PRACTICAL TUBE FEEDING MANAGEMENT

FOR THE ALS PATIENT

MAY 2023

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Disclosures

Speaker's Bureau

- Nestlé Health Science

General Consulting

- Abbott Nutrition
- Functional Formularies
- Kate Farms
- U-Deliver Medical

Objectives

Identify options and innovations
in enteral formula.

Describe the considerations for use
of whole food formulas in the home setting.

Gain knowledge related to
the methods of administration for enteral feeds.

Describe aspects of enteral nutrition tolerance
and strategies for complication management.


“Get GOOD at things
that other people are AFRAID of”

Enteral Formula Categories

Blenderized
B4149

Commercially prepared
Caloric density 1.25 – 1.3 calories/mL
Organic and plant based options available

Standard
B4150 & B4152

Intact protein, semi-synthetic, with and without fiber
Caloric density — 1.0, 1.2, 1.5, 2.0 calories/mL
Organic and plant based options available

Hydrolyzed
B4153

Semi-elemental or elemental
Caloric density — 1.0, 1.2, 1.5 calories/mL
Organic/plant based options available

Disease Specific
B4154

Diabetic, renal, pulmonary
1.0, 1.5, 2.0 calories/mL
Organic/plant based options available

		Food-based formulas		Plant-based; no food ingredients	
B4149	Blenderized whole food or whole food ingredients	✓	Plant based; meat-based options; fruit and vegetable ingredients; organic & non-organic options		
B4150	Intact nutrients "standard formula" Adult	N/A	N/A	✓	intact pea protein; organic & non-organic options
B4153	Hydrolyzed/peptide Adult	✓	Hydrolyzed pea protein and whole food ingredients; organic & non-organic options	✓	Hydrolyzed pea protein; organic
B4154	Disease specific/diabetic	✓	Soy protein and pureed fruit and vegetable; non-organic	✓	Intact pea protein; organic

2500 Calorie Regimen

Formula comparison

10 cartons/day
300 cartons/month
12.5 cases/month

6.7 cartons/day.
200 cartons/month
8.3 cases/month

5 cartons/day
150 cartons/month
6.25 cases/month

Blenderized Tube Feeding (BTF)

Why Consider BTF

Improved tolerance

- Decrease reflux/retching/vomiting
- Decrease diarrhea/constipation
- Avoiding food allergies

Patient preference

Diversify gut microbiota

Psychosocial & quality of life

Bennett, K., Hjelmgren, B. and Piazza, J. (2020), Blenderized Tube Feeding: Health Outcomes and Review of Homemade and Commercially Prepared Products. Nutrition in Clinical Practice, 35: 417-431.

Hurt R.T., Varayil J.E., Epp L.M., Pattinson A.K., Lammert L.M., Lintz J.E., Mundi M.S. Blenderized tube feeding use in adult home enteral nutrition patients: A cross-sectional study. *Nutr. Clin. Pract.* 2015;30:824–829

Lessons learned

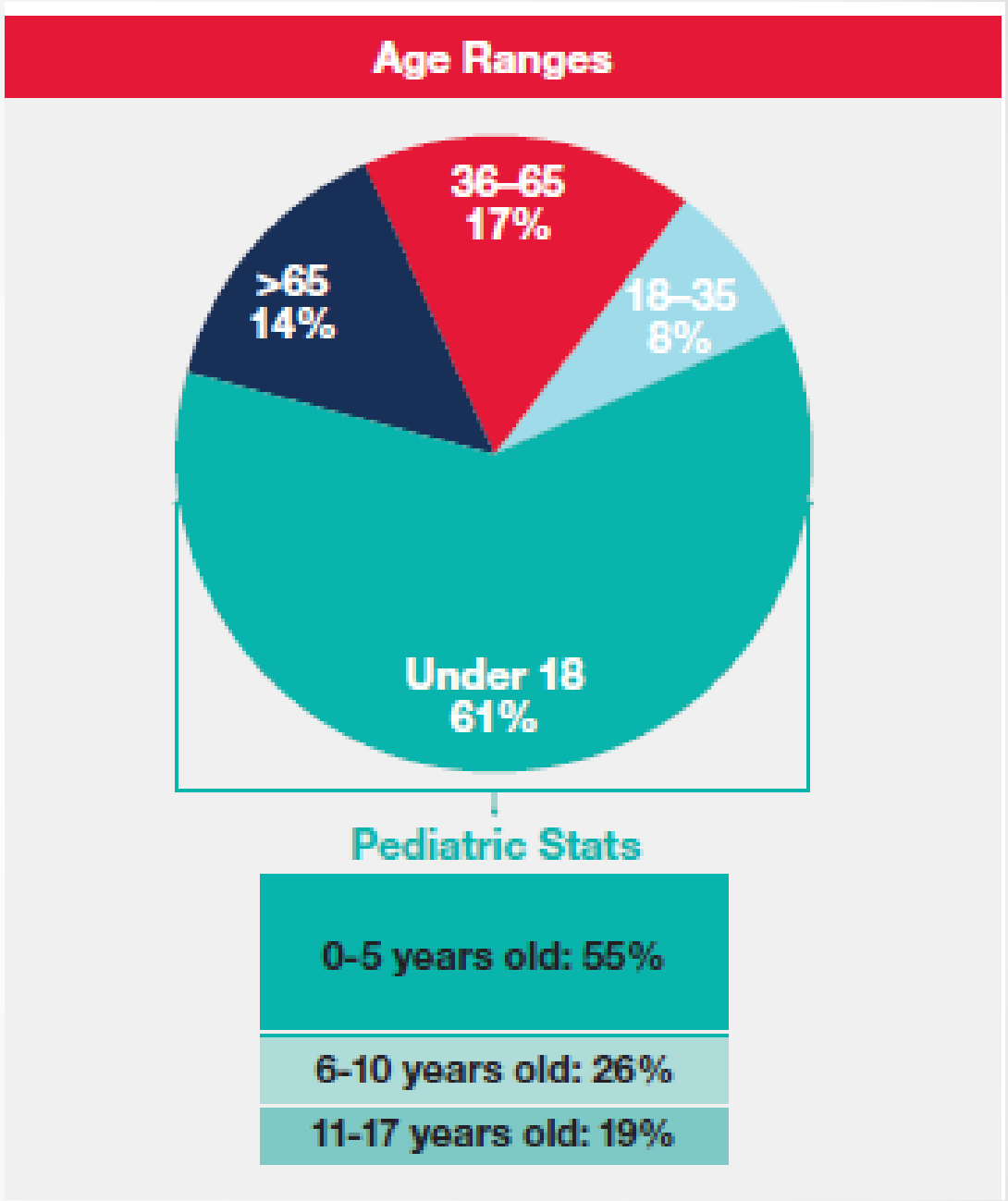
from patients in the HEN setting

Reported % of Intake	Pediatric	Adult
<25%	6%	13%
25-50%	11%	18%
>50%	83%	69%
% total daily intake	71%	56%

Epp, L., Lammert, L., Vallumsetla, N., Hurt, R.T. and Mundi, M.S. (2017), Use of Blenderized Tube Feeding in Adult and Pediatric Home Enteral Nutrition Patients. Nutrition in Clinical Practice, 32: 201-205.

Lessons learned

from prescribed use of whole food formulas at home



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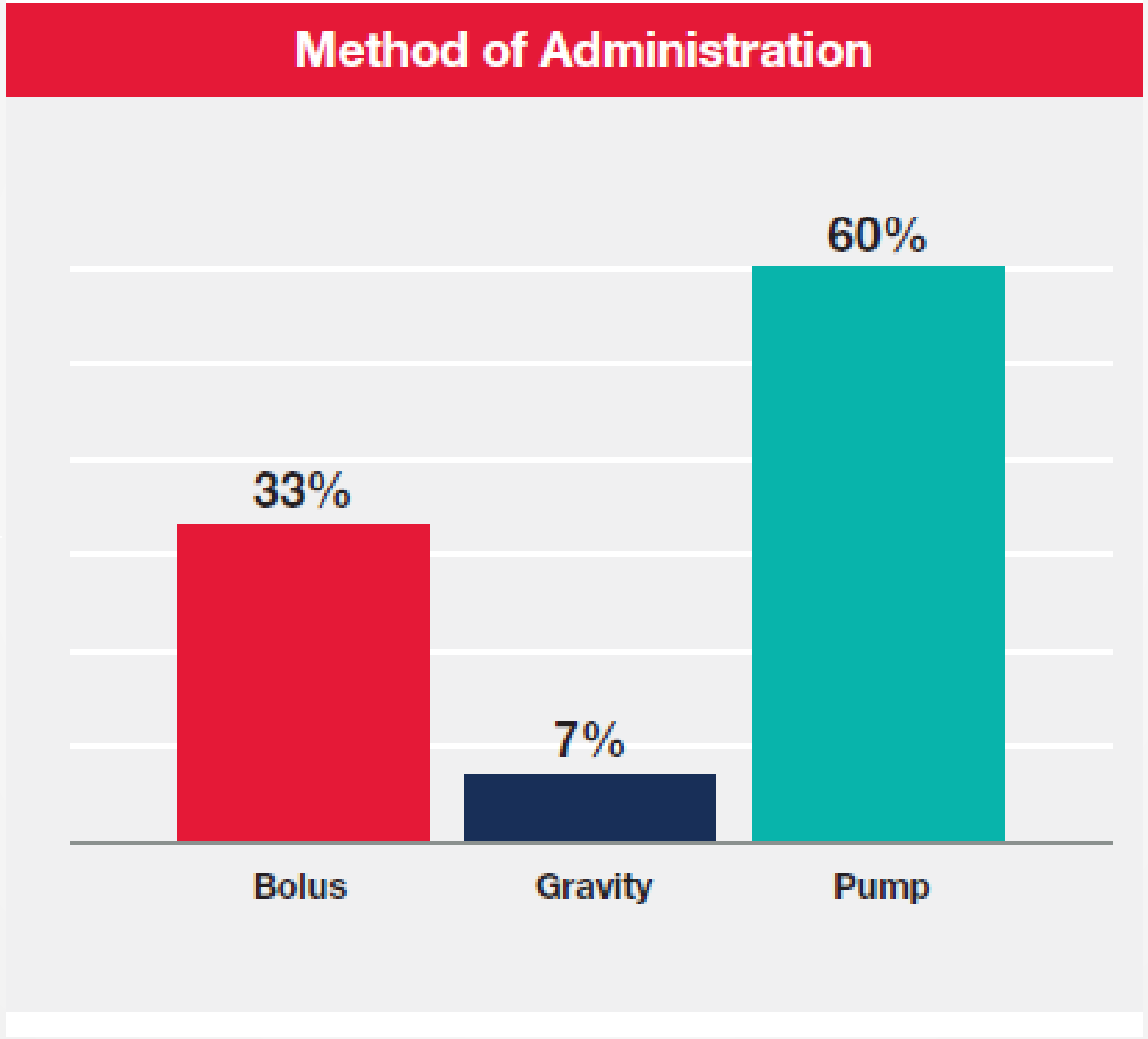

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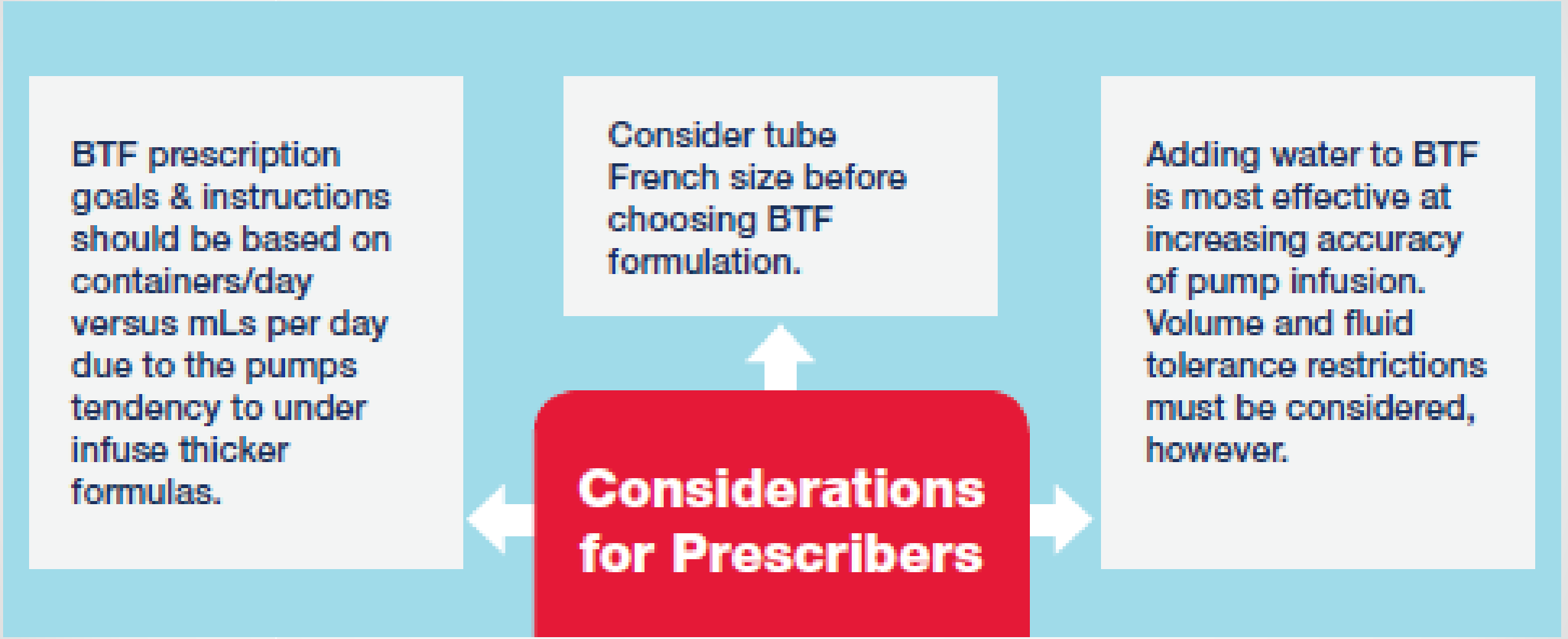
Practical recommendations
for whole food formula use at home



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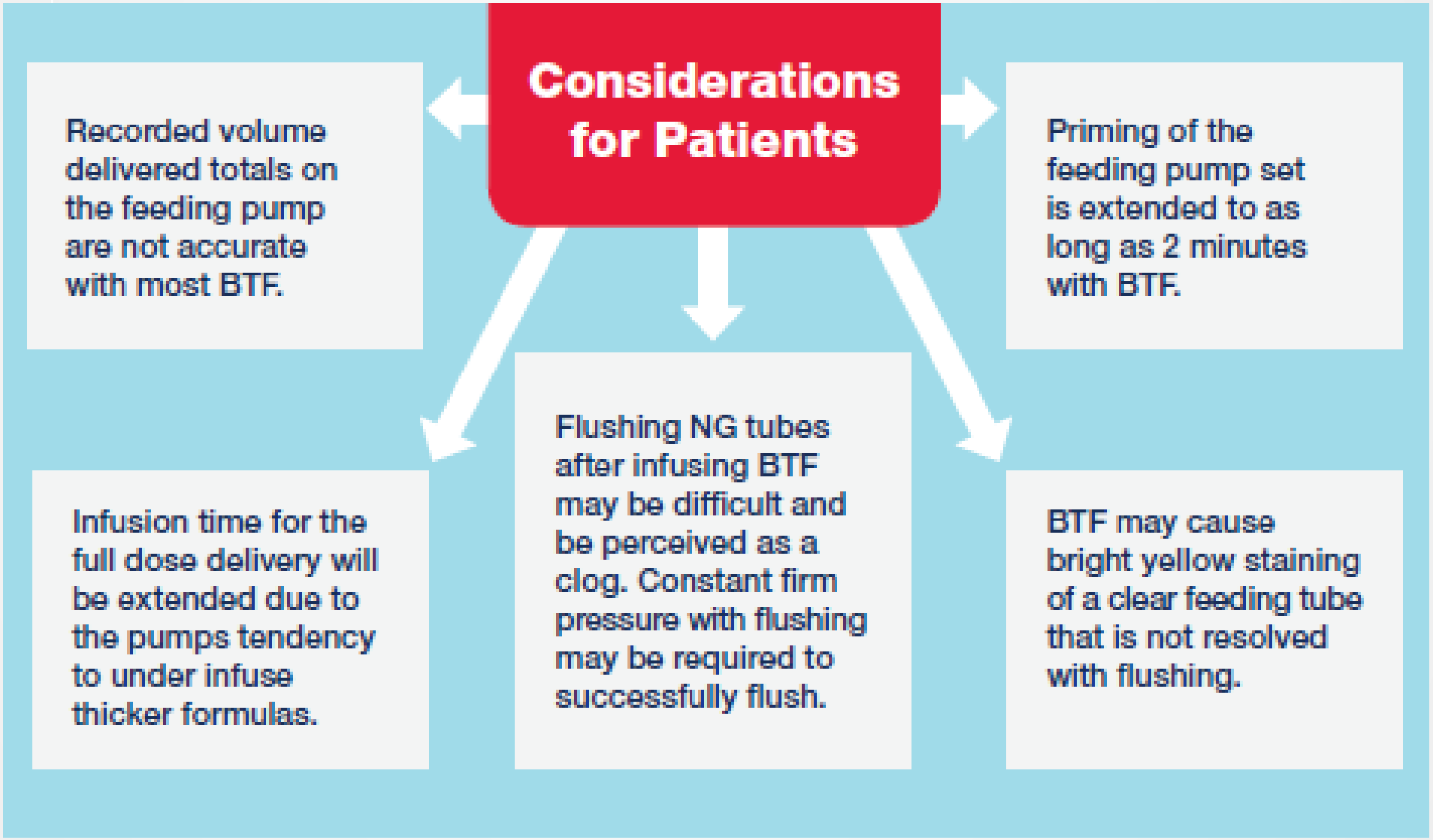

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Blenderized Tube Feeding
considerations

Enteral Access

- French Size
- Gastric
- Mature Stoma

Supplies

- Commercial Grade Blender
- Food Prep & Storage Tools
- Recipes

Administration Method

- Bolus/Syringe O Ring
- Gravity Bag Large Bore
- Bolee® Bag Small & Large Cap Link

Clinical Support

- Monitoring & Evaluation
- Nutrition Professional Involvement
- Complication Management Expertise

Epp L. Blenderized feeding options - the sky's the limit. Pract Gastroenterol. 2018;(June)

Options available
for use of whole food formulas at home

	Type of Nutrition	Pros	Cons
Option 1	100% Commercial Tube Feeding (TF)	Easy, nutritionally complete, ready to feed. Easy to travel with and allows for non-refrigerated storage of unopened cans. Typically supplied by a home tube feeding provider; insurance coverage may be available.	Will not be using whole food from home or from a commercially prepared product. Body has to adjust to a diet different from table food. If not covered by insurance, commercial TF can be expensive.
Option 2	Commercial TF + Commercial Blenderized Tube Feeding (BTF)	Combines ease of a ready-to-feed formula with ready-to-feed blenderized whole food formula. Easy to travel with and allows for non-refrigerated storage of unopened containers.	Commercial BTF may not be covered by insurance or available from your home tube feeding provider, which could increase out-of-pocket expenses. If not covered by insurance, commercial TF can be expensive.
Option 3	Commercial BTF + Homemade BTF	Combines ease of a ready-to-feed blenderized whole food formula with homemade BTF to save time and energy. Provides flexibility on how much and how often homemade BTF needs to be prepared and provided.	Commercial BTF may not be covered by insurance or available from your home tube feeding provider, which could increase out-of-pocket expenses. Homemade BTF requires more time and energy for preparation and also requires careful nutrition calculations and food safety considerations. Homemade BTF is not reimbursed or covered by insurance. It may not be appropriate for pump infusion and limited to bolus or gravity feeding methods.
Option 4	100% Homemade BTF	Uses whole food that the patient likes and may typically eat (although he or she isn't tasting, the smell may improve desire to "eat") and allows him or her to participate in the act of preparing meals. The patient may "eat" what the rest of the family is eating, allowing him or her to feel more included in family meal times.	There is no reimbursement or coverage of home BTF by insurance. Food preparation and storage may be time consuming, and requires careful nutrition calculations and food safety considerations. May not be appropriate for pump infusion and limited to bolus or gravity feeding methods.

Use of whole food through a feeding tube is **not an "all or nothing" proposition**

Ireton-Jones, C, Martin, K, Emch, V, Reddick, C, Epp, L, Carr, V. *Dietitians Offer Sample Recipes and Helpful Hints for Blenderized Tube Feeding.* The Oley Foundation *LifelineLetter.* September/October 2017. https://cdn.ymaws.com/oley.org/resource/resmgr/2017_solll_images/2017_solll.pdf. Accessed 3/19/2023

John’s story

BEFORE INTERVENTION

- Malnourished
- Not gaining weight
- Needed extra non protein calories
- **Wanted to blend his own formula and use it as a supplement to his 2.0 kcal/mL formula**

John’s story

AFTER INTERVENTION

- Gained weight
- Took an active and interested role in his home tube feeding journey
- Tapped into his creativity in the kitchen
- Cooked and blended in large batches
- 10 cubes a day!

Weight Gain Journey											
Date (2015)	4/5	4/14	4/23	5/2	5/6	5/17	5/29	6/6	6/17	6/30	7/9
Weight (lbs)	135.0	139.4	142.4	144.2	147.0	148.6	153.0	153.4	160.3	161.7	163.4
BMI	18.3	18.9	19.3	19.6	20.0	20.2	20.8	20.8	21.8	22.0	22.2

18.9 BMI 139.4 lbs 4.14.15

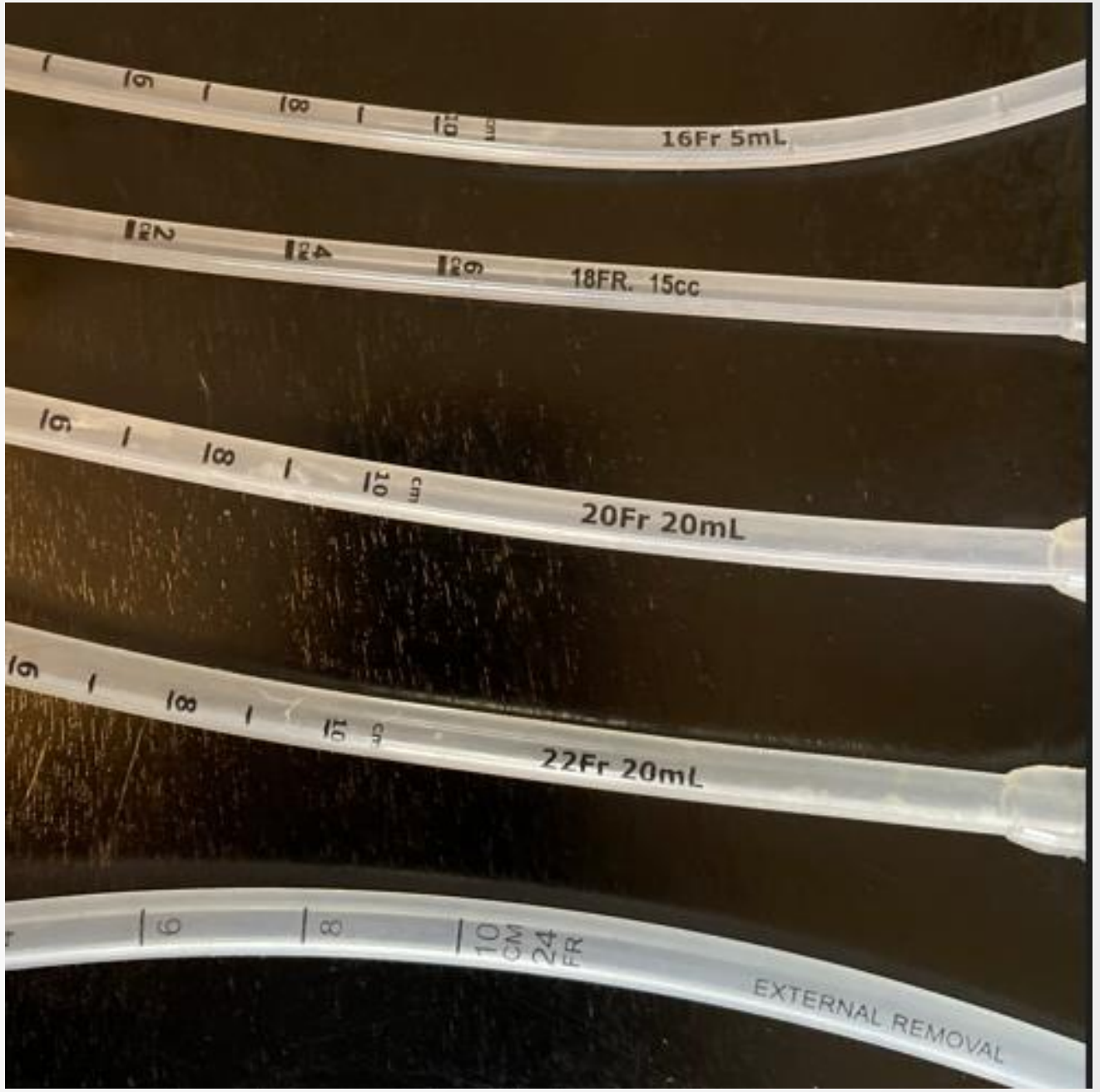
20.2 BMI 148.6 lbs 5.17.15

22.2 BMI 163.4 lbs 7.9.15

Enteral Administration Methods and Options

Standard Gastric tube

French size comparison

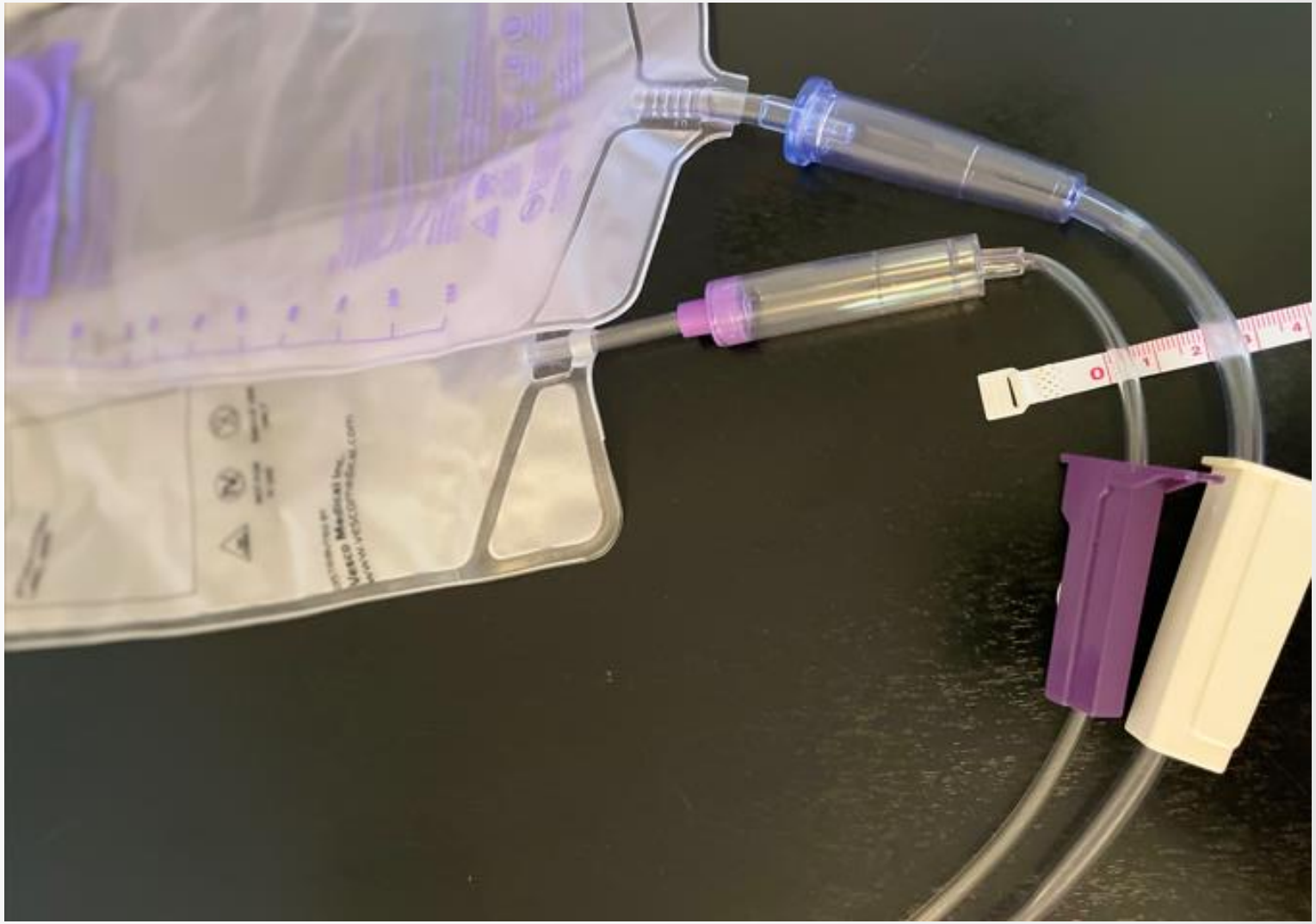


Options available
for syringe feeding

O-ring vs standard
stopper-style syringe

Options available
for gravity feeding

Small vs large bore gravity bag



Homecare Friendly Alternatives

to syringe and gravity feeding

Bolink® D cap

- Indicated for gastric feeding
- Administered as a bolus
- Available via DME/Home infusion and online retail
- B4036 or S9341 – Enteral feeding kit gravity
- Portable
- Reusable
- ENFit connection

Image Source: https://www.youtube.com/@cynthiareddicktalkstubefeeding/videos

Homecare Friendly Alternatives

to syringe and gravity feeding

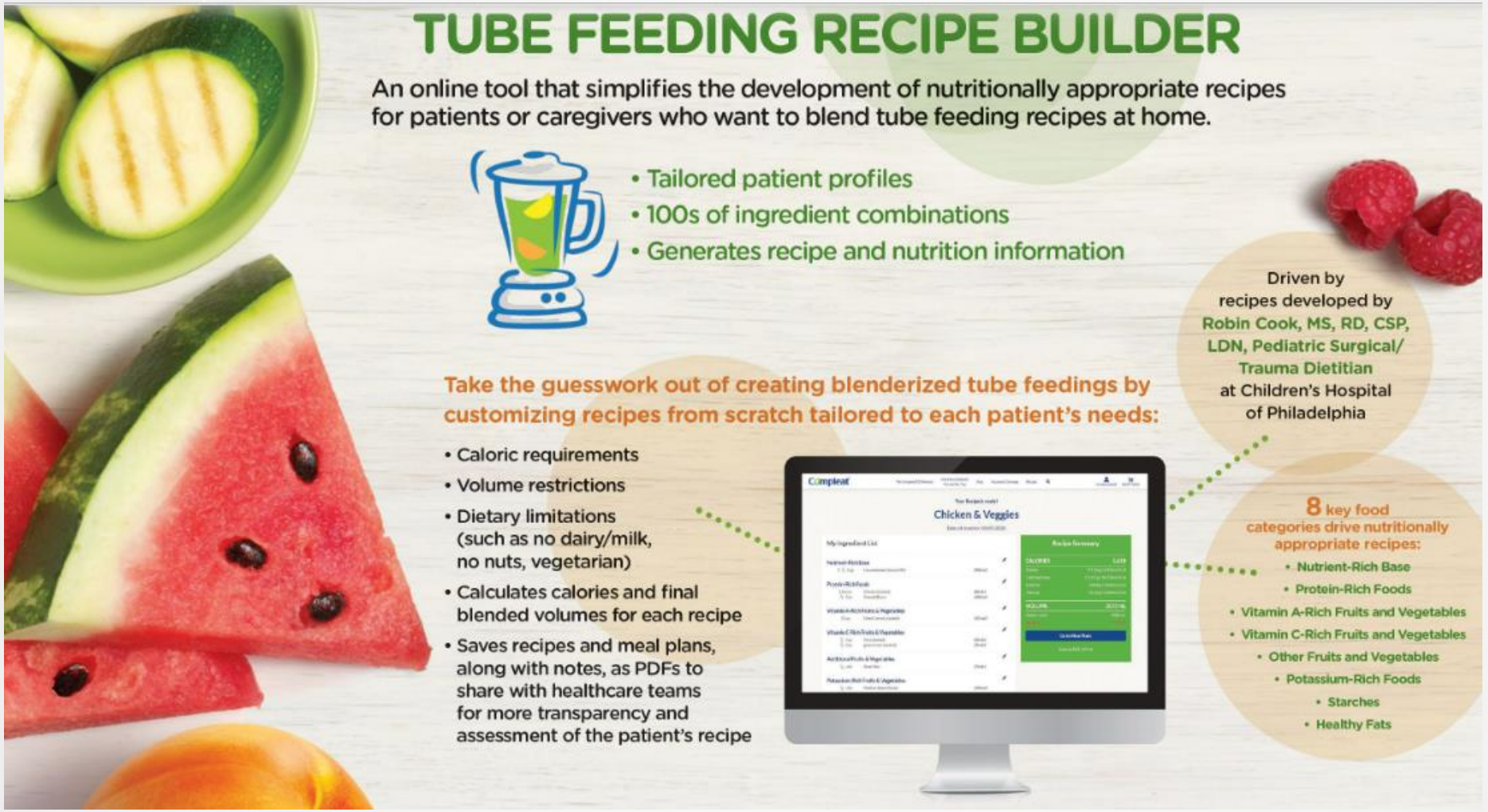
Bolee® Bag + Bolink® large cap

Bolink® small cap

- Indicated for gastric feeding
- Administered as a bolus
- Available via DME/Home infusion and online retail
- B4036 or S9341 – Enteral feeding kit gravity
- Portable
- Reusable
- ENFit connection

Image Source: U Deliver Medical. https://www.udelivermedical.com/

BTF Recipe Builder



NestleMedicalHub.com/recipe-builder
https://www.nestlemedicalhub.com/webinars/the-recipe-builder-take-the-guesswork-out-of-creating-blenderized-tube-feedings

Enteral Nutrition Monitoring
and complication management

1. **Digestive**
2. Tube Related

Bischoff SC, Austin P, Boeykens K, et al. ESPEN guideline on home enteral nutrition. *Clin Nutr*. 2020;39(1):5-22.

Gastrointestinal Tolerance

Considerations

Abdominal distention, nausea, vomiting, diarrhea

Nutrition status

Feeding rate and method

Caloric concentration

Volume of feeds

GI tract function change

Gastroenteritis

Constipation

Fluid intake

Fiber content

Activity level

Pain medication

Enteral Nutrition Monitoring

and complication management

1. Digestive
2. **Tube Related**

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Tube Related Tolerance

- Leakage
- Obstruction
- Displacement
- Stoma complications

Leaky Tube

PREVENTION

- Proper placement of internal and external bolster
- Proper sizing of low profile device
- Adequate inflation of internal balloon

INTERVENTION

› Protect skin with barrier cream

› Adjust bolster and balloon fill volume

Clogged Tube

PREVENTION

- Flush tube before and after feeding and before restarting feeds after a break (30 ml)
- Administer medications one at a time
- Flush small bore tubes more frequently during waking hours (q 3 hours)
- For home blended tube feeding (BTF) users, blend food with high quality blender and adequate blending time

INTERVENTION

› Manual massage of tube

› Push, pull technique with 60 ml syringe

› Use 6 ml medication syringe in ancillary port

Bankhead, R., Boullata, J., et al. A.S.P.E.N. Enteral Nutrition Practice Recommendations. JPEN J Parenter Enteral Nutr 2009, 33: 122-167.

Stoma Complications

identify and intervene promptly

Hypergranulation

Secure tube

Adjust bolster for proper fit

Ensure proper sizing of low profile device/button

Hydrocortisone cream BID x 2 weeks and reassess

Silver nitrate in severe/resistant cases

Yeast Infection

Resolve leaking and keep site dry

Protect skin from moisture with barrier cream

Topical antifungal BID x 2 weeks and reassess

Treat erythema with hydrocortisone cream BID until resolved

Bacterial Infection

Topical antibiotic for minor infection

System antibiotic for severe infection

Practical Tube Feeding Management for the ALS Patient

Conclusion

Clinician knowledge of enteral formula innovations
is imperative.

Use of whole food formulas
is not an all or nothing proposition.

Customizing the method of administration
the methods of administration for enteral feeds.

HEN monitoring and troubleshooting
should include formula, method of administration and access device tolerance.

References

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