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Final Report

Implementation of the Acute Care Clinic Easy Scheduling System (ACCESS) at the Brooke Army Medical Center

March 3, 2022

Reporting Period: **September 2019- August 2020, January 2021**

Prepared for:
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REPORT DOCUMENTATION PAGE

*Form Approved
OMB No. 0704-0188*

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4. TITLE AND SUBTITLE				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT	b. ABSTRACT	c. THIS PAGE			19b. TELEPHONE NUMBER (Include area code)

Words: 1661
Pages: 11
Figures: 3
Tables: 0
References: 19

TITLE: Implementation of the Acute Care Clinic Easy Scheduling System (ACCESS) at the Brooke Army Medical Center

SHORT TITLE: Implementation of the ACCESS system

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KEYWORDS: emergency, overcrowding, urgent, military, coronavirus, COVID-19, pandemic, appointment, primary, care

FUNDING: Our study was supported by a grant from the Defense Health Agency (grant DS20CR01).

DISCLOSURES: None

ETHICS: The Regional Health Command-Central regulatory office reviewed our project proposal and determined it met institutional requirements as a performance improvement project not requiring institutional review board oversight.

DISCLAIMER: The views expressed are those of the authors and do not reflect the official views or policy of the Department of Defense or its components.

ACKNOWLEDGEMENTS: None

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ABSTRACT

Background: Emergency departments (ED) have continued to struggle with overcrowding, causing delays in patient care and increasing stress on the medical staff and resources. This was further illustrated during the recent COVID-19 pandemic, where we saw large unpredictable surges to the ED as hospitals tried to meet the medical needs of patients while trying to minimize the spread of COVID. A previous study from the Department of Emergency (DEM) at the Brooke Army Medical Center (BAMC) found that nearly half of the patients presenting to the ED could have been managed in a primary care setting. We sought to pilot an alternate appointment scheduling system to allow patients to see and book available appointments while waiting in the ED waiting room.

Materials and Methods: Our appointment display system was created through collaboration with the BAMC Information Management Division. A Tableau data interface connects to the Composite Health Care System (CHCS) to view available primary appointments across the San Antonio Military Healthcare System (MHS). These are displayed in real-time on multiple TV screens outside the ED at and in the waiting room. Patients were provided signage that provides a way to call or use a web-based interface to immediately schedule the open appointments within the next 48 hours. Patients voluntarily opted to use this system and may opt to leave the ED if another appointment became available within an acceptable time frame to them.

Results: Not applicable to this paper.

Conclusion: Expansion of the ACCESS system within the MHS would (1) help reduce ED crowding, (2) improve access to care through a live-tracking system that patients can review and select from, and (3) reduce the number of unfilled primary care appointments. The system in place in the BAMC ED serves as a template for other MTFs to use.

INTRODUCTION

Background

Emergency departments (ED) in the United States continue to struggle with overcrowding, often delaying patient care and increasing stress on the medical staff.¹ These increases in general along with the COVID-19 pandemic undermined our health and tested our hospital system, putting increased pressure on staff and resources.²⁻⁴ Overcrowding has been defined as “the situation in which the ED function is impeded primarily because of the excessive number of patients waiting to be seen, undergoing assessment and treatment or waiting for departure, compared to the physical or staffing capacity of the ED”.^{5,6} This was further illustrated during the recent COVID-19 pandemic in which we saw large, often unpredictable fluctuations in visits to the ED as the Military Healthcare System (MHS) struggled to address medical needs while balanced against minimizing the spread of COVID.⁷ Previous studies have shown nearly half of patients presenting to the ED could be managed in an alternative, primary care setting.^{8,9} A previous study by some of these same authors had similar findings in the same ED at BAMC.¹⁰ Civilian EDs have a unique obligation to serve all patients in need without considering their ability to pay.¹¹⁻¹³ However, all of the requirements of the Emergency Medicine Transfer and Active Labor Act do not necessarily apply to the MHS. Moreover, we have a unique, nearly closed, streamlined medical system that captures and retains the patients across the spectrum of care. Additionally, the MHS has an on-going challenge with filling available appointments to ensure that available resources are being maximized. Approximately 10% of primary care appointments within the San Antonio MHS (SAMHS) go unfilled which represents an opportunity for diversion of non-emergent ED visits from the ED to those empty appointments. This would reduce ED crowding while minimizing the loss of revenue with unfilled appointments.

Phase 1 of this Defense Health Agency (DHA)-funded project was performed in the BAMC ED. BAMC is the largest hospital system in the Department of Defense, the only level 1 trauma center, and serves the SAMHS. In this, we conducted a retrospective review of patients within our electronic medical record (EMR) system from September 2019 to August 2020. During the 12-month period, we examined

data on 72,205 patient charts. Our results showed over half (59%) of patients were determined to potentially manageable in a primary care setting.¹⁰

During phase 2 of this project, we sought to determine patient perceptions for choosing to use the ED. We administered surveys to patients that signed into BAMC as an emergency severity index (ESI) of 4 or 5 (non-urgent). ESI represents the acuity triage levels with 1 being the highest level of triage (e.g. major trauma, cardiopulmonary resuscitation) and 5 being the lowest (e.g. medication refill). We then linked their survey data to their ED visit including interventions, diagnoses, diagnostics, and disposition by way of EMR follow-up. We defined their visit to be non-urgent and primary care eligible, if they were discharged home and received no computed tomography (CT) imaging, ultrasound, magnetic resonance imaging (MRI), IV medications or intramuscular (IM) controlled substances. During the 2-month period, we collected data on 208 participants out of 252 people offered a survey (82.5%). Most patients were deemed primary care eligible (92%). When assessing why they came, the inability to get a timely appointment (n=73) and self-reported urgency (n=58) were the most common reasons. Most would have used primary care if they had a next-morning appointment available (n=86).¹⁴

ED overcrowding has a costly effect on our hospital system. The overuse of the ED leads to increases in length of stay and patients leaving without being seen, both leading to losses in revenue and decreased patient satisfaction. More importantly, losses in resources, including materials and staffing, both contributing to unnecessary ineffectiveness and delays in care.⁵ The pandemic forced our healthcare system to shift resources. Hospitals, doctor's offices, and all medical facilities were overrun with patients; running out of tests, supplies, beds and even staffing.¹⁵ Many trauma centers closed their ICU floors due to overcapacity. No one was prepared for the pandemic, lowering non-urgent use of the ED can help us prepare for the next one.

Goal of this Phase

We sought to build our previous work,¹⁰ and develop a method for patients presenting to the ED to fill unused same or next day primary care appointments in lieu of an emergency visit using a real-time tracking system.

MATERIALS AND METHODS

System Methodology

To create our appointment display system, we collaborated with our Information Management Division (IMD). The Composite Health Care System (CHCS) and the Armed Forces Health Longitudinal Technology Application (AHLTA) is the method for tracking appointments within the SAMHS as of the writing of this manuscript – Military Health System Genesis was not yet implemented at BAMC at the time of this project launch. AHLTA is the electronic health care record used by health care providers in the DoD, it supports over 150,000 providers and more than 9.4 million beneficiaries, providing for over 500 hospitals and clinics. CHCS sends the available appointments into a SQL server database every 6 hours and displays available appointments for the next 48 hours. Tableau™ software interfaces by way of a custom-built interface turning the available appointments into a kiosk image (figure 1). A service account is used to log into a small form factor personal computer that is located behind each television. The television is configured to show the ACCESS display system outside the ED and in the ED waiting room (figure 2). There is a number provided on the screen for the consult appointment management office (CAMO) that can be called to schedule the appointments where patients can instantly schedule an available appointment. Alternatively, they can use the online scheduling interface on the Tricare website to obtain the appointment. They are not required to see their assigned primary care provider and can access any short-notice appointment for their urgent visit.

Ethics

We submitted our project description to the Regional Health Command – Central regulatory office for a research determination. The regulatory office determined that our project met institutional requirements as performance improvement and thus institutional review board oversight was not required.

RESULTS

This section is not applicable.

DISCUSSION

We want to ensure patients get the right healthcare in the most appropriate setting. Overcrowding and overuse of the emergency department reduces the efficiency of patient care. Diverting non-urgent patients from the ED will lead to cost savings, as the ED is a high-cost patient care environment due to continuous around the clock staffing and the availability of diagnostics.^{13, 16, 17} Decreasing overuse of the ED will lead to positive impacts to both emergency departments and patients. Non-emergent complaints can be seen at a scheduled time in a primary care setting as compared to the unpredictable timeframe in which they will be seen in the ED which often times may exceed 6 hours.⁷ The ED does not see patients in the order they arrived, but rather by acuity. This method, while it ensures that true emergencies are seen more quickly, often frustrates patients as they may not have a thorough understanding of what defines the level of urgency. Moreover, the appointment will cost significantly less than going to the ED as the staffing requirements are much more predictable. EDs require a level of staff ready to manage surges with little predictability currently.⁷

A negative impact of overcrowding was widely seen during the COVID-19 pandemic. Hospitals were over capacity; medical staff was overworked, resources were dwindling, and EDs were more overcrowded than ever before.^{18, 19} Non-emergent surgeries were cancelled. The ICU floors were full. For the first time in this generation, hospitals were overrun as most hospitals lacked sufficient surge capacity for this level of volume increases. Access to healthcare had been severely limited, healthy people needed to stay home. Telehealth or virtual appointments were no longer an alternative option but a necessity. If

non-urgent patients needed care, most were told to make a virtual appointment. Physicians could refill medications, observe symptoms without being exposed and offer medical diagnoses over the phone or computer. Virtual appointments decreased the strain on our medical system but still patients with non-urgent issues continued to go to the ED as the number of virtual appointments was limited and often not available on short-notice for urgent issues.

Previous attempts at reducing non-urgent use have been unsuccessful. We used the information gathered in previous phases to pilot an alternate appointment scheduling system.^{10, 14} We coordinated our efforts with hospital leadership and primary care facilities, as well as the ED at BAMC. Our final product was approved by our public affairs office (PAO) prior to the “go live” date. Our system at BAMC is nicknamed the Acute Care Clinic Easy Scheduling System (ACCESS). It is displayed on the televisions in the ED waiting room at BAMC and displays available primary care appointments for 48-hour periods. ACCESS will reduce non-urgent use of the ED and will allow the unfilled primary care appointments to be seen and taken by patients with non-urgent needs. Our system could be more widely implemented within the MHS across multiple centers. Now that we have implemented at the largest MTF within the Department of Defense, expansion of this templated system can now be used at smaller MTFs who have even less surge capacity than BAMC. The ACCESS interface could also be reformatted and configure for viewing on web browsers and mobile devices. Furthermore, we believe that future consideration for building a user-friendly app for the phones would be able to integrate into this system. Diverting non-urgent patients from the ED will likely lead to cost savings and more efficient use of resource utilization.¹⁷

CONCLUSIONS

Expansion of the ACCESS system within the MHS would (1) help reduce ED crowding, (2) improve access to care through a live-tracking system that patients can review and select from, and (3) reduce the number of unfilled primary care appointments. The system in place in the BAMC ED serves as a template for other MTFs to use.

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Figure 1: Sample display of the rotating tracking system in our emergency department

Don't want to wait? We have appointments available today!
June 2, 2021

**DEDICATION
DUTY SERVICE**

Moreno		Schertz		Taylor Burke		Westover	
Appt Time	Provider	Appt Time	Provider	Appt Time	Provider	Appt Time	Provider
0750		0740		0600		0740	
0810		0800		0730		0800	
0830							
0840		0810		0815		0820	
0850		1000		0850		0840	
0910		1020		0910		0845	
0920		1030		0945		0900	
0940		1040		1010		0920	
0950		1100		1050		1020	
1010		1200		1130		1100	
1030		1300		1150		1120	
1050		1310		1210		1300	
1100		1320		1510		1420	
1110		1440		1615		1500	
1150						1520	
1210						1540	
1260						1600	
1310							
1340							

Figure 2: Sample display of the system outside our emergency department



Figure 3: Sample display of the system inside our emergency department

