EFFECTIVENESS OF INTERVENTIONS TO IMPROVE EMERGENCY DEPARTMENT EFFICIENCY: An Evidence Map

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Disclosure

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Overview

Sponsored by the Quality Enhancement Research Initiative (QUERI)
Four centers: Los Angeles, CA; Portland, OR; Durham, NC; Minneapolis, MN
Reports help provide timely and accurate syntheses/reviews to support:

- development of clinical policies informed by evidence;
- the implementation of effective services to improve patient outcomes and to support VA clinical practice guidelines and performance measures; and
- the direction of future research to address gaps in clinical knowledge.

Topics identified by VA clinicians, managers, and policy-makers using online topic nomination process:

Our Team

**ESP Team Members**
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- Isomi M. Miake-Lye, PhD
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- Sean M. O’Neill, MD, PhD
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- Jessica M. Beroes, BS

**Stakeholders & Technical Experts**
- Chad Kessler, MD, MHPE
- Michael Ward, MD
- Kristina Cordasco, MD
- Josh Geiger, MPsy
What is an Evidence Map?

“an evidence map is a **systematic** search of a **broad field** to **identify gaps** in **knowledge** and/or **future research needs** that presents results in a **user-friendly format**, **often a visual** figure or **graph**, or a **searchable database**”
What an Evidence Map is Not

An evidence map is not a meta-analysis. An evidence map does not critically review and synthesize the evidence on a particular issue to answer questions of efficacy or effectiveness.
Making a Map

Identification of Literature

- Coordinating Center provided results from preliminary searches
  - 9 systematic reviews
  - 20 studies
- Pulled studies from the systematic reviews
Making a Map
Selection and Data Abstraction

139 References

133 Publications

6 References

36 Publications

Excluded by stakeholders as not relevant

Pre-1996: 3
Not outcome of interest: 22
No intervention: 3
Not ED study: 2
Systematic review: 3
Not available: 2
Duplicate: 1

97 Includes

- Study design
- Intervention
- Sample size
- Academic affiliation
- VA setting
- Number of sites
- Country of origin
- Outcomes reported
- Types of efficiency data reported
RESULTS
Types of ED Efficiency Interventions

- **MD in Triage** (32 studies)
- **Nurse Scope of Practice (SOP) Expansion** (n = 23)
- **Fast Track** (n = 12)
- **Other** (7)
- **POC testing** (6)
- **Rapid Assessment** (4)
- **IT** (4)
- **Medical Scribes** (3)
- **Team Triage** (2)
- **Obs Unit** (2)
- **Care Teams** (2)

*Veterans Health Administration*
Outcomes Measured
Length of Stay, Wait Times, Left without Being Seen

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Count of Studies (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length of stay (LOS)</td>
<td>67</td>
</tr>
<tr>
<td>Wait times</td>
<td>37</td>
</tr>
<tr>
<td>LWBS</td>
<td>34</td>
</tr>
<tr>
<td>Patients admitted</td>
<td>32</td>
</tr>
<tr>
<td>Clinical outcomes</td>
<td>13</td>
</tr>
<tr>
<td>Harms</td>
<td>8</td>
</tr>
</tbody>
</table>
Included Publications (n=97)

Country
- Other, 18
- Australia, 19
- Canada, 11
- USA, 40
- UK, 9

Site Academically Affiliated
- No, 11
- Unclear, 15
- [CATEGORY NAME], 69

Sample Sizes
- >10,000 patients, 36
- 1,000 - 9,999 patients, 22
- 500 - 999 patients, 7
- 100 - 499 patients, 16
- Unclear, 2
- Alternate Units (n = shifts or facilities), 14

# of Sites Involved
- Unclear, 1
- Multiple Sites, 6

VA Setting
- VA, 1
Categorizing Efficiency Data

- All publications

Did they quantify costs?
- No
- Yes
- Unclear

Describe resource use in some capacity?
- Reallocates existing resources
- Adds new resources
- Unclear
Efficiency Data Provided

Cost Quantified

- # of additional hires and shifts/hours added at each level (e.g., ED Tech, Clerk, Nurse, Physician)
- Additional RVUs/shift generated
- Fixed costs / Equipment
Efficiency Data Provided
Reallocate Existing Resources

Statement that staffing levels did not change during intervention
Efficiency Data Provided
*Adds New Resources*

Affirmative statement about remodeling, reorganization, expansion of services without specific information on scale

- Cost quantified, 19
- Reallocate existing resources, 18
- Adds new resources, 44
- Unclear, 35
Efficiency Data Provided

Unclear

Scope/scale of organizational changes not stated specifically
Amount of literature by intervention (n=97)

- Reallocates Existing Resources:
  - Physician Triage: 7
  - Expand Nurse Scope of Practice: 6
  - Fast Track: 3
  - Point of Care Testing: 1
  - IT: 1
  - Rapid Assess. Unit: 1
  - Medical Scribe: 1
  - Team Triage: 1
  - Care Teams: 1
  - Observ. Unit: 1
  - Other: 1

- Adds New Resources:
  - 16
  - 7
  - 5
  - 4
  - 3
  - 1
  - 3
  - 1
  - 1
  - 1
  - 1

- Unclear Resources:
  - 9
  - 10
  - 4
  - 2
  - 1
  - 3
  - 1
  - 1
  - 4
Improvement in Length of Stay
(Percent Change from Baseline)

- Physician Triage
- Expand Nurse Scope of Practice
- Fast Track
- Point of Care Testing
- IT
- Rapid Assess. Unit
- Medical Scribe
- Team Triage
- Care Teams
- Observ. Unit
- Other

Bubble Size Legend:
- >10,000
- 1,000-9,999
- 500-999
- 100-499
- Shift/facility

Legend:
- Adds new resources
- Reallocates existing resources
- Unclear
Improvement in Wait Time
(Percent Change from Baseline)

- Physician Triage
- Expand Nurse Scope of Practice
- Fast Track
- Point of Care Testing
- IT
- Rapid Assess. Unit
- Medical Scribe
- Team Triage
- Care Teams
- Observ. Unit
- Other

Bubble Size Legend
- >10,000
- 1,000-9,999
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- Shift/facility

Legend:
- Adds new resources
- Reallocates existing resources
- Unclear
Change in Left Without Being Seen Rate (Percent Change from Baseline)

![Graph showing Improvement in Left Without Being Seen (% change from baseline) vs. various factors such as Physician Triage, Expand Nurse Scope of Practice, Fast Track, Point of Care Testing, IT, Rapid Assess. Unit, Medical Scribe, Team Triage, Care Teams, Observ. Unit, and Other. The graph includes a legend for bubble size and color, indicating whether the change adds new resources, reallocates existing resources, or is unclear.](image-url)
Summary

- Costs usually not quantified, very little detail reported among “cost quantified” group
  - Many cases report similar to: “an additional nurse and an additional ED registrar were rostered” (Ardagh, 2002)
- Length of stay (LOS) most commonly measured outcome
  - Baseline times were highly variable
- Improvements in length of stay and wait times
  - Wait time improvements in 10-50% range
  - LWBS reduction in the 0-5% range
- Harms, clinical outcomes, and admissions data reported less often
- The majority of publications came from non-VA single sites with academic affiliation
Limitations

• Limited scope of search
  – Traded off an exhaustive search for quick turnaround
  – Other intervention types may exist
  – More studies of these identified intervention types may exist

• Types of interventions can overlap
  – e.g. Fast Track interventions often include hiring Nurse Practitioners or otherwise expanding nursing scope of practice
Gaps Identified

- There is a need for more rigorous economic evaluations of interventions designed to improve these outcomes
  - There may be additional outcomes of importance other than LOS, wait time, and LWBS
- This work needs to be done in the VA setting
  - Only one VA study identified
  - Distinct structural and demographic characteristics may affect efficiency and outcome findings
- How big a difference is VA aiming to achieve?
  - Are LOS, wait time, and LWBS outcomes in and of themselves OR only as they relate to other outcomes of interest (e.g., patient satisfaction, SAIL measures, etc.)
Evidence into Action

- Presented to the VA Emergency Medicine Field Advisory Committee February 2017
- Final report now available on VA intranet
Quality Improvement

Goal: Reduce Operational Vulnerability

- Initiated October 1 in coordination with 10N

- Quarterly review of site Operational Vulnerability

- Targets sites with unreliable data or performance below threshold on multiple metrics

- Requires improvement plan with escalating levels of oversight

- Unreliable and High Vulnerability outreach efforts have been initiated

Start of FY18 Status
Unreliable Data—20 sites
High Vulnerability—8 sites
Medium Vulnerability—35 sites
Low Vulnerability—77 sites
Quality Improvement
EMI Community of Practice

Support for Field-Led Improvement

Emergency Medicine Newsletter

Monthly EMI CoP Meetings

Repository/Community Discussion Site

News you can use...

Improvement ideas and perspectives...

On-going engagement...

VETERANS HEALTH ADMINISTRATION
Patient Flow Coordination Collaboration

- Based upon Institute for Healthcare Improvement (IHI) Collaborative model and multiple years of successful VHA collaboratives (Bedside Care, Transitioning Levels of Care/Transitions & Patient Flow Coordination)
- Goal of applying proven improvement methods, strong practices, and tools to improve efficiency, effectiveness and patient-centric coordination of teams/processes relative to patient flow across the continuum of patient care
- Capacity: 30-36 VAMC-based teams based upon well-defined application process with focused AIMs; carve-out of 10-15 Emergency Department flow teams.
- Reinforces effectiveness/efficiency of inpatient healthcare delivery processes by engaging teams in a workshop environment, guided by nationally trained coaches, that supports learning, discovery, and continuous improvement

Comprehensive Flow Management

- Objective 1: Continue to Mature Flow Tools and Analytics Portfolio
- Objective 2: Support System-Wide Improvement and High Reliability Efforts
- Objective 3: Communicate Value to Users with quantifiable improvement metrics.
- Using the Emergency Medicine Management Tool (EMMT), we track operational vulnerability scores for all Emergency Departments (ED) and Urgent Care Centers (UCC) to provide improvement support that demonstrate high operational vulnerability.
- The approach is structured calls between our ED improvement support team and the accountable point of contact with a goal of each call to reach a common understanding of the operational issues faced by the ED and discuss priorities for improvement.
Questions?

If you have further questions, please feel free to contact:

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