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PRACTICE

GUIDELINES

Faltering growth in children: summary of NICE guidance

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Growth in infants and preschool children is a common cause for parental and professional concern. Some weight loss is common in the early days of life, while establishing feeding, and is usually a physiological phenomenon associated with fluid shifts.[1] The term "faltering growth" is used to describe a pattern of slower weight gain than expected for age and sex in infants and preschool children after these early days and is most often due to inadequate nutritional intake.

Concerns about faltering growth arise in up to 5% of infants and preschool children, depending on the definition used.[2 3] Concerns are usually raised in primary care, by parents, health visitors, or general practitioners (GPs). Current practice in assessment and management varies across the UK.[4] This article summarises the recent National Institute for Health and Care Excellence (NICE) guidance on the recognition and management of infants and preschool children with faltering growth,[5] focusing particularly on recommendations for primary care professionals.

Recommendations

NICE recommendations are based on systematic reviews of the best available evidence and explicit consideration of cost effectiveness. When minimal evidence is available, recommendations are based on the experience and opinion of the Guideline Committee of what constitutes good practice. The quality of evidence underlying recommendations is described in italics in square brackets.

Weight loss in the early days of life

The pattern of initial weight loss and return to birth weight varies between infants. This period, "the early days" reflects fluid loss and establishment of effective feeding. Identifying subsequent faltering growth means observing growth over time, usually over weeks or months. The Guideline Committee aimed to separate the notions of unexpected early weight loss (usually due to delay in establishing feeding) and later faltering growth (usually due to insufficient energy intake) within the guideline.

A pathway for assessment and management of early weight loss and faltering growth is presented in the infographic. Initial assessment usually involves joint working between GP and other professional such as a health visitor or midwife.

- 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.

  [*Based on moderate to low quality evidence from cohort studies*]
- 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 guideline on postnatal care up to 8 weeks after birth[6])
  - Consider direct observation of feeding
  - Ensure observation of feeding is done by an individual with appropriate training and expertise (for example, in relation to breastfeeding and bottle feeding)
  - Perform further investigations only if they are indicated by the clinical assessment.

  [*Based on moderate to low quality evidence from cohort studies and the experience and opinion of the Guideline Committee (GC)*]

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What you need to know

- Weight loss of up to 10% of birthweight is common in the early days of life. Birthweight is usually regained before 3 weeks of age as feeding is established
- Faltering growth after the early days of life is characterised by a slower rate of weight gain than expected for age, sex, and current weight
- Investigations for faltering growth involve a clinical, developmental, and social assessment and full physical examination. If the child seems well and there are no suggestive signs or symptoms, further investigations are unlikely to reveal an unrecognised cause
- Initial interventions for faltering growth include strategies to increase energy intake and advice on managing feeding and eating behaviours
- Faltering growth is usually not due to neglect. Despite this, parents and carers often feel blamed for a child's slow growth. Providing or signposting appropriate emotional support is an important aspect of the healthcare professional's role

- Provide feeding support (see recommendations in NICE guideline on postnatal care up to 8 weeks after birth[6]) 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. [*Based on the experience and opinion of the GC*]
- 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 guideline on postnatal care up to 8 weeks[6])
  - When to reassess if not referred to paediatric services.

  [*Based on the experience and opinion of the GC*]
- Be aware that supplementary feeding with infant formula in a breastfed infant may help with weight gain but often results in cessation of breastfeeding. [*Based on the experience and opinion of the GC*]
- 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.

  [*Based on the experience and opinion of the GC*]

The recommendations made for infants with weight loss in the early days of life (above) regarding supplementary feeding with infant formula in a breastfed infant also apply to those with faltering growth after the early days of life.

Faltering growth after the early days of life

Thresholds for concern

- 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 (fig 1)):
  - A fall across ≥1 weight centile spaces, if birth weight was below the 9th centile
  - A fall across ≥2 weight centile spaces, if birth weight was between the 9th and 91st centiles
  - A fall across ≥3 weight centile spaces, if birth weight was above the 91st centile
  - When current weight is below the 2nd centile for age, whatever the birth weight.

  [*Based on low quality evidence from a cohort study and the experience and opinion of the GC*]
- If there is concern about faltering growth (see thresholds above):
  - Weigh the infant or child
  - Measure their length (from birth to 2 years old) or height (if aged >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 (linear growth is the increase in length (<2 years old) or height (≥2 years) over time in infants and children).

  [*Based on the experience and opinion of the GC*]
- If there is concern about faltering growth or linear growth in a child over 2 years old, determine the body mass index (BMI) centile:
  - Using the UK WHO centiles and the accompanying BMI centile "look-up chart" *or*
  - By calculating the BMI (weight (kg)/(height $(m)^2$) and plotting this on the BMI centile chart
  - 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.

  [*Based on the experience and opinion of the GC*]

How to assess a child with faltering growth?

- 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 the NICE guideline on urinary tract infection in children under 16 years old[7])
    - Coeliac disease, if the diet has included food containing gluten (follow the principles of assessment in NICE guideline on coeliac disease[8])
  - Perform further investigations only if they are indicated based on the clinical assessment.

  [*Based on low quality evidence from cohort and cross-sectional studies and the experience and opinion of the GC*]
- 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.

  [*Based on the experience and opinion of the GC*]

- 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 interactions with infant
  - How parents or carers respond to the infant's feeding cues
  - Physical disorders that affect feeding.

  [*Based on moderate to low quality evidence and the experience and opinion of the GC*]

- Based on the feeding history and any direct observation of mealtimes, consider whether any of the following are contributing to faltering growth for infants and children eating solid food:
  - Mealtime arrangements and practices
  - Types of foods offered
  - Food aversion and avoidance
  - Parent/carer interactions with child, such as responding to the child's mealtime cues
  - Appetite, such as a lack of interest in eating
  - Physical disorders that affect feeding.

  [*Based on moderate to low quality evidence and the experience and opinion of the GC*]

Management strategies in faltering growth

- Together with parents and carers, establish a management plan with specific goals for every infant or child for whom 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.

  [*Based on the experience and opinion of the GC*]

- Provide feeding support (see recommendations in NICE guideline on postnatal care up to 8 weeks[6]) 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. [*Based on the experience and opinion of the GC*]

- 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 (such as three meals and two snacks in a day).

  [*Based on the experience and opinion of the GC*]

- 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.

  [*Based on moderate to very low quality evidence from randomised controlled trials and the experience of the GC*]

- 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.

  [*Based on moderate to very low quality evidence from randomised controlled trials and the experience of the GC*]

- 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. [*Based on the experience and opinion of the GC*]

Referral

- 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
  - Rapid weight loss or severe undernutrition
  - Safeguarding concerns (see NICE guideline on child maltreatment[9]).

  [*Based on moderate quality evidence from a randomised controlled trial and the experience and opinion of the GC*]

What information and support should be offered to parents and carers of children with faltering growth?

- 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.

  [*Based on the experience and opinion of the GC*]

- If there is concern about faltering growth in an infant or child or weight loss in the early days of life, discuss with 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.

  [*Based on the experience and opinion of the GC*]

What are the challenges to management of faltering growth?

Faltering growth is complex and often multifactorial, and a specific underlying cause may not be identified. There is a risk that children may undergo excessively frequent monitoring or unnecessary investigations looking for an underlying disorder. Parents may feel blamed for their child's slow weight gain, whereas neglect is an uncommon cause of faltering growth. Healthcare professionals should remain alert to the possibility of a safeguarding concern but should be sensitive to the emotional impact of caring for a child with faltering growth.

Such challenges can be overcome by thoughtful explanation and discussion, by ensuring the availability of support and consistent advice from a multidisciplinary team and by working with families to agree plans for investigation, intervention, monitoring, and onward referral if required.

The Guideline Committee recognised that several online resources related to baby and toddler nutrition are available, such as advice from the NHS (www.nhs.uk/Conditions/pregnancy-and-baby/Pages/childrens-meal-ideas.aspx), and there are resources available for BMI calculation, such as www.nhs.uk/Tools/Pages/Healthyweightcalculator.aspx. The UK breastfeeding network www.breastfeedingnetwork.org.uk/ is a useful resource for advice, including a national support helpline number.

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Guidelines into practice

- How do you involve the parents and carers of children with faltering growth in establishing a management plan with specific goals for intervention and monitoring progress?
- Are you aware of available resources to provide information and support to parents and carers of children with faltering growth?
- How is your primary care pathway for management of faltering growth organised? Would you know when and how to refer a child with faltering growth?
- How do you ensure the multidisciplinary team gives consistent advice about monitoring, nutrition, and managing mealtime behaviour?

Further information on the guidance

Methods

This guidance was developed by the National Guideline Alliance in accordance with NICE guideline development methods (www.nice.org.uk/media/default/about/what-we-do/our-programmes/developing-nice-guidelines-the-manual.pdf). A Guideline Committee was established by the National Guideline Alliance, which incorporated healthcare and allied healthcare professionals (1 consultant paediatrician, 1 specialist paediatric speech and language therapist, 1 feeding lead, 1 paediatric dietitian, 1 specialist health visitor in infant feeding, 1 specialist health visitor, 1 GP, 1 clinical psychologist, and 2 lay members). The committee co-opted an expert witness (nursery care professional).

The committee identified relevant clinical questions, collected and appraised clinical evidence, and evaluated the cost effectiveness of proposed interventions where possible.

Quality ratings of the evidence were based on GRADE methodology (www.gradeworkinggroup.org/). These relate to the quality of the available evidence for assessed outcomes or themes rather than the quality of the study.

The scope and the draft of the guideline went through a rigorous reviewing process, in which stakeholder organisations were invited to comment; the group took all comments into consideration when producing the final version of the guideline.

Other details

Three different versions of this guideline have been produced: a full version containing all the evidence, the process undertaken to develop the recommendations, and all the recommendations, known as the “full guideline”; a short version containing a list of all the recommendations, known as the “short guideline”; and a version on the information for patients, known as the “information for the public guideline.” All of these versions are available from the NICE website (www.nice.org.uk/NG75).

A formal review of the need to update a guideline is usually undertaken by NICE after its publication. NICE will conduct a review to determine whether the evidence base has progressed significantly to alter the guideline recommendations and warrants an update.

Future research

The Guideline Committee prioritised the following research recommendations:

- Do high-energy liquid feed supplements improve growth in children with faltering growth?
- What is the effectiveness of feeding interventions compared with usual care and advice for breastfed neonates (≤28 days old) with weight loss of greater than 10%?
- What is the effectiveness of behavioural interventions compared with usual care and advice for children with faltering growth?
- How frequently should children be measured to identify faltering growth?

Figure

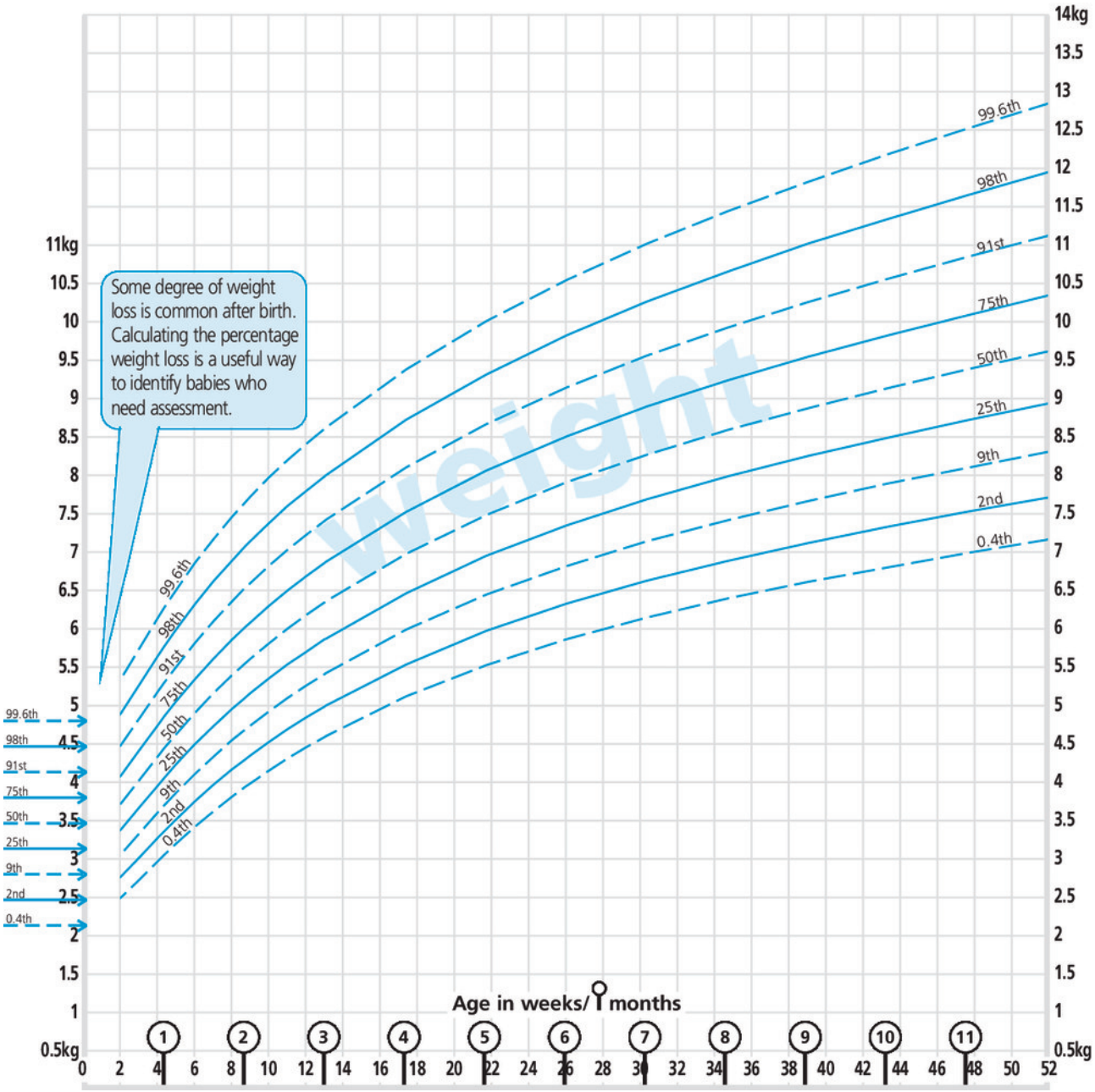

Fig 1 Example UK-WHO growth chart—of weight for boys aged 0-1 year (adapted from the Department of Health and RPCH UK-WHO growth charts www.rcpch.ac.uk/system/files/protected/page/A4%20Boys%200-4YRS%20(4th%20Jan%202013).pdf)