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## INTRODUCTION

Identifying patients with high risk potential of discharge failure helps implementation of interventions to improve patient-centered care. However, diverse concepts of discharge failure in the current literature makes such interventions less efficient.

We aim to derive a screening tool based on the diversity of discharge failure models.

## METHOD

- A retrospective observational study was conducted in a tertiary care hospital ED. All patients discharged from the ED over the period Jan 1, 2015 through Dec 31, 2017 were included in the study population.
- All enrolled patients were followed up at least for 30 days
- Scoring systems were derived using modified Framingham methods. Sensitivity, specificity, and area under the receiver operational characteristic (AUC) were calculated and compared using both the broad and restricted discharge failure models.
- Stata 14.0 version Software (College Station, TX) was used for statistical analysis.

## RESULTS

- Total 227,627 patients were included.
- **S**creening for **H**ealthcare **f**ollow-**U**p **T**ool (SHOUT) scoring systems was derived based on the broad and restricted discharge failure models and applied back to the entire study cohort.

Table 1. SHOUT Scoring System

Risk Factors	Score
Homeless Status	
Yes	6
No	0
Having Primary Care Physician	
Yes	0
No	1.75
Gender	
Male	1.5
Female	0
Race/ethnicity	
Non-Hispanic White	0
Others	1.25
Having any type of Insurance	
Yes	0
No	1
Triage as Low Level of Acuity (ESI 4-5)	
Yes	1
No	0
Having Chronic Disease Conditions	
Yes	1
No	0
<b>Total Score</b>	<b>0-13.5</b>

A sensitivity of 80% and a specificity of 71% were found in SHOUT scores to identify patients with broad discharge failure with AUC of 0.83 (95% CI 0.83-0.84). When applied to the restricted discharge failure model, a sensitivity of 86% and a specificity of 60% were found to identify patients with AUC of 0.79 (95% CI 0.78-0.80).

Table 2. Predictive Performance of Different Discharge Failure Models in Validation Study

Outcome	AUC (95% CI)	Sensitivity	Specificity	LR(+)	LR(-)
<b>Broad</b>	0.84 (0.84-0.84)	80%	72%	2.85	0.27
<b>Restricted (3-days)</b>	0.79 (0.78-0.80)	85%	60%	2.13	0.25
<b>Restricted (7-days)</b>	0.80 (0.79-0.80)	87%	61%	2.20	0.22
<b>Restricted (14-days)</b>	0.79 (0.78-0.80)	85%	62%	2.21	0.24
<b>Restricted (30-days)</b>	0.79 (0.78-0.79)	82%	63%	2.22	0.29

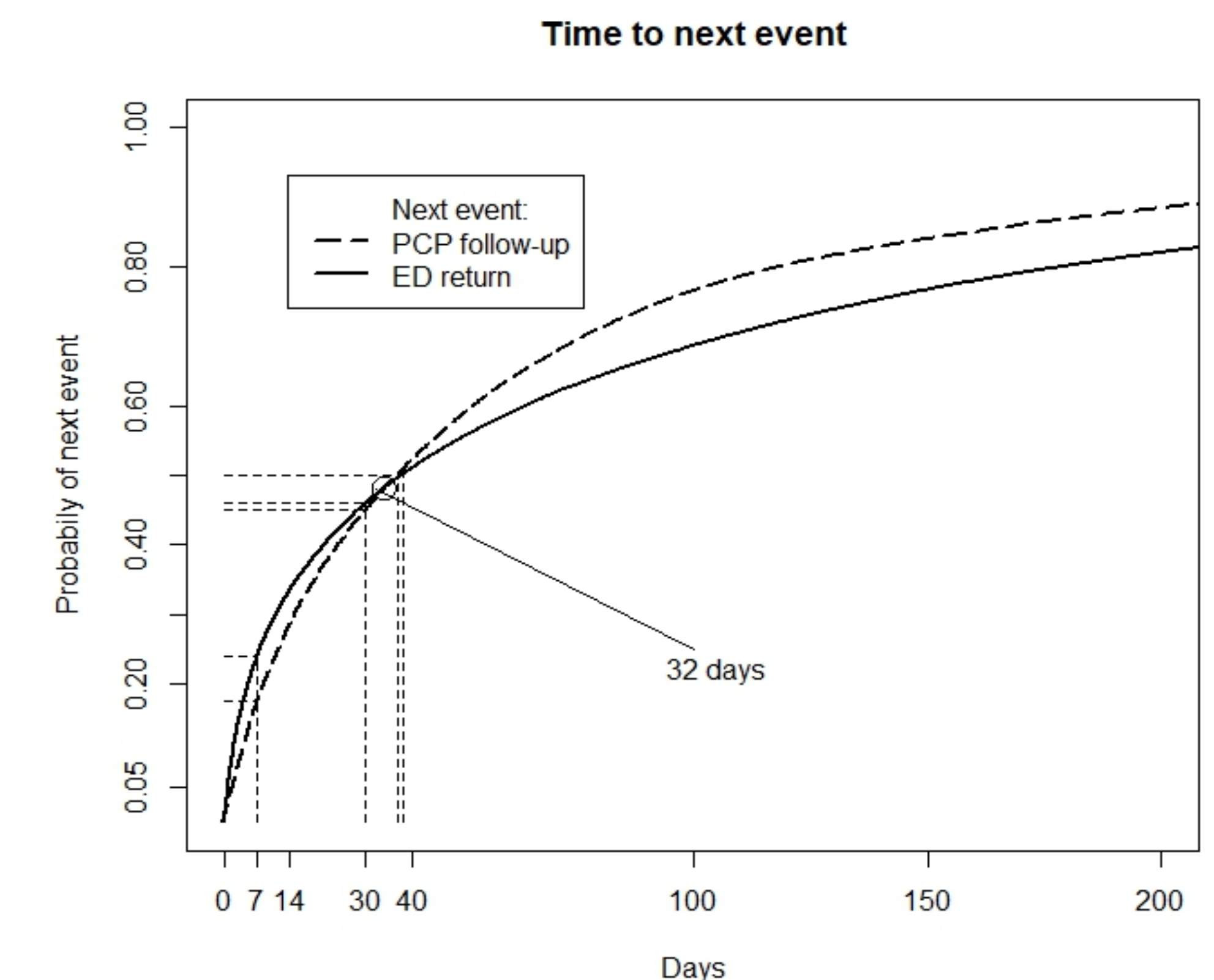


Figure 1. Time to Next-Event Curve to Determine the Probability of Subsequent Events (ED Return vs. Clinic Follow-up) Occurred Among Study Discharged Patients

## CONCLUSION

- SHOUT scoring systems were derived and used as initial screening to differentiate patients with discharge failures.
- They were internally validated and can be used to identify such patients regardless of diverse concepts of discharge failures.