In November 2016, NICE published its guidance on hypertension in adults, which suggests 24 hour ambulatory blood pressure monitoring in the diagnosis of hypertension. ABPM should be measured in children before treating. It lessens the “white coat” effect and, if their BP is normal while asleep at night, the clinician can be fairly reassured that there is not likely to be a significant underlying cause for their hypertension.

Caveat: **you must get the cuff size right:** The largest cuff which can fit on the arm should be used (2/3 the length of the upper arm, bladder 80-100% of the arm circumference). Small cuffs overestimate the blood pressure.

The centile charts for day and night blood pressures are available [here](http://www.rcpch.ac.uk/child-protection-evidence) at the bottom of the European consensus document. I have also uploaded them to the [primary care guidelines](http://www.rcpch.ac.uk/child-protection-evidence) tab. The 95th centile is the upper limit of normal. Values are gender specific and are set out according to heights and ages.


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**URINALYSIS – WHAT EACH COMPONENT MEANS...**


Ketones are not normally found in the urine. Produced by the liver as intermediate products of fatty acid metabolism, in normal states they will be completely metabolised. In “starvation” states eg. DKA or vomiting and reduced intake, fever, extreme cold and extreme exercise, the body metabolises increased fat to get the energy it needs to keep functioning. This results in ketonuria. ≥ ++ is abnormal.

We often see ketones in the urine of unwell children in the ED. When glucose is present at the same time in the urine, diabetic ketoacidosis is the likely diagnosis.

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**CHILD SAFEGUARDING NEWS:**

As of July 2017, [http://www.rcpch.ac.uk/child-protection-evidence](http://www.rcpch.ac.uk/child-protection-evidence) is housing all the evidence behind child safeguarding so painstakingly put together by the Cardiff Child Protection Systematic REviews project (CORE INFO) in collaboration with NSPCC. It’s a go-to page with links to national and international guidance and resources around safeguarding children.

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**NSPCC flyers currently available from the RCPCH site:**

- Bruises on children
- Emotional neglect and emotional abuse in pre-school children
- Fractures in children
- Head and spinal injuries in children
- Neglect and emotional abuse in children aged 5-14
- Neglect and emotional abuse in teenagers aged 13-18
- Oral injuries and bites on children
- Thermal injuries on children

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Intraosseous needle insertion is pretty painful but not as painful as the subsequent infusion of the fluids. In the conscious patient, it is possible to infuse small volumes of lignocaine via the IO to provide pain relief. [http://www.gosh.nhs.uk/health-professionals/clinical-guidelines/intraosseous-insertion](http://www.gosh.nhs.uk/health-professionals/clinical-guidelines/intraosseous-insertion) provides a comprehensive guide to IO needle insertion and use. Appendix 1 of that document has a chart of how much lignocaine (lidocaine) to use according to the weight of the child. Volumes are tiny in the neonate.

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**American Dietary Recommendations for adequate fluid intake as reproduced in the NICE guideline on constipation in children and young people** which was reviewed with minor updates in July 2017:

![Dietary reference intakes for water, potassium, sodium chloride and sulphate. Washington DC: The National Academies Press](https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5819524/)


<table>
<thead>
<tr>
<th>Age Group</th>
<th>Total water intake per day, including water contained in food</th>
<th>Water obtained from drinks per day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infants 0-6 months</td>
<td>700 ml assumed to be from breast milk</td>
<td>600 ml</td>
</tr>
<tr>
<td>7-12 months</td>
<td>900 ml from milk and complementary foods and beverages</td>
<td>700 ml</td>
</tr>
<tr>
<td>1-3 years</td>
<td>1300 ml</td>
<td>900 ml</td>
</tr>
<tr>
<td>4-8 years</td>
<td>1700 ml</td>
<td>1200 ml</td>
</tr>
<tr>
<td>Boys 9-13 years</td>
<td>2400 ml</td>
<td>1800 ml</td>
</tr>
<tr>
<td>Girls 9-13 years</td>
<td>2100 ml</td>
<td>1600 ml</td>
</tr>
<tr>
<td>Boys 14-18 years</td>
<td>3300 ml</td>
<td>2600 ml</td>
</tr>
<tr>
<td>Girls 14-18 years</td>
<td>2900 ml</td>
<td>1800 ml</td>
</tr>
</tbody>
</table>

The above recommendations are for adequate Intakes and should not be interpreted as a specific requirement. Higher intakes of total water will be required for those who are physically active or who are exposed to hot environments. It should be noted that obese children may also require higher total intakes of water.

- As well as adequate fluid, children should have a fibre rich diet (fruit, vegetables, high-fibre bread, baked beans and wholegrain breakfast cereals) but
- Do not use dietary interventions alone as first-line treatment for idiopathic constipation (see [guideline](http://www.cot.org/digestive-tract-function/constipation/digestive-tract-function/constipation-in-children-and-young-people) for Movicol doses)
- Do advise daily physical activity that is tailored to the child or young person’s stage of development and individual ability

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**Resources:**

- [http://labtestsonline.org.uk/understanding/anaalyses/urinalysis/ui-exams/?start=1](http://labtestsonline.org.uk/understanding/anaalyses/urinalysis/ui-exams/?start=1)