Implementation of a Standardized Algorithm for Hematochezia in Patients <6 months old with Congenital Heart Disease: A Quality Improvement Initiative

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Introduction

Increased risk for Necrotizing Enterocolitis (NEC) in infants with congenital heart disease
NEC can lead to adverse outcomes:

- Suboptimal growth
- Parenteral nutrition use (PN)
- Antibiotic exposure
- Extended hospitalization
- Increased mortality

Accurate diagnosis and management of NEC in this cohort is essential, however is confounded by high rates of benign hematochezia.

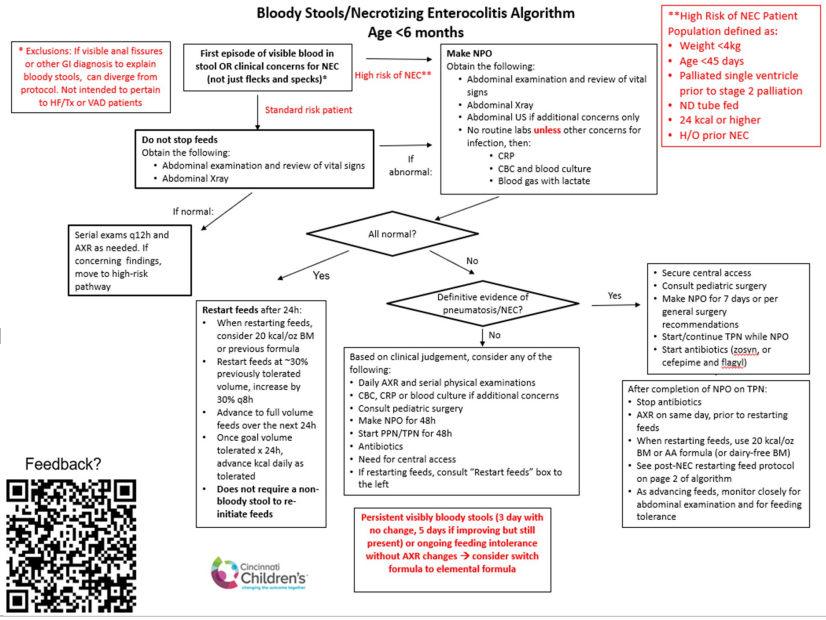
Cohort Results

Variable	P Value	Benign (28)	NEC (14)
Single Ventricle Physiology	>0.99	69%	78%
Prior Hematochezia	0.68	20%	31%
Age at Hematochezia (Days)	0.39	54	36
Weight z-score at Hematochezia	0.93	-1.89	-1.90
Goal Feeds at time of Hematochezia	0.11	64%	89%
Recent change within 48 hours of Hematochezia	0.72	60%	69%

Methods

- Implementation of a standardized algorithm for hematochezia in June 2024
- Retrospective cohort study of patients admitted to the Acute Care Cardiology Unit (ACCU) from July 2024 - January 2026
- Outcomes Evaluated compared to historical controls

- NPO time
- Antibiotic exposure
- Time of inadequate nutrition
- Parenteral nutrition
- Work-up: labs and imaging



Results Continued

- Stable rates of benign hematochezia vs NEC (33%)
- No increase in rates of Stage 2b or 3 NEC
- 31 of the 32 patients were stratified as high risk

Group	High Risk	AXR	Labs	Surgical Consult	Antibiotics	NPO Time	TPN Exposure	Days of Inadequate Enteral Nutrition
Historical NEC (13)	100%	100%	100 %	53.8%	61.5%	5.9 days	92% (10.7 days)	20.7 days
Historical Benign (20)	90%	60%	50%	0%	0.5%	0.25 days	10% (1 days)	4.5 days
Current NEC (13)	100%	100%	93%	100%	100% (5-7 days)	7-14 days	100%	11-20 days
Current Benign (20)*	95%	100%	43%	14%	14% (2 days)	1 days	43%	2 days

- *Benign group includes Abd XR with "possible pneumatosis" and "no pneumatosis"

Discussion

This algorithm:

- Standardized work-up of hematochezia
- No increase in NEC rates or severity
- Minimized time with inadequate nutrition
- Increased appropriate PN and antibiotic use in the NEC group
- Despite a PN shortage, there were higher rates of PN use

Next Steps

Next Steps:

- Refine definition of the high-risk patient population to most at risk of NEC
- Increase sample size for higher powered subgroup analysis
- Re-engage providers for feedback on barriers