

## A Simulation of Patient Queuing System on Radiology Department at Tertiary Specialized Referral Hospital in Indonesia

**Authors :** Yonathan Audhitya Suthihono, Ratih Dyah Kusumastuti

**Abstract :** The radiology department in a tertiary referral hospital faces service operation challenges such as huge and various patient arrival, which can increase the probability of patient queuing. During the COVID-19 pandemic, it is mandatory to apply social distancing protocol in the radiology department. A strategy to prevent the accumulation of patients at one spot would be required. The aim of this study is to identify an alternative solution which can reduce the patient's waiting time in radiology department. Discrete event simulation (DES) is used for this study by constructing several improvement scenarios with Arena simulation software. Statistical analysis is used to test the validity of the base case scenario model and to investigate the performance of the improvement scenarios. The result of this study shows that the selected scenario is able to reduce patient waiting time significantly, which leads to more efficient services in a radiology department, be able to serve patients more effectively, and thus increase patient satisfaction. The result of the simulation can be used by the hospital management to improve the operational performance of the radiology department.

**Keywords :** discrete event simulation, hospital management patient queuing model, radiology department services

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