

NEW ZEALAND – WORLD HEALTH ORGANIZATION GROWTH CHARTS

FACT SHEET 4

PLOTTING AND ASSESSING NEWBORN INFANTS



New Zealand Government



This information sheet is based on original materials developed by and copyright © 2009 Royal College of Paediatrics and Child Health, United Kingdom. It was adapted by the New Zealand Ministry of Health in July 2010.

Before 2008, the growth charts used in New Zealand were based on the growth patterns of a mixture of breast- and bottle-fed babies.

The charts now use the growth patterns of babies that have only been breastfed, and are based on optimal growth rather than on average growth.

This fact sheet is one of a series that explains how to use the adapted growth charts. All fact sheets are available on the Ministry of Health's website: www.moh.govt.nz/wellchild

In this fact sheet

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 Fact Sheet 5: Plotting Preterm Infants.

Topics in this fact sheet include:

- plotting at birth
- assessing weight changes in the first 2 weeks
- calculating percentage weight loss.

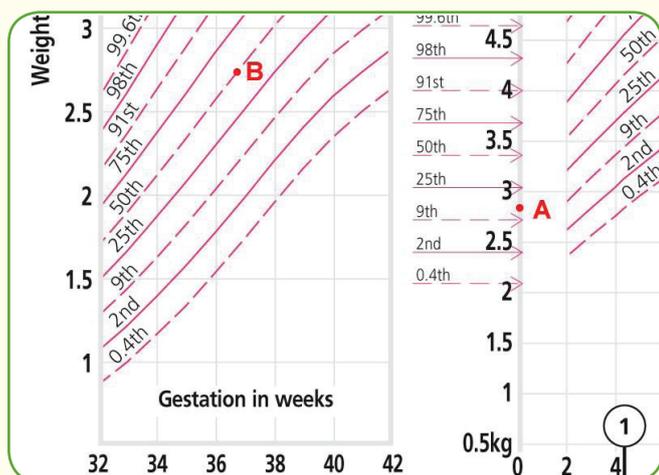
Plotting birth measurements

All babies born between 37 and 42 weeks are considered 'term' and should be plotted at age 0 on the infancy chart (eg, 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 in the Health Professionals' Notes (see Fact Sheet 5: Plotting Preterm Infants) or the low birthweight chart (note that the low birthweight chart is not currently available from the Ministry of Health).

Plotting term infants in the preterm section

The preterm section to the left in the Health Professionals' Notes and the low birthweight chart can also be used to assess the relative size of infants at the margin of term (eg, 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, ie, 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).

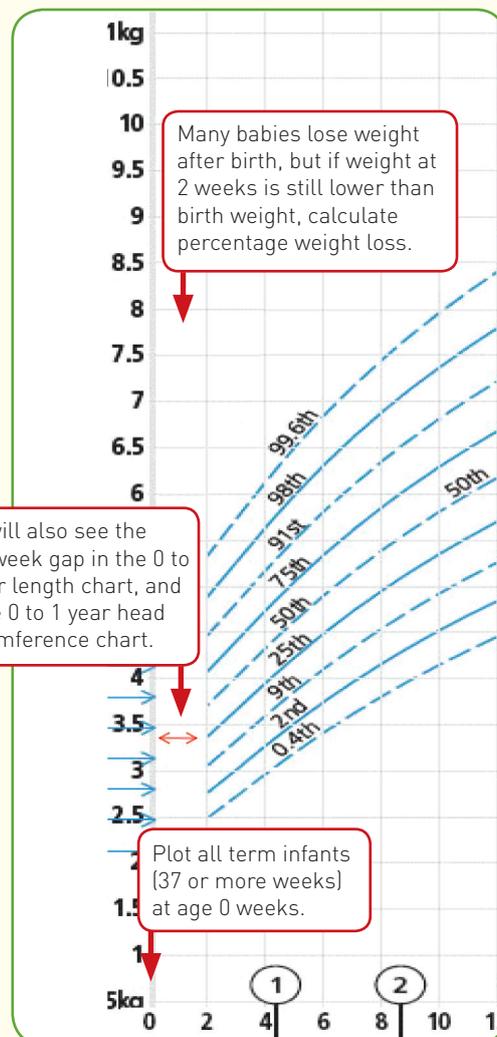
Weighing in the neonatal period

Babies should be weighed at 5 and 10 days as part of the assessment of feeding, and thereafter as needed. Recent research has shown that early weighing does not discourage breastfeeding mothers from feeding their babies and may help identify problems in a timely manner.

Many babies lose weight in the early days and then begin to regain at between 3 to 5 days of age, and 80 percent have regained birthweight by the age of 2 weeks. Recovery of birthweight therefore helps to provide assurance that feeding is effective and that the baby is well.

Why are there no lines between birth and 2 weeks?

The growth 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 charts.



Assessing weight loss after birth

If there is marked weight loss (eg, more than 300 g), if weight remains more than 200 g below birthweight without regain at 1 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 weight at birth and the current weight, expressed as a percentage of birth weight.

Weight loss = birthweight – current weight

(eg, (2.900 kg – 2.700 kg) = 200 g = a fall of 200 g)

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

(eg, (200 g x 100) ÷ 2900 g = 6.9%)

Example 1:

Baby weighs 3500 g at birth. At 5 days, he/she weighs 3040 g

Weight loss = 460 g

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

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

Example 2:

Baby weighs 3350 g at birth. At 10 days, he/she weighs 3200 g

Weight loss = 150 g

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

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

Remember: It's not how many grams a baby loses within the 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

Most babies lose some weight after birth, but 80 percent will have regained this by 2 weeks of age. Careful clinical assessment and evaluation of feeding technique is indicated when weight loss exceeds 10 percent, or recovery of birth weight is slow.

Plotting from 2 weeks

The charts allow for the normal slower pattern of weight gain up to age 2 weeks.

Key points

- 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 baby is well.
- If there is significant weight loss, or the baby is still below birthweight at 2 weeks, calculate percentage weight loss.
- Weight loss of 10 percent 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):44–46.

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.