

Catch-up growth in infants and young children with faltering growth

Statement and expert opinion to guide general clinicians



1. THE ISSUE

What is Known?

Faltering growth (FG) in infants and young children (<2 years of age) is a common problem for general clinicians to see in clinical practice, especially in low-income settings

FG is associated with a range of adverse outcomes and there may be benefits in promoting catch-up growth where this is indicated

HCPs may be deterred from adequately addressing the problem, due to the misconception that addressing faltering growth may promote accelerated growth

2. THE PAPER

An international group of experts reviewed the evidence and guidelines on disease- and non-disease- related FG in healthy term and SGA infants and children up to the age of two years in low-, middle- and high-income countries.

Using a **modified Delphi process**, practical agreed statements and areas for research were developed to provide **clarity and guidance** to general clinicians for the appropriate identification, assessment and management of FG.



Including

45

agreed statements

What are the highlights?

3. AGREED DEFINITIONS FOR GROWTH

Proposed definitions related to growth and faltering growth

GROWTH FALTERING
Downward crossing of centiles
A **fall in weight for age Z-score of ≥ 1.0** that occurs over a period of **one month or more** and does not include the first 2 weeks after birth

CATCH UP GROWTH
Following an insult to growth
An **increased growth velocity following recovery from illness or starvation**. It is a physiologic increase in weight for age Z-score after a period of 'growth faltering', ideally to original weight for age Z-score

ACCELERATED GROWTH
Upward crossing of centiles
Upward crossing of centiles in weight (e.g. an increase in weight for age Z-score of ≥ 1.0) **that is not preceded by growth faltering**. It can occur both spontaneously (e.g. in infants born SGA) and can be promoted (e.g. as a consequence of overfeeding or formula-feeding compared to breast-feeding)

NORMAL GROWTH
Following centiles
Achieved once the child has **'caught -up' and returned** to the weight for age Z score or centile on which a child was growing **before growth faltered**

ZS = Z score: In simple terms a z-score gives you an idea of how far from the mean a data point is. More technically it's a measure of how many standard deviations below or above the mean a raw score is. A z-score can be placed on a normal distribution curve

4. CONSEQUENCES OF FALTERING GROWTH

High-income

Disease related FG: Short term consequences

Studies on mixed populations of hospitalized children have shown that malnutrition is associated with an increase in infectious complications and an increased length of stay.

Non-disease related FG: Short term consequences

The consequences of faltering growth may include an impact on schooling and cognitive achievements, short stature, and socio-economic outcomes.

Disease related FG: Long term consequences

In the longer term malnourished children also have increased rates of impaired cognitive function and behavioral problems, including impaired communication skills and attention-deficit hyperactivity disorders.

Middle-income

Faltering growth in low- and middle-income countries commonly occurs together with numerous **health and social outcomes**, including poor brain development and delayed cognitive performance; delayed attainment of milestones; greater susceptibility to some infections; higher overall and disease-specific mortality in childhood; lower physical work capacity in adulthood; poorer earnings; and diminished human capital.

Low-income

5. MANAGEMENT

Nutritional management of disease-related and non-disease-related faltering growth

Nutritional management of disease- and non-disease-related faltering growth requires a **balanced ratio of energy and protein in addition to micronutrients for optimal catch-up**

Breastfeeding should be supported in both disease- and non-disease-related faltering growth by ensuring assessing technique and supply and only **where appropriate** infant milk fortification, cup feeding or **supplementary formula should be considered**

In formula fed infants **ready to use energy dense therapeutic feeds with proven efficacy** should be used, where available; if these are not available suitable locally available powdered feeds can be used, applying WHO hygiene safety for mixing

Modular additions of only fat and carbohydrates to feed and food **should be avoided**, as this reduces the protein energy ratio

Nutritional management for both medical and non-medical faltering growth should include **either/both the fortification of accepted foods and advice on foods that are naturally energy dense** and locally available

The nutritional management plan should include a target for **appropriate catch-up growth that is monitored** at an interval that is deemed appropriate by the healthcare professional, the available healthcare service and the severity of the faltering growth