

Date: July 15, 2013

Title: Behavioral and Oral Motor Interventions for Feeding Problems in Children

Clinical Question:

Ρ	(Population/Problem)	In children with feeding problems*,
Ι	(Intervention)	are oral motor interventions* with or without behavioral interventions*
С	(Comparison)	

0 (Outcome)

effective at increasing intake (quantity, variety, texture)?

Definitions for terms marked with * may be found in the Supporting Information section.

Target Population for the Recommendation:

Inclusions: Infants and children (birth through adolescence) with feeding problems including oral feeding problems, chronic food refusal, selectivity, failure to advance texture, and inappropriate mealtime behaviors such as throwing food and temper tantrums.

Exclusion: Children with feeding problems such as anorexia, bulimia, pre-term infants with oral motor immaturity.

Recommendations:

1. It is recommended that an intensive feeding program model that combines oral motor and behavioral interventions may be used with children with severe feeding problems to increase intake. (*Byars 2003 [3a], Sharp 2012 [4a], Sharp 2011 [4a], Laud 2009 [4a], Lamm 2005 [4a], Clawson 2007 [4b], Clawson 2006 [4b], Gulotta 2005 [4b], Harding 2010 [5a], Sharp 2010 [5a], Sharp 2009 [5a], Gibbons 2007 [5a], Tarbell 2002 [5a], Shore 1998 [5a]).*

Note: Programs ranged from 2 weeks to 8 weeks duration; treatments 4-11 times per day (*Laud 2009 [4a]*, *Lamm 2005 [4a]*, *Clawson 2007 [4b]*, *Clawson 2006 [4b]*, *Gulotta 2005 [4b]*, *Gibbons 2007 [5a]*, *Tarbell 2002 [5a]*).

- 2. It is recommended that the following behavioral interventions within a treatment package may be used to increase intake for children with feeding problems:
 - a. differential attention* (Williams 2010a [1b], Kerwin 1999 [1b])
 - b. positive reinforcement* (Williams 2010a [1b], Remington 2012 [2a], Cooke 2011 [2a], Byars 2003 [3a], Knox 2012 [5a], Kozlowski 2011 [5a], Binnendyk 2009 [5a], Gentry 2008 [5a], Kelley 2003 [5a], Shore 1998 [5a], Larson 1987 [5b])
 - c. escape extinction/escape prevention* (Williams 2010a [1b], Kerwin 1999 [1b], Byars 2003 [3a], Seiverling 2012 [4a], Sharp 2012 [4a], Volkert 2011 [4a], Najdowski 2010 [4a], Williams 2008 [4a], VanDalen 2010 [4b], Kozlowski 2011 [5a], Sharp 2010 [5a], Valdimarsdottir 2010 [5a], Sharp 2009 [5a], Girolami 2007 [5a], Patel 2007 [5a], Shore 1998 [5a], Kern 1996 [5a], Najdowski 2003 [5b])
 - d. stimulus fading* (Williams 2010a [1b], Seiverling 2012 [4a], Sharp 2011 [4a], Knox 2012 [5a], Meier 2012 [5a], Valdimarsdottir 2010 [5a], Luiselli 2005 [5a], Patel 2001 [5a], Shore 1998 [5a], Najdowski 2003 [5b]).
 - e. simultaneous presentation* (*Piazza 2002 [4a*], *VanDalen 2010 [4b*], *Gentry 2008 [5a*], *Buckley 2005 [5a*], *Mueller 2004 [5a*], *Ahearn 2003 [5a*], *Kern 1996 [5a]*)
 - f. differential reinforcement of alternative behavior (DRA)* (Williams 2010a [1b], Sharp 2011 [4a], Najdowski 2010 [4a], Valdimarsdottir 2010 [5a], Buckley 2005 [5a], Mueller 2004 [5a], Patel 2001 [5a], Kahng 2003 [5b], Najdowski 2003 [5b])
 - g. use of a flipped spoon as a presentation method* (*Sharp 2012 [4a*], *Volkert 2011 [4a*], *Sharp 2010 [5a*]) Note: Interventions listed above are in rank order, based on strength of evidence.
- 3. It is recommended that oral motor treatment for spoon-feeding, biting and chewing may be used to increase intake for children with cerebral palsy who have moderate feeding impairments (*Snider 2011 [1b], Davies 2003 [1b]*)

4. It is recommended that a child be exposed 10-15 times to a previously unfamiliar or non-preferred food to increase intake for children (4 months-7 years) with feeding difficulties (*Remington 2012 [2a], Cooke 2011 [2a], Wardle 2003b [2a], Wardle 2003a [2a], Birch 1998 [2a], Sullivan 1990 [2b], Sullivan 1994 [4a])*

Note 1: There was a gap in evidence concerning exposure for children ages 8 - 24 months.

Note 2: For children with Autism Spectrum Disorders (ASD), variable patterns of exposure (from less than 10 exposures to more than 10) were needed to increase intake (*Williams 2008 [4a], Paul 2007 [5a]*)

Note 3: For sustained increase in intake, pairing exposure with reinforcement (rewards) may be needed (*Cooke 2011 [2a]*)

Discussion/Summary of Evidence related to the recommendations:

Overall this moderate level body of evidence supports the use of behavioral interventions as well as oral motor treatment to increase intake in children with feeding problems. These strategies can be applied in treatment and may be effective in a multi-component approach.

Intensity: There is a low level body of evidence regarding intensity of treatment (*Byars 2003 [3a], Sharp 2011 [4a], Laud 2009 [4a], Lamm 2005 [4a], Clawson 2007 [4b], Clawson 2006 [4b], Gulotta 2005 [4b], Sharp 2010 [5a], Gibbons 2007 [5a], Tarbell 2002 [5a], Shore 1998 [5a]).* The studies differed in the intensity of treatment and from day treatment to inpatient settings. Multi-component interventions increased intake in all children and in many subjects resulted in weaning from gastrostomy tube feedings.

Behavioral Interventions: There is a moderate level body of evidence regarding behavioral interventions for oral feeding problems (including food refusal and food selectivity) in children. Evidence showed effectiveness of behavioral interventions within a treatment package consisting of multiple treatment components. Research is limited in determining which individual component is critical or more effective (*Williams 2010a [1b], Kerwin 1999 [1b], Cooke 2011 [2a], Seiverling 2012 [4a], Sharp 2012 [4a], Volkert 2011 [4a], Najdowski 2010 [4a], Williams 2008 [4a], Piazza 2002 [4a], VanDalen 2010 [4b], Knox 2012 [5a], Kozlowski 2011 [5a], Sharp 2010 [5a], Valdimarsdottir 2010 [5a], Binnendyk 2009 [5a], Gentry 2008 [5a], Girolami 2007 [5a], Patel 2007 [5a], Buckley 2005 [5a], Luiselli 2005 [5a], Mueller 2004 [5a], Ahearn 2003 [5a], Kelley 2003 [5a], Patel 2001 [5a], Shore 1998 [5a], Kern 1996 [5a], Kahng 2003 [5b], Najdowski 2003 [5b]).*

Differential Attention*: Kerwin reported that differential attention (which included positive attention and ignoring) was "demonstrated to be effective when compared to either a no-treatment baseline or a wait-list control group for a diverse population of children with a variety of feeding problems across multiple settings, training formats, and target feeding responses (*Kerwin 1999 [1b]*)." Although just one component of multicomponent treatment packages, it was a consistent component across the 14 studies reviewed (*Kerwin 1999 [1b]*).

Positive Reinforcement*: Williams reported that positive reinforcement was the most common component described in the intervention studies; reportedly used in 37 of the 38 studies (*Williams 2010a [1b]*).

Escape Extinction/Escape Prevention*: Williams reported that positive reinforcement alone was not sufficient to increase food acceptance for children with food refusal and food expulsion; acceptance did not increase until escape prevention was introduced. Escape prevention alone was also found to be sufficient to increase food acceptance; however, Williams reported that combining escape prevention and reinforcement resulted in lower rates of inappropriate behaviors. Implementation with care was encouraged as extinction can cause negative effects such as crying, tantrums and spitting out food (*Williams 2010a [1b]*). Kerwin reported that implementation of non-removal of the spoon (an escape prevention technique) can be problematic, as most parents did not continue to implement the procedure after the child was discharged from the hospital (*Kerwin 1999 [1b]*). In lower level evidence, escape extinction was combined with other interventions (*Byars 2003 [3a], Seiverling 2012 [4a], Sharp 2012 [4a], Volkert 2011 [4a], Najdowski 2010 [4a], Williams 2008 [4a], VanDalen 2010 [4b], Kozlowski 2011 [5a], Sharp 2010 [5a], Valdimarsdottir 2010 [5a], Sharp 2009 [5a], Girolami 2007 [5a], Patel 2007 [5a], Shore 1998 [5a], Kern 1996 [5a], Najdowski 2003 [5b]), such as stimulus fading, differential reinforcement of alternative behavior (DRA), and positive/negative reinforcement, to increase intake.*

Stimulus Fading*: Stimulus fading was shown to be an effective adjunct to escape prevention (*Williams 2010a [1b]*). Manipulating the bite size, fading the texture of food and blending preferred and novel foods were described as variations of stimulus fading used with children with food refusal. An example of an initial ratio of food reported in a

case study was 10% novel/90% preferred food which was systematically changed (*Mueller 2004 [5a]*). In one case study, stimulus fading was achieved by increasing the number of bites required to earn reinforcement (i.e. initially one bite required, increased by 50% increments) (*Valdimarsdottir 2010 [5a]*).

Simultaneous Presentation*: The evidence regarding this technique, while limited and low level, is encouraging and may be of value for children with food selectivity. Five of the 6 case studies described the children as having "food selectivity" and either a diagnosis of ASD or Pervasive Developmental Disorder (PDD) (*Piazza 2002 [4a], Gentry 2008 [5a], Buckley 2005 [5a], Ahearn 2003 [5a], Kern 1996 [5a]*). Children in all the case studies were presented a non-preferred food paired with a preferred food at the same time. Examples included the use of preferred condiments, chips, chocolate cookie, chicken nuggets, and applesauce. Two studies (*Piazza 2002 [4a], Kern 1996 [5a]*) compared simultaneous presentation to sequential or delayed reinforcement (presentation of the preferred food after acceptance of non-preferred food). Kern reported both procedures were effective in increasing acceptance; however, the simultaneous procedure produced more rapid behavior change and a higher percentage of food acceptances (*Kern 1996 [5a]*). Piazza reported consumption increased in the simultaneous condition and not during the sequential condition (*Piazza 2002 [4a]*).

Differential Reinforcement of Alternative Behavior (DRA)*: There is a low level body of evidence for differential reinforcement of alternative behavior (DRA). Five of the seven children described in the case studies had a diagnosis of ASD or PDD. In these studies, DRA was used as part of a treatment package to increase intake (i.e. with escape extinction, fading and/or simultaneous presentation) (*Valdimarsdottir 2010 [5a], Patel 2007 [5a], Buckley 2005 [5a], Kahng 2003 [5b], Najdowski 2003 [5b]*). However, in a single case study which compared DRA alone to the treatment package, DRA alone was not successful; gains were made when DRA was combined with escape extinction and fading (*Najdowski 2003 [5b]*).

Flipped spoon*: There is a low level body of evidence for the use of a flipped spoon as presentation method to increase intake. In combination with non-removal of the spoon (NRS), the use of a flipped spoon presentation resulted in decreased expulsions or packing, and an increase in intake (compared to an upright spoon presentation) (*Sharp 2012 [4a], Volkert 2011 [4a], Sharp 2010 [5a]*).

Oral motor interventions: There is limited evidence regarding oral motor interventions for feeding problems in children with cerebral palsy. Although studies varied in design and treatment packages, the limited evidence supports oral motor interventions in improving select oral motor skills such as spoon-feeding, biting and chewing in children with CP. These oral motor skills were more likely to be improved in children with CP who had moderate feeding impairments (versus severe or mild feeding impairments). An oral motor treatment protocol was not clearly defined; information suggested that treatment could focus on tongue lateralization, lip control and vigor of chewing (*Snider 2011 [1b], Davies 2003 [1b]*). Oral motor interventions were not associated with weight gain in children with CP and feeding impairments (*Davies 2003 [1b]*). Findings support earlier results from a randomized control trial (*Ottenbacher 1981 [2b]*). Additionally, Davies' analysis found no support for oral motor interventions leading to decreased mealtime duration; rather, longer mealtimes may be associated with taking more time to eat due to achieving advanced texture (*Davies 2003 [1b]*). Given the limitations of the evidence regarding oral motor interventions, care should be taken in applying this information.

Exposure: There is a high level body of evidence regarding exposure, which resulted in increased intake in typical children (*Remington 2012 [2a], Cooke 2011 [2a], Wardle 2003b [2a], Wardle 2003a [2a], Birch 1998 [2a], Sullivan 1990 [2b], Sullivan 1994 [4a])*. Two RCT's found that exposure alone did not result in sustained intake, but intake was sustained when exposure was paired with tangible or social reward (*Remington 2012 [2a], Cooke 2011 [2a]*). There was lower level evidence regarding exposure in children with ASD (*Williams 2008 [4a], Paul 2007 [5a]*). Initial exposure quantities varied, ranging from one bite (or taste) per day to a full serving (jar of baby food). Duration varied from 10 days (consecutive) up to 9 weeks (2-7 days/week). The method of exposure presentation varied from spoon feeding to self-feeding with encouragement provided to take a bite (*Wardle 2003b [2a], Wardle 2003a [2a], Birch 1998 [2a], Sullivan 1990 [2b], Sullivan 1994 [4a]*). The studies on children with ASD dealt with exposure as part of a multi-component feeding program (*Williams 2008 [4a], Paul 2007 [5a]*).

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IMPLEMENTATION

Applicability Issues:

Further development of interdisciplinary collaboration between occupational therapy, behavioral psychology and other medical professionals is needed. Program development, structure, processes and staffing would be required to implement recommendations regarding intensity. A potential barrier may be the cost of training occupational therapists to implement these recommendations. Clinical judgment is necessary to apply the evidence to each patient, due to the variability of the body of evidence. While studies mentioned the importance of treating medical conditions comorbid with food refusal, the role of medical management in the treatment of food refusal was not clear (*Williams 2010a [1b]*). Further research is needed in this area.

Relevant CCHMC Tools for Implementation:

Survey tool to gather pre/post staff knowledge and implementation, Staff initial training at Division knowledge translation Blitz and follow up with small group discussions regarding clinical implementation.

Outcome or Process Measures:

Measure changes in staff knowledge and integration of information into practice, resulting from staff training, using a survey tool pre and post training.

A pretest will be used to explore preexisting knowledge regarding behavioral, oral motor, exposure, and intensity of treatment recommendations. A posttest will be presented following the staff training to determine the effectiveness of the education and the application of the information in the BESt.

Use of Canadian Occupational Performance Measure (COPM)(*Law 1990 [5a]*), an established evaluation and outcome tool, to objectify changes in performance identified as improvement in intake and parent satisfaction.

SUPPORTING INFORMATION

Background/Purpose of BESt Development:

Feeding problems in children are relatively common, occurring in about 25% of typically developing children and occurring in up to 80% of children with developmental conditions (*Chatoor 2003 [5b]*). Multiple medical professionals are involved in the treatment of feeding disorders including but not exclusive to occupational therapists, speech and language pathologists, behavioral psychologists, physicians, nurses, and nutritionists.

Occupational therapy practitioners approach feeding and eating as meaningful occupations that are central to the client's full participation and performance (*Clark 2007 [5b]*). They use oral motor and sensory-based feeding interventions/strategies to address feeding problems. This clinical question was created by occupational therapists to examine the available evidence of effective treatment interventions and strategies in children with feeding problems to better understand and integrate these interventions into treatment plans and positively impact clinical outcomes in this patient population.

Definitions:

<u>Differential attention</u>: positive attention for appropriate feeding behavior and ignoring inappropriate behavior(*Kerwin* 1999 [1b]). Also known as differential reinforcement for target behaviors.

<u>Positive reinforcement</u>: use of enjoyable objects, food or activities (specific to the individual) as reinforcement (*Williams* 2010a [1b]).

Escape extinction/Escape prevention: placing child's mealtime escape behaviors on extinction; includes either use of non-removal of the spoon or physical/manual guidance (*Williams 2010a [1b]*), [non-removal of the spoon has been

described as the presentation of food or drink to the child's lip until the bite or drink is accepted with the ignoring or blocking of all inappropriate behaviors (*Williams 2010a [1b]*) physical/manual guidance includes inserting spoon into mouth (*Kerwin 1999 [1b]*), applying gentle pressure to the jaw contingent upon refusal (*Williams 2010a [1b]*)]; also includes representation of expelled food (*Valdimarsdottir 2010 [5a]*, *Girolami 2007 [5a]*, *Shore 1998 [5a]*, *Kern 1996 [5a]*, *Najdowski 2003 [5b]*).

<u>Stimulus fading</u>: involves systematic changes in the stimulus, adjusting the amount of food/liquid offered, systematically increasing the texture of food (*Williams 2010a [1b]*).

<u>Simultaneous presentation</u>: preferred food presented at same time as a non-preferred food (*Mueller 2004 [5a]*, *Ahearn 2003 [5a]*).

<u>Differential reinforcement of alternative behavior (DRA)</u>: systematic reinforcement of an alternative behavior which varies dependent upon the child's response (e.g., providing access to preferred toy for desired behavior, non-removal of spoon for food refusal).

<u>Flipped spoon as a presentation method</u>: use of a small, maroon spoon to present food and once accepted, rotation of the spoon 180°, depositing the food on the middle of the tongue with slight downward pressure and wiping or dragging the spoon forward towards the front of the tongue (Cite: Sharp 2012, Sharp 2011, Volkert 2011).

Search Strategy:

Databases: OVID MEDLINE, OVID CINAHL, OVID EBM Reviews (Cochrane), PubMed Clinical Queries, CAT Banks for OT, Center for Evidence-based Medicine, OT Evidence, National Guideline Clearinghouse, OT Exchange, OT Seeker, Pediatric Physical Therapy, PEDro, TRIP, University of Michigan Dept. of Pediatrics, The World Confederation of Physical Therapy, PsychInfo, Medlink.

Search Terms: Feeding difficulties, Feeding Challenges, Feeding Dysfunction, Feeding Disorder, Feeding Disturbance, Feeding Delay, Feeding Aversion, Feeding and Sensory, Feeding intervention, Feeding Therapy, Feeding Plan, Feeding and Behavior, Food and Aversion, Food and Sensitivity, Failure to Thrive, Refusal to Eat, Behavioral Strategies and Reinforcement, Behavioral Strategies and Reward, Behavioral Strategies and Sensory, Occupational Therapy and Feeding; Texture and Eating; Sensation and Eating; Sensory and Eating; Tactile and Eating; Sensation and Feeding; Hypersensitivity and Feeding; Tactile and Feeding; Sensory Integration and Feeding; Sensory Strategies and Feeding; Sensory Processing and Oral Motor; Sensory Processing and Feeding

Limits and Filters: Published date from 1990-Feb.2013; Human; Language: English; Age Groups: Child, Preschool 2-5 years, Child, 6-12 years, Adolescence, 13-18 years

Last search completed: Feb. 2013

Relevant CCHMC Evidence-Based Documents: None were found

Group/Team Members:

Team Leader: Michelle Koziel, OTR/L, Division of Occupational Therapy and Physical Therapy Angela Bates, OTD, OTR/L, Division of Occupational Therapy and Physical Therapy Julie Gerdes, MHS, OTR/L, Division of Occupational Therapy and Physical Therapy Elizabeth Manford, MOT, OTR/L, Division of Occupational Therapy and Physical Therapy Rebecca D. Reder OTD, OTR/L, Senior Clinical Director, Division of Occupational Therapy and Physical Therapy *Ad hoc Advisors:* Michelle Kiger, MHS, OTR/L, Division of Occupational Therapy and Physical Therapy Allison Kissling MLS, Pratt Library

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Conflicts of Interest were declared for each team member:

- \boxtimes No financial conflicts of interest were found.
 - No external funding was received for development of this BESt.
- The following financial conflicts of interest were disclosed:

Note: Full tables of the <u>LEGEND evidence evaluation system</u> are available in separate documents:

- Table of Evidence Levels of Individual Studies by Domain, Study Design, & Quality (abbreviated table below)
- Grading a Body of Evidence to Answer a Clinical Question
- Judging the Strength of a Recommendation (dimensions table below)

Table of Evidence Levels (see note above)

Quality level	Definition
1a† or 1b†	Systematic review, meta-analysis, or meta-synthesis of multiple studies
2a or 2b	Best study design for domain
3a or 3b	Fair study design for domain
4a or 4b	Weak study design for domain
5a or 5b	General review, expert opinion, case report, consensus report, or guideline
5	Local Consensus

†a = good quality study; b = lesser quality study

Table of Language and Definitions for Recommendation Strength (see note above)

Language for Strength	Definition									
It is strongly recommended that When the dimensions for judging the strength of the evidence are applied,										
It is strongly recommended that not	there is high support that benefits clearly outweigh risks and burdens.									
	ative recommendatio	ons)								
It is recommended that	ons	ns for judging the strength of the evidence are applied,								
It is recommended that not	osely balanced with risks an	d bı	urdens.							
There is insufficient evidence and a lack of consensus to make a recommendation										
Given the dimensions below and that more answers to the left of the scales indicate support for a stronger recommendation, the										
recommendation statement above reflects	the strength of the r	eco	ommendation as judg	ged l	by the development group.					
(Note that for negative recommendations, the left/right logic may be reversed for one or more dimensions.)										
Rationale for judgment and selection of each dimension:										
1. Grade of the Body of Evidence			_ High		Moderate	L	Low			
Rationale: Studies not consistent, moderate level of evidence for each recommendation										
2. Safety/Harm (Side Effects and Risks)			🛾 Minimal		Moderate		Serious			
Rationale: Studies demonstrate positive outcomes (increased intake) without negative side effects; small number of cases with side effect										
of increased crying/negative behaviors (Williams 2010a [1b], Kerwin 1999 [1b])										
3. Health benefit to patient			Significant	\square	🛾 Moderate		Minimal			
Rationale: Studies demonstrate increased oral intake; (Snider 2011 [1b], Williams 2010a [1b], Kerwin 1999 [1b]) some cases patients able										
to wean off gastrostomy tube feeds(Byars 2003 [3a], Sharp 2012 [4a]), long term outcomes not always known										
4. Burden on patient to adhere to recommendation			Low		Unable to determine		High			
Rationale: Due to the nature of feedin	g therapy, carryover	r of	the family is implied	; sor	me studies reported some le	evel	of caregiver			
education/training, but caregiver burden of care was not assessed; some recommendations apply more to clinicians versus										
patient/family for implementation. Inability to draw conclusions based on evidence.										
5. Cost-effectiveness to healthcare system			Cost-effective	\square	Inconclusive		Not cost-effective			
Rationale: Studies did not directly address cost-effectiveness or potential cost benefit to weaning from a G-Tube.										
6. Directness of the evidence for this target			Directly relates		Some concern of		Indirectly relates			
population					directness					
Rationale: Majority of studies address the target population (children with feeding difficulties), with the exception of the exposure studies										
which addressed typical children										
7. Impact on morbidity/mortality or q	uality of life	Ľ	High	\square	🛾 Medium	Ľ	Low			
Rationale: Interventions have potential to improve quality of life (increasing oral feeding, decreasing dependency on tube feedings)										

Copies of this Best Evidence Statement (BESt) and related tools (if applicable, e.g., screening tools, algorithms, etc.) are available online and may be distributed by any organization for the global purpose of improving child health outcomes. Website address: <u>http://www.cincinnatichildrens.org/service/j/anderson-center/evidence-based-care/bests/</u> Examples of approved uses of the BESt include the following:

- Copies may be provided to anyone involved in the organization's process for developing and implementing evidence based care;
- Hyperlinks to the CCHMC website may be placed on the organization's website;
- The BESt may be adopted or adapted for use within the organization, provided that CCHMC receives appropriate attribution on all written or electronic documents; and
- Copies may be provided to patients and the clinicians who manage their care.

Notification of CCHMC at <u>EBDMinfo@cchmc.org</u> for any BESt adopted, adapted, implemented, or hyperlinked by the organization is appreciated.

Please cite as: Koziel, M., Cincinnati Children's Hospital Medical Center: Best Evidence Statement Behavioral and Oral Motor Interventions for Feeding Problems in Children, http://www.cincinnatichildrens.org/svc/alpha/h/health-policy/best.htm, BESt 167, pages 1-10, 7/15/13.

This Best Evidence Statement has been reviewed against quality criteria by two independent reviewers from the CCHMC Evidence Collaboration. Conflict of interest declaration forms are filed with the CCHMC EBDM group.

Once the BESt has been in place for five years, the development team reconvenes to explore the continued validity of the guideline. This phase can be initiated at any point that evidence indicates a critical change is needed. CCHMC EBDM staff performs a quarterly search for new evidence in an horizon scanning process. If new evidence arises related to this BESt, authors are contacted to evaluate and revise, if necessary.

For more information about CCHMC Best Evidence Statements and the development process, contact the Evidence Collaboration at <u>EBDMinfo@cchmc.orq</u>.

Note

This Best Evidence Statement addresses only key points of care for the target population; it is not intended to be a comprehensive practice guideline. These recommendations result from review of literature and practices current at the time of their formulation. This Best Evidence Statement does not preclude using care modalities proven efficacious in studies published subsequent to the current revision of this document. This document is not intended to impose standards of care preventing selective variances from the recommendations to meet the specific and unique requirements of individual patients. Adherence to this Statement is voluntary. The clinician in light of the individual circumstances presented by the patient must make the ultimate judgment regarding the priority of any specific procedure.