

**ABSTRACT**

Hospital is one of public services that has to provide good service quality. The number of hospital service users every year is increasing. One of the factors causing the increase of the users is because of the National Health Insurance (JKN). Increased service users in hospitals caused queues that occurred in the use of existing hospital service facilities such as outpatient and inpatient services.

The purpose of this research is to analyze the causes of the queue of patients that occurred in Department Urology dr. Soetomo General Hospital and give suggestions to improve queue system to solve the problem that currently occurs in Department Urology. Test data distribution is analyzed by using SPSS software and the data processing of queuing theory use POM-QM Server windows software 3. The analysis of causing factors used a fishbone diagram.

The queuing model used today has a queue pattern of multiple service facilities with a single-phase Multichannel (M/M/S) using the Priority Service rule. The patient arrivals distribution is poisson like pattern with patient average arrival rate ( $\lambda$ ) is 7.5 patients / month for class 1, 11,667 patients / month for class 2 and 31,883 patients / month for class 3 and average service level / waiting time ( $\mu$ ) is 0.542 patients / month for class 1, 0.221 patients / month for class 2 and 0.663 patients / month for class 3. The results of queue system performance in Department Urology dr. Soetomo General Hospital show that the utility on each server is  $3.46 > 1$  for class 1,  $3.11 > 1$  for class 2 and  $2.18 > 1$  for class 3 hence it didn't represent steady state conditions.

The problems that were occurred due to the time needed for service is too long, so service facilities can not accommodate the number of existing patients. In addition, the limited number of medical equipment and human resources in the hospital caused in the services provided to the patients longer time that so the patients had to wait longer to get the service. We propose optimize the existing medical equipment using shift out office hours system and by adding the doctors after office hours. Using the shift out office hours system we can increase as much 24 more patient that can be accommodated our service in every week.

**Kata Kunci :** Queue Theory, Hospital Queue, Service Level, Waiting List, Repair Queue System