Predicting Hospital Readmissions Using the LACE index: Results from the Medical Expenditure Panel Survey 2010-2012

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PURPOSE:
This study aimed to examine the LACE (Length of stay, Acuity of admission, Comorbidities, Emergency department) index’s ability to identify patients with high risk of hospital readmissions.

METHODS:
A retrospective study was conducted by using the 2010-2012 Medical Expenditure Panel Survey. The LACE score was calculated for the general population and for patients who presented with medical conditions measured under Hospital Readmissions Reduction Program (HRRP). Selected medical conditions included chronic obstructive pulmonary disease (COPD), heart failure (HF), pneumonia, or acute myocardial infarction (AMI). According to the LACE index criteria, patients with scores of 10 or higher are at greater risk of 30-day hospital readmission. Sensitivity, specificity, and positive predictive value (PPV) of LACE index in predicting 30-day hospital readmission were calculated. A cutoff of 7 was used for sensitivity analysis.

RESULTS:
Of the 5,193 hospitalized patients, 348 (6.7%) were readmitted within 30 days after hospital discharge. There were 390 (7.51%) individuals in the general population categorized as high risk patients (LACE ≥ 10), and 45 of those were readmitted within 30 days. To predict 30-day hospital readmission, LACE score ≥10 had sensitivity of 0.13 and 0.26, specificity of 0.93 and 0.89, and PPV of 0.12 and 0.14 in the general population and selected medical conditions cohorts, respectively. In the sensitivity analysis, the criteria of LACE ≥7 had sensitivity of 0.51 and 0.71, specificity of 0.63 and 0.38, and PPV of 0.09 and 0.07 in the general population and selected medical conditions cohorts, respectively.

CONCLUSIONS:
The LACE index’s ability to identify patients who were readmitted to the hospital within 30-days of discharge was poor, using both criteria (cutoffs at 10 and 7). Findings suggest that the LACE index may not be a reliable tool to identify patients at high risk of 30-day hospital readmission. Additional research is needed to develop and assess tools to predict hospital readmissions.

KEYWORDS:
Hospital readmission; LACE index