

Abstract

Cloud-Based Implementation of New Frontline Clinical Workflows: Standardizing Practice at Scale to Improve Patient Safety

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Abstract

Background: Implementation of new practices in large health care settings is difficult. Staff are already overwhelmed, and practice deviation is common. With time-constrained visits, providers struggle to address complex problems. Three scenarios were identified where frontline practice standardization would improve patient outcomes: sedation and analgesia for intubated patients (inpatient), colorectal cancer screenings (outpatient), and safety measures for opioid prescriptions (outpatient). We implemented these practices through a cloud-based solution designed for frontline health care staff, fostering peer-accountability and transparency of processes.

Objective: 1) Introduce a standard approach to sedation and analgesia for intubated patients. 2) Increase colorectal cancer screenings for the clinic population. 3) Improve opioid safety for patients with chronic opioid use.

Methods: Practices were implemented through a cloud-based app (Elemeno Health, Oakland, CA) that allows frontline health care teams to access an organization's best practices through interactive decision guides, smart checklists, and how-to videos from any device. In a pediatric ICU, we first delivered a Critical Care Comfort Algorithm (CALM) for titrating sedative and analgesia medications, a bottom-up self-assessment for frontline staff to evaluate their performance, and a top-down audit checklist for charge nurses to complete. For multiple community health centers, we created colorectal cancer screening practice decision guides for medical assistants (MA) and providers, and deployed the practices through a 3-week gamified contest between individual clinics conducted through the app. For the opioid safety initiative, we created a Provider Chronic Pain Management Workflow checklist, Provider Pain Evaluation Guide, and a MA checklist for medication reconciliation; implementation was paired with a 2-month inter-clinic competition.

Results: Within 2 weeks of the formal roll-out of the Pediatric ICU charge nurse audit tool, 107 checklists were completed and 83% of intubated patients were on the sedation protocol. During the gamified 3 weeks for colorectal cancer screening, 2107 checklists were completed with engagement from 74% of MAs and 80% of providers. MAs appeared to habituate to the practice with ongoing practice post-competition; there was a 70% increase in colorectal cancer screenings 1 year post-intervention. During the contest period for increased opioid safety, naloxone prescription increased from <10/month to 27/month for new prescriptions and 21/month for renewals. Opioid contracts with historically negligible adherence increased to 45/month for new contracts and 53/month for renewed contracts. There was also a 70% increase in referrals to the Behavioral Health Pain Management Program.

Conclusions: Our clinical improvement initiative using cloud-based real-time actionable and trackable decision guides facilitated staff engagement with standardized protocols for pediatric analgesia and sedation, led to a significant increase in colorectal cancer screenings with high levels of provider and staff participation, and improved opioid safety and utilization of behavioral support resources for patients with chronic opioid use. The cloud-based application empowers staff with just-in-time access to microlearning

tools and resources to manage patient care, simplifying management's ability to train staff at scale. Standardizing practice and streamlining workflows liberalizes valuable face-to-face time with patients and improves patient safety.

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