

**Sistem Deteksi Dini Penyakit Tuberkulosis dengan Algoritma
Naïve Bayes: Studi Kasus di Rumah Sakit Citra Husada Jember** *(An Early
Detection System for Tuberculosis Using the Naïve Bayes Algorithm: A Case
Study at Citra Husada Hospital in Jember)*

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ABSTRACT

Pulmonary tuberculosis is an infectious disease that remains a major public health problem in Indonesia. Its clinical symptoms often resemble those of other respiratory diseases, such as pneumonia, making early diagnosis difficult. This study aims to develop an early detection system for pulmonary tuberculosis using the Naïve Bayes algorithm based on patient medical records from Citra Husada Hospital in Jember. The data used consists of nine clinical symptoms with two class labels Pulmonary TB and Non-TB derived from diagnosis records of tuberculosis and pneumonia. The system was developed using the Waterfall methodology by integrating a web-based application that utilizes the Laravel framework as the user interface, Flask API as the backend for machine learning model processing, and MySQL as the database. Model testing using 5-fold cross-validation yielded an average accuracy of 80.28%, while testing on the validation dataset produced an accuracy of 85.14%, precision of 0.91, recall of 0.79, and an F1-score of 0.84. System testing using Black Box Testing showed that all system functions operated as required, while the results of User Acceptance Testing (UAT) involving 30 respondents yielded an acceptance rate of 90.62%, which falls into the “strongly agree” category. Thus, the developed early detection system for pulmonary tuberculosis can be used as an effective and user-friendly tool for initial screening that is well-received by users.

Key words: *Pulmonary Tuberculosis, Naïve Bayes, Early Detection System, Flask API*