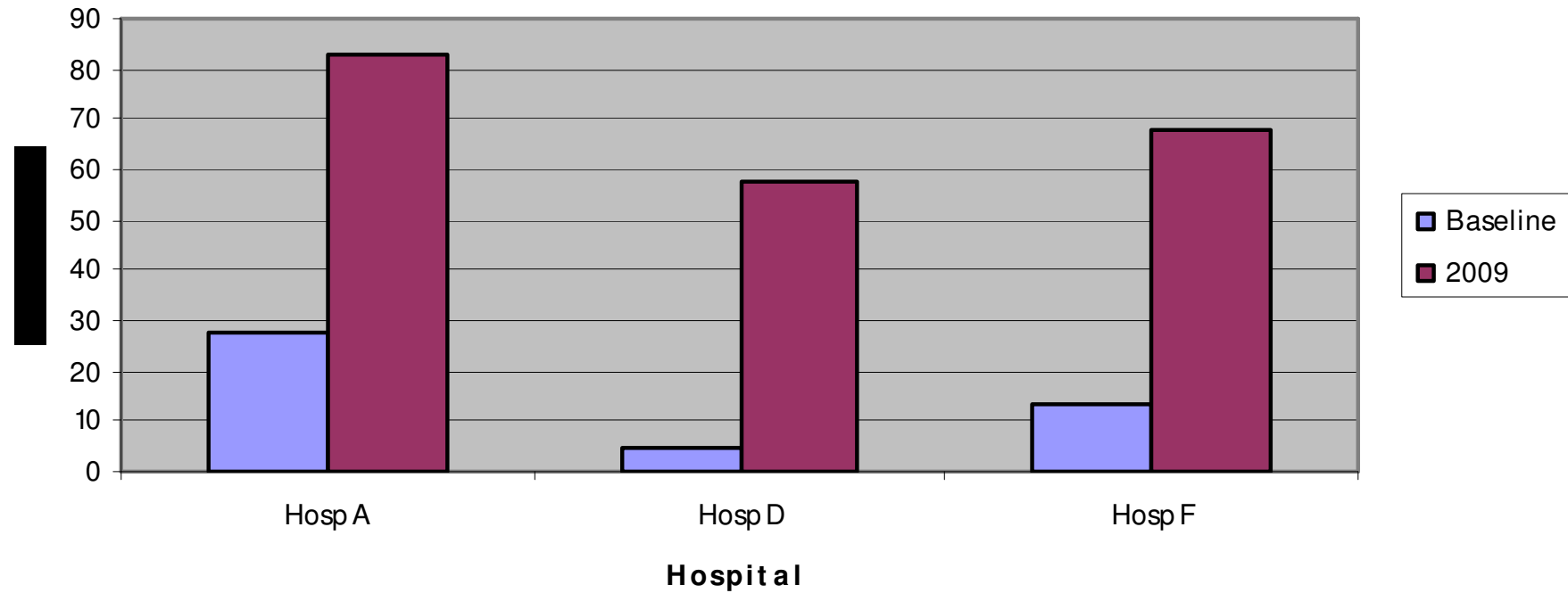
### 5.4 INR >4 - dose reviewed



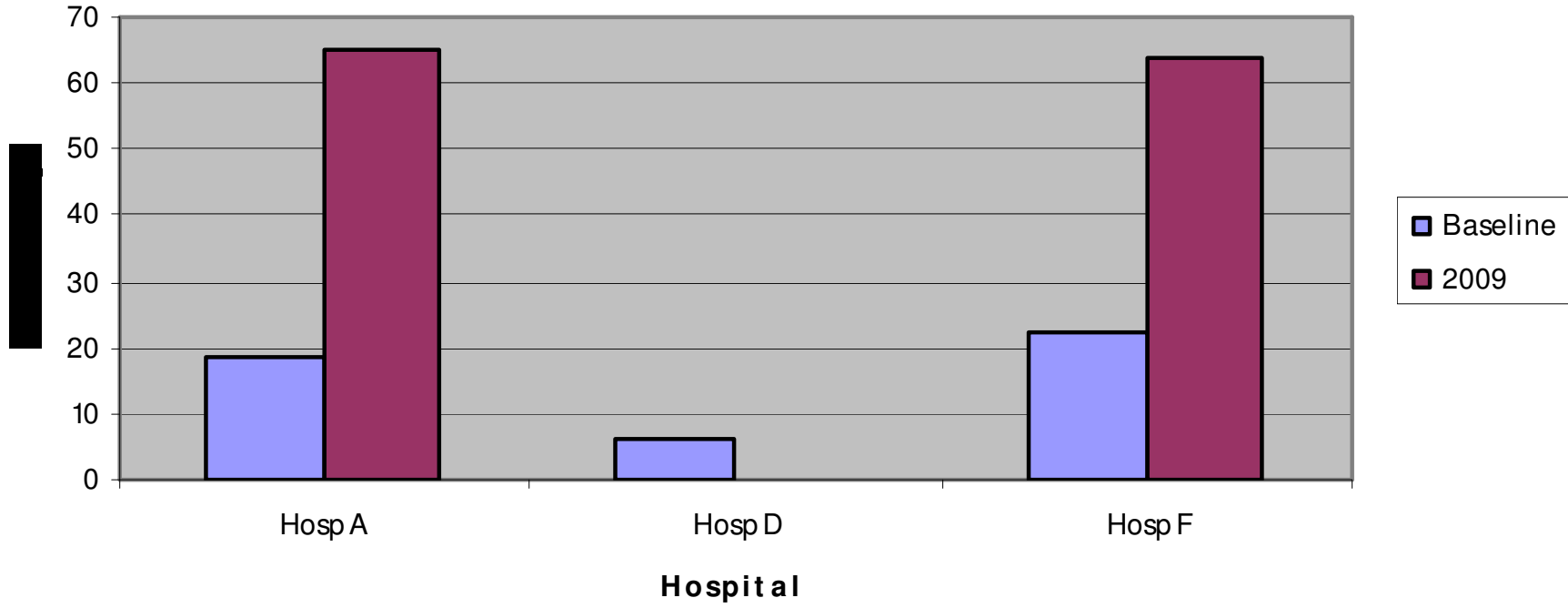
## 8.2 Discharge Prescription Review and Reconciliation



## 7.2 Appropriate discharge counselling



## 9.2 Accurate discharge summaries



## Summary

- > Introduction of APAC with clinical pharmacist support
- > Significant improvements in medication reconciliation
- > Enhanced communication between hosp pharmacy and community pharmacies & nursing homes



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## What's next ?

- > Further data to be collated & reviewed
- > Clinical pharmacy support software
  - Data collection
  - Report generation eg Med Hx, discharge information
- > Consumer KPI
- > ? Outcome measures eg re-admission rates, reduction in patient harm
- > ? Impact of electronic prescribing



# Acknowledgements

- > SA Health
- > APAC Working Group
  - Olimpia Nigro
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  - Kathy Read
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# Clinical Pharmacist Review

	FTE	Av. Bed / FTE
Current	30.4	89.6
<sup>1</sup> Proposed	95.5	35.7
<sup>2</sup> Cover	11.0	-
<b>Total new FTE</b>	<b>76.1</b>	

<sup>1</sup> Includes 24hr ED cover

Mix of base grade : specialist 60:40

<sup>2</sup> based on 6 weeks leave p.a.

Note: Hospital trainee positions also doubled



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## 2009 APAC Pharmacists

<b>Hospital</b>	<b>FTE</b>	<b>APAC focus</b>
RAH	21	ED, Pre-admission, all wards
FMC	13	Ward-based clinical services
TQEH	10	ED, discharge
RGH	4	Pre-admission, Acute Referral Unit, wards
WCH	8	Discharge, oncology
LMH	8.7	ED, medical team, wards



## Challenges & Future Work

- > Training new staff
- > Workload
- > APAC pharmacist ratios and roles
  - research projects
  - support staff
- > Ensuring ratios maintained
- > Clinical roles vs APAC roles
  - Scope and structure of service
- > Country/mental health
- > Interstate collaboration



# Opportunities - Pharmacists

## > Job satisfaction

- Direct patient contact
- Improved contribution to patient care
- Consistent role in health care team

## > Career opportunities

- Clinical pharmacy
  - Wards, medical, surgical, renal, oncology
  - New specialist areas – ED, pre-admission, anti-coagulation, lipids
  - Medication safety, pharmacist prescriber
- Management



## Background

- quality & safety of medication use
  - > 150,000 admissions per annum<sup>1</sup>
  - > problems arise in hospitals and the community, often at the transition points
  - > 16.6% hospital patients have an adverse event<sup>2</sup>
    - 10.6% medication-related
    - 51% preventable
  - > Unplanned readmissions due to adverse drug events - 1.3 to 24.8%<sup>3</sup>

<sup>1</sup> Roughead et al 2002

<sup>2</sup> Wilson et al 1995

<sup>3</sup> D.Stowasser 2000



## Proven strategies<sup>1</sup>

Individual patient medication supply in hospitals	√√
Clinical pharmacy services	√
Discharge medication management services	√
Transfer of information between hospital and community settings	√
Electronic prescribing with clinical decision support	x
Computerised adverse drug event alerts	x



APAC GUIDING PRINCIPLES	MILESTONES
<p><b>Principle 4</b></p> <p>An accurate and complete medication history should be obtained and documented at the time of presentation or admission, or as early as possible in the episode of care.</p> <p><b>Accurate medication history</b> <i>Hospitals will develop mechanisms for the documentation of an accurate and complete medication history that can be used throughout the episode of care to avoid duplication of recording and potential discrepancies between information sources.</i></p>	<ul style="list-style-type: none"> <li>▪ Within 6 months hospitals will have developed guidelines for recording a complete and accurate<sup>1</sup> medication history for their patients.</li> <li>▪ Within 12 months hospitals will have implemented the guidelines</li> <li>▪ Within 12 months hospitals will have developed protocols for communication with primary health care providers regarding patient's medication</li> </ul>
<p><b>Principle 5</b></p> <p>From the early stages and throughout each episode of care, current medicines and other therapies should be assessed to ensure the quality use of medicines, which means selecting management options wisely, choosing suitable medicines if a medicine is considered necessary, and using medicines safely and effectively.</p> <p><b>Assessment of current medication management</b> <i>Assessment will include appropriateness and effectiveness of current medication, adherence, and whether the consumer will require assistance in managing their medication. The assessment may require consultation with the primary health care provider and will be fully documented.</i></p>	<ul style="list-style-type: none"> <li>▪ Within 12 months hospitals will have developed guidelines and protocols for conduct of medication review by medical and/or pharmacist staff</li> <li>▪ Within 24 months hospitals will have implemented strategies for medication review</li> </ul>
<p><b>Principle 6</b></p> <p>A Medication Action Plan should:</p> <ul style="list-style-type: none"> <li>• Be developed with the consumer and relevant health care professionals as early as possible in the episode of care</li> <li>• Form an integral part of care planning for the consumer</li> <li>• Be reviewed during the episode of care and before transfer</li> </ul>	<ul style="list-style-type: none"> <li>▪ Within 12 months hospitals will have developed guidelines and protocols for documentation of Medication Action Plans in consultation with consumers.</li> <li>▪ Within 24 months hospitals will have implemented strategies for development of Medication Action Plans in consultation with</li> </ul>

<sup>1</sup> A "complete and accurate" medication history must include full details of all medications taken, including prescription, over-the-counter medicines and complementary medicines, along with consumer details including information about previous adverse medicine events and allergies. (SHPA Standards of Practice for Clinical Pharmacy - *Journal of Pharmacy Practice and Research* 2005; 35 (2), 122-146)

## Indicators for APAC Continuity in Medication Management

APAC Principle	KPI	Performance Indicator	Evaluation method	Indicator Type
<b>ONE</b> Leadership for medication management	APAC 1.1	There is a policy, procedure or guideline to address the roles of management, doctors, pharmacists, nurses, consumers and other health care professionals in all steps of the medication management cycle.	Review	Policy
<b>TWO</b> Responsibility for medication management	APAC 2.1	There is a policy, procedure or guideline which outlines the responsibilities of health care professionals in all aspects of medication management, with delegation where appropriate	Review	Policy
	APAC 2.2	There is written information provided to consumers and/or their carers outlining their responsibilities in medication management	Review	Brochure/ information leaflet
<b>THREE</b> Accountability for medication management	APAC 3.1	There is a policy to include accountability for medication management in the job and person specifications of health care providers	Review	Policy
<b>FOUR</b> Medication History  An accurate and complete medication history should be documented at the time of presentation or admission, or as early as possible in the episode of care.	APAC 4.1	There is a policy, procedure or guideline for documenting the medication history, including use of a standard form (eg Medication History form)	Review	Policy
	APAC 4.2	Percentage of inpatients that has a complete and accurate list of their current medications (including over-the-counter and complementary medications) documented and reconciled within a day of admission	Audit	Continuity Accuracy Timeliness
	APAC 4.3	Percentage of inpatients that has a correctly completed record of prior adverse drug reaction (ADR) and allergy documented within a day of admission	Audit	Accuracy Avoid patient harm
<b>FIVE</b> Medication Review - for safety and appropriateness and rationalised when necessary From the early stages and throughout each episode of care, current medicines and other therapies should be	APAC 5.1	There is a policy, procedure or guideline for conducting a medication review, by a pharmacist and/or medical staff	Review	Policy
	APAC 5.2	Percentage of patients reviewed by a clinical pharmacist within a day of admission	Audit	Timeliness of review

## APAC 4.2

Percentage of inpatients that have a complete and accurate list of their current medications (including over-the-counter and complementary medications) documented and reconciled within a day of admission

### Purpose:

To assess the number of patients that have a complete and accurate medication history documented within a day of admission to hospital – to measure the effectiveness of processes that promote continuity of care in medication management.

### Background and evidence:

Adverse drug events (ADEs) are commonly caused by lack of effective communication, especially in the transition between the community and hospital setting.<sup>1</sup> A complete and accurate medication history ensures continuity in medication management – an Australian Pharmaceutical Advisory Council guiding principle.<sup>2</sup> Documenting and verifying the medication history as early as possible in the episode of care avoids duplication of recording and potential discrepancies.<sup>2</sup>

### Key Definitions:

A complete and accurate medication history means a list of current medications including prescription and over-the-counter medications, and complementary health care products.<sup>2</sup>

Documenting a complete and accurate medication history involves:

1. **Obtaining a list of current medications:** A formal interview is conducted at admission to document a complete and accurate list of each patient's current home medications (what they are taking prior to admission). The information for each medication on the list should include:
  - medicine (active ingredient name and/or brand name, strength, dose form where relevant);
  - dose, route and administration frequency (as actually taken by the consumer);
  - recently changed/ ceased medicines
  - adverse drug events/ allergies.<sup>2</sup> and
  - where relevant: when started/duration of therapy, action/indication (as reported by the consumer)
2. **Verifying the list of current medications:** Seeking to confirm with at least a second source that the information obtained at interview is supported. Details can be confirmed by caregivers, general practitioners, community pharmacies, aged care facilities or by physically reviewing the patient's medications.
3. **Recording the date and time of documentation and the name of the person that recorded the history.<sup>2</sup>**

Within a day of admission means by the end of the next calendar day.

### Data collection:

*Sample selection:* A random sample of patient records involving patient stay longer than 24 hours

*Suggested sample size:* Random sample of 10% of bed numbers. (Minimum 10).

*Methodology:* Review medical record for documentation regarding current medication list, confirmation of medication list and date of documentation.

### Calculating the indicator:

$$\frac{\text{Numerator}}{\text{Denominator}} \times 100\%$$

Numerator = Number of inpatients who have a complete and accurate list of their current medications (including over-the-counter and complementary medications) documented and reconciled within a day of admission

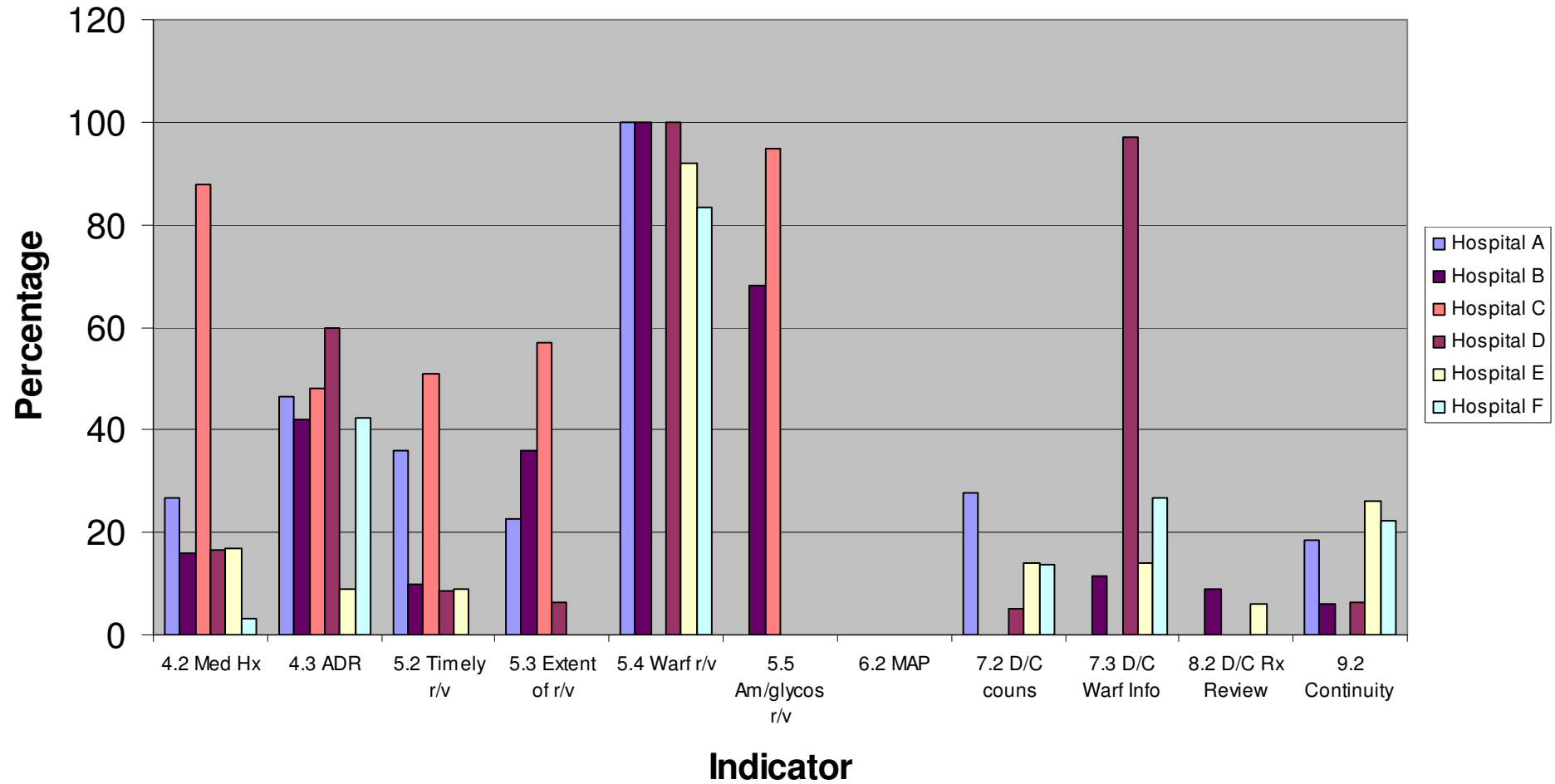
Denominator = Number of records in sample

### References:

1. Second National Report on Patient Safety: Improving Medication Safety: Australian Council for Safety and Quality in Health Care, 2002.
2. Guiding principles to achieve continuity in medication management: Australian Pharmaceutical Advisory Council, 2005:1-55.

APAC Principle	KPI	Performance Indicator	Evaluation method	Indicator Type
assessed to ensure the quality use of medicines, which means selecting management options wisely, choosing suitable medicines if a medicine is considered necessary, and using medicines safely and effectively. Assessment should involve the consumer and/or their carer as well as health care professionals	APAC 5.3	Percentage of admitted days that patients receive medication review by a clinical pharmacist	Audit	Extent of clinical pharmacy review
	APAC 5.4	Percentage of patients with an INR result above the therapeutic range (>4.0) whose dosage has been adjusted or reviewed prior to the next warfarin dose	Audit	Timeliness and effectiveness of monitoring high risk medicines
	APAC 5.5	Percentage of patients with a toxic or sub-therapeutic aminoglycoside concentration whose dosage has been adjusted or reviewed prior to the next aminoglycoside dose	Audit	Timeliness and effectiveness of monitoring high risk medicines
<b>SIX</b> <b>A Medication Action Plan should:</b> <ul style="list-style-type: none"> <li>Be developed with consumer and relevant health professionals as early as possible in the episode of care</li> <li>Form an integral part of care planning for the consumer</li> <li>Be reviewed during the episode of care and before transfer</li> </ul> <b>The MAP should include:</b> <ul style="list-style-type: none"> <li>Actual and potential medication management issues identified during assessment (Pr 5)</li> <li>Medication management goals</li> <li>Actions/strategies to address the issues and achieve goals</li> </ul>	APAC 6.1	There is a policy, procedure or guideline to address who creates the Medication Action Plan, who is authorised to modify the plan and at what stage the plan is formally reviewed	Review	Policy
	APAC 6.2	Percentage of patients prescribed salbutamol on discharge that are given a written action plan for acute exacerbations of respiratory disease and a copy is communicated to the primary care clinician	Audit	Effectiveness of the processes in developing a Medication Action Plan
<b>SEVEN</b> <b>Supply of medicines information</b>	APAC 7.1	There is a policy and procedure for providing patients with written information for hospital-initiated drugs that are to be continued post-discharge	Review	Policy
	APAC	Percentage of hospital inpatients that receive appropriate	Audit	Effectiveness of

# Combined Baseline Data



Australian Health Ministers' Conference  
23 April 2004  
**JOINT COMMUNIQUE**

**To reduce the harm to patients from medication errors, by the end of 2006**

Every hospital will have in place a process of pharmaceutical review of medication prescribing, dispensing, administration and documenting processes for the use of medicines.



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