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Implementation of a Rapid Assessment Unit (Intake Team): Impact on Emergency Department Length of Stay

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Implementation of a Rapid Assessment Unit (Intake Team):

Impact on Emergency Department Length of Stay

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Objective

Emergency Department (ED) crowding is an on-going formidable issue for many EDs. A Rapid Assessment Unit (RAU) is a potential solution. This process involves the use of a team approach to convert the current "series" type evaluation to a more "parallel" evaluation and treatment of patients. The RAU concept of evaluating and treating ED patients radically changes the current methods utilized in today's standard emergency care area.

The RAU concept offers a process in which the patient walks into the ED and is seen in a unit by an intake team composed of a nurse, registrar, and provider (physician assistant, nurse practitioner, or physician) that provides evaluation and emergent treatment. This removes the redundancy of a patient giving the same information several times before they are treated. Simultaneously, the team decides whether the patient would be better served by remaining seated or requires a recumbent position. This is referred to as allowing "vertical flow" versus the default "horizontal flow," where all patients recline on a stretcher whether they need it or not. Certainly, having construction that specifically supports these processes is an innovation, as well (having an area where patients can be seated and remain "vertical").

The team structure itself is unique. The nurses and providers are not assigned geographically by room, but rather are defined by their function. We set out to determine if the addition of the RAU process would decrease the LOS of the discharged ambulatory arrival patient.

Waiting Room

The RAU Unit

The RAU Process

Internal Disposition Procedure Rooms

Internal Disposition Area

Methods

After IRB approval, this retrospective, pre- and post-intervention, observational comparison study was conducted from August 2011-March 2012 at a suburban teaching hospital in central Pennsylvania with an annual ED census of approximately 54,000. The inclusion criteria were all ambulatory discharged patients. The exclusion criteria were all patients that arrived by ambulance and admitted patients. Data points captured included: time of arrival in triage, time in triage to ED entry, time of ED entry until seen by a provider, time from ED entry to discharge, and total length of stay (LOS). The data were uploaded to Horizon Business Insight™ (HBI), a cumulative data manager and exported to an Microsoft Excel file for analysis. Mann-Whitney U tests were used to demonstrate differences in Median LOS. All statistical tests were 2-sided; probability values <0.05 were considered significant.

Results

11, 994 pre and 10,814 post-RAU patients were included in analysis. Median LOS was shorter during the post-RAU period in each subcategory of LOS with the exception of the interval from being seen in the ER to discharge, which is a result of the provider seeing the patient earlier in the ED encounter. Results, Table 1.

Table 1. Length of Stay (LOS) Median Minutes

	Pre RAU (25th, 75th Percentile)	Post RAU (25th, 75th Percentile)	P value
Total Visit LOS	151 (90, 244)	130 (75, 206)	<0.001
Arrival-Triage	4 (4, 10)	3 (1, 8)	<0.001
Triage-ED Entry	9 (4,38)	0 (0, 0)	<0.001
ED Entry-Seen ED	12 (4, 29)	9 (2, 22)	<0.001
Seen ED-Discharge	93 (44, 168)	101 (49, 175)	<0.001

Table 2. Length of Stay (LOS) Median Minutes During Peak Hours

	Pre RAU (25th, 75th Percentile) n = 7783	Post RAU (25th, 75th Percentile) n=7137	P value
Total Visit LOS	152 (91, 246)	131 (75, 205)	<0.001
Arrival-Triage	5 (2, 10)	4 (1, 2)	0.050
Triage-ED Entry	16 (6, 57)	0 (0, 0)	<0.001
ED Entry-Seen ED	12 (4, 29)	10 (3, 24)	<0.001
Seen ED-Discharge	87 (42, 158)	97 (48, 167)	<0.001

Conclusions

The RAU process decreases the LOS of the discharged ambulatory arrival patient and deserves further exploration as an innovative model in the ED that improves flow.

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