

FAILURE TO THRIVE

Screening

- By regular growth monitoring.
- 0 - 2 year olds are particularly affected by long term effects of growth failure and should be specifically targeted through child health programs.

Growth monitoring must include:

- measuring weight / height / length / head circumference.
- length is measured in children < 2 yo, and height in children > 2 yo. No shoes or caps, heels against wall.
- plotting measurements on standard growth charts.
- **AND** taking action if growth is not normal.

Frequency of screening (how often?):

Growth monitoring is recommended at following times:

0 - 6 months: At 2 and 6 weeks of age, then monthly.

6 - 12 months: 2 monthly.

1 - 2 years: 3 monthly.

2 - 5 years: 6 monthly.

5 - 14 years: Height and weight annually with routine Child Health Check; measure HC only if developmental or growth concerns identified.

More frequent monitoring is recommended for children at risk of growth problems, including low birth weight or premature infants and those with birth defects such as fetal alcohol syndrome – discuss with GP and / or Paediatrician.

Recommended growth charts are the “World Health Organisation (WHO) International Child Growth Standards” charts: <http://www.who.int/childgrowth>.

Case Definition

- FTT is the failure to achieve the growth potential expected for a child.
- Usually diagnosed if growth crosses two or more lines downwards on a standard growth chart (see last page of this protocol for sample growth charts).
- Changes happen to weight first, then length, then head circumference.

If weight has been increasing normally but falls during an acute illness such as gastro, this is not “failure to thrive” unless the child’s growth fails to recover fully and continue along the previous centile. Always monitor closely to be sure that growth recovers fully after such an episode.

Failure to thrive includes:

Underweight – weight for age is below the 3rd centile (z score < -2). This may be due to wasting, or stunting, or both.

Wasted – weight for length (or height) below the 3rd centile (z score < -2). The child looks thin, as their weight is low compared to their height. Wasting is due to malnutrition over a shorter time, and may be reversible with appropriate care.

Stunted – length (or height) for age is below the 3rd centile (z score < -2). The child is short for their age, but if their weight and height match, they may not look thin. Stunting is more often due to chronic malnutrition and may not be reversible.

Prevention

Prevention of FTT is the most important goal, and is achievable.

- Ensuring pregnant women and mothers of young children have access to good food and health care.
- Promote breastfeeding.
- Access for infants to safe and nutritious solids, with early education about introduction of solids (see [HEALTHY KIDS](#) protocol).

- Safe living conditions – including access to safe and reliable water and sanitation, and lack of overcrowding.

Nutritional support programs

- Those targeting mothers and children at risk have been shown to be effective in prevention of growth failure.
- Recommended by the World Health Organisation for communities where FTT affects more than 5% of children.

Aim to:

- (a) provide nutritious food without cost for pregnant women and for infants at risk, at least until 2 years of age;
- (b) be community based and driven; and
- (c) change behaviour / feeding practices rather than simply providing information.

See also [HEALTHY KIDS](#) and [ANAEMIA IN CHILDREN](#) protocols for more information on prevention.

Principles of Management

1. Deal with the immediate risks from acute illness, including infection and dehydration.
2. Address both energy (kilojoule / calorie) and micronutrient (e.g. iron) deficiencies.
3. Minimise the long term impact of growth failure.

Extensive investigations are rarely needed as “Organic” disease is found in less than 5% of cases of FTT and is usually suspected from history and examination.

Recognition by health professionals of the cultural values and belief systems of the child’s family and community is critical.

Where resources are limited priority must be given to follow up of children under 2 years of age – improving nutrition in this age group may reverse the adverse effects of growth failure.

Community-based management of FTT is as effective, and much less disruptive, for child and carer. Routine hospitalisation is not recommended but may be necessary in particular circumstances, e.g. treatment of acute on chronic malnutrition or dehydration, failure of community-based therapy.

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Baseline Assessment

Any acutely unwell child should be discussed early with the GP. This includes any child with signs of acute infection (e.g. fever, respiratory distress, vomiting, lethargic) and / or dehydration (See [ASSESSING THE SICK CHILD](#) protocol).

If child is not acutely unwell, do a full history and examination including dietary history. Two important questions to answer are:

- 1. Is the child at immediate risk and where are they best managed right now?** See management section on page 2.
- 2. What are the likely causes of poor growth in this child?** In the Kimberley, FTT is commonly due to a combination of:

(a) Factors relating to child

- low birth weight.
- lack of breastfeeding or stopping breastfeeds early.
- not enough, poor quality and / or late introduction of solids.
- recurrent infections, particularly gut infections.
- maternal malnutrition – during pregnancy +/- while breastfeeding.

(b) Social and environmental factors

- poverty, difficulty accessing food supplies.
- lack of knowledge about child care practices.
- inadequate environmental health, including overcrowding, lack of safe water supply, and inadequate sanitation.

3. Is mucosal damage a likely factor?

Damage to the lining of the gut ("mucosa") from recurrent gastroenteritis causes lactose intolerance as well as impaired digestion. Lactose intolerance is more common in Aboriginal children and is more likely to be found in children with FTT. It is not usually the main cause of FTT, but finding and treating lactose intolerance will improve outcomes (see Box 1).

INVESTIGATIONS:

While lots of tests are not usually necessary, the following tests are useful and are recommended for all children with FTT:

1. Urinalysis – dipstick analysis; send to laboratory for MC&S (see [KIDNEY DISEASE IN CHILDREN](#) protocol for advice on specimen collection).
2. FBE and iron studies. If not feasible, Haemocue test for finger-prick Hb may be adequate (see [ANAEMIA IN CHILDREN](#) protocol).
3. Stool samples (note: both collection and processing can take time – proceed with management section of this protocol rather than delaying treatment while waiting).
 - i) For infection, such as Giardia, other parasites, bacterial infection. Ask for "MC&S and COP" (Microscopy, Culture and Sensitivities, and Cysts, Oocytes and Parasites).
 - ii) If the stools are loose / watery, check also for lactose intolerance using Clinitest® tablets.

BOX 1

Testing for lactose intolerance:

- This is best done on-site in the clinic, or in the lab if the sample can get to the lab quickly.
- Collect a sample of loose / liquid stools. A paediatric urine collection bag can be useful for this. Do not scrape sample from nappy – this will give a falsely low result.

Test the sample immediately after collection. Mix a small amount of stool (1ml of liquid stool, or a tiny dollop if it's not liquid) with 2mL water; take 15 drops from that mixture, place in plain glass blood collection tube, add 1 Clinitest® tablet, wait until tablet stops reacting, shake and compare with the colour chart on the Clinitest® box.

Principles of Management

See flow chart on page 4.

All children less than 6 months old with FTT should be discussed immediately with a regional Paediatrician.

Discuss immediately with a GP any child with FTT who:

- Has just been diagnosed, or where FTT is suspected but you are uncertain.
- Develops an acute illness; and / or;
- Is failing to respond to a management plan developed by the health team.

When to admit to hospital:

- If dehydrated and / or has an acute infection, a child with FTT is likely to need hospital inpatient care. Remember that children with FTT are more likely to develop bacterial infections so maintain a high level of suspicion in the child with FTT and fever (See [ASSESSING THE SICK CHILD](#) protocol).
- When a "trial of therapy" in the community has failed (see below). In this situation, hospital is not a long term solution but will:
 - Allow supervised re-feeding for a child with severe wasting.
 - Provide an opportunity to assess dietary intake, feeding techniques, and parent-child interactions.

Community-based therapy

The most appropriate place for managing a child with FTT is usually in the community.

Success of community-based treatment will depend on:

- Gaining the carer(s) trust, through an approach which is mutually respectful and recognises the central role of the carer(s) in the child's development and well-being.
- Providing an environment in which the carer(s) feel comfortable to talk about their own concerns, and discuss issues which they feel may be affecting the child's growth and well-being.

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- Sharing information in a manner which is understandable and meaningful for carer(s), increasing knowledge and understanding of their child's condition. In many instances, this will best be provided by an Aboriginal Health Worker and / or formal interpreter services.

Community based therapy includes:

1. Development of a Care Plan involving as a minimum carer(s), GP, AHW, nurse. The carer(s) may wish to have other community members involved.
2. Actively encourage continued breastfeeding.
3. Provide specific education for carer(s) and family about appropriate types and amounts of food the child needs (see [HEALTHY CHILDREN](#) protocol). Establishing a normal, healthy diet may be enough to re-establish growth.
4. Children with severe FTT and / or those not responding to the steps above will need extra energy. Provide advice on "fortified solids", or energy booster foods (see Box 2) - discuss with the dietician for assistance if needed.
5. Assume parasites may be present and give a single course of albendazole (200mg if < 10kg and 400mg if > 10kg) once a day for three days in all children over 6 months of age. This provides effective treatment for giardia and hookworm; if strongyloides is found in stool samples, further treatment may be needed (see [PARASITES](#) protocol).
6. Review the child weekly. If child's growth is moving downward across centile lines at any follow up visit, call / discuss immediately with the GP.
7. Review progress with the GP at the 4 week mark. If catch-up growth (moving upwards across centile lines) is not occurring, a nutritional supplement should be added as follows:
 - 0 - 12 months:** discuss with Paediatrician, nutritional supplementation in children of this age is complex.
 - > 12 months:** PediaSure® 235ml cans 1 - 2 per day.

NOTE: Nutritional supplements can be seen as a form of treatment, similar to using iron medicine for treatment of iron deficiency anaemia – the cost of both treatments should be met by the health system.

BOX 2

Energy Boosters ("fortified solids")

Concentrated sources of energy (energy boosters) should be added to the healthy foods the child usually eats to increase the energy density. Energy boosters include:

- Cheese / cream cheese - Add grated cheese to soups, pasta, stews, mashed vegetables, scrambled egg, tinned spaghetti or baked beans. Use cream cheese in sandwiches.
- Peanut butter /avocado - spread on toast and sandwiches.
- Milk powder - for children over the age of 1 year, add 2 teaspoons of milk powder to each glass of milk. Use this milk as a drink, on cereal and in cooked foods (i.e. scrambled eggs, white sauce, soups).
- Margarine (recommend monounsaturated such as olive or canola-based margarines) - melt one to two teaspoons over vegetables, rice and pasta. Spread thickly on bread and toast.
- Oil (recommend monounsaturated oil such as olive, canola or peanut) - fry meats, vegetables and rice.

Specific treatment for conditions identified with baseline investigations:

- In all cases, discuss first with GP.
- Any of the conditions below will not be tolerated as well in children with FTT compared to children whose nutrition and growth is OK.
- Anaemia / iron deficiency: see [ANAEMIA IN CHILDREN](#) protocol.
- Parasite infection: see [PARASITES](#) protocol.
- Abnormal urinalysis, see [KIDNEY DISEASE IN CHILDREN](#) protocol.

Treatment of lactose intolerance

- Discuss first with GP. Paediatric advice may also be needed.
- The diagnosis of lactose intolerance should always be confirmed (see previous section "Investigations") before commencing treatment.
- Unless symptoms are severe, breastfeeding should continue.
- For children already on formula feeds, and for breastfed infants with more severe lactose intolerance, replace the child's usual milk with a lactose-free milk formula. A "low osmolarity" formula is preferred, such as De-Lact®. If the child is over 12 months and requires nutritional supplementation use PediaSure®, which is lactose free.

Trial reintroduction of normal milk after 6 weeks

- For most children, treatment with lactose-free formula will only be needed in the short-term - for example, lactose intolerance after a gut infection will usually resolve within 6 weeks.
- How to re-introduce normal milk:
 1. Infants not yet on solids: Swap one De-Lact® feed with usual milk source (preferably breastmilk), increasing the number of normal feeds by one a day until the child is off De-Lact®.
 2. For children who are already on solids, re-introduction of their usual milk source can occur more rapidly – over 1 - 3 days.

If diarrhea starts while normal milk is being re-introduced, replace all milk feeds again with lactose-free formula and discuss with Paediatrician.

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Follow-up

AHW / RN review weekly until growth is improving.

At each visit:

- Check weight, plot on growth curve and interpret progress.
- Check with carer(s) re child's progress since last visit. Ask in detail about feeds – amount, type and frequency, specific symptoms (e.g. diarrhoea) and behaviour.
- Follow-up any specific abnormalities found on baseline.

Once growth is improving, review according to Care Plan – monthly will usually be enough, but individual children may need closer monitoring.

Provide regular screening and follow-up for siblings and other children in the same household as the child with FTT, who are at increased risk of FTT themselves.

Provide access for the mother to additional care and support during future pregnancies.

Refer / Discuss

Discuss all children with FTT with a GP, and arrange for review in the clinic with the GP at the earliest opportunity.

REGIONAL PAEDIATRICIAN:

- All children < 6 months.
- All children being considered for hospital admission.
- If a trial of community-based therapy is failing.
- If underlying organic disease (kidney disease, metabolic disorder, etc) is diagnosed or suspected.
- At any time if uncertain.

DIETICIAN:

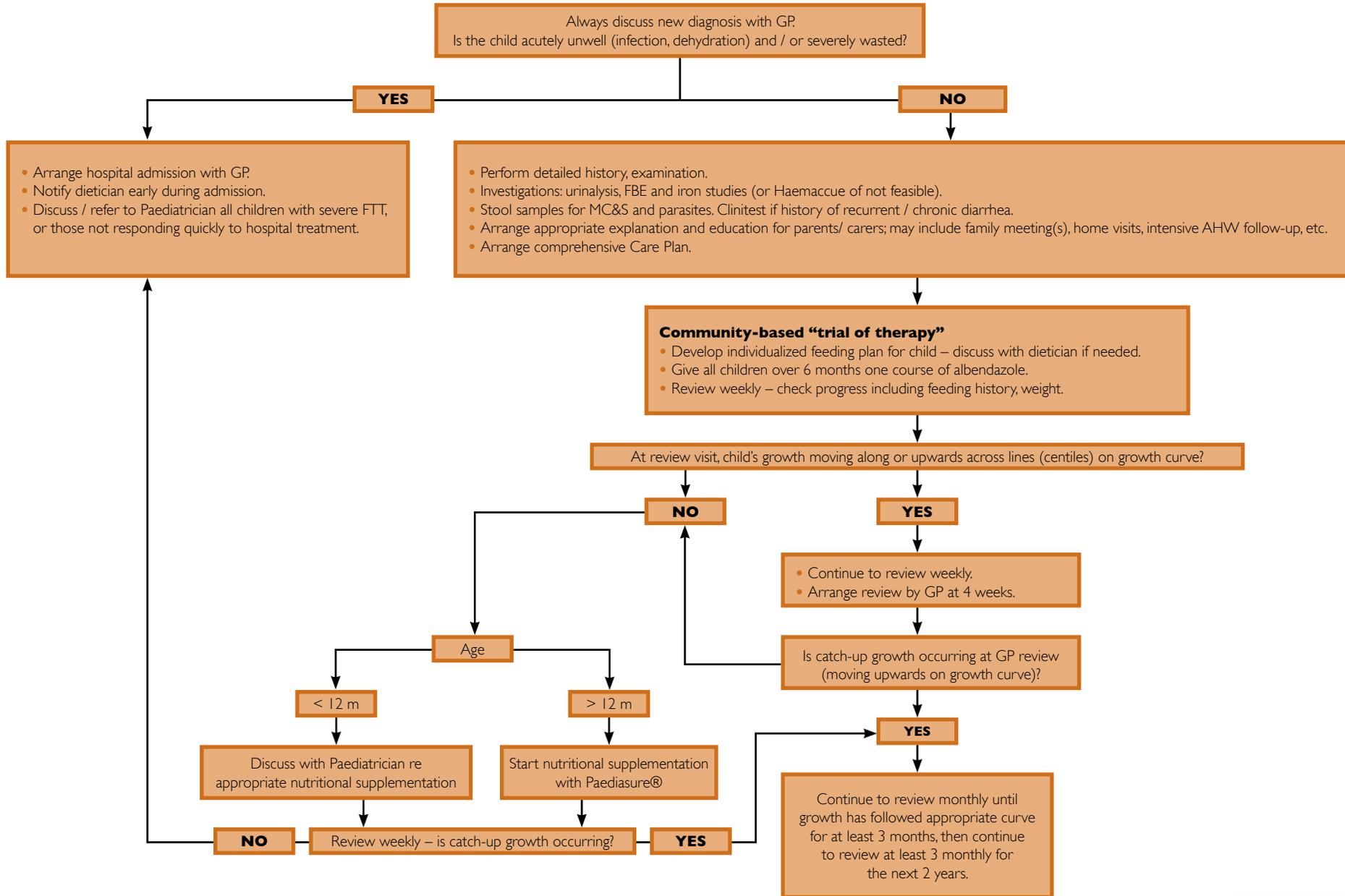
- Discuss / refer as needed for input into development of individual care plans.
- All children requiring nutritional supplementation.
- All children on admission to hospital with FTT.

Department of Child Protection (DCP) may be able to provide practical supports for families of children who are failing to thrive, including financial counselling and parenting education / support. *DCP should be notified where there are concerns about the welfare of the child, including emotional neglect, physical neglect and / or abuse.*

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MANAGEMENT FLOW CHART



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SAMPLE GROWTH CHARTS

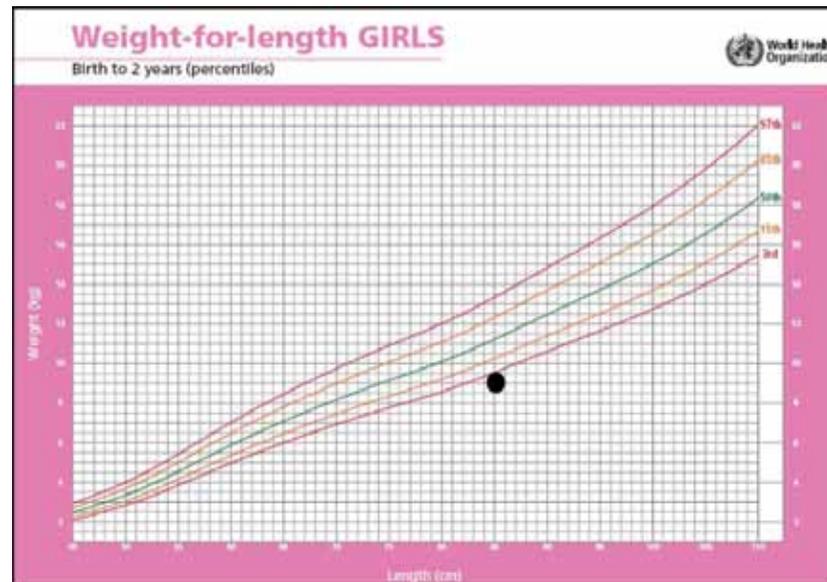
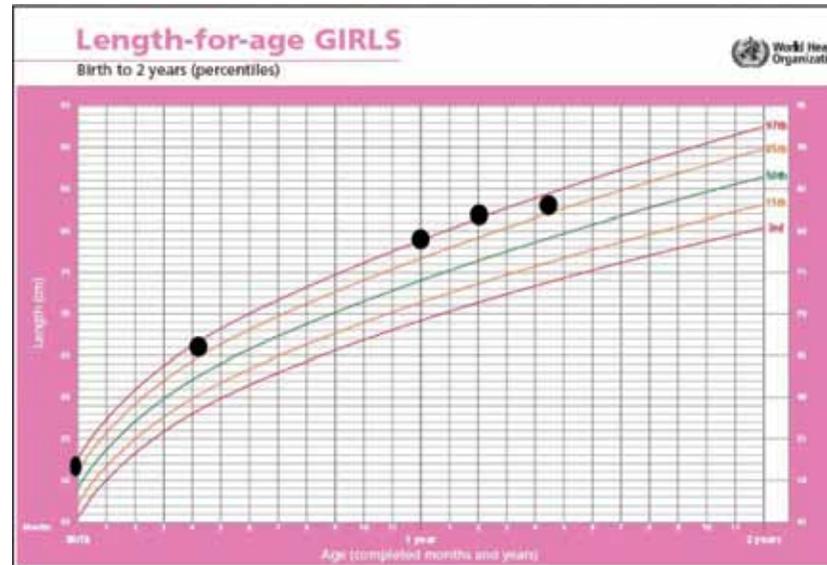


This graph plots the child's weight against her age. The child's birth weight was just below the 15th centile at 2200g – so although the baby was born full term, she was of low birth weight. In the first few weeks after birth, she grew well, reaching the 50th centile by the time she was 6 weeks old.

She then continued to grow steadily along this line until she was 7 months old. Then she lost weight suddenly – the notes in her clinic file explain she had a bout of gastro and was unwell on and off for a few weeks around that time. Although her weight returned to what it had been before the illness, she had missed out on some growth time and her weight never returned to the 50th centile again.

In fact, after that time, her growth curve started to flatten out and from 10 months onwards, her growth is seen crossing downwards across the growth centile lines on the chart. By the time she is seen today, now almost 17 months old, she is back below the 15th centile.

Although the child has had her weight measured regularly, there has been no action when the growth curve started showing warning signs – the red arrow shows the point where health staff should start following the steps outlined in this FTT protocol.



This graph is from the same child's chart. The one below shows her length plotted against her age. You can see she is quite long ("tall") for her age, perhaps reflecting the fact that both her parents are tall. Although her weight began to show problems around 7 months of age, her length continued to increase along the same centile until just recently. With malnutrition, it is common for problems to occur with weight first, then later with length / height if nutrition is not improved.

This graph shows her weight compared to her length. We already know her weight is dropping off – at 1 year and 5 months, her weight is only 8.2kg, below the 15th centile. However, because she is a tall child, we would expect her weight to be even greater for her age – to match her tallness. This graph shows that, compared to her length, her weight is indeed very low – well below the 3rd centile. This is "stunting" – weight for length which is now below the 3rd centile.

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