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Tech innovation in India's IVD sector

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Dr Veeraal Gandhi, CMD, Vixtur Bio writes about the noteworthy technology interventions in the IVD sector and how it is set to chart a broader growth trajectory



Diagnostics is the mainstay of the defence mechanism against infections and non-infectious diseases to ensure health and wellness. The efficacy of decisions related to medication, treatment, etc. hinges on the precision of diagnostics solutions used.

In India, use of *in vitro* diagnostic (IVD) is increasing rapidly because of its capability to facilitate early-stage healthcare interventions, thus eliminating medical complications and cutting healthcare expenses at a later stage. The role of IVD in identifying active cases and facilitating contact tracing to prevent pandemic spread has enhanced its acceptability among people. With preventive healthcare gaining prominence due to growing health consciousness amongst all the age groups, IVD is set to chart a broader growth trajectory.

According to Invest India data, the domestic IVD segment valued at \$1240 million in 2019 is expected to become a \$2027 million market by 2027 with a CAGR of 7.5 per cent from 2020 to 2027. The growth will be majorly driven by the technologies such as point-of-care (POC), molecular diagnostics, liquid biopsy, Internet of Things (IoT) and artificial intelligence (AI). All these tech interventions are aimed at offering speedy, economical and meticulous diagnosis with superior usability, patient experience and remote monitoring. The proliferation of self-testing diagnostic kits of covid and other critical communicable and non-communicable diseases for that matter majorly depends on the faster roll-out of IVD technologies.

One such noteworthy technology intervention in IVD solution is a liquid biopsy. Because of its non-invasive and real-time monitoring of disease development, it facilitates the early diagnosis of cancer. Leveraging improved sensitivity of next-generation sequencing (NGS) techniques, liquid biopsy offers diagnosis precision with a non-invasive screening of blood or urine to detect cancer.

Molecular diagnostics adds precision to IVD while enhancing the throughput. The best part of this IVD technology is that it is capable of detecting the tiniest change in the presence of viruses or bacteria. It presents a huge market opportunity for the IVD players thanks to its proven ability to take the detection capability of viral, bacterial and fungal infections outside the lab environment.

Similarly, point-of-care technology (POCT) has enabled IVD to move out of the clinic environment, thus offering superior patient convenience. The nanotechnology-empowered POCT has been offering improved IVD service delivery. Add to that, the lateral flow immunoassay (LFIA) platform has added accuracy and effectiveness in diagnosing chronic and infectious diseases.

AI and IoT, on the other hand, further facilitate data analytics and remote monitoring, respectively. When it comes to ensuring disease prevention and management and excellent patient care, AI plays a pivotal role. Whereas, thanks to its data collection competencies and analysis, IoT offers superior quality control and customer relationship management.

With rapid disease detection capabilities, IVD technologies have emerged as catalysts for growth for the IVD sector.