NICE National Institute for Health and Care Excellence

NICE guideline

Faltering growth: recognition and management of faltering growth in children

NICE guideline

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Your responsibility

The recommendations in this guideline represent the view of NICE, arrived at after careful consideration of the evidence available. When exercising their judgement, professionals and practitioners are expected to take this guideline fully into account, alongside the individual needs, preferences and values of their patients or the people using their service. It is not mandatory to apply the recommendations, and the guideline does not override the responsibility to make decisions appropriate to the circumstances of the individual, in consultation with them and their families and carers or guardian.

All problems (adverse events) related to a medicine or medical device used for treatment or in a procedure should be reported to the Medicines and Healthcare products Regulatory Agency using the Yellow Card Scheme.

Local commissioners and providers of healthcare have a responsibility to enable the guideline to be applied when individual professionals and people using services wish to use it. They should do so in the context of local and national priorities for funding and developing services, and in light of their duties to have due regard to the need to eliminate unlawful discrimination, to advance equality of opportunity and to reduce health inequalities. Nothing in this guideline should be interpreted in a way that would be inconsistent with complying with those duties.

Commissioners and providers have a responsibility to promote an environmentally sustainable health and care system and should assess and reduce the environmental impact of implementing NICE recommendations wherever possible.

Contents

This guideline is the basis of QS197.

Overview

This guideline covers recognition, assessment and monitoring of faltering growth in infants and children. It includes a definition of growth thresholds for concern and identifying the risk factors for, and possible causes of, faltering growth. It also covers interventions, when to refer, service design, and information and support.

Who is it for

- Healthcare professionals
- Providers of children's services
- Commissioners of children's services
- Parents and carers of children with faltering growth

Recommendations

People have the right to be involved in discussions and make informed decisions about their care, as described in NICE's information on making decisions about your care.

Making decisions using NICE guidelines explains how we use words to show the strength (or certainty) of our recommendations, and has information about prescribing medicines (including off-label use), professional guidelines, standards and laws (including on consent and mental capacity), and safeguarding.

1.1 Weight loss in the early days of life

Some weight loss in the first days after birth (referred to in this guideline as the early days of life) is normal and usually relates to body fluid adjustments. Sometimes there may be reason for concern about weight loss in the early days of life, which may need assessment and intervention. For this reason weight loss in the early days of life is dealt with separately in this guideline from concerns about inadequate weight gain in older infants and children, which is often related to nutritional intake.

1.1.1 Be aware that:

- it is common for infants to lose some weight during the early days of life
- this weight loss usually stops after about 3 or 4 days of life
- most infants have returned to their birth weight by 3 weeks of age.

1.1.2 If infants in the early days of life lose more than 10% of their birth weight:

- perform a clinical assessment, looking for evidence of dehydration, or of an illness or disorder that might account for the weight loss
- take a detailed history to assess feeding (see NICE's guideline on postnatal care)

- consider direct observation of feeding
- ensure observation of feeding is done by a person with appropriate training and expertise (for example, in relation to breastfeeding and bottle feeding)
- perform further investigations only if they are indicated based on the clinical assessment.

1.1.3 Provide feeding support (see recommendations in NICE's guideline on postnatal care) if there is concern about weight loss in infants in the early days of life, for example if they have lost more than 10% of their birth weight.

1.1.4 If infants lose more than 10% of their birth weight in the early days of life, or they have not returned to their birth weight by 3 weeks of age, consider:

- referral to paediatric services if there is evidence of illness, marked weight loss, or failure to respond to feeding support (see recommendations in NICE's guideline on postnatal care)
- when to reassess if not referred to paediatric services.

1.1.5 If an infant loses more than 10% of their birth weight in the early days of life, measure their weight again at appropriate intervals depending on the level of concern, but no more frequently than daily.

1.1.6 Be aware that supplementary feeding with infant formula in a breastfed infant may help with weight gain, but often results in cessation of breastfeeding.

1.1.7 If supplementation with an infant formula is given to a breastfed infant:

- support the mother to continue breastfeeding
- advise expressing breast milk to promote milk supply **and**
- feed the infant with any available breast milk before giving any infant formula.

1.2 Faltering growth after the early days of life

Thresholds

1.2.1 Consider using the following as thresholds for concern about faltering growth in infants and children (a centile space being the space between adjacent centile lines on the UK WHO growth charts):

- a fall across 1 or more weight centile spaces, if birthweight was below the 9th centile
- a fall across 2 or more weight centile spaces, if birthweight was between the 9th and 91st centiles
- a fall across 3 or more weight centile spaces, if birthweight was above the 91st centile
- when current weight is below the 2nd centile for age, whatever the birthweight.

Measurement of weight and height or length

1.2.2 If there is concern about faltering growth (for example, based on the criteria in recommendation 1.2.1):

- weigh the infant or child
- measure their length (from birth to 2 years old) or height (if aged over 2 years)
- plot the above measurements and available previous measurements on the UK WHO growth charts to assess weight change and linear growth over time.

1.2.3 If there are concerns about an infant's length or a child's length or height, if possible obtain the biological parents' heights and work out the mid-parental height centile. If the child's length or height centile is below the range predicted from parental heights (more than 2 centile spaces below the mid-parental centile) be aware this could suggest undernutrition or a primary growth disorder.

1.2.4 If there is concern about faltering growth or linear growth in a child over 2 years of age, determine the BMI centile:

- using the UK WHO centiles and the accompanying BMI centile 'look-up chart' **or**
- by calculating the BMI (weight in kg/height in metres squared) and plotting this on the BMI centile chart.

Then:

- if the BMI is below the 2nd centile, be aware this may reflect either undernutrition or a small build
- if the BMI is below the 0.4th centile, this suggests probable undernutrition that needs assessment and intervention.

1.2.5 Record all growth measurements in the parent- or carer-held Personal Child Health Record.

Assessment

1.2.6 If there is concern about faltering growth:

- perform a clinical, developmental and social assessment
- take a detailed feeding or eating history
- consider direct observation of feeding or meal times
- consider investigating for:
  - urinary tract infection (follow the principles of assessment in NICE's guideline on urinary tract infection in under 16s)
  - coeliac disease, if the diet has included gluten-containing foods (follow the principles of assessment in NICE's guideline on coeliac disease)
- perform further investigations only if they are indicated based on the clinical assessment.

1.2.7 If observation of eating or feeding is needed because of concern about faltering growth, ensure this is done by a person with appropriate training and expertise.

1.2.8 Be aware that the following factors may be associated with faltering growth:

- preterm birth
- neurodevelopmental concerns
- maternal postnatal depression or anxiety.

1.2.9 Recognise that in faltering growth:

- a range of factors may contribute to the problem, and it may not be possible to identify a clear cause
- there may be difficulties in the interaction between an infant or child and the parents or carers that may contribute to the problem, but this may not be the primary cause.

1.2.10 Based on the feeding history and any direct observation of feeding, consider whether any of the following are contributing to faltering growth in milk-fed infants:

- ineffective suckling in breastfed infants
- ineffective bottle feeding
- feeding patterns or routines being used
- the feeding environment
- feeding aversion
- parent/carer–infant interactions
- how parents or carers respond to the infant's feeding cues
- physical disorders that affect feeding.

1.2.11 Based on the feeding history and any direct observation of mealtimes, consider whether any of the following are contributing to faltering growth:

- mealtime arrangements and practices
- types of foods offered
- food aversion and avoidance
- parent/carer–child interactions, for example responding to the child's mealtime cues
- appetite, for example a lack of interest in eating
- physical disorders that affect feeding.

1.2.12 Consider asking the parents or carers of infants and children with faltering growth to keep a diary recording food intake (types and amounts) and mealtime issues (for example, settings, behaviour) to help inform management strategies and assess progress.

1.2.13 Be aware that investigations (other than those recommended in recommendation 1.2.6) are unlikely to reveal an underlying disorder in a child with faltering growth who appears well with no other clinical concerns.

1.2.14 If a child with faltering growth develops new clinical symptoms or signs after the initial assessment, reconsider whether investigations are needed.

Interventions for faltering growth

1.2.15 Together with parents and carers, establish a management plan with specific goals for every infant or child where there are concerns about faltering growth. This plan could include:

- assessments or investigations
- interventions
- clinical and growth monitoring
- when reassessment to review progress and achievement of growth goals should happen.

1.2.16 Provide feeding support (see recommendations in NICE's guideline on postnatal care) if there is concern about faltering growth in the first weeks of life. Consider whether such feeding support might be helpful in older milk-fed infants, including those having complementary solid foods.

1.2.17 Be aware that while supplementary feeding with infant formula may increase weight gain in a breastfed infant if there is concern about faltering growth, it often results in cessation of breastfeeding.

1.2.18 If supplementation with an infant formula is given to a breastfed infant because of concern about faltering growth after the early days of life:

- support the mother to continue breastfeeding
- advise expressing breast milk to promote milk supply **and**
- feed the infant with any available breast milk before giving any infant formula.

1.2.19 When there are concerns about faltering growth, discuss the following, as individually appropriate, with the infant's or child's parents or carers:

- encouraging relaxed and enjoyable feeding and mealtimes
- eating together as a family or with other children
- encouraging young children to feed themselves
- allowing young children to be 'messy' with their food
- making sure feeds and mealtimes are not too brief or too long
- setting reasonable boundaries for mealtime behaviour while avoiding punitive approaches
- avoiding coercive feeding
- establishing regular eating schedules (for example 3 meals and 2 snacks in a day).

1.2.20 If necessary, based on the assessment, advise on food choices for infants and children that:

- are appropriate to the child's developmental stage in terms of quantity, type and food texture
- optimise energy and nutrient density.

1.2.21 In infants or children who need a further increase in the nutrient density of their diet beyond that achieved through advice on food choices, consider:

- short-term dietary fortification using energy-dense foods
- referral to a paediatric dietitian.

1.2.22 Advise the parents or carers of infants or children with faltering growth that drinking too many energy-dense drinks, including milk, can reduce a child's appetite for other foods.

1.2.23 Consider a trial of an oral liquid nutritional supplement for infants or children with continuing faltering growth despite other interventions (see recommendations 1.2.16 to 1.2.22).

1.2.24 Regularly reassess infants and children receiving an oral nutritional supplement for faltering growth to decide if it should be continued. Take into account:

- weight change
- linear growth
- intake of other foods
- tolerance
- adherence
- the views of parents or carers.

1.2.25 Only consider enteral tube feeding for infants and children with faltering growth when:

- there are serious concerns about weight gain **and**
- an appropriate specialist multidisciplinary assessment for possible causes

and contributory factors has been completed **and**

- other interventions have been tried without improvement.

1.2.26 If enteral tube feeding is to be used in an infant or child with faltering growth, make a plan with appropriate multidisciplinary involvement for:

- the goals of the treatment (for example, reaching a specific weight target)
- the strategy for its withdrawal once the goal is reached (for example, progressive reduction together with strategies to promote oral intake).

Monitoring

1.2.27 If there are concerns about faltering growth (see recommendation 1.2.1), measure the weight at appropriate intervals taking account of factors such as age and the level of concern, but usually no more often than:

- daily if less than 1 month old
- weekly between 1–6 months old
- fortnightly between 6–12 months
- monthly from 1 year of age.

1.2.28 Monitor weight if there are concerns about faltering growth (see recommendation 1.2.1), but be aware that weighing children more frequently than is needed (see recommendation 1.2.27) may add to parental anxiety (for example, minor short-term changes may cause unnecessary concern).

1.2.29 Be aware that weight loss is unusual except in the early days of life, and may be a reason for increased concern and more frequent weighing than is recommended (see recommendation 1.2.27).

1.2.30 If there are concerns about faltering growth monitor length or height at intervals, but no more often than every 3 months.

Referral

1.2.31 If an infant or child with faltering growth has any of the following discuss with, or refer to, an appropriate paediatric specialist care service:

- symptoms or signs that may indicate an underlying disorder
- a failure to respond to interventions delivered in a primary care setting
- slow linear growth or unexplained short stature (see recommendation 1.2.3)
- rapid weight loss or severe undernutrition
- features that cause safeguarding concerns (see the NICE guideline on child maltreatment).

1.2.32 Do not admit infants or children with faltering growth to hospital unless they are acutely unwell or there is a specific indication requiring inpatient care, such as a plan to begin tube feeding (see recommendation 1.2.25).

1.3 Organisation of care

1.3.1 Ensure there is a pathway of care for infants and children where there are concerns about faltering growth or weight loss in the early days of life that:

- clearly sets out the roles of healthcare professionals in primary and secondary care settings
- establishes and makes clear the process for referral to and coordination of specialist care in the pathway.

1.3.2 Provide community-based care for infants and children where there are faltering growth concerns or weight loss in the early days of life with a team (the 'primary care team') that includes, for example:

- a midwife
- a health visitor

- a GP.

1.3.3 Ensure that the primary care team has access to the following healthcare professionals with expertise relevant to faltering growth:

- infant feeding specialist
- consultant paediatrician
- paediatric dietitian
- speech and language therapist with expertise in feeding and eating difficulties
- clinical psychologist
- occupational therapist.

1.3.4 Consider identifying a lead healthcare professional to coordinate care and to act as the first point of contact for parents of children with faltering growth, for example if several professionals are involved.

1.4 Information and support

1.4.1 Recognise the emotional impact that concerns about faltering growth or weight loss in the early days can have on parents and carers and offer them information about available:

- professional support
- peer support.

1.4.2 Follow the principles in the NICE guidelines on patient experience in NHS services, babies, children and young people's experience of healthcare and shared decision making in relation to communication (including different formats and languages), information and shared decision making.

1.4.3 Provide information on faltering growth or weight loss in the early days of life, to

parents or carers that is:

- specific to them and their child
- clearly explained and understandable to them
- spoken and in writing.

1.4.4 If there is concern about faltering growth in an infant or child or weight loss in the early days of life, discuss with the parents or carers:

- the reasons for the concern, and how the growth measurements are interpreted
- any worries or issues they may have
- any possible or likely causes or factors that may be contributing to the problem
- the management plan (see recommendation 1.2.15).

Terms used in this guideline

Child

Pre-school children from 1 year of age.

Food or feeding aversion

Behaviours sometimes observed in infants or children indicating a persistent unwillingness to eat. Such behaviours, depending upon age, might include signs of distress when presented with food, spitting of food or avoidance behaviour.

Infant

A baby up to 1 year of age.

Linear growth

This is the increase in length (under 2 years of age) or height (2 years or older) over time in infants and children.

Oral liquid nutritional supplement

A high-energy liquid feed designed for enteral use, usually selected and prescribed after specialist advice from a paediatric dietitian.

Undernutrition

This is what happens when nutrition is not sufficient. An infant or child with undernutrition may be abnormally thin, may weigh less than expected for their length or height, and if prolonged, undernutrition can lead to stunting (length or height less than expected for age).

Putting this guideline into practice

NICE has produced tools and resources to help you put this guideline into practice.

Putting recommendations into practice can take time. How long may vary from guideline to guideline, and depends on how much change in practice or services is needed. Implementing change is most effective when aligned with local priorities.

Changes recommended for clinical practice that can be done quickly – like changes in prescribing practice – should be shared quickly. This is because healthcare professionals should use guidelines to guide their work – as is required by professional regulating bodies such as the General Medical and Nursing and Midwifery Councils.

Changes should be implemented as soon as possible, unless there is a good reason for not doing so (for example, if it would be better value for money if a package of recommendations were all implemented at once).

Different organisations may need different approaches to implementation, depending on their size and function. Sometimes individual practitioners may be able to respond to recommendations to improve their practice more quickly than large organisations.

Here are some pointers to help organisations put NICE guidelines into practice:

1. **Raise awareness** through routine communication channels, such as email or newsletters, regular meetings, internal staff briefings and other communications with all relevant partner organisations. Identify things staff can include in their own practice straight away.

2. **Identify a lead** with an interest in the topic to champion the guideline and motivate others to support its use and make service changes, and to find out any significant issues locally.

3. **Carry out a baseline assessment** against the recommendations to find out whether there are gaps in current service provision.

4. **Think about what data you need to measure improvement** and plan how you will collect it. You may want to work with other health and social care organisations and specialist

groups to compare current practice with the recommendations. This may also help identify local issues that will slow or prevent implementation.

5. **Develop an action plan**, with the steps needed to put the guideline into practice, and make sure it is ready as soon as possible. Big, complex changes may take longer to implement, but some may be quick and easy to do. An action plan will help in both cases.

6. **For very big changes** include milestones and a business case, which will set out additional costs, savings and possible areas for disinvestment. A small project group could develop the action plan. The group might include the guideline champion, a senior organisational sponsor, staff involved in the associated services, finance and information professionals.

7. **Implement the action plan** with oversight from the lead and the project group. Big projects may also need project management support.

8. **Review and monitor** how well the guideline is being implemented through the project group. Share progress with those involved in making improvements, as well as relevant boards and local partners.

NICE provides a comprehensive programme of support and resources to maximise uptake and use of evidence and guidance. See our into practice pages for more information.

Also see Leng G, Moore V, Abraham S, editors (2014) Achieving high quality care – practical experience from NICE. Chichester: Wiley.

Context

The term 'faltering growth' (previously called 'failure to thrive') is widely used to refer to a slower rate of weight gain in childhood than expected for age and sex. The term faltering growth is preferred as periods of slow growth may represent temporary variation from the expected pattern and the word 'failure' may be seen as pejorative. Various definitions of faltering growth have been used in the past, meaning estimates of prevalence in the UK vary widely.

The World Health Organization (WHO) has produced growth standards, based on longitudinal studies of healthy breastfed infants. These standards, along with UK term and preterm infant growth data, have been incorporated into UK WHO growth charts for monitoring growth in UK children. A child's weight, length or height and head circumference can be plotted on these charts to provide a visual representation of growth over time. Epidemiological data suggest that healthy children usually progress relatively consistently along a growth centile.

Newborn infants normally lose weight in the early days of life. Persisting or large weight losses can cause concern in parents, carers and health professionals about ineffective establishment of feeding. In older children, faltering growth can occur when nutritional intake does not meet a child's specific energy requirements. Undernutrition presents as a relatively slow weight gain, demonstrated by downward movement across weight centiles on the growth chart.

Children with faltering growth may be identified by routine growth monitoring or by parental or health professional concern. Standard management is usually community based, with support and advice provided to increase energy intake and manage challenging feeding behaviour. Some children will be referred to paediatric dieticians or paediatricians for further assessment and management.

Certain health conditions predispose children to faltering growth (for example, cystic fibrosis or coeliac disease). Specific treatment for these conditions can improve or restore expected rates of weight gain. In children with no specific cause for faltering growth, simple interventions to increase nutritional intake may be effective in improving weight gain. Faltering growth in early childhood may be associated with persisting problems with appetite and feeding.

The cause of faltering growth in the absence of a specific underlying health condition is likely to be complex and multifactorial. In the past, child neglect or socioeconomic and educational disadvantage were often considered to be likely contributors. While neglected children may be undernourished, neglect is an uncommon explanation for faltering growth. Similarly, significant associations with socioeconomic or educational factors have not been demonstrated.

There is variation across the UK in care provided for infants, children and families where concerns are raised about early weight loss or faltering growth. There is cultural and socioeconomic variation in starting and continuing breastfeeding, the approach to introducing complementary solid food and choice of foods, feeding behaviour and parental acceptance of feeding support and advice.

Recommendations for research

The guideline committee has made the following recommendations for research. The committee's full set of recommendations for research are detailed in the full guideline.

1 High energy liquid feed supplements

Do high energy liquid feed supplements improve growth in children with faltering growth?

Why this is important

It seems logical to attempt to treat inadequate dietary intake with food of some kind, and high energy liquid dietary supplements appear to be effective when used in older adults. Although they are also widely promoted for use in children, little research on their efficacy has been done. Experimental research suggests that high energy liquid feed supplements may supress appetite and displace normal diet, and one case series found that when high energy liquid feed supplements were withdrawn appetite improved with no impact on weight. Further research is important to establish whether their effectiveness justifies their cost and the suppressant effect on appetite.

2 Feeding interventions for the management of neonatal weight loss

What is the effectiveness of feeding interventions compared with usual care/advice for breastfed neonates (up to 28 days old) with weight loss of greater than 10%?

Why this is important

Weight loss in breastfeeding infants in the first month of life can cause anxiety for parents and healthcare professionals. It can also incur costs to the NHS from admissions of the infant to hospital, with the potential for cessation of exclusive breastfeeding with its associated long-term health benefits.

Practice varies across the UK. Robust evidence about which feeding interventions improve outcomes could inform practice, potentially reducing unnecessary and costly interventions

and supporting parent–infant relationships and physical and emotional health.

3 Behavioural interventions

What is the effectiveness of behavioural interventions compared with usual care/advice for children with faltering growth?

Why this is important

Health visitors provide behavioural interventions for faltering growth in community settings. This is carried out with the aim to optimise the Healthy Child Programme and provide support and build relationships with parents and children. Behavioural interventions are time consuming and therefore incur costs. Evidence for the specific components of behavioural interventions are scarce and if found to be effective they could have short-term and longer-term preventative results. A standardised approach to behavioural interventions could both improve clinical practice and save costs.

4 Frequency of monitoring

How frequently should children be measured to identify faltering growth?

Why this is important

It is important to know whether a particular frequency or schedule of measurement of infants and children would identify faltering growth at an earlier age and contribute to an earlier catch-up in weight. Present practice suggests routine measurements be taken at the time of routine childhood immunisation. Is this schedule of measurement the most likely to confirm whether an infant or child has faltering growth as early as possible? It is unclear whether the present pattern of measurement is most effective for children for whom there are concerns about their growth. If an altered schedule of routine measurement was found to be identifying faltering growth at an earlier age and contribute to an early catch-up in weight, it would be necessary to consider how best to deliver such a schedule to the entire population of infants and children.

5 Support needs of parents

What are the experiences and concerns of parents of children with faltering growth?

Why this is important

Having a child with faltering growth can be a distressing experience. Parents can feel blamed or unheard. Faltering growth happens when children are young so can have a long-term impact on the child–parent relationship. There are no studies that describe parental experiences or concerns and therefore there is a gap in the evidence. Research on this topic would help to improve understanding of the needs and concerns of parents who have children with faltering growth, which will then enable healthcare professionals to better address them. Understanding the experiences, expectations and needs of parents should inform the design of effective intervention strategies that are tailored to the family.

Finding more information and committee details

To find NICE guidance on related topics, including guidance in development, see the NICE topic page on faltering growth.

For full details of the evidence and the guideline committee's discussions, see the full guideline. You can also find information about how the guideline was developed, including details of the committee.

NICE has produced tools and resources to help you put this guideline into practice. For general help and advice on putting our guidelines into practice, see resources to help you put NICE guidance into practice.

Update information

Minor changes since publication

October 2021: We added a link to NICE's guidelines on babies, children and young people's experience of healthcare and on shared decision making in recommendation 1.4.2.

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