

Predicting Hospital Readmissions and Associated Mortality in Oncology



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Background

The 30-day readmission rate is established as an important indicator of quality of care.

LACE Index is a valid and easily administered tool to predict risk for 30-day readmission.

- Commonly used in the general medical setting
- Has not been examined in the oncology setting

LACE Index Scoring Tool for Risk Assessment of Hospital Readmission			
Element		Assignment of Score	Potential Score
L	Length of Stay (LOS)	Score assigned based on LOS range from 1 to ≥ 14 days	0 - 7
A	Acuity of Admission	Admitted via Emergency Dept . (ED) (No or Yes)	0 or 3
C	Co-morbidities	Score according to presence of co-morbidity(ies)	0 – 3 or 5 (Stage IV cancer = 5)
E	ED Visits	Number of ED visits in past 6 months	0 - 4
High Risk for Readmission if LACE Score ≥ 10			TOTAL SCORE

Objectives

We sought to identify whether 30-day readmission at our cancer center:

- Can be predicted using the LACE Index
- Was associated with mortality among inpatients admitted to the Internal Medicine Service

Methods

The LACE Score was calculated for 328 patients with unplanned admissions over a 6-week period starting March 1, 2016.

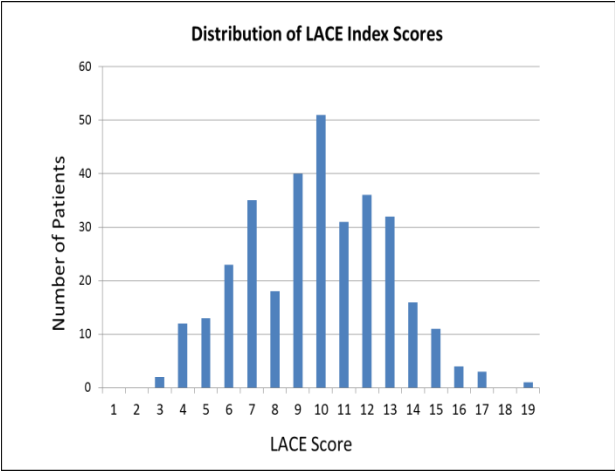
- The specificity, sensitivity, positive and negative predictive value of the LACE Index to predict unplanned 30-day readmissions were characterized using receiver operating characteristics (ROC) analyses
- The effect of individual LACE elements, and whether the occurrence of a PC consult improved the performance of the LACE Index, was examined via logistic regression analyses

For 286 patients admitted from January to September 2016, a product-limit survival estimate analysis was conducted to compare survival among those readmitted within 30 days or not.

Results

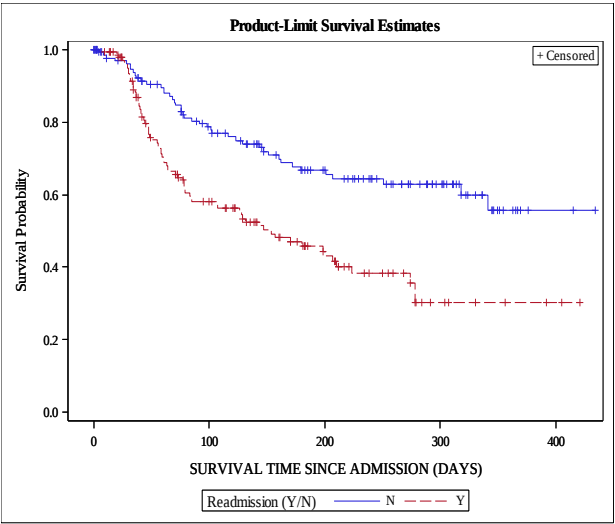
- Fifty-eight patients (17.7%) had an unplanned readmission within 30 days of discharge
- There was no difference between the median LACE scores of those readmitted within 30-days compared to those who were not (Median Score = 10.0; p = .93)
- In logistic regression analysis, only emergency department visits were an independent predictor of readmission, with a c-statistics of .64 for readmission. The inclusion of a PC consult did not improve the performance of LACE Index.

Of 389 patients whose LACE Score was determined, the following results indicate the distribution of the scores and positive and negative predictive value of the LACE Index in this sample of oncology patients.



		LACE Index Scores	
		< 10 N (%)	≥ 10 N (%)
30-Day Readmit	No	118 (36.0%)	153 (46.6%) Type I Error
	Yes	27 (8.2%) Type II Error	32 (9.8%)
		Negative Predictive Value = .81	Positive Predictive Value = .17

Of 286 patients studied, those who were readmitted within 30 days had a median survival of 154 months (95% CI 85 – 210) and the hazard ratio for death was 2.18 (95% CI 1.49 – 3.18); p<0.0001.



Conclusions

The LACE Index performed poorly in predicting 30-day readmission. Survival analyses demonstrated that 30-day readmission is associated with decreased median survival.

Further research is needed to identify which oncology-specific factors predict 30-day readmission and mortality in the oncology population.

For references and further information, contact sarah.thirlwell@moffitt.org