

Audit and evaluation of the Paediatric NIMC

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Australian Commission on Safety and Quality in Health Care

AUSTRALIAN COMMISSION ON
SAFETY AND QUALITY IN HEALTH CARE



Evaluation of Paediatric NIMC

Aim:

- Determine if paediatric NIMC improves safety of prescribing and administration of medicines in children

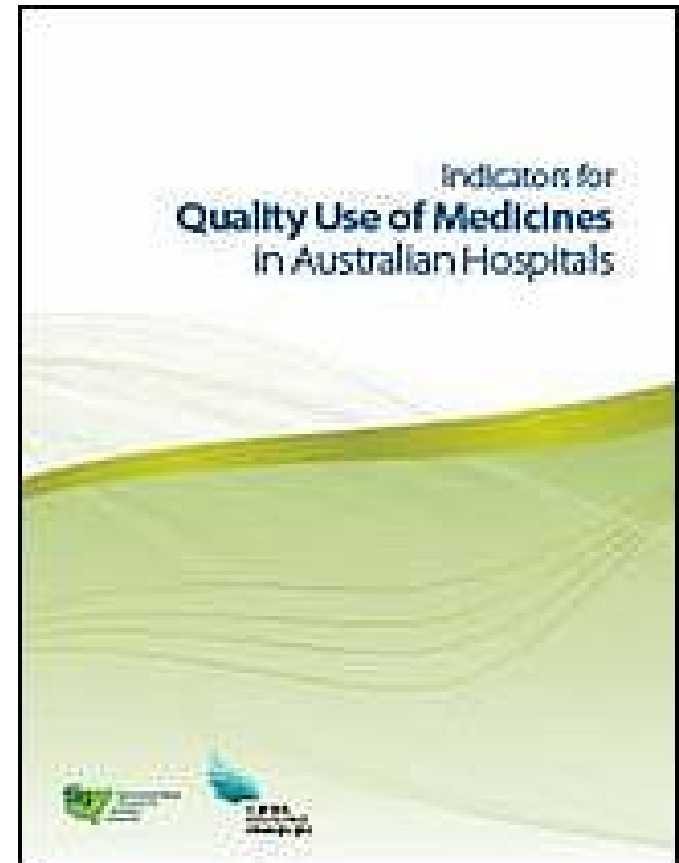
Objectives:

- National data collection
- Pre and post implementation audit
 - Measure compliance with safety features
 - Measure effectiveness of chart using QUM Indicators
 - ? Measure incidence of medication error
 - Individual sites identify areas for improvement in prescribing, documentation of administration

Evaluation of Paediatric NIMC

QUM indicators relevant to paediatric chart

- **3.2 %** Patients whose known ADRs are documented on current medication chart
- **3.3 %** Medication orders that include error-prone abbreviations
- **3.4 %** Paediatric medication orders that include correct dose per Kg (or BSA) and a safe total dose
- <http://www.ciap.health.nsw.gov.au/nswtag/indicators.html>



Audit Resources

- Medication chart prescribing audit tool
 - Scannable form
 - For national audit complete all applicable fields
 - As QI tool collect relevant data
 - E.g error prone abbreviations
- NIMC Audit tool – user guide 2009
- Education package – TBA
- Short audit tool
- National terminology, abbreviations and symbols to be used in prescribing and administering medicines in Australian hospitals
- Resources available from:
http://www.safetyandquality.gov.au/internet/safety/publishing.nsf/Content/NIMC_001

Management of Data

1. Pre-implementation

- Sites complete pre-implementation audit
- Jurisdictions collate data

2. Post-implementation

- Data collection part of national audit of NIMC

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Safe Medication Practice Unit, Queensland Health

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Who should complete the audit?

- A registered nurse must be involved as they are the key people that interpret the prescription and administration information
- A pharmacist should assist where available, otherwise a medical officer or another nurse should be a part of the audit team
- Same team to complete subsequent audits



Numbers

- Ideally, all available charts should be reviewed for current patients
 - Allows for the identification of risks that occur relative infrequently

- Minimum number

No. beds in hospital	Sample size
150 and >	20% pts
30 – 149	30 pts
< 30	All pts

Scannable Forms

- Scannable audit tools used for data collection.
- Original forms must be if scanning technology to used to process data.
- Forms contain embedded technology which allows the automated scanning process to take place.
- **DO NOT USE PHOTOCOPIES** of the forms as they cannot be scanned and the data will not be collated.
- Advise sites keep a photocopy for their records
- National audit tool available from
http://www.safetyandquality.gov.au/internet/safety/public/shing.nsf/Content/NIMC_001

National Inpatient Medication Chart Prescribing Audit

STATE _____ HOSPITAL _____ UR NO. _____ GENDER ☐ Male ☐ Female
 WARD _____ BED NO. _____ AUDIT DATE _____ / _____ / _____ DATE OF BIRTH _____ / _____ / _____
 REVIEWER 1 _____ REVIEWER 2 _____
 CHART TYPE ☐ NIMC ☐ NIMC Long Stay ☐ NIMC Paediatric ☐ NIMC Paediatric Long Stay

1. Patient Identification & Weight

- 1.1 Total current Medication Charts (ie, charts in use) _____
 1.2 Patient ID complete on all pages (incl. hand-printed name if label used) _____ Y N
 1.3 Weight documented on a Medication Chart (Paeds must be all charts) _____ Y N

2. Adverse Drug Reaction (ADR) Details

- 2.1 ADR documentation complete on all charts (incl. NADA / Unknown) _____ Y N
 2.2 Patient has previous ADR _____ Y N Unk
 (If No, go to Q. 3.1)
 2.3 Similar class of medication prescribed _____ Y N
 (Document Drug, Reaction & Represcribed Drug here)

 2.4 If previous ADR, do all pages have ADR Alert Stickers in place _____ Y N

3. Medication History

- 3.1 Medication History documented on Medication Chart _____ Y N
 3.2 If 'No', is a Medication History cross-referenced on Medication Chart _____ Y N
 3.3 Medication Action Plan (MAP) Form in 'end of bed' folder _____ Y N
 (If No, go to Q. 4.5)
 3.4 Allergies / ADR box completed on MAP Form _____ Y N
 3.5 No. medicines taken prior to presentation to hospital recorded on MAP Form _____
 3.6 No. medicines with Dr's Plan on Admission completed on MAP Form _____
 3.7 No. medicines with Reconcile column ticked on MAP Form _____
 3.8 More than one source indicated on MAP Form _____ Y N

Comments: _____

4. Warfarin

- 4.1 Warfarin Guidelines at end of patient's bed or with Medication Chart _____ Y N
 4.2 No. times patient prescribed warfarin (Warfarin & Regular Order sections) _____
 (If Nil/Zero, go to Q. 5.1)
 4.3 No. Target INR ranges documented if prescribed in Warfarin section _____
 4.4 No. Target INR ranges documented if prescribed in Regular section _____
 4.5 Warfarin Education recorded _____ Y N

5. Variable Dose

- 5.1 No. Variable Dose medications (Variable Dose & Regular Order sections) _____
 (If documented in Regular section, write Drug Name & Frequency here)

6. Sustained Release

- 6.1 No. Sustained Release medications ordered (Regular Order section) _____
 (If Nil/Zero, go to Q. 7.1)
 6.2 No. Sustained Release medications with SR box ticked _____

7. Intermittent Medications

- 7.1 No. Intermittent medications ordered (ie, weekly, fortnightly, twice weekly) _____
 (If Nil/Zero, go to Q. 8.1)
 7.2 No. Intermittent medications ordered & 'boxed' _____

8. Duplicate Orders

- 8.1 No. Duplicated orders _____
 (Record Duplications here)

9. Clinical Pharmacy

- 9.1 Pharmaceutical Review occurred (ie, initial at bottom of chart) _____ Y N

National Inpatient Medication Chart Prescribing Audit

10. Prescribing and Administration

Legend Drug Order: R = Regular P = PRN S = Stat/Phone/Once Only V = Variable Dose W = Wardside						Drug Name: U = Under T = Trade CI = Clear		Route / Dose / Freq: CI = Clear M = Missing U = Under I = Incorrect NA = Not Applicable		Others: Y = Yes N = No		Definitions: Error Prone Abbreviations mg, ug, ug = microgram U or u = unit qd or QD = every day od, or OD = once daily SC, SQ = subcutaneous SL, SA = sublingual o (degrees symbol) = hourly frequency No leading zero before a decimal point (eg .5mg) = 0.5mg Trailing zero after decimal point (eg 1.0mg) = 1mg									
								UR NO. _____													
Order No.	Drug Order	Drug Name	Route	Dose	Frequency	Dose Qd's Documented	Dose Qd's Documented Correctly	Error/Prone Abbrevs Used	Indication Documented	Trans. Accur.	Pres. Signed	Pres. Clear	Pres. Matched Admin Title	Drug Coded	Coded Correctly	Doses Required	Doses Admin	FPPI, Max Doses Doc.			
						Y N NA	Y N NA	Y N	Y N NA	Y N	Y N	Y N	Y N NA	Y N	Y N NA			Y N NA			
						Y N NA	Y N NA	Y N	Y N NA	Y N	Y N	Y N	Y N NA	Y N	Y N NA			Y N NA			
						Y N NA	Y N NA	Y N	Y N NA	Y N	Y N	Y N	Y N NA	Y N	Y N NA			Y N NA			
						Y N NA	Y N NA	Y N	Y N NA	Y N	Y N	Y N	Y N NA	Y N	Y N NA			Y N NA			
						Y N NA	Y N NA	Y N	Y N NA	Y N	Y N	Y N	Y N NA	Y N	Y N NA			Y N NA			
						Y N NA	Y N NA	Y N	Y N NA	Y N	Y N	Y N	Y N NA	Y N	Y N NA			Y N NA			
						Y N NA	Y N NA	Y N	Y N NA	Y N	Y N	Y N	Y N NA	Y N	Y N NA			Y N NA			
						Y N NA	Y N NA	Y N	Y N NA	Y N	Y N	Y N	Y N NA	Y N	Y N NA			Y N NA			
						Y N NA	Y N NA	Y N	Y N NA	Y N	Y N	Y N	Y N NA	Y N	Y N NA			Y N NA			
						Y N NA	Y N NA	Y N	Y N NA	Y N	Y N	Y N	Y N NA	Y N	Y N NA			Y N NA			
						Y N NA	Y N NA	Y N	Y N NA	Y N	Y N	Y N	Y N NA	Y N	Y N NA			Y N NA			
						Y N NA	Y N NA	Y N	Y N NA	Y N	Y N	Y N	Y N NA	Y N	Y N NA			Y N NA			
						Y N NA	Y N NA	Y N	Y N NA	Y N	Y N	Y N	Y N NA	Y N	Y N NA			Y N NA			
						Y N NA	Y N NA	Y N	Y N NA	Y N	Y N	Y N	Y N NA	Y N	Y N NA			Y N NA			
						Y N NA	Y N NA	Y N	Y N NA	Y N	Y N	Y N	Y N NA	Y N	Y N NA			Y N NA			
						Y N NA	Y N NA	Y N	Y N NA	Y N	Y N	Y N	Y N NA	Y N	Y N NA			Y N NA			
						Y N NA	Y N NA	Y N	Y N NA	Y N	Y N	Y N	Y N NA	Y N	Y N NA			Y N NA			
						Y N NA	Y N NA	Y N	Y N NA	Y N	Y N	Y N	Y N NA	Y N	Y N NA			Y N NA			
						Y N NA	Y N NA	Y N	Y N NA	Y N	Y N	Y N	Y N NA	Y N	Y N NA			Y N NA			
						Y N NA	Y N NA	Y N	Y N NA	Y N	Y N	Y N	Y N NA	Y N	Y N NA			Y N NA			

Before you audit

1. Read the *NIMC Chart Audit Tool User Guide*
2. We recommended that you also:
 - Read the *NIMC Medication Chart Guidelines*
 - Complete the *Medication Chart Audit Tool Education Package* (Not yet available)
 - Read the *National terminology, abbreviations and symbols to be used in prescribing and administering medicines*
3. Read local medication related procedures and guidelines e.g. approved trade names list.
 - If required, define acceptable abbreviations and acceptable trade names to ensure consistency between auditors and between various audits

Example of use of audit tool

- Use one form per patient
- Review all pages of the medication chart
- Complete both sides of the form
- Record any medication errors in the relevant comments section

Information for audit

- Dosage ranges of medicines (Oral)
- Paracetamol:
 - 15mg/kg every 4 hours (can use 20mg/kg every 6 hours)
- Morphine:
 - 0.3 - 0.6mg/kg every 12 hours (slow release preparation)
- Amoxycillin:
 - 7.5mg - 25mg/kg every 8 hours
- Ondansetron:
 - 0.15mg/kg every 8 hours

NOT A VALID ORDER UNLESS LEGIBLE

REGULAR MEDICATIONS

YEAR 20 09 DATE & MONTH 5/5/09

PRESCRIBER MUST ENTER administration times

Date	Medicine (Print Generic Name)	Route	DOSE	Frequency & NOW enter times	Indication	DOSE Calculation (eg. mg/kg per dose)	Prescriber Signature	Print Your Name	Contact/Pager	Continue on discharge? Yes / No	Dispersed? Yes / No	Duration: days Qty.
5/5	Paracetamol	Po	15mg	6 hourly	Pain	15mg/kg	J Brown	J Brown	2956			
6/5	M.S. CONTIN Morphine Sulfate	Po	3mg	bd 2-7	Pain	0.3mg/kg	J Brown	J Brown				
6/5	Amoxycillin	Po	65mg	q8h								
6/5	Amoxycillin	Po	150mg	8 hourly								

Pharmaceutical Review: up up

RECOMMENDED ADMINISTRATION TIMES
GUIDELINES ONLY

Morning	Mid	Evening	Bedtime
0800	1200	1800	2000
0800	1200	1800	2000
0800	1200	1800	2000
0800	1200	1800	2000
0800	1200	1800	2000
0800	1200	1800	2000
0800	1200	1800	2000

SR = Sustained, modified or controlled release formulation.
If scored tablet, then half can be given.
Dose must be swallowed without crushing.

REASON FOR NOT ADMINISTERING
Codes MUST be coded

Absent	(A)
Fasting	(F)
Refused—not by prescriber	(R)
Vomiting	(V)
On leave	(L)
Not available—obtain supply or contact prescriber	(N)
Withheld—enter reason in clinical record	(W)
Self administered	(S)
Parent/Carer administered	(P)

Attach ADR Sticker

ALLERGIES & ADVERSE DRUG REACTIONS (ADR)
☐ Nil known ☐ Unknown (tick appropriate box or complete details below)

Drug (or other)	Reaction/Type/Date	Initials
clindamycin	Rash 5/08	

Sign J Brown Print J Brown Date 5/5/09

AFFIX PATIENT IDENTIFICATION LABEL HERE AND OVERLEAF

URN: 4789836
Family name: JONES
Given names: Sally Ann
Address:

Date of birth: 28/1/07

Sex: ☐ M ☒ F

First Prescriber to print patient name and check label correct:

Weight (kg) 10

BSA (m²): _____ Height (cm): _____

Gestational age (wks): _____

REGULAR MEDICATIONS

YEAR 20 09 DATE & MONTH 5/5/09

PRESCRIBER MUST ENTER administration times

Date	Medicine (Print Generic Name)	Route	DOSE	Frequency & NOW enter times	Indication	DOSE Calculation (eg. mg/kg per dose)	Prescriber Signature	Print Your Name	Contact/Pager	Continue on discharge? Yes / No	Dispersed? Yes / No	Duration: days Qty.
5/5	Paracetamol	Po	15mg	6 hourly	Pain	15mg/kg	J Brown	J Brown	2956			
6/5	M.S. CONTIN Morphine Sulfate	Po	3mg	bd 2-7	Pain	0.3mg/kg	J Brown	J Brown				
6/5	Amoxycillin	Po	65mg	q8h								
6/5	Amoxycillin	Po	150mg	8 hourly								

Pharmaceutical Review: _____

AFFIX PATIENT IDENTIFICATION LABEL HERE

URN: 4789836
 Family name: JONES
 Given names: Selly Ann
 Address:
 Date of birth: 28/11/07 Sex: ☐ M ☒ F
 First Prescriber to Print Patient Name and Check Label Correct:

Attach ADR Sticker

See front page for details

AS REQUIRED
 "PRN"
 MEDICATIONS

Weight (kg) 10

Ward/Unit: 3A

NOT A VALID ORDER UNLESS LEGIBLE

Date	Medication (Print Generic Name)	Route	DOSE	Hourly Frequency	Max Dose/24 hrs	Date	Time	Continue on discharge?	Yes / No	Dispense?	Yes / No	Duration	days	Chx
6/5	Ondansetron	PO	1.5mg	Hourly PRN	3 doses	4/5	1000							
Pharmacy/Additional information														
Indication		DOSE Calculation (eg. mg/kg per dose)				Dose								
N8V		1.5 mg/kg				PO								
Prescriber Signature		Print Your Name		Contact/Pager		Sign								
A. Dowell		F. Dowell		98682		AS								
Pharmacy/Additional information														
Dose														
Continue on discharge? Yes / No														
Dispense? Yes / No														
Duration: days Chx														
Date														
Pharmacist														
Date														
Page														
Print your name:														
Prescriber's signature:														

DO NOT WRITE IN THIS BINDING MARGIN

1. Patient Identification & Weight

- 1.1 Total current *Medication Charts* = 1
- 1.2 Patient ID complete on **all** pages = Yes
- 1.3 Weight documented on front and back pages = Yes

AFFIX PATIENT IDENTIFICATION LABEL HERE AND OVERLAP

URN:	4789836
Family name:	JONES
Given name:	Sally Ann
Address:	
Date of birth:	28/1/07
Sex:	<input type="checkbox"/> M <input checked="" type="checkbox"/> F

Please Print or type in print patient name and check label content

Weight (kg):	10	Date born:		Include name:	
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2. Adverse Drug Reaction (ADR) Details

- 2.1 ADR documentation complete on **all** charts = Yes
- 2.2 Patient has previous = Yes
- 2.3 Similar class of medication prescribed = No
- 2.4 If previous ADR, do **all** pages have ADR alert stickers in place = No

<u>ALLERGIES & ADVERSE DRUG REACTIONS (ADR)</u>					
<input type="checkbox"/> Allergies <input checked="" type="checkbox"/> Adverse reactions that require attention or accepted clinical action Drug or other Reaction / Symptom Dose Date					
Clinical sign	Rash	S/Sx			
Mucous	T Bact.	S/Sx			

✓ QUM indicator 3.2

3. Medication History

3.1 *Medication History* documented / cross referenced on *Medication Chart* = Yes

3.2 *Medication Action Plan (MAP) Form* in 'end of bed' folder = No

If no, go to question 4.1

Medicines Taken Prior to Presentation to Hospital (Prescribed, over the counter, complementary) Own medicines brought in? <input type="checkbox"/> Y <input type="checkbox"/> N					
Medicine and formulation	Dose and frequency	Duration	Medicine and formulation	Dose and frequency	Duration
Doctor/GP:			Community Pharmacy:		
Documented by: <i>[Signature]</i> (Sign)			5/5/20 (Date)		
Medicines usually administered by:					

4. Warfarin

5 Variable doses

Leave blank

6. Sustained Release

Date 5/5	Medicine (Print Generic Name) M.S. CONTIN Morphine Sulphate		Tick if SR Release <input checked="" type="checkbox"/>							
Route PO	DOSE 3mg	Frequency & NOW enter times bd 2/7		0800	1	8 AM		1	1	1
Pharmacy/Additional Information use 20mg sachet Dispense in 20ml Give 3ml. Do not crush or chew granules					2000	AS		1	1	1
Indication Pain		DOSE Calculation (eg. mg/kg per dose) 0.3mg/kg								
Prescriber Signature Brown	Print Your Name		Contact/Pager							

6.1 No. Sustained Release medications ordered = 1

6.2 No. Sustained Release medications with SR box ticked = 1

7. Intermittent Medications

8. Duplicate orders

7.1 No. Intermittent medications ordered = 0

If zero, go to question 8.1

8.1 No. Duplicated orders = 0

9. Clinical Pharmacy

V	Pharmaceutical Review:	up.	up.				
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9.1 Clinical pharmacist review occurred = yes

Order no 1

Order No.	Drug Order	Drug Name	Route	Dose	Frequency	Dose Calc'n Documented	Dose Calc'n Documented Correctly	Error Prone Abbrev's Used	Indication Documented	Pharm. Annot.	Pres. Signed	Pres. Clear	Freq. Correlates with Admin Time	Drug Ceased	Ceased Correctly	Doses Required	Doses Admin	If PRN, Max. Dose doc.
1	R	C	C	C	C	Y N NA	Y N NA	Y N	Y N NA	Y N	Y N	Y N	Y N NA	Y N	Y N NA	3	3	Y N NA

✓ QUM indicators
3.3, 3.4

10. Prescribing and Administration

Order no 2

Date 5/5	Medicine (Print Generic Name) M.S CONTIN Morphine Sulphate		Tick if SOS Release <input checked="" type="checkbox"/>																
Route PO	DOSE 3mg	Frequency & NOW enter times bd 2/7			0800														
Pharmacy/Additional Information use 20mg sachet Dispense in 20mL Give 3x daily. Do not crush or chew granules					2000														
Indication Pain		DOSE Calculation (eg. mg/kg per dose) 0.3mg/kg																	
Prescriber Signature Brown		Print Your Name		Contact/Pager															

Order No.	Drug Order	Drug Name	Route	Dose	Frequency	Dose Calc'n Documented	Dose Calc'n Documented Correctly	Error Prone Abbrev's Used	Indication Documented	Pharm. Annot.	Pres. Signed	Pres. Clear	Freq. Correlates with Admin Time	Drug Ceased	Ceased Correctly	Doses Required	Doses Admin	If PRN, Max Dose doc.
2	R	T	C	C	C	(Y) N NA	(Y) N NA	(Y) N	(Y) N NA	(Y) N	(Y) N	(Y) N	(Y) N NA	(Y) N	(Y) N NA	2	2	(Y) N NA

✓ QUM indicators
3.3, 3.4

10. Prescribing and Administration

Order no 3

Date 6/5	Medicine (Print Generic Name) Amoxycillin		Tick if Slow Release																
Route PO	DOSE 65mg	Frequency & NOW enter times q8h			0600														
Pharmacy/Additional Information					1400														
Indication RTT		DOSE Calculation (eg. mg/kg per dose) 6.7 mg / kg / day 2mg/kg/day			2000														
Prescriber Signature (Brown)		Print Your Name		Contact/Pager															

Continue on discharge? Yes / No

Order No.	Drug Order	Drug Name	Route	Dose	Frequency	Dose Calc'n Documented	Dose Calc'n Documented Correctly	Error Prono Abbrev's Used	Indication Documented	Pharm. Annot.	Pres. Signed	Pres. Clear	Freq. Correlates with Admin Time	Drug Ceased	Ceased Correctly	Doses Required	Doses Admin	If PRN, Max Dose doc.
3	R	C	C	C	C	Y N NA	Y N NA	Y N	Y N NA	Y N	Y N	Y N	Y N NA	Y N	Y N NA	0	0	Y N NA

✓ QUM indicators
3.3, 3.4

10. Prescribing and Administration

Order no 4

Date 6/5	Medicine (Print Generic Name) Amoxycillin		Tick if Slow Release							
Route PO	DOSE 150mg	Frequency & NOW enter times 8 hourly		0600	/	/				
Pharmacy/Additional Information Give 6ml of 125mg/5ml amoxycillin				1400	/	8 AM				
Indication RTI			DOSE Calculation (eg. mg/kg per dose) 15mg/kg	2000	/					
Prescriber Signature Brown		Print Your Name	Contact/Pager							

Order No.	Drug Order	Drug Name	Route	Dose	Frequency	Dose Calc'n Documented	Dose Calc'n Documented Correctly	Error Prone Abbrev's Used	Indication Documented	Pharm. Annot.	Pres. Signed	Pres. Clear	Freq. Matches Admin Time	Drug Ceased	Ceased Correctly	Doses Required	Doses Admin	If PRN, Max Dose doc.
04	R	C	C	C	C	(Y) N NA	(Y) N NA	Y (N)	(Y) N NA	(Y) N	(Y) N	(Y) N	(Y) N NA	Y (N)	Y N (NA)			Y N NA

✓ QUM indicators
3.3, 3.4

10. Prescribing and Administration

Order no 5

Date	Medication (Pharm. Dispensary Name)				Time			
6/8	Ondansetron				6/8			
Route	Dose	Frequency	PRN	Max Dose/Day	Time			
PO	1.5mg	8hrly		3 doses	10.00			
Pharm. (Pharm. Dispensary Name)					Dose			
					1.5mg			
Indication		Dose Calculation (e.g. mg/kg per Dose)			Route			
N&V		0.15mg/kg			PO			
Prescriber Signature	Prescriber Name	Contract/Reg No			Sign			
[Signature]	F. Boushal	9862			[Signature]			

Order No.	Drug Order	Drug Name	Route	Dose	Frequency	Dose Calc'n Documented	Dose Calc'n Documented Correctly	Error Prone Abbrev's Used	Indication Documented	Pharm. Annot.	Pres. Signed	Pres. Clear	Freq. Correlates with Admin Time	Drug Ceased	Ceased Correctly	Doses Required	Doses Admin	If PRN, Max Dose doc.
5	P	C	C	C	C	Y N NA	Y N NA	Y N	Y N NA	Y N	Y N	Y N	Y N NA	Y N	Y N NA	0	1	Y N NA

✓ QUM indicators
3.3, 3.4

Discussion