Ashford and St. Peter's Hospitals
NHS Foundation Trust

FALTERING GROWTH GUIDELINE

Author: **Dr Rachel Panniker, Paediatric Registrar**

Catherine Casewell, Paediatric Dietician

Supervisor: **Dr Claire Mitchell, Paediatric Consultant**

Contact details: claire.mitchell15@nhs.net

Guideline History		
Date	**Comments**	**Approved By**
17/05/2021		Paediatric Guideline Group
09/07/2021	Additional comments added to include cardiac investigations for duct-dependent lesion following Morbidity&Mortality Meeting May 2021	Those present at Morbidity&Mortality Meeting May 2021

Contents

Faltering Growth Guideline

Aims of this guideline

This guideline aims to provide an outline for the initial assessment and management of children identified to have faltering growth (previously described as failure to thrive). The majority of children with faltering growth have inadequate intake so most information and advice is given on this. Please refer to other relevant guidelines to investigate specific diagnoses if suspected after the basic interventions here.

Faltering Growth definition

A consensus definition is lacking and definitions vary between different resources. Below are thresholds for concern about faltering growth in infants and children taken from NICE NG75:

Weight falls across ≥1 weight centile spaces if birthweight was below the 9th centile.
Weight falls across ≥2 weight centile spaces if birthweight was between the 9th and 91st centiles.
Weight falls across ≥3 weight centile spaces if birthweight was above the 91st centile
Current weight is below the 2nd centile for age, regardless of birthweight *in context of height on >9th centile and mid-parental height not in keeping.
Asymmetrical weight and head circumference measurements (e.g. weight on 5th centile, head circumference on 50th centile)
BMI <0.4th centile in children >2 years old indicates probable undernutrition. BMI <2nd centile may indicate either undernutrition or a small build
Child's length or height centile is >2 centile spaces below the mid-parental centile may indicate undernutrition or a primary growth disorder

See APPENDIX 2 for more information about plotting growth.

PAEDIATRIC DEPARTMENT

Differential Diagnosis of Faltering Growth

Well but meets criteria for faltering growth

Inadequate intake:
- Feeding difficulties eg. problems with breastfeeding or formula preparation
- Reduced ability to suck or swallow eg. cleft lip/palate or neurological disorder
- Clear signs of reflux / CMPA
- Lack of knowledge or availability of age appropriate healthy food, feeding skills and interactions
- Behavioural difficulties eg. autism
- Child neglect
- (See Appendix 1)

Inadequate absorption of nutrients:
- Persistent vomiting eg. refractory GORD, obstruction, drug effects, metabolic disease, infection or CNS disorder
- Malabsorption eg. coeliac disease, IBD, chronic diarrhoea, CF, protein-losing enteropathy

Excessive energy expenditure due to chronic condition:
- Cardiac eg. congenital heart disease
- Respiratory eg. CF
- Inborn errors of metabolism
- Endocrine eg. hyperthyroidism, diabetes mellitus
- Renal eg. Renal tubular acidosis
- Immunodeficiency
- Chronic infections
- Malignancy

Inherited causes
- genetic syndromes
- inborn errors of metabolism

Management:
- Urine MC&S
- Advice on managing feeding and eating behaviours and food fortification (See follow up)
- Consider Dietician referral
- Consider admission but will likely be able to discharge home with out-patient rapid access clinic follow-up
- For further investigation at follow-up if poor weight gain despite a sustained period of adequate intake
- Refer to Dietitian at FUP if not previously for oral nutritional supplement advice
- Sign-posting to emotional support for parents if required
- Referral to safeguarding team as appropriate

Management:
- Urine MC&S
- Baseline investigations to consider: FBC, U&Es, bone profile, iron studies, vitamin D, glucose, coeliac disease (if diet contains gluten), thyroid testing
- Further investigations targeted to history, examination and possible underlying diagnosis e.g cardiac – 4 limb BP, pre/post-ductal sats, ECG, CXR
- Consider admission
- Provide patient written information (See follow up)
- Refer to Dietitian for oral nutritional supplement advice
- Sign-posting to emotional support for parents if required
- Referral to safeguarding team and social services as appropriate
- Out-patient follow-up

Considerations for admission:
In general, children with faltering growth should not generally be kept as in-patients but this decision should be made considering the:
- Severity of faltering growth and overall physical condition of the child and any acute illness
- Likelihood of an alternative or underlying diagnosis requiring in-patient investigation or observation
- Specific interventions (eg commencing tube feeding) requiring admission
- Safeguarding concerns

Recommended follow-up weight frequency:
- weekly in babies age 0–6 months
- fortnightly in babies age 6–12 months
- monthly in children over 1 year

If referred to Dietetics, liaise with them regarding frequency of follow-up

Expected weight gain:

	Boys (g/week)	Girls (g/week)
0-3 months	240	210
4-6 months	130	120
7-9 months	80	75
10-12 months	65	60

Over 1 year old use growth chart to assess progress

When to perform further investigations after initial assessment

- If there are concerns that there is pathology causing the faltering growth, rather than inadequate intake
- If there are concerns that there is significant dehydration or electrolyte abnormality
- If there is associated developmental delay or dysmorphism
- After a period of out-patient follow-up, if there is a sustained period of adequate intake but persistent poor weight gain, then blood tests should be performed.

Initial blood tests should include FBC, U&Es, bone profile, iron studies, vitamin D, glucose, coeliac disease (for those on gluten containing diet), and thyroid testing.

In addition, perform any other tests targeted towards a specific diagnosis if suspected by history and examination. These may include:
- 4 limb BP, pre/post ductal sats, ECG for RVH, CXR if considering duct-dependent cardiac lesion
- Genetic testing
- Sweat test if concerned about cystic fibrosis
- CXR if concerned about cystic fibrosis or cardiac anomalies
- Upper GI constrast imaging if vomiting
- Stool investigations such as MC&S, virology, OCP, elastase, faecal calprotectin

Follow-up

Children with faltering growth will require on-going follow-up under a consultant and a referral to our paediatric dietitians asp-tr.paedsnutrition@nhs.net

Weighing children more frequently than is needed may add to parental anxiety. See summary chart for suggested time intervals.
Monitor length/height at intervals, but no more frequently than every 3 months.

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.

If there continues to be poor weight gain despite a sustained period of adequate intake (meal plan followed strictly) during out-patient follow-up, then there is more likely to be an organic cause of faltering growth. Baseline investigations and further investigations as directed by assessment should be performed.

Additional resources:

For well children with poor nutritional intake: . ..\..\..\..\..\Dept\FAMILYSERVICES\CHILDREN\DIETETICS\Faddy Eating	Advice on food fortification: G:\DIETETICS\Build Up Diet Sheet.docx

APPENDIX 1: Key questions in the history

Establish the child's feeding or eating patterns:

- Initial feeding as a neonate and infant – breastmilk / formula, difficulties, reflux
- Age of weaning – how, what foods were used
- For exclusively milk-fed babies:
    - In breastfed infants, ask about feeding patterns or routines and problems with breastfeeding (such as pain, difficulty with attachment, mastitis, inverted nipples, or thrush). Consider milk supply/fullness of mum's breasts, feeding coordination
    - In formula fed infants check how the formula is prepared, feeding patterns or routines, quantity of feed taken in a 24hour period and compare with recommendations
    - How the carer responds to feeding cues
- In weaned babies and children:
    - What food is offered and eaten, how much and how often (a 3 day feeding diary may be helpful) and check food is age appropriate
    - Appetite – whether child appears to be hungry
    - Liquid drunk (such as water, milk or juice) - excess liquid leading to satiety before meals is a common problem in toddlers.
    - Mealtime routine including family eating and feeding behaviours
    - Child's behaviour at mealtime; such as spitting, refusal, distress or avoidance of feeding and parent/carer responses.
- Physical disorders affecting eating
- Bowel frequency, stool consistency, urine output

APPENDIX 2: Plotting measurements to assess faltering growth

- Plot head circumference if <2 years old.
- Plot BMI if >2 years old.
- Calculate mid-parental height:
    - Calculate the mean of the mother's and father's heights
    - If the child is a boy, add 7cm. If the child is a girl, subtract 7cm.
    - This gives the predicted height at 18 years of age, which can be used to deduce the expected centile for patient.
    - Additional concern should be raised if the child's height centile is more than 2 spaces below the mid-parental height centile.
- Specialised growth charts should be used for children born prematurely or with specific diagnoses such as Down's syndrome or Turner syndrome.

2. Supporting References

National Institute for Health and Care Excellence. Faltering growth: recognition and management of faltering growth in children. *NICE*; 2017. Clinical Guideline NG75. Available from: https://www.nice.org.uk/guidance/ng75

National Institute for Health and Care Excellence. Faltering growth. *NICE*; 2018. Clinical Knowledge Summary. Available from: https://cks.nice.org.uk/faltering-growth#!background

Gonzalez-Viana Eva, Dworzynski Katharina, Murphy M Stephen, Peek Russell. Faltering growth in children: summary of NICE guidance. *BMJ.* 2017;358:j4219. doi: 10.1136/bmj.e5931. Available at: https://www.bmj.com/content/358/bmj.j4219

BMJ Best Practice. Failure to Thrive. *BMJ Best Practice*; 2018, reviewed 2020. Available at: https://bestpractice.bmj.com/topics/en-gb/747/guidelines

Clinical Key. Failure to Thrive. *Elsevier ClinicalKey*; updated 2021. Available at: https://www.clinicalkey.com/#!/topic/failure%20to%20thrive?topic=failure%20to%20thrive

4. Guideline Governance

a. Scope

This guideline in relevant to all staff caring for all children from 0-18 years old across the emergency department, inpatient ward and outpatient department.

b. Purpose

i. This guidelines aims to facilitate a common approach to the management of children. At times deviation from the guideline may be necessary, this should be documented and is the responsibility of the attending consultant.

ii. This guideline is subject to regular review to ensure ongoing evidence based practice.

c. Duties and Responsibilities

What is expected from the health care professionals using this guideline to look after children age 0-18 years old.

d. Approval and Ratification

This guideline will be approved and ratified by the Paediatric Guidelines Group.

e. Dissemination and Implementation

i. This guideline will be uploaded to the trust intranet 'Paediatric Guidelines' page and thus available for common use.
ii. This guideline will be shared as part of ongoing education within the Paediatric Department for both medical and nursing staff.
iii. All members of staff are invited to attend and give comments on the guideline as part of the ratification process.

f. Review and Revision Arrangements

a. This policy will be reviewed on a 5 yearly basis.
b. If new information comes to light prior to the review date, an earlier review will be prompted.
c. Amendments to the document shall be clearly marked on the document control sheet and the updated version uploaded to the intranet. Minor amendments will be ratified through the Paediatric Guidelines Group. A minor amendment would consist of no major change in process, and includes but is not limited to, amendments to documents within the appendices.

g. Equality Impact Assessment

Background • Who was involved in the Equality Impact Assessment
Author (Dr Rachel Panniker) and the supervising consultant (Dr Claire Mitchell).
Methodology • A brief account of how the likely effects of the policy was assessed (to include race and ethnic origin, disability, gender, culture, religion or belief, sexual orientation, age) • The data sources and any other information used • The consultation that was carried out (who, why and how?)
All groups of staff and patients were taken into consideration and there is no bias towards or against any particular group.
Key Findings • Describe the results of the assessment • Identify if there is adverse or a potentially adverse impacts for any equalities groups
There is no evidence of discrimination.
Conclusion • Provide a summary of the overall conclusions
There is no evidence of discrimination.
Recommendations • State recommended changes to the proposed policy as a result of the impact assessment • Where it has not been possible to amend the policy, provide the detail of any actions that have been identified • Describe the plans for reviewing the assessment
This guideline is appropriate for use.

Document Checklist

To be completed (electronically) and attached to any document which guides practice when submitted to the appropriate committee for approval or ratification.

Title of the document: Faltering Growth Guideline

Policy (document) Author: Dr Rachel Panniker

Executive Director: N/A

		Yes/No/ Unsure/NA	Comments
1.	**Title**		
	Is the title clear and unambiguous?	**Yes**	
	Is it clear whether the document is a guideline, policy, protocol or standard?	**Yes**	
2.	**Scope/Purpose**		
	Is the target population clear and unambiguous?	**Yes**	
	Is the purpose of the document clear?	**Yes**	
	Are the intended outcomes described?	**Yes**	
	Are the statements clear and unambiguous?	**Yes**	
3.	**Development Process**		
	Is there evidence of engagement with stakeholders and users?	**Yes**	
	Who was engaged in a review of the document (list committees/ individuals)?		**Paediatric Guideline Committee**
	Has the policy template been followed (i.e. is the format correct)?	**Yes**	
4.	**Evidence Base**		

		Yes/No/ Unsure/NA	Comments
	Is the type of evidence to support the document identified explicitly?	**Yes**	
	Are local/organisational supporting documents referenced?	**N/A**	
5.	**Approval**		
	Does the document identify which committee/group will approve/ratify it?	**Yes**	
	If appropriate, have the joint human resources/staff side committee (or equivalent) approved the document?	**N/A**	
6.	**Dissemination and Implementation**		
	Is there an outline/plan to identify how this will be done?	**Yes**	
	Does the plan include the necessary training/support to ensure compliance?	**Yes**	
7.	**Process for Monitoring Compliance**		
	Are there measurable standards or KPIs to support monitoring compliance of the document?	**No**	
8.	**Review Date**		
	Is the review date identified and is this acceptable?	**Yes**	
9.	**Overall Responsibility for the Document**		
	Is it clear who will be responsible for coordinating the dissemination,	**Yes**	

		Yes/No/ Unsure/NA	Comments
	implementation and review of the documentation?		
10.	**Equality Impact Assessment (EIA)**		
	Has a suitable EIA been completed?	Yes	

Committee Approval (Neonatal Guidelines Committee)			
If the committee is happy to approve this document, please complete the section below, date it and return it to the Policy (document) Owner			
Name of Chair	**Dr Claire Mitchell**	**Date**	**17/05/2021**
Ratification by Management Executive (if appropriate)			
If the Management Executive is happy to ratify this document, please complete the date of ratification below and advise the Policy (document) Owner			
Date: n/a			