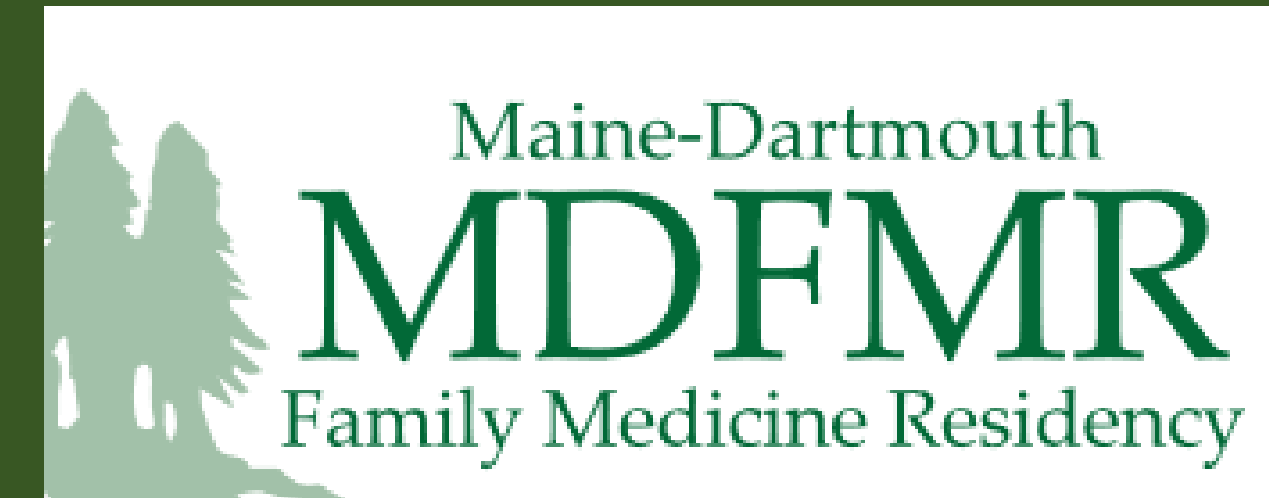# Analyzing a QI Expansion of Opioid Administration Practices on Adult Inpatient Medicine Units

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INTRODUCTION

- Routes for opioid administration include: oral (PO), intravenous (IV), and subcutaneous (SC)
- Opioids are measured in milligram morphine equivalents (MME)
- A study by Ackerman et al (JAMA IM 2018) piloted changing the standard of care from IV to SC opioids if PO was not possible
- Showed reduction in IV, parenteral, and total MMEs. Pain scores similar or lower in first 5 days of hospitalization
- This pilot was expanded to other inpatient medicine units at Yale New Haven Hospital
- Research Question: Was the reduction in IV and overall MMEs seen after changing the standard of care? Did this hold true for older adults?

METHODS

Inclusion:
Inpatient admission between April 2016-Oct 2016 (pre-change) or April 2017-Oct 2017 (post-change)
At least one midnight on a medicine unit
Exclusion:
More than 10 visits in the time frame
Length of stay >100 days
Data for MMEs or pain scores from a non-medicine unit

Outcomes
Full Sample
1.Average daily IV MME
2.Average daily total MME
3.Average proportion of opioids administered IV

Pain Scores Documented
1.Average daily IV MME
2.Average daily total MME
3.Average daily pain score

Changing hospital standard of care to the use of **subcutaneous** opioids **instead of intravenous** opioids **decreased** amount of **opioid medication** administered **without** increasing pain scores.

Practice transformation from intravenous to subcutaneous opioids is seen **most in <65 age group** and **least in the 85+** age group.

METHODS

- Each outcome analyzed with a multivariate model with a dichotomous intervention variable utilizing age, race, gender, and ethnicity as predictors

- Outcomes were modeled using negative binomial regression models. The sum of each outcome for a visit was modeled with the log of study days as offset

FUNDING

RESULTS

	Pre-change (95% CI)	Post-change (95% CI)	Significance
Full Sample (N=12802 visits)			
Mean daily IV MMEs	1.84 (1.23-2.74)	0.58 (0.39-0.88)	<0.0001
Mean daily total MMEs	6.71 (5.13-8.78)	5.78 (4.4-7.59)	0.0027
Visits with documented pain score (N=7883)			
Mean daily IV MME	3.06 (1.99-4.7)	0.92 (0.6-1.42)	<0.0001
Mean daily total MME	10.61 (8.21-13.72)	8.89 (6.88-11.49)	0.0002
Mean daily pain score	2.74 (2.47-3.04)	2.73 (2.46-3.02)	0.7448

Ratio Post: Pre-Practice Change by Age Group Data for Full Sample
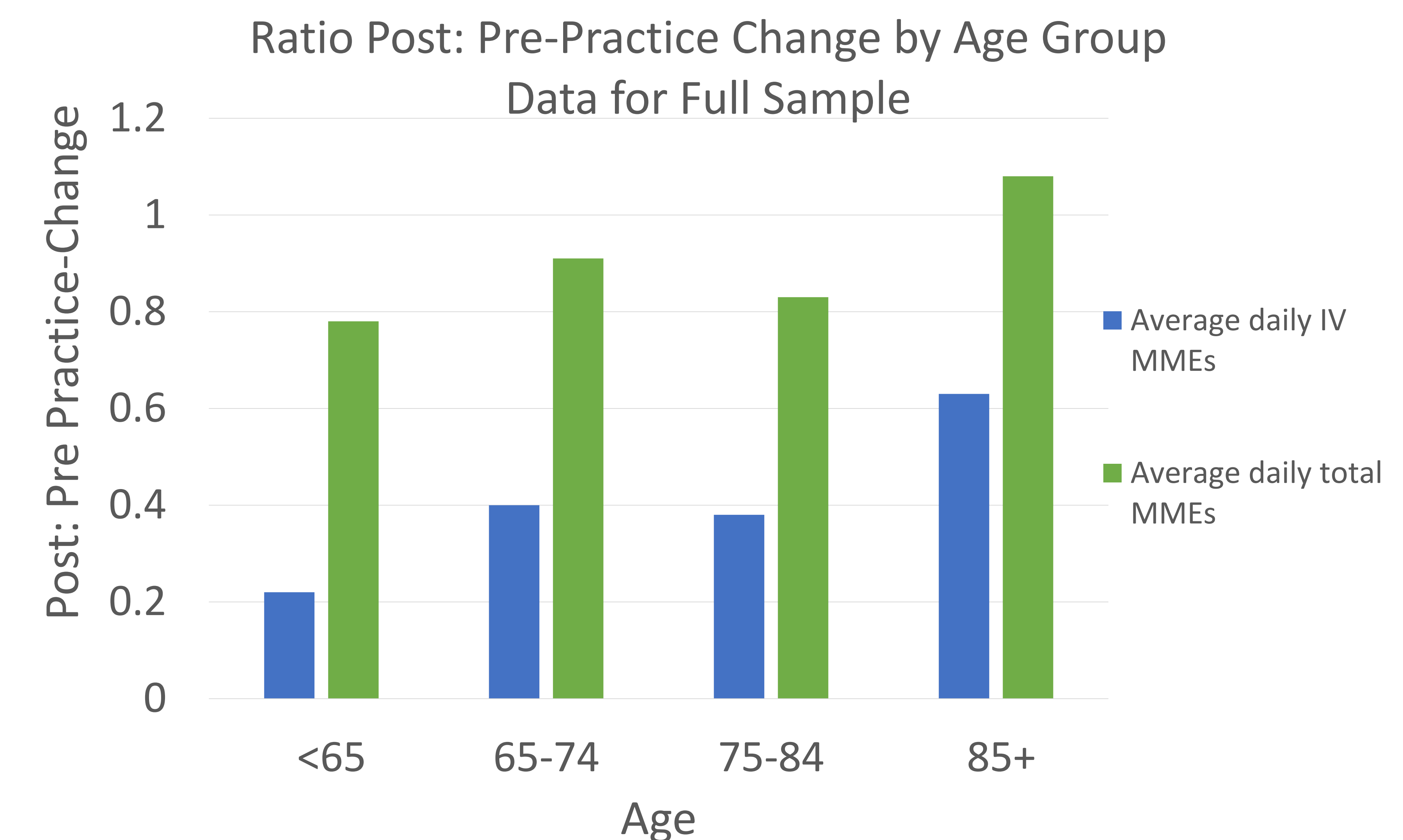
DISCUSSION

- QI scale achieved the intended endpoints from the pilot
  - Decreased average IV opioid administration
  - Decreased average total MMEs
  - Pain scores were not different
- Decreased program effectiveness in older adults
  - Lower mean doses at baseline