

Judicious Use of Laboratory Diagnostic Services

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The remarkable advances in the various disciplines of science recorded during the post-world war II era have opened novel dimensions for advancements in all the medical sciences as well. The management of the diseases and patients, today, is not as it used to be few decades ago. In yester years, when the diagnostic disciplines *i.e.* pathology and radiology were still evolving, the clinicians had limited choices. They had to rely more on their skills and clinical acumen *per se*. But in the recent past, the introduction of sophisticated automated equipment with digitalisation has remarkably changed the scenario regarding patients' management.

Today, clinicians have a multitude of diagnostic aids that facilitate them in reaching worthwhile diagnoses. In addition, there are modalities and tools, which help to predict the course of the disease and influence the patients' management and prognosis. It has been estimated that over 70% of clinical diagnoses and patient management decisions depend on the laboratory tests.¹

This, however, comes with a price. The clinicians have to choose befitting modalities out of a long list of available options. This is the test of their skills and acumen. To advise the most suitable diagnostic tests helpful for making a diagnosis, require an explicit expertise and a compassionate approach. The injudicious use of diagnostic services burdens not only the diagnostic facilities unnecessarily but also heavy on the pocket of the patients, their families, and the healthcare system.² This is especially a matter of concern in the resource-constrained countries like Pakistan. Unfortunately, crucial time and logistic efforts are wasted on such tests which have no real bearing on the outcome and management of the disease. Such futile exercises close the window of opportunity both for the patients and the treating physicians. Such untapped opportunities, if ceased timely, could bring dividends for the patients and their families.³

Healthcare expenses include consultations with health professionals, medical or examination procedures, medicine and other supplies, and laboratory tests.⁴ The average percentage of gross domestic product (GDP) countries spend on the health care varies and an average percentage of the member countries given by the WHO for 2018 is 6.51%.

The United States is the highest spending country worldwide when it comes to health care. In 2020, total health expenditure in the U.S. exceeded four trillion dollars. For Pakistan, the spending on health has been less than one percent of GDP since decades. As revealed by the Economic Survey of Pakistan 2020-21, the country's health expenditure totaled 1.2 % of the gross domestic product in the outgoing financial year against five percent as advocated by the WHO.

Global health expenditures have seen a remarkable increase in the last two decades *i.e.* from US\$4.1 trillion in 2000 to US\$8.2 trillion in 2017. The policymakers and health care providers have to thoroughly understand the break-up of these expenditures to be able to standardise the health care service. However, there are data availability issues and differences in country-specific health systems hindering the process. The data of various categories of health expenditures are often unavailable; thus, the lack of this essential information deprives the policymakers and researchers of a holistic understanding of how expenditures have been incurred and if adjustments should be made.⁵

To address this issue comprehensively, an integrated approach is crucially required to be applied henceforth by the healthcare providers to have more meaningful outcomes for the patients. Instead of an isolated and vertical functioning, well-coordinated, better planned, and coherent teamwork amongst the members bring forth better results and delivers more for the patient management.⁶ The current COVID-19 pandemic has highlighted this issue further during which a long list of tests have been ordered repeatedly to evaluate the status of the patient. There is no question regarding the usefulness of the battery tests for the better patients' management; nonetheless, deep thoughtfulness is required before the clinician pens them down.

This puts additional responsibility on clinicians and diagnosticians. Both have to develop closer liaison and mutual coordination to plug the waste of the resources. Creating a culture that encourages such professional collaboration is critical. Health care organisations should support and facilitate collaborative teamwork. It is high time that healthcare providers spell out policy, workout strategies, and develop national standards and guidelines on operative procedures and state-of-the-art interpretation of laboratory tests to address this issue while utilising various available forums.⁷ This process shall entail launching awareness campaigns regarding the appropriateness and utility of the various laboratory tests.

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Not only the clinicians themselves have to keep abreast with the newer developments in the field of laboratory medicine, but have to take along their junior colleagues as well. The young trainees need to be sensitised regarding this issue. The clinic-pathologic conferences (CPCs), multi-disciplinary team meetings (MDTs), and other such platforms can be utilised in this respect. It should be emphasised that this is the highly required professional and ethical obligation, which must be met.

The undergraduate students should have awareness. The future doctors need to be made conscious of these aspects. This may necessitate introducing changes in curricula, devoting more time to CPCs or bedside training, where such matters can be discussed in an interactive manner. This will help to inculcate the right behavioral reflexes in our young doctors. Undergraduate years are the best time to develop these reflexes and strengthen the culture of consciousness. The importance of understanding the principles to select the most appropriate laboratory tests for the specific patient has increased manifold in this era of outcome-oriented medicine.¹

The issue becomes even more sensitive as the population is getting more aware of health matters, disease risks, and diagnostic tests because of easy and wider internet access. Also, the direct-to-consumer diagnostic market has its presence now. The healthcare system needs to emphasise that the repeated test requests over a period of time do not help anyone, especially the patients.⁸ Pathologists have to play an important role in simplifying and streamlining the entire diagnostic process because point-of-care testing has also increased, and many redesigned tests, focused on patient care, have been in use now.

Therefore, this becomes a shared responsibility of healthcare professionals. On the part of laboratory diagnostic services, the desired impact can only be achieved if accurate test results are delivered at the proper time, while on the clinicians' side, the emphasis should be to reduce abuse (over-ordering) and misuse (e.g., ordering the right test for the wrong purpose or

vice versa) of these tests.³ It is binding upon physicians and pathologists to understand which laboratory tests are appropriate for the diagnosis and follow-up of a patient's medical condition. A close coordination of all the stakeholders is required to make everything work smoothly. New models of care, emerging technologies, expansion of medical knowledge, and advances in information technology (IT) and data management, all drive for this transformation and the reward will be better patient care.

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