Faltering Weight

Cincinnati Children's®
changing the outcome together

FAST FACTS

>100,000
Number of infants in the U.S. outpatient setting who visit their doctor for faltering weight

>2,600
Number of infants per year hospitalized at U.S. children's hospitals with a primary diagnosis of faltering weight

Faltering weight (previously known as failure to thrive) refers to a pattern in which an infant or child is not gaining weight as expected or is losing weight, compared with standard growth charts and their previous growth trajectory. Faltering weight can be due to a number of underlying issues including conditions affecting intake, absorption or caloric demand, oral-motor skills, inadequate feeding targets and psychosocial issues. A detailed history and assessment is the most valuable way to determine the best next steps in evaluation and or plan.

Children who meet one of the following criteria have faltering weight. When calculating, use z-score cutoffs rather than percentiles.

- **Weight-for-length or body mass index (BMI)-for-age less than −1.65 z-score (5th percentile)**
- **In children younger than 2 years, weight gain velocity less than −2 z-score for age (2.3rd percentile)**
- **Decline in weight, weight-for-length, or BMI greater than or equal to 1 z-score**

ASSESSMENT

Obtain a thorough history, including:

- Birth history (history of prematurity, difficulty with feeds or stooling during newborn period, newborn screen)
- Developmental evaluation (e.g., oral-motor, fine motor skills, meeting milestones for age)
- Family and social history
- Medical and surgical history
- Assessment of growth and feeding history, as well as other difficulties and concerns (e.g., cultural norms, parental feeding practices, breastfeeding history, etc.)

Physical exam should include:

- Observed feed
- Accurate anthropometric measurements (recumbent length measurement is recommended for all children birth to 23 months) using an infantometer

Calculate z-scores using calculator available through Peditools, https://peditools.org. Use WHO growth chart for infants less than 2 years old and CDC growth chart for children over 2 years old.

HISTORY AND PHYSICAL EXAM RED FLAGS

- Concerns arising from history: abnormal newborn screen, delayed milestones, recurrent vomiting, sweating and/or fatigue with feeds, frequent infections, etc.
- Concerns arising from physical exam: altered mental status, cleft lip/palate, poor secretion management, abnormal breathing, abnormal muscle tone, hepatomegaly, etc.
- Concern for underlying disease
- Failure to respond to outpatient feeding plan/interventions
- Safety concerns
- Seriously ill-appearing or dehydrated

For urgent issues or to speak with the specialist on call 24/7, call the Physician Priority Link® at 1-888-987-7997.

If you would like additional copies of this tool, or would like more information, please contact the Physician Outreach and Engagement team at Cincinnati Children's.

Tool developed by Cincinnati Children's physician-hospital organization (known as Tri-State Child Health Services, Inc.) and staff in the James M. Anderson Center for Health Systems Excellence. Developed using expert consensus and informed by Best Evidence Statements, Care Practice Guidelines, and other evidence-based documents as available. This tool is presented for the purpose of educating providers. It should not be considered inclusive of all proper methods of care or exclusive of other reasonable methods of care. The ultimate judgment regarding care of a particular patient must be made by the physician in light of the patient's individual circumstances.

Faltering Weight

MANAGEMENT/TREATMENT

If concerned for faltering weight, perform additional assessment as outlined below.

Obtain complete feeding history, including:

- **Breastfeeding history:** One or both breasts, breast softening after feed, pain/difficulty with latch, engorgement, use of supportive supplies, supplementation. If pumping, volume per session.
- **Bottle feeding:** Formula mixing recipe, type and concentration. Bottle nipple size and type.
- **All modes of feeding:** Frequency, length, number per day, night vs. daytime, longest interval between feeds. See/hear swallowing, alertness during and after feed, any food other than formula or breast milk.

Observe feeding: Assess hunger cues, comfort, alertness, latch, sucking/swallowing and satiety cues.

Calculate kcal/kg/day to determine if patient is receiving adequate nutrition for growth. Goal caloric intake:

- Late pre-term (34–37 weeks): 120–135 kcal/kg/d
- 2 months: 105–120 kcal/kg/day
- 2–3 months: 102 kcal/kg/day
- 4–6 months: 82 kcal/kg/day
- 7–12 months: 80 kcal/kg/day

Consider asking family to complete a detailed feeding log for 2–3 days to get an accurate sense of how much an infant is eating in a day.

If No Red Flags Are Present

Manage faltering weight in the outpatient setting by employing feeding strategies:

- Focus on nutritional modifications to increase weight gain, including increasing calories and adding oral supplements, specialty formulas, or fortifying formula/milk.
- Consider specialty formulas (hydrolyzed) if concerns for milk protein intolerance.
- Initiate Vitamin D supplementation (400 IU/day) for exclusively breast-fed infants or formula-fed infants taking <1 liter of formula per day.
- Initiate iron supplementation (1 mg/kg/day) for exclusively breast-fed infants by 4 months of age.
- Initiate iron supplementation (2–3 mg/kg/day) by 2 weeks of age for preterm infants taking full enteral feeds.

Patients who receive increased calories and/or supplementation should be monitored over time in the ambulatory setting to promote appropriate weight gain and prevent excessive weight gain (weekly-monthly depending on age).

Oral supplements (e.g. Pediasure) are not recommended for children <12 months of age.

If Red Flags Are Present

Order targeted diagnostic testing (e.g., laboratory studies or imaging).

Refer as needed. *See page 3 for referral guidance.*

FORMULA RECIPES

Standard Infant Formula			
Calories per Fluid Ounce	**Water** (fl oz)	**Formula Powder*** (unpacked level scoop in the formula can)	**Approximate Yield** (fl oz)
20	2	1	2
22	3.5	2	4
24	6.5	4	7.5

Human Milk Fortification			
Calories per Fluid Ounce	**Human Milk** (fl oz)	**Formula Powder*** (tsp, NOT the formula scoop)	**Approximate Yield** (fl oz)
22	3	½ teaspoon	3
24	3	1 ¼ teaspoon	3

*Including sensitive and comfort options

WHEN TO REFER

Consider a referral if red flags are present or concerns remain after taking initial steps outlined on page 2 (observing feeds, obtaining feeding log, ordering targeted testing).

REFERRAL OPTIONS

Refer to the Breastfeeding Medicine Clinic (lactation specialist) for:

- Management of low milk supply and oversupply
- Better positioning help to manage sore nipples
- Breastfeeding assistance for premature babies, multiple gestation (twins and triplets), and babies with complex medical issues
- Nutritional management for slow weight gain
- Treatment for thrush in the baby

Refer to speech therapy/occupational therapy if:

- Unable to maintain latch
- Difficulty advancing to age-appropriate diet
- Concern for swallow or oral motor dysfunction
- Signs of feeding dysfunction (coughing, choking, noisy breathing, noisy feeding, excessive crying, significant sleepiness, signs of discomfort, retching)
- Oral loss of human milk or formula
- Feeds lasting >30 min
- Caregiver unaware or unresponsive to feeding cues

Place referral for Oral Motor and Feeding and list faltering weight as the diagnosis. Note the current feeding plan in the referral.

Refer to nutrition if:

- Otherwise healthy infant unable to consistently take enough to gain weight despite increasing caloric density to 22 cal/oz
- Fortification recipes are needed for non-standard infant formulas

To expedite the appointment, list malnutrition as the reason for referral.

Refer to pediatric gastroenterology if:

- Concern for excessive vomiting beyond normal neonatal reflux
- Chronic diarrhea, concerns for malabsorption
- Discomfort managing NG tube feeds
- Vitamin deficiencies

Consider hospital admission if:

- Further workup and management is needed

For direct hospital admission at Cincinnati Children's, contact the Admission and Transfer Center at 513-636-9337. Prioritize admissions Monday—Thursday as able to optimize coordination of multidisciplinary care.

Refer to the emergency department if:

- Signs of severe dehydration or clinical decompensation are present

Faltering Weight

Patient Presents

Assessment

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Feeding History

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HISTORY AND PHYSICAL EXAM RED FLAGS

- Concern for underlying disease
- Concerns arising from history: abnormal newborn screen, delayed milestones, recurrent vomiting, sweating and/or fatigue with feeds, frequent infections, etc.
- Seriously ill-appearing or dehydrated
- Concerns arising from physical exam: altered mental status, cleft lip/palate, poor secretion management, abnormal breathing, abnormal muscle tone, hepatomegaly, etc.
- Failure to respond to outpatient feeding plan/interventions
- Safety concerns

Any Red Flags?

No

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Yes

Order targeted diagnostic testing (e.g., laboratory studies or imaging) for patients with red flags.

Refer as needed.

See page 3 for referral guidance.

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