



Review Article

Laboratory Turnaround Time

Biswajit Dey^{1*}, Jyotsna Naresh Bharti¹, Montosh Chakraborty²

¹Department of Pathology, ²Department of Biochemistry,
Maulana Azad Medical College, New Delhi, India

*Correspondence Email: drbish25@rediffmail.com

Received: 20/03/2013

Revised: 11/04/2013

Accepted: 23/04/2013

ABSTRACT

Turnaround time (TAT) has been considered as cornerstone for measuring laboratory performance. However there has been lack of consensus among the clinicians and laboratory personnel on interpreting the term “TAT”. A faster TAT has always been solicited in spite of inconclusive data on turnaround time and clinical outcome. The causes of delayed TAT have been varied. A wholesome approach has been advocated to achieve a faster TAT.

Key words: Turnaround time, Laboratory, Analytical, Clinical outcome

INTRODUCTION

Turnaround time (TAT) is one of the parameters to measure performance of any laboratory. Laboratories often give importance on accuracy and precision of the tests as their goals for quality service. However the clinicians prefer a faster TAT of the tests, which may help them to diagnose, treat and discharge their patients faster. This may explain the increased popularity of use of point of care tests in clinical care. ^[1]

Definition of Turnaround Time

TAT may depend on various factors like the type of test performed, priority of the test, type of patients the test is catering to and also on the activities. ^[2] There is a difference of interpreting the term “TAT” of a specific test among the clinicians and

laboratory personnel. For laboratory personnel, TAT includes the time from the receipt of sample in laboratory to generation of report. On the other hand clinicians consider TAT from the time of test requisition till the receipt of report. ^[3] Even among the laboratories the definitions of TAT differs regarding the start points and end points.

According to the 1998 College of American Pathologists (CAP) Q-Probes program, most of the laboratories (41.1%) considered TAT from time of receipt of samples in laboratory to time of reporting of results, followed by ordering of tests to reporting of results (27.0%), and sample collection to reporting (18.2%). On the other hand for most physicians (more than 40%) TAT started from the time they requested the test and only for a small percentage (9%)

TAT started from the time sample reached the laboratory. [3] While most of the laboratories receive negative feedbacks about TAT, there is little consensus between the laboratory personnels and clinicians regarding it. Many have described the term “therapeutic TAT”, which is the time from a test is being ordered to the time a treatment decision is made based on the result of the test. Thus “therapeutic TAT” may be considered to include the three phases of any laboratory test and that includes the pre-analytical, analytical and post-analytical phases. However for a laboratory, TAT includes only the analytical phase of the test. [2]

Benchmarks for Turnaround Time

There is lack of clearcut benchmark for TAT parameters, which has created much of the confusion. However databases regarding TAT parameters can be obtained from the College of American Pathologists Q-Probes and Q-Tracks programs. [1]

Turnaround Time versus Clinical Outcome

Faster TAT does not always improve clinical outcome of a patient. Studies have demonstrated that point of care tests did not improve duration of stay of patients in hospital. [4, 5] Thus laboratory TAT may not be the deciding factor for discharge of admitted patients.

While other studies have demonstrated that point of care tests reduced the duration of stay in hospitals. [6] Thus these studies suggest the role of faster TAT in reducing the stay of patients in hospital but then they had shortcomings in their study methods.

The literature on turnaround time and patient outcome is inconclusive however faster TAT is always solicited. [2]

Benefits of Improved Turnaround Time

Inspite of inconclusive data, faster TAT has certain benefits. It is a well known fact that patient outcomes are adversely affected by delays in diagnosis. [7] Correct

and fast laboratory data helps clinicians with diagnosis and early institution of treatment. Thus an improved TAT may increase the efficiency of clinicians. [1]

Nowadays increased importance is given to patient satisfaction. [7] With a faster TAT, laboratory results can be conveyed to the patient, thus improving patient satisfaction.¹ Moreover a slow TAT can lead to increased requests for duplicate test. [8] This may again increase the cost burden of healthcare.

Causes of Delayed Turnaround Time

The causes of delayed TAT may be pre-analytical, analytical or post analytical. Causes of delays in TAT are most commonly associated with pre-analytical and post-analytical phases. The most common reasons for test delays are related to sample collection and transport, interruption of routine testing for urgent analyses, and communicating results to clinicians. [3] the most important factor for delayed TAT in Indian setting is deficiency of automated facilities for transport of sample and report delivery. Most of the laboratories in India still rely on manual courier for transport of sample and delivery of report. [9]

Steps for Improving Turnaround Time

Improving TAT is a continuous long term process. Specimen should be transported rapidly from collection areas or centres to the laboratory areas and if possible by automatic systems. Accessioning of samples can be done by bar code readers. Proper equipments installation and trained laboratory personnels may help to reduce TAT. Timely quality control measures and updated standard operating protocols may be a time saver. Computerization of laboratories using improved softwares to interface instruments, to review results and to deliver reports to clinicians may go a long way to improve productivity of fastest TAT. [1, 3] Moreover

talking to customers and paying attention to their feedbacks may also improve TAT. [10]

CONCLUSION

TAT has different interpretations for the clinicians and laboratory personnels. Although there is difference of opinions relating to the clinical outcomes of an improved TAT, the causes of delayed TAT should be identified. Improving TAT is a continuous process and we need to have a wholesome approach for reducing the obstacles for optimum TAT.

REFERENCES

1. Howanitz J H, Howanitz P J. Laboratory results. Timeliness as a quality attribute and strategy. *Am J Clin Pathol* 2001; 116:311–315.
2. Hawkins R C . Laboratory turnaround time. *Clin Biochem Rev* 2007; 28:179–194.
3. Steindel S J, Howanitz P J. Physician satisfaction and emergency department laboratory test turnaround time. *Arch Pathol Lab Med* 2001; 125:863–871.
4. Parvin CA, Lo SF, Deuser SM et al. Impact of point-of-care testing on patients' length of stay in a large emergency department. *Clin Chem* 1996;42:711–717.
5. Kendall J, Reeves B, Clancy M. Point of care testing: randomised controlled trial of clinical outcome. *Brit Med J* 1998; 316:1052–1057.
6. Singer AJ, Ardise J, Gulla J et al. Point-of-care testing reduces length of stay in emergency department chest pain patients. *Ann Emerg Med* 2005; 45:587–591.
7. Kenagy JW, Berwick DM, Shore MF. Service quality in health care. *J Am Med Assoc* 1999; 281:661-665.
8. Howanitz PJ, Steindel SJ. Intralaboratory performance and laboratorian's expectations for stat turnaround times. *Arch Pathol Lab Med* 1991; 115:977-983.
9. Goswami B, Singh B, Chawla R et al. Turaround time (TAT) as a benchmark of laboratory performance. *Indian J Clin Biochem* 2010; 25:376-379.
10. Stotler BA, Kratz A. Determination of turnaround time in the clinical laboratory: "accessioning-to-result" time does not always accurately reflect laboratory performance. *Am J Clin Pathol* 2012;138:724-729.

How to cite this article: Dey B, Bharti JN, Chakraborty M. Laboratory turnaround time. *Int J Health Sci Res.* 2013;3(5):82-84.
