MEDICATION SAFETY
STRATEGIES for CHILDREN

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Director Pharmacy
Women’s & Children’s Hospital

May 2009
• easily accessible dosing resources
## Drug Information Resources

<table>
<thead>
<tr>
<th>Resource</th>
<th>Description</th>
<th>Access Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adverse Drug Reaction Reporting Procedure</td>
<td><a href="#">Clinical Governance area</a></td>
<td>username: honguest119 password: l33timesy</td>
</tr>
<tr>
<td>Antibiotics Drugs, Anti-Infective Diseases Approval</td>
<td><a href="#">Clinical Governance area</a></td>
<td></td>
</tr>
<tr>
<td>Australian Immunisation Handbook (8th Edition - 2005)</td>
<td><a href="#">PDF - 2.3mb</a></td>
<td></td>
</tr>
<tr>
<td>Australian Medicines Handbook</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Australian Prescriptions Products Guide</td>
<td></td>
<td></td>
</tr>
<tr>
<td>British National Formulary for Children (BNFC)</td>
<td></td>
<td>username: <a href="mailto:library@cywhs.sa.gov.au">library@cywhs.sa.gov.au</a> password: children</td>
</tr>
<tr>
<td>Drug Information Services</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drugs, and Therapeutics Committee Guidelines</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Martindale: The Complete Drug Reference</td>
<td></td>
<td>username: <a href="mailto:library@cywhs.sa.gov.au">library@cywhs.sa.gov.au</a> password: children</td>
</tr>
<tr>
<td>MIMS Online</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neonatal Medication Manual</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paediatric Inflammatory Guidelines</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Paediatric Pharmacology (per cent dose guide)</td>
<td>Please note that where DTC guidelines exist, they will take precedence over RCH dosage recommendations.</td>
<td>username: won password: doses12</td>
</tr>
<tr>
<td>Schedule of Pharmaceutical Benefits</td>
<td></td>
<td></td>
</tr>
<tr>
<td>eTherapeutics Guidelines (eTOG)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Therapeutic Drug Monitoring</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

[Children, Youth and Women's Health Service](#)
• easily accessible dosing resources
• abbreviations
**USE THESE**

<table>
<thead>
<tr>
<th>Latin abbreviation</th>
<th>English meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>od</td>
<td>once a day</td>
</tr>
<tr>
<td>qd</td>
<td>four times a day</td>
</tr>
<tr>
<td>q12h</td>
<td>every 12 hours</td>
</tr>
<tr>
<td>prn</td>
<td>as needed</td>
</tr>
<tr>
<td>stat</td>
<td>immediately</td>
</tr>
<tr>
<td>as needed</td>
<td>as needed</td>
</tr>
<tr>
<td>single</td>
<td>single</td>
</tr>
<tr>
<td>twice</td>
<td>twice daily</td>
</tr>
</tbody>
</table>

- When possible use these in English. This helps avoid confusion of once b.i.d. or q.d.
- Be precise. Dosages less than 5 mg should be avoided.
- Always check the patient’s current drug and medication, and consult the Clinical Summary/Admit Sheet and MedWatch.
- Always have well-documented schedules for "milligrams", "micrograms", "milligrams" and "milligrams" exactly controlled.
- Always write a loading dose before a maintenance dose. e.g. 0.5 mg am, then 0.5 mg q.d.
- Use LEASTLY, needle, intramuscular, and p.o.
- Complete the P.E.R.I.C.E. when starting drugs. e.g. dose, frequency, route.

**DO NOT USE THESE**

<table>
<thead>
<tr>
<th>Latin abbreviation</th>
<th>Reason why it should not be used</th>
<th>Instead use</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;od&quot; or &quot;qd&quot; for once daily</td>
<td>A patient might be confused with qd or q.d. daily</td>
<td>Do not use od or qd for once daily.</td>
</tr>
<tr>
<td>qd, qd daily, qd daily</td>
<td>For clarity, use qd or q.d daily.</td>
<td>Do not use od or qd for once daily.</td>
</tr>
<tr>
<td>&quot;mg&quot; in full dose, mg</td>
<td>&quot;mg&quot; looks like &quot;m&quot;.</td>
<td>Use &quot;mgm&quot;.</td>
</tr>
<tr>
<td>4 hourly or 4 hourly</td>
<td>Can use q.d or q.d. 4 times a day</td>
<td>Use q.d. 4 times a day.</td>
</tr>
<tr>
<td>4 hourly or 4 hourly</td>
<td>Can use q.d or q.d. 4 times a day</td>
<td>Use q.d. 4 times a day.</td>
</tr>
<tr>
<td>U or IU</td>
<td>Do not use &quot;U&quot;.</td>
<td>Use &quot;mgm&quot;.</td>
</tr>
<tr>
<td>U or IU</td>
<td>Do not use &quot;U&quot;.</td>
<td>Use &quot;mgm&quot;.</td>
</tr>
<tr>
<td>mg or mgm</td>
<td>Always use mgm.</td>
<td>Always use mgm.</td>
</tr>
<tr>
<td>IV or IM</td>
<td>Do not use IV or IM.</td>
<td>Use &quot;mgm&quot;.</td>
</tr>
</tbody>
</table>

**DANGEROUS ABBREVIATIONS NOT TO BE USED**

- "U" for units
- "mgm" for microgram

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**Children, Youth and Women's Health Service**
• easily accessible dosing resources
• abbreviations
• bar coding
- easily accessible dosing resources
- abbreviations
- bar coding
- alert sheet
### ALERT - CLINICAL

The Health Care Worker (this includes nurses, midwives, doctors, allied health workers and pharmacists) must record the specific problem, note the date and details of the event that precipitated the alert and whether the problem was proven (P) or unproven (U). All entries should be dated and signed.

An alert is CANCELLED by drawing a single horizontal line through the alert details and recording the signature and date.

Administrative Alerts (Information Constraints, Merged UR Numbers and Record Retention Period) are to be recorded on Alert - Administration (MR 1a).

#### DRUG, FOOD, TRANSFUSION, MEDICAL, ANAESTHETIC, LATEX, OTHER ALERTS, ETC:

<table>
<thead>
<tr>
<th>AGENT</th>
<th>EFFECT (+)</th>
<th>DATE OF EVENT</th>
<th>P/U</th>
<th>HEALTH CARE WORKER SIGNATURE</th>
<th>DATE OF REPORTING</th>
<th>CANCELLED SIGNATURE</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIRST NAME</td>
<td>DOB</td>
<td>SIGN</td>
<td>FIRST NAME</td>
<td>DOB</td>
<td>SIGN</td>
<td>FIRST NAME</td>
<td>DOB</td>
</tr>
</tbody>
</table>

#### INFECTION RISK ALERTS

<table>
<thead>
<tr>
<th>AGENT</th>
<th>ACTION (Infection Control to complete)</th>
<th>HEALTH CARE WORKER SIGNATURE</th>
<th>DATE</th>
<th>CANCELLED SIGNATURE</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIRST NAME</td>
<td>DOB</td>
<td>SIGN</td>
<td>FIRST NAME</td>
<td>DOB</td>
<td>SIGN</td>
</tr>
</tbody>
</table>

#### CLINICAL TRIALS

<table>
<thead>
<tr>
<th>STUDY TITLE</th>
<th>CHIEF INVESTIGATOR</th>
<th>HEALTH CARE WORKER SIGNATURE</th>
<th>DATE ENROLLED</th>
<th>DATE WITHDRAWN</th>
<th>SIGNATURE</th>
<th>DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIRST NAME</td>
<td>DOB</td>
<td>SIGN</td>
<td>FIRST NAME</td>
<td>DOB</td>
<td>SIGN</td>
<td>FIRST NAME</td>
</tr>
</tbody>
</table>

* CONSIDER A MEDIC ALERT ENROLMENT.
- easily accessible dosing resources
- abbreviations
- bar coding
- alert sheet
- specific drug charts – PCA, opioid infusions
- easily accessible dosing resources
- abbreviations
- bar coding
- alert sheet
- specific drug charts – PCA, opioid infusions
- high risk medicines
- easily accessible dosing resources
- abbreviations
- bar coding
- alert sheet
- specific drug charts – PCA, opioid infusions
- high risk medicines
- IV infusions – burettes, infusion software, paediatric guidelines + dose
• easily accessible dosing resources
• abbreviations
• bar coding
• alert sheet
• specific drug charts – PCA, opioid infusions
• high risk medicines
• IV infusions – burettes, infusion software, paediatric guidelines
• Paediatric NIMC
- easily accessible dosing resources
- abbreviations
- bar coding
- alert sheet
- specific drug charts – PCA, opioid infusions
- high risk medicines
- IV infusions – burettes, infusion software, paediatric guidelines
- Paediatric NIMC
- medication safety officer
AHMAC Paediatric Pharmaceutical Working Group

- Report endorsed October 2005
- 21 Recommendations improve QUM in children
- national dosing resource
- Paediatric Medicines Advisory Group
  - child friendly products
  - equitable access
Implementing the Strategies

- multi-disciplinary ownership
- Executive sponsorship
- communication
  - orientation
  - mandatory packages
  - one on one – ward pharmacists, MSO
  - newsletter
  - examples of our incidents
- audit
- immediate investigation of incidents
- alerts
Look-a-like Ampoules

Midazolam Injection 5mg/5ml & 15mg/3ml & Heparinised Saline Injection 50 IU (units) in 5ml

Pharmacy is trying to source another brand of Midazolam to avoid confusion, in the interim:
Please be aware these drug ampoules look similar and the need to check drug name and concentration before administration is vital.

There is a greater chance for error due to similar packaging.
CLINICAL ALERT

Tramadol Oral Drops
100mg/1mL

Recommended dose for children 1-2mg per kg, orally, 4 - 6 hourly

CAUTION there is an increased risk of overdose in children due to the use of concentrated drops.

> There should never be a need to give more than 1mL - 100mg (Adult dose).
> Each dose requires 2 nurses to check the correct dose has been prescribed and correct amount to be given before administration.
> Current recommendations are to measure dose and administer to patients with an oral syringe.
Patient safety alert

Promoting safer measurement and administration of liquid medicines via oral and other enteral routes

The National Patient Safety Agency (NPSA) is advising healthcare organisations on how to design medical devices and the methods used to measure and administer oral liquid medicines can improve patient safety.

A review of data from the NPSA’s National Reporting and Learning System (NRLS) shows 38 patient safety incidents involving intravenous administration of oral liquid medicines between 1 January 2005 and 31 May 2006.

Incorrect intravenous administration of oral liquid medicines has resulted in three reported deaths between 2001 and 2004, and there are reports of four incidents of harm or near misses between 1997 and 2004. This risk has been recognised in the Department of Health report Building a safer NHS for patients: Improving medication safety and in other publications worldwide.

Action for the NHS and the independent sector

1. Design, supply and use of orai/enteral syringes
   - only use labelled oral/enteral syringes that cannot be connected to intravenous catheters or ports to measure and administer oral liquid medicines;
   - do not use intravenous syringes to measure and administer oral liquid medicines;
   - ensure that all oral/enteral syringes are available in all clinical areas that may need to measure and administer oral liquid medicines in a syringe;
   - when patients or carers need to administer oral liquid medicines with a syringe, supply them with oral or enteral syringes.

2. Design, supply and use of enteral feeding systems
   - enteral feeding systems should not contain ports that can be connected to intravenous syringes or that have end connectors that can be connected to intravenous or other parenteral lines;
   - enteral feeding systems should be labelled to indicate the route of administration;
   - three-way taps and syringe tip adaptors should not be used in enteral feeding systems because connection design safeguards can be bypassed.

For response by:
- All levels and independent senior organisations in England and Wales

The NPSA has informed:
- The chief executive, directors of pharmacy, and lead for medication safety within primary care trusts, other trusts, mental health trusts and local health boards in England and Wales
- The chief executive and clinical governance leads of strategic health authorities (SHAs) and region offices (RoPs)
- Healthcare Inspectorate Wales
- Healthcare Commission
- Business Service Centre (Wales)
- Medicines and healthcare products Regulatory Agency
- NHS Funding and Supply Agency
- Welsh Health Authority
- Prescription Pricing Authority
- British Pharmaceutical Industry
- British National Association
- Welsh Health Board
- Relevant patient organisations and community health councils in Wales
- Independent healthcare forum
Patient safety alert

Reducing the harm caused by misplaced naso and orogastric feeding tubes in babies under the care of neonatal units

Gastrostomy feeding, both naso and orogastric, is used extensively in neonatal units. Thousands of tubes are inserted daily without incident. However, there is a small risk that the tube can become misplaced into the lungs during insertion, or move out of the stomach at a later stage. Studies have shown that testing methods to check the placement of nasogastric feeding tubes in adults and children can be inaccurate. A recent alert (NPSA Patient Safety Alert 08) issued advice on which methods should and should not be used in adults and children. This is additional advice that is specific to neonates as they differ physiologically from adults and children in terms of gastric pH. The British Association of Perinatal Medicine has worked with the NPSA on developing this advice, and the Neonatal Nurses Association and the Royal College of Paediatrics and Child Health have also agreed.

Action for the NHS

NHS acute trusts, primary care organisations and local health boards in England and Wales should take the following steps immediately.

1. Give staff and carers of babies in the community, the following information on correct and incorrect testing methods (see www.npsa.nhs.uk/advice).
   - We recommend:
     - neonatal units and carers change to using pH indicator strips or paper, following competency based training and education, by 1 January 2006;
     - radiography should NOT be used 'routinely' but can be used if the baby is being X-rayed for another reason. Tubes with markings should be used for all babies to enable accurate measurement of depth and length and the position of the tube documented;
     - DO NOT use the auscultation method ('whoosh' test) to determine tube position;
     - DO NOT interpret the absence of respiratory distress as an indicator of correct positioning;
     - DO NOT test correct positioning by monitoring for bubbling at the end of the tube;
     - DO NOT use the appearance of feeding tube aspirate as a primary method to rule out misplacement.
   - Carry out individual risk assessment prior to gastric tube feeding.
   - Review and agree local action required.

For response by:
- NHS acute trusts (including foundation trusts), primary care organisations and local health boards in England and Wales
- Directors of Nursing in England and Wales

We recommend you also inform:
- Neonatal nursing staff (including community nurses)
- Midwives
- Neonatologists
- Paediatricians
- Medical staff (including radiologists)
- Medical directors
- Clinical governance leads and risk managers
- Nutritional nurse specialists
- Speech and language therapists
- Physiotherapists
- Dieticians
- Chief pharmacists/pharmaceutical advisers
- Patient advice and information service staff in England
- Procurement managers

The NPSA has informed:
- Chief executives of acute trusts, primary care organisations and local health boards in England and Wales
- Chief executives/Regional directors and clinical governance leads of strategic health authorities (England) and regional offices (Wales)
- Healthcare Commission
- Healthcare Inspectorate Wales
- NHS Purchasing and Supply Agency
- Welsh Health Suppliers
- Royal Colleges and societies
- NHS Direct
- Relevant patient organisations and community health councils in Wales
- Independent Healthcare Forum
- Commission for Social Care Inspection
- Quality Improvement Scotland and DHSSPS, Northern Ireland
Oral Syringes

Issues:

• compatibility with neonatal enteral feeding systems
medicina
hospital oral/enteral syringes & nasogastric tubes

safety syringes

sets & accessories

NG tubes

short-term fine-bore nasogastric feeding tubes

long-term fine-bore nasogastric feeding tubes

short-term wide-bore nasogastric feeding tubes

long-term wide-bore nasogastric feeding tubes
Issues:

- compatibility with neonatal enteral feeding systems
- colours, clarity
Issues:
• compatibility with neonatal enteral feeding systems
• colours, clarity
• pack size (infection control)
Issues:

- compatibility with neonatal enteral feeding systems
- colours, clarity
- pack size (infection control)
- cost
Issues:

- compatibility with neonatal enteral feeding systems
- colours, clarity
- pack size (infection control)
- cost
- inpatients, all patients
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- compatibility with neonatal enteral feeding systems
- colours, clarity
- pack size (infection control)
- cost
- inpatients, all patients
- coroner’s report  
Oral Syringes

Children’s Hospital’s Australasia:

“Standard for Oral Syringes and Enteral Feeding Systems”

Key points

• NOT compatible with IV access

• compatible with enteral feeding sets of ALL sizes