

ABSTRACT

DECISION SUPPORT SYSTEM TO PRIORITIZE VENTILATORS FOR COVID-19 PATIENT USING AHP, INTERPOLATION, AND SAW

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During the covid-19 pandemic era, many hospitals face ventilator shortages. Healthcare workers face a dilemma due to the lack of healthcare supplies with many lives to save. When there are enough resources available, every patient gets an equal treatment and chance but what if there is a big difference in number between supplies and patients? There needs to be a prioritization mechanism that can objectively decide the allocation of these already scarce resources in the hopes of achieving the best outcome.

A decision support system is a system that can support humans using data as decision makers to help them decide semi-structured/unstructured problems. The goal of this research is to create a DSS to prioritize patients who need a ventilator based on predetermined criterias and policy by incorporating three different methods. The DSS is a web-based app, made using Python language.

Based on the experiment, the proposed DSS is able to rank COVID-19 patients for ventilator allocation using SOFA as criteria and using AHP, Interpolation, and SAW as the method. The proposed DSS ranked the patients differently than raw SOFA Score, with the main difference being that the proposed DSS can avoid tiebreaker criteria usage caused by similar priority results.

Keywords: DSS, Healthcare, Analytical Hierarchy Process, Interpolation, SAW