Analysis, Prediction, and Evaluation of Hendra Virus Transmission Dynamics Using Machine Learning Algorithms

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This study examined the dynamics of Hendra virus transmission using machine learning techniques, with particular attention to virus prevalence in Australia's New South Wales (NSW) and Queensland (QLD). Using techniques like Random Forest, k-Nearest Neighbors (KNN), Logistic Regression, and Decision Trees on data spanning from 2011 to 2014, the current study discovered that there was a notable variation in the prevalence of the virus across different regions. Notably, Boonah, QLD, demonstrated a significantly higher detection rate of 8.4%. The results indicate the need for surveillance and intervention plans tailored to each region. With Random Forest exhibiting the highest ROC score of 83.24%, the models yielded an average accuracy of 95.8%. These findings provide crucial information for public health planning and initiatives aimed at slowing the virus's spread in high-risk regions.

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