

# Paediatric Pearls

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Previous editions are all available at [www.paediatricpearls.co.uk](http://www.paediatricpearls.co.uk)

## Diabetes (type 1 and type 2) in children and young people: diagnosis and management NICE guideline [NG18] Published date: August 2015

Part 2 – **Diagnosis and management: relevant figures** Tables and information below come from: <http://www.diabetes.co.uk/>

### Blood sugar levels in diagnosing diabetes

Plasma glucose test	Normal	Prediabetes	Diabetes
Random	Below 11.1 mmol/l Below 200 mg/dl	N/A	11.1 mmol/l or more 200 mg/dl or more
Fasting	Below 6.1 mmol/l Below 108 mg/dl	6.1 to 6.9 mmol/l 108 to 125 mg/dl	7.0 mmol/l or more 126 mg/dl or more
2 hour post-prandial	Below 7.8 mmol/l Below 140 mg/dl	7.8 to 11.0 mmol/l 140 to 199 mg/dl	11.1 mmol/l or more 200 mg/dl or more

### HbA1c test for diabetes diagnosis:

An **HbA1c** test does not directly measure the level of blood glucose. The result of the test is influenced by how high or low blood glucose levels have tended to be over a period of 2 to 3 months. Indications of diabetes or prediabetes in adults (NB: this is not a validated diagnostic method in children yet):

Normal: Below 42 mmol/mol (6.0%)  
Prediabetes: 42 to 47 mmol/mol (6.0 to 6.4%)  
Diabetes: **48 mmol/mol (6.5% or over)**

**Next month: conversion table for HbA1c units**

### NICE recommended target blood glucose level ranges

Target Levels by Type	Upon waking	Before meals (pre prandial)	At least 90 minutes after meals (post prandial)
Non-diabetic*		4.0 to 5.9 mmol/L	under 7.8 mmol/L
Type 2 diabetes		4 to 7 mmol/L	under 8.5 mmol/L
Type 1 diabetes	5 to 7 mmol/L	4 to 7 mmol/L	5 to 9 mmol/L
Children w/ type 1 diabetes	4 to 7 mmol/L	4 to 7 mmol/L	5 to 9 mmol/L

\*The non-diabetic figures are provided for information but are not part of NICE guidelines.

Young people with type 1 diabetes know to test their blood for ketones if their blood sugar is >17mmol or repeatedly >13mmol.

### What should the ketone test results be?

**Under 0.6 mmol/L** - normal blood ketone value  
**0.6 to 1.5 mmol/L** - indicates that more ketones are being produced than normal, test again later to see if the value has lowered  
**1.6 to 3.0 mmol/L** - a high level of ketones and could present a risk of ketoacidosis. Best to contact the child's diabetic nurse for advice.  
**Above 3.0 mmol/L** - a dangerous level of ketones. Best to refer in to the ED.

## MODERN SLAVERY (<https://modernslavery.co.uk/>)

<http://www.trixonline.co.uk/> is the country's leading provider of policies, procedures and associated solutions in the children's safeguarding sector.

This month, Catherine Jordan, Safeguarding Children Advisor at Whipps Cross Hospital, uses it to update us on the Modern Slavery Strategy (MSS).

The [Modern Slavery Act](#) became law in March 2016. Modern Slavery is complex, difficult to detect and devastating for its victims. The MSS states: 'It (Modern Slavery) encompasses slavery, servitude, forced and compulsory labour and human trafficking. Traffickers and slave drivers coerce, deceive and force individuals against their will into a life of abuse, servitude and inhumane treatment. Victims may be sexually exploited, forced to work for little or no pay or forced to commit criminal acts against their will.' It is a global crime. Many victims are 'held in plain sight' - having the appearance of living in society but in fact having little or no freedom. It is also important to be aware that 'Human beings who are treated as a commodity are rarely 'used' for a single purpose. The offending associated with them can include: sham marriages, identity fraud, false benefits claims, rape, false imprisonment, violence and a range of other crimes.

The MSS estimates that in excess of 10,000 - 13,000 people are affected. In 2015, 3,266 potential victims were identified and referred for support, a 40% increase on the previous year. Read more about how to spot the signs [here](#). Approximately 20% of the people referred for sexual or labour exploitation were children.

See: [http://www.trixonline.co.uk/website/news/pdf/policy\\_briefing\\_No-182.pdf](http://www.trixonline.co.uk/website/news/pdf/policy_briefing_No-182.pdf) for more information

There's quite a good NHS England video for staff on spotting the signs at <https://www.england.nhs.uk/ourwork/safeguarding/our-work/modern-slavery/>

## From the literature: Cunningham S et al. **Oxygen saturation targets in infants with bronchiolitis** (BIDS): a double-blind, randomised, equivalence trial. *Lancet* 2015;**386**:1041-48 ([full text](#)).

This paper is worth reading. It's a good study, well designed and written up and the cohort studied reflects the population we are all dealing with here in the UK as the RSV season opens. 615 babies with bronchiolitis between 6/52 and 1 year of age (median age 21.3/52) were randomised to being monitored on a standard pulse oximeter or on a modified oximeter that read 4% higher than the O<sub>2</sub> sats really were (eg it read 94% when the sats were actually 90%). Primary outcome was length of time with continued cough (as a marker of when the child had got over the bronchiolitis) and there was no difference in the two groups. Of more interest to those of us struggling with in-patient beds - the group with the modified O<sub>2</sub> monitors were back to normal feeding quicker than the standard group, went home faster and had fewer readmissions. Is oxygen toxic? Do the babies pick up nosocomial infections? Do parents get increasingly more anxious the longer they stay in? Could this paper possibly spell the end for that well known bed blocker, "wafting oxygen"?

NB: NICE published their guideline on bronchiolitis ([summarised here](#)) the same month as this paper and therefore did not include it in their review. NICE suggests 92% as the O<sub>2</sub> saturation target. The American Academy of Paediatrics and WHO both state that 90% is sufficient. At Whipps we have used evidence from all these sources to compromise on babies being referred to paediatrics if their O<sub>2</sub> sats <92% but we tolerate saturations of 90% on the ward with no supplemental O<sub>2</sub> and discharge after a 4 hour period including a period of sleep if their O<sub>2</sub> sats remain >90%.

Children's headache course coming to London in February 2017! Run by the British Paediatric Neurology Association, this course is a must for all GPs, ED practitioners and paediatricians. Further [information here](#).