ABSTRACT

Hospitals require a high level of efficiency and effectiveness with one of the main challenges being the management of patient queues for medical services. At Husada Utama Hospital, patient queues often result in long waiting times, with patients having to wait up to 90 minutes to get medical services from doctors. This queuing problem occurs because the number of patients who come is not proportional to the available service capacity. This study aims to reduce patient waiting time and improve service levels by modeling the queuing system using simulation. The data used is observation data of patient waiting time from 08.00 to 17.00 on busy days without considering special days such as Eid al-Fitr.

The discrete simulation research method involves collecting processing time data which is the processed and integrated into a simulation model using Arena Software. Model verification and validation are performed by comparing simulation results with real data and T-test statistical tests to ensure model accuracy.

Existing conditions result in an average waiting time at the Nurse Station of 47.86 minutes with a utility of 72%, at the General Poly of 144.86 minutes with a utility of 89%, and at the Specialist Poly of 163.97 minutes with utility of 89%. After improving scenario 1 by adding one APKM unit, the average waiting time and utility at the Nurse Station decreased to 26.80 minutes with 68% utility, in general poly to 94.03 minutes with 83% utility, and in specialist poly to 105.23 minutes with 84% utility. Based on the results obtained, there was a decrease in queue time of 60.82% at the Nurse Station location, 35.08% at the General Poly, and 35.83% at the Specialist Poly. Thus, it is known that scenario 1 provides th most reduction in average waiting time with ideal utility.

Keywords: Queue, Arena, Hospital, Discrete Simulation