Aim
To provide guidance on the identification, management, referral and escalation of concerns for children who are suspected of growth faltering.

Risk
Growth faltering can have both short and long term effects on the developing child. It can interrupt the immune response, increasing the risk of severe infection and infant mortality. Prolonged growth faltering may cause ongoing growth deficits, delay in cognitive and psychomotor development, diminished physical activity and development, behavioural problems and learning disabilities.\(^1,2\)

Background
The term ‘growth faltering’ (previously known as ‘failure to thrive’) is widely used to refer to a slower rate of weight gain along a child’s previously defined growth curve. The use of the word faltering is preferred as periods of slow growth may represent temporary variation from the expected pattern and the word ‘failure’ may be seen as judgemental.\(^3\)

Various definitions of growth faltering have been used in the past, meaning estimates of prevalence vary from country to country and within countries, however in Australia the prevalence is higher in the Aboriginal population.\(^4\)

In approximately 5% of children experiencing growth faltering, the cause is gastrointestinal disease, neurological disorder or congenital heart disease.\(^5\) However, the majority can be attributed to insufficient food energy intake caused by feeding difficulties and/or social/emotional problems,\(^6\) such as parent-child attachment difficulties.\(^7\) In some situations, growth faltering may indicate child neglect or abuse.\(^8\) Other factors that influence a child’s growth potential and trajectory are genetics and prematurity.\(^9\)

The onset of growth faltering within the first weeks of life usually has a different aetiology than later onset. A large population study found that earlier onset growth faltering was more strongly associated with low birth weight and gestational age, single parenthood and with the mother having smoked during pregnancy. It was found that onset between 2 weeks and 4 months was associated with congenital disorders and serious somatic illness, and with difficulties in mother-child relationships. Later onset (between 4-8 months) was associated with feeding problems which develop in otherwise healthy children.\(^7\) See Appendix A for risk factors for growth faltering.
When growth falters due to malnutrition, there is a decrease in growth trajectories beginning with weight, then length or height and in severe circumstances head circumference. Growth deviations in head circumference are not usually related to nutritional intake, except where there is long-term malnutrition. It is more likely due to non-nutritional factors which may impact on brain growth, for example, craniosynostosis. Serial length assessment can detect long term cumulative effect of poor growth which has resulted in stunting. This may be due to persistent malnutrition. A child whose stature is less than expected should be investigated further.

Adequate nutrition is paramount for normal growth and development, especially in the early years of life when brain growth is rapid. Being undernourished during the first two years of life and then gaining weight in later childhood and adolescence has been associated with a high risk of chronic disease. Long-term effects may be an outcome of the individual’s foetal and infant phenotype becoming biologically adapted to under-nutrition and then being exposed from age three or four years to a nutritional environment of high fat and refined carbohydrate. In this scenario the biochemical and phenotypic features of metabolic syndrome; insulin resistance and hyperglycaemia, emerge in early adult life. Morbidity and mortality from macro-vascular disease is frequently seen in the young-middle aged Australian Aboriginal population (35 to 55 years), and is one of the main causes of their reduced life span.

There is a relatively lower rate of morbidity and mortality if weight is regained during the first two years of life. This is due to the tendency for weight gained in infancy to convert to lean body mass, while weight gained in later childhood produces fat mass.

Pregnancy-related factors, such as gestational diabetes or severe preeclampsia, influence the size of an infant at birth. These infants may not grow along the same percentile from birth, rather their growth curve may move to a lower or higher percentile. It is therefore paramount that a full assessment is taken considering the overall health and wellbeing of the infant/child.

Not all instances of weight loss or reduced weight trajectory are considered to be growth faltering. A degree of weight loss is normal for newborns (weight loss of up to 10% within the first week of life); however, infants usually begin to gain weight from day three (3) to six (6) after birth, and return to their birth weight between ten (10) to twenty-one (21) days. Weight loss, or no evidence of the infant beginning to regain birth weight after this period is a cause for concern. The infant who has lost more than 10% of their birth weight or who has not returned to their birth weight by 3 weeks should be assessed for evidence of dehydration and illness and efficient feeding and referred to a General Practitioner (GP) or relevant other health professionals. Weight loss may occur in the presence of an acute illness, due to dehydration or increased caloric requirements associated with the disease process. This is not growth faltering. Nurses encountering ill children should refer them for medical assessment.

Key Points

- Weight, length/height and head circumference are to be accurately assessed and precisely plotted on approved growth charts at all universal contacts and when there are concerns about growth.
- Growth charts are not diagnostic tools and decision about growth deviations should never be determined solely by these charts.
- Consider recording cases which require support, monitoring and review on the Neglect Concern list.
WHO guidelines state that age is plotted in completed weeks from birth until age 3 months; in completed months from 3 to 12 months; and then in completed years and months.\(^\text{17}\)

Interpretations of measurements are to be done in conjunction with a holistic assessment.

Serial measurements showing unexpected downward movement on the curves could be a sign of growth faltering which requires investigation and timely action to reduce short and longer term harm.\(^\text{18}\)

Changes in weight or length/height trajectory should be investigated before a child crosses two percentile lines.\(^\text{18}\)

Growth trajectory of weight, length/height and head circumference is more important than grams or centimeter changes per week.

Consider discussing clients with Child Protection Unit PMH for advice if neglect or abuse is suspected.

Child Protection and Family Services (CPFS) staff are not health professionals, therefore, explicitly document observations and possible long-term outcomes if action is not taken, plan of action and review dates. Consider completing a CPFS Referral Form.

Hospitals can keep any child for whom they have child protection concerns for a maximum of 2 working days (48 hours), with or without the parents’ consent. (Source: Section 40 of the Children and Community Services Act.)

Nurses should work within their scope of practice and when concerned, discuss the situation with line manager or Clinical Nurse Specialist (CNS) for guidance in management.

**Tools**

- CACH Growth Charts - CACH Intranet (Forms) for the following age groups: 0-6 months, 0-2 years and 2-5 years (CHS 800 series). Growth charts are in Child Health Record and the Personal Health Record (PHR).

- Body Mass Index (BMI) chart (CHS 430) for children over 2 years of age

- Breastfeeding Assessment Guide (CHS 012)

- Preterm Fenton Growth Charts
Growth Faltering Assessment and Management Process

**Infant/child with potential growth faltering identified**

- Acute illness with weight loss
  - Urgent referral to GP or emergency department

- Weight loss within first 3 weeks

- Faltering growth from 3 weeks

**Assessment and care planning**
- Conduct holistic assessment
- Undertake nutritional assessment
- Develop care plan
- Consider referral for other health care providers

**Review (1-7 days)**
- Conduct holistic assessment
- Undertake anthropometric assessment and plot results
- Consider actions based on outcomes

**Outcomes**

**Deteriorated**
- Escalate action plan with urgent referral to GP as indicated
- Inform line manager/clinical Nurse Specialist
- Consider referral to other health care providers
- Maintain contact with parents
- Review within 1-7 days

**Static**
- Review care plan
- Review feeding plan
- Consider informing line manager/clinical Nurse Specialist (CNS)
- Refer to GP and other providers
- Monitor within 1-7 days

**Improving**
- Develop follow up plan with parent and other health care professionals
- Monitor 2-4 weekly until upward trend is established

**Ongoing review**
- Conduct an anthropometric assessment and plot results
- Conduct holistic assessment
- Undertake nutritional assessment
### Process

#### 1. Identify issue
- **Acute illness** – see Step 1a
- **Weight loss within first 3 weeks** – see Step 1b
- **Faltering growth from 3 weeks** - see Step 1c

#### 1a. Acute illness
- When a child presents with weight loss associated with signs and symptoms such as fever, respiratory distress, vomiting, lethargy and/or dehydration take immediate action to keep the child safe.
  - Any acutely ill child should be urgently referred to a General Practitioner (GP) or Emergency Department (ED) for immediate medical assessment.
  - Provide a completed ISOBAR (CAH 663).
  - Involve Line Manager and/or Clinical Nurse specialist (CNS) as required.
  - Obtain parental consent to liaise with GP.
  - Maintain contact with parents.
  - Follow-up with parents/caregivers to provide ongoing review and service post-acute phase/discharge.

#### 1b. Weight loss within first 3 weeks
**Infants may present with a loss of more than 10% of birth weight; being below birth weight at 2 weeks of age or birth weight not fully regained within 3 weeks.**

- Conduct a holistic assessment.
- Undertake a nutritional assessment using the *Breastfeeding Assessment Guide*.
  - If breastfeeding, observe a breastfeed and refer to the *Breastfeeding deviations from normal* protocol as required.
  - If formula feeding, ensure appropriate formula, volume, frequency and safe preparation.

- Based on the feeding history and any direct observation of feeding, consider whether any of the following are contributing to faltering growth:
  - ineffective suckling in breastfed infants or ineffective bottle feeding
  - feeding patterns or routines being used, where the infant is left to sleep for long periods between feeds or required to wait prescriptive lengths of time in between feeds
  - the feeding environment
  - feeding aversion
  - parent/caregiver-infant interactions;
  - how parents/caregivers respond to the infant's feeding cues
  - physical disorders affecting feeding.³

- If complementary feeding with infant formula is required:
  - support the mother to maintain her milk volume by expressing and encourage opportunities for the infant to continue breastfeeding
  - advise expressing breastmilk to feed the infant with any available breastmilk before giving any infant formula
**Growth faltering**

- help with non-bottle method, i.e. finger/syringe feed.\(^3\)

- It should be noted that complementary feeding with infant formula in a breastfed infant may help with weight gain, but often results in cessation of breastfeeding.\(^3\)

- Be alert to other possible causes, such as abuse or neglect, as noted in Appendix A.

- Develop (or review) feeding plan and/or care plan, in partnership with parent.

- Consider consultation with colleagues or manager.

- Refer to GP and other health professionals as per clinical judgement e.g. GP, lactation consultant, dietitian, speech therapist.

**Review** within **1-7 days** as per **Step 2** page 7

<table>
<thead>
<tr>
<th>1c. Faltering growth from 3 weeks (decreased growth trajectory)</th>
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</thead>
<tbody>
<tr>
<td>• Conduct a holistic assessment.</td>
</tr>
</tbody>
</table>

**Breastfeeding/Formula feeding**

- Undertake a nutritional assessment using the *Breastfeeding Assessment Guide*.  
  - If breastfeeding, observe a breastfeed and refer to the *Breastfeeding deviations from normal* protocol as required.  
  - If formula feeding, ensure appropriate formula, volume, frequency and safe preparation.

- Based on the feeding history and any direct observation of feeding, consider whether any of the following are contributing to faltering growth:
  - ineffective suckling in breastfed infants
  - ineffective bottle feeding
  - feeding patterns or routines being used, such as, the child being left to sleep for long periods between feeds
  - the feeding environment
  - feeding aversion
  - parent/caregiver-infant interactions
  - how parents/caregivers respond to the infant’s feeding cues
  - physical disorders affecting feeding.\(^3\)

- If complementary feeding with infant formula is required:
  - support the mother to continue lactating and opportunities for the infant to continue breastfeeding
  - advise expressing breastmilk to maintain milk volume
  - feed the infant with any available breastmilk before giving any infant formula.\(^3\)

- It should be noted that complementary feeding with infant formula in a breastfed infant may help with weight gain, but often results in cessation of breastfeeding.\(^3\)

**Eating Solids**

- Undertake a nutritional assessment by reviewing food groups, serving sizes, textures, type of milk and amounts. Consider using a food/feeding diary for children over six months of age.

- Discuss feeding behaviour and feeding difficulties such as holding food in the mouth,
spitting food out or vomiting.\textsuperscript{5}

- **Consider:**
  - Delayed introduction of solids, whereby an over-dependence on milk (including prolonged breastfeeding) can occur and result in non-acceptance of solid foods
  - Low appetite or lack of eagerness to eat, including food refusal which could be due to strong tastes, unusual texture, food aversions.

- Be alert to other possible causes, such as abuse or neglect, as noted in Appendix A.
- Develop (or review) feeding plan and/or care plan, in partnership with parent.
- Consider referral to other health professionals as per clinical judgement, e.g. GP, lactation consultant, dietitian, speech therapist.
- Consider other supports available to the family, e.g. Enhanced Home Visiting CNS Aboriginal Health Workers, Child Protection Unit at PMH Department for Child Protection and Family Services (CPFS), Social worker, mental health services and other locally known services.

**Review** within **1-7 days** as per **Step 2** below

### 2. Review Process

- Conduct a holistic assessment and review care plan.
- Assess, plot and interpret weight, length/height and head circumference.
- Consider actions based on the review outcomes in Step 3.

### 3. Review Outcomes

<table>
<thead>
<tr>
<th><strong>Deteriorated</strong></th>
<th><strong>Static</strong></th>
<th><strong>Improving</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Escalate actions with urgent referral to GP or ED.</td>
<td>Review care plan and feeding plan.</td>
<td>Develop a follow-up care plan in partnership with parents and other health professionals involved with the case.</td>
</tr>
<tr>
<td>Inform Line Manager and/or Clinical Nurse Specialist (CNS).</td>
<td>Consider informing Line Manager and/or Clinical Nurse Specialist (CNS).</td>
<td>Document all care.</td>
</tr>
<tr>
<td>Refer to other providers as indicated by your assessment, e.g. lactation consultant, dietitian, speech therapist, occupational therapist, physiotherapist.</td>
<td>Refer to GP and other appropriate providers as indicated by assessment e.g. lactation consultant, dietitian, speech therapist, occupational therapist, physiotherapist.</td>
<td><strong>Monitor</strong> within <strong>2-4 weeks</strong> until consistent gains or an upward trend is established.</td>
</tr>
<tr>
<td>Maintain contact with parents/caregivers and provide ongoing service.</td>
<td>Document all care.</td>
<td></td>
</tr>
<tr>
<td>Document all care.</td>
<td><strong>Monitor</strong> within <strong>1-7 days</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Review</strong> within <strong>1-7 days</strong> as per <strong>Step 2</strong>.</td>
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</table>

NB: If the condition remains static, follow the actions outlined in deteriorated column.

If the condition has
Documented growth measurements must be precisely plotted on the WHO growth charts in the child health record and Personal Health Record (PHR). All relevant assessment findings and management strategies are to be accurately recorded according to local processes. Observations, decisions, plans and actions (including a decision not to take any action), must be documented in the child health record and electronic information systems where available.

<table>
<thead>
<tr>
<th>Related internal policies, procedures and guidelines</th>
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</thead>
<tbody>
<tr>
<td>The following documents can be accessed in the Community Health Manual via the HealthPoint link or the Internet link</td>
</tr>
<tr>
<td>Anaemia in childhood</td>
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<tr>
<td>Body Mass Index assessment – child health</td>
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<tr>
<td>Body Mass Index assessment – primary school</td>
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<tr>
<td>Breastfeeding deviations from normal</td>
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<tr>
<td>Clinical handover – Operational procedure for internal or external referrals</td>
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<tr>
<td>Growth birth - 18 years</td>
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<tr>
<td>Head circumference assessment</td>
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<tr>
<td>Height assessment 2 - 5 years</td>
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<td>Length assessment 0 – 2 years</td>
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<td>Neglect</td>
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<tr>
<td>Physical assessment 0 - 4 years</td>
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<tr>
<td>Universal contact guidelines</td>
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<tr>
<td>Weight assessment 0 - 2 years</td>
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<td>Weight assessment 2 - 5 years</td>
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<td>Baby’s First Foods</td>
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<tr>
<td>Growth faltering</td>
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<tr>
<td><strong>Useful resources</strong></td>
</tr>
<tr>
<td><a href="#">Australian Dietary Guidelines</a> summary</td>
</tr>
<tr>
<td><a href="#">Infant Feeding Guidelines</a></td>
</tr>
<tr>
<td><a href="#">Royal Children’s Hospital – Child growth e-learning resource</a></td>
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Appendix A - Risk factors for growth faltering

Key risk indicators for growth faltering are outlined in Table 1 below. If any of the following risk factors are present, consider conducting weight, length/height and head circumference measurements (until age 2) at every contact.

### Table 1: Risk factors for growth faltering

<table>
<thead>
<tr>
<th>Child</th>
<th>Maternal</th>
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<tbody>
<tr>
<td>• congenital disorders</td>
<td>• alcohol and drug abuse</td>
</tr>
<tr>
<td>• intrauterine growth restriction (IUGR)</td>
<td>• family domestic violence</td>
</tr>
<tr>
<td>• low birth weight (&lt;2500 gms)</td>
<td>• smoking, alcohol, or medication use during pregnancy</td>
</tr>
<tr>
<td>• preterm birth&lt;sup&gt;3&lt;/sup&gt;</td>
<td>• single motherhood</td>
</tr>
<tr>
<td>• neurodevelopmental concerns&lt;sup&gt;3&lt;/sup&gt;</td>
<td>• psychiatric illness including attachment disorder</td>
</tr>
<tr>
<td>• physical illness</td>
<td>• poor or disorganised parental/child attachment or a lack of emotional nurturing</td>
</tr>
<tr>
<td>• anatomical and functioning issues</td>
<td>• parental depression and/or anxiety</td>
</tr>
<tr>
<td>impacting on the capacity to feed</td>
<td></td>
</tr>
<tr>
<td>• under nutrition/ lack of appropriate</td>
<td>• parental intellectual incapacity</td>
</tr>
<tr>
<td>food</td>
<td></td>
</tr>
<tr>
<td>• feeding difficulties</td>
<td>• parental eating disorder</td>
</tr>
<tr>
<td>• sleep difficulties</td>
<td>• maternal health issues impacting on lactation</td>
</tr>
<tr>
<td>• delayed introduction to solid foods</td>
<td></td>
</tr>
<tr>
<td>• transition to solid foods that are</td>
<td></td>
</tr>
<tr>
<td>inadequate in quality and quantity</td>
<td></td>
</tr>
<tr>
<td>• signs of abuse or neglect&lt;sup&gt;19,8&lt;/sup&gt;</td>
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</tbody>
</table>

**Risk factors for both**

- family social isolation, poverty, large number of family members, family conflict
- living in remote communities with inadequate access to healthy foods and other factors such as chronic infection and exposure to parasites.<sup>4</sup>
Appendix B – Growth patterns requiring additional consideration

The graphs outlined below show examples of typical patterns of suboptimal weight trajectory, which may be encountered within child health practice. All of these patterns indicate a need for additional monitoring, consideration of a combination of anthropometric measures\(^{20}\) and assessment of overall health, wellbeing, and developmental progress. Clinical judgment, including knowledge of the child’s history will assist in determination of plan of action.\(^{16}\)

The example below shows appropriate weight tracking until 4-6 months, then a decreasing trajectory to the 15th percentile over a period of 8 months.

![Graph showing weight-for-age GIRLS from Birth to 2 years (percentiles)](image)

The example below shows weight tracking along the 50th percentile and then a rapid decrease in weight trajectory to the 15th percentile, over a period of 2 weeks. Common contributing factors to this trend may include environmental and/or biological factors leading to inadequate intake.
The following example shows weight tracking along the 50th percentile to 6 months, then becoming static, tracking downwards across a percentile as the child’s weight plateaus. Investigation of a range of possible biological, environmental or nutritional contributing factors is warranted to elicit reason for this trend.
# References


