

00311 Development of Predictive Scoring Model for Risk Stratification of No-show at Orthopaedic Specialist Outpatient Clinic at Changi General Hospital

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Aims: No-shows are patients who miss scheduled Specialist Outpatient Clinic (SOC) appointments. We aim to develop a predictive scoring model to identify patients at risk of no-show at the SOC clinic to improve appointment utilization

Methodology: Administrative records of new SOC appointments for subsidized Orthopaedic patients in 2016 were analysed. Univariate analysis was performed on 15 variables comprising of patient demographics, resource name, appointment/visit records and historical outpatient records in the preceding year. Multiple logistic regression (MLR) was applied to determine independent risk factors of no-shows. The adjusted parameter estimates from MLR were used to develop a predictive model for risk stratification of no show. Model validation was performed using half the data set.

Result: Out of 14,549 appointments in 2016, 23.9% were no-shows. Univariate analysis showed that 12 variables were associated with no-shows. The data set was split into 50-50 for model training and validation. Five variables (gender, appointment lead time, resource name – type of clinic, previous visit status, previous visit type) remained independently associated with no-shows in MLR training model and their odds ratios were used to develop the weighted predictive scoring model. Weighted scores ranged from 0 to 14 and 5 levels of no-show risk were derived: extremely low [(Score:0-4),(Ref)]; low [(Score 5-7),(Odds Ratio OR:3.3,Confidence Interval CI(2.801,3.889)]; medium [(Score 8-10),(OR:8.7,CI(7.361, 10.309)], high [(Score 11-12), (OR:23.2,CI(18.035, 29.76)], extremely high [(Score 13-14),(OR:56.2,CI(39.889,79.055)]. Predictive ability of model was tested using receiver operation curve analysis where area under curve (AUC) was 78%. At 0.2 cut-off, sensitivity was 72.3%, specificity 69.6% and classification rate 70.2%. Model validation showed that AUC was 77.7%, sensitivity 71.4%, specificity 69.9% and classification rate 70.3%.

Conclusion: The prediction model developed using only administrative data was robust to can be used for risk stratification of Orthopaedic SOC no-show for better resource utilization to improve access to care.