

FACT SHEET 5

# PLOTTING PRETERM INFANTS

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](http://www.moh.govt.nz/wellchild)

### In this fact sheet

This fact sheet covers all aspects of measuring and plotting healthy preterm infants from birth to age 2.

Topics in this fact sheet include:

- plotting birth and early measurements on the preterm section
- when and how to gestationally correct measurements
- growth in preterm infants.

### Background

A baby is premature if born before 37 completed weeks gestation. The World Health Organization (WHO) growth chart standard does not include data for preterm babies born and so the preterm section to the left in the Health Professionals' Notes has been compiled using UK 1990 reference data for size at birth from 32 to 42 weeks gestation. These are designed for plotting healthy infants born from 32 weeks and before 37 weeks until they reach 42 weeks gestation. Low birthweight charts should be used for preterm infants of less than 32 weeks gestation (note that the low birthweight chart is not currently available from the Ministry of Health).

### Plotting birth and preterm measurements

For infants born from 32 weeks and before 36 weeks 6 days, plot weight and head circumference at birth in the preterm section to the left of the growth chart at exact gestation, worked out using the expected date of delivery (EDD). All further measurements should be plotted in this section until two weeks after the expected date of delivery.

The preterm section does not include length. This is to maximise plotting space for weight and head circumference, which are widely collected, while few healthy infants have length measured at birth. If there is concern about length at birth, all the measurements should be plotted on the low birthweight chart.

The dots on the chart section to the right show how a baby's measurements on the table below would be plotted in the preterm chart section.

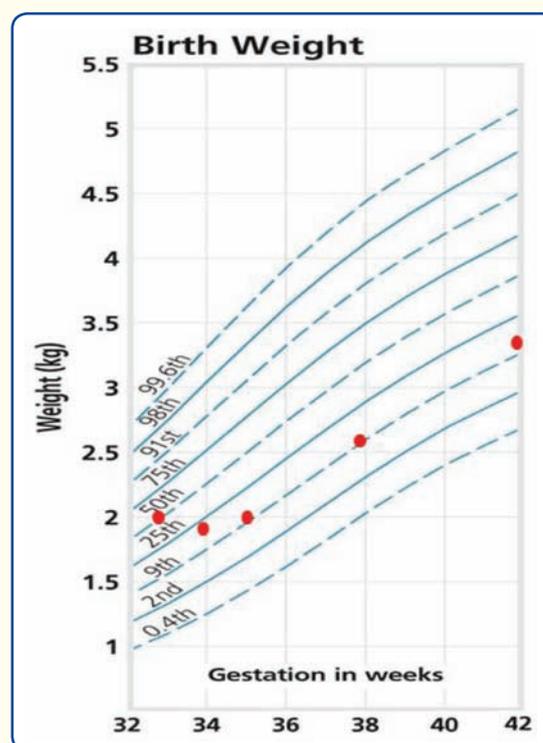
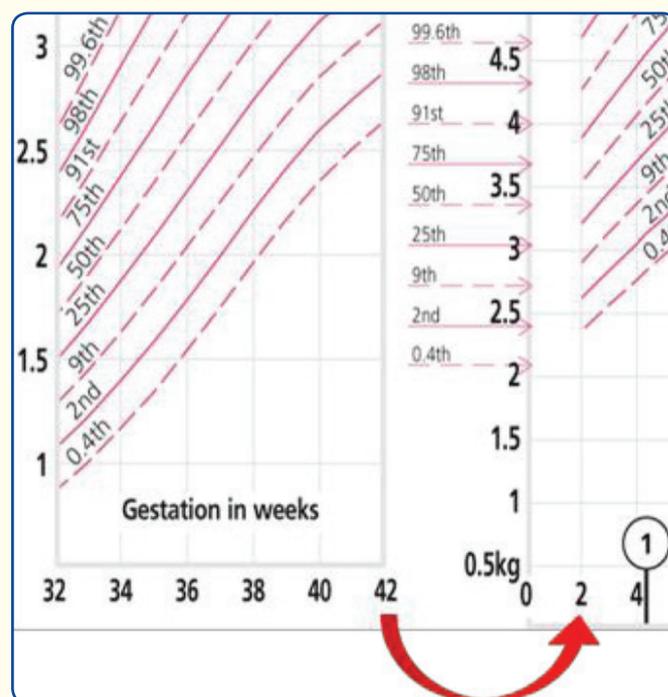
Baby's Age	Gestation	Weight (kg)
Birth	33	2
1 week	34	1.85
2 weeks	35	2
5 weeks	38	2.6
9 weeks	42	3.4



### Plotting preterm baby measurements after EDD plus two weeks

#### Transition from the preterm section to the 0–1 chart

Once a preterm baby has reached an age of EDD plus two weeks, measurements can no longer be plotted on the preterm section of the chart. Any subsequent measurements must be plotted on the 0–1 chart, using gestationally corrected age.



## Plotting with gestational correction

Gestational correction simply adjusts the plot for the number of weeks a baby was born early.

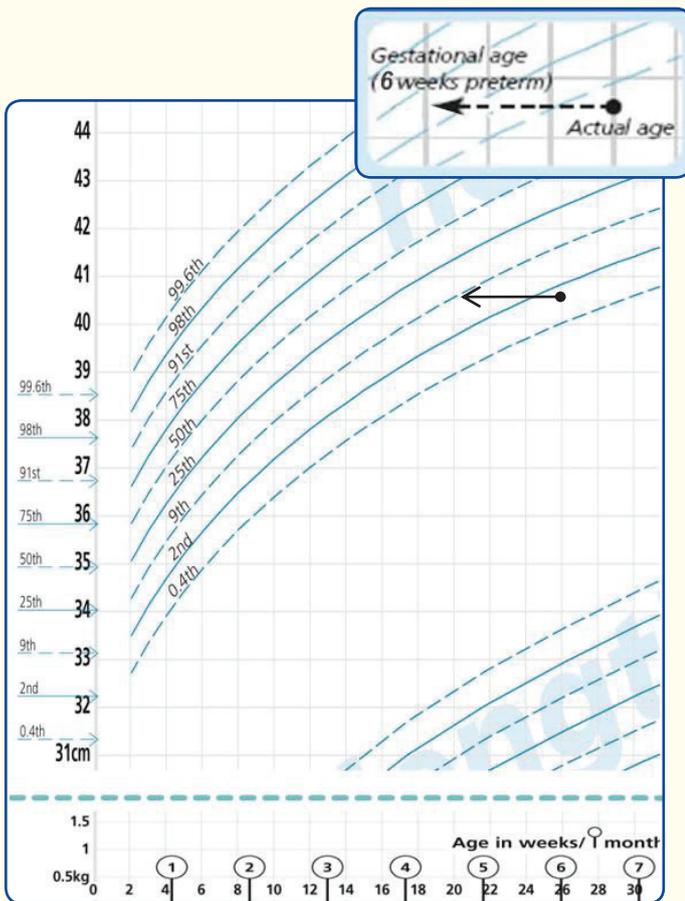
- Number of weeks early = 40 weeks minus gestational age at birth.

You should never gestationally correct for babies born after 36 weeks and 6 days. All such babies are considered 'term'.

Gestational correction should be continued until:

- 1 year for infants born 32–36 weeks
- 2 years for infants born before 32 weeks.

The figure below shows how head circumference for a baby born at 34 weeks would be plotted. First work out how many weeks early this infant was, which is 40 minus the gestation at birth. For example, a child born at 34 weeks is  $40 - 34 = 6$  weeks early.



Then work out the actual (calendar) age the child is now and plot this. Draw a line back the number of weeks the baby was early (in this case 6 weeks). Mark this with an arrow.

The point of the arrow shows the baby's centile with adjustment for preterm birth.

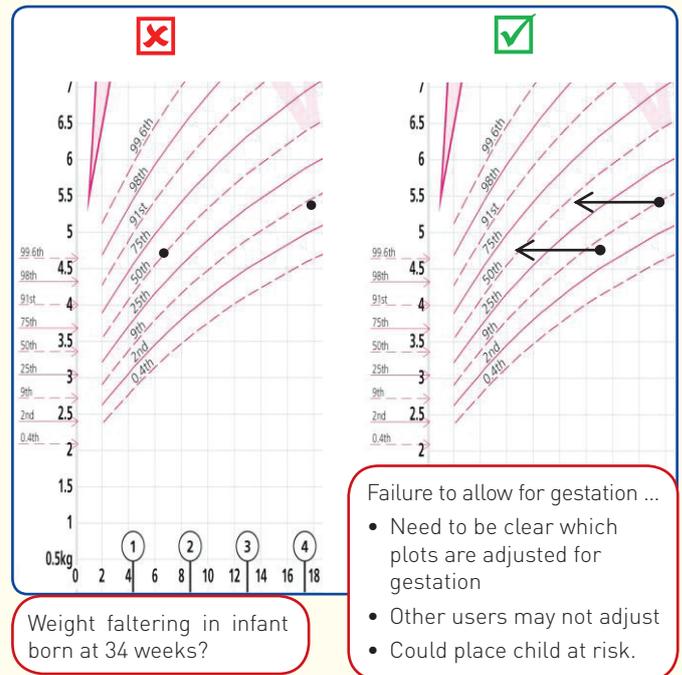
The tip of the arrow shows that the child has a head circumference on the 9th centile when gestational correction has been made.

## Why not just plot all measurements at corrected age only?

- Fewer mistakes in calculation of corrected age.
- Interpretation easier after correction has stopped.

This method ensures that everyone looking at the chart can easily see that gestational correction has been applied, while for single plots it may not be clear and this could cause major misinterpretations of the apparent growth pattern. Consider the chart sections below. The chart on the left shows an adjustment for gestation (left point), but not marked with an arrow. This gives the incorrect appearance of growth faltering.

If you are monitoring very closely and plotting frequent measurements, it is fine to just plot at actual age for most infants, as long as you use the arrow drawn back for every 2nd or 3rd plot.



## Growth in preterm infants

Preterm charts show weight and head circumference at birth for babies born between 32 and 42 weeks of gestation. After birth, an individual baby's growth is not expected to follow the centile lines shown in the preterm section because it shows only birth measurements. Most preterm babies will show slow initial weight gain or weight loss. This means they will appear to fall on the chart.

The charts from 2 weeks to 5 years are based on healthy term infants so these charts do not reflect average growth of preterm infants. However, where preterm infants have remained well, their growth patterns should match the centile at their corrected age, while preterm children who have had problems in the neonatal period and dropped away will usually gradually climb back up the centiles after term.

## Key points

- Plot infants born from 32–36 weeks 6 days in the preterm section of the chart.
- Once infant is EDD plus two weeks, plot on 0–1 chart using gestationally corrected age.