

ABSTRACT

In the increasingly competitive world of healthcare, understanding the disease progression of patients is crucial, especially for chronic diseases such as Congestive Heart Failure (CHF). CHF has a significant medical and economic impact as it requires long-term care at a high cost. This study aims to analyze the disease journey of CHF patients to identify clinical and operational patterns that can support the improvement of healthcare efficiency. The process mining method is used to explore disease course patterns based on sample data from BPJS Kesehatan. The research stages include data preprocessing, process discovery, conformance checking, and evaluation. The algorithm used in this research is Inductive Miner. A multi-level comparison is conducted based on ICD-10 diagnosis abstraction, namely at the Chapter, Group, and Specific Code levels, to determine which level yields the most representative process model. By analyzing event log data from BPJS Kesehatan samples, this research is expected to provide new insights into CHF disease management and become the basis for strategies to improve the quality and efficiency of services within the framework of the JKN-KIS program in Indonesia. Using algorithm Inductive Miner due to its ability to recursively construct process trees from event logs and generate sound workflow models. It builds Petri net models that closely align with observed behavior while minimizing deviations, making it suitable for discovering structured and comprehensible process models from healthcare data. The results of this study are the highest at the Chapter level, with a threshold of 0,6, indicating a very high fitness of 0,9910 and generalization of 0,8549, precision of 0,9462, and simplicity of 0,6000. Therefore, this model is highly effective in representing process logs and is flexible enough to accommodate new path variations.

Keywords: Congestive Heart Failure Diseases, Multi-Level Process, Process Mining