



## Comparative Study of Waiting and Service Costs of Single and Multiple Server System: A Case Study on an Outpatient Department

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### Abstract

Hospital management tradeoffs always exist between the costs in providing better service and waiting time of patients in any hospital. The objective of this study was to investigate whether increasing the cost for better service decreases the cost of patients waiting time or not, by using the technique of single and multiple servers which is based on the theory of Markovian queuing system. For this study, four weeks data has been taken from a public hospital. The results shows that as the service capacity level of doctors at the hospital increases from three to four servers then minimum total costs (include waiting and service costs) and the waiting time of patients as well as overutilization of doctors can be reduced. This study also suggests that increasing the service units up to four servers will achieve lower cost as against two or more service units.

**Keywords:** Outpatient; Performance measurement; Queue; Server; Service cost; Waiting cost.