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LAB INSIDER
Dr Louis Marcus



CHANGING THE PARADIGMS OF STOOL TESTING IN 2026

Molecular testing has changed the way we diagnose and monitor parameters in pathology. The advent of Multiplex molecular assays enables us to now detect, with greater sensitivity, pathogens associated with infectious diseases. These include bacterial and viral pathogens which were difficult or impossible to culture and identify. This newsletter highlights the new technology which deals with the Multiplex bacteria and virus stool assays applied to faecal pathogen analysis.

As is common knowledge, faeces contain very high amounts of normal flora. Detecting the offending pathogens requires a set of selective media to accentuate the pathogen and suppress the normal flora. This is analogous to the 'searching for a the proverbial needle in the haystack situation. Molecular assays are helpful tools to amplify the pathogens and demonstrate their presence in an effective and rapid way. This method is done in real time PCR and does not require culture methods which are time consuming and insensitive.

For this reason, we at Toga, have embarked on the introduction of the Multiplex PCR assay to replace the tradition culture method for stool analysis. Infectious gastroenteritis cases account for the most common cause of morbidity and the fourth most common cause of mortality globally. The highest mortality rates occur in impoverished countries across sub-Saharan Africa.

The bacterial and/or viral panels may we requested. Sensitivity testing can, however not be done when molecular methods are applied.

Norovirus is the leading viral cause followed by rotavirus, sapovirus, astrovirus and enteric adenoviruses. As far as bacterial pathogens are concerned *Clostridioides difficile, Campylobacter*, *Salmonella* and pathogenic *E.coli* are the most common pathogens.

THE LIST ON OUR BACTERIAL MULTIPLEX PANEL INCLUDES:

Shigella
Campylobacter
Yersinia
Vibrio
Clostridiodes toxin B
Aeromonas
Salmonella.

THE LIST ON OUR VIRAL MULTIPLEX PANEL INCLUDES:

Norovirus
Rotavirus
Adenovirus serotype 40/41
Astrovirus
Sapovirus

IMPORTANT POINTS TO REMEMBER ARE THE ADVANTAGES OF DOING THE MULTIPLEX ASSAY

• It can pick up multiple pathogens in one assay.

• The ability to enhance the sensitivity of the testing.

• Able to rapidly detect the bacterial pathogen without waiting for at least 48 hours for the organisms to grow in the case of bacteria.

• Able to rapidly demonstrate the viral pathogen as viral culture is not possible.



THE DISADVANTAGES OF MOLECULAR TESTING:

• No sensitivity testing is available on this platform so liaison with the microbiologist becomes crucial.

PRACTICE POINTS TO REMEMBER INCLUDE

• Please state on the request form whether a bacterial or viral panel is required
• Clinical decisions can be made more rapidly
• Sensitivity testing is not done when molecular methods are used
• Close liaison with the Pathologist/Microbiologist when choosing the correct antimicrobial to be used for the pathogen detected.

clientservices@togalab.co.za

011 663 6300

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A TABULATED SUMMARY OF CULTURE VS MOLECULAR METHODS TO DIAGNOSE STOOL PATHOGENS

BACTERIAL CULTURE DETECTION	MOLECULAR
Culture takes 48 hours	Same day turnover
Viral pathogens not detected	A whole array of pathogens are detected
Stool microscopy is done	Faecal occult blood is detected by immunochemical method which is more sensitive
Cost ranges and may escalate as pathogens are identified and tested	Cost is fixed per panel

Newsletter artwork was inspired by Vincent van Gough's The Haystacks in Provence and Starry Night