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Implementation of a Standardized Acute Care Plan for Complex Care Medicine Service Patients: A Quality Improvement Initiative

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Abstract

BACKGROUND**:** Care transition plans, locally called Acute Care Plans (ACPs), are created specifically for super utilizers of the Complex Care Medicine Service (CCMS) and are a target for improvement. The purpose of this project was to improve care for CCMS patients by developing, implementing, and evaluating a standardized CCMS ACP. A multidisciplinary approach was chosen to facilitate the transitions of care process during an admission or discharge from the hospital.

LOCAL PROBLEM: The purpose of the ACP is to get a quick summary of how to treat a patient when they come to the hospital. The ACPs are unstructured, content is greatly variable, and updates lack ownership.

METHODS**:** The intervention for this quality improvement initiative includes the following: to standardize the ACP for CCMS patients; to educate CCMS providers on transitions of care and what to include in the standardized ACP; huddles with the Emergency Department (ED) providers to evaluate the implementation process; and huddles with CCMS providers to identify barriers and successes evident from the ACP improvement process. The intervention was evaluated after twelve weeks by comparing the number of CCMS patients that have a standardized ACP in place at the time of discharge compared to the start of the quality improvement project.

RESULTS: The results of the standardization of the CCMS ACPs were favorable. At the start of this QI project there were 40 CCMS patients that had an ACP in the EMR. At the completion of this QI project there were 65 CCMS patients that have a standardized ACP in the EMR. This project demonstrated that by standardizing the ACPs, the care of the CCMS patients improved.

CONCLUSIONS: This project demonstrated that by standardizing the ACPs, providers perceived that their care of CCMS patients improved. At the close of the project, all ACPs at issue had a standardized plan of care.

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Introduction

The care transition process can be a vulnerable time for patients. Patients with complex chronic conditions are among those with the highest need for effective care transitions (Bailey et al., 2019). Transitions of care interventions can start before discharge to help with safe passage to home for patients (Connor et al., 2021). Older adults with complex medical issues are at a higher risk for poorer transitions of care due to the lack of coordination in plans of care (Jeffs, 2017). Improved transitions of care can help to augment overall care and patient satisfaction (Jeffs, 2017).

Problem Description

Transitions of care includes many different health care issues, including patient education, discharge planning, and post-discharge care for patients, which can all vary depending on the patient population. One distinct and critical aspect of the transitions of care process involves care transitions plans used for patients described as frequent healthcare utilizers or "super utilizers." These super utilizers are defined as about one percent of the United States (US) population who use about one quarter of the healthcare resources (Baily et al., 2019). Overall, these patients have complex medical and social needs that the US health care system is not prepared to address (Baily et al., 2019).

Re-hospitalization rates are about one in five for older adults within the 30-day period after being discharged from the hospital; the related rate of preventable re-hospitalization is about sixty percent (Conner et al., 2021). Readmission rates due to medication related issues can

be seen in up to twenty-three percent of patients that are greater than 65 years of age (Fosnight et al., 2020). Additionally, inadequate transitions of care contribute to increased healthcare costs and hospital utilization (Rudawsky & Patel, 2022).

Local Problem

Within a large teaching hospital in the Boston area, care transitions plans (referred to as Acute Care Plans or ACPs at this location) are specifically for super utilizers on the Complex Care Medicine Service (CCMS) and are a target for improvement. ACPs have been developed for a select group of patients that are frequent utilizers of this hospital. The main purpose of the ACP is to provide a quick summary of how to treat a patient when they come into the hospital. The Emergency Department (ED) providers report that the ACP tool is helpful. ACPs are placed in the electronic medical record (EMR) to identify the key players involved in a patient's care and can help to coordinate the care transitions process. This document states who should be notified if the patient needs to be admitted or discharged. Multiple utilizers of the ACP include, but are not limited to, the primary care providers, nurses, the case management team and, the CCMS and ED providers.

At this local site, currently the ACPs are unstructured, the content has great variability, and there is no ownership as to who updates these care plans. A clear ACP can help to transition the plan of care smoothly for the patient. Additionally, few staff know how to access or update the ACPs. One of the goals of the CCMS is to enhance discharge planning and to help with the transition of care at the start of the hospitalization.

Patients are referred to the CCMS by any provider at the hospital. A screening tool is used to see if the patient would qualify to be on the CCMS due to medical complexity. Once a patient is referred and accepted on the CCMS, they are seen by the service on each subsequent

admission, and ideally, by the same physician and nurse practitioner (NP). ACPs have been developed to provide background information to the ED providers to help in caring and coordinating care for this complex group of adult patients. Through chart review it was discovered that not every CCMS patient has an ACP in place.

Literature indicates that the use of transitions of care services can decrease readmission rates (Ni et al., 2018; Bellon et al., 2019; Fosnight et al., 2020). Locally, it was clear that the current ACP was not standardized or regularly updated, which could potentially lead to delays in care due to the patient's medical complexity. This led to the local site's impetus for the development of a standardized ACP for CCMS patients.

Available Knowledge

The exploratory PICO asked what strategies have been shown to improve transitions of care for adult patients coming into the ED from home. A PRISMA-guided literature review was performed to examine the effective strategies to help improve transitions of care for frequent utilizers of hospital services. Three databases, CINAHL, OVID, and PubMed, were utilized. Inclusion criteria included English language, adults, in the US, and written within the last five years. This yielded 129 articles; 21 were removed due to duplication, 76 were excluded, resulting in 32 articles selected for inclusion in more detailed review. Of the remaining 32 articles, 25 were excluded as the transitions of care were not focused on readmissions, resulting in seven articles for review. The evidence was synthesized and sorted by the intervention as illustrated in the synthesis table (Appendix A). The evidence included one quasi-experimental study, three cohort studies, two randomized control studies, and one QI project. The total number of subjects in the evidence numbered 7,711. There were four studies that included a diverse population of non-Hispanic whites and African Americans (Bailey et al., 2019; Conner et al., 2021; Ni et al.,

2019; Schnipper et al., 2021). There were five studies that were performed in a hospital setting (Bailey et al., 2019; Bellon et al., 2019; Conner et al., 2021; Fosnight et al., 2020; Rudawsky & Patel, 2022). All the studies were performed in the US. The geographic location where the studies were performed included California (n=1), Florida (n=1), Massachusetts (n=1), Ohio (n=1), Pennsylvania (n=1), and Tennessee (n=1). One study did not disclose the state where it was performed (Rudawsky & Patel, 2022).

The John Hopkins evidence-based rating scale was used to evaluate each of the seven studies for strength and quality of evidence (Poe & White, 2010). Two studies were determined to have a level I strength of evidence (Conner et al., 2021 and Schnipper et al., 2021). The study Bailey et al., 2019 was determined to have a level II strength of evidence, with high quality, A rating. There were three studies determined to have a level III strength of evidence (Bellon et al., 2019; Ni et al., 2019 and Rudawsky & Patel, 2022). The study by Fosnight et al., 2020 was determined to have a level V strength of evidence with a high quality, A rating.

Within the literature, there were three different interventions examined. These interventions included a pharmacy-focused intervention, a multidisciplinary team approach, and peer support. The pharmacy-focused intervention was supported by two different qualitative research articles (Ni et al., 2018; Rudawsky & Patel, 2022). The multidisciplinary team approach was seen in four studies (Bailey et al., 2019; Bellon et al., 2019; Fosnight et al., 2020; Schnipper et al., 2021). The peer support intervention was supported by one study (Conner et al., 2021).

The pharmacy-focused intervention approach from Ni et al. (2018) showed that adding a pharmacy-based transitions of care service to the post discharge care of high-risk patients had a significant reduction (P=<0.0001) in the 180-day of the total healthcare cost. The peer support intervention approach from Connor et al. (2021) involved adding peer support for older adults

with clinical depression to enhance care transitions from the hospital back into the community, which helped to reduce preventable readmissions. Transitions of care interventions are more effective when they are started before a patient is discharged home from the hospital. Individuals taking part of the enhanced care transitions interventions showed improved quality of life scores (Connor et al., 2021).

Within the multidisciplinary team approach as described by Schnipper and colleagues (2021), the ideal discharge involves a team approach with the transition process of transferring the information to the patient's providers in an organized and timely fashion. The intervention resulted in a decrease in post discharge events by 45% (Schnipper et al., 2021). After a thorough review of the literature the strongest evidence to support the project intervention was the multidisciplinary team approach with the transitions of care, specifically to standardize the ACPs. The Standards for Quality Improvement Reporting Excellence (SQUIRE) 2.0 Guidelines were used for the development of this project proposal (Ogrinc et al., 2015).

Rationale

Although the reviewed literature did not reveal a conceptual framework, the theory that informed this QI project is the Chronic Care Model, which broadly speaking involves both the health system and the community (Wagner, 1998). The Chronic Care Model recognizes self-management support, delivery system design, decision support, and the clinical information system that can be used with chronic disease management (Wagner, 1998). The Chronic Care Model supported the use of a multidisciplinary approach with the ACPs, to improve transitions of care for a group of adults being admitted or discharged from the hospital.

Kurt Lewin's change theory, consisting of unfreezing, change, and refreezing, was used to guide this QI project (Malik, 2022). In the unfreezing stage, the project manager prepared the

CCMS and ED providers for the desired change of the standardized ACPs. During the change stage, the project manager obtained feedback from the CCMS and ED providers on whether the standardized ACP are beneficial and feasible. During the refreezing stage, the project manager reinforced the standardization of the ACPs to the CCMS and ED providers as a useful tool in managing transitions of care for the CCMS patients.

Specific Aims

The purpose of this project was to improve care for the CCMS patients at a large tertiary hospital who come to the ED for care. The overarching aim was to develop, implement, and evaluate a standardized CCMS ACP to facilitate the transitions of care process during an admission or discharge from the hospital. There were five specific aims developed for this QI project.

- Convene stakeholders to obtain input on creating a standardized ACP and co-create a standardized ACP with CCMS providers.
- Seventy-five percent of CCMS providers will be trained and educated on the standardized ACPs.
- Eighty-five percent of CCMS patients will have a standardized ACP in place at time of discharge from hospital.
- Eighty-five percent of ED providers will report the standardized ACPs add value in the decision-making process when CCMS patients are evaluated in the ED for admission or discharge.
- Seventy-five percent of CCMS providers will report the standardized ACP was beneficial, feasible, and added value to the care of the CCMS patients.

Methods

A logic model (Figure 1) was developed using the inputs, activities, and output of this QI

project. The Plan-Do-Study-Act (PDSA) cycle guided the framework for this project. In the "plan" stage the project coordinator gathered the stakeholders to obtain input on creating a standardized ACP. The "do" phase consisted of developing standardization of the ACP for CCMS patients. The "study" phase included an analysis of the project including asking the huddle questions to the CCMS and ED providers. The "act" phase incorporated the feedback from CCMS and ED providers on how to improve the standardization of ACPs (Langley, 2009).

Context

The setting for the project was the ED of a not-for-profit, integrated academic healthcare system at a large tertiary hospital in the metro Boston area. This project was carried out in the hospital ED. The CCMS has on average a daily census of ten patients. The QI project was to implement a standardized ACP process. CCMS and ED providers were educated on the new standardized ACPs.

The CCMS team includes three physicians and two NPs. The project coordinator is an NP on the CCMS. The CCMS is an inpatient service at this hospital that provides longitudinal care for a group of hospitalized patients. This service is a general medicine team that has a continuity-focused inpatient care model for medically complex adult patients. This patient population often requires multiple consulting physician teams that are transitioned frequently during an admission. Due to the patient's medical complexity, they require a high level of care coordination to maintain continuity of care during and after hospital admission. The structure of the CCMS is to provide continuity of care throughout the initial hospitalization and subsequent hospitalizations for medically complex and long length of stay patients. The enhanced care coordination is mostly performed by the CCMS NPs.

A microsystem map (Appendix B) was used to depict and analyze the CCMS's microsystem. The services that help to support the CCMS patients include medicine hospitalists, the pharmacy department, primary care providers, the Integrated Care Management Program, the resident teaching service, CCMS and ED providers, case management, and hospital leadership.

Issues with the current ACPs were considered in creating the cause-and-effect diagram (Appendix C). One of the inefficiencies found in analyzing the current process is that there is no current ownership of which service updates the ACP. There are no clear guidelines on what needs to be included when creating or updating the ACP. One effect that is contributing to the need for standardized ACP is the time restraints that providers have in the ED as it is a fast-paced environment. Having access to a tool that can quickly give medication doses that have helped patients in the past or a behavioral plan can save an ED provider time and supports quality patient care. Conversely, a tool that has information on a patient can be a safety factor if not updated on an ongoing basis.

The force field analysis (Appendix D) was created to highlight the factors driving and restraining successful implementation of the intervention. In the project's setting, there are significant driving forces that helped the project succeed. One factor that is driving the change to the ACP is The Joint Commission. Adverse drug events can result from medication discrepancies, errors, or adverse drug reactions. The World Health Organization reports that during internal hospital transfers, 62% of patients had at least one medication discrepancy (The Joint Commission, 2022). One medication discrepancy is seen in 25 to 80% of patients when there is failure to communicate the changes in medication at the time of discharge (The Joint Commission, 2022). Improving care transitions by standardizing the ACPs will impact patient safety. The Joint Commission (2022) has listed seven foundations for safe transitions of care for

a patient, which consist of involving leadership, identifying at-risk patients early, detailed psychological assessment, multidisciplinary team involvement, family and patient engagement, medication management, and conveying of information.

The driving forces limiting the implementation of standardizing ACP project includes fear of change. The ED providers can be fearful of doing something a different way. Time is also a significant restraining factor. With the surge in patients that are coming into the ED, a provider has less time to spend on a particular case. The providers need to use their time wisely and efficiently. For the CCMS group of patients that are high utilizers of the hospital system, these patients have multiple admissions which can be time-consuming to look through the chart to see what medications have been tried before or to get a starting dose for a narcotic. Having an up-to-date ACP in place will be useful for multiple providers involved in the CCMS patient's care.

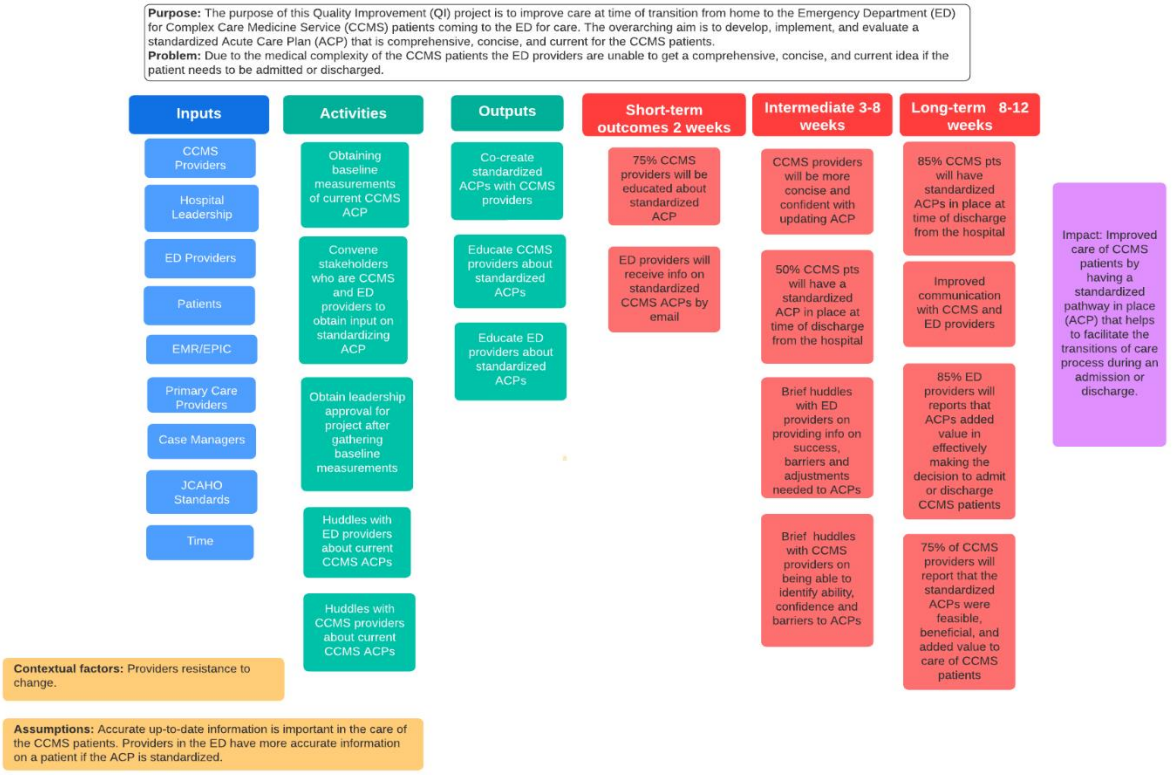
Intervention

The intervention was to have the CCMS ACPs standardized with comprehensive, concise, and current information that helped to facilitate the transitions of care process during an admission or discharge to the hospital. A logic model was constructed (Figure 1) for this QI project program planning, detailing the resources needed to implement a standardized ACP. The pre-implementation efforts involved obtaining baseline measurements of the current ACP in place and when they had been last updated; this occurred in July 2023. As of November 2023, sixty-five active CCMS patients seen at this project location who come through the ED for care. Forty CCMS patients had ACPs in place. The other twenty-five CCMS patients did not have an ACP in place. CCMS ACPs had not been updated on an ongoing basis. Every CCMS patient should have an ACP in place which helps with the transition of care for these patients.

A practice change occurred in October of 2023, when CCMS was no longer involved in the care of four out of the six sickle cell patients originally expected, due to the sickle cell service being newly able to provide a continuity model similar to the CCMS with the hiring of two nurses. The teams agreed that CCMS will continue to care for two of the sickle cell patients as they have been a part of the CCMS for over four years.

Figure 1

Logic Model

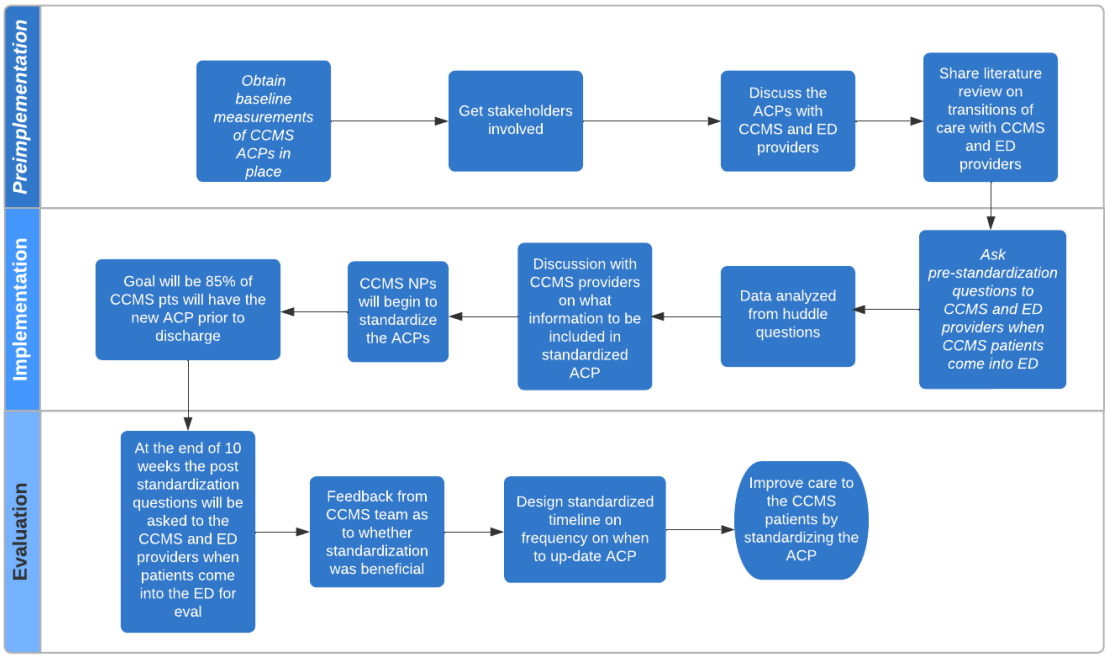


By including the stakeholders, which include the CCMS and ED providers, and hospital leadership, in a dialogue, input was obtained to help with the program planning on standardizing the ACPs. From these resources the project coordinator standardized the ACP tool into the EMR that can be utilized by multiple providers. After that, the project coordinator developed a

standardized ACP process with the CCMS providers. This included ownership and timing of updating the ACP. The next step was introducing the standardized ACPs to the ED providers.

Figure 2

Intervention Flowchart



The intervention flowchart (Figure 2) shows the steps that took place in the pre-implementation, implementation, and evaluation phase of this QI project. In the pre-implementation phase baseline measurements of the current CCMS ACPs were obtained by the project manager. The stakeholders were involved. There was a discussion on the ACPs with the CCMS and ED providers, where the literature review on the transitions of care was shared. Over the next few weeks, the implementation phase occurred where the pre-standardized huddle questions were asked to the CCMS and ED providers when the CCMS patients came into the ED. The data was then analyzed and discussed with the CCMS providers on what information to include into the ACPs. Next, the two NPs began to standardize the ACPs. After ten weeks the

evaluation phase took place, and this included asking the post-standardized huddle questions to the CCMS and ED providers over a period of two weeks. Feedback was obtained from the CCMS providers on the standardization process and their benefit to the care of the CCMS patients. A timeline was designed on when and how these ACPs are updated on an ongoing basis. At the end of the twelve weeks, the project coordinator conducted a chart review of the number of CCMS patients with standardized ACPs in place at the time of discharge and compared it to the start of the QI project.

Implementation of the Intervention

The project implementation took place over the course of twelve weeks from November 2023 through January 2023. The intervention was standardizing the already existing ACP tool. This tool lists key information and providers that are involved in the care for this group of patients that are high utilizers of the ED. The way that the ED providers and staff become familiar with CCMS patients is key. The team involved in the work of the standardized ACP are the CCMS medical director**,** the two CCMS physicians, and the two CCMS NPs.

Since the COVID-19 pandemic began, the project hospital site has seen a higher than usual census due to multiple factors. One factor is that the ED continues to experience high patient volume and high patient acuity. Also, due to the mental health crisis and difficulty accessing care, the ED is seeing an even higher patient census. Finally, patients delayed their care for elective procedures during the COVID-19 pandemic and are now coming into the hospital for care, further leading to the current challenging clinical environment, which is ripe for standardization of the ACPs for frequent healthcare utilizers with complex medical needs.

Evaluation of the Intervention

A PDSA framework was used to develop, implement, and evaluate the project, which

compliments Lewin's three stages of change theory. Lewin's model of change theory includes the three stages of change which are unfreeze, change, and refreeze (Malik, 2022). Lewin's change model guided the huddle questions asked to the CCMS and ED providers before starting and after completing the standardization of ACPs. Unfreezing ensures success of the QI project; the huddle questions asked the CCMS and ED providers what would be helpful in ACPs. During this QI project communicating with the CCMS and ED providers was important in standardizing the ACPs. In the change stage, the project coordinator wanted to support the CCMS and ED providers so they could deal with change proactively. In the change stage the project coordinator motivated the CCMS and ED providers to accept the change of the standardized ACPs (Malik, 2022). In the refreeze stage, the project coordinator worked to support the CCMS and ED providers to manage the change. Provider feedback remained important and valuable to the QI project as was supporting the CCMS and ED providers on the changes that happened with the standardization of the ACPs.

Table 1
Measures Framework Table

Aim/Objective	How Operationalized/Measured
Convene stakeholders to obtain input on creating a standardized ACP and co-create a standardized ACPs with CCMS providers.	Meeting with stakeholders
75% of CCMS providers will be trained and educated on the standardized ACPs.	CCMS staff meeting discuss the huddle questions by the project coordinator.
85% of CCMS patients will have a standardized ACP in place at time of discharge from hospital.	Chart review
85% of ED providers will report standardized ACPS added value in the decision-making process when CCMS patients are evaluated in the ED for admission or discharge.	Huddles asking four questions to the ED providers pre-ACP and post-ACP standardization completed by project coordinator.
75% CCMS providers will report that the standardized ACPs were beneficial, feasible and added value to the care of the CCMS patients.	Huddles asking four questions to the CCMS providers pre-ACP and post-ACP standardization completed by project coordinator.

Measures and Analysis

The measures framework table (Table 1) shows how attainment of the specific aims were

achieved and is organized according to the project aims. The first objective *is to convene the stakeholders to obtain input on creating a standardized ACP and co-create a standardized ACP with CCMS providers.* This was measured by meeting with the stakeholders who are the CCMS and ED providers. The pre-ACP standardization questions were asked to the ED providers when a CCMS patient came into the ED and to the CCMS providers as noted in Appendix F. A meeting with CCMS providers was completed prior to starting this QI project. Literature on the transitions of care, and how the ACPs support transitions of care, was shared with the CCMS providers. The two current ACP templates in use were shared with the stakeholders. From this discussion the meeting minutes were documented. The analysis included both quantitative and qualitative themes. The results from the huddle questions answered from the pre-standardization of the ACP helped to develop what was included in the ACPs (Appendix F). Data tracking was supported with the tool of the attendance sheet to identify who attended the CCMS meeting (Appendix G).

The second objective *is to train and educate seventy-five percent of CCMS providers on the standardized ACPs.* This objective was operationalized through meeting with CCMS providers and gaining their thoughts on what was important to include in the ACPs. To help facilitate the transitions of care from admission to discharge the standardized ACPs included the key providers that are involved in a patient's care. The ACPs recommendations from the CCMS and ED providers were presented to the CCMS providers in person at a staff meeting. The analysis included the number of CCMS providers that attended the staff meeting. Data tracking was supported by gathering the themes and ideas from the answers to the huddle questions (Appendix G).

The third objective *is to assess the number of CCMS patients that have standardized ACPs in place at time of discharge, with an aim for 85% of CCMS patients to have standardized ACPs in place at the time of discharge from the hospital.* Measuring was completed by EMR chart review at the end of twelve-week project. There was a comparison completed of the number of patients with ACP when they enter and are discharged from care. The analysis was quantitative. Data tracking was supported with (Appendix G) recording which patient's charts have been standardized by the completion of this QI project.

The fourth objective *is that the standardized ACP will add value to affect the clinical decision-making process for ED providers, aiming for 85% of ED providers who participated in this QI project to report standardized ACP added value in the decision-making process when CCMS patients were evaluated in the ED for admission or discharge.* Measurement was conducted through huddles asking the four questions to the ED providers. The questions asked were, "Are using the ACPs beneficial in helping to care for CCMS patients?"; "Are using the ACPs feasible in caring for CCMS patients?"; "What would be helpful to include in the ACPs?" and "Do you feel comfortable deviating from the CCMS ACPs?" (Appendix G). The qualitative data was analyzed from the answers to the third huddle question. The analysis was quantitative for huddle questions number one, two, and four. A comparison from the pre-standardization to the post-standardization was performed on the first two huddle questions. Data tracking was supported with the record of the ED providers answering the huddle questions and their comments.

The final objective *is to assess CCMS provider's satisfaction with the intervention of standardizing the ACP. The projected outcome aims for 75% of the CCMS providers to report that the standardized ACPs were beneficial, feasible, and added value to the care of the CCMS*

patients. Feedback was measured from CCMS providers on the ongoing assessment of contextual elements that contributed to the successes, failures, and efficiency of this QI project. Measurement was conducted through post-standardized huddles by asking four questions to the CCMS providers. The questions asked include: "Are using the ACPs beneficial in helping to care for CCMS patients?"; "Are using the ACPs feasible in caring for CCMS patients?"; "What would anything else be helpful to include in the ACPs?" and "Do you feel comfortable deviating from CCMS ACPs?" (Appendix F). There was a comparison between the first two huddle questions. The analysis was quantitative for questions one and two (Appendix G). The analysis from the post standardization fourth question resulted in qualitative themes. Data tracking was supported with the answers to the huddle questions. There was data tracking for the descriptive data on the CCMS patients that identified the demographic information of the patients, and included ID numbers in place of patient names, age, gender, ethnicity, race, ACP in place, and date ACP standardized (Appendix G).

The measurement and analytic strategy table (Appendix E) shows the quantitative and qualitative methods that were used to draw conclusions from the data obtained. The number of ACPs in place prior to the standardization of the ACP was analyzed with the quantitative methods as this compares to the number of standardized ACPs developed at the end of this QI project. Qualitative analysis was performed by looking at the themes from the feedback of the huddle questions asked pre- and post-ACP standardization. Qualitative analysis elucidates themes and responses after meeting with CCMS and ED providers to see if the ACPs were beneficial and feasible in helping to care for the CCMS patient.

Ethical Considerations

The University of Massachusetts Boston clinical QI checklist was completed (Appendix

H). The project coordinator has answered all the questions in the affirmative indicating that this is a QI project.

The project proposed is QI and does not meet the definition of human subject's research because it is not designed to generate generalizable findings but rather to provide immediate and continuous improvement feedback in the local setting in which this project is carried out. The University of Massachusetts Boston Institutional Review Board (IRB) has determined that QI projects do not need to be reviewed by IRB.

A non-human subject determination application was submitted through the Research Electronic Data Capture application process (REDCap) at Massachusetts General Hospital (MGH) and includes the QI Checklist (Appendix H). Through MGH, the project manager submitted a request to the IRB. The IRB reviewed the project description and provided a written confirmation that this project is "Not Human Subjects Research." A QI project does not meet the definition of human subject.

The MGH student research policy states that all nursing students including doctoral students who wish to conduct original research including quality improvement need to submit clinical information from UMB to a clinical placement coordinator at MGH through the centralized clinical placement system. The project coordinator submitted this information to MGH. The Collaborative Institutional Training Initiative (CITI) program was completed before starting the project.

Results

The results of the standardization of the CCMS ACPs were favorable. At the start of this QI project there were 40 CCMS patients that had an ACP in the EMR. At the completion of this QI project there were 65 CCMS patients that had a standardized ACP in the EMR. The

demographic characteristics of the CCMS patients are displayed in Table 2. The age ranges of the patients involved were 21 to 78 years of age. The average age of the CCMS patient was 43 years of age. The most common age range was 30-39 (28%, n=18) and the least common age range was 60-69 (6%, n=4).

There was a higher proportion of females (57%, n=37) compared to males who were 40% (n=25) of the participants and the remaining participants were transgender (3%, n=2) patients on the CCMS service. There were more than 80% reporting that they are not Hispanic (88%, n=57) and a lower rate of patients that are Hispanic (12%, n=8). The majority of the CCMS patients report their race as White (75%, n=49). The remaining patient population on the CCMS service report Other (12%, n=8), Black (8%, n=5), and Asian (5%, n=3).

Table 2

Demographics of Patients

Demographics of Patients	**n=65**	
Characteristic	n	%
Sex		
Female	37	57%
Male	26	40%
Transgender	2	3%
Race		
White	49	75%
Other	8	12%
Black	5	8%
Asian	3	5%
Age Range		
20-29	13	20%
30-39	18	28%
40-49	12	18%
50-59	13	20%

60-69	4	6%
70-79	5	8%

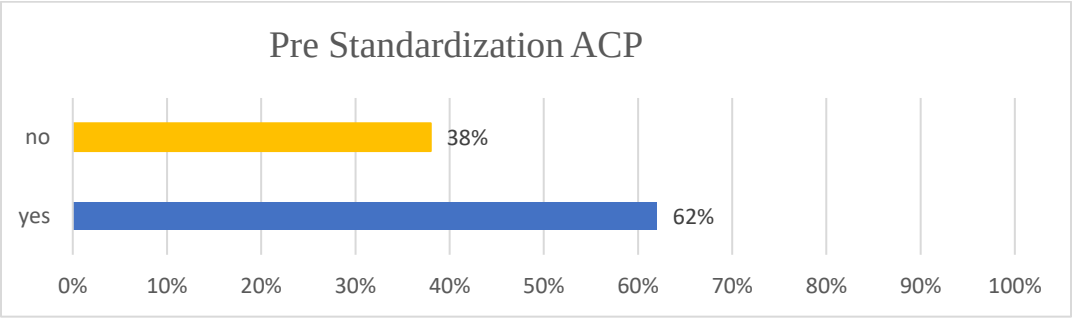
Objective one was met with convening the stakeholders to obtain input on creating a standardized ACP and co-create standardized ACP with the CCMS providers. This was done in November of 2023.

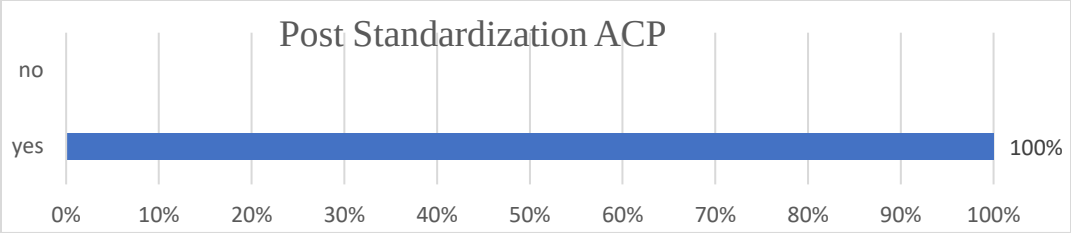
Objective two was met with 75% of the CCMS providers educated and trained on the standardized ACPs. The goal was exceeded in obtaining 100% of the CCMS providers educated and trained on the standardized ACPs. All four CCMS providers attended a staff meeting on November 22, 2023, where the standardized ACP templates were reviewed and discussed.

Objective three was met with 85% of the CCMS patients with a standardized ACP in place at the time of discharge from the hospital (Figure 3). The goal was exceeded in obtaining 100% of ACPs were standardized by the time of discharge from the hospital. By having the ACPs standardized and continuously updated this will allow the ED providers an updated ACP in place for the next ED visit.

Figure 3

Outcome Measures





Objective four was met with 85% of the ED providers reporting standardized CCMS ACPs added value in the decision-making process when the CCMS patients are evaluated in the ED for admission or discharge. This objective was evaluated by having the ED providers answer the pre-standardization huddle question one "Are using the ACPS beneficial in helping to care for CCMS patient?" and question two "Are using the ACPs feasible in caring for CCMS patients?". There was a total of 11 ED providers that answered huddle question number one as yes (100%, n=11). There were 11 ED providers that answered huddle question number two as yes (100%, n=11). The third huddle question "What would be helpful to include in the ACPs?" showed qualitative data in themes which included "nothing to add" (n=2), "who to contact" (n=2), "updated plan was helpful" (n=2), and "specific mediations and doses" (n=5).

Objective five was met with 75% CCMS providers reporting that the standardized ACPs were beneficial, feasible, and added value to the care of the CCMS patients. This goal was exceeded in having 100% of CCMS providers reported that the standardized ACPs were beneficial, feasible, and added value to the care of the CCMS patients. This was seen in having the CCMS providers answer the post-standardization to the first, second and third huddle questions. Question number one was answered yes by all four members on the CCMS. Question number two was answered yes by all four members of the CCMS. Question three was answered yes by all four members of the CCMS. Question four showed qualitative themes which included "nurse cannot update these" (n=1), "being able to find these ACPs" (n=1), "short and to the

point" (n=1), and "nothing to add" (n=1).

Discussion

Summary

This quality improvement project was designed to improve the transitions of care when coming to the ED for care. Standardizing the ACPs helped to improve the transitions of care for these patients. This project demonstrated that by standardizing the ACPs, providers perceived that their care of the CCMS patients improved. This was noted by the feedback received from the CCMS providers in answering the huddle questions during week number ten through week twelve with the ACPs considered beneficial, feasible, and adding value in affecting clinical medical decision-making. The success of this project mirrors the literature as discussed by The Joint Commission where at every transition of care starting with an admission into an ED there is a chance to provide improved patient safety which is included throughout the hospitalization and then onto discharge (The Joint Commission, 2022).

The theoretical framework that helped to guide this QI project was the Chronic Care Model. The Chronic Care Model helped to support the use of the multidisciplinary team approach seen in the microsystem map (Appendix B) by developing a standardized approach to the CCMS ACPs (Wagner,1998). Kurt Lewin's change theory was used to help guide the CCMS and ED providers through the stages of change which included unfreezing, change, and refreezing (Malik, 2022). Kurt Lewin's change theory was successful in utilizing the three stages of change in this QI project.

In the literature review, American Case Management Association reported one of the five transitions of care standards includes communicating essential care transitions to key stakeholders that care for a patient and the use of the ACPs would be an example of a key

communication tool or plan used by providers (ACMA, 2023). This QI project and its results support the usefulness in improving care.

Drivers of Change

As noted earlier a current driving force for change in support of this project included the time restraints that ED providers are faced with. As expected, the standardized CCMS ACPs allowed for a quick reference to how to care for a particular patient and time efficiency was a benefit of this completed project. In addition, the CCMS mission to provide continuity of care to a set group of patients was also a driving force in standardizing these ACPs. As a result of this project each CCMS patient will have listed who the CCMS providers are and how to get ahold of these providers furthering the mission of continuity of care.

This author found that stakeholders were receptive to work on standardizing the ACPs when it was discovered that the ACPs were not updated on a regular basis. The value of the project was emphasized through multiple stakeholder meetings and regular involvement with the CCMS providers, which lead to a positive result. One strength of this intervention was involvement from multiple members of the CCMS and ED providers. Convening with the stakeholders from CCMS and ED helped to strengthen what the providers felt would be useful in the ACPs. Using the answers to the huddle questions helped to form what should be included in the standardized ACPs. One of the feedback items from ED providers was that having ACPs on all CCMS patients will make providers aware that a particular patient is a CCMS patient. It has been challenging in the past to figure out if a patient was on the CCMS for a patient that is not as frequently hospitalized. An impact from this QI project is that the CCMS patients will receive care through a standardized and updated ACP in the EMR that can be accessed by multiple

members of the care team who are helping to care for the patients.

Resolving Continued Project Needs

Upon debriefing with the CCMS team on the QI project results, questions had been raised about the sustainability of the standardized ACP for new patients and existing patients. This had been previously discussed with the project coordinator and the NP that every six months they would look at the whole list of patients and see which ACPs need to be updated. The NPs would divide up the work on updating these ACPs. A chart audit would be completed once a year to see that the ACPs are being updated. When a new patient is added to CCMS, one of the NPs will develop an ACP before the patient is discharge on that first admission. All the providers will have access to the master list of names of patients and the dates ACPs last updated.

Factors for Successful Implementation at a New Site

To replicate this QI project, frequent utilizers of hospital services are an appropriate target population. A care team with repeated, ongoing interactions and involvement with a specific group of patients is key to replicating the ACP standardization. Creating a plan to maintain updates is also a transferable aspect of the project. Including standardized wording on contacting providers and a fully invested implementation team is also critical to success. When a team is invested, they can see the benefit with working with other providers of the medical team to help provide great care. Leadership interest, team investment, and stakeholder engagement all contributed to successful results and are all key factors that can benefit other similar projects.

Limitations

There were some limitations in implementing the standardized CCMS ACPs. ED providers have mentioned that ACPs can have biases on how and when to follow specific instructions. When a different medical issue comes up unrelated to the usual medical problems, it

remains unclear as to how an ED provider should treat a new issue for example. Ultimately, it is at the discretion of the ED provider to decide how to treat the patient, and the ACPs are to serve as a guide only.

Limitations also included demographics of the site. When examining the demographics for the CCMS it was noted that most of the patients were white (75%, n=49). According to the Equity and Community Health Strategy at MGH, 13% of the inpatients are African American or Latino. This is more consistent with the data obtained in this QI project, as 20% of site inpatients identify their race as black or other (CDI, 2023). An additional limitation was a change in policy which resulted in a loss of four of the CCMS patients back to the continuity providers from the Sickle Cell Service, which also affected the demographics noted in this QI project. Finally, during the three months of when this QI was complete, three deaths occurred. These three patient's ACPs were standardized before they expired and are included in the total number of ACPs standardized.

Conclusion

Overall, the results of the intervention proved favorable as all 65 ACPs were able to be standardized during the 12-week period when the QI project took place. In the chart review before the QI project started it was noted that 62% of CCMS patients had an ACP in EMR and 38% did not. At the completion of this QI project, 100% of the CCMS patients had a standardized ACP in EMR. The project, despite restricted in the number of patients and providers involved was successful in that the smaller group shared detailed, direct, and helpful feedback to support the project strengths and successes. Since the start of this project the project manager has often and continues to be given recommendations on what to include in a particular patient's ACP. Anecdotally, providers are thinking and utilizing the ACPs more because of

involvement of this project. There are more open and honest discussions on not only what to include in the ACPs but also how best utilize ACP for the CCMS patients. This QI project is a true success in the culture of the project's setting.

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There was no funding granted to complete this QI project.

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Appendix A

Synthesis Evidence Table

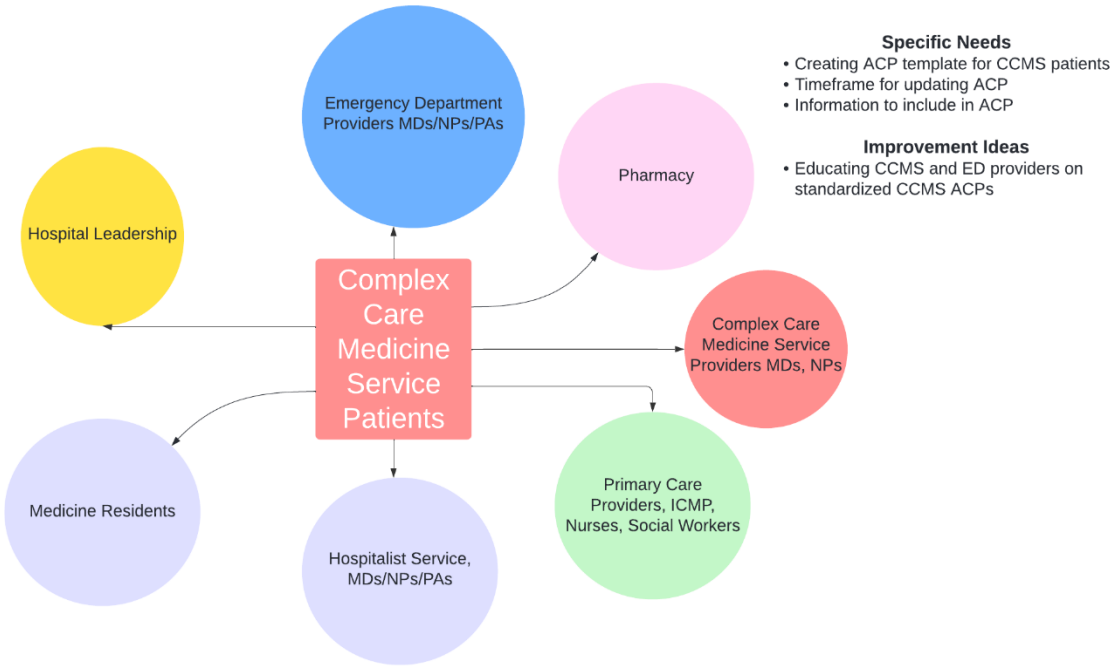
Exploratory PICO: What strategies have been shown to improve transitions of care for adult patients coming into the emergency department from home for care?

Intervention	Studies	Sample Size & Description	Significant Findings	Level of Evidence & Quality
Multidisciplinary team including pharmacy intervention	A. Bailey, J.E., et al., (2019). NP, LPN, RN, Pharmacist, Pharmacy Technician, SW	A. SM n=285 control n=1950 Mean age SM 57, control 61 SM female 60.7, control female 56.5 SM non-Hispanic white 13, control non-Hispanic white 27.7	A. Participants in SM program resulted in 7% less rehospitalizations & 31% less 30-day readmissions. The medical expenditures were reduced for SM group over 6 months.	A. II, A
	B. Bellon, J. E., et al., (2019). NP, Nurse, Pharmacist, SW, Case Manager, Medical Director	B. n= 3200 HT n=1900 Medicare control group n=1300 HT medium readmission risk n=1262. Medicare control group medium readmission risk n=943 HT high readmission risk n=638 Medicare control high readmission risk n=355 HT group medium	B. The HT group who used NP or SW visits were able to reduce the 30 and 90-day hospital readmission of the medium risk patients.	B. III, A
	C. Fosnight, S., et al., (2020). Nurse, Physician, Pharmacist, Pharmacy Assistant	C. n=284 patients 176 patients under age 65 108 patients 65 years or older 165 males, 119 females. Full intervention n=147, Partial intervention n=137	C. Readmissions decreased 15.3% during the intervention phase. There was a decrease of 10.2% to the 30-day readmission rates when the full pharmacy interventions were completed.	C. V, A
	D. Schnipper, J. L., et al., (2021) Pharmacist, NP, PA, RN, LPN, MD	D. n=1679 usual care group n=692 intervention group n=987 usual care group 70 or older n=202, 30% intervention group 70 or older n=278, 28% readmission age 71.8 control group 76.2	D. Intervention group had 45% reduction in post discharge adverse events.	D. 1, A

Peer Support	A. Conner, K.O., et al., (2021). Peer educators, Transition coach	A. n=21 CTI group n=10 CTI female 6 ECTI female 7 CTI male 4 ECTI male 4 CTI non-Hispanic white 4 ECTI non-Hispanic white 3 CTI African American 4 ECTI African American 5	A. The readmission rates were decreased in the ECTI group. ECTI participants were more likely to make an outpatient behavioral health visit.	A. I, B
Pharmacist Intervention	A. Ni, W., et al., (2018). Pharmacist	A. Intervention n=830, Control observation n=1005 Intervention group white 39.1%, Control group white 35.2%, Intervention group Hispanic 35.1% Control group Hispanic 41.12%, Intervention group black 13.2% Control group black 10.6% Managed Medicaid population	A. For the intervention group there was a 49% reduction in 30-day readmission, p=0.0045	A. III, B
	B. Rudawsky, N., & Patel, H. U., (2022). Pharmacist	B. control group n=197 intervention group n=210 control group average age 72 intervention group average age 71 control group male 52.8% intervention group male 43.8%	B. 30-day readmission was lower with intervention group 13.3%, control group 20.8%. p=0.044. Patient satisfaction showed improvement in the intervention group by the patient satisfaction survey and HCAHPS survey.	B. III, B

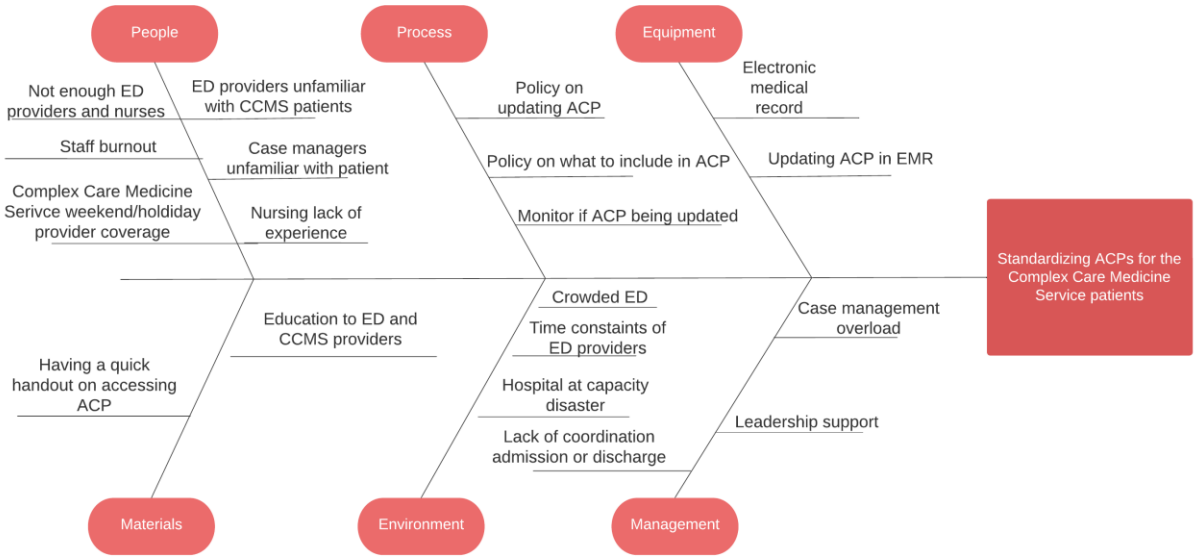
Appendix B

Microsystem Map



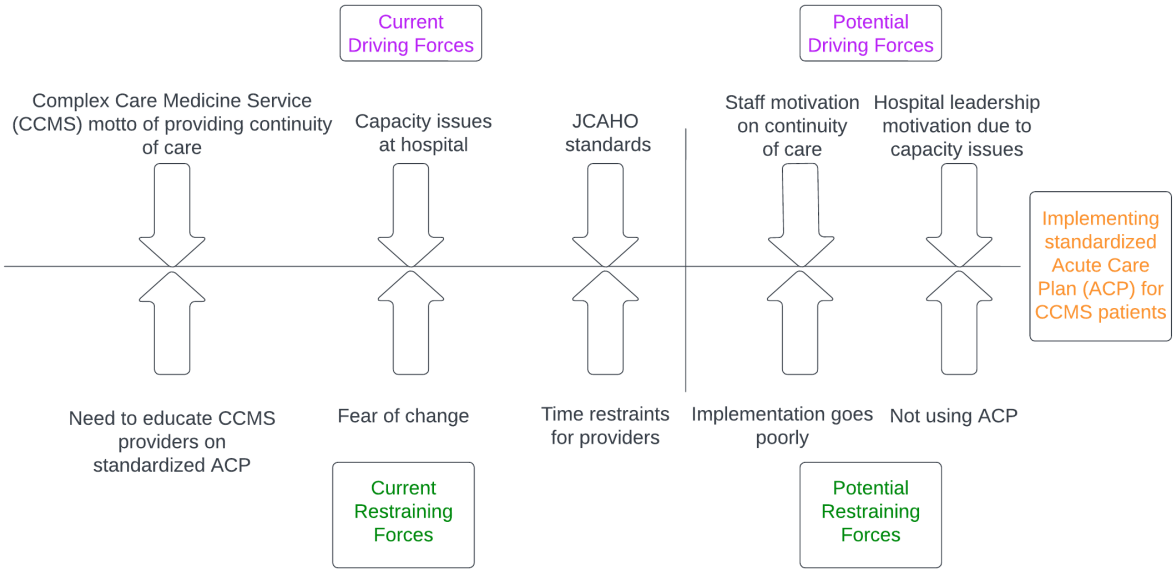
Appendix C

Cause and Effect Diagram



Appendix D

Force Field Analysis



Appendix E

Measurement and Analytic Strategy

Measures					Analysis
Aim or Objectives	Outcomes/ outputs	How operationalize/ measure	Where will you get the information	Will you have a comparison	Analysis
Convening the stakeholders (CCMS and ED providers)	Stakeholders will give input on the project to develop pre-ACP standardization.	Meetings with stakeholders which includes CCMS and ED providers asking for input on what is useful be included in standardized ACP, asking for input on how to make individualized ACP quick and easy to read that provide concise info for providers. Discuss transitions of care and how ACP can help this.	Literature review on transitions of care EMR chart review	No	Qualitative analysis
Co-creating a standardized ACP with CCMS providers	75% CCMS providers will be educated and trained on standardized ACP	In person staff meeting with CCMS providers to educate them about transitions of care for CCMS patients. Discussion on what will be included in standardized ACP.	Attendance list from meeting	No	N/A
Assess the number of CCMS patients that have a standardized ACP in place at time of discharge	85% CCMS patients will have a standardized ACP in place at time of discharge from hospital	ACP will be comprehensive, concise, current. Will measure by chart review at time of discharge number of CCMS patients have standardized ACP in place	Chart review using the EMR	Yes comparison of number patients with ACP in place prior to starting the QI project compared to the number of patients with standardized ACP in place at time of discharge	Quantitative analysis
Standardized ACP will add value to decision making process	85% of ED providers will report an ACP added value in affecting clinical decision-making process.	Huddles with ED providers questions asked: Are using the ACPS beneficial in helping to care for CCMS pts? Are using the ACPs feasible in caring for CCMS pts? What would be helpful to include in the ACPs? Do you feel comfortable deviating from ACPs? Are the ACPs beneficial in helping to care for CCMS	Huddles with ED providers	Yes comparison from pre-standardization to the post-standardization for first two questions.	Qualitative and Quantitative analysis

		patients? Are the ACPs feasible in helping to care for CCMS patients? Do ACPs add value in affecting your clinical medical decisions? Would anything else be helpful to include in the ACPs?			
CCMS provider satisfaction with the intervention of standardizing ACP will be attainable	75% CCMS providers report that the standardized ACP was beneficial and feasible, and added value to the care of patients.	In person huddles with CCMS providers to identify barriers, success to writing ACP and seeing follow through with the ACP being implemented by ED providers	In person huddles with CCMS providers	No	Quantitative analysis

Appendix F

Huddle Questionnaires

Huddle Questions Pre-ACP Standardization for CCMS and ED Providers

1. Are using the ACPs beneficial in helping to care for CCMS patients?
   Yes No

2. Are using the ACPs feasible in caring for CCMS patients?
   Yes No

3. What would be helpful to include in the ACPs?

4. Do you feel comfortable deviating from the CCMS ACPs?
   Yes No

Huddle Questions Post-ACP Standardization for CCMS Providers

1. Are using the ACPs beneficial in helping to care for CCMS patients?
   Yes No

2. Are using the ACPs feasible in caring for CCMS patients?
   Yes No

3. Do ACPs add value to the care of the CCMS patients?
   Yes No

4. Would anything else be helpful to include in ACPs?

Huddle Questions Post-ACP Standardization for ED Providers

1. Are using the ACPs beneficial in helping to care for CCMS patients?
   Yes No

2. Are using the ACPs feasible in caring for CCMS patients?
   Yes No

3. Do ACPs add value in affecting your clinical medical decisions?
   Yes No

4. Would anything else be helpful to include in ACPs?

Appendix G

Data Tracking Spreadsheets

Data Tracking Spreadsheets

Demographics info on CCMS patients									
ID	Age	Gender	Ethnicity	Race	ACP Pre QI	Date ACP Standardized			

Data Tracking Spreadsheets

80% CCMS providers will be educated about CCMS standardized ACPs		
CCMS Provider	CCMS Provider Signature	Date Attended Team Meeting

85% CCMS patients will have a standardized ACP in place at time of discharge from hospital	
PT ID	Date Standardized ACP
85% of 65 patients	
Total # CCMS patients seen during QI project timeline	

Weeks	# CCMS patients came to ED	# ED providers huddled with
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

Pre-Standardization Huddle Questions

Convene stakeholders to obtain input on creating a standardized ACP and co-create standardized ACPs with CCMS providers.					
Huddle Questions Pre-Standardization					
Provider	Question #1	Question #2	Question #3	Question #4	
	Are using the ACPs benefical in helping to care for CCMS pts?	Are using the ACP feasible in caring for CCMS pts?	What would be helpful to include in the ACPs?	Do you feel comfortable deviating from CCMS ACPs?	
Total # CCMS Providers					
Total # ED Providers					
# ED Providers					
# CCMS Providers					

Post-Standardization Huddle Questions

80% CCMS will report that the standardized ACPs were beneficial, feasible, and added value to the care of the patient					
85% ED providers that have seen CCMS patients during this QI project will report an ACP added value in clinical decision-making process					
Huddle Questions Post-Standardization					
Provider	Question #1	Question #2	Question #3	Question #4	
	Are using the ACPs benefical in helping to care for CCMS pts?	Are using the ACPs feasible in caring for CCMS patients?	Do ACPs add value in affecting your clinical decision-making?	Would anything else be helpful to include in ACPs?	
Total # CCMS Providers					
Total # ED Provider					
# ED Providers					
# CCMS Providers					

Appendix H

Determination of Clinical Quality Improvement Checklist

CLINICAL QUALITY IMPROVEMENT CHECKLIST		
Date: April 2, 2023	**Project Leader: Tracy Markwell**	
Project Title: Implementation of a Standardized Acute Care Plan for Complex Care Medicine Service Patients: A Quality Improvement Initiative		
Institution where the project will be conducted: Massachusetts General Hospital		
Instructions: Answer YES or NO to each of the following statements about QI projects.	**YES**	**NO**
The specific aim is to improve the process or deliver of care with established/ accepted practice standards, or to implement change according to mandates of the health facilities' Quality Improvement programs. There is no intention of using the data for research purposes.	**X**	
The project is **NOT** designed to answer a research question or test a hypothesis and is **NOT** intended to develop or contribute to generalizable knowledge.	**X**	
The project does **NOT** follow a research design (e.g. hypothesis testing or group comparison [randomization, control groups, prospective comparison groups, cross-sectional, case control]). The project does **NOT** follow a protocol that over-rides clinical decision-making.	**X**	
The project involves implementation of established and tested practice standards (evidence-based practice) and/or systematic monitoring, assessment, or evaluation of the organization to ensure that existing quality standards are being met. The project does **NOT** develop paradigms or untested methods or new untested standards.	**X**	
The project involves implementation or care practices and interventions that are consensus-based or evidence-based. The project does **NOT** seek to test an intervention that is beyond current science and experience.	**X**	
The project has been discussed with the QA/QI department where the project will be conducted and involves staff who are working at, or patients/clients/individuals who are seen at the facility where the project will be carried out.	**X**	
The project has **NO** funding from federal agencies or research-focused organizations and is not receiving funding for implementation research**.**	**X**	
The clinical practice unit (hospital, clinic, division, or care group) agrees that this is a QI project that will be implemented to improve the process or delivery of care.	**X**	
The project leader/DNP student has discussed and reviewed the checklist with the project Course Faculty. The project leader/DNP student will **NOT** refer to the project as research in any written or oral presentations or publications.	**X**	
ANSWER KEY: If the answer to **ALL** of these questions is **YES**, the activity can be considered a Clinical Quality Improvement activity that does not meet the definition of human research. **UMB IRB review is not required**. **Keep a dated copy of the checklist in your files.** If the answer to ANY of these questions is NO, the project must be submitted to the IRB for review.		