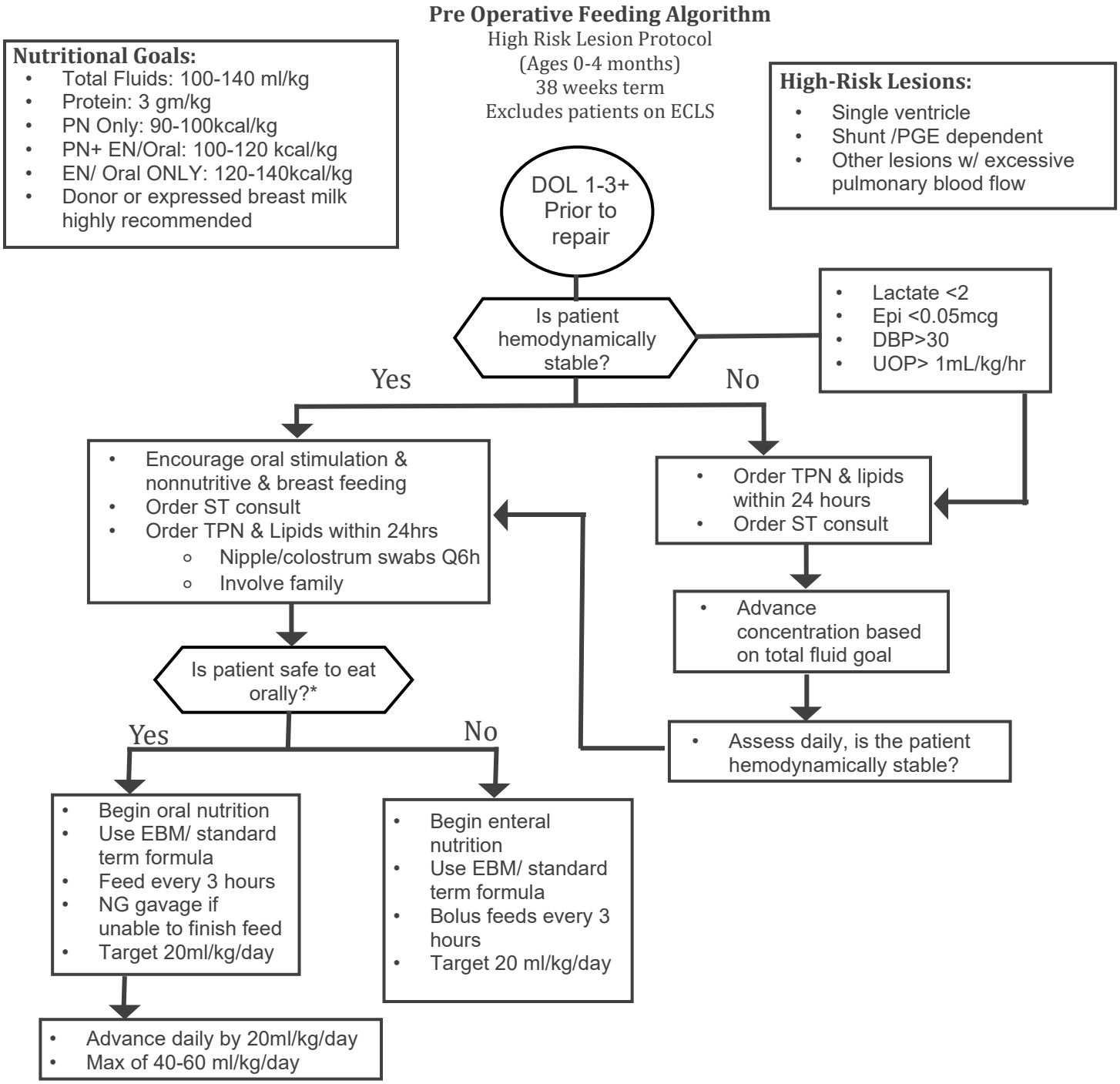
UCDAVIS HEALTH | CHILDREN'S HOSPITAL

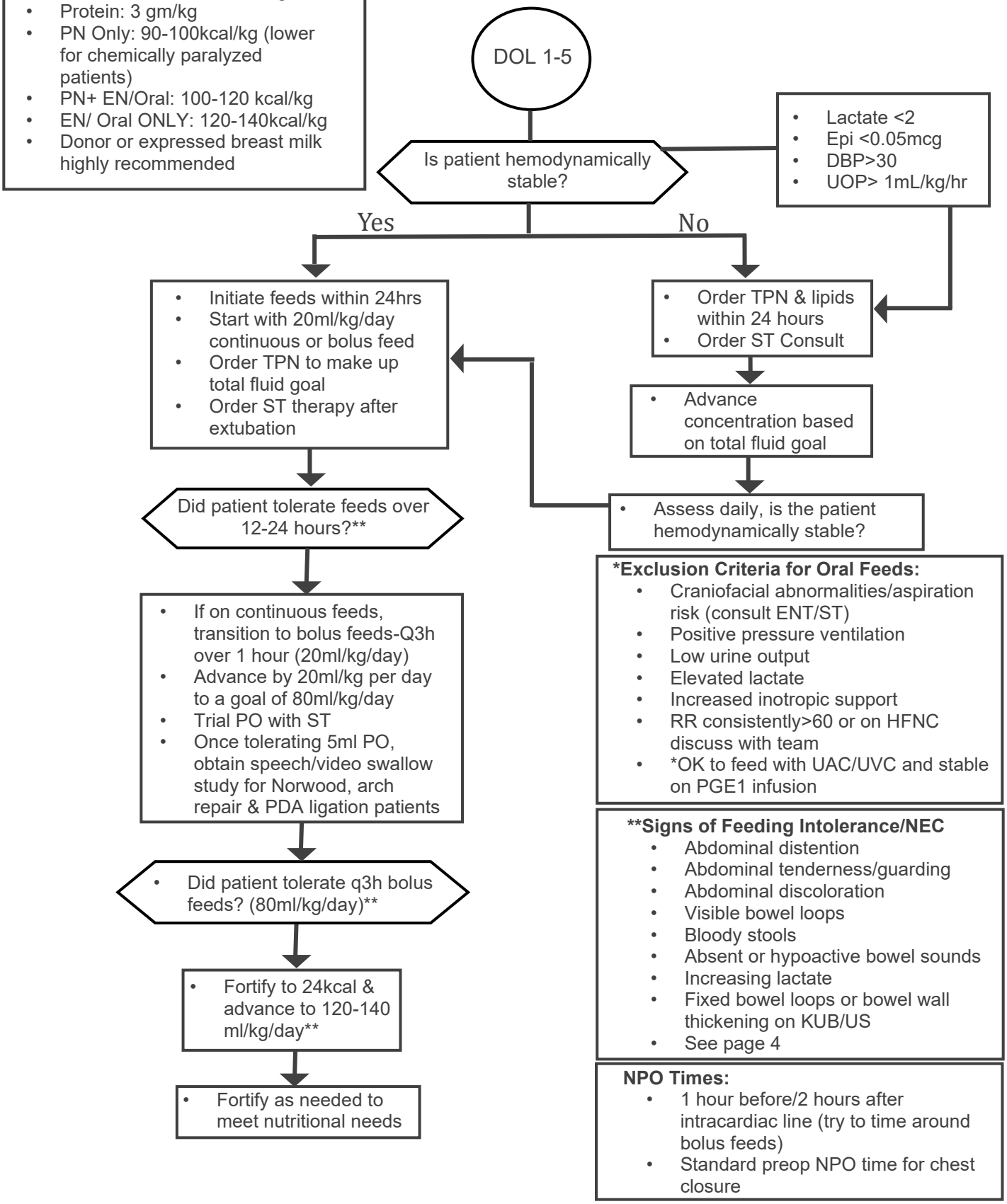
High Risk Feeding Protocol



Post Operative Feeding Algorithm

Single Ventricle/Shunt Dependent Lesions
38 weeks term
Excludes patients on ECLS

Nutritional Goals:
- Total Fluids: 100-140 ml/kg
- Protein: 3 gm/kg
- PN Only: 90-100kcal/kg (lower for chemically paralyzed patients)
- PN+ EN/Oral: 100-120 kcal/kg
- EN/ Oral ONLY: 120-140kcal/kg
- Donor or expressed breast milk highly recommended



***Exclusion Criteria for Oral Feeds:**
- Craniofacial abnormalities/aspiration risk (consult ENT/ST)
- Positive pressure ventilation
- Low urine output
- Elevated lactate
- Increased inotropic support
- RR consistently>60 or on HFNC discuss with team
- *OK to feed with UAC/UVC and stable on PGE1 infusion

****Signs of Feeding Intolerance/NEC**
- Abdominal distention
- Abdominal tenderness/guarding
- Abdominal discoloration
- Visible bowel loops
- Bloody stools
- Absent or hypoactive bowel sounds
- Increasing lactate
- Fixed bowel loops or bowel wall thickening on KUB/US
- See page 4

NPO Times:
- 1 hour before/2 hours after intracardiac line (try to time around bolus feeds)
- Standard preop NPO time for chest closure

Post Operative Feeding Algorithm

Single Ventricle/Shunt Dependent Lesions

History of >2 NEC occurrences

38 weeks term

Excludes patients on ECLS

Nutritional Goals:

- Total Fluids: 100-140 ml/kg
- Protein: 3 gm/kg
- PN Only: 90-100kcal/kg (lower for chemically paralyzed patients)
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DOL 1-5
Initiate feeds within 24 hrs

Is patient hemodynamically stable & extubated?

- Lactate <2
- Epi <0.05mcg
- DBP>30
- UOP> 1mL/kg/hr

Yes

No

- Start with 10ml/kg/day continuous feeds

Did patient tolerate feeds over 24 hours?**

- Advance to feeds by 10ml/kg/day to a goal of 40ml/kg/day

- Did patient tolerate feeds (40ml/kg/day)?**

- Convert to bolus feedsQ3h over 1h (hold for 24 hrs)

Did patient tolerate bolus feeds?**

- Advance by 20ml/kg/day to a goal of 80ml/kg/day
- Hold at 80ml/kg/day for 24 hours

Did patient tolerate feeds?

- Advance by 20ml/kg/day to goal of 140ml/kg/day

- Order TPN & lipids within 24 hours
- Order ST consult

- Advance concentration based on total fluid goal

- Assess daily, is the patient hemodynamically stable?

***Exclusion Criteria for Oral Feeds:**

- Craniofacial abnormalities
- Positive pressure ventilation
- Low urine output
- Elevated lactate
- Increased inotropic support
- RR consistently>60 or on HFNC discuss with team

*OK to feed with UAC/UVC and stable on PGE1 infusion

****Signs of Feeding Intolerance/NEC**

- Abdominal distention
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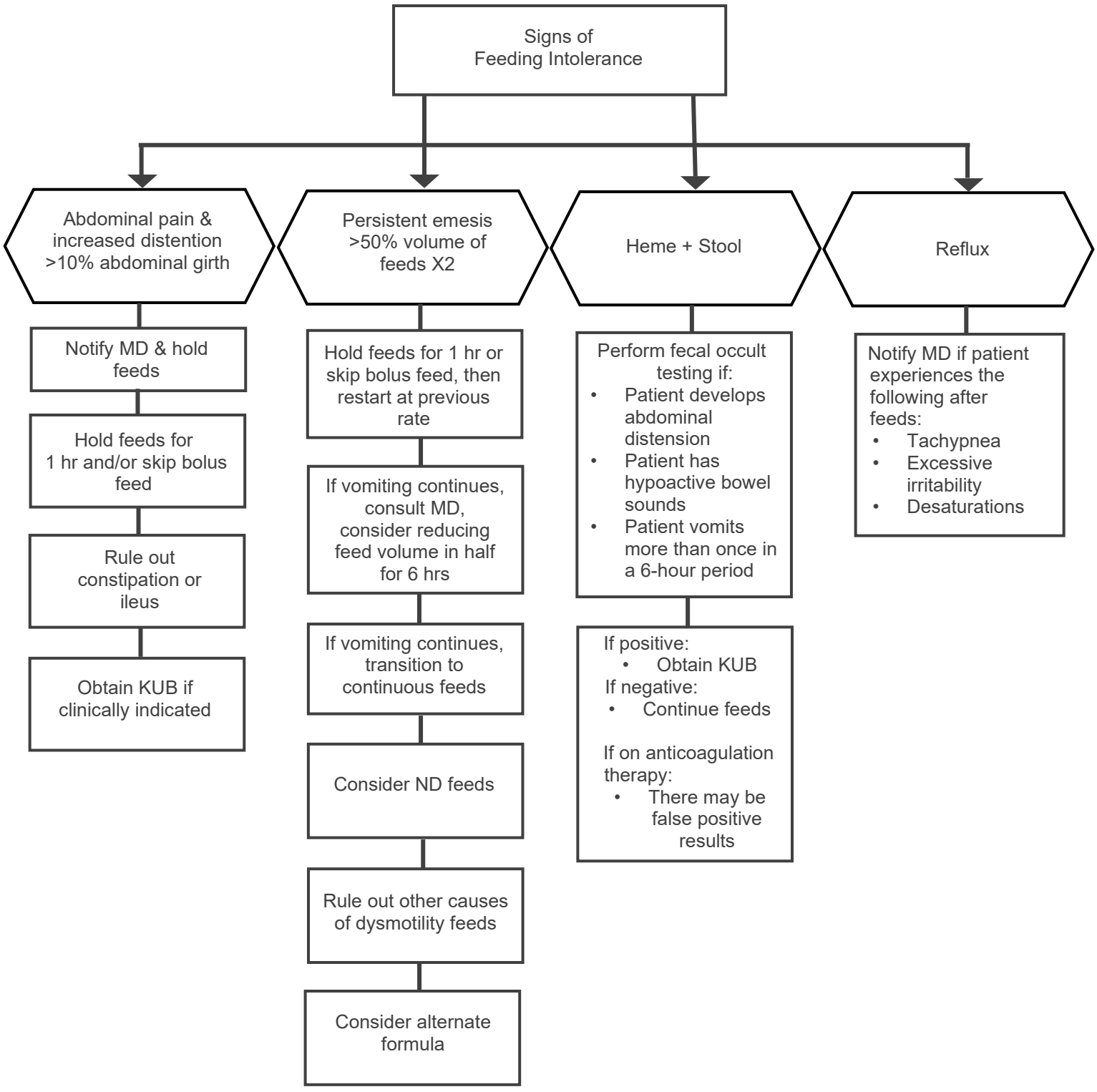
Signs of Feeding Intolerance
Abdominal pain & increased distention >10% abdominal girth
Persistent emesis >50% volume of feeds X2
Heme + Stool
Reflux
Notify MD & hold feeds
Hold feeds for 1 hr and/or skip bolus feed
Rule out constipation or ileus
Obtain KUB if clinically indicated
Hold feeds for 1 hr or skip bolus feed, then restart at previous rate
If vomiting continues, consult MD, consider reducing feed volume in half for 6 hrs
If vomiting continues, transition to continuous feeds
Consider ND feeds
Rule out other causes of dysmotility feeds
Consider alternate formula
Perform fecal occult testing if:
• Patient develops abdominal distension
• Patient has hypoactive bowel sounds
• Patient vomits more than once in a 6-hour period
If positive:
• Obtain KUB
If negative:
• Continue feeds
If on anticoagulation therapy:
• There may be false positive results
Notify MD if patient experiences the following after feeds:
• Tachypnea
• Excessive irritability
• Desaturations

References:

Kataria-Hale, J., Gollina, L., Bonagurio, K., Blanco, C., & Hair, A. (2023). Nutrition for infants with congenital heart disease. *Clinics in Perinatology, 50*(4), 699–713. https://doi.org/10.1016/j.clp.2023.04.007,

Luca, A., et al. (2022). Optimal nutrition parameters for neonates and infants with congenital heart disease. *Nutrients, 14*(1671), 1–11. https://doi.org/10.3390/nu14081671.

Salvatori, G., et al. (2022). Current strategies to optimize nutrition and growth in newborns and infants with congenital heart disease: A narrative review. *Journal of Clinical Medicine, 11*(1841), 1–14. https://doi.org/10.3390/jcm11071841

UC Davis Medical Center Pediatric Cardiac Intensive Care Unit. (2021). HLHS nutrition guidelines for stage 1 repair HLHS feeding guidelines HLHS Feeding Guidelines 2021.pdf.

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