

Machine book learning examination of readmission of patients diagnosed with ischemic and pulmonary heart diseases

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Abstract

Hospital readmissions are indicators of the quality of service offered by hospitals and give an insight into the performance measures on the cost at the hospital. A readmission event occurs when a patient that has been discharged from a hospital after diagnosis and procedure is again readmitted to the hospital within a certain period. The Nationwide Readmissions Database (NRD) is part of a family of databases and software tools developed for the Healthcare Cost and Utilization Project (HCUP). For this research, the data for the year 2016 from the National Readmission Database (NRD) will be studied and machine learning models built to model the relationship between readmission and various factors related to the patient. The models built in this research study will be used to ease the prediction of hospital readmission which is very important in healthcare management. Ischemic and pulmonary heart diseases are among the critical diseases in health care services. The monitoring of these diseases, therefore, should be handled with ultimate care and with trained professionals. Various studies have shown that readmission of these diseases has a higher rate compared to non-pulmonary disease, thus the need for critical research and study in these areas. The observations for Ischemic heart diseases and diseases of pulmonary circulation (diagnosis codes I20 to I28) will be used for this study. Analysis and goodness of model indexes such as the confusion matrix, AUC index, MSE, and R squared scores and findings from the study will also be evaluated and reported taking into account the model parameters.

Keywords: Ischemic heart diseases, pulmonary heart diseases, healthcare management.



Biography:

Venkat Lellapalli is pursuing his PhD in Industrial and Systems Engineering at the Mississippi State University, USA. He has twenty years of work experience in Healthcare Insurance companies working on Healthcare and wellness projects using Cloud and Machine Learning technologies to improve quality of care for the members.

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