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Machine Learning Models for Predicting Length of Hospital Stay in the Gynecology Department of South-Kivu Hospitals

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Abstract

This study examines how machine learning can predict how long patients will stay in gynaecology departments in South Kivu, which helps hospitals manage beds and resources more efficiently. We analysed data from hospitals using some factors that influence hospital stays, such as patient age, diagnosis, and treatment.

We performed a model that takes information at the admission of a patient. We did not integrate some factor changes that can occur while the patient is already admitted to the hospital. We tested different machine learning approaches, including generalised linear models, decision trees, and neural networks.

The generalised linear model performed best, achieving 97% accuracy in predicting the length of stay. This demonstrates that machine learning can effectively support hospital planning and resource management in this setting.