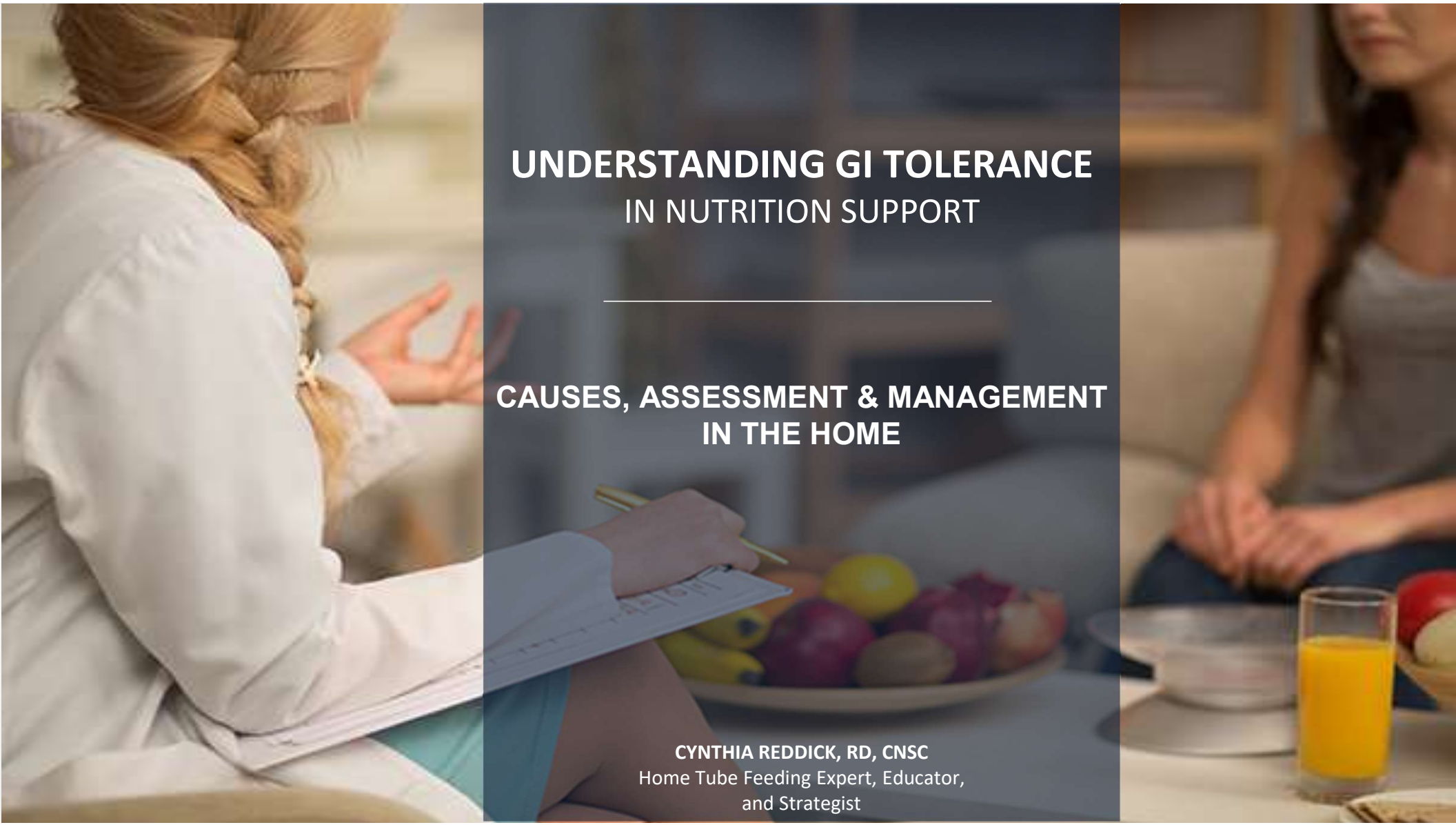


UNDERSTANDING GI TOLERANCE
IN NUTRITION SUPPORT

CAUSES, ASSESSMENT & MANAGEMENT IN THE HOME

CYNTHIA REDDICK, RD, CNSC
Home Tube Feeding Expert, Educator,
and Strategist

Disclosures

General consulting

Kate Farms, Avanos Medical, Abbott Nutrition, danumed, Rockfield Medical

Speaker's bureau

Nestle Health Science, Nutricia North America, Cardinal Health

Board of Directors

GEDSA (Global Engineered Device Supplier Association)

Objectives

1. **Identify the differences in symptom management of patients** in the hospital and those that are at home.

2. **Review case studies highlighting different strategies to combat GI symptoms** in the home tube-fed patient.

3. **Highlight red flags for home tube-fed patients** with GI symptoms.

Home Enteral Nutrition (HEN) Monitoring

Enteral Nutrition Monitoring

and Complication Management

1. **Digestive**
2. Tube-related

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

Gastrointestinal Tolerance

Constipation

- Normal bowel function is **subjective**
- Define **'regular'** bowel movements
- 3/day - 3/week = **"normal"**
- **Absence of symptoms** – bloating, gas, noises, pain
- **Quality of life suffers greatly** when gut health is compromised

Grabitske H, Slavin J. *Nutr Today*. 2008;43(5):193-198.

Formula Selection

Acute Care

- Options limited by hospital formulary
- Formula selection not influenced by insurance coverage
- Plant-based, organic, and blenderized options are less available
- Liquid/ready-to-feed formula used with infants

Homecare

- Alternative and equivalent formulas available
- Options may be limited by homecare formulary
- Insurance coverage influences formula selection
- 1.5 kcal/mL use is most common
- Plant-based, organic, and blenderized options are more readily available
- Home blenderized foods may be incorporated into the regimen
- Powdered/reconstituted formula used with infants

Enteral Formula Categories

Blenderized
B4149

Commercially prepared blenderized
Caloric density 1.2 – 1.4 calories/mL
Organic and plant-based whole food ingredient options available

Standard
B4150/B4152/B4160

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
B4161/B4153

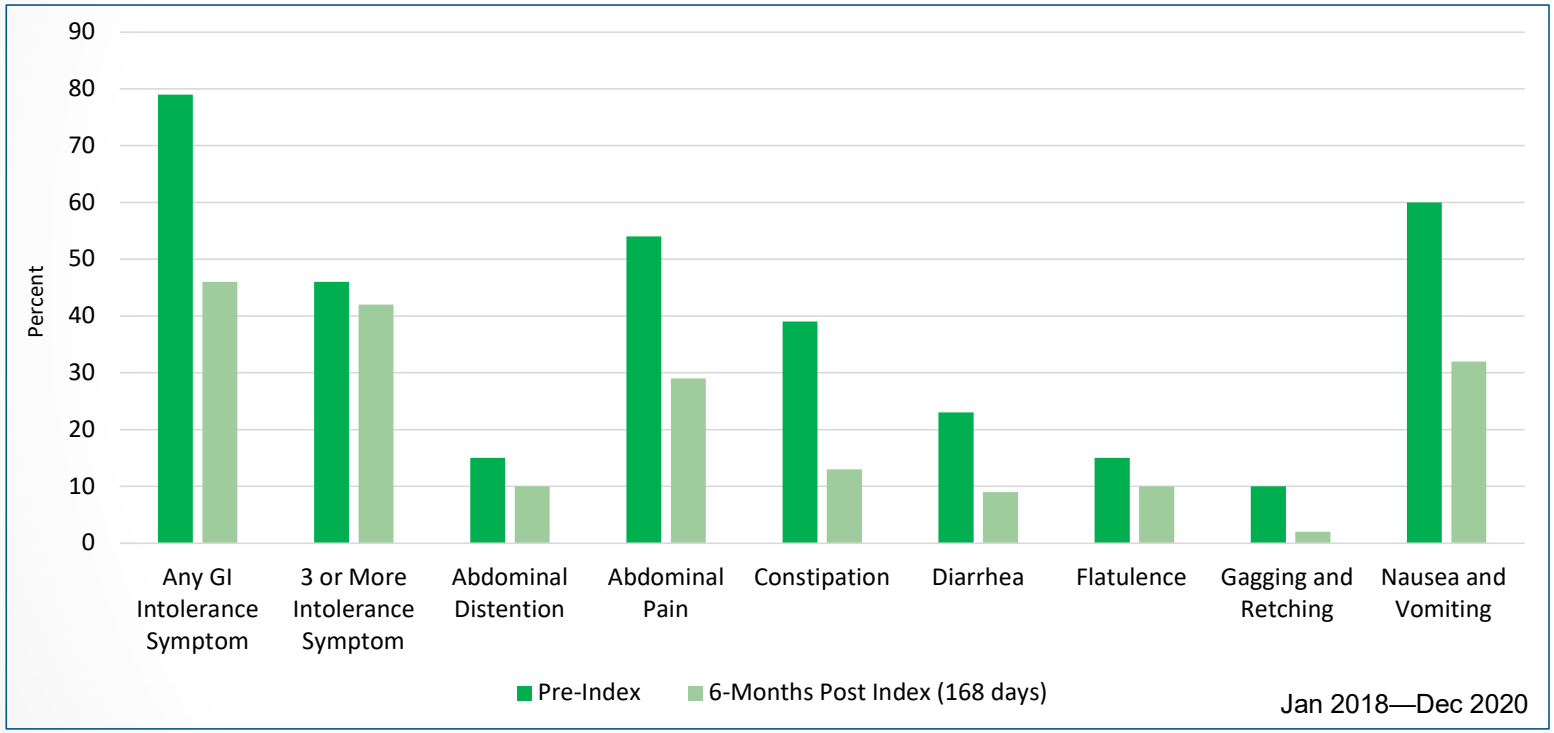
Semi-elemental/Elemental
Caloric density – 1.0, 1.2, 1.5 calories/mL
Organic, plant-based and whole food ingredient peptide options available

Disease-specific
B4154

Diabetic, renal, pulmonary
Caloric density – 1.0, 1.5, 2.0 calories/mL
Organic, plant-based and whole food ingredient options available

GI Intolerance Symptoms

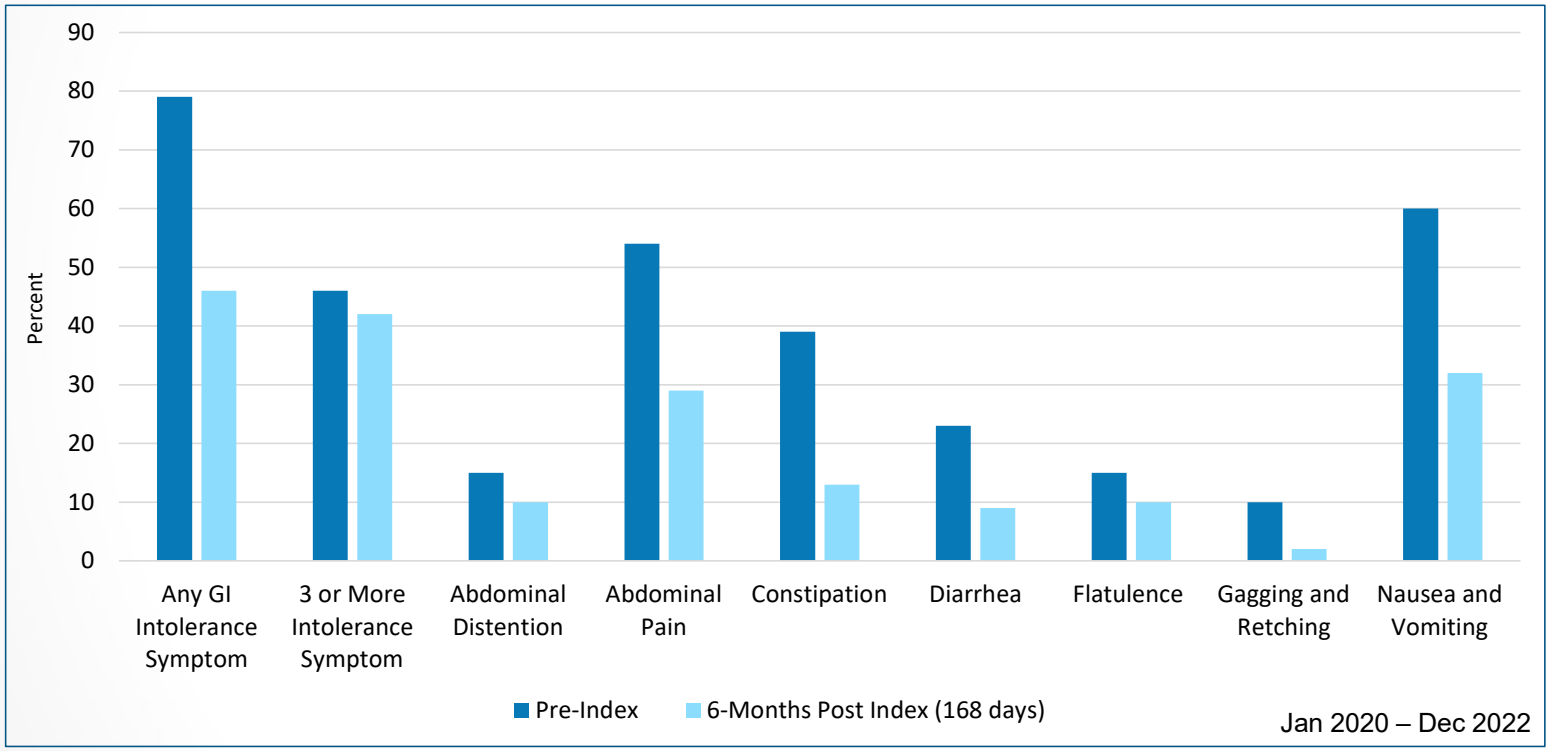
Commercial BTF in Adults



Desai A et al. Presented at 44th ESPEN CONGRESS, September 3-6, 2022, Vienna, Austria.

GI Intolerance Symptoms

Plant/Peptide Formula Use in Adults



Cekola P, et al.. *J Parenter Enteral Nutr.* 2024; 48:S114-116. Presented at 44th ESPEN CONGRESS, September 3-6, 2022, Vienna, Austria.

Enteral Nutrition Monitoring

and Complication Management

1. Digestive
2. **Tube-related**

Bischoff SC, et al. *Clin Nutr*. 2020;39(1):5-22.

Tube-Related Tolerance

- Leakage
- Obstruction
- Displacement
- Stoma complications

Leaky Tube

Image Source: Cynthia Reddick

PREVENTION

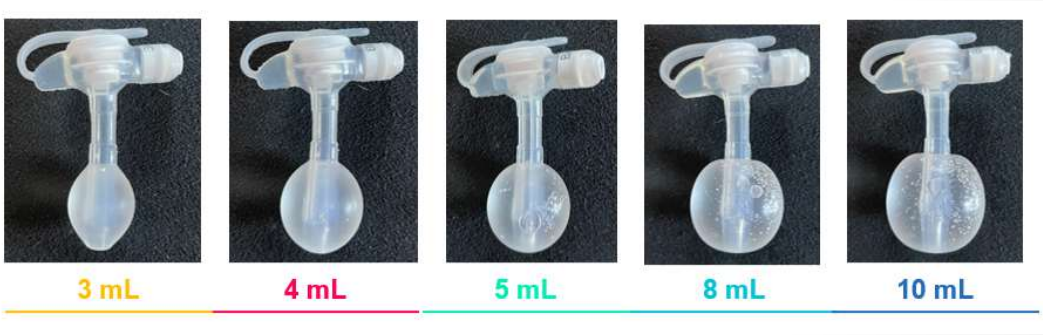
- Proper placement of internal and external bolster
- Proper sizing of low-profile device
- Adequate inflation of the internal balloon
- Avoid “power feeding”

INTERVENTION

› Protect skin with barrier cream

› Adjust bolster and balloon fill volume

› Spread out, slow, and/or decrease volumes of bolus feeding



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 blenderized 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 a 6 mL medication syringe in ancillary port

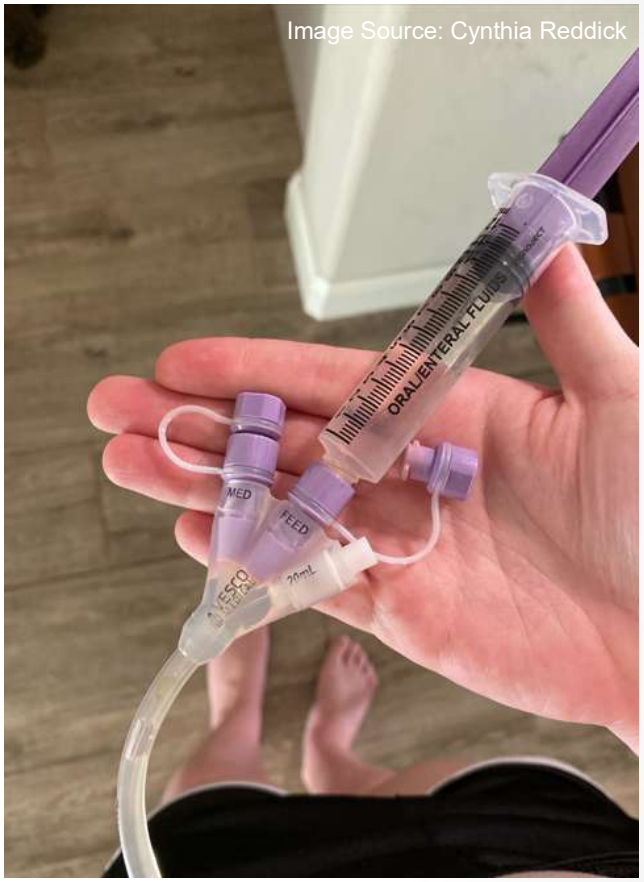


Image Source: Cynthia Reddick

Bankhead R, et al. *JPEN J Parenter Enteral Nutr.* 2009;33:122-167.

Tube Displacement

PREVENTION

- Ensure adequate balloon inflation with balloon gastrostomy tubes
- Secure dangler tubes and extension sets as necessary
- Choose the right tube for the patient's lifestyle and circumstances

INTERVENTION

› Bedside/blind replacement
› Gastroenterology/Interventional Radiology/Emergency Department replacement

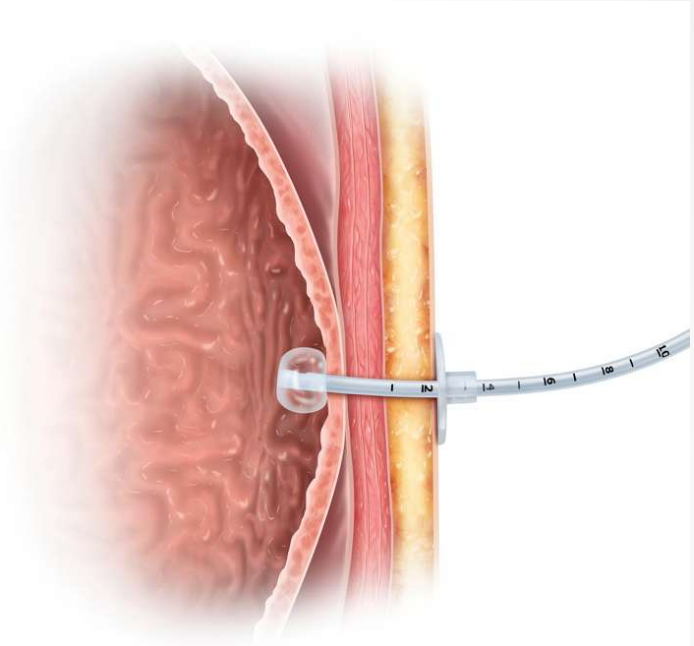


Image Source: Cook Medical

Ao P, et al. *Nutr Clin Pract*. 2015;30(3):393-397.
Maxwell CI, et al. *JPEN J Parenter Enteral Nutr*. 2011;35(5):630-635.
Showalter CD, et al. *Am J Emerg Med*. 2012;30(8):1501-1506.

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

Image Source: Cynthia Reddick

Lydia

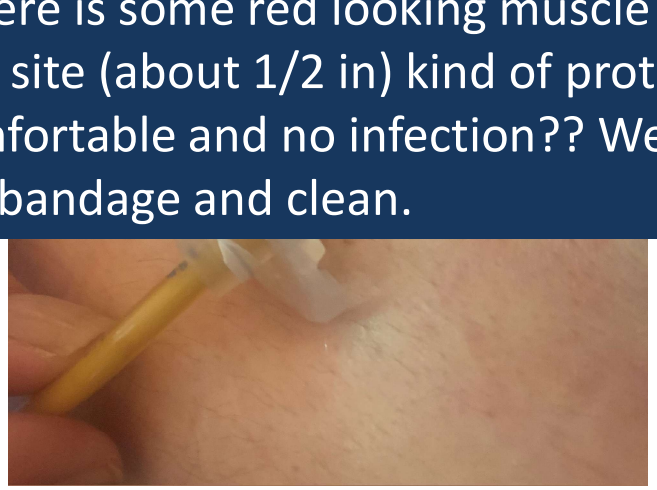
Abnormal stoma site
Discomfort
Hypergranulation

Hypergranulatio

Thank you SO much for your kind help for my husband and I .. we appreciate you more than you know. You could probably tell that we are an ordinary elderly couple in our mid 70's , married 42 years, whose lives were changed in an instant 6 months ago. We are doing our best at trying to find our way through this extremely difficult time emotionally & physically.

Recently there is some red looking muscle pushing out from stoma site (about 1/2 in) kind of protruding. It's a little uncomfortable and no infection?? We keep it covered by bandage and clean.

Baseline
Before intervention



Response to intervention
3-4 days

Response to intervention
1 week

Image Source: Cynthia Reddick

Michael

Leaky stoma site
Tube replaced with larger French size
Discomfort at stoma site
Hypergranulation
Yeast infection

Image Source: Cynthia Reddick

Image Source: Cynthia Reddick

Michael
Outcome

Image Source: Cynthia Reddick

SOLUTIONS

- Tube feeding regimen adjustment.
- Customized feeding tube to fit lifestyle
- Consistent follow up on interventions, skin and stoma health

Image Source: Cynthia Reddick

Understanding GI Tolerance in Nutrition Support

Takeaways

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

Safe, effective and patient centered care for the HEN patient
requires collaboration across the interdisciplinary team.

Early recognition of tube site issues prevents escalation
into bigger problems.

References

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

Grabitske H, Slavin J. (2008) Laxation and the like – Assessing digestive Health. Nutr Today. 43(5):193-198

Desai A et al. Health Economic Benefits of Real Food Tube Feeding Formulas Compared to Standard Tube Feeding Formulas in Post-Acute Care Adult Patients. Presented at 44th ESPEN CONGRESS, September 3-6, 2022, Vienna, Austria.

Cekola P, et al.. *J Parenter Enteral Nutr.* Healthcare Resource Utilization and Costs Associated With a Peptide-Based Enteral Formula With Fruit and Vegetable Ingredients: Retrospective Analysis of Children and Adults in Post-Acute Care 2024; 48:S114-116. Presented at 44th ESPEN CONGRESS, September 3-6, 2022, Vienna, Austria.

Bankhead R, Boullata J, Brantley S, et al. Enteral nutrition practice recommendations. *JPEN J Parenter Enteral Nutr*. 2009;33(2):122-167.

Ao, Peter, et al. "Comparison of complication rates, types, and average tube patency between jejunostomy tubes and percutaneous gastrostomy tubes in a regional home enteral nutrition support program." *Nutrition in Clinical Practice* 30.3 (2015): 393-397.

Maxwell CI, Hilden K, et al. Evaluation of gastropexy and stoma tract maturation using a novel introducer kit for percutaneous gastrostomy in a porcine model. JPEN J Parenter Enteral Nutr. 2011 Sep;35(5):630-5

Showalter CD, Kerrey B, et al. Gastrostomy tube replacement in a pediatric ED: frequency of complications and impact of confirmatory imaging. Am J Emerg Med. 2012 Oct;30(8):1501-6.

cynthia.a.reddick@gmail.com