

Implementing Tw-DRGs on Diagnostic and Therapeutic Cardiac Catheterization and Impact on Medical Utilization

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INTRODUCTION

According to the statistical results of the Ministry of Health and Welfare in 2012, circulatory diseases accounted for three of the top ten causes of death in Taiwan and became an important focus of medical care.

AIM

Therefore, this study pays special attention to the correlation between cardiac catheterization and medical expenses.

CONCLUSIONS

The expected results hope to improve the accuracy of the prediction model to more than 70%, and help medical institutions identify loss-making patients in advance. Through intelligent prediction, accurate allocation of resources and formulation of treatment plans, medical benefits will be improved and the medical system will be developed in a more accurate and efficient direction.

METHOD & RESULTS

Taking the inpatients of DRG124 and DRG125 as the objects, using artificial intelligence methods, aiming at the clinical characteristics, demographic characteristics, medical history and other factors at the time of admission, a prediction module is established to know the medical expenses and payment areas of patients in advance.

The research statistical methods include descriptive statistics, inferential statistics, multiple linear regression model establishment, training and evaluation, and random forest model establishment and training. The stochastic gradient descent method is used to optimize the multiple linear regression model, and the performance of the model is evaluated by MSE and R squared values. In the random forest model, multi-class classification, training and adjusting parameters are carried out, and finally the performance of the model is evaluated.

	Accuracy	Precision	Recall	F1-SCORE
Random Forest				
DRG124	0.772	0.710	0.772	0.702
DRG125	0.816	0.724	0.816	0.757
SVM				
DRG124	0.774	0.610	0.774	0.676
DRG125	0.833	0.694	0.833	0.757
XGBoost				
DRG124	0.747	0.667	0.747	0.689
DRG125	0.782	0.703	0.782	0.739

ACKNOWLEDGEMENT

This study was supported by grant funds (S-112-10) from the Kaohsiung Municipal Siaogang Hospital in 2023 to accomplish the research.

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