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THE NEW ENTERIC MULTIPLEX PCR

TURNING ENTERIC PATHOGEN TESTING ON ITS HEAD

Gastroenteritis is one of the most common infectious disease syndromes, with an estimated 2.4 billion episodes occurring worldwide annually. Although the vast majority of acute gastroenteritis cases are self-limiting, significant morbidity and mortality are still observed, especially in children younger than 5 years old, the elderly and immunocompromised patients. While stool culture remains the gold standard for enteric pathogen detection, it is laborious and lacks sensitivity. Additionally, culture results are only available two to three days after specimen submission, on average. Molecular testing may be considered part of the testing strategy in patients where diagnostic work-up is relevant and has been shown to enhance the yield of relevant pathogens, with the detection of co-infections and a rapid turnaround time.

Ampath is implementing a cost-effective multiplex PCR, which includes the most common bacterial and parasitic stool pathogens detected in our setting as an initial screen for patients presenting with acute gastroenteritis. Stool specimens where a bacterial pathogen is detected may then be submitted for culture to perform both full species level identification where appropriate, as well as susceptibility testing to guide directed therapy. We have undertaken a large verification study on this new multiplex PCR, which included 391 stools processed in parallel on PCR and routine culture and microscopy. PCR detected significantly more enteric pathogens (109 vs 57). The pathogens most seldom detected by culture and microscopy were *Campylobacter* spp., *Shigella* spp., *Cryptosporidium* spp. and *Giardia lamblia*. Due to the high sensitivity of the PCR test, a negative result can support a decision to withhold antibiotics, thereby fostering antibiotic stewardship efforts. This multiplex stool PCR needs to be specifically requested using the mnemonic ENTERICPCR. More information regarding this test is available in Table 1.

TABLE 1: TEST DETAILS

Targets included	Bacteria <ul style="list-style-type: none"> • <i>Salmonella</i> species • <i>Shigella</i> species • <i>Campylobacter</i> species • Shiga toxin 	Parasites <ul style="list-style-type: none"> • <i>Cryptosporidium</i> species • <i>Giardia lamblia</i>
Target population	Patients with acute diarrhoea and warning signs <ul style="list-style-type: none"> • Fever • Bloody diarrhoea or dysentery • Severe abdominal pain • Hospitalisation • Dehydration • Signs of sepsis • Immunocompromised state 	
Specimen type	Stool	
Test mnemonic	ENTERICPCR	
Turnaround time	24 hours (from being received in the laboratory)	
Cost	Medical aid scheme rates apply. A discount applies for upfront payment. Alternatively, contact your local Ampath representative for a quotation.	