



Current Perspective on Diagnostic Pathology Laboratories (Laboratory Medicine)

Dr. R. G. Wiseman Pinto

Medicine is developing at a galloping pace and our Society is also transforming equally fast.

We are living in an environment that is ruled by the latest technology, digitization, information, genetic, epigenetic, personalised medicine, preventive medicine and integrated medicine, AI, Robotics and E Medicine .

A doctor needs an accurate diagnosis to institute therapy for any patient .
Hence he or she is dependent on the different Diagnostic Laboratories to carry out and give the reports of Blood. Urine, stools , Body fluids , Cells, tissues and other specimens.

As such the testing must be optimal and cost effective in the patients interest .

The tests carried out could be Clinical Pathology, Hematology, Biochemistry, Microbiology, Immunology, Cytopathology, Histopathology, Immunohistochemistry, Molecular and Genetic Analysis .

The different labs are labs attached to nursing homes , hospitals, stand-alone labs, labs operated by corporates and highly skilled and specialised Molecular Biology labs .

The tests are carried out for a primary diagnosis , screening , health check-up, follow up and to risk stratification and prognosis.

The important tests are CBC Complete blood counts ,RBCs ,WBCs Platelets , bleeding diseases, Hemolytic anemias, infections , lipid profile, kidney function tests , liver function tests , thyroid profile, Glucose estimation, HbA1C , urine , stool exam , different panels , immunology tests, Cytology and Histopathology.

The automated machines are 9 part cell counters. Biochemistry autoanalyzer, Immunotherapy analysers, Automated Urine and automated coagulation estimation analysers , automated bacterial and Microbiology systems. ELISA , RT. PCR , FISH , and NGS. The new Cancer markers, immunology markers and Infectious Diseases markers, new tests for Alzheimer's diseases , ageing ,and Transplants recipients are increasing every day .

Some Labs give a package for the Health check ups.

The sophisticated tests are costly and use the latest and advanced technology, platforms and AI .

There are also genetic tests. Tests for rare disease and predictive tests .

The Labs must have a Quality Assurance and control system both internal and external.

Many labs are accredited by National agencies like NABL (National Accreditation Board for testing for Laboratories) as well as International agencies like CAP based in USA .

The report generated must be correlated with the patients Clinical history , findings are other parameters .

The doctor must take a Holistic view and not treat the reports .

There is Multidisciplinary medicine, Personalised medicine, preventive medicine and predictive medicine

If there is a family history or genetic abnormalities, they are handled in a different and proper manner.

The Medical personnel must be MBBS with MD Degree in Pathology / Microbiology / Biochemistry . In addition in certain places there is PhD in Pathology

In National Institutes like AIIMS New Delhi , PGIMER Chandigarh, Tata Memorial Hospital, NIMHANS Bangalore, SGPGI Lucknow, BHU Varanasi, AMU Aligarh Sree Chitra Tirunal Trivandrum and JIPMER Pondicherry new courses and Degrees have been started like DM Oncopathology, DM Histopathology, DM Hematopathology, DM Neuropathology, DM Medical Genetics and DM Immunopathology.

There are Labs of government Forensic Sciences units which specialise in Narcotic Drugs testing which are important . Also health services labs are earmarked to conduct tests for the purity of water that is consumed or well water .

These labs need biosafety measures and biohazard material waste disposal certificates and authorisation as well as Pollution Control and fire safety measures.

In our country sadly there are a few Unauthorised Labs run by unqualified Personnel with falsified names and falsified signatures.

The Government and the controlling authorities must take a serious view of these cases and take strict action .

The Labs are also a goldmine of data.

Important to note that the reports and samples are the property of the patient and confidentiality must be kept .

Pathologists were behind the curtain although they play an important part in the patient management . Now they are more vocal and speak out for the rights and truth.

Plenty of slides are referred to the author from veterinary histopathology and cytopathology.
For expert opinion
In addition slides from the wild animals were also referred .

Integrative Laboratories in collaboration with Imaging are the new Diagnostic Centers.

With Digital Pathology slides are shown to experts anywhere in the world sitting in one location.

So the hope is to have good, competent, Ethical, reliable, authorised and accredited Laboratories.

For the good of our population to make the people happy, fit and healthy .

This author also receives referral on the cell phone of reports and slide photos from different parts of Goa, India and overseas.

Dr. R.G. Wiseman Pinto is a Professor of Pathology, former Head of Department at Goa Medical College, former Dean of Goa University, and the current President of the Asian Society of Cytopathology (SACH)