Split Flow Model of Care: A Solution for Emergency Department Patient Flow

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Background:
Emergency Departments (EDs) across the United States struggle to deliver efficient care in a timely manner. Overcrowding in an ED is defined as a situation in which function is hindered by the fact that the number of patients waiting to be seen, undergoing assessment and treatment, or waiting for departure exceeds the physical or staffing capacity of the department. Factors such as increasing patient volumes, a reduction in the number of EDs, and higher inpatient census appear to be compounding the problem. Emergency Departments (EDs) play a dynamic role, not just as a department in an individual hospital, not just in healthcare as an industry, but also in society at large. The consequences of overcrowded EDs combined with extended wait times create a significant quality and safety issue for the ED.

Objective:
The aim of this project was to determine if the implementation of a Split Flow Model of Care would impact the left without being seen (LWBS) rate in an adult academic medical center's emergency department (ED).

Planning and Research Methods:
An interdisciplinary team with key stakeholders determined that a split flow process had the highest likelihood to positively affect LWBS rates. The project design was a quantitative non-experimental before and after study that utilized retrospective data. This study compared data from two separate six-month time frames: September 1, 2015 through February 28, 2016 and September 1, 2016 through February 28, 2017. The two time periods were chosen in an effort to provide an adequate sample size while assuring that seasonal patient volume trends were as similar as possible. The project study used data collected from the electronic medical record pre and post-implementation of the Split Flow Model of Care.

Implementation Methods:
The population for this project included all adults, 18-years and older, who presented to the ED for treatment of a medical complaint during the periods of data collection. Triage nurses in collaboration with a provider in triage assessed patients upon arrival and placed the patients in one of two patient flow streams – those with lower acuity and a likely discharge disposition and patients with higher acuity that would require more extensive diagnostic testing and/or a likely admission disposition.

Results:
A Kruskal-Wallis Test did not reveal a statistically significant difference in left without being seen (LWBS) rates across the twelve months of the study period $x2$ (11, n=12) = 11.0, p = .44. However, clinical significance was noted with the reduction in the LWBS rate when comparing the two time periods following the implementation of the Split Flow Model of Care. Additional outcomes of the project are included in the table below:

Outcome	Before	After	Change
LWBS Percentage Rate (avg)	4.1%	1.6%	61.0% ↓
Number of Patients Who LWBS	1015	379	62.7% ↓
Revenue Lost	$380,805	$151,600	$229,205 ↑
Patient Volume	25,387	24,280	4.4% ↓
Inpatient Boarding Hours	38,648	58,896	52.4%↑
High Acuity Patient Percentage	36.3%	49.9%	37.5% ↑

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