

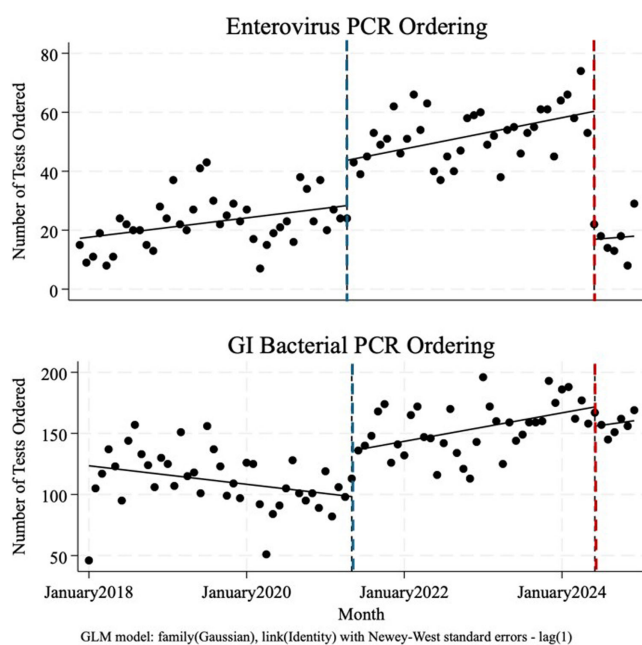
enterovirus PCR from the panel, there was an immediate significant decrease in testing from a predicted mean of 60 tests/month to 17 tests/month (decreased by 43 tests/month, $p < 0.0001$), without a significant change in bacterial stool PCR ordering (16 test/month decrease, $p=0.10$) (Figure 2, red). We estimate that this simple intervention will save an average of \$8,500 annually in direct costs each year. **Discussion:** Enterovirus PCR ordering significantly increased after the introduction of an order panel bundling stool studies targeted at diagnosing diarrhea. When this order was removed from the panel, there was a significant decrease in ordering without a change in infectious stool testing overall, as evidenced by no significant change in GI bacterial panel ordering. We hypothesize that clinicians utilize this panel to craft a differential for acute-onset diarrhea. Therefore, when the stool enterovirus PCR option was removed from this panel, it is possible that it was no longer considered on the differential. Reviewing such order panels may be helpful in reducing unnecessary testing and costs to healthcare systems.

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Infectious Stool Studies

- ☐ GI Virus PCR Panel
Routine, ONE TIME - NOW/SCHEDULED, Stool, Stool
- ☐ C. difficile Toxin/Ag
Routine, ONE TIME - NOW/SCHEDULED, Stool, Stool
- ☐ GI Bacterial Panel (PCR) / Stool Culture
- ☐ Culture, Strep
Routine, ONE TIME - NOW/SCHEDULED, Perianal, Gastrointestinal
- ☐ Ova & Parasite
Routine, ONE TIME - NOW/SCHEDULED, Stool, Stool
- ☐ Crypto/Giardia Rapid Immunoassay
Routine, ONE TIME - NOW/SCHEDULED, Stool, Stool
- ☐ Enterovirus PCR
Routine, ONE TIME - NOW/SCHEDULED, Stool, Stool



Presentation Type:

Poster Presentation

Subject Category: Diagnostic Stewardship

After an initial positive blood culture, when are repeat blood cultures necessary in the Neonatal Intensive Care Unit (NNICU)?

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Background: Data in adults and older children demonstrate repeat blood cultures (BICx) are not always necessary. Indications for repeat BICx include *Staphylococcus aureus* or yeast in the initial blood culture, or the presence of a central venous catheter (CVC). Blood collection in premature babies can be challenging and there are little data regarding when repeat BICxs are necessary after an initial positive. The goal of this study is to determine risk factors for persistent bloodstream infection (BSI) to determine when unnecessary blood cultures can be avoided. **Methods:** The Yale New Haven Children's Hospital NNICU is a 68-bed level 4 unit. Babies in the NNICU with a positive blood culture from 8/1/16 to 12/31/21 were included. Persistent BSI was defined as a repeat positive BICx with the same organism >48 hrs. after the original culture. A BICx > 7 days after the original BICx was considered a new event. Babies who died within 48 hrs. of the initial culture were excluded. In preliminary analysis we did not distinguish between true BSI and contamination. Data were extracted from the medical record by the Yale Data Analytics Team and by manual chart review. Data were stored in excel for descriptive statistics. Additional statistical analysis in SPSS is ongoing to account for multiple variables. **Results:** 142 babies had a positive BICx with 122 babies alive at 48 hrs. and included in the study. These 124 babies had 139 positive BICx growing 145 organisms. Persistent BSI occurred in 17.3% (24/139) of BICxs. Factors associated with persistence in univariate analyses included the presence of a CVC and recovery of *S. aureus*. (Table 1) No babies with either streptococcal infection or early onset sepsis had persistent BSI. (Table 1) Additional variables under evaluation in a multiple regression model to determine the probability of persistent BSI include other sources of infection, white blood cell count at the time of BICx, congenital heart disease, immunosuppressive agents such as steroids and whether empiric antibiotic therapy was appropriate. We will also define probable contaminants and repeat the analyses with and without these BSI episodes. **Conclusions:** Preliminary analysis shows that neonates have similar risk factors for persistent BSI as adults including the presence of a CVC and the recovery of *S. aureus* that require repeat BICx to confirm clearance. For babies with streptococcal infection, repeat BICx may not be routinely required. Current work is examining additional potential risk factors in multi-variable models.

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Table 1. Variables associated with persistent BSI in neonates

Variable	Persistent BSI (n=24)	No persistent BSI (n=115)	Univariate significance
Gender*			
Male (n=61)	16/67 (23.9%)	51/67 (76.1%)	p=.07, fishers exact
Female (n=61)	8/72 (11.1%)	64/72 (88.9%)	
Median Gestational Age	26 weeks	30 weeks	p=.058 Kruskal-Wallis
Presence of Central Venous Catheter	20/24 (83.3%)	48/115 (41.7%)	p=.0002, fishers exact
Early onset sepsis	0/24 (0%)	36/110 (32.7%)	p=.004, fishers exact
Most common microorganisms recovered			p=.003, chi square
<i>Staphylococcus aureus</i>	15/37 (40.5%)	22/37 (59.5%)	
Enteric gram negative rods	5/42 (11.9%)	37/42 (88.1%)	
<i>Enterococcus sp.</i>	1/7 (14.3%)	6/7 (85.7%)	
Coagulase negative staphylococcus	2/29 (6.9%)	27/29 (93.1%)	
<i>Streptococcal sp.</i>	0/18 (0%)	18/18 (100%)	

*61 males had 67 positive blood cultures, 61 females had 72 positive blood cultures