



**SANDHILLS  
CENTER**



# Pediatric intensive feeding programs

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Recent review date: 9/2021

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Policy contains: Pediatric intensive feeding programs.

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## Coverage policy

The use of pediatric intensive feeding programs for feeding disorders characterized by sensory aversion, food refusal, or liquid and solid dysphagia due to acute or chronic medical illness, traumatic brain injury, prematurity, autism spectrum disorder, developmental delay, cerebral palsy, oromotor dysfunction, gastro-esophageal reflux disease, or other etiologies of pediatric feeding disorders is clinically proven and, therefore, medically necessary (Cincinnati Children's Hospital Medical Center, 2013). Treatment can be administered on an inpatient or daily outpatient basis.

All of the following criteria must be met (Sharp, 2017):

- For members admitted from the outpatient setting, member has failed three months of occupational and or speech therapy aimed at improving feeding and/or swallowing skills.
- Occupational/speech therapy evaluation describing specific feeding disorder or impairment and outlining plan of care has been submitted.
- Feeding program is a multidisciplinary team led by a physician.

### Limitations

No limitations were identified during the writing of this policy.

### Alternative covered services

CCP.1322

Routine patient evaluation and management by a network healthcare provider.

## Background

Food refusal is a severe feeding impediment in which children refuse to eat all or most foods presented and exhibit problems with growth. About 1% to 5% of children have a disorder with a level of severity that results in failure to thrive (Chatoor, 2009). One model classifies child eating behaviors into categories of limited appetite, selective intake, and fear of feeding. Each category includes a range from normal (misperceived) to severe (behavioral and organic) (Kerzner, 2015).

One behavioral framework for pediatric feeding includes behavioral assessment, treatment planning, questionnaire, family clinical interview, mealtime observations, treatment planning, behavioral treatment, environmental interventions, and increasing desirable/decreasing undesirable feeding behavior (Silverman, 2015).

Some pediatric feeding problems are linked to particular disorders. For example, children with autism tend to have elevated rates of feeding problems; some techniques that apply to all children can improve feeding in this population (Volkert, 2010). A meta-analysis and comprehensive review on feeding problems among children with autism spectrum disorders showed the rate of feeding problems among these children is highly elevated (Odds Ratio 5.11), and intakes of calcium and protein are significantly lower than healthy children (Sharp, 2013).

Intensive, multidisciplinary intervention for pediatric feeding disorders has become an important treatment for infants and children exhibiting this disorder. A typical pediatric intensive feeding program may draw from the disciplines of psychology, nutrition, medicine, speech-language pathology and occupational therapy; and assert goals as elementary as weaning from tube feeding to achieving complex behavioral modification. An intensive program is defined by its daily, scheduled and clearly defined therapeutic intervention as opposed to routine "as needed" adjunctive therapy applied intermittently or sporadically as part of routine patient evaluation and management by a healthcare provider.

## Findings

The Cincinnati Children's Hospital Medical Center (2013) has promulgated guidelines for pediatric intensive feeding:

- It is recommended that a model intensive feeding program combine oral motor and behavioral interventions to increase intake in children with severe feeding problems (Laud, 2009; Sharp, 2009a, 2009b, 2017).
- It is recommended that the following behavioral interventions be used to increase intake for children with feeding problems:
  - Differential attention (Williams, 2010)
  - Positive reinforcement (Cooke, 2011;; Remington, 2012)
  - Escape extinction/escape prevention (Najdowski, 2010)
  - Stimulus fading; Meier, 2012; Sharp, 2009a)
  - Simultaneous presentation (Silbaugh, 2016)
  - Differential reinforcement of alternative behavior (Najdowski, 2010; Sharp, 2009a; Williams, 2010)
  - Use of a flipped spoon as a presentation method, particularly for children with oro-motor difficulties (Silbaugh, 2018)
- It is recommended that oral motor treatment for spoon-feeding, biting and chewing be used to increase intake for children with cerebral palsy who have moderate feeding impairments (Snider, 2011).

Much of the literature on interventions for children's feeding disorders is limited by weak evidence, primarily due to methodological weakness caused by small sample sizes.

A systematic review (Sharp, 2017) examined 11 studies of the treatment of children (n = 593 patients) with chronic food refusal receiving intervention at day treatment or inpatient hospital programs. Inclusion criteria required the presentation of quantitative data on food consumption, feeding behavior, and/or growth status before and after the intervention. Behavioral intervention and tube weaning represented the most common treatment approaches. The overall effect size for percentage of patients successfully weaned from tube feeding was 71%. Treatment gains endured following discharge, with 80% of patients weaned from tube feeding at last follow-up. Treatment also was associated with increased oral intake, improved mealtime behaviors, and reduced parenting stress. The authors concluded that intensive, multidisciplinary treatment holds benefits for children with severe feeding difficulties. Findings from a synthesis of interventions addressing food packing suggest that approaches should be chosen based on whether the packing is due to a motor response such as difficulty swallowing, or due to performance, e.g. not due to a physical deficit (Silbaugh, 2018).

In a review of 22 studies assessing the psychometric properties and clinical applications parent-report instruments for children with neurological impairments who require intensive feeding, the Behavioural Paediatric Feeding Assessment Scale was considered the most valid and reliable instrument (Jaafar, 2019).

A review of the professional literature concluded that children with chronic illness requiring dietary treatments were more likely to have disordered eating and eating-specific disorders. These disorders include diabetes, cystic fibrosis, celiac disease, gastrointestinal disorders, and inflammatory bowel diseases (Conviser, 2018).

A systematic review of 106 randomized controlled trials (n = 16,448) on prevention methods for eating disorder prevention produced evidence that empirically supported approaches should be disseminated on a wider basis, and that cognitive behavioral training should be offered for indicated populations (Watson, 2016).

A systematic review of 41 studies assessed childhood picky eating and food neophobia, which are harmful to child development and are also predictors of eating patterns in adulthood. Picky eating was defined inconsistently, and varied from 6% to 59%; prevalence of food neophobia varied from 40% to 60%. More consistent definitions are needed to help identify children who can benefit from interventions (Brown, 2016).

A systematic review of 48 case studies (n = 96) included children with medical and developmental concerns who were treated with behavioral interventions. Significant improvements were identified in feeding behavior after interventions (Sharp, 2010).

There is a high prevalence of feeding disorders among children with autism spectrum disorders. A systematic synthesis of interventions addressing food selectivity in this population found that while behavioral interventions are often effective at improving behaviors such as increasing acceptance and swallowing of target foods, evidence for adequacy of behavioral improvement is lacking, with many of the reviewed studies being hampered by methodological issues (Silbaugh, 2016).

A systematic review/meta-analysis consisted of 23 papers of low-level evidence (each had five or fewer subjects) of efforts to improve eating practices in children with autism spectrum disorders. Authors found a medium-large effect size in increasing volume, but a negligible effect in variety of foods consumed (Marshall, 2015).

A systematic review of 21 observational studies and one randomized trial showed that early feeding practices were associated with a higher risk of picky or fussy eating, food refusal, and food neophobia in children over one year. Factors include shorter duration of breast feeding and baby-led weaning, compared with spoon-feeding (Babik, 2021).

A systematic review/meta-analysis of 14 articles on the ability of behavioral interventions to improve eating habits of children and adolescents at risk of poverty revealed small effects, and larger effects where the intervention was followed long term (Pastor, 2020).

Experts recommend that a previously unfamiliar or non-preferred food be presented 10-15 times to increase intake for infants and children (4 months-7 years) with feeding difficulties (Cooke, 2011; Remington, 2012).

## References

On June 17, 2021, we searched PubMed and the databases of the Cochrane Library, the U.K. National Health Services Centre for Reviews and Dissemination, the Agency for Healthcare Research and Quality, and the Centers for Medicare & Medicaid Services. Search terms were [ccp.11\_policy\_search\_terms] We included the best available evidence according to established evidence hierarchies (typically systematic reviews, meta-analyses, and full economic analyses, where available) and professional guidelines based on such evidence and clinical expertise.

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## Policy updates

7/2017: initial review date and clinical policy effective date: 8/2017

7/2018: Policy references updated.

9/2019: Policy references updated. Policy ID changed to CCP.1322.

9/2020: Policy references updated.

9/2021: Policy references updated.