



## KEY POINT SUMMARY

### OBJECTIVES

The objective of this paper is to describe the outcome of a quality improvement (QI) project conducted to improve ED flow in 42 hospitals in the U.S.

## Increasing throughput: results from a 42-hospital collaborative to improve emergency department flow

Zocchi, M. S., McClelland, M. S., & Pines, J. M. 2015 | *The Joint Commission Journal on Quality and Patient Safety*. Volume 41, Issue 12, Pages 532-541

### Key Concepts/Context

The rates of visits to the emergency department (ED) in the U.S. have grown in the last 10 years. According to the authors, attempts to decrease crowding in the EDs have been largely through improving the flow, which has been challenged by several factors including inconsistency in the demand for ED services, ED staffing issues, and inconsistency in the availability of inpatient beds. “Increasing Throughput” was a collaborative project by 16 communities for improving ED flow, a part of a broader project - Aligning Forces for Quality (AF4Q), funded by the Robert Wood Johnson Foundation (RWJF). This paper describes the project and its results and compares its efficacy across 42 hospitals in the 16 communities. At the end of the 18-month project, 28 of the 42 EDs were able to make improvements in their throughput following multiple interventions.

### Methods

This was an 18-month long Quality Improvement project. The participating hospitals received a change package, whose key elements included improvement strategies. Hospitals were required to form teams and develop plans for improving ED flow. These plans were implemented after the AF4Q’s National program office perused them and provided feedback. Each hospital had the flexibility to decide the number of interventions to use and when to introduce them. For the next 12 months, the hospitals provided data to the AF4Q office pertaining to ED length of stay (LOS) for discharged and admitted patients, boarding time, and left without being seen (LWBS). Complete data were not provided by all hospitals. Of the 81 hospitals who committed to partake in this project, only 42 were able to see it through successfully. Data were analyzed using simple linear regression, chi-square tests, and t-tests.



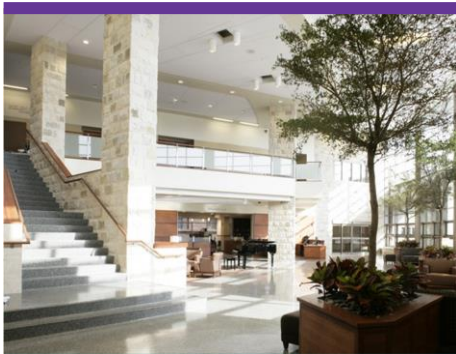
### DESIGN IMPLICATIONS

A separate space or room for triage, fast tracking, and electrocardiograms may help in improving various aspects of ED throughput. The size of the triage room was also considered to be relevant to ED throughput.

### Findings

The study yielded the following findings:

- In all, the 42 hospitals implemented 172 interventions. There were 30 different types of interventions – some new, others were improved versions of existing ones. The time and duration of the implementation of these interventions varied among the hospitals.
- Of the 30 interventions, the following pertained to design and were among the more popular strategies:
  - Flex units/ spaces – creating a new or repurposed space within the ED or the hospital to enable patient flow. Such spaces were usually fast-track or observation units
  - Bed boards/ bed tracking – developing a centralized, electronic list of available beds in the ED, hospital, or both
- Other frequently-used strategies involved
  - Pull till full/ rapid intake (taking a patient pre-triage to a treatment space, where a provider evaluates and initiates treatment right away)
  - Protocols/ standing orders (pre-approved physician orders, implementable by a nurse)
  - Formal QI processes (lean, Six Sigma, etc.)
  - Triage (physician in triage, quick triage protocols, etc.)
  - Bedside registration (instead of at the front desk)
  - Staffing to match capacity, time limits for boarding
  - Bridge orders (ED physician writes basic holding orders on admitted patients, instead of hospitalist)
  - Handoffs
  - Waiting room rounding (intermittent checks on patients' status, etc.)
- Of the 42 hospitals, improvements in ED throughput were seen in 28 –
  - Monthly median LOS for admitted patients decreased by 36.5 minutes
  - Monthly median LOS for discharged patients decreased by 26.2 minutes.



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- Boarding time decreased by almost 21 minutes.
- LWBS saw a drop of 1.4%.
- Of the four top-performing hospitals, the hospital that implemented repurposing a room for triage, electrocardiograms, and fast track saw a 35-minute improvement in boarding time, its LWBS decreased from 7.84% to 6.78%, and saw 48-minute and 42-minute improvements in LOS for admitted and discharged patients, respectively.
- There were several factors that deterred a hospital from making any improvement in their ED flow after implementing their strategies. Among resource issues, the small size of the triage room was identified as a constraint.

### Limitations

The authors identified the following limitations:

- Selection bias towards
  - Hospitals that were motivated to change
  - Hospitals that had sufficient resources to participate (since many withdrew from participation)
- The research team from the AF4Q National Program Office did not undertake any site visits – as such the data received from the hospitals could not be audited independently.
- The hospitals had flexibility in terms of number, scope, type, and duration of interventions to be implemented – the specific interventions, as such, could not be assessed for efficacy.
- Data pertaining to inpatient flow, which is pertinent to providing a complete ED flow scenario, was not assessed

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