

Development of Emergency Department Case Management Case-Finding Tool



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Background

- Case Managers (CM) are now a standard presence in emergency departments (ED) of large hospitals
- They are integral in improving hospital throughput and reducing unnecessary hospital admissions and readmissions.
- CM identify high-risk patients using a manual chart review process or by provider request to determine whether hospital admissions are appropriate or if an alternative disposition for the patient exists.
- This manual case-finding process can be time-intensive and inefficient

Purpose

- Develop an automated screening tool for case finding that would improve the ability of CM to identify patients at high risk for return to ED or hospitalization.
- This improvement in prediction would be more efficient, allowing CM more time for interventions such as readmission reduction strategies.
- The Duke Case Management Priority Score (CMPS) screening tool is a clinical innovation developed by interdisciplinary consensus opinion and we report our initial findings.

Results

Return Rates and Odds Ratios for Manual Case Finding (8/2022) vs. Case Management Priority Score (9/2022)

Group		7 day			30 day		
		Hospitalization	Return to ED	Any Return	Hospitalization	Return to ED	Any Return
August Manual Case Finding	N (%)	17 (3.7%)	26 (5.6%)	43 (9.3%)	28 (6.1%)	69 (14.9%)	97 (21.0%)
	OR (CI)	2.39 (1.38-4.13)	0.97 (0.64-1.47)	1.29 (0.92-1.80)	2.25 (1.47-3.45)	1.38 (1.05-1.82)	1.62 (1.28-2.07)
September CMPS - High Score	N (%)	7 (3.0%)	33 (14.2%)	40 (17.2%)	18 (7.7%)	73 (31.3%)	91 (39.1%)
	OR (CI)	1.72 (0.78-3.76)	2.72 (1.84-4.01)	2.56 (1.79-3.66)	2.95 (1.76-4.93)	3.88 (2.90-5.21)	4.19 (3.17-5.53)

Case Management Priority Score

Score Variable
ED consult to CM ¹
IP Admission/Obs Stay w/in 30 days ¹
Behavioral/Complex Care flag ¹
Hospice flag ¹
DC to SNF or HH w/in last 30 days ²
Multiple ED visits w/in last 30 days ²
Age 80+ ²
Age 70+ and fall w/in past 3 months ²
Homeless or unstable housing ²
Point of origin SNF/ALF ²
Unfunded and no PCP ²

1: Always seen by ED CM 2: ED triage levels 2-5

Scan for further information on this project

Baseline Characteristics August and September 2022 ED encounters (non-admitted)

Characteristic	CMPS Low Risk (N=8,646)	CMPS High Risk (N=233)	P Value
Female Gender, N (%)	4,468 (51.7%)	116 (49.8%)	0.83
Race, N (%)			
Black	3,653 (42.3%)	134 (57.5%)	<0.01
White	3,133 (36.2%)	77 (33.1%)	<0.01
Other/Not Specified	1,860 (21.5%)	22 (9.4%)	<0.01
Ethnicity, N (%)			
Hispanic	1,098 (12.7%)	7 (3.0%)	<0.01
Non-Hispanic	7,548 (87.3)	226 (97.0%)	<0.01
Financial Class, N (%)			
Medicare	1,776 (20.5%)	120 (51.5%)	<0.01
Medicaid	2,328 (26.93%)	55 (23.6%)	<0.01
Commercial/Other	2,969 (34.3%)	41 (17.6%)	<0.01
Self Pay/ None	1,573 (18.2%)	17 (7.3%)	<0.01
Triage acuity, Mean (±SD)	3.05 (±0.75)	2.70(±0.65)	<0.01

Description

- High risk was defined as a return to ED or hospitalization within 7- and 30- day time frames of the index ED visit.
- Patients thought to be high risk by ED CM using manual case-finding were indicated by evidence of their documentation in the medical record.
- CMPS resides in the electronic medical record and went live on 9/1/2022. Eleven demographic and utilization variables were identified and weighted to determine an overall CMPS which would guide ED CM to which patients were at high risk for returns or hospitalizations.
- CM can hover their cursor over CMPS to discover the variables impacting the score which may help determine interventions.
- Four variables were weighted high enough to ensure that CM always intervened; ED consult order for CM, prior ED or hospital utilization, complex care/behavioral flags, and hospice enrolled.
- Baseline characteristics for patients scoring high risk on CMPS were different than the low risk in all areas except gender.
- Results shows that, compared to the prior manual case-finding methodology (8/2022), CMPS (9/2022) had a higher odds ratio of identifying patients that were at risk for most 7- and 30- day return to ED and hospitalization outcomes.

Conclusions

- CMPS screening tool was found to be more predictive in identifying patients at risk for return to ED or hospitalization than manual case finding.
- CMPS may be more accurate than existing manual case-finding techniques, will help ED CM efficiencies, and help reduce returns to ED and hospitalizations.
- Our future focus for this work includes further analysis of the variables contributing to CMPS to refine the tool for prediction performance.

