

An Analysis of the Impact of Gastrointestinal Polymerase Chain Reaction Panel Use on Antimicrobial Use at a Tertiary Care Academic Medical Center



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Background

- Gastrointestinal Polymerase Chain Reaction (GI PCR) panels are increasingly utilized in place of conventional stool testing methods¹
- Several studies have noted GI PCR testing is associated with a reduction in antibiotic prescribing^{2,3}
- One study has also shown decreased utility when these tests are ordered more than 72 hours into admission⁴
- Since implementation of the BioFire® FilmArray® GI PCR panel in March 2015 at Tampa General Hospital (TGH), its impact on antimicrobial use has not been formally assessed
- Our aim was to evaluate the impact of the GI PCR panel and determine its usefulness as a potential tool for antimicrobial stewardship

Methods

- This study was an IRB approved retrospective chart review of 100 adult patients 18 years or older admitted to TGH who were ordered GI PCR panels between 1/1/2018 and 12/31/19
- Data collected included patient demographics, comorbidities, GI PCR stool test timing, GI PCR panel results, and assessment of appropriate initiation, continuation or discontinuation of antibiotics
- Our primary objective was to assess antimicrobial prescribing patterns for those with positive GI PCR results; other objectives included determining the quantity of tests ordered after 72 hours of admission
- Descriptive statistics were used for analysis

Results

Table 1. Patient Demographics

Characteristic	N=100
Female	62 (62%)
Age in years: median (interquartile range)	57 (40.25,67.25)
Solid Organ Transplant	20 (20%)
Cancer	14 (14%)
GI disorders (IBS/IBD)	6 (6%)
HIV Positive	4 (4%)

Table 2. Timing of GI PCR Panel Ordering

Variable	Result
Day of Hospital Stay GI PCR Panel Ordered: median (interquartile range)	1 (0,3)
GI PCR Panels Ordered >72 hours of Hospital Stay	25 (25%)

Table 3. Selected Comorbidities and Positive GI PCR Panel Tests

Comorbidities	Number of GI PCR Panel Positive Results
Solid Organ Transplant	6 (30%)
HIV Positive	2 (10%)
GI Disorders (IBS/IBD)	0 (0%)

Results

Figure 1. Organisms Identified on GI PCR Panels

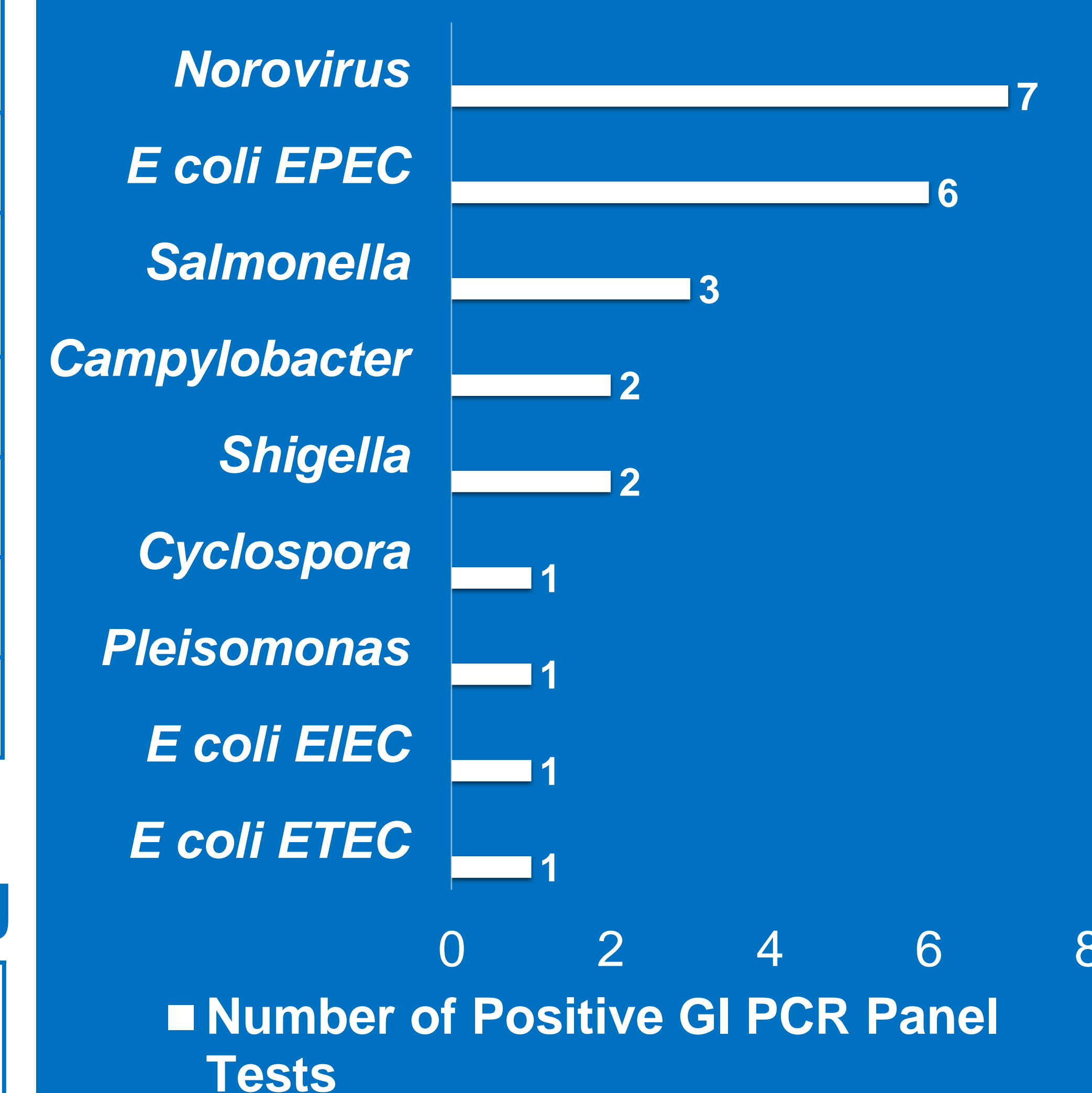
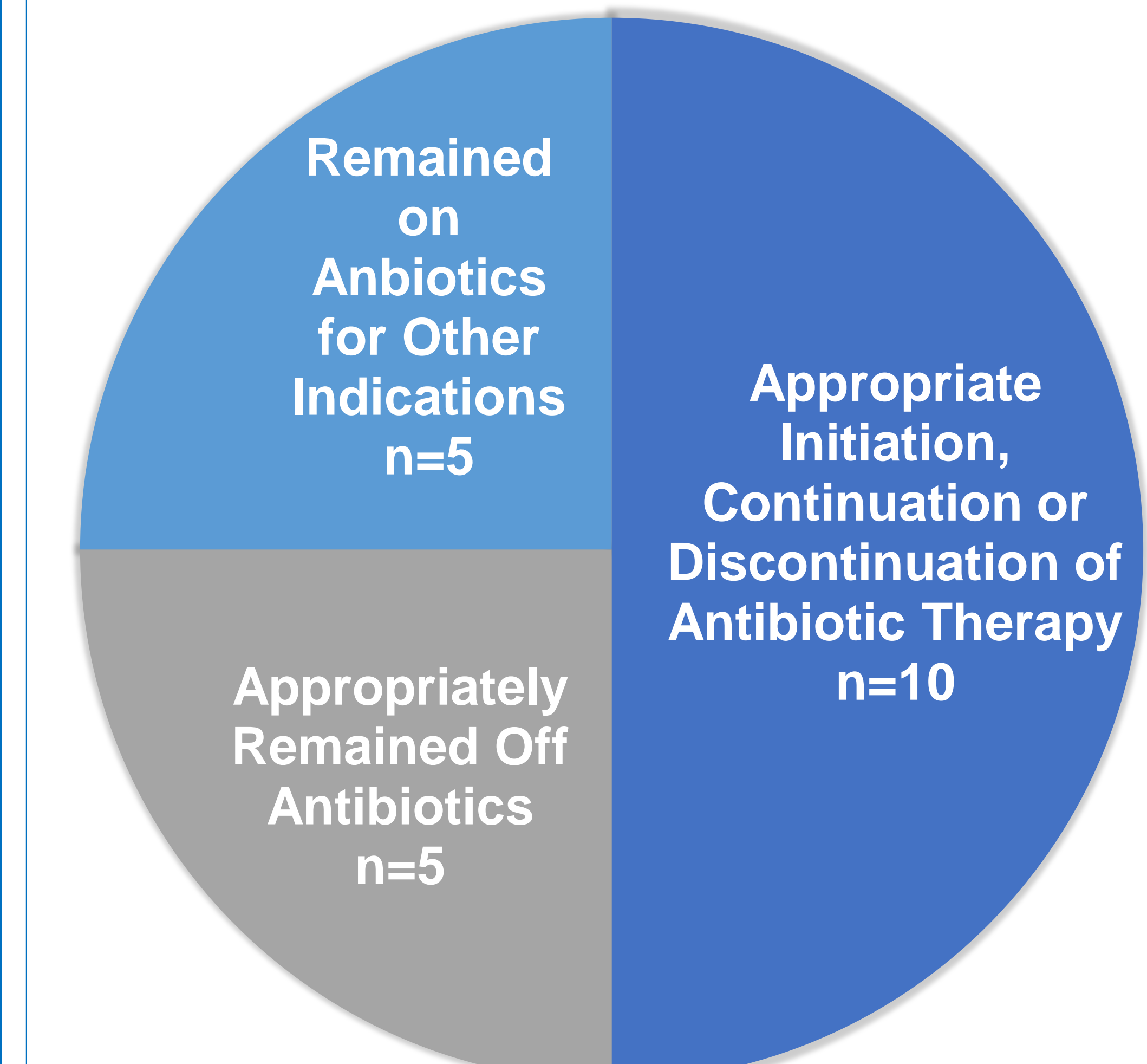


Figure 2. Antibiotic Prescribing Patterns For Patients With Positive GI PCR Panels Tests n=20



Conclusion

- Half of patients appropriately had antibiotics adjusted after positive GI PCR results
- The majority of GI PCR panel tests were ordered within 72 hours of admission
- Solid Organ Transplant patients accounted for the majority of positive GI PCR results
- Our study was limited by patients on antibiotics for other non-GI indications

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