

00060 Validation of a Medication-based 15-day Readmission Risk Stratification Algorithm in Predicting Unplanned Readmissions in a Tertiary Acute Care Hospital

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Aims: Reducing preventable readmissions is essential to reduce healthcare cost and burden. A Singapore-developed prediction model for readmission 15 days post-discharge has yet to be independently validated, and its predictability of 30-day readmission is unknown. This study aimed to assess the model performance in predicting readmission 15 and 30 days post-discharge.

Methodology: This single - centre, independent prospective cohort study involved Alexandra Hospital inpatients from September to November 2017. It was approved by the Singhealth Centralized Institutional Review Board. Patients were included if they were admitted to Alexandra Hospital, above 21 years old, and given written informed consent to take part in the study. Readmission risk was calculated utilizing the developed model and information from electronic medical records.

Primary and secondary outcomes were the model performance for 15 - and 30 - day readmission respectively.

Result: Total 113 and 112 patients were analysed for primary and secondary outcomes respectively. The model performed reproducibly against the original study derivation and validation cohorts. Within 15 and 30 days post - discharge, 11.5% (n=13) and 14.3% (n=16) of patients were readmitted respectively. C - statistics were 0.64 and 0.65; and Hosmer - Lemeshow chi - squares were 7.28 and 6.85 respectively for 15 - and 30 - day readmissions. Brier score was 0.26 for both endpoints. The low positive predictive value of 14 - 18% and correctly classified prediction rate of 53 - 54% could possibly be overcome by making the model more stringent in predicting readmissions by increasing the cut - off probability for readmission. This may enhance efficiency in allocation of resources to assist patients with higher likelihood of readmission.

Conclusion: This model performed reproducibly against the original study derivation and validation cohorts. Given the multifaceted nature of readmissions, it is challenging to accurately predict readmission. Further research into optimizing the cut - off probability may be useful to determine model utility in actual clinical practice.