Cutting our LOSses: Hospitalist and Emergency Medicine multidisciplinary partnership to improve ED throughput

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No disclosures

Background

- Input
  - Patient volumes (ambulance/walk in), SOI/ acuity, inappropriate use
- Throughput
  - Delays in testing, Consultative delays, RN/MD staffing
- Output
  - Hospital bed capacity, Hospital discharge efficiency, Hospital room TAT

Hoot Annals Emer Med 2008

Background

- Outcomes of ED congestion
  - Increased LWBS
  - Care delay
  - Ambulance diversion
  - Mortality
  - Decreased patient experience
  - Decreased revenue

Hoot Annals Emer Med 2008

Background

Background

- Duke Regional Hopsital
  - Community hospital within our academic health system
  - 64,000 visit/year
  - Tertiary care
  - In months prior to our project LWBS 10.1-11.6% and ED LOS 509 minutes

Purpose

- To determine the change in ED LOS for patients admitted to the medicine inpatient service after implementation of innovations developed through a collaborative quality improvement project involving hospitalists, ED physicians, and nursing.

QI Process

- Multidisciplinary team and QI processes
  - ED concerns: High LWBS, throughput issues, patient experience
  - Hospitalist concerns: Incomplete ED assessment and workup, increased admissions volume, decreased efficiencies seeing admissions outside ED
  - Nursing concerns: Patient arriving without orders, nursing assessment process
  - Institutional/administrative support high

ED throughput for admitted patients

- Patient registers at ED triage
- Patient moved to room and examined by ED provider
- ED provider completes workup and consults hospitalist for admission/observation
- Hospitalist agrees with ED assessment and approves admission/observation
- Patient leaves ED to medical unit

ED consult to hospitalist decision

Overall LOS For admitted patient

Interventions

- Transition Orderset: (Skeleton orders, bridging orders, holding orders, etc)
- Ongoing education: hospitalists, ED providers, residents, and nursing.
  - Imperatives, Interventions, metrics
- Hospitalist incentive plan: hospitalist physicians and leadership.

Transition order sets

- Hospitalists not ED providers
- Admit status, diagnosis, bed type, VS frequencies, notify provider triggers, diet, activity, and initial nurse care instructions
- Does not include: Medications, drips, diagnostic testing orders etc
- Not replacement for full ordersets expected within 3 hours of arrival to unit)
- Allow quick entry in EHR
- Start the bed placement process
- Reflect the first few hours of care
- Exclusion criteria

Transition order sets

GEN Medicine Transition Manage My Version — **Required** Add Order

* Medicine Transition Orderset can be used to provide initial nursing care instructions for patients while admitting provider is in process of making assessment and recommendations.
* This is **not meant to replace completion of a full admission orderset by the admitting provider** through orders reconcilation process in Admission Navigator.
* Key orders (Code Status, VTE prophylaxis) and Clinical Decision Support are included in those full admission ordersets.

General — Required

Admission — Required

- Admit to Inpatient
- Place in Observation
- Place in Observation in the CDU
  DRH CLINICAL DECISION UNIT
- Assign as Outpatient

Vital Signs

- [x] Vital Signs
  Routine, Per unit routine starting Today at 1514 Until Specified

Study details

- Study design: Traditional QI Pre/post intervention 4 months in each period; “Pre” 3/14-6/14, “Post” 7/14-10/14
- 3400 patient admissions or observations in each period
- Interventions timed to start 7/1/14
- Timestamps and intervals determined from EHR
- IRB reviewed/exempt

Outcomes

Median time (minutes) ED Consult to Hospitalist decision

	Minutes
Pre-intervention	147
Post-intervention	80
UHC top quartile (2012)	81

P-value < .001

Outcomes

Median time (Minutes) Hospitalist ED LOS

	Minutes
Pre-intervention	427
Post-intervention	355
UHC top quartile (2012)	350

P-value < 0.001

Outcomes

Left without being seen (LWBS) % for ED

Minutes

7
6
5
4
3
2
1
0

Pre-intervention	Post-intervention	UHC top quartile (2012)
6.09	3.38	1.6

Outcomes

Median time (minutes) ED Consult to Hospitalist decision

"Pre" average

	Pre	Jul-14	Aug-14	Sep-14	Oct-14	Nov-14	Dec-14	Jan-15	Feb-15
Minutes	147	99	70	82	69	72	88	78	78

Minutes: 0, 20, 40, 60, 80, 100, 120, 140, 160

Outcomes

- Improved collaboration with ED
  - Partnership in reviewing admissions for appropriateness
  - Willingness to partner on interfacility transfers
  - Collegial atmosphere
- ROI for health system in investing in hospital medicine

Limitations/Confounding variables

- EPIC go live same time could have affected pre data but balanced by knowing our historical baseline was similar
- Went live with CDU
- “Pull to fill” strategy in triage
- Lack of validated benchmarking data
- Seasonality

Next steps

- Increase Transition order set utilization
- Ongoing work at other 2 hospitals
- Encouraging other admitting specialties to incorporate same processes

Similar results

- Howell (Ann Intern Med 2008): Active bed management by hospitalist with ED initiating brief admitting orders decreased ED LOS 98 minutes (458-360)
- Patel (Acad Emer Med 2014): Focus on process after admission order decreased ED LOS 79 minutes
- Patterson (Ann Em Med 2007): Bridging orders dec. ED LOS 110 minutes (350-240)
- Amarasingham (Qual Saf Health Care 2010): Streamlining admission process and using transitional orders dec. ED boarding time 90 min (360-270)
- Geskey (J Emer Med 2013): Guideline for consult request dec consult time 21 minutes (121-100)
- Quinn (Am J Emer Med 2007): Rapid admision policy with prelim admitting orders decreased ED LOS 10 min

References

- American College Emergency Physicians "Writing Admission and Transition Orders – Policy Resource and Education Paper (PREP)"
- University Hospital Consortium "UHC Emergency Department Cycle Time 2012 Performance Opportunity Summary"
- Hoot "Systematic Review of Emergency Department Crowding: Causes, Effects, and Solutions" Ann Emerg Med. 2008;52:126-136
- Moskop "Emergency Department Crowding, Part 1 and 2" Ann Emerg Med. 2009; 53:605-611 & 612-617
- Howell " Active Bed Management by Hospitalists and Emergency Department Throughput" Ann Intern Med. 2008;149:804-810
- Patel " Reduction of Admit Wait Times: The Effect of Leadership-based Program" Academic Emergency Medicine 2014; 21:266–273
- Patterson " Bridging Orders and a Dedicated Admission Nurse Decreases Emergency Department Turnaround Times While Increasing Patient Satisfaction" Annals of Emergency Medicine Volume 50:3 pg 352-353 Sept 2007
- Geskey " Improved physician consult response times in an academic emergency department after implementation of an institutional guideline" The Journal of Emergency Medicine, Vol. 44, No. 5, pp. 999–1006, 2013
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- Quinn " Effects of implementing a rapid admission policy in the ED" American Journal of Emergency Medicine (2007) 25, 559–563

Thank you:

DRH/DUHS leadership/administration

DRH Hospitalists, ED providers, nurses

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Questions?