

# Plotting and Assessing Newborn Infants



This fact sheet outlines the use of growth monitoring and charts for **term** infants at birth and in the early weeks. For preterm infants see the “Plotting Preterm Infant Growth” fact sheet.

Topics in this fact sheet include:

- ✓ Plotting at birth
- ✓ Assessing weight changes in the first two weeks
- ✓ Calculating percentage weight loss

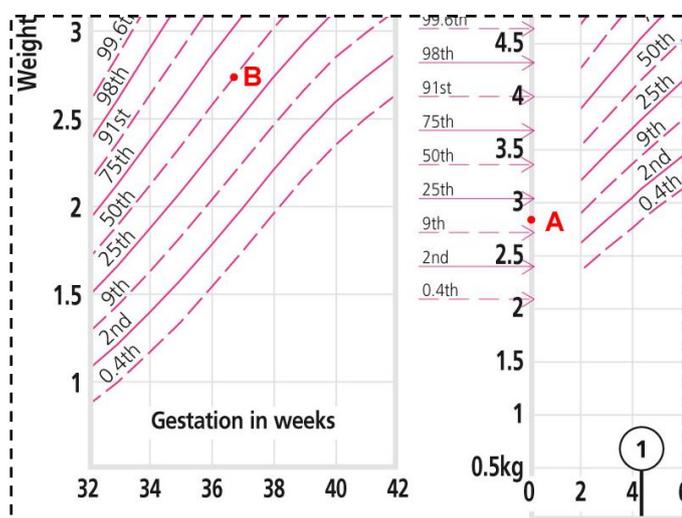
## Plotting birth measurements

All babies born between 37 and 42 weeks are considered “term” and should be plotted at age 0 on the infancy chart. (e.g. point **A** below). This has arrows showing the birth centiles. These are average values at birth for weight, length and head circumference for all term births (from 37 weeks gestation) from the UK 1990 reference database. Head circumference measurements taken in the first 24 hours are unreliable as the head will have been subjected to moulding.

Preterm infants (born before 37 weeks gestation) should be plotted in the preterm section on the A4 chart or the preterm page of the PCHR (see “Plotting Preterm Infant Growth” fact sheet).

## Plotting term infants in the “preterm” section

The preterm section to the left of the A4 chart and the preterm chart in the PCHR can also be used to assess the relative size of infants at the margin of ‘term’ (e.g. 37 weeks gestation) in order to compare the size of that particular baby with others born at the same gestational age. However these measurements should always also be plotted at age 0 on the 0–1 year chart. The centile at age 0 will usually differ from the centile read from the “preterm” section, particularly for babies born at the extreme of “term”, i.e. at 37 or 42 weeks. This is because the centile values shown at “0” on the 0-1-year chart are averages for all term babies born between 37 and 42 weeks.



For example a girl born at 37 weeks weighing 2.8 kg will be on the 50th centile when plotted at 37 weeks (Point **B** on chart) but only between the 9th and 25th when plotted at age 0 (point **A** on chart).

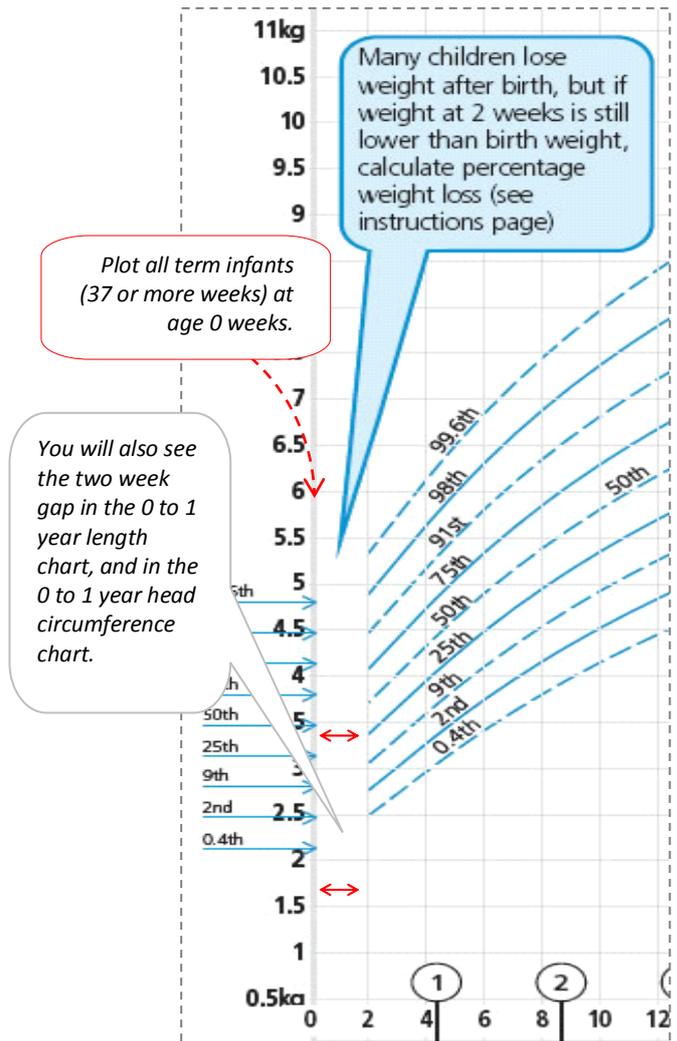
The centile at age 0 will be the best guide to likely centile position in the early weeks but the centile on the “preterm” section will give a guide to likely later centile position.

## Weighing in the neonatal period

Recent research has shown that early weighing does not discourage breast-feeders and may help identify problems in a timely manner, so current NICE recommendations are that babies should be weighed at 5 and 10 days as part of the assessment of feeding and thereafter as needed. Many children lose weight in the early days and then begin to regain at between 3-5 days of age and 80% have regained birthweight by the age of 2 weeks. Recovery of birthweight therefore helps to provide assurance that feeding is effective and that the child is well.

## Why are there no lines between birth and two weeks?

The UK-WHO charts have no line between 0 and 2 weeks so that by the time the baby is first plotted the post birth weight loss should have been regained. There should be no dip on the new UK-WHO charts.



### Assessing weight loss after birth

If there is marked weight loss (e.g. more than 300g), if weight remains more than 200g below birthweight without regain at a week or if the weight is still below birthweight at 2 weeks percentage weight loss should be calculated to aid assessment.

### Calculating Percentage Weight loss

Percentage weight loss is the difference between the actual weight and the weight at birth expressed as a percentage of birthweight.

**Weight loss** = current weight - birthweight  
[e.g. (2.700kg - 2.900kg) = -200g = a fall of 200g]

**Percentage weight loss** =  $\frac{\text{weight loss}}{\text{birthweight}} \times 100\%$

[e.g. (-200g x 100) ÷ 2,900g = 6.9%]

Example 1:

Jamalia weighs 3500g at birth. At 5 days, he weighs 3040g

**Weight loss** = 460g

**Percentage weight loss** =  $\frac{460g \times 100\%}{3500}$

Jamalia's calculated percentage weight loss is **13%**

Example 2:

Jane weighs 3350g at birth. At 10 days, she weighs 3200g

**Weight loss** = 150g

**Percentage weight loss** =  $\frac{150 \times 100\%}{3350}$

Jane's calculated percentage weight loss is **4.5%**

**Remember:** *It's not how many grams a baby loses within first two weeks to be concerned with – it's the percentage of weight loss that indicates a possible feeding problem or illness!*

### Interpreting Percentage Weight Loss

One in five babies are still below their birthweight at 2 weeks, but only one in 50 will be 10% or more below at this age, so this is relatively unusual. Most children with weight loss greater than 10% will be medically well but many will be having feeding problems of some kind and the severity of their weight loss may be an indicator that more assessment and help is needed.

Severe weight loss may also be the only obvious sign that a baby has an underlying medical problem such as a cardiac defect or an inherited metabolic disorder. This means that if a baby is 10% or more below his or her birthweight at or before 2 weeks, he/she needs to be carefully assessed.

### Plotting from 2 weeks

The UK-WHO charts allow for the normal slower pattern of weight gain up to age 2 weeks. On previous charts children appeared to drop half a centile space between birth and 2 weeks, but on the UK-WHO charts, on average, children will be on the same centile at 2 weeks as at birth.

#### Summary:

- ✓ For all infants born from 37 weeks, plot birthweight at age 0
- ✓ Only plot on preterm section for infants at extremes of term and also plot at age 0
- ✓ Weigh within the first week as part of the assessment of feeding
- ✓ Recovery of birthweight indicates that feeding is effective and that the child is well
- ✓ If there is significant weight loss, or child is still below birthweight at 2 weeks, calculate % weight loss
- ✓ Weight loss of 10% or more needs careful assessment

### Further Reading

Macdonald PD, Ross SR, Grant L, Young D. 2003. Neonatal weight loss in breast and formula fed infants. Arch Dis Child Fetal Neonatal Ed 88(6):F472-F476.

McKie A, Young D, Macdonald PD. 2006. Does monitoring newborn weight discourage breast feeding? Arch Dis Child 91(1):44-6.

Wright CM, Parkinson KN. 2004. Postnatal weight loss in term infants: what is normal and do growth charts allow for it? Arch Dis Child Fetal Neonatal Ed 89 (3): F254-F257.