IMPROVING EMERGENCY DEPARTMENT THROUGHPUT THROUGH A STANDING ORDER FOR PATIENTS WITH CHEST PAIN AS A CHIEF COMPLAINT

Author: Ariel Furlong BSN ,RN **Project Chair:** Barbara A Niedz PhD, RN, CPHQ
Team Member: Mary L Johansen PhD, RN, NE-BC, FAAN

Introduction

- Chest pain patients account for 5% to 10% of all ED patients (Cullen et al., 2017).
- The Centers for Disease Control and Prevention (CDC) (2017) state that 10% of ED patients waited over 1 hour for provider evaluation after being triaged with time sensitive complaints.
- Early identification and assessment of chest patient is critical to diagnostics with an electrocardiogram (ECG) and troponin cardiac markers, treatment and disposition.
- Starting care as soon as possible through standing orders in triage by nursing and/or directly after the patient is evaluated by their primary nurse can make a difference in both ED throughput and inpatient outcomes (Hwang et al., 2016; Retezar, 2010).

Background & Significance

- Order sets allowed for timely care for the patient with chest pain by nurses. This included the initiation of diagnostic testing and interventions at the triage level without the physician, for early detection and treatment.
- By initiating a chest pain order set during the triage process, providers will be able to expedite care and diagnose patients with life threatening cardiac condition requiring immediate intervention, hospital admission or discharge for outpatient follow-up.

Problem

- ED throughput is a priority as ED usage is on the rise
- In the United States, 2% of all patients who seek treatment in the ED leave without being seen by a provider due to inefficiencies in throughput (Jarvis, 2016).
- Throughput is a quality and safety issue as it results in delays of care, increases costs, and liability on the organization and its' staff (Jarousse, 2011).
- The longer a patient waits to be seen, the less satisfied they are and the more likely that patient leaves without being seen which impacts reimbursement.

Clinical Question

To what extent does the use of a nurse-driven standing order set for the management of chest pain in the ED reduce two ED throughput times: (a) *doctor to disposition* time, and (b) *doctor to discharge* for treated and released chest pain patients?

	# of patients pre-data	Pre-Data	# of patients post-data	Post-Data	Z -score	p- value
ED arrival to ED discharge	104	**286.95**	104	**229.13**	-2.256	.024
Arrival to EKG	104	**43.58**	104	**13.87**	-4.852	<.001
Arrival to troponin order	104	**64.64**	104	**23.35**	-7.809	<.001
Arrival to troponin result	104	**135.44**	104	**98.49**	-6.262	<.001

Methods

- Design: Quality Improvement, pilot project designed to improve timeliness of care through the implementation of standing order set on two throughput metrics: (a) *doctor to disposition* time, and (b) *doctor to discharge* for treated and released chest pain patients in the ED.
- All patients with chief complaint of chest pain received an EKG, once determined it was not a STEMI, a troponin level was obtained and sent to lab for analysis.
- Sample: 214 patients met inclusion criteria during the 4-week implementation period
- Setting: The project site is a tier 1, medium sized (285 bed) community hospital located in a suburban, middle class area. The ED is comprised of 47 beds with four treatment areas. At the site, 70 patients are seen in a 2-week period with a chief complaint of chest pain which taken together represent approximately 30% of the total ED patients evaluated.
- Measures/ Analysis: Four measurements were used as proxy for those posed in the clinical question (see table with results)

Results

All four measured ED throughput times changed significantly (see table). A total of 208 patient charts were analyzed pre and post implementation.

Discussion

Patient Care: Reduced the time for *doctor to disposition* time and *doctor to discharge* for treated and released ED patients, improved the patient's experience by getting laboratory and diagnostic tests earlier in their ED process.

Allowed for the immediate assessment, treatment of chest pain patients which yielded quicker results and better patient outcomes.

The use of the chest pain order set lead to improved ED staff satisfaction, ED workflow and throughput metrics.

Practice Implications

To improve upon quality and safety by decreasing the gap in system throughput inefficiencies, especially in the face of overcrowding, by allowing the primary nurse to implement a set protocol for chest pain patients that is started in triage prior to evaluation by a LMP, which at the site could be a PA, APN or MD (ACEP, 2015).

The pilot project brought attention to need for additional order sets for other acute conditions in the ED

Ariel Furlong

*References & Supplemental materials available upon request

E-mail:arielfurlong@ymail.com