Blenderized Tube Feedings: Hands on Learning with Registered Dietitians and Patients

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Disclosures

I created Blenderized Tube Feeding recipes that my institution has licensed to Nestlé Health Science. Under my institution’s policy, I will be entitled to a share of any royalties earned. To date, I have not received anything of value as a result of the licensing agreement.
How do I determine if my patient is an appropriate candidate for blenderized tube feeds?
**Should we try blenderized tube feedings?**

| Child's age? | >9 -12 months old as supplemental source of nutrition or >12 months as a sole source of nutrition |
| Medical & nutrition status? | Medically stable with appropriate weight gain & Not immunocompromised OR undergoing immunosuppressive therapy |
| Tube placement? | Tube is a G tube & G tube site is well-healed & First G tube change has been completed |
| Tube size? | Tube is at least 14 French |
| Feeding type & schedule? | Tolerates bolus feeds |
| Multiple food allergies? | Child can meet nutrition needs with current variety of safe foods |
| Adequate resources? | Registered dietician is available for oversight, including recipe development and patient monitoring & Family has adequate financial and material resources (e.g. high quality blender, kitchen space for safe, clean preparation and storage) & Family displays: ability, time, motivation, interest, and understanding of commitment required |

**Red flags:** blenderized tube feedings may not be recommended or may be difficult.

| <9 months old (corrected for prematurity) |
| Medically unstable OR immunocompromised OR lacks adequate weight gain on current regimen OR numerous dietary restrictions (i.e. renal, keto, metabolic) |
| NG, NJ, or J tube |
| Tube size is <14 French |
| Continuous feeds with the inability to tolerate bolus feeds |
| Few safe foods identified |
| Unwilling to work with RD OR poor compliance in past OR communication problems OR breaks commitments OR lacks stable housing OR other responsibilities competing for time/resources |

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Possible options:

- Wait until 9 months: variety of complementary foods.
- With close monitoring, slow transition could be possible when poor weight gain is without other red flags. Medical instability, immune compromise and numerous dietary restrictions are reasons to possibly avoid blended tube feedings.
- Needs further discussion with your medical team to review alternate options.
- Discuss with GI or surgery possibility of upsizing G tube.
- Consider a slow transition to a bolus feeding schedule if home blend is desired OR allowed commercial products that are permitted to be administered via a pump.
- If a variety of safe foods is not enough to meet nutritional needs, consider using a hypoallergenic formula along with safe foods.
- For a parent who expresses strong desire in spite of current conditions or past history, consider developing an action plan of steps that must be achieved before starting blended tube feedings.

References:

Effective 11/18

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Where can I find reliable, nutritionally complete recipes created by a dietitian?

http://www.compleat.com
A tool created out of need that led to the design of the first web-based solution for development of BTF recipes

The Blenderized Diet Exchange Spreadsheet
User Feedback Testing: Dietitians and Patient Families

- **50 CHOP Registered Dietitians** were sent a survey to assess their feedback and provide input on features.

- We interviewed **8 patient families** including a mix of those on BTFs and those who have no experience. All respondents were at the very least introduced to the concept.

1. Calculation of Total Volume
2. Recipe Builder
3. Recipe Share with RD
Providers need a tool to reduce manual calculations and maximize their efficiency managing these complex patients. The BTF Recipe Builder will alleviate these work flows while providing a safe platform to educate and monitor patient families.

Patient’s families are looking for a tool to relieve stress associated with their child’s condition and increase flexibility with preparation and planning required for feeding.

Ultimately, parents want to feel like they are providing for their child.
Collaboration with Nestlé Health Science

Improve accessibility to both HCPs and patient families.

Safe and nutritionally complete BTF recipes that eliminate the guesswork and can be used in a variety of ways in diverse patient populations.
How does the Recipe Builder work?

1. Profile

2. Build

3. Save
What are the eight food categories in the Recipe Builder?
Features of the Recipe Builder

- Ability to save recipes and meal plan for up to seven days.
- Customize to each patient's unique needs: calories, volume limitations, and allergies.
- Calculates total volume of each recipe.
- Generates shopping list.
- Enables nutritionally complete recipes to be created from scratch.
- Generate PDFs of utilized recipes to share with your healthcare team.
- Hundreds of ingredient combinations.
How does the recipe builder work?

The Blenderized Diet Recipe Calculator was created by Robin Cook, MS, RD, CSP, LDN, pediatric surgery/trauma dietitian and is reproduced with permission under a license from Children’s Hospital of Philadelphia. The Blenderized Tube Feeding (BTF) Recipe Builder is powered by the Blenderized Diet Recipe Calculator. The BTF Recipe Builder uses foods to create nutritionally complete home blenderized tube feeding formulas that are based on each patient’s specific needs and preferences. Hosted on an easy-to-use website, developed in collaboration with Nestlé Health Science, the BTF Recipe Builder allows healthcare professionals, patients, and caregivers easy access to this new tool. The BTF Recipe Builder is intended to be used under the medical supervision of a healthcare provider. No endorsement by Children’s Hospital of Philadelphia or by Robin Cook, MS, RD, CSP, LDN of any Nestlé Health Science brand or product is implied or intended.

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What equipment is needed?

- Minimum of 14Fr GT
- Bolus Extension Sets
- High Quality Blender
- 60mL Catheter Tip Syringes
- Nonporous Containers
Which recipe do you prescribe?

- Remember to check for food allergies. Allergen friendly versions include:
  - Milk free
  - Egg free
  - Soy free
  - Peanut/tree nut free
  - Vegetarian
- Calorie needs are generally 10-20% higher with blenderized tube feeds than with commercially available formula.
- Take time to become familiar with the content. You will need to walk the caregivers and/or patients through use of the website.
How do you introduce a blenderized diet?

- There is no right or wrong answer but should be based on clinical judgement and your knowledge of the patient.
- Some options include:
  - Split one recipe over 2 days and replace bolus feeds with BTF while continuing overnight feeds. Give for 1-2 weeks prior to transition to 100% of BTF recipe in 24hrs.
  - Give 25% of the recipe X 4 days then 50% X 2 days then 100% at day 7 and beyond.
  - Introduce one ingredient at a time with one new ingredient every 3 days.
  - Just go for it!
Volume Goals:

- The same bolus volume the patient is currently receiving/tolerating
- 15-20mL/kg/bolus
- Increase volume as tolerated. Most kids will tolerate a higher volume of BTF than commercial formula with many receiving 100% of the recipe in 4-6 feeds/day.

- Bring to room temperature prior to delivery.
- Using a 60mL syringe, push your prescribed bolus over a period of 15-45 minutes.
- Can be out of the refrigerator for a maximum of 2 hours.

Let’s talk about delivery.
Let’s talk about proper storage.

- Follow basic food safety guidelines.
- If made fresh, refrigerate and use within 4 days.
- If made fresh and not going to be used within 4 days, store in nonporous containers and immediately place in freezer.
- Do not keep out of the refrigerator for more than 2 hours.
- Batch cooking is acceptable and may be easier for the family.
How can caregivers save money?

- Buy food in bulk.
- Use frozen, canned, or jarred vegetables.
- Use refillable pouches for storage and easy travel.
How can caregivers save time?

Batch cooking: Make a week’s worth of feeds and freeze.

Use slow cooker to cook meats, grains, and legumes.

Get creative with freezing: Use muffin tins, ice cube trays, and freezer bags.
More Tips & Tricks

Use coffee grinder to crush vitamins or grind seeds and nuts.

Keep skin on fruits for added fiber.

Whole foods blend easier when warm.

For added nutrients, use water from cooked vegetables to thin blends (if needed).
Trouble Shooting

- What’s the back-up plan?

- What if the caregivers prefer to give as meals rather than make one large batch?

- How do you work with caregivers when they have already started to make a blend that is not nutritionally appropriate?
Conclusions

- Blenderized diets are a well-tolerated, safe, and a relatively low-cost intervention to improve health outcomes in the pediatric population with potential for significant reduction in healthcare cost.

- Blenderized diets can be used in numerous populations including those with difficulty tolerating conventional formulas, those with a variety of medical conditions, and those with major food allergies.

- Equip yourselves as clinical dietitians to manage patients receiving blenderized tube feeds – the trend continues to grow.

- Reliable, nutritionally complete recipes created by a dietitian for children ages 1-13 years can be found at: www.compleat.com