Molecular testing outperforms traditional methods for gastrointestinal infections

The healthcare burden of gastrointestinal infections and limitations of traditional methods

Cultures have **poor sensitivity** and **low positive culture rates**[2,3]

Testing for gastrointestinal infections using traditional culture methods is **labour intensive** and can take **3-5 days** for pathogen detection[2]

Previous studies showed **2.4% to 32%** positive rates in stool cultures[4,5,6]

Some labs may **lack resources, trained staff, and equipment** to detect certain pathogens[2]

Diarrheal diseases are the **4th cause of death worldwide** and the **2nd cause of morbidity in children** under 5 years old[1]

Why integrate molecular techniques in microbiology workflow?

Molecular techniques speed up accurate diagnoses

Significantly **faster** with **higher sensitivity** than existing culture-based methods[2]

Early detection or early identification of diseases requiring antibiotics may save lives and **prevent unnecessary use of antibiotics**[7]

Early detection or exclusion of pathogens aid in **faster treatment decisions** and may reduce hospital length of stay[7]

Accurate and rapid pathogen identification are crucial to **minimise outbreak risk**[8]

Initial testing with one consolidated technique for the most common bacteria, parasites, and viruses

Why is speed and accurate diagnoses important for gastrointestinal infections?

Rapid identification of Shiga toxin-producing *E. coli* (STEC) is critical for patients as infections can cause severe complications of haemolytic-uremic syndrome, kidney failure, and neurological issues[9]

Wrongly prescribing **antibiotics** may **increase** the production of the **Shiga toxin**[9]

The International Society for Infectious Diseases (ISID) recommends that a patient with infectious diarrhoea is placed in a private room[10]

***Campylobacter* diagnosis using culture** methods risks false-negative results[11]

Cultures for *Campylobacter* **produced false results at a rate of 30%**[11]

Helps prevent inappropriate antibiotic use that might lead to antibiotic-resistant *Campylobacter* strains[11]

Microscopic examination fails to differentiate *Entamoeba histolytica* from the non-pathogenic *Entamoeba dispar*[12]

Molecular methods can differentiate between pathogenic and non-pathogenic species to avoid missing diagnoses or giving unnecessary treatment[12]

Improve workflow efficiency for timely patient management with the BD MAX™ System

Only **1.5 mins of hands-on time** per sample[13]

24 patient results in **2 to 3 hours**, on average[13,17]

Same day results, with 4 runs in one 8-hour shift[13]

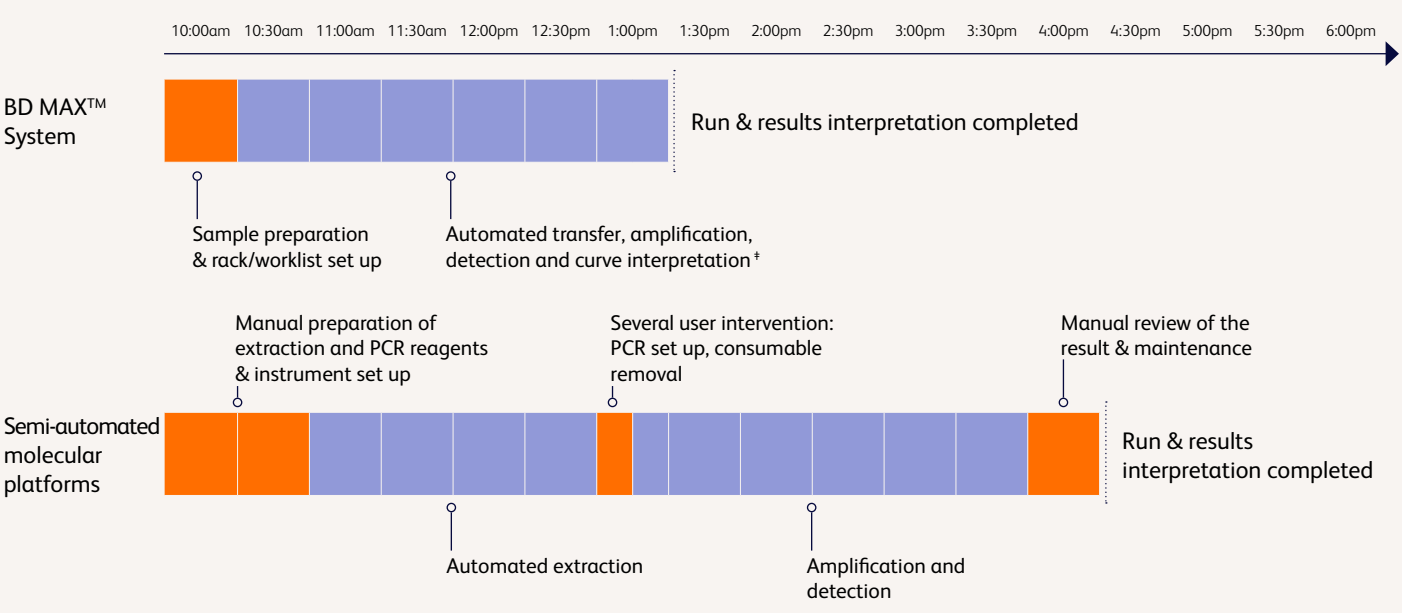
>90%

Coverage for **>90%** of pathogens causing infectious diarrhoea[14]

Key advantages of the BD MAX™ System vs. traditional methods and other molecular platforms?

Easy to use BD MAX™ System requires less hands-on time[15,16]	**Fully automated and integrated system for an easy and effective set up and run process**[17]	**Reduced risk of contamination and human error**[15,17]
• No need for extensive daily manual machine set up • No need to manually prepare reagents prior to processing (No mixing, no manual preparation of proteinase K, no freeze thaw cycles, no centrifuge) • No need for 4°C or -20°C storage Room temperature storage close to the instrument • Does not require skilled technicians[13] Limited training is required to use the machine efficiently	• Allows the user to walk away or run samples overnight • Interleave run allows for 96 results in an 8-hour shift • Flexibility of 1 to 24 specimens with 2 independent racks • Multiple assays being run compatible for an optimised and flexible testing* • Off-hour testing is facilitated by ease of use and reduced manual requirements	• Low risk of cross-contamination: All reagents and required tips are included in the assay kits of the BD MAX™ System Extraction and PCR reagents are single-use-only so no need to recap or store them • Limited human intervention: BD MAX™ takes care of all processing steps • Bi-directional Laboratory Information System communication • Automatic interpretation of the results with user friendly software • All consumables are barcoded for full chain of custody

Run workflow comparison†



* BD assays are run & rack compatible – Only MDR-TB is not run and rack compatible / Vaginal Panel, GBS and open system assays are only run compatible.

† Timing for semi-automated platforms is indicative (platform & batch-size dependent)

‡ May require cartridge change in case of interleave run

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