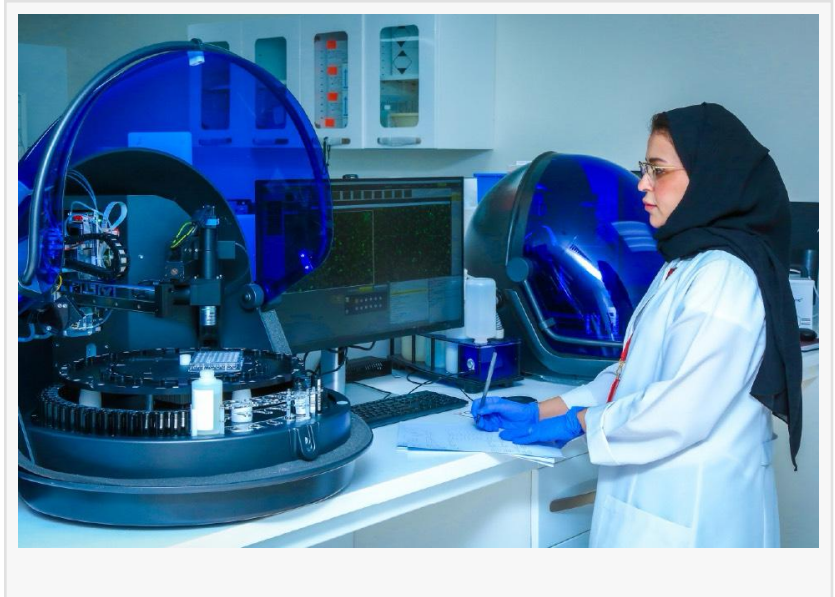


How KFSHRC Uses Genomic Tools to Support Infection Diagnosis and Patient Safety

RIYADH, SAUDI ARABIA, December 30, 2025 /EINPresswire.com/ --

At King Faisal Specialist Hospital & Research Centre (KFSHRC), patient safety is closely linked to the hospital's ability to reach accurate diagnoses when standard clinical tools fall short. This is particularly critical in cases of severe or unexplained infections, where delays in identification can affect treatment decisions and outcomes.



To address this challenge, KFSHRC has developed a metagenomic diagnostic protocol that applies advanced DNA sequencing techniques to support the identification of infectious agents that may not be detected through conventional laboratory methods. The protocol is used selectively in complex cases, providing clinicians with additional data to inform treatment planning when initial diagnostics are inconclusive.

By analyzing genetic material directly from clinical samples, the approach supports earlier identification of pathogens, including organisms associated with antimicrobial resistance. In certain cases, results can be generated within a clinically relevant timeframe, allowing care teams to reassess treatment strategies more promptly than would otherwise be possible.

The protocol has been applied in a growing number of complex infection cases that did not respond to standard therapies. Findings from these cases have supported more targeted clinical decision making, helping physicians adjust antimicrobial treatment, reduce uncertainty, and manage risks associated with prolonged or ineffective therapy.

This capability reflects KFSHRC's broader approach to patient safety, where advanced diagnostic tools are integrated into clinical pathways under defined governance and clinical oversight. Rather than replacing established methods, genomic diagnostics are used to complement

existing practices in situations where additional precision is required.

Through the careful application of genomic technologies, KFSHRC continues to strengthen its ability to manage complex infections, support timely clinical decisions, and reduce avoidable risks in high acuity care settings.

KFSHRC ranks first in the Middle East and Africa and fifteenth globally among the world's top 250 academic medical centers for 2025. It also holds the highest valued healthcare brand in Saudi Arabia and the region, according to Brand Finance 2024, and is listed by Newsweek among the World's Best Hospitals 2025, the World's Best Smart Hospitals 2026, and the World's Best Specialized Hospitals 2026.

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