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Beyond Centralised vs Distributed: India's Emerging MRD Model

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As minimal residual disease testing reshapes cancer monitoring, India is charting a hybrid path that combines advanced centralised laboratories with distributed sample collection to expand access to precision oncology.



The minimal residual disease (MRD) testing market, one of the fastest-growing segments of the global diagnostics industry, has reached an inflection point. The defining question is no longer who has the most sensitive assay, but where and how cancer monitoring will be delivered.

As oncology moves toward precision treatment, recurrence monitoring, and therapy optimisation, MRD is shifting from a niche diagnostic tool to a core component of longitudinal cancer care. By detecting molecular evidence of disease before clinical relapse, it is changing how clinicians evaluate treatment response, stratify risk, and determine when to intervene across the patient journey.

Two competing models are taking shape: the centralised mega-lab approach led by US-based Natera and the distributed, instrument-driven model represented by Roche's acquisition of SAGA Diagnostics. Their strategic contest will influence the future of oncology diagnostics across Asia-Pacific. In India, however, the central question is not which model prevails, but how advanced cancer monitoring can be made accessible at scale.

Roche's vertical integration gambit

In April 2026, Foundation Medicine, a Roche affiliate, announced plans to expand its monitoring portfolio with SAGA Diagnostics' tumour-informed MRD platform following Roche's definitive merger agreement to acquire SAGA for up to \$595 million. The acquisition brings Pathlight, a personalised MRD platform using whole genome sequencing and digital PCR to identify structural variants, enabling ultra-sensitive detection at mutant allele fractions as low as 0.001 per cent.

What makes this deal significant is how Roche intends to deploy the technology. Instead of shipping samples to a single mega-laboratory (a model introducing logistical complexity and geographic disparities), Roche is shipping capabilities. The strategy pairs chemistry with its own instruments, consumables, and global distribution footprint, creating a sample-to-report fortress. Roche has stated plans to develop a decentralised MRD solution leveraging its AXELIOS sequencing and Digital LightCycler PCR platforms, enabling patient access in healthcare settings worldwide.

The centralised counterweight: Natera

While Roche builds a distributed fortress, Natera has perfected the opposite approach. The company's Signatera assay is processed in CLIA-certified, centralised laboratories. Natera achieved a landmark victory when the FDA approved Signatera CDx as a companion diagnostic for use with adjuvant atezolizumab in muscle-invasive bladder cancer, the first companion diagnostic approval in blood-based MRD. Supported by more than 185 peer-reviewed publications, Signatera has become a cornerstone of precision oncology. However, while Natera's centralised model offers standardised quality control, economies of scale, and the ability to aggregate vast datasets for assay improvement, it depends entirely on efficient sample shipping

logistics, a significant barrier in emerging markets with underdeveloped cold-chain infrastructure.

Illumina's cautionary tale

The contrast in philosophies is illustrated by Illumina's \$10 billion GRAIL saga. Illumina's attempt to bolt a cancer screening services business onto its sequencing platform proved extraordinarily difficult, leading to GRAIL's divestiture. Roche is executing the inverse strategy, acquiring an assay and integrating it downstream into existing instrument and distribution infrastructure. This vertical integration represents a fundamentally more defensible position.

The federated alternative: Abbott-Exact Sciences

A third path emerged with Abbott's completion of its acquisition of Exact Sciences. The combined portfolio includes Cologuard, Oncotype DX, Oncodetect (a tumour-informed MRD test), and CancerGuard (a multi-cancer early detection blood test). Abbott's strategy appears distinct from both Roche's full-stack control and Natera's centralised model. Abbott brings unmatched global scale, an established diagnostics distribution network, and deep healthcare relationships. The company's approach can be characterised as a federated model: leveraging brand trust, distribution partnerships, and a broad portfolio rather than controlling every layer of the value chain.

India's regionally concentrated model

India-based Akrivia Biosciences announced a foundational breakthrough, uncovering hidden organisation of cancer genomes and developing T-OMICS, a multi-omics framework for advanced breast cancer patients. C2i Genomics partnered with Karkinos Healthcare to co-develop India's first whole-genome sequencing MRD test, while Datar Cancer Genetics launched Target-MRD across India and the GCC region.

For India, the strategic choice between centralised and distributed models carries profound implications. With 71 per cent of cancer-related deaths occurring during the most economically productive years of life (30-69 years), the cancer burden continues to rise. From 2021 to 2025, breast cancer incidence grew by nearly 13 per cent and cervical cancer incidence by over 2.5 per cent. Against this backdrop, MRD testing is not a luxury; it is a clinical necessity.

India's vast geography, uneven healthcare infrastructure, and varying laboratory accreditation levels make the centralised mega-lab model challenging to scale. A decentralised approach, placing MRD testing capabilities within regional hospitals and cancer centres, will improve access and reduce turnaround times.

Yet India cannot simply adopt Roche's distributed instrument model overnight; capital investment requirements are prohibitive. What is emerging instead is a regionally concentrated model: a network of accredited laboratories in major cancer centres, supported by distributed sample collection and domestic assay development.

Fortis Memorial Research Institute, in partnership with Agilus Diagnostics, launched its second Genexus system, delivering MRD results within five days. This rapid NGS programme has already demonstrated measurable impact: over 40 per cent of patients received targeted therapies compared to 11 per cent previously, bone marrow transplant wait times dropped from nearly four months to under three, and early deaths within 30 days of diagnosis were cut by more than half. But this model remains concentrated in Gurugram.

MedGenome, which operates South Asia's largest CAP-accredited multi-omics laboratory, has built relationships with over 24,000 clinicians and 8,000 hospitals across India. It launched OncoTrack MRD in September 2026. This personalised, ultrasensitive NGS-based tumour-informed test tracks tumour-specific signals rather than generic mutations, and is applicable across breast, colorectal, lung, ovarian, pancreatic, oesophageal, gastric, hepatocellular, and thoracic cancers, as well as melanoma. With home sample collection and nationwide availability, OncoTrack MRD embodies the regional concentration model: centralised high-throughput sequencing, distributed sample collection, and clinical interpretation close to the patient.

Together, these examples reveal the shape of India's answer: not a choice between centralised and distributed, but a deliberate architecture that concentrates technical capability while distributing access.

The endgame or the middle game?

The centralised model is not obsolete; Natera's FDA approval demonstrates its continued viability. However, it faces inherent scalability limitations in emerging markets. Roche's distributed approach offers the promise of ubiquitous access but requires substantial capital investment in instrument placement, training, and quality assurance across thousands of sites.

The competitive battleground has shifted. The decisive factor will be who defines where and how cancer monitoring happens. Roche is betting on distributed diagnostic power; Natera is doubling down on centralised excellence; Abbott-Exact is pursuing a federated middle path. Startups ensure the competition remains dynamic, with new entrants continually reshaping the landscape.

For India, no single model will dominate. Instead, we are likely to see a complex middle game: centralised reference labs for specialised applications, distributed testing for routine monitoring, and hybrid models adapting to local realities.

The future of MRD will not be determined solely by who builds the most sensitive assay. It will be determined by who makes that capability accessible at scale. In India, the answer is taking shape as a regionally concentrated model, one that concentrates technical excellence while distributing access closer to the patient.

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