



•To improve the safety and quality of medicines use nationally, the Australian Health Ministers Advisory Council (AHMAC) decided that all public hospitals in Australia would be using a common medication chart. The National Inpatient Medication Chart (NIMC) was developed by a multi-disciplinary national working party. Similarly, a nationally agreed paediatric version (paed-NIMC) has been developed, sharing many features with the original NIMC, but incorporating additional features important for facilitating safe medicines use in the paediatric population.





Paediatric Therapeutics Program, UNSW and SCH, Aug 2008



* Whenever we're using medicines, a common aim for all of us is to make sure that we get the 4R's right

* The right drug, being given for the right reason and in the right dose, form and route to the right child at the right time to achieve the right outcome

* We need to get the 4R's right <u>all the time</u> in order to maximise the benefit and minimise the risks associated with any medication use



• In order to achieve this goal, a number of steps have to be carried out correctly: these include prescribing, dispensing, administering and monitoring the use and effect of medicines.

• This diagram is a very simplified representation of what is actually a much more complex system, involving many steps and many people, interacting with each other

• The ideal is that all of this functions correctly all of the time

... This needs GOOD COMMUNICATION between the different people involved in the medication use system. The NIMC and associated guidelines for use are intended to facilitate better communication.





Some data from SCH about selected safe prescribing elements...













• Recording Adverse Drug Reaction information is an important part of drug therapy.

• Omission of ADR information permits the opportunity to re-prescribe and administer the same or similar agent

• No medication should be dispensed or administered from a chart until this section is complete



Chart numbering is a simple method of accounting for all charts currently in use for a patient. This information will need to be updated as additional charts are written or charts are ceased. When more than one chart is in use, number can help ensure that medication orders are not inadvertently overlooked



• The admitting medical officer, a pharmacist or other clinician trained in medication history documentation may complete this section. The following information is needed:

- a complete list of all medicines taken normally at home (prescription and nonprescription, eg complementary meds) including drug identification details (generic name, strength and form), dose and frequency, and duration of therapy/when therapy started

- whether the patient has their own medicines with them
- whether there is a preferred dose form (eg suspension or tablet)
- contact details for patient's GP and Community Pharmacist

• Differences between medications taken prior to admission and currently prescribed medications should be explained in the medical notes or otherwise queried with attending medical staff.



• The way in which the regular medication section is to be completed represents some change in practice

• Legal requirements for a valid prescription still stand. These include, the date the prescription is to be started, the medication name, strength, route of administration and the frequency of administration. The script must be signed by the prescribing doctor. To ensure queries about prescriptions can be solved, prescribers are also asked to print their names and contact details (e.g. pager number).

• In addition to these requirements the chart has space for the **indication** for the medication, the **basis for the dose** calculation and instructs the **prescribing doctor to enter the administration times**. These features represent a significant change in practice.

• Many errors involve the administration of the wrong medication. A large number of these errors occur because of poor legibility of the order, misinterpretation or misreading of the order or because of drug names which look-alike or sound-alike (eg azathioprine vs azithromycin). By entering the indication for each medication, orders become more clear, and errors decrease. Entering the indication also helps to prevent inadvertent cessation of therapy, by differentiating between medications used for acute problems, and those which are used for chronic conditions.

Basis for dose calculation
Date Medication (use Generic Name) Print Tick it Slow Helease
Route Dose Frequency & NOW enter times
Pharmacy / Additional Information
Indication Dose Calculation (eg mg/kg/dose)
Prescriber's signature Print Name Contact
 Document the basis for the dose calculation eg mg/kg or mg/m² per dose Check dose in current paediatric dosing reference endorsed by the local DTC. eg RCH Pharmacopoeia or local DTC endorsed paediatric reference
 Calculate dose using accurate weight or BSA up to usual adult dose ✓ use calculator
 RNs to double-sign indicating dose checked and administered Recording the dose here <u>helps double-checking</u> by pharmacists, nurses and other doctors, ensuring that both the intended mg/kg or per m² and actual dose calculated are correct.

• The availability of a designated space to document the basis for the dose calculation is one of the major differences between the paediatric and adult version of the NIMC.

• This feature is also likely to be one of the most important NEW features of the chart that will help reduce dosing errors (which are the most common medication errors in paediatrics) and associated harm



• See NSW TAG guidelines for full set of recommended abbreviations to use and dangerous abbreviations that must not be used

✓ For regular	Date	Date Medication (use Generic Name) Print Tick If Skill Skill Skill Release Route Dose Frequency & NOW enter times						
medications the	Route							•
times are to be entered by the	Pharmacy	/ Additional Inform	nation					
prescriber	Indication	Indication Dose			Calculation (eg mg/kg/dose)			
 ✓ For young children who have variable meal 	Prescriber	Print Name	Print Name			Contact		
and sleep schedules, the prescriber should ideally	ł	I	RECOMMENDED ORAL ADMINISTRATION TIMES GUIDELINES ONLY					5
			Morning	Mane	0900			
discuss with the				+	<u> </u>		4000.0	× 200
discuss with the patient's parent/carer			Night	Nocte			1800 0	1 200
discuss with the patient's parent/carer and nurse to determine			Night Twice a day	Nocte BD	0800		2000	1 200
discuss with the patient's parent/carer and nurse to determine an appropriate schedule			Night Twice a day Three time a day	Nocte BD TDS	0800	1400	2000	1 200

• The prescribed dose frequency may not correspond to the entered administration times. This error arises when frequencies are interpreted by another clinician. By requesting that the prescribing doctor enter the administration times, this potential for error is removed, and has been shown in pilot studies elsewhere to reduce frequency and administration time mismatch.

• Further advice is available to address specific paediatric scenarios involving administration times (see FAQs section at paed-NIMC website)

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	Morning	Mane	0900					
	Night	Nocte			1800 (or 2000		
	Twice a day	BD	0800		2000			
	Three times a day	TDS	0900	1400	2000			
	Four times a day	QID	0800	1200	1700	2100		
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To assist with entering administration times, a table of suggested administration times for common dose intervals is included on the chart.



• Clinical pharmacists and prescribers can write additional information on an order in the pharmacy/additional info box.

• The clinical pharmacist will sign the pharmaceutical review section as a record that they have reviewed the entire medication chart (on that day) to ensure that all orders are clear, safe and appropriate for that individual patient, therefore the risk of an adverse drug event is minimised.









When a medicine is ordered for a **limited duration**, or only on **certain days**, this must be clearly indicated using crosses (X) to block out day/times when the drug is <u>NOT</u> to be given.

This principle also applies for **ONCE weekly** medications, eg low dose Methotrexate for juvenile idiopathic arthritis.



When it is not possible to administer the prescribed medicine, the reason for not administering must be recorded by entering the appropriate code and **circling**. By circling the code it will not accidentally be misread as someone's initials.

If a patient refuses medicine(s), then the medical officer must be notified.

If medicine(s) are withheld, the reason must be documented in the patient's medical notes.

If the medicine is not available on the ward, it is the nurse's responsibility to notify the pharmacy and/or obtain supply or to contact the medical officer to advise that the medicine ordered is not available.





[Some facilities or specialties (eg paediatric hospitals, chemotherapy) may not allow telephone orders at all, check local policy first]

• Verbal or telephone orders from prescribers that are onsite in the hospital should only be used in emergencies or during sterile procedures where ungloving would be impractical

• If local policy allows it, the following must be documented for telephone orders:

- date prescribed
- generic name of medicine
- route of administration
- dose to be administered
- date and time medicine is to be administered
- name of doctor giving verbal order
- initials of two nursing officers to confirm that verbal order heard and checked

[NB checking is considered to be appropriate when verbal or phone orders must be taken, the nurse or pharmacist receiving the order <u>immediately</u> writes it down <u>and</u> reads it back to the prescriber for verification and, where possible, there is a system of independent double checking]

time of administration

• The telephone order MUST be signed, or otherwise confirmed in writing, within 24 hours





This example is specific to SCH guidelines about the use of the individual medicines in the example, which may be different in other hospitals. The general principles illustrated should, however, be relevant to other settings. <u>Different examples may also be used to better suit the needs of local circumstances.</u>

Points to highlight:

- if use pt ID label, then
 - need label on all yellow copies (if using NCR chart, eg at SCH)
 - 1st prescriber also prints name of patient below label and checks label correct
- can also just write in pt ID details in main box (then don't need to print again below ID box)
- Write in accurate weight (+/- ht, BSA) at same time as completing pt ID

Attach ADR Sticker ALLERGIES & ADVERSE DRUG REACTIONS (ADR) Nil known Unknown Bei apreside for a complete state between	
Drug (or other) Reaction/Type/Date Initials AMOXYL Allengic Rash LB (GP-2005)	
sign L Black Print L. BLOB Dar 24/4/07	-
Paediatric Therapeutics Program UNSW & SCH August 2008	34

• Emphasise points as per slide 14 in main presentation

• Note, especially the recording of the actual type of ADR (eg allergic rash) and date of initial reaction (2005) and who diagnosed it (eg GP).

See SCH ADR definitions table for more examples of specific reaction types

• Ideally, verified ADR information should be recorded here. However, if there is only "suspicion" of an ADR, that could also be indicated here (eg with question mark) and in the medical records. This would alert future prescribers to check whether it is a true ADR before deciding if this information should impact on future prescribing decisions

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YEAR 20 07 DATE & MONTH DOCTORS MUST ENTER administration times Defended of the Construction of the Cons	The W THE E SAT SUM Mar 21/4 25/4 24/4 27/4 28/4 29/4 30/4 SQC STAT dose LEVEL	
Paediatric Therap UNSW & SCH	peutics Program I August 2008	35

Points to highlight:

· Check dose in current paed dosing reference:

• in this instance, there is a sticker in SCH copies of RCH pharmacopoeia (red book) referring to more up to date **SCH guidelines** for gentamicin (2006). Reference to SCH guidelines shows that for **oncology** pts the gentamicin dose is the traditional **2.5 mg/kg/dose** given **TDS** rather than the once daily dosing regimen other pts may be on.

• There are a number of other patient groups for whom traditional gentamicin dosing is recommended...hence highlighting the need to make sure that the **dose prescribed matches the indication** for the prescription.

• Document basis for dose calculation...so others can double-check accuracy

· Calculate dose using accurate weight...use calculator

• The recommended **administration times** for 8 hrly meds are 0600, 1400, 2200. This patient was admitted and had IV inserted at 0500, so the first dose can be given right away. This can be given as a stat dose at 0500 (and recorded in the stat section on the front of chart...see next slide) and indicated accordingly on the regular order next to the 0600 box (see slide). Alternatively, the 1st dose being given an hour early at 0500 can be recorded on the regular administration section (eg by writing "1st dose given at 0500"). However, there is limited available room, so care should be taken that this is done with clarity and not cause confusion about any of the subsequent dose administration records.

• the 2nd dose of gentamicin can then be given at the usual time of 1400. In most instances the 1 hour difference (i.e. 9 hrs vs 8 hrs from the 1st to 2nd dose) will not be clinically important.

• However, this may vary depending on the <u>patient's condition</u>, the <u>properties of the drug</u> involved and the <u>dosing interval</u> and so is a clinical decision that needs to be discussed with the prescriber if there is any doubt about the suitability of adhering to standard times.

• PS: further scenarios re administration times issues are available...see FAQ section

• **Drug levels**: the SCH guidelines recommend for pts on TDS regimen 1st level should routinely be done after the <u>3rd-5th dose</u> and then <u>every 3-5 days</u>. The prescriber has boxed the 5th dose to indicate timing of 1st level. Once this trough level is taken, the dose can be given at the allotted time i.e. 1400 (rather than delaying until result of drug level is available), <u>UNLESS there are clinical reasons to suspect toxicity or unless the prescriber has specifically requested</u> that the level should be checked before 1400 dose given. In this example, the genta level taken at 1400 should be available by later in the day and definitely be checked before the 2200 dose is given

Note different timing of levels for patients on once daily gentamicin (see SCH guidelines)
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Co-trimoxazole example:

• indication is PCP prophylaxis...dose accordingly (vs different dose eg for UTI prophylaxis or UTI treatment)

• write basis for dose calculation so others can double-check. Co-trimoxazole is a combination product where the dose is usually calculated based on the trimethoprim component

· dose frequency is 3 days per week. This should be indicated by

- specifying actual days of the week (eg Mon, Wed, Fri) in the order section
- crossing out the days drug NOT to be administered in the administration section

• Take care to write clearly and LEGIBLY as the regular orders section can become quite "busy" once a few orders have been written

	7	Ì
AS REQUIRED "PRN" MEDICATIONS Atlach-APR Sticker	AFFIX PATIENT IDENTIFICATION LABEL HERE UR No: 1234567 NOT A VALID Family Name: STONE CRIPTION UN ESS Given Names: AMBER THEES PRESENT DOB 02/02/22000 Sex TM LTF	
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• PRN section separate to REGULAR meds section

• Need to ensure **maximum daily dose is recorded** and matches the indication (eg for paracetamol maximum daily dose is 60mg/kg/day for Rx of symptomatic high fever. In the absence of fever, maximum daily dose for treating pain is up to 90 mg/kg/day)

• Need to take special care with medicines such as paracetamol which might be commonly prescribed in either or both regular and PRN sections...check both sections to ensure that there is no double dosing and that **maximum daily dose is not exceeded when administering**.

• includes being aware of combination product names (eg *Painstop*) which contain paracetamol.

• note also "*Perfalgan*" is the trade name of IV paracetamol and may be ordered for short term pain treatment in some patients



Future chart audits will help us to see how well we are adhering to safe prescribing guidelines when using the paed-NIMC

The parameters shown here are a selection of the things we will be collecting data on in future.

- Recording of weight and ADR information should hopefully be near 100% soon
- Documentation of the basis for dose calculation (and actual dose calculated being correct) will be especially interesting to follow



• The full set of resources to support education about and implementation of the paed-NIMC are available at ... TBA

•There are currently some unresolved issues re paed-NIMC...and no doubt additional issues will come to light as implementation proceeds, so flexibility, patience and professionalism by all involved will be needed to facilitate a smooth transition.

• It is important to keep in mind that OVERALL, the standardisation of charts and the special features incorporated are POSITIVE features which should help reduce medication errors and related harm in hospitalised children