had a respiratory specimen submitted for Gram stain and culture. A specimen was considered acceptable if less than ten epithelial cells were visualized under low power field. Each Gram stain was compared with the corresponding final culture. The primary outcome was to evaluate the correlation of Gram stain with final culture using positive predictive value (PPV), negative predictive value (NPV), sensitivity, and specificity. A culture was considered negative if no bacteria were isolated or if only normal flora grew. Secondary outcomes were PPV and NPV based on antibiotic exposure prior to specimen collection, semi-quantitative number of bacteria on Gram stain, and collection method. Additionally, discordance between Gram stain and final culture morphology was evaluated.

Results. A total of 269 acceptable specimens were assessed. Of the 72 specimens with a positive Gram stain, 41 yielded bacteria in final culture (PPV: 56.9%). In contrast, 154 of the 197 specimens with a negative Gram stain were associated with negative final culture (NPV: 76.7%). The NPV of Gram stain was decreased when antibiotics were given for > 24 hours pre-specimen. The PPV of Gram stain improved as an increasing amount of bacteria were reported. Less invasive collection methods had a lower PPV but a higher NPV in comparison to invasive collection methods. Finally, the discordance rate between Gram stain and final culture morphology was low.

Conclusion. This study shows inconsistent results regarding the ability of Gram stain to predict final culture. Pneumonia should continue to be managed clinically and cultures obtained prior to adjusting empiric antimicrobial regimens based solely on the Gram stain.

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2141. Potential for Harm From Rapid Campylobacter Antigen Test: Quality Improvement Process Reveals 84% False-Positive STAT! Campy Stool Antigen Results

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Background. The Immunocat STAT! Campy is known to have a poor correlation with Campylobacter culture, and bloody stools are thought to be the most common cause of false-positive tests. A CDC investigation of 11 cases of Campylobacter in premature infants with non-bloody stools between March and April, 2018 at the Children’s Hospital of Illinois identified a pseudo-outbreak secondary to false-positive stool antigen tests.

Methods. Beginning May 1, 2018, Immunocat STAT! Campy (Meridian BioScience) positive stools from 14-hospitals in the OSF network were sent to the OSF System lab for confirmation prior to resulting in the medical record (MR). Stool was placed into Cary Blair media and a STAT! Campy stool antigen test was repeated in the OSF System Lab. BioFire GI Panel (GIP) PCR was performed on STAT! Campy positive stools, and results reported in the MR.

Results. Between May 1, 2018 and April 30, 2019, 3,639 stools were submitted for culture. 372 tested positive by the STAT! Campy rapid antigen test and were referred for confirmation. Repeat rapid antigen tests were negative for 56% (208/372) of stools and were finalled in the MR as negative without GIP testing. GIP PCR was performed on 164 samples from 163 patients (mean age = 18). 43% (71/164) of GIP were completely negative; 16% (27/164) positive STAT! Campy antigens were confirmed by the GIP (84% were false positive). Pathogens detected by the GIP included: 30 viral infections (50%) Norovirus, 27 C. difficile, and 22 E. coli (Table 1). Multiple pathogens were detected in 15% (25/163) patients (1 patient was positive for 4 pathogens). One case of Salmonella was not detected by GIP. One patient tested positive by the GIP but remained symptomatic and C. difficile was detected on repeat testing 10 days later.

Conclusion. C. difficile and Norovirus were the most common pathogens detected in stools that yielded false positive STAT! Campy results. These findings have important patient care and infection control implications. Currently neither FDA nor CDC requires Campylobacter culture (or other laboratory methods) of confirmation of positive Campylobacter stool antigen tests. Missed and incorrect diagnoses represent a significant risk of harm for patients (particularly C. difficile or Shiga toxin-injected patients, Table 1), and outbreaks in institutional settings.

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