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Notes:

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Disclosures

- Honorarium provided for this presentation
- Research grant provided by Nutricia

The opinions reflected in this presentation are those of the speaker and independent of Nutricia North America

Importance of nutrition in infancy

- The first 1000 days (conception to 2 years old) is a critical time
- Brain grows the most during this stage of life
- Vulnerable to poor nutrition
- Process of becoming malnourished often starts in utero
- Consequences of undernutrition extend across the life cycle and into future generations

Williams et al. Pediatr Clin N Am. 2017;64:755-68.

How common is pediatric malnutrition?

- Worldwide, half of childhood deaths are caused either directly or indirectly from malnutrition¹
- In the United States, up to ~10% in community² - may be more common than reported
- In 2018, study published in Journal of the AND by Carvalho-Salemi, et al.
 - 4.1% of hospitalized infants with malnutrition³
 - Similar to previous findings of 3.9%⁴
- Malnutrition in inpatient settings is currently underdiagnosed, may underestimate true prevalence³

1. Williams et al. *Pediatr Clin N Am.* 2017;64:755-68. 2. Daymont C, et al. *Acad Pediatr.* 2020;20:405-12. 3. Carvalho-Salemi, et al. *J Acad Nutr Diet.* 2018;118:40-51.e7. 4. Schwartz. *Pediatr Rev.* 2000;21:257-64; quiz 64.

What are the outcomes associated with malnutrition/FTT?

Infants with malnutrition have worse outcome during hospitalizations

- Higher rates of medical complications^{1,2}
- Worse surgical outcomes^{1,3,4}
- Higher rates of post-operative infection^{1,4}
- Poor wound healing with severe malnutrition^{5,6}
- More complex hospitalizations^{1,2}
- Increased time on mechanical ventilation¹

Financial

- Higher health care costs
 - 1.7 x longer length-of stay vs. normal weight infants³
 - increased readmissions

Family stress/financial burden

Williams et al. *Pediatr Clin N Am.* 2017;64:7-768. Corkins et al. *Nutr Clin Pract.* 2017;32(1):15-8. Guenter et al. *J Qual Patient Saf.* 2015;41(10):469-73. 1. Bechard, et al. *Crit Care Med.* 2016;44:1530-7. 2. Valla, et al. *Eur J Pediatr.* 2018;177:345-53. 3. Marino, et al. *Cardiol Young.* 2016;26:787-9. 4. Anderson, et al. *Ann Thorac Surg.* 2011;91:1460-6. 5. Mehta, et al. *Crit Care Med.* 2012;40:2204-11. 6. Becker, et al. *Nutr Clin Pract.* 2015;30:147-61

What are our nutrition interventions?

- Lack of evidence for hospitalized infants with malnutrition/FTT in the US
- Highlights from literature search:
 - **USA** report on children hospitalized with FTT - limited data on nutrition interventions¹
 - **USA** survey of nutrition practices for single ventricle CHD²
 - **USA** study of nutrition goals after neonatal CHD surgery³
 - **UK** study of consensus pathway, feeding infants with CHD⁴
 - **Global** survey of PICU enteral feeding practices⁵
 - **Brazil** study of PICU enteral feeding practices⁶

1. Larson-Nath, et al. Clin Pediatr (Phila). 2018;57:212-9. 2. Slicker J, et al. Congenit Heart Dis. 2016;11:707-15. 3. Schwalbe-Terilli CR, et al. Am J Crit Care. 2009;18:52-7. 4. Marino LV, et al. Clin Nutr. 2020;39:2455-62. 5. Kerklaan D, et al. Pediatr Crit Care Med. 2016;17:10-8. 6. Moreno YM, et al. Nutr Clin Pract. 2016;31:673-80

Survey: Current Nutritional Management of Hospitalized Infants with Failure to Thrive

25 question survey, provided as multiple choice, ranking and open text

Voluntary and anonymous

Intended for pediatric dietitians who practice at least part time inpatient

Open from June 2020 – January 2021

Focus: term infants with or at risk for poor growth, increase energy requirements and/or fluid restrictions

Sent out on variety of platforms (i.e. Email list servs, professional groups, social media)

Unpublished full results of a survey of current practice - Preliminary results presented at NASPGHAN Annual Meeting, 2020: Simental S. November 1-7. J Pediatr Gastroenterol Nutr. 2020;71:S453(684).

Five Domains

- ❖ Respondent characteristics
- ❖ Population of characteristics infants with malnutrition/FTT
- ❖ Nutrition intervention and methods
- ❖ Goals
- ❖ Shortcomings and barriers

Survey: Current Nutritional Management of Hospitalized Infants with Failure to Thrive

Slides with full research results that have not been published not included in handouts

Preliminary results:

- Presented at NASPGHAN Annual Meeting, 2020:
Simental S. November 1-7. J Pediatr Gastroenterol Nutr. 2020;71:S453(684).
- Accessible at:
<https://journals.lww.com/jpgn/toc/2020/11001>
or
<https://journals.lww.com/jpgn/Documents/NASPGHAN 2020.pdf>

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Summary

- Malnutrition/failure to thrive in the hospitalized infants can be complex
- Requires expertise of RDN
- Some significant variations in practice
- Even without standardized practice some consistency exists between practice
- More research to be done!

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7. Bechard LJ, Duggan C, Touger-Decker R, et al. Nutritional Status Based on Body Mass Index Is Associated With Morbidity and Mortality in Mechanically Ventilated Critically Ill Children in the PICU. *Crit Care Med*. 2016;44:1530-7.
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