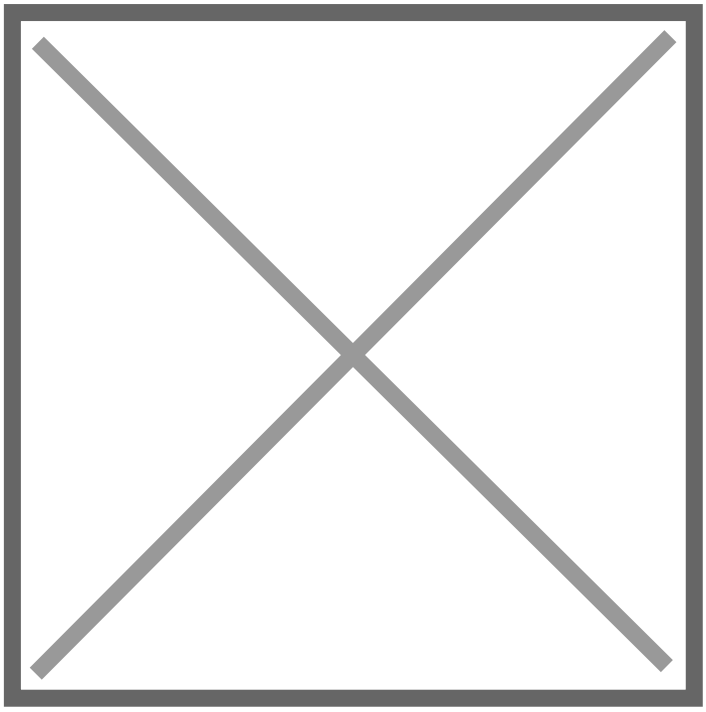


Technology & More ...

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The story of emerging technologies in healthcare is the boom that was waiting to happen. What was considered special and innovative some 30 years back is now regarded as healthcare's daily tools.



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Bigger budgets and stress on research and development are now allowing for newer technologies in manufacturing, communication and networks. There are many advantages of introducing newer technologies on the job to reduce turnaround time and lower costs without compromising on the quality. Additionally, public awareness initiatives across the globe are facilitating the uptake of new technologies and highlighting the value of IVDs in the improvement of medical care.

Molecular diagnostics

Advances in certain technologies have provided us with an understanding of mechanisms of disease at a molecular level. This can now be translated into diagnostic, prognostic and therapeutic tools.

Molecular Diagnostics covers current molecular biological techniques and procedures to evaluate infectious disease, inherited disorders, cancers and other gene abnormalities. Techniques include the use of PCR, DNA hybridization, RFLP, blotting techniques, fluorescent in situ hybridization (FISH), second-generation biochips and microfluidics, next-generation signal detection, biosensors, and molecular labels.

Propelled by factors such as increasing prevalence of several chronic and infectious diseases, emerging technologies and increasing patient awareness, the IVD market is particularly characterized by the emergence of various novel technologies like Molecular diagnostics which is expected to play a very important role in driving the future growth of the industry.

In particular, the evolution of molecular diagnostics expects to have a significant impact on patient success rates and overall healthcare cost reduction.

New disciplines

A combination of new disciplines, such as genomics and proteomics, has now given molecular diagnostics new technologies. Genomics is the study of all the genes in a cell or organism, while proteomics is the study of all the proteins. Molecular diagnostics determines how genes and proteins interact in a cell, focusing on the activity patterns in different types of cells to uncover changes. These "expression patterns" of intracellular activity help to diagnose an existing condition such as cancer, or warn of a possibility or probability of contracting a particular disease. This has been used extensively in personalised medicine which uses genotyping to predict an individual patient's response to a particular drug. It also includes any test that guides, modifies, or customizes treatment of a specific disease in a patient. For example, a genetic test for BRCA mutations can indicate an increased risk for developing breast or ovarian cancer. With this knowledge, physicians and patients can take preventive actions to mitigate that risk.

The largest market in the molecular diagnostics segment is currently infectious-disease testing. This is due to the fact that infectious diseases present a major market opportunity in terms of incidence and that the genetic information required for identifying pathogens is readily obtained from the bacterial and viral species involved.

Gene and chromosome testing also represents a large segment of the molecular diagnostics market segment. At this point in time, most genetic testing is prenatal testing for assessing clinically suspect newborns for various chromosomal abnormalities.

Prospects for India

The molecular diagnostics market has an encouraging outlook for India. First, the economic boom in India has led to a striking increase in purchasing power among the middle- to upper-tier economic groups. Thus, although disease-screening programs are largely at an embryonic stage, the shift in economics and attitude provides for a more encouraging outlook in terms of the success of such efforts in the future.

Second, the arrival of multinatonal corporations in large numbers to the Indian scene has been accompanied by a similar growth in indigenous corporate entities where employee health issues are of increasing importance. A parallel development has been the progressive expansion of health insurance programs that cover curative, diagnostic, and health screening programs.

The third encouraging facet of the demographic shift in India concerns NRIs. Returning NRIs are accustomed to having regular medical checkups and know well the value of preventive medicine from their stay in the West. These facts, combined with the age and purchasing power of NRIs, represent a significant and growing market for cutting-edge tests.

Innovations in molecular diagnostics continue to advance the state of medicine, however there is an increased need for automation. Many IVD companies have introduced smart platforms that depend less on highly skilled medical technicians and more on technology. There is also a growing awareness of the need for knowledge-based software that can transform laboratory data into valuable information that directly affects patient management.

Significant technical obstacles must be overcome before proteomics and pharmacogenomics (targeted drug therapy by taking account of an individual's genetic makeup) can make the transition from the laboratory bench to the clinical laboratory and patient bedside.

Outlook

This specific segment of the in-vitro diagnostics market called molecular diagnostics is expanding in important areas like viral load monitoring of HIV patients.

The current trends and future outlook for this segment are excellent for the worldwide market. The detection of predisposition to lifestyle disorders and underlying genetic factors that may contribute to eventual disease onset are correspondingly important factors in long-term (chronic) health care management.

With the breakthroughs in molecular diagnostics and advances in laboratory equipment, this piece of the diagnostics pie is going to play an increasingly large role in early diagnosis, monitoring, and targeted pharmaceutical intervention.

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