

# Improving Reports Turnaround Time: An Essential Healthcare Quality Dimension

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**Abstract.** Turnaround time is one of the most important healthcare performance indicators. King Faisal Specialist Hospital and Research Center in Jeddah, Saudi Arabia worked on reducing the reports turnaround time of the neurophysiology lab from more than two weeks to only five working days for 90% of cases. The main quality improvement methodology used was the FOCUS PDCA. Using root cause analysis, Pareto analysis and qualitative survey methods, the main factors contributing to the delay of turnaround time and the suggested improvement strategies were identified and implemented, through restructuring transcriptionists daily tasks, rescheduling physicians time and alerting for new reports, engaging consultants, consistent coordination and prioritizing critical reports. After implementation; 92% of reports are verified within 5 days compared to only 6% before implementation. 7% of reports were verified in 5 days to 2 weeks and only 1% of reports needed more than 2 weeks compared to 76% before implementation.

**Keywords.** Healthcare, Report Turnaround Time, Quality Improvement, Hospitals.

## Introduction

The main goal of all healthcare organizations is to achieve the highest quality of services. It is important to define healthcare quality and to identify quality improvement dimensions and methods. Healthcare quality improvement encompass all the combined and continuous efforts of all healthcare stakeholders to make the changes that will lead to better patient outcomes, better system performance and better professional development [1]. Many criteria and measurable attributes can define healthcare quality, such as safety, effectiveness, efficiency, availability, accessibility, timeliness and equity. Healthcare professionals and organizations must take into account patient as well as social preferences in assessing and assuring quality [2]. One of the most significant key indicators of services' performance is the turnaround time. It is generally defined as the amount of time needed to fulfill a request, such as the time elapsing from placing a request or an order to perform an investigation till the test or study results are reported back [3]. Neurophysiology is a branch of physiology and neuroscience that is concerned with the study of the functions of the nervous system. The primary tools of basic neurophysiological testing and research include electrophysiological recordings, extracellular single-unit recording and recording of local field potentials [4]. At hospitals, neurophysiology departments are responsible for performing a wide range of clinical diagnostic procedures and providing results to

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many medical departments and services, such as neurology, neurosurgery, pediatrics, psychiatry, psychology and cognitive sciences [5]. The availability and the timeliness of the results can significantly influence the diagnosis approach and the management plan of patients [6]. It is very essential for high quality successful healthcare services to improve the timeliness of neurosciences studies results, since the diagnostic delay in many neurological conditions is highly associated with complications, poor prognosis and permanent disability in many documented cases [7-9].

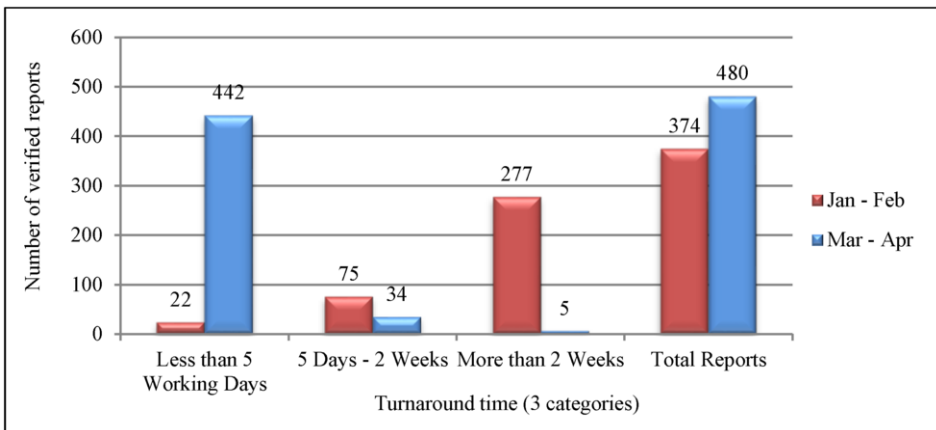
## **1. Methods**

As a part of a performance improvement project, the clinical services department at King Faisal Specialist Hospital and Research Center, Jeddah, Saudi Arabia worked on reducing the reports turnaround time of the neurophysiology procedures from more than two weeks to only five working days excluding test day. Before starting this performance improvement project, the average turnaround time for neurophysiology reports to be available for outpatients was more than two weeks which is leading towards dissatisfaction of both patients and healthcare providers, and in many cases causing delay in the diagnosis and in the treatment. This project was initiated to identify the causes of the delay and implement strategies to reduce it and bring it within five working days for at least 90% of cases. The main quality improvement methodology used was the FOCUS PDCA, which is an improvement methodology that many organizations use to guide their improvement efforts. It's simply a formalized process for improvement, where the letters stand for; find, organize, clarify, understand and select, to determine the root causes of a problem then plan, do, check and act to implement the solution [10]. The project started on the first of February and was completed by the 15<sup>th</sup> of May 2015. Root cause analysis approach was used to determine the main factors contributing to the delay in the reports turnaround time, where a root cause analysis is a method of problem solving used for identifying the root causes of faults or problems [11]. Pareto analysis was also used to prioritize these core issues and focus the adopted strategies on the vital few causes for remedies and implement them, then data was collected again to analyze the outcomes. Through qualitative semi-structured survey methods; experiences, opinions and suggestions of stakeholders and study participants were collected and data was analyzed. Based on the results of applying those methodologies six interventions were implemented.

## **2. Results**

Data was collected about specific reports turnaround time check points and intervals; 1) Test Done to Report Dictated, 2) Report Dictated to Report Transcribed and 3) Report Transcribed to Final Report Sign-Out. Pre-data about reports turnaround time, during January and February 2015, was collected and analyzed for the numbers and percentages of reports finalized and verified within 3 time frames; 5 working days, 5 days to 2 weeks and more than 2 weeks. Root cause analysis and the qualitative semi-structured surveys revealed that the unavailability of transcriptionists was responsible for about 60% of the delay in the reports turnaround time, limitations of outsourced staff was responsible for about 19% of the delay, general causes of delay in reporting represented about 8%, unavailability of the physician responsible for writing the

reports represented about 6%, delays in the final review by the physician represented about 4% and the delay in the transcription process itself represented about 3%. Based on the Pareto analysis and 80/20 rule, the following interventions were implemented; 1) Medical record transcriptionists were requested to dedicate some time every day rather than one day per week to transcribe reports. 2) Physicians were scheduled and emphasized to report procedures immediately. 3) Assistant consultants were engaged in reporting and verification process. 4) Consistent coordination was maintained with physicians and transcriptionists. 5) Reporting status was shared with physicians to keep them informed. 6) All outstation/critical patient reports were given priority to be finalized on the same day. Post-data about reports turnaround time, during March and April 2015 was collected, analyzed and compared with the pre-data to check the impact of the six interventions. Figure 1 shows a comparative pre-to-post intervention numbers of reports, classified into the three time frames of the turnaround time, showing numbers of reports in each time frame in addition to the total number of verified reports.



**Figure 1.** Reports Turnaround Time Before and After the Interventions.

Table 1 shows the counts and percentages of reports according to the three time frames of turnaround time. Before implementing the interventions, only 6% of reports were finalized and verified within 5 working days, 20% of reports were verified in 5 days to 2 weeks and the majority of reports; 74% were verified in more than 2 weeks. After implementing the interventions, the majority of reports; 92% are finalized and verified within 5 working days, achieving the target of the project, 7% of reports were verified in 5 days to 2 weeks and only 1% of the reports needed more than 2 weeks to be finalized and verified.

**Table 1:** Clinical Neurophysiology Reports Turnaround Time Before and After the Interventions.

Reports and Turnaround Time	January & February 2015		March & April 2015	
	No.	%	No.	%
Less than 5 Working Days	22	6%	442	92%
5 Working Days - 2 Weeks	75	20%	34	7%
More than 2 Weeks	277	74%	5	1%
<b>Total Reports</b>	<b>374</b>	<b>100%</b>	<b>481</b>	<b>100%</b>

### 3. Discussion

The main six goals for healthcare quality improvement, viewed also as six dimensions of quality are safety, effectiveness, efficiency, timeliness, patient centeredness and equity [12]. This achieved improvement can obviously contribute to the improved productivity, increased customer satisfaction, improved work processes, building up a motivated team, decreased customer complaints, improved timely evidence based treatment and improved coordination and understanding among all stakeholders. This performance improvement project proves that processes can be improved and impressive results can be obtained by process redesign or restructure and efficient utilization of available resources. Having done this, we succeeded in raising the percentage of neurophysiology reports that are finalized and verified within 5 working days from 6% to 92%.

### 4. Conclusion

Further reduction in the delay of the reports turnaround time in different healthcare settings may be achieved by automating the medical transcription process using voice recognition systems. Consultant physicians and assistant consultants should always be taken on board early in the process and advised to verify reports in a timely manner. Proper coordination between physicians and transcriptionists should also be enhanced. Physicians should always be informed of the reporting status and progress. Reports should be prioritized according to the patients' clinical conditions and cases severity. More studies should be conducted to explore other performance gaps and new methods for improvement.

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