Doctor of Nursing Practice Project
Implementation of a Full Capacity Protocol at a Mid-Sized Rural Hospital

Ellie Huffman
Project Advisor: Martha Hawkins

INDIANA WESLEYAN UNIVERSITY

Background

- Emergency department (ED) boarding is when admitted patients must wait for an inpatient room in the ED due to a lack of capacity (McGowen et al., 2018; Mohr et al., 2020).
- ED overcrowding "exists when there is no space left to meet the timely needs of the next patient requiring emergency care" (Salway et al., 2017, p. 213).
- ED boarding and overcrowding leads to:
  - Higher mortality rate
  - Loss of revenue
  - Increased rate of "left without being seen" (LWBS)
  - Loss of hospital admissions
  - Ambulance diversion
  - Increased length of hospitalization
  - Increased incidence of medical errors
  - Delay in care
  - Higher risk of readmission within 72 hours

  (Salway et al., 2017; McKenna et al., 2019)
- Implementation of a full-capacity protocol (FCP) results in:
  - Reduced LWBS rate
  - Decreased ambulance diversion
  - Increased ED volume
  - Increased daily hospital admission rate
  - Higher patient satisfaction rates
  - Increased financial revenue

  (Tabriz et al., 2019; Willard et al., 2017)

Purpose

To impact ED boarding and overcrowding at a mid-sized rural hospital by implementing a full-capacity protocol.

Tool

Full-Capacity Protocol Algorithm

ED boarding and overcrowding meets phase 1 activation.

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Activate phase 1 ED-specific interventions.

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After 1 hour, reassess boarding and overcrowding status. If no improvement, proceed to phase 2.

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Activate phase 2 hospital-wide interventions.

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Reassess boarding and overcrowding status after 1 hour. If no improvement, activate phase 3 system-wide interventions.

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Continue phase 3 interventions until ED boarding and overcrowding reaches non-critical level.

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Resume routine functions of the hospital.

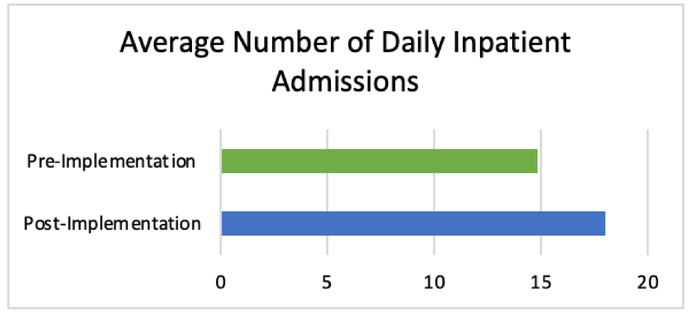
Method

- Designed a three-phase protocol with input from hospital stakeholders utilizing evidence-based FCP interventions.
- Obtained approval from the executive board to implement the new policy.
- Educated nursing staff, laboratory, pharmacy, ED, house supervisors, radiology, and inpatient providers.
- Placed educational material throughout hospital for all employees.
- Conducted a mock run through of protocol to identify weak areas.
- No changes required after the run through.
- Protocol became formal hospital policy, beginning implementation.

Results

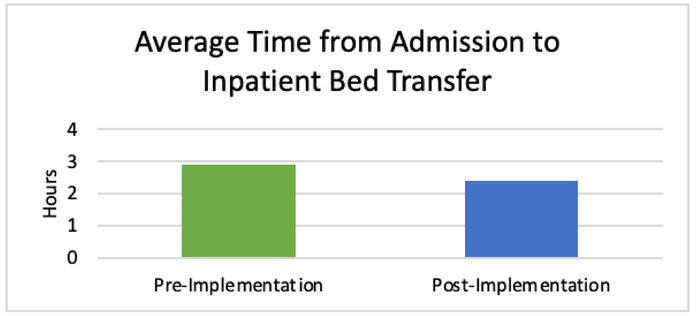
- Inpatient beds from 99 to 70 from pre-implementation to post-implementation time period, impacting study results.
- The reduction of inpatient beds produced a 29% reduction in hospital capacity.
- Results were proportionally adjusted by reducing admission to transfer time by 29% and increasing the number of admissions by 29% to provide a fair comparison.

	Pre-Implementation	Post-Implementation	
		Unadjusted Data	Adjusted Data
Admission to Transfer Time	2.91 (*SD*=2.04)	3.36 (*SD*=2.25)	2.38 (*SD*=1.60)
Number of Admissions	14.83 (*SD*=3.84)	13.96 (*SD*=3.95)	18.01 (*SD*=5.09)
LWBS Rate	0.82 (*SD*=1.55)	0.56 (*SD*=0.92)	

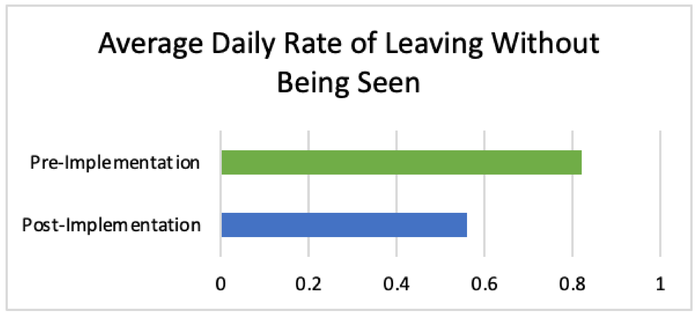


- Number of daily admissions increased from 14.83 (*SD*=3.84) to 18.01 (*SD*=5.09), *t*=5.68 (240), *p*=<0.001.

References Available Upon Request



- Time from admission to inpatient bed transfer dropped significantly from 2:55 (*SD*=2:02) to 2:23 (*SD*=1:36), t=2.30 (255), *p*=0.01.



- LWBS rate significantly decreased from 0.82 (*SD*=1.55) to 0.56 (*SD*=0.915), *t*=1.61 (209), *p*=0.055.

Discussion

- Decrease in the length of time from admission to transfer to inpatient bed, correlates to improved patient outcomes (Willard et al., 2017).
- Increased hospital admissions; increases hospital revenue (Tabriz et al., 2019).
- Decrease in LWBS rate results in more patients receiving care.
- Multiple organizational culture factors impacted implementation.
  - Resistance to change throughout hospital
  - Lack of buy-in from staff, especially from staff activating protocol
  - Increased strain on employee demand due to limited staffing
- The protocol was used 5 times with modifications.
- Phase 3 interventions not required.

Conclusion

- Findings affirm previous literature supporting use of FCP to reduce LWBS rate, increase hospital admission rates, and increase financial revenue.
- Decreased admission to inpatient bed transfer times and reduced LWBS rate correlate to decreased medical errors and improved patient outcomes (McKenna et al, 2019).
- Project adds to current literature by assessing FCP impact at a mid-sized, rural facility, a new setting for FCP implementation.
- Further significant changes may be noted with increased staff buy-in and adherence to original protocol design.