

Reducing time to analgesia for patient with MSK injuries in the emergency department

Victoria Woolner^{1,2}, Reena Ahaulawalia¹, Hilary Lum¹, Kevin Beane¹, Jackie De Leon^{1,2}, Lucas Chartier^{1,3}

¹University Health Network, Emergency Department; ²Faculty of Nursing, University of Toronto; ³Department of Medicine, University of Toronto.

Background

- The leading presenting symptom to emergency departments (EDs) is pain.
- At our urban tertiary academic center ~38,000 patients per year (80%) present with pain-related concerns; 3,300 of those visits are for musculoskeletal (MSK) pain.
- MSK pain is often triaged with a lower acuity, and patients thus wait longer to be assessed.
- Delays in analgesia result in; worse patient care, decreased satisfaction, and increased patient complaints.

Aim

- Reduce the time-to-analgesia (TTA; time from patient triage to receipt of analgesia) for patients with MSK pain in our ED by 55% (to under 60 minutes) in 9 months' time (May 2018).

PDSA Cycles

Nurse-initiated analgesia (NIA) at triage.

Weekly targeted feedback.

Triage medication documentation tool.

Quick reference medical directive badge tag.

Measures

We utilized the Model for Improvement and weekly data capture for the Statistical Process Control (SPC) chart, as well as Mann-Whitney U test for our before-and-after evaluation.

Outcome measures:	TTA time-to-analgesia (in minutes)
	ED length of stay (LOS in minutes).
Process measures	Use of medical directive (%)
	Rate of analgesia administration (%)
Balancing measures	Patient adverse events (#)
	Time spent triaging for nurses (minutes).

Improvement Process

Root Cause Analysis (Oct/Nov 2017)

- Multi-disciplinary team meeting
- Process map for analgesia administration
- Explored barriers and facilitators to NIA
- Evaluated current practice

Analgesia Process (Jan 2018)

- Nursing meeting to develop NIA triage process
- New tools development (documentation aid, badge tag)

NIA Trial (Jan/Feb 2018)

- Trial of documentation aid
- Refinement of NIA triage process

Medication administered as per medical directive
Admin time: _____
☐ Acetaminophen 1g/PO
☐ Ibuprofen 400mg/PO
RN name: _____ RN initials: _____
(Analgesia documentation aid)

Badge Tag (Mar/Apr 2018)

- Iterative refinement with stakeholder engagement
- Introduction of badge tag at department huddle (Figure 1)

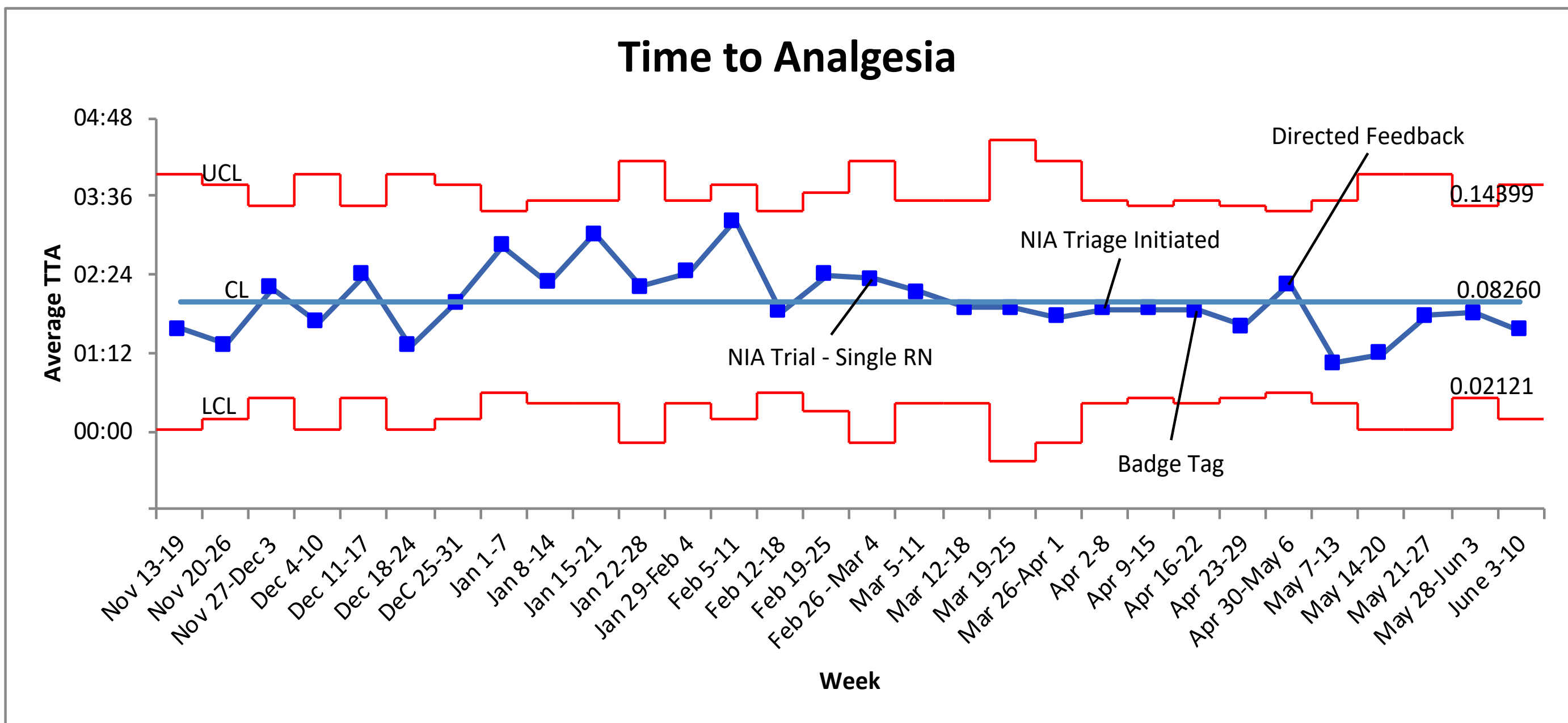
NIA at triage (April 2018)

- Launched for all triage nurses
- Targeted feedback to triage RNs

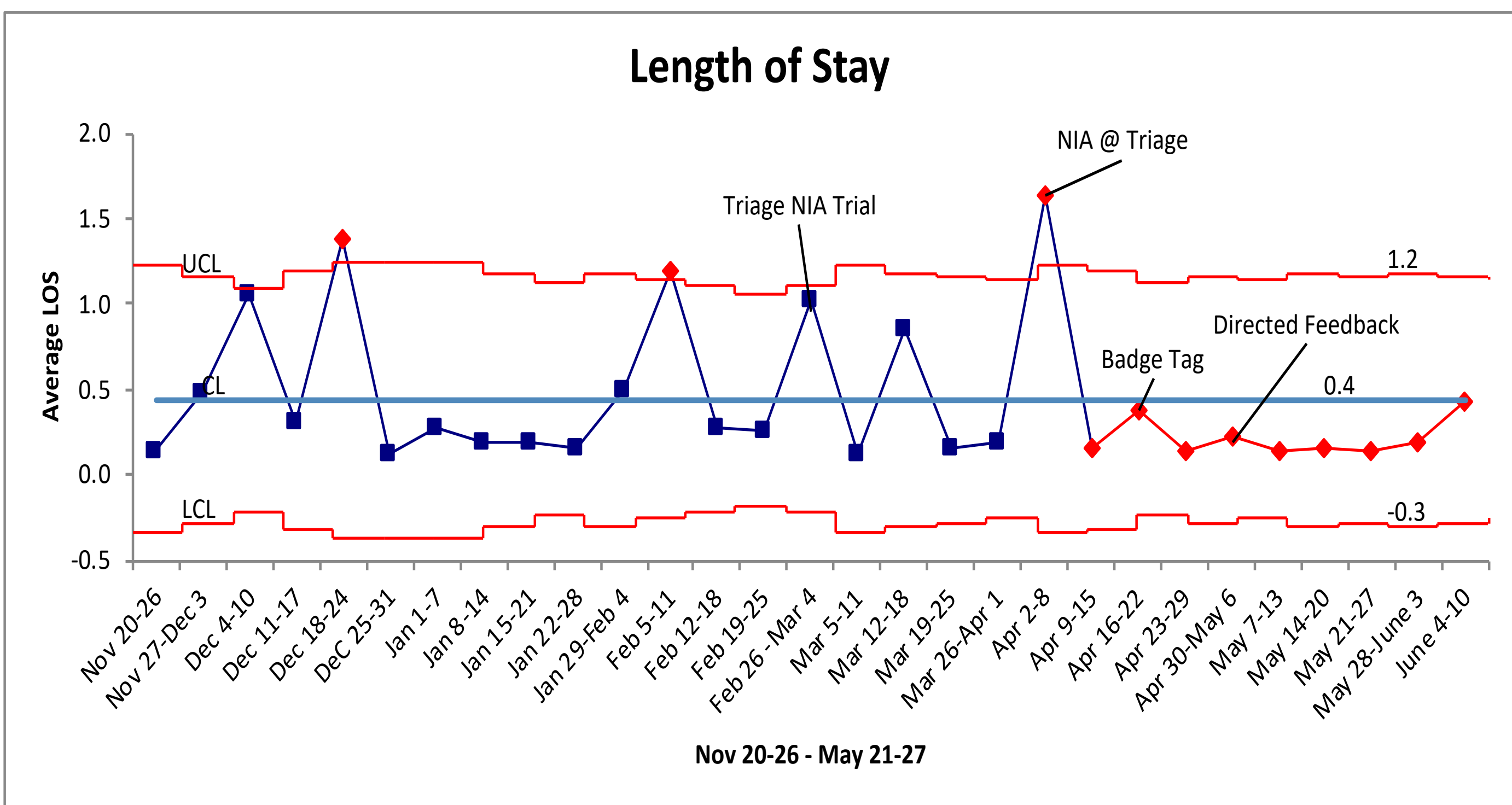
Feedback (May 2018 & beyond)

- Daily department huddle: successes and opportunities for improvement.

Graph 1



Graph 2



Graph 3

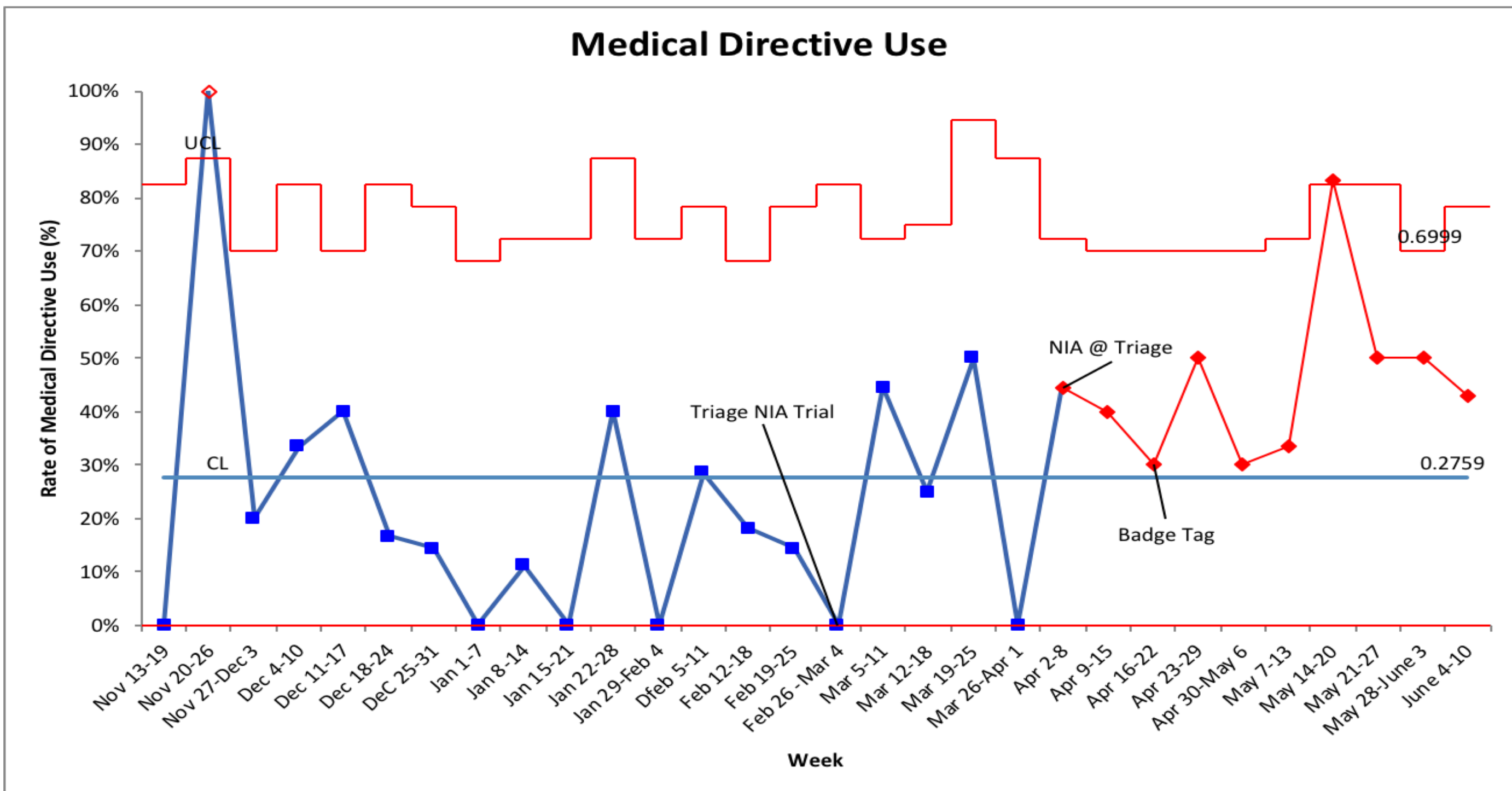
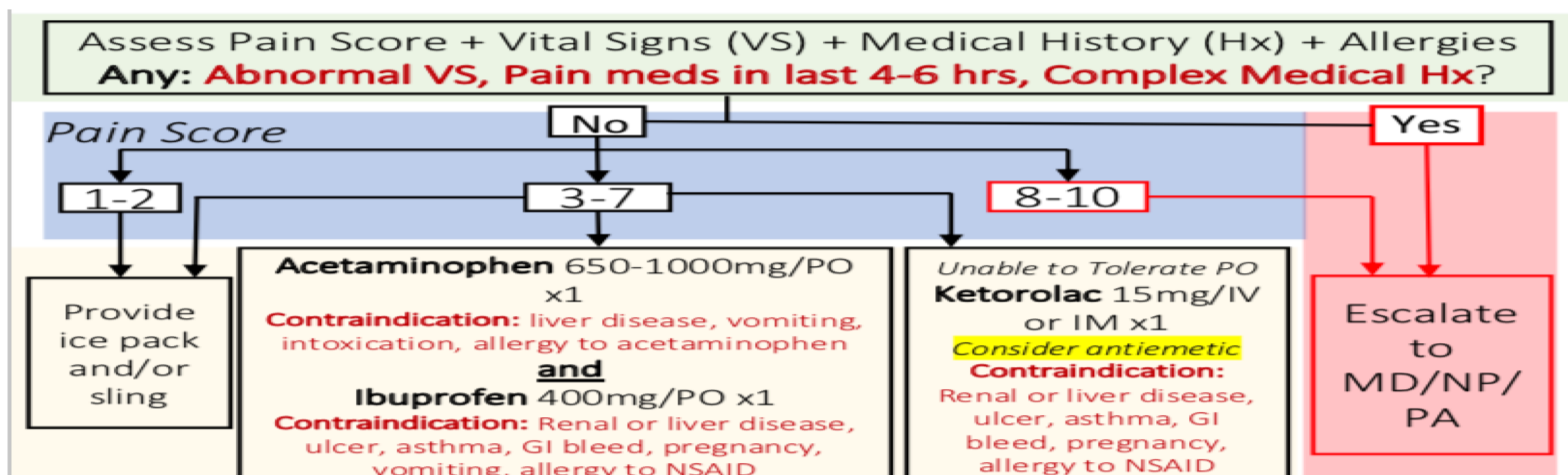


Figure 1



ED Medical Directive Medication	Administration Criteria	Contraindications and Precautions
DO NOT GIVE IF: history of allergy/sensitivity to drug/drug class.		
ASA 160mg PO to chew x1	Acute coronary syndrome type chest pain	Renal or liver disease, ulcer, asthma, GI bleed, pregnancy, vomiting, NSAID in last 6hr
Dextrose 50% (D50W) 25mg (50mL)/IV x1	Glucose less than 2.8mmol	None
Dimenhydrinate 50mg PO/IV/IM x1	Nausea/vomiting, dizzy, age 16 to 64	Dementia/delirium, bradycardia, decreased LOC
Ondansetron 4mg IV/IM x1	Nausea/vomiting	Pregnancy, QT prolongation
Salbutamol 4 puff/q15-30min x 3	Short of breath; history of asthma or COPD	Allergy/sensitivity to medication
TD Vaccine 0.5mL/IM x1	Skin injury or eye injury	Td booster within 10 years

Results

TTA decrease from 129 minutes (n=153) to 100 minutes (22.5%; n=87, p<0.05). Special cause variation was not identified on SPC chart (Graph 1).

ED LOS decreased from 580 minutes (n=361) to 519 minutes (10.5%; n=187; p=0.77). Special cause variation was identified on the ED LOS SPC chart (Graph 2).

The number of patients that received any analgesia increased from 42% (n=361) to 47% (n=187; p=0.13).

The number of patients that received medications via medical directives increased from 22% (n=150) to 44% (n=87; p<0.001) The SPC chart shows special cause variation (Graph 3).

Discussion/ Spread

- We reduced mean TTA and increased the use of medical directives through front-line focused improvements.
- With continued success and sustainable processes, we are planning to spread our project to other EDs and broaden our initiative to all appropriate pain-related concerns.