

Developing Clinical Decision Support Order Swaps to Increase the Use of Alternatives to Opioid Analgesics in the Emergency Department

WHAT WE LEARNED

Successful implementation of CDS with real-time monitoring of process and patient centered outcomes will quantify the impact of CDS interventions on behavior change.

BACKGROUND

- ED opioid analgesic administration and prescribing contributes to the opioid epidemic.
- Utilization of alternatives to opioids (ALTs) remains low despite national guideline recommendations
- CDS has potential as a pragmatic, intervention strategy to deliver evidence-based practices
- Subtle changes in the way choices are offered (nudges) can change behavior with workflows

OBJECTIVES

- To increase the use of ALTs by developing and implementing EHR embedded CDS that (1) encourage ALT clinical care pathways and (2) nudge providers to ALTs within their workflow

PROJECT OVERVIEW

- **Setting:** UCHHealth system EDs >500k visits/yr
- **Participants:** All prescribing healthcare providers within the UCHHealth system EDs
- **Interventions:** There were four interventions to promote ALT use
 - Educational modules
 - Dashboards
 - EHR Storyboard CDS
 - Order Nudge CDS
- **Educational Modules** mirror the CDS interventions, teaching providers about the CDS and educating on topics relating to opioid safety and ALT best practices
- **Dashboards** are a self-evaluation tool for providers to compare their rates of opioid and ALT prescribing in relation to peers
- **EHR Storyboard reminder** is a non-interruptive alert that prompts providers to consider using the established best practice ALT clinical pathways if a patient reports an eligible chief complaint. (Figure 1a)
- **Order Nudge CDS** interruptive alert when ED provider searches for opioids to administer or prescribe → offers alternatives within the order window itself so providers can choose to order ALTs without leaving typical workflow. (Figure 1b)

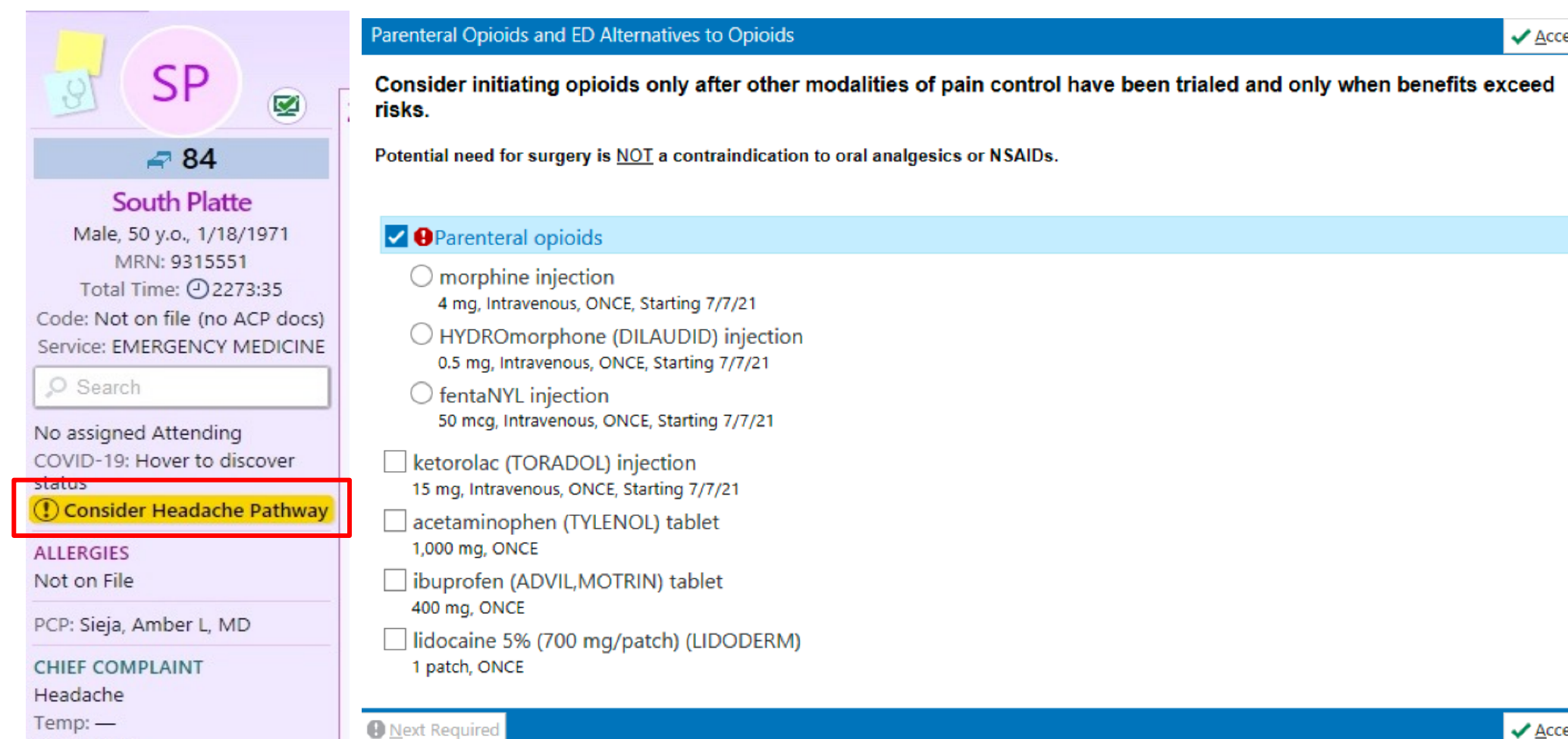


Fig 1. Storyboard (a) and order nudge (b) CDS

CDS DEVELOPMENT PROCESS

- **CDS Intervention 1: Storyboard reminder (non-interruptive)**
 - **Phase I.** Initial design: CDS fired when a chief complaint matched pain conditions with an ALT pathway. A banner reminder provided information about an ALT pathway. Providers then had to exit this window before clicking into the suggested pathway.
 - **Phase II.** Governance and approval: Since this is the first alert of this type to appear on the storyboard within this system, it had to undergo governance review with hospital system administration. Administration approved the alert, with the condition that we would track impact on pathway utilization.
 - **Phase III.** Implementation and feedback: Overall, providers found the initial design of the alert cumbersome. Using the storyboard CDS caused providers to take more “clicks” to get to the corresponding pathway, disrupting workflow.
 - **Phase IV.** Design revision: After receiving feedback, the design was altered to be noninteractive reminder only. A “non-clickable” banner alert was developed for the storyboard. The text read, “Consider XX Pathway”.
- **CDS Intervention 2: Order Nudge (interruptive)**
 - **Phase I.** Initial design: If one of the top 95% of ordered opioids is searched for by a provider, the order nudge is triggered. When triggered, interruptive CDS box appears (can not be bypassed) that asks the provider to select a medication. The box includes the searched opioid plus alternatives. Providers must select at least one medication to move forward.
 - **Phase II.** Design feedback: ED provider focus groups were held to get initial feedback on the prototype of the CDS. Feedback was provided on the design and the alternatives suggested. Based on the focus group feedback, no pre-selected medication suggestions were chosen.
 - **Phase III.** Implementation: The order nudges were developed and turned on throughout the whole system in June 2021.
 - **Phase IV.** Revision and feedback: There was considerable feedback from providers once the order nudges went live. Revision was iteratively completed as feedback was received.

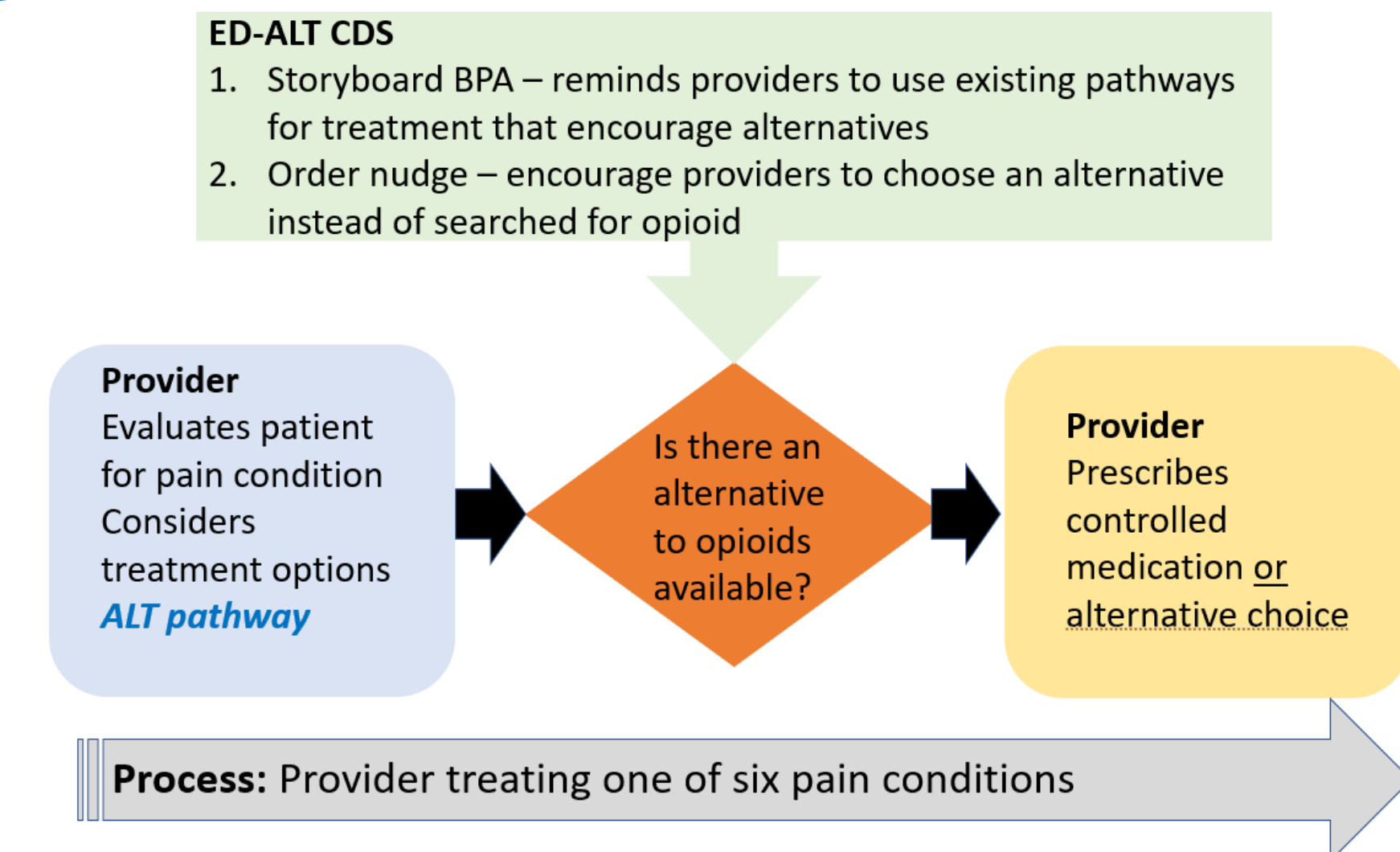


Fig 2. Project Logic Model

LIMITATIONS

- It is difficult to predict all barriers with CDS until after implementation, which leads to longer development times and potential burn out
- Numerous software limitations exist:
 - The Storyboard CDS could not link directly with the pathways due to limitations with Agile.
 - There are multiple ways to bypass the Order Nudge CDS that were not predicted, and cannot alter

LESSONS LEARNED

- EHR CDS offer a promising, pragmatic intervention to creating behavior change among providers towards evidence-based practices
- Successful implementation of workflow CDS with real-time monitoring of changes in process (CDS utilization) to help iterative development and create non-disruptive interventions
- **Next steps: Evaluate 1) whether storyboard CDS increased pathway utilization and 2) any change in opioid/ALT administration and prescription**
- Evaluating patient centered outcomes (medication use) will quantify the impact of CDS on behavior change regarding choice of analgesics in the ED.