Prospective Action in Care Transitions

Care Transition Email Alerts Adoption Guide

A toolkit for developing automated email alerts to patient-centered medical home staff regarding patient Emergency Department or inpatient care transitions

Developed by Olive View-UCLA Medical Center (L.A. County Dept. of Health Services)
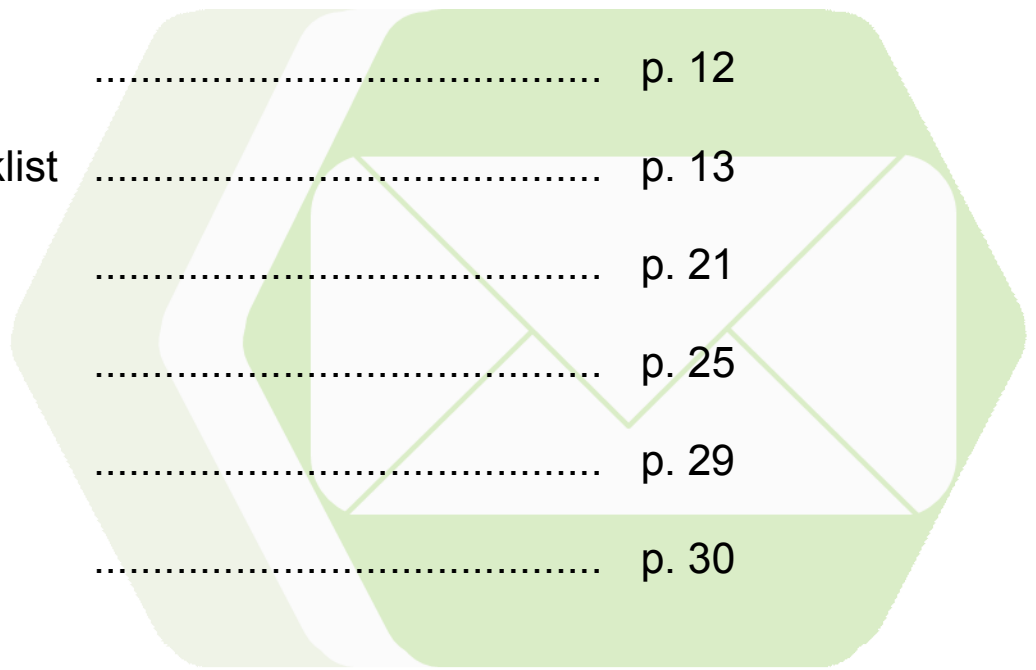
Acknowledgments

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- Olive View-UCLA Medical Center (OVMC) Leadership

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Introduction

"I'm lost. What city is this?" asked the traveler.

"Вы – здесь," the clerk replied.

"I don't understand."

"Москва"

"Moscow? I overslept my train stop. I don't know where I'm going, or how to get there. I don't have a schedule, hotel reservations, a map, a Russian dictionary, or currency. I do have a splitting headache. Can you help me?"

"Я сожалею. Я не туристический агент. I'm sorry. I am not a travel agent."

Safety net patients are much like our poor lost traveler. Emergency Departments (EDs) or inpatient (IP) settings frequently release them with:

- New diagnoses they don't understand (foreign language)
- A lack of information about next steps (no map)
- Uncertainty that referrals will be accepted or when appointments will be given (no schedule)
- No patient-centered medical home (PCMH) follow-up appointments (no hotel reservations)
- Inadequate insurance/funds (no currency).

Patients **feel**:
- Stressed
- Confused
- Alone
- Unsafe
- Physical discomfort

Patients **need** a "travel agent" to help them:
- Navigate the healthcare system
- Explain diagnoses
- Prepare for next steps
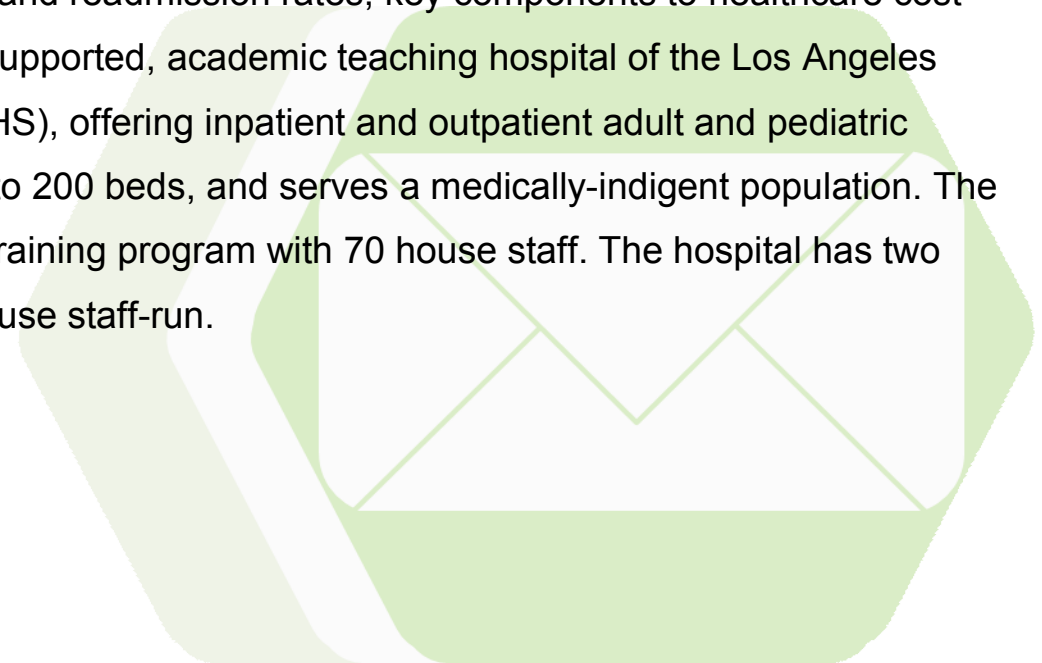- Assist with post-discharge diagnostic studies and specialist referrals

Overview

Patients with multiple chronic conditions represent less than 20% of the total United States population but account for over 80% of the $2.41 trillion spent annually on healthcare (Centers for Medicare and Medicaid Services, 2011). Avoidable hospital inpatient (IP) admissions and readmissions, often initiated in the Emergency Department (ED), account for a significant portion of this cost. Approximately 20% of Medicare patients are readmitted within 30 days of discharge, at an annual cost of $26 billion, of which $17 billion is for avoidable readmissions (Robert Wood Johnson Foundation, 2013). Within the safety net, compounding factors such as limited English-speaking ability, social problems (eg, poor social/community support, chronic homelessness, low literacy) put indigent and minority patients at greater risk for recidivism during transition from ED/IP to a patient-centered medical home (PCMH). Transition care coordination with highly-targeted outreach to identified PCMH primary care providers (PCPs) can optimize this period and improve outcomes (Moran, 2012).

Transition from an ED visit or IP admission to a follow-up appointment with a PCP is complex and requires multiple steps. Foremost is notification of the PCP and their care team that their patient is in the ED or inpatient setting, or had an ED visit or IP admission. Knowing the patient's unscheduled rescue care (ED, Urgent Care, and IP visits) status, the care team can contact the ED or IP providers to understand the reason
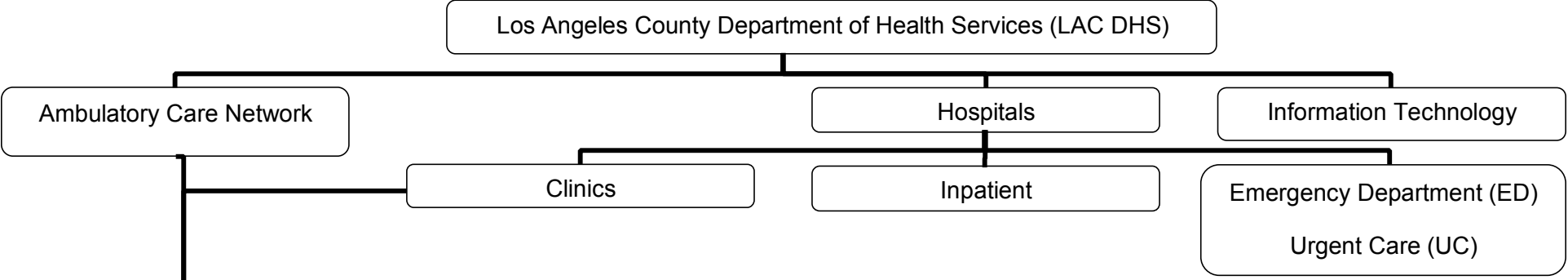
for patient's condition and status, provide background, and help organize discharge planning, including rapid post-discharge follow-up, if indicated.

To address issues such as improving care transitions, organizations are redesigning models of care in today's rapidly-changing healthcare environment. Using proven innovation techniques maximizes the likelihood of effective change.

Our safety-net hospital (Olive View-UCLA Medical Center (OVMC)) aims to reduce high emergency department (ED) visit, inpatient (IP) admission, and readmission rates, key components to healthcare cost control. OVMC is a 377-licensed bed, publicly-supported, academic teaching hospital of the Los Angeles County Department of Health Services (LAC DHS), offering inpatient and outpatient adult and pediatric generalist and specialty care. OVMC is staffed to 200 beds, and serves a medically-indigent population. The Department of Medicine sponsors a residency training program with 70 house staff. The hospital has two adult PCMHs: one is faculty-run, the other is house staff-run.

Existing LAC DHS Infrastructure

Los Angeles County Department of Health Services (LAC DHS)

Ambulatory Care Network

Hospitals

Information Technology

Clinics

Inpatient

Emergency Department (ED)

Urgent Care (UC)

Patient-centered medical homes (PCMHs): care team consisting of primary care provider (PCP = MD or nurse practitioner, care manager, support staff)

Existing Infrastructure

Electronically captured ED and IP visits

Electronically-stored PCP patient panels in empanelment table

All providers and staff have secure email accounts and access to a secure intranet

Each registration for a face-to-face contact generates an electronic stamp that can be queried to examine ProACT's impact on

Our Approach

Design innovation techniques engaged stakeholders to frame the most pressing problems and explore solutions. We identified barriers and means to improve post–ED/post–IP discharge care coordination and communication among patient-centered medical home (PCMH) care team members. Physicians and staff preferred automated email notifications, including patient identifiers, medical home/primary care provider information, and relevant clinical documentation, to improve communication efficiency. We identified Care Managers as the primary users of the automated email notification system. We developed the notification system and care coordination management program, "ProACT:" Prospective Action in Care Transitions.

Note: Some may wonder why we chose automated email alerts when many electronic health records (EHRs) already contain internal messaging modules that could generate automated messages for different scenarios (eg, ED arrivals). We developed ProACT because:

1. At the time, LAC DHS did not have this EHR feature.

2. For the message center option to work, the care team member must be logged into the EHR, which is not always the case. They may be with a patient, on break, at home, or elsewhere. Since most providers and staff have smartphones that receive email, even when not logged in to the EHR, they can receive immediate email notifications. To touch patients arriving at the ED, rapid response is important.

Change is difficult! We hope this Adoption Guide for developing and implementing automated email alerts about patients' care transition events will help your patients find their way, improve provider and staff communication and satisfaction, and reduce unnecessary rescue care visits.

> **For questions or assistance, feel free to contact us. We will be happy to discuss or send additional information, including editable versions of our documents (eg, Business Model Canvas, Empathy Map).**
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Goal

ProAct seeks to reduce unnecessary healthcare expenses by decreasing:

1. ED revisits
2. Inpatient admissions
3. Inpatient readmissions

through improved communication between ED/IP personnel and PCMH care managers.

Care managers at Olive View-UCLA Medical Center's (OVMC's) two adult PCMHs aim to improve rescue care coordination in four scenarios:

1. **Patients currently in the ED**: Through immediate notification when patients attend the ED, care managers can contact ED providers to:
   a) Arrange timely follow-up care for discharged patients.
   b) Potentially avoid admission by arranging follow-up care and diagnostic studies.
   c) Inform patients they have a medical home and a PCP (many do not know this beforehand).
2. **Patients discharged from the ED**: Care managers can prioritize patients for post-ED follow-up care.
3. **Patients admitted to the hospital**: Care managers can contact inpatient teams to improve IP team discharge planning (and confidence to discharge earlier) by arranging post-IP care, potentially reducing length-of-stay by organizing follow-up diagnostic studies and appointments.
4. **Patients discharged from the hospital**: Care managers can prioritize patients for post-IP follow-up care.

Information Flow

ProAct addresses the following scenarios with the information flow described below for each scenario:

1. **ED visit arrival**
   a. Admission-discharge-transfer (ADT) electronic transaction (every EHR has this) →
   b. Listener/filter in electronic data router seeks empaneled patients based on medical record number →
   c. Map to empanelment table to get medical home, PCP, care manager, and insurance plan →
   d. Email care manager
2. **ED visit discharge home**
   a. ADT electronic transaction →
   b. Listener/filter in electronic data router seeks empaneled patients based on medical record number →
   c. Map to empanelment table to get medical home, PCP, care manager, and insurance plan →
   d. Map to EHR to get clinical ED visit summary, last 6 months, and upcoming 6 months appointments to all clinics →
   e. Email care manager
3. **IP admission**
   a. ADT electronic transaction →
   b. Listener/filter in electronic data router seeks empaneled patients based on medical record number →
   c. Map to empanelment table to get medical home, PCP, care manager, and insurance plan →
   d. Map to EHR to get admission "history and physical examination" and last 6 months and upcoming 6 months appointments to all clinics →
   e. Email care manager
4. **Discharge home from IP**
   a. ADT electronic transaction →
   b. Listener/filter in electronic data router seeks empaneled patients based on medical record number →
   c. Map to empanelment table to get medical home, PCP, care manager, and insurance plan →
   d. Map to EHR to get admission "discharge summary" and last 6 months and upcoming 6 months appointments to all clinics →
   e. Email care manager

Measuring Improvement

To determine the effectiveness of ProACT, we are evaluating patient-level outcomes (eg, number of repeat ED visits or readmissions) and perceptions of effectiveness from patients and staff. In particular, we seek to answer the following questions:

Question 1: What are the patient-level outcomes as a result of ProACT?
1. Does ProACT reduce ED-initiated admissions via real-time notification upon ED presentation compared with prior to ProACT?
2. Does ProACT reduce avoidable ED revisits through post-ED or post-IP care coordination compared with prior to ProACT?
3. Does ProACT decrease IP length of stay by improved communication between the IP admitting team and the PCMH team compared with prior to ProACT?
4. How do patients perceive post-ED or post-discharge care under ProACT compared with before ProACT?

Question 2: How do the care team and the ED staff perceive ProACT?
1. How does the staff perceive the quality and utility of ProACT?
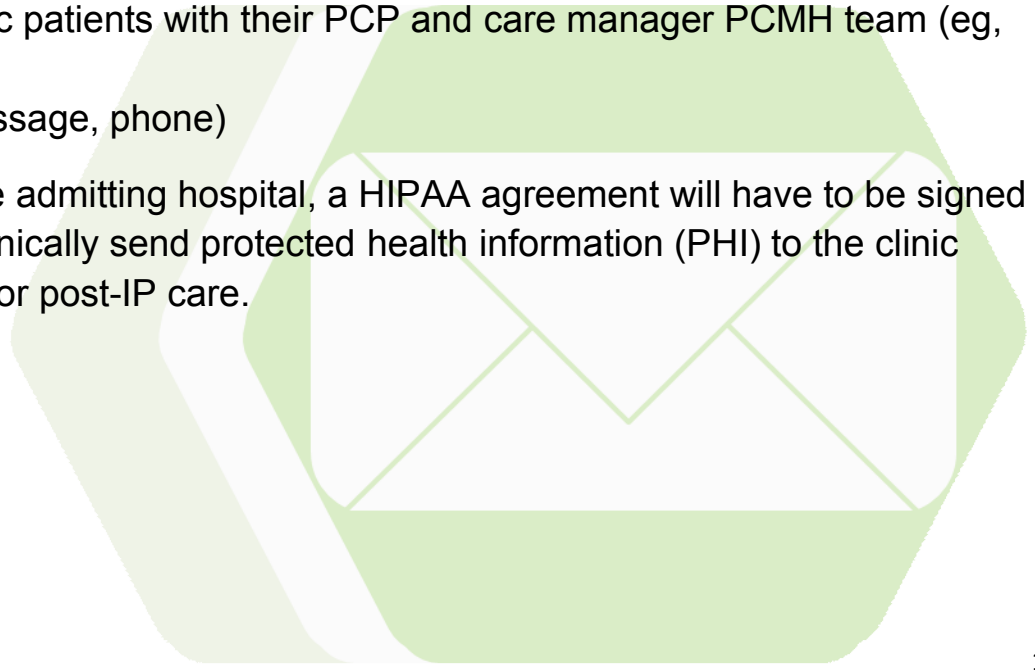2. Is the staff satisfied with ProACT? What are their suggestions for improvement?

ProACT Process and Outcome Measures are summarized in Appendix C: Outcome Measures.
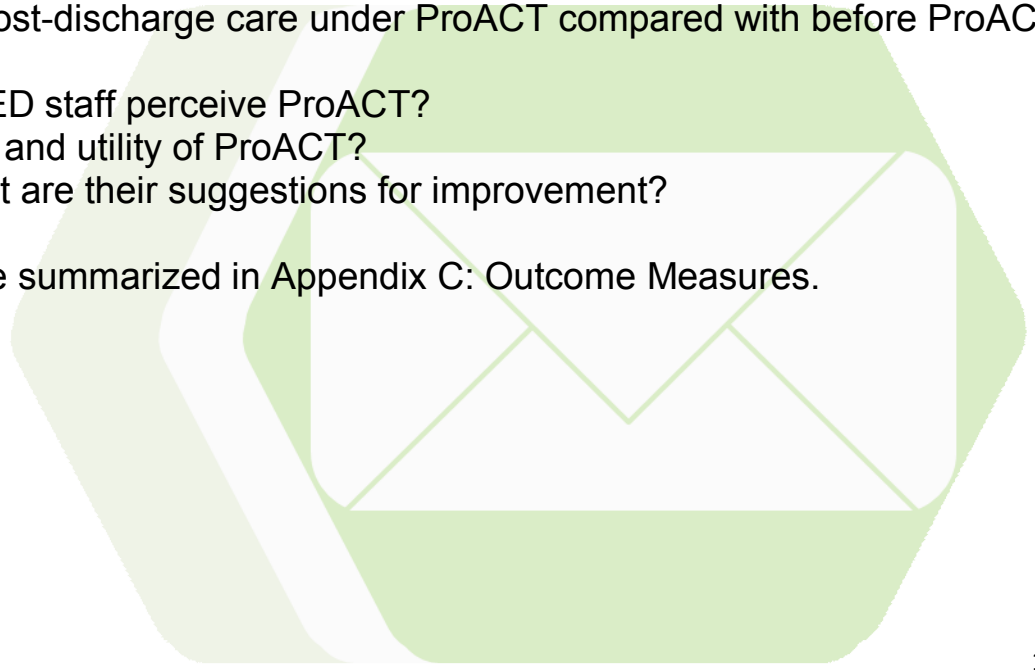
Resources Needed for Automated Electronic Care Transition Notification System

1. Project sponsors (eg, Chief Operating Officer, Medical Director)
2. Project Champions
3. Funding
4. PCMH
5. Person responsible for coordinating post-ED or post-IP care (eg, Care Manager)
6. Admission-discharge-transfer (ADT) transaction process
7. Electronic database associating specific patients with their PCP and care manager PCMH team (eg, empanelment table)
8. Notification method (eg, email, text message, phone)

If the clinic is not linked electronically with the admitting hospital, a HIPAA agreement will have to be signed allowing the hospital to automatically, electronically send protected health information (PHI) to the clinic person responsible for coordinating post-ED or post-IP care.

ProACT Implementation Checklist

		What We Did	Why Do It
Setting Up	☐	Convened sponsors: Chief of Ambulatory Nursing, Director of Case Management, Medical Director for Managed Care, Ambulatory Care Medical Director	**Importance**: Attain project legitimacy, ownership, authority, and responsibility. Anticipate resource utilization.
	☐	Identified champions: Adult PCMH medical directors, Adult PCMH Nursing Director, Adult PCMH Supervising Nurse, Project Lead	
	☐	Determine project goals and objectives	**Example**: project description above
	☐	Ensured appropriate project personnel skill mix to tackle project	**Example**: Skill Share template
	☐	Defined objectives/outcomes through which goal would be met. Objectives/outcomes were SMART: 1. **S**pecific 2. **M**easurable 3. **A**chievable 4. **R**ealistic 5. **T**ime-limited	
	☐	Strategized problem-solving approach using LOGIC model (see Appendix A: LOGIC Model) of public health programs:	**Importance**: Define problem-solving approach. Determine resources needed. Keep goals in mind. Map resources to achieve goals and objectives.

		1. Inputs (ie, resources, data sources) 2. Outputs (activities, participation) 3. Outcomes (short, medium, and long term) 4. Impact/Evaluation (goals met?)	
	☐	Select evaluation method (we chose a formal evaluation by an academic institution specializing in evaluation science so as to ensure objectivity and produce a publishable-quality report)	Determine effectiveness of project and identify areas for improvement.
	☐	Developed business model canvas	Example
	☐	Shared project leader contact information	Easy communication
	☐	Set up shared electronic folders among project leads	Convenience of document sharing
	☐	Set recurring meetings on the calendar	Establishes the project as a priority and allows people to schedule around meetings
Assess Skills	☐	Convene a meeting among project champions	Ensure major skills sets present among project leads. Identify if any skills sets are missing (Ideal Missing Team Member).
	☐	SkillShare Activity: to define these expertise domains as needed: 1. Administration: logistics 2. Creativity: "out-of-the-box" thinking, artistic and writing talent 3. Interpersonal: communication skills 4. Management: leadership, managing up 5. Physical: visual thinker, understand how hospital and clinics function	**Note**: Provide structure to this exercise **Resource**: SkillShare Template

	☐	Assessed each champion. Each champion graded him/herself on a scale from 1 (worst) to 5 (best) on the above domains of expertise.	
	☐	Graphically displayed skill sets 1. Alphabetically by skill 2. Numerically by skill 3. Alphabetically by team member 4. Numerically by team member	
Stake-holder Analysis	☐	Created Stakeholder map and divided stakeholders into Internal (primary and secondary) and External (primary and secondary)	**Importance**: Determine key participants and persons/organizations to report to
Empathy Data Collection	☐	Understand and frame the problem: 1. Who is your beneficiary? 2. What do they need? 3. Who is your end-user? 4. What do they need? 5. Who are other stakeholders?	
	☐	Posted a bulletin board to solicit stakeholder input to identify needs, elicit solution ideas, and determine end-users. Used colored Post-It® Notes in primary care clinic with prompts for staff and providers to answer these	**Importance**: Understand and frame the problem. Determine beneficiaries, end-users, and estimate resources.

	questions:	
	1. What would the ideal care transitions process look like? 2. Who would be contacted? 3. What information would be received and how would it be communicated? 4. What do you like and dislike about current care transitions?	
☐	Performed a thematic analysis to create a word cloud generated from the bulletin board.	**Importance**: Thematic, visual representation of stakeholders' input. Useful for feedback and presentations. **Resource**: http://wordle.net

☐	Used digital ethnography apps for additional stakeholder input.
	Stakeholders:
	  1. ED physicians
	  2. Inpatient physicians
	  3. Clinic primary care providers (PCPs)
	  4. Case managers
	  5. Care managers
	
	Stakeholders used gravitytank's dScout smartphone app to answer these questions about objects they photographed on their smartphones using dScout:
	  1. What is this?
	  2. What role does this item or person play in the post-ED or post-IP visit
		Importance: Get 360° view of current processes and document "artifacts" of those processes
		Resource: https://dscout.com/

	communication process? 3. What do you like about this item or the person's role in this process? 4. What do you dislike about this item or the person's role in this process? 5. On a scale of 0-100, how helpful is this item or person in the post-ED or post-IP visit communication process? 6. What would you do to improve the role this item or person plays in the post-ED or post-IP visit communication process by adding to it, removing from it, or otherwise changing it?	
☐	Developed "patient personas" to demonstrate business need and proposed solutions	
☐	One-on-one interviews with individual stakeholders	**Importance**: Solicit input in depth and privacy
☐	Focus groups with "collaborative cycle" problem-solving approach (including "journey map" and "pain points") with representatives from: 1. Emergency physicians 2. Clinic physicians 3. Inpatient physicians 4. Hospital Administration 5. Case Managers 6. Care Managers	Allow group discussion and brainstorming. Craft a clear picture of the current process and its pitfalls.
☐	Created an Empathy Map	**Importance**: Visualize stakeholders'

			statements, thoughts, and feelings **Resource**: Empathy Mapping
Exploring Solutions	☐	Reviewed notes from empathy methods above to extract possible solutions	**Note**: Ideate possibilities! Go broad before going deep: collect lots of ideas for solutions before digging deep into any of them.
	☐	Re-met with Care Managers to ensure we understood their role and desired solutions. Discovered additional solutions by asking questions beginning with "How might we……" For example, "How might we…. 1. Notify you in real-time (rather than next-day) of important care transitions? 2. Keep you from looking in several locations for a patient's insurance status? 3. Keep track of patients you've already reached out to?	"How might we…." exercise uses a non-threatening, open-ended phrasing to generate suggestions.
	☐	Built prototypes for Care Managers	
	☐	Showed prototypes to Care Managers	
	☐	Care Managers chose their preferred prototype, which we informed Information Technology to build	

Experi-menting	☐	Information Technology worked with the clinical staff and project leadership to decide on variables and data sources (see Appendix B: Variables and Data Sources)	
	☐	Information Technology developed the Care Manager's preferred prototype	**Importance**: test and refine
	☐	Launched prototype	**Importance**: Validate patients are captured and email contains appropriate information
	☐	Revised prototype	
	☐	Limited patients to those empaneled to OVMC's adult PCMHs	
Training	☐	Created training manual	**Example**: Training materials
	☐	Trained Care Managers	**Importance**: Increase likelihood of successful launch.
Imple-menting	☐	Chose a roll-out date	
	☐	Pre-implementation observations 1. Draft patient questionnaires 2. Draft clinic staff questionnaires	

	☐ Implement	
	☐ Follow-up with Care Managers	**Importance**: get feedback
Spreading	☐ Presented at innovation conference	
	☐ Academic publication in peer-reviewed journal	**Example**: Richman M, Sklaroff LM, Hoang K, Wasson E, Gross-Schulman S. Innovative use of technologies and methods to redesign care: the problem of care transitions. J Ambul Care Manage. 2014;37(2):1005.
	☐ Created video to tell ProACT's story	
	☐ Blogged bi-monthly on America's Essential Hospitals	
Evaluat-ing	☐ Outcome measures	**Importance**: Determine effectiveness and satisfaction with ProACT. Identify aspects to improve.
	☐ Information Technology staff will provide ProACT usage data (eg, number of alerts sent out)	
	☐ Team Evaluation of utilization data (eg, number of ED visits, admissions, and readmissions)	
	☐ Team Evaluation of patient and staff interviews about perceptions of care transitions to compare pre- vs. post-implementation of ProACT	

Appendix A: LOGIC Model

Input		Expected Output		
Resources	**Activities**	**Output**	**Outcomes**	**Impact**
1. Project sponsors (eg, Chief Operating Officer, Medical Director) 2. Project Champions: Adult PCMH medical directors, Adult PCMH Nursing Director, Adult PCMH Supervising Nurse, Grant Lead 3. Funding 4. PCMH 5. Post-ED or post-inpatient Care coordinator (eg, Care Manager) 6. Admission-discharge-transfer (ADT) transaction process 7. Electronic database associating specific patients with their PCP and care manager 8. PCMH team (eg, empanelment table)	• Posting a bulletin board. • Creating a word cloud. • Stakeholder interviews. • Stakeholder focus groups. • Creating an empathy map. • Ideating potential solutions. • Presenting prototype images. • Stakeholder meetings. • Training care managers. • Meetings with IT Director	• Anonymous responses. • Word cloud • Stakeholder responses. • Empathy map. • Computer images of email alerts, texts messages. • Stakeholder feedback. • Care Manager training manual. • Automated email alerts.	**Short Term** 1. Reduced ED visits 2. Reduced IP admissions 3. Reduced readmissions 4. Improved provider and staff knowledge, skills, and behavior towards automating care transitions **Long Term** 1. Increased quality of care 2. Decrease costly episodes of care (eg ED and IP visits)	1. Improved communication surrounding care transitions 2. Decreased healthcare costs and expenses Improved patient satisfaction 3. Community and academic partners interested in automated email alerts 4. Increased OVMC leadership and stakeholder interested in innovative projects

Appendix B: Variables and Data Sources

Domain	Variable	Data Sources
Patient Identifiers	Patient last name	EHR
	Patient first name	EHR
	Medical record number	EHR
	Date of birth	EHR
	Gender	EHR
Medical Home identifiers	Medical home	EHR
	Insurance	Empanelment table
	PCP name	Empanelment table
	Care Manager name	Empanelment table
	Care Manager email	Empanelment table
ED visit characteristics	Date	EHR
	Arrival time	EHR
	Emergency Severity Level	EHR
	Discharge diagnoses	EHR
	Disposition	EHR
	Discharge time	EHR
Inpatient visit characteristics	Admission date	EHR
	Admission time (as indicated by time nursing intake note entered)	EHR
	Admission started on weekend? (Y/N)	Imputation
	Admitting history and physical examination	EHR
	Primary discharge diagnosis	EHR

	Discharge date	EHR
	Discharge time	EHR
Care Manager notification characteristics	Notification date	EHR
	Notification time	EHR
	Notification content	EHR
	ED note	EHR
	Inpatient admission history and physical examination note	EHR
	Discharge summary	EHR
PCMH follow-up characteristics	Date of scheduled PCMH appointment	EHR
	Date of completed PCMH appointment	EHR
	Was a PCMH appointment within 1 week following a rescue event actually scheduled before the episode of rescue care?	EHR

Appendix C: Outcome Measures

Measure	Outcome
Percentage of patients presenting to the ED who are admitted from that ED visit	Impact of electronic care transition notification on frequency of post-discharge PCMH encounter
Percentage of patients presenting to the ED who are not admitted and have a primary care appointment within 1 week of LAC DHS ED use	
Percentage patients with primary care appointment within 1 week of LAC DHS IP discharge	
Median time to first post-ED-visit (without admission) PCMH encounter	Impact of electronic care transition notification on timeliness of post-discharge PCMH encounter
Median time to first post-IP admission PCMH encounter	
Percentage of ED patients not admitted who re-visit a LAC DHS ED within 30 days of initial ED visit	Adverse impact of electronic care transition notification (should patients intervened upon and not admitted actually have been admitted)
Percentage of inpatients readmitted to an LAC DHS hospital within 30 days post-discharge	
Length of stay for LAC DHS ED visits	Impact of electronic care transition notification on ED length of stay
Length of stay for LAC DHS inpatient admissions	Impact of electronic care transition notification on inpatient length of stay

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