

Quality Improvement

Care Alert Program in Chronic Recurrent ED Utilizing Patients

Kaitlyn Phelps, DO¹; Jonathan Bryan, DO¹; Jonathan Leggett, DO¹; Erica Gibbons, DO¹; Brian Griggs, NP¹

Abstract

Description

The Care Alert program is designed to help navigate encounters with patient populations that are high utilizers of emergency department (ED) resources. These populations often have chronic medical conditions, have a poor understanding of their conditions, are unfamiliar with the EDs' role in the management of these conditions, and commonly lack outpatient resources. The Care Alert program intends to address the needs of this challenging patient population by designing individualized care plans that are approved through a multidisciplinary committee. Data from this study showed a 37% decrease in ED visits and a 47% decrease in hospitalizations during the initial 8 months of implementation.

Keywords

quality improvement; medical overuse; hospital emergency service/statistics & numerical data; patients; patient admission; hospital utilization; frequent ED visits; care alert; care alert program; frequent admissions

Introduction

The Care Alert (CA) program was designed to address patient populations which are high utilizers of emergency department (ED) resources. EDs are often overcrowded, which can lead to delays in patient care.¹ The program is designed with the premise that patients who repeatedly visit the ED likely lack outpatient resources.² Often, they have a poor understanding of their conditions and the appropriate treatments thereof.³ High utilizers often present with multiple chief complaints per visit, requests for inappropriate medication, drug diversion, and/or for the purpose of hospital/physician shopping, all of which can lead to threatening and violent behavior when demands are not met, putting staff and patients at risk.² The CA program is designed to address the needs of this challenging patient population and ED overcrowding by designing an individualized care plan that is approved through a multidisciplinary committee. It is designed

to provide a formal process to address patient needs and standardize care between providers for these patients.⁴ The program seeks to induce change by outlining a patient-specific care plan for providers to follow and provide the patient with appropriate primary care and community service resources that will address their needs and help avoid the overutilization of the ED. Of note, the patient's medical screening exam, care, and treatment will never be delayed due to enrollment in the CA program. The CA committee is comprised of a multidisciplinary team including emergency medicine physicians, hospitalists, hospital administration, resident physicians, and nurses. Each patient is reviewed and discussed at monthly committee meetings to determine if they meet the criteria for enrollment. When the care plan is voted for acceptance on the basis of meeting enrollment criteria, patients and primary care providers (PCPs) are notified by a formal letter outlining the approved care plan. The patient is

Author affiliations are listed at the end of this article.

Correspondence to:
Kaitlyn Phelps, DO
Grand Strand Medical Center
Ocean View Education
Center
809 82nd Parkway
Myrtle Beach, SC 29572
(Kaitlyn_murray@hcahealthcare.com)

kept aware of the decisions being made about their care. The CA committee then follows all enrolled patients. Repeat visits are reviewed and trended. In February 2020, the program was adopted by the Grand Strand Medical Center ED. In the time since implementation, we have seen a decrease in ED visits and hospital admissions.

Methods

This study represents a non-randomized sample of ED patients. The CA program was implemented at a hospital with 110 000 annual ED visits. Patients were identified for the CA program based upon 2 criteria: abnormally high frequency of ED visits and/or the existence of a chronic medical issue with a high probability of recurrent ED visits. The study was conducted from March 2020 through June 2021. The term “high utilizer” was defined as a patient with greater than 8 visits per calendar year for a non-urgent chronic condition. The patients were submitted by provider referral after which time a reviewer examined all of the patient’s visits in the last 2 years. If the patient under review met the criteria for enrollment, then a care plan would be drafted and presented to the committee. The CA plan included the patient’s criteria for enrollment, emergency department treatment recommendations, and guidelines for admission to the hospital. All treatment, imaging, and ED course suggestions were created on an individual, case-

by-case basis to best suit the needs of that specific patient. Each CA plan was presented and reviewed in front of the CA committee, which consisted of the ED Medical Director, ED Assistant Medical Director, Hospitalist Medical Director, Lead Case Manager, ED Charge Nurse, Hospital Chief Medical Officer, and multiple Emergency Medicine resident physicians. The CA Committee meeting was held once per month with 1 or 2 care plans being presented at each meeting. After approval by the committee, a certified letter documenting the patient’s CA plan was sent to the patient as well as their PCP (**Figure 1A**). Each CA plan was then uploaded into the hospital’s electronic medical records (EMR) where it was accessible by the ED provider each time the patient visited the ED (**Figure 1B**). After enrollment, when a CA patient arrives in the ED for evaluation or treatment, a care alert icon is displayed on the EMR to demonstrate to providers that this patient has been enrolled in the CA program and has a CA plan. The attending physician then had the option to review the care plan for recommendations.

Each patient included in the study was reviewed for a period of 16 months: 8 months prior to the initiation of their CA plan and 8 months after. This time period was evaluated for each patient’s number of ED visits and number of hospital admissions both before

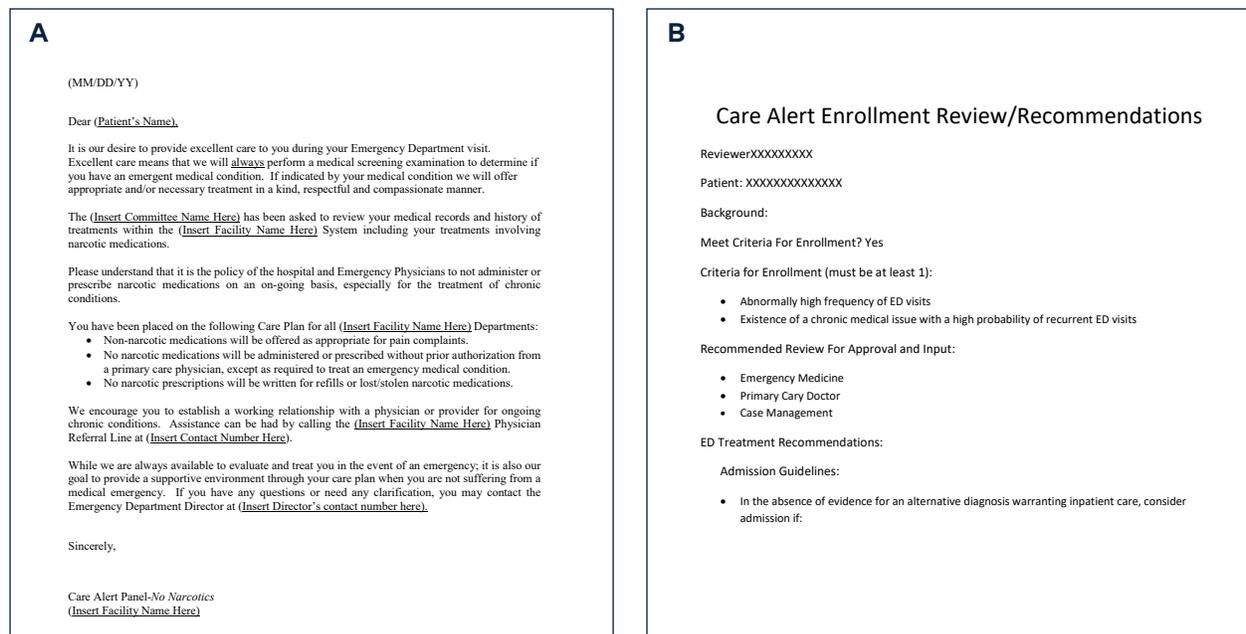


Figure 1. (A) An example of Care Alert letter sent to enrollees. **(B)** An example of Care Alert plan.

Table 1. ED Visits Before and After Care Alert Enrollment with Individual Characteristics

Patient	ED visits prior 8 months	ED visits after 8 months	Admissions prior	Admissions after	Chronic conditions
1	54	17	3	2	anxiety, back pain, headache
2	13	4	1	0	painful hidradenitis suppurativa
3	4	1	1	0	headache
4	80	80	9	6	multiple
5	10	4	0	0	trigeminal neuralgia
6	23	27	2	1	lower extremity edema, chronic deep vein thrombosis
7	15	3	0	0	abdominal pain, headache
8	25	7	1	0	migraines
9	25	18	8	9	sickle cell disease
10	25	29	8	4	sickle cell disease
11	31	23	12	3	pancreatitis
12	2	4	0	0	pseudoseizures
13	15	5	1	0	pancreatitis
14	2	0	0	0	abdominal pain

and after their CA. The statistical methods used were: averages, standard deviations, and student t-tests. This project was undertaken as a Quality Improvement project and does not need IRB review.

Results

There were 14 cases that met the criteria for the CA program over a 16-month period. Of the 14 patients included in this study, 9 patients were female and 5 patients were male with ages ranging from 21 to 65 years old. The median age was 40, and the chronic medical conditions varied. The number of total visits before and after the care alert was 324 and 222 respectively. This represents 546 visits in a period of 16 months for only 14 individual patients (**Table 1**). All current CA enrollees at the time of data collection were included in this study none were excluded. The average amount of ED visits for our subjects went from a baseline of 23.1 ± 20.6 visits to 15.9 ± 20.2 after the CA implementation, $P = .02$ (**Figure 2**). The average number of hospital admissions for our subjects went from a baseline of 3.3 ± 4.0 admissions to 1.8 ± 2.7 admissions after the CA implementation, $P = .04$ (**Figure 2**). This reflects an ED visit decrease of 31.5% and a hospital admission decrease of 45.6%.

Discussion

In this study of ED patients enrolled in the CA program at a single facility ED, the average number of ED visits and the average number of hospital admissions was significantly decreased after CA enrollment. This is relevant and impactful to EDs around the country.⁵ In fact, a great number of EDs are overcrowded and struggle to meet patient demand.¹ This has contributed to longer wait times for patients and increased workload for nurses and staff.⁶ Consequently, the CA program was developed to alleviate some of the pressure from these ED resources, as these patients frequently consume disproportionate time and resources of the hospital and often lack their own outpatient resources.^{1,4} To help mitigate this burden to our enrolled patients in the future, the hospital is in the process of establishing a Care Alert Clinic where they may establish care with a designated care plan provider. The data from this study suggests that the CA program's intention to decrease ED visits and the number of admissions of high ED utilizers is successfully meeting the goal.

However, there are significant limitations to this study. Because this was an observational

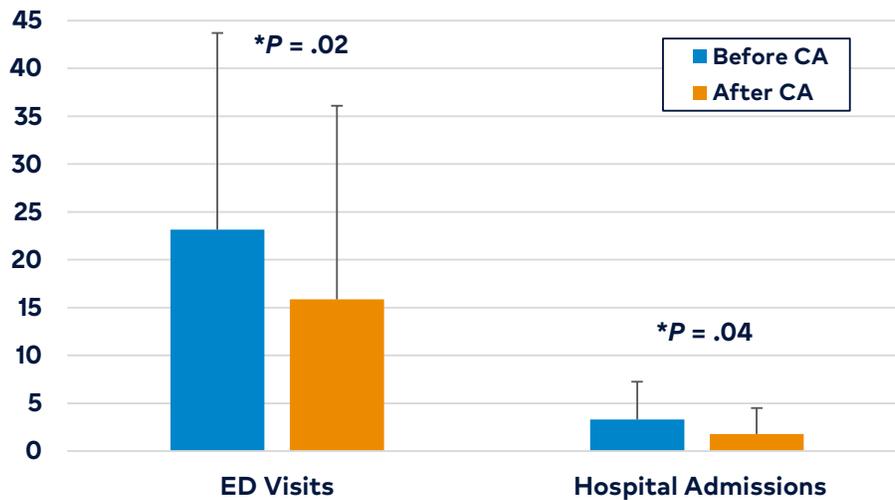


Figure 2. Number of ED visits and admissions to the hospital before and after initiation of a Care Alert (CA) plan.

study, treating physicians could not systematically alter study outcomes. Notably, the sample size was small. At the time of the study, the CA committee was in the early stages and there were only 14 patients enrolled. As it stands today, there are currently 50 CA patients, which will allow for repeated data collection and a follow-up study. Next, the study was conducted during the early COVID-19 pandemic when ED visits were significantly lower than usual. This certainly could have impacted the data. Additionally, the patients were included based on provider referral into the program. This has the potential to bias the results as it was not randomized and there was no stringent inclusion or exclusion criteria to submit a patient for referral. Finally, it was not mandated that treating physicians had to follow the CA plan. The plan was made as a suggestion for the targeted direction of therapy and disposition, so it is uncertain if the management of each one of the patients' subsequent visits was impacted by their care plan at all.

The initial goal of the study was to demonstrate that a CA program in the ED setting can help to decrease the amount of ED visits and hospital admissions. Our study shows that over a period of 16 months there was a 31.5 % decrease in ED visits prior to and after enrollment as well as a 45.6 % decrease in hospital admission prior to and after enrollment.

Conclusion

The CA program was developed to identify patients with high utilization of the ED for chronic issues. The program was designed with the premise that patients who repeatedly visit the ED likely lack appropriate outpatient resources and have a poor understanding of their condition(s).³ In this retrospective study of ED patients enrolled in the CA program at a single facility ED, the average number of ED visits and average number of hospital admissions were significantly decreased after CA enrollment over a 16-month period. This data suggests that the CA program successfully met its intended goal of decreasing patient ED visits and admissions to the hospital.

Conflicts of Interest

The authors declare they have no conflicts of interest.

The authors are employees of Grand Strand Medical Center, a hospital affiliated with the journal's publisher.

This research was supported (in whole or in part) by HCA Healthcare and/or an HCA Healthcare affiliated entity. The views expressed in this publication represent those of the author(s) and do not necessarily represent the official views of HCA Healthcare or any of its affiliated entities.

Author Affiliations

1. Grand Strand Medical Center, Myrtle Beach, SC

References

1. Siegel B. The emergency department: rethinking the safety net for the safety net. *Health Aff (Millwood)*. 2004;Suppl Web Exclusives:W4-146-8. doi:10.1377/hlthaff.w4.146
2. Moe J, Bailey AL, Oland R, Levesque L, Murray H. Defining, quantifying, and characterizing adult frequent users of a suburban Canadian emergency department. *CJEM*. 2013;15(4):214-226. doi:10.2310/8000.2013.130936
3. Moe J, Kirkland S, Ospina MB, et al. Mortality, admission rates and outpatient use among frequent users of emergency departments: a systematic review. *Emerg Med J*. 2016;33(3):230-236. doi:10.1136/emermed-2014-204496
4. Moe J, Kirkland SW, Rawe E, et al. Effectiveness of interventions to decrease emergency department visits by adult frequent users: a systematic review. *Acad Emerg Med*. 2017;24(1):40-52. doi:10.1111/acem.13060
5. King BM. Causes and Adverse Effects from Overcrowding of Emergency Departments: The Solution. Thesis. Murray State University; 2018. <https://digitalcommons.murraystate.edu/bis437/86/>
6. Baig MA, Mian A, Najeed F, Shahzad H. Overcrowding in the emergency departments: challenges and opportunities for improvement. *J Pak Med Assoc*. 2015;65(12):1344-1345.