

Breastfed Babies Set the Standard

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If your baby was born in New Zealand, you will be familiar with the *Well Child Tamariki Ora Health Book*. This book, published by the Ministry of Health and given to the family of every baby born in this country, provides information about growth and development in the first five years and has spaces for your baby's growth and development to be recorded. Your baby's length and weight will almost certainly have been plotted on the growth charts in the book, from measurements taken by Lead Maternity Carers, Well Child nurses and GPs at a series of health checks. You may have taken some extra measurements between appointments and 'filled in the gaps' so as to have a more complete record of your baby's growth. You will have observed how this growth compared with the percentiles and bands in the published charts.

How you felt about your baby's growth will have depended on a number of things: how closely it tracked along the paths in the book; what the health worker said to you and how it was said; what other aspects of your baby's growth and wellbeing were checked and discussed; whether encouragement or approval or concerns were expressed; what advice was given and whether you intended to follow it; how the growth compared with other children in your family – or even with your own growth and that of other adults in the family if, as in some families, the growth books are among the precious childhood items passed down through the generations.

Overlaying all of this will have been your own knowledge, instincts and level of confidence in how your baby is progressing, and the messages you will have been getting from those around you. Everyone loves to observe how a baby is growing and to comment upon it: "such a petite wee thing", "my word, he's a big boy", "ah well, someone has to be in the top/bottom three percent", "gosh, that's what I call a growth spurt", "ooh, she was growing so fast and now she's slowed down", "don't worry, your baby's fine, some babies just grow slower/faster". What are you to make of these sorts of comments? Any of them could cause you to feel either affirmed or anxious.

For decades, families have looked to the growth charts in the *Well Child Book* and its predecessors (the *Plunket Books*) for confirmation that their children are growing normally, or indications that there may be problems with their growth. Possibly the only parents who don't feel anxious at some time or other are those whose babies track along or close to the 50th percentile, or start off on another percentile and stick closely to it as they grow. Such a growth path for any individual baby is probably quite rare and, it turns out, it is even more rare for breastfed babies.

The Multi-Centre Growth Reference Study conducted by the World Health Organisation (WHO), aimed to discover how well-nourished breastfed babies can be expected to grow. It revealed marked differences with growth references hitherto in use around the world, including the New Zealand ones. This came as no surprise to many parents of breastfed children, or to LLL Leaders and health care workers with long experience of observing children's growth. Many have reported that breastfed children beyond about six months tend not to 'pack on the weight' as rapidly as the New Zealand charts suggest they should. The New Zealand charts are based on measurements of how all New Zealand children (ie bottle fed as well as breastfed) grow. In fact, the New Zealand charts describe children who are both heavier and shorter than the new WHO Child Growth Standards. These new standards, launched by WHO in April 2006, are based on measurements tracking the growth from birth to age five of 8440 children from six countries – Brazil, Ghana, India, Norway, Oman and the United States of America. They describe how healthy optimally-nourished babies and children around the world can be expected to grow. According to WHO, they provide "a single international standard that represents the best description of physiological growth for all children from birth to five years of age" and "establish the breastfed infant as the normative model for growth and development." Moreover, the study found that: "Up to the age of five all children across large populations – no matter their racial or ethnic background – grow to remarkably similar heights and weights when given the best possible growth conditions in early life."

You can plot your own children's growth on the new WHO charts by downloading them from the WHO website at www.who.int/childgrowth/en. Many of you will find that, particularly from six to 24 months, your children's growth data fits better into the patterns of the WHO weight and height charts than it does into the New Zealand charts.

As well as charts for weight and height, the WHO study also calculated ratios between weight and height. These ratios can provide information about a child's growth that is not always readily apparent from looking at the weight and height charts. The charts showing Body Mass Index (BMI) are ones that I found particularly interesting. BMI is calculated as the ratio of weight (kilograms) to the square of height (metres), and is a measure of "leanness". The higher the BMI the heavier is the child in relation to its height. The lower the BMI, the leaner is the child. In the early months, babies tend to grow steadily and become fatter, hence BMI can be expected to rise. Beyond babyhood, children tend to become leaner, their limbs grow longer and their height grows faster than their weight, hence BMI can be expected to gradually decline. The BMI charts calculated by WHO show a very clear pattern of BMI increasingly rapidly in the early months, peaking at six months, declining fairly steeply from six to 18 months, then continuing to slowly decline over the next couple of years.

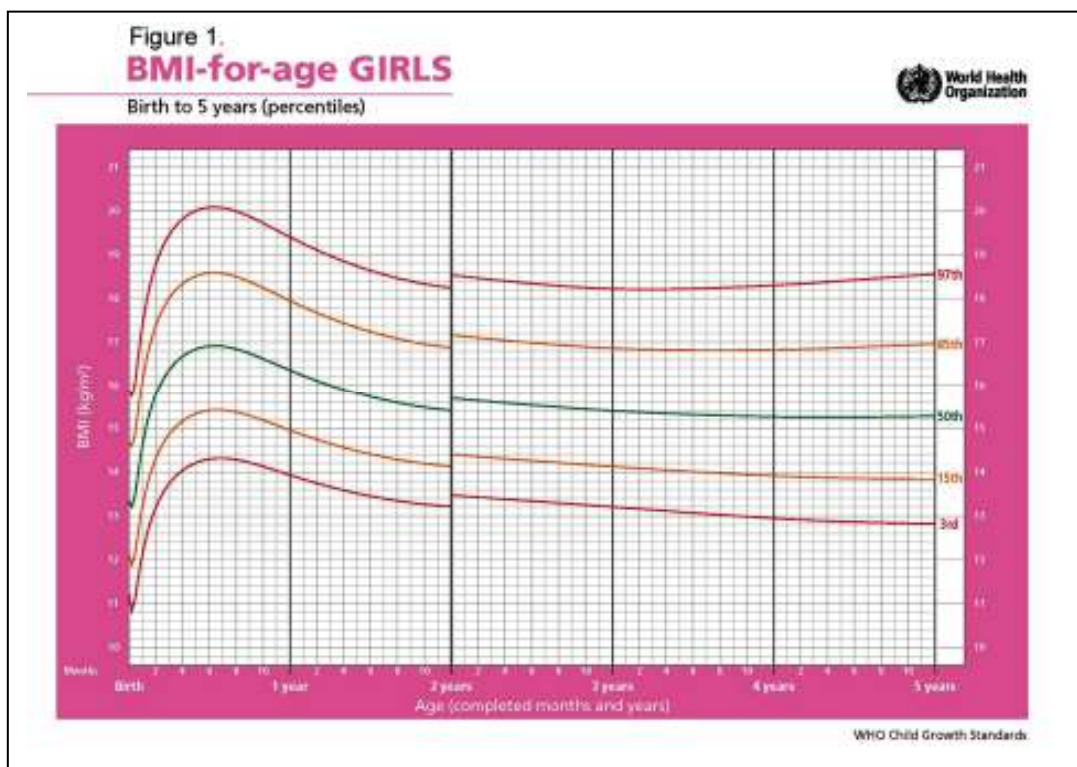
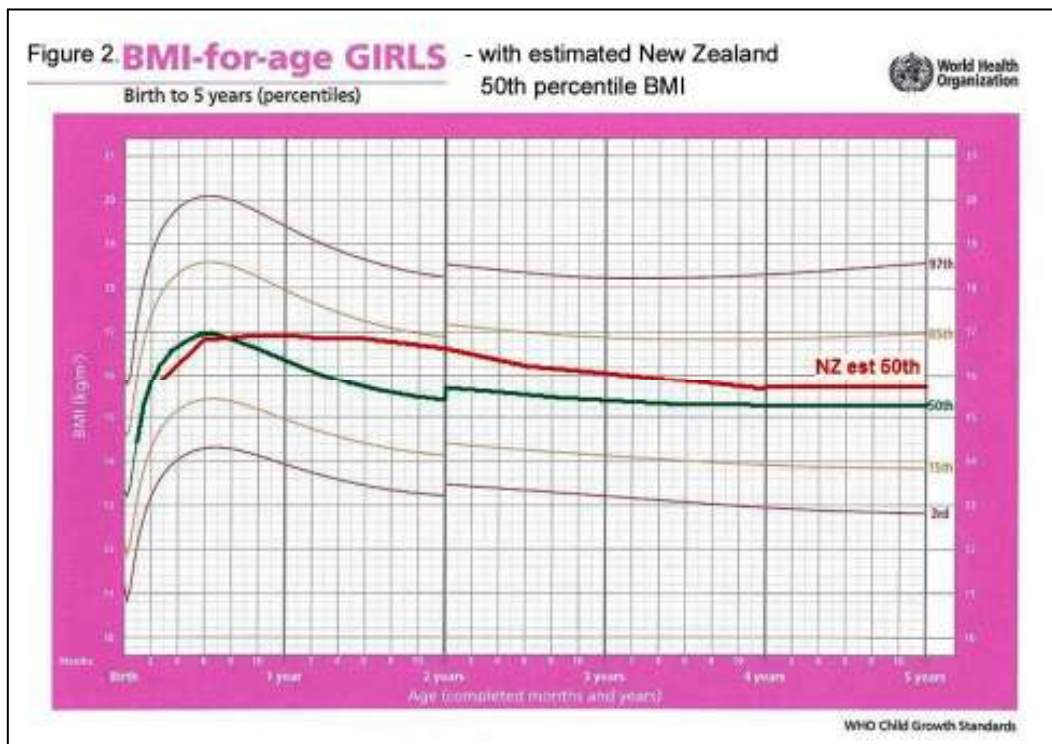


Figure 1 shows the BMI chart for girls from birth to age five. The middle curve maps the 50th percentile BMI, flanked above it by the 85th and 97th percentiles and below by the 15th and third percentiles. Together these curves show a wide variation in Body Mass Index among the children in the study, as shown by the space between the third and 97th percentiles, but interestingly all of the percentile paths have the same shape with all peaking at six months. (You may be wondering about the 'break' in the graphs at two years. Length is measured prone up to two years and then standing height is used. Prone length is slightly greater.)

Comparable BMI curves are not available for the growth references in the New Zealand *Well Child Book*, but it is possible to estimate the 50th percentile BMI implied by the New Zealand data from the 50th percentile height and weight data. Figure 2 shows, superimposed on the WHO chart (fig 1), what the BMI would be for a child who tracked along the New Zealand 50th percentiles for both weight and height.



You can see a startling, difference between the two 50th percentile curves. Whereas the WHO data indicates that children are expected to start becoming leaner from around six months, the New Zealand data implies that children aren't expected to start getting leaner until around twelve months and then more slowly than WHO data suggests they should. The implications are clear – the NZ charts give a misleading impression of how normal healthy children can be expected to grow. As some of you will probably have experienced, this can lead to inaccurate diagnosis of growth problems and inappropriate advice and treatment.

Following is an excerpt from a submission made by LLLNZ to the Parliamentary inquiry into obesity last year:

“Our experience, from counselling thousands of breastfeeding mothers annually, is that it is not uncommon for healthcare providers to express concern about the ‘slow’ rate of growth of healthy breastfed babies who are actually growing normally according to the WHO Standards. In these cases, parents are often encouraged to feed more solids, give breast milk substitutes or even wean from the breast in an attempt to ‘fatten up’ their babies and toddlers.

“On the other hand, we are also told of healthcare providers who reassure parents that, even though their children are ‘slipping’ according to the New Zealand growth charts, this is normal for breastfed babies and ‘not to worry’. But parents do worry. In spite of any assurances that the New Zealand charts are flawed, parents who observe their children progressively becoming ‘smaller’ relative to the charts in their official well child books will have doubts about whether their children are being adequately nourished.

“Conversely, parents of a child whose growth follows the paths predicted in the New Zealand charts, are reassured that the growth is normal and healthy – whereas if the growth were plotted using the WHO Standards, this same child could well be identified as having an early weight problem. It is common for both healthcare workers and parents to express more concern about babies and young children who are ‘underweight’ than those who are ‘overweight.’ These factors have led to a culture of overfeeding of babies once they reach the age for introducing solid foods. This continues into toddlerhood and often beyond.

“The New Zealand charts are fundamentally flawed.

“Even before the new WHO Standards were published, the New Zealand growth charts were losing credibility among healthcare providers and parents, thereby limiting their effectiveness and creating confusion. With the publication of the WHO Standards, confidence in the charts has fallen further. Revision of the charts is a matter of priority, so as to restore confidence in the growth monitoring of babies and young children and as a practical measure to prevent obesity.”

It disappoints me that the Ministry of Health has not already adopted the new WHO Standards, as I believe the evidence is clear that the existing New Zealand charts are not appropriate for breastfed babies and their continued use undermines the trust and confidence that parents can rightly expect to have in their health care providers. The Ministry is, however, currently conducting a review of the Well Child Framework, which includes the information used by health care providers and the contents of the *Well Child Tamariki Ora Health Book*. I look forward to the new WHO Child Growth Standards replacing the outdated New Zealand graphs in future editions of the *Well Child Book*, and breastfed babies and children taking their rightful place as the norm against which child growth is monitored and assessed.

References:

1. World Health Organisation website www.who.int/childgrowth/en
2. *Well Child Tamariki Ora Health Book*, Ministry of Health, 2006
3. *Supplementary submission to Parliamentary Health Select Committee Inquiry into Obesity and Type Two Diabetes*, La Leche League New Zealand, 26 July 2006

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