

**Title:**

Implementation of Lean Technique towards Reducing Waiting Time in a Public Healthcare using Arena Simulation

**Journal:**

International Journal of Integrated Engineering, Volume 13, Issue 5, 2021.

**Document Type:**

Article

**Authors:**

*Ahmad, A.N.A.,*

*Ahmad, M.F.,*

*Hamid, N.A.,*

*Hamid, N.A.A.,*

*Chuan, L.T.,*

*Nawanir, G.,*

*Bakri, A.,*

*Rahim, M.A.*

**Full text link:**

Publisher : <https://publisher.uthm.edu.my/ojs/index.php/ijie/article/view/8642/4506>

**Scopus preview:**

<https://www.scopus.com/record/display.uri?eid=2-s2.0-85120908064&doi=10.30880%2fijie.2021.13.07.024&origin=inward&txGid=ee84352837994d627efe3d3ed572c91b>

**Abstract:**

Lean is a set of operating philosophies and methods that can help patients create maximum value by reducing waste and waiting time. Longer waiting times are associated with increased levels of discomfort experienced by patients that may affect the patient's mental health, leads to depression, anxiety disorder and psychological distress. The waiting time of clinic is considered one of the crucial aspects of patient satisfaction which is a key indicator of service delivery. Therefore, the purpose of this study is to implement lean techniques towards reducing waiting time at outpatient department in one of the public healthcare centres in Kedah. This study had collected the data for three days at the outpatient department by using qualitative method through interview and observation. Data was collected through a record phenomenon with instrument and observing the service time of patients in the process flow throughout the treatment period from the moment they arrived at the healthcare until treatment is provided and the patient leaves the outpatient department. Arena simulation software designed for data analysis was used to simulate the modeled process in the simulation software. The simulation system can help to produce more accurate decision for an efficient flow of the patient's in and out of the treatment process and reduce the waiting time. The results showed the total average processing time for each patient through all the process had reduced by 7.21 minutes (15.20%) after the waste was eliminated and improvement process had been made. This can lead to an increase in the number of patients in and out in daily operation at the outpatient department.