

Scalable approaches to 'right-sizing' opioid prescriptions for acute pain

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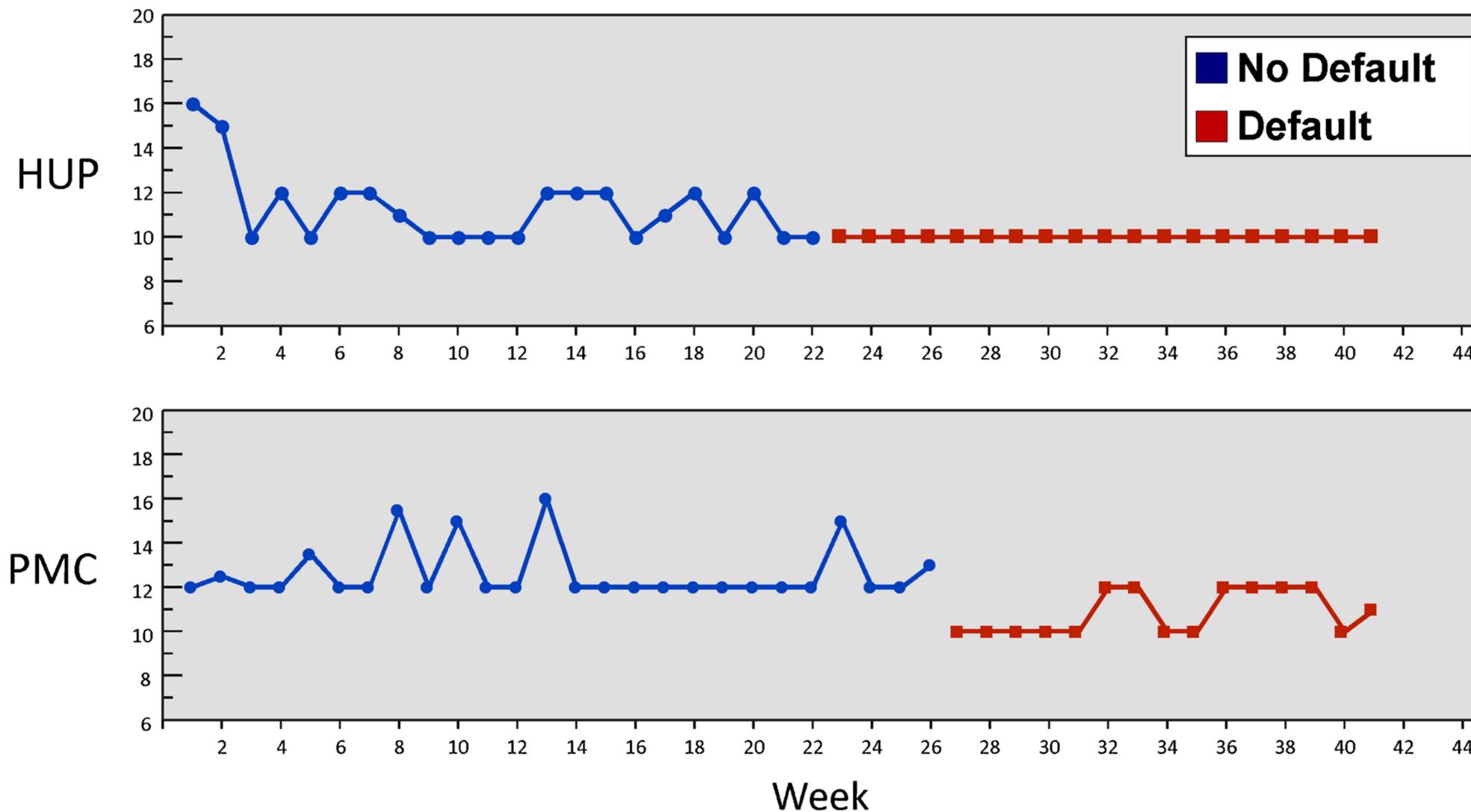
Disclosures

- No financial conflicts of interest
- Director, Behavioral Science & Analytics For Injury Reduction (BeSAFIR) Lab with funding from the NIH, FDA, CDC, and DOT
- Acute Prescribing Workgroup Lead, UPHS Opioid Task Force
- Member, National Academies of Sciences, Engineering, and Medicine (NASEM), *Committee on Evidence-based Clinical Practice Guidelines for Prescribing Opioids for Acute Pain*

Outline

1. EMR preference list defaults
2. EMR best practice alerts
3. Acute prescribing dashboard and prescriber comparisons
4. Procedure specific EMR ordersets
5. Automated collection of patient opioid consumption data and outcomes

Implementing simple default opioid orders can change ED discharge prescribing behavior



% of Rx for 10 pills doubled:

21% to 43%

Figure 1 Median number of oxycodone w/ acetaminophen 5-325 mg tablets dispensed per week before and after implementation of emergency department electronic medical record discharge order default of 10 tablets vs. no default.

Delgado MK, Shofer FS, Patel MS, et al., JGIM, 2018

There is wide variation in default discharge opioid orders in U.S. EDs

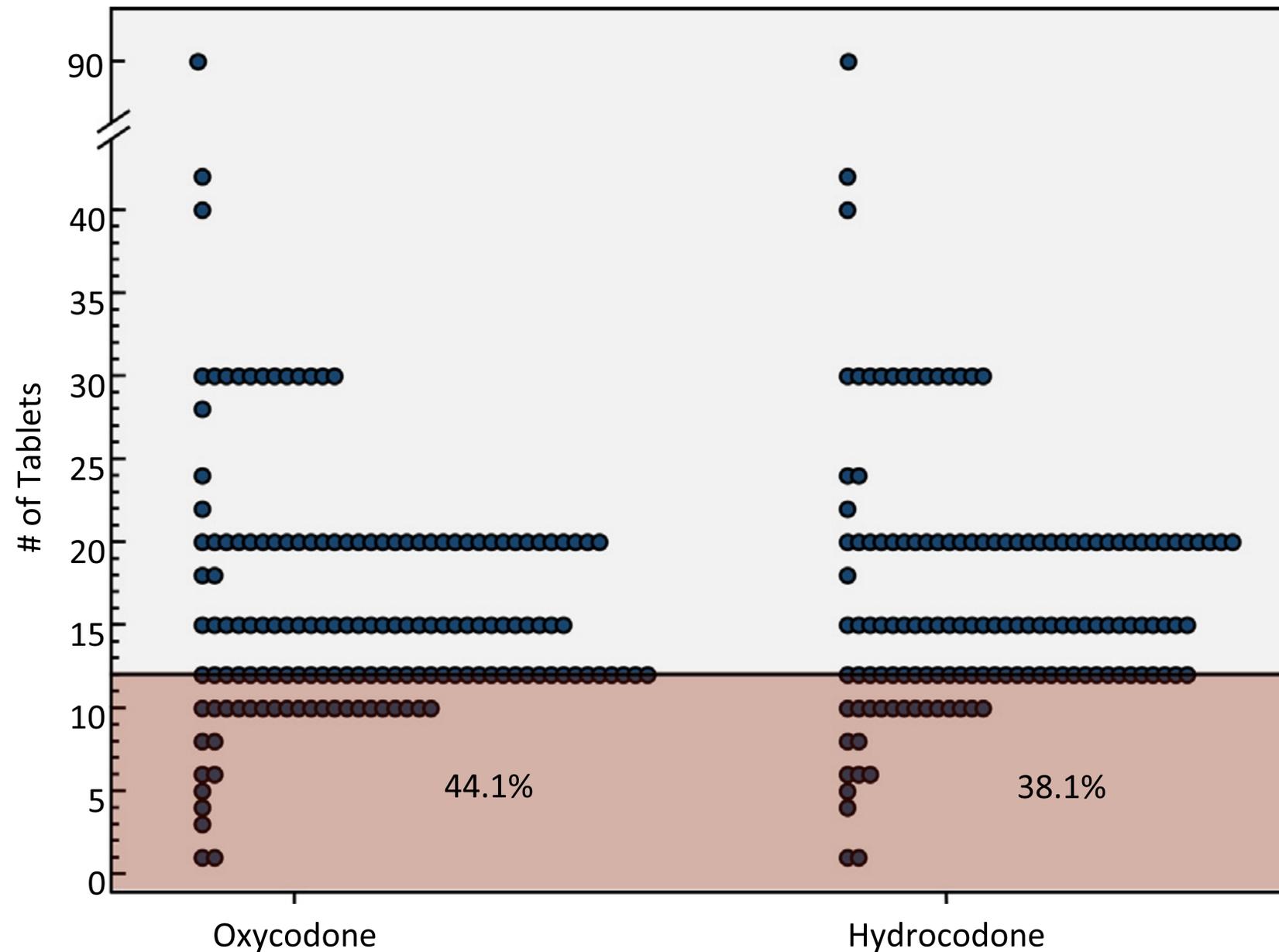
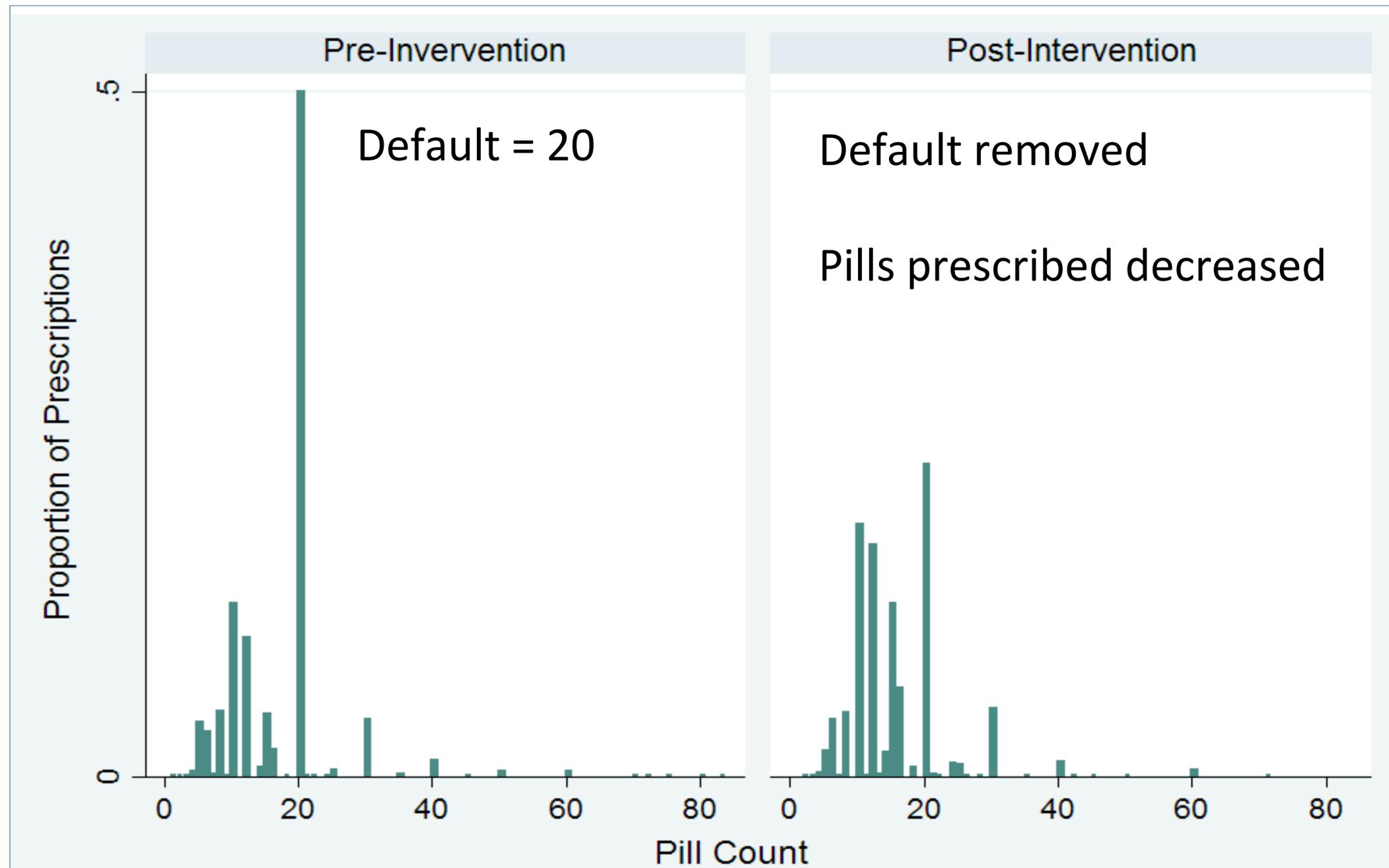


Fig. 1. Distribution of emergency department default opioid tablet order quantities among survey respondents and proportion for a standard 3-day supply (12 tablets) or less.

Blutinger E...Delgado MK, AJEM, 2019

Defaults can lead to *over* prescribing if set too high



Santistevan JR, Sharp BR, Hamedani AZ, et al., WJEM, 2018

ED Quick List facilitates ordering of non-opioid analgesia

The screenshot displays the 'Orders' section of a medical information system. The interface is organized into several columns and sections:

- Navigation:** Includes 'Quick List', 'Active', 'All Orders', 'LOA Orders', 'Results', 'Signed & Held', 'Home Meds', and 'Recurring Treatment' tabs. Below these are sub-sections for 'Quick List', 'Imaging', 'Nursing', 'Antibiotics', 'Protocols', 'Trauma Initial', and 'Trauma Medications'.
- Medications:** A list of medication orders with checkboxes. Selected items include:
 - acetaminophen (TYLENOL) tablet - 975 mg
 - ibuprofen (ADVIL;MOTRIN) tablet - 600 mg
 - lidocaine 5 % patch
- Labs:** A list of laboratory tests with checkboxes, including Aspirin (Salicylate) and Tylenol (Acetaminophen) Levels, Basic Metabolic Panel, Beta Hydroxybutyric Acid (Ketones), BNP Level, CBC with Diff, Creatine Kinase (CPK), Creatinine Only - STAT lab syringe, CRP (Non Cardiac - Ortho Only) / ESR (Sedimentation Rate), D-Dimer, Drug Screen, Urine, ETOH (Ethanol) Level, Fingerstick Blood Glucose, HCG Quantitative, HCG Urine (ED), HIV Screening and Consent, Lipase, LFTs (Liver Injury Panel), Magnesium, Phosphorus, PT / PTT, Reticulocyte Count, Thyroid Stimulating Hormone (TSH), Troponin T, Type & Screen, Urinalysis (ED UA), Urinalysis (Lab with Micro), and VBG with Lactate.
- Microbiology:** A list of microbiology tests with checkboxes, including Abscess Culture (includes Gram Stain), Blood Culture Set (2) Peripheral / NON-LINE SITE, C-Diff (STOOL) and Isolation Panel, Respiratory Virus Panel, STD Screen (Cervix), STD Screen (Urine), Strep A Rapid Antigen Assay, Urine Culture, and Wound Culture (includes Gram Stain).
- EKG / Telemetry:** A list of EKG and telemetry orders with checkboxes, including EKG - STAT, EKG - ROUTINE, EKG - REPEAT, Telemetry monitoring, May Transport Off Monitor, Cardiac Pulse Ox Monitor, and Continuous Pulse Oximetry.
- Isolation/Supervision:** A list of isolation and supervision orders with checkboxes, including Airborne Isolation, Contact Isolation, Droplet Isolation, Continuous Observation - Safety, One to One Observation-Suicidal Ideation, and Fall Precautions.
- Blood Products:** A list of blood product orders with checkboxes, including RBC Blood Product Order, FFP (Plasma) Blood Product Order, and Platelets Blood Product Order.

On the right side of the interface, there is a 'New Orders' section with a list of orders:

- acetaminophen tablet 975 mg
975 mg, oral, Once, 1 dose, today at 1615
Maximum dose of 4 grams acetaminophen in 24 hours.
- lidocaine 5 % patch 1 patch
1 patch, transDERMAL, Once, 1 dose, today at 1615
Apply to back. Patch should be worn for 12 hours and then off for 12 hours.

At the bottom right, there are buttons for 'Remove All', 'Save Work', and 'Sign'.

EVALUATING A STATE OPIOID PRESCRIBING LIMIT AND ELECTRONIC MEDICAL RECORD ALERT

Because long-term opioid use has been linked to the length and strength of an initial prescription, 33 states, Medicare, and some private insurers have set limits on the duration of new opioid prescriptions. In May 2017, New Jersey implemented a statewide 5-day limit on new opioid prescriptions and Penn Medicine implemented an Electronic Medical Record (EMR) alert to notify prescribers when a prescription exceeded the limit and provide compliant prescription orders. This study compared outcomes in Penn Medicine outpatient practices in New Jersey with its practices in Pennsylvania not subject to the law. Outcomes included total opioid dose and number of tablets per prescription as well as rates of prescription refills, health care visits, and telephone calls within 30 days to account for potential unintended consequences.

Study compared opioid prescribing in Penn Medicine outpatient practices in NJ and PA



10 Outpatient Sites in New Jersey

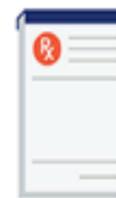
- 5-day limit law applies to outpatient settings
- EMR alert implemented

42 Outpatient Sites in Pennsylvania

- PA prescribing law does not apply to outpatient settings
- No EMR alert

Differences assessed one year before and 10 months after policy implementation

NJ practices saw greater decreases than PA in opioid per prescription after law and alert implemented



22%

greater decline in opioid dose per new prescription in NJ relative to PA

Decrease of **10.4** tablets more per average opioid prescription in NJ compared to PA



No significant increases in the rate of opioid refill in the first 30 days in NJ relative to PA

No change in the percentage refilled



No differences in changes to 30-day health care utilization between PA and NJ



No differences in hospital admissions, ED visits, office visits, or telephone calls

State prescribing limits coupled with an EMR alert were effective in decreasing opioid prescribing in outpatient clinics without significant short-term unintended consequences. If applied more widely, these interventions have the potential to decrease unnecessary opioid exposure for acute pain across the United States.

Margaret Lowenstein, Erik Hossain, Wei Yang, David Grande, Jeanmarie Perrone, Mark D. Neuman, Michael Ashburn, M. Kit Delgado, *Journal of General Internal Medicine*, September 2019

Hey, EMR opioid defaults worked in the ER. Are you interested in trying for ortho?

Me

Sure, but if we prescribe too few, I don't want them being unhappy, having to come back for refills, or go to one of our competitors

Orthopedic surgeon

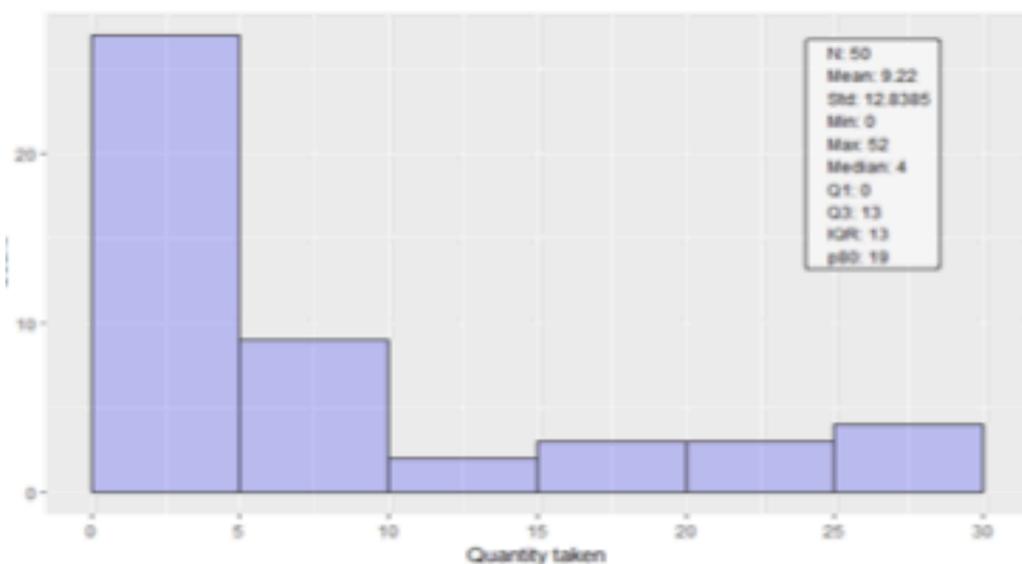
Needed to Address Availability Bias:

Perceived risk of *under* prescribing

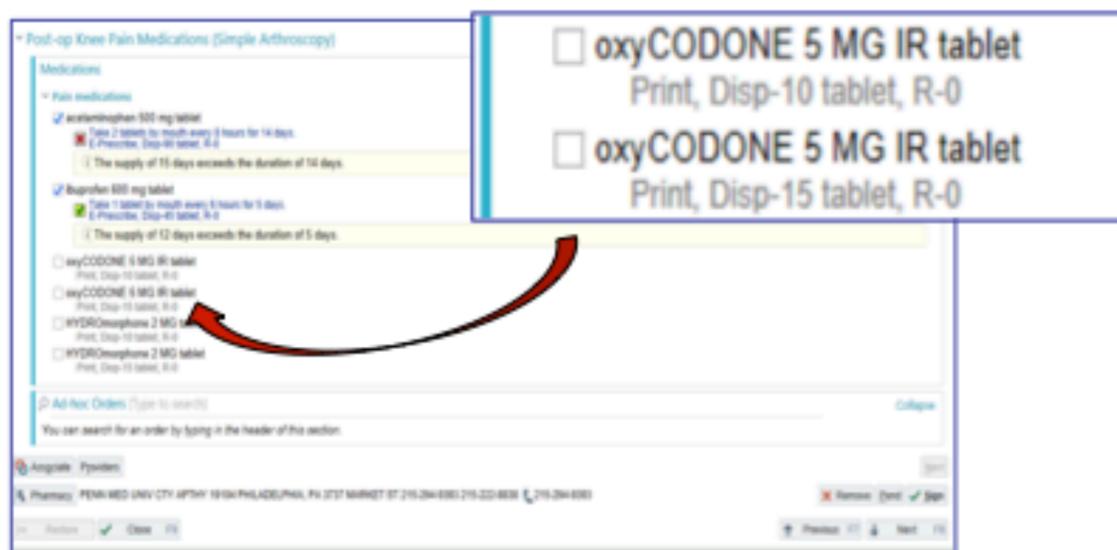
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Perceived risk of *over* prescribing

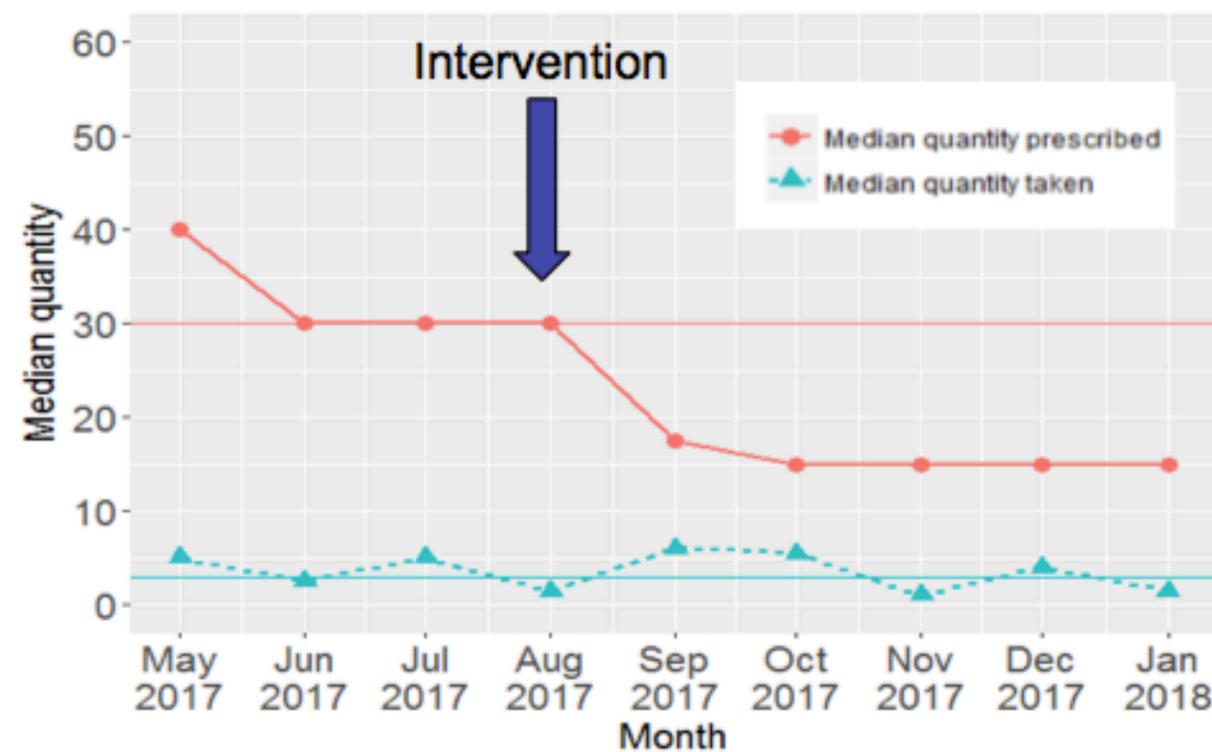
To set the default, patients were called 7 days after surgery to determine the number of opioid tablets consumed.



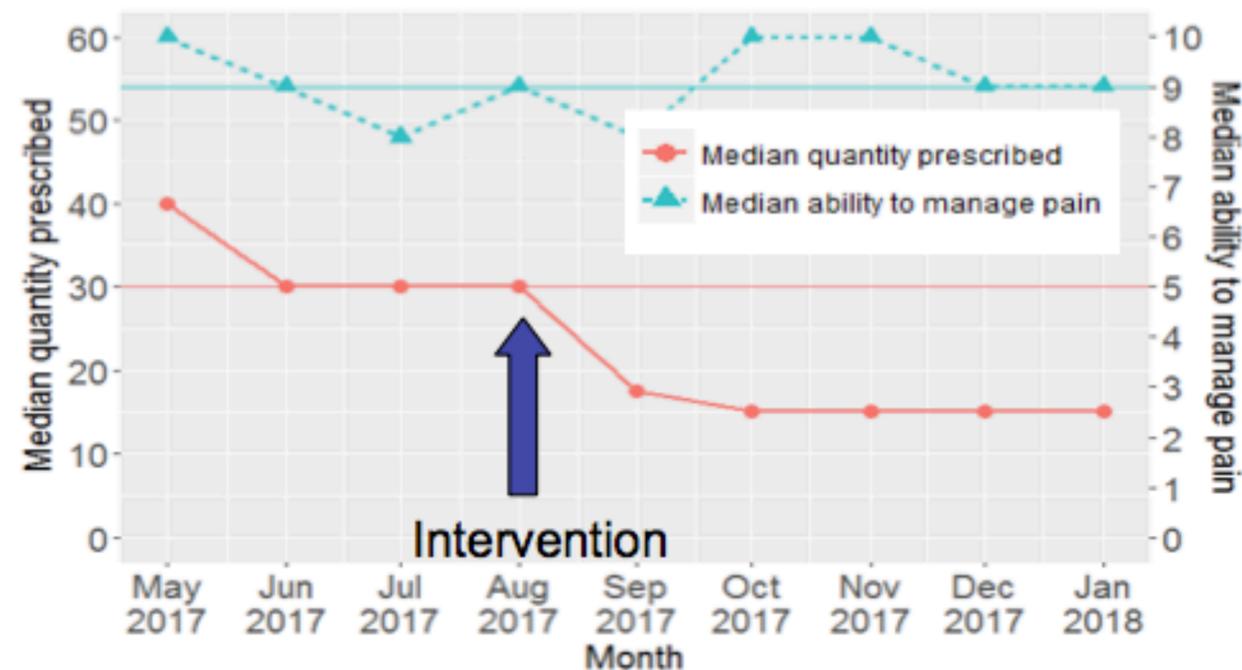
A simple knee arthroscopy pain management order set was implemented that included a default number of tablets.



Opioids prescribed and taken for simple knee arthroscopy



Opioids prescribed and perceived ability to manage pain for knee arthroscopy

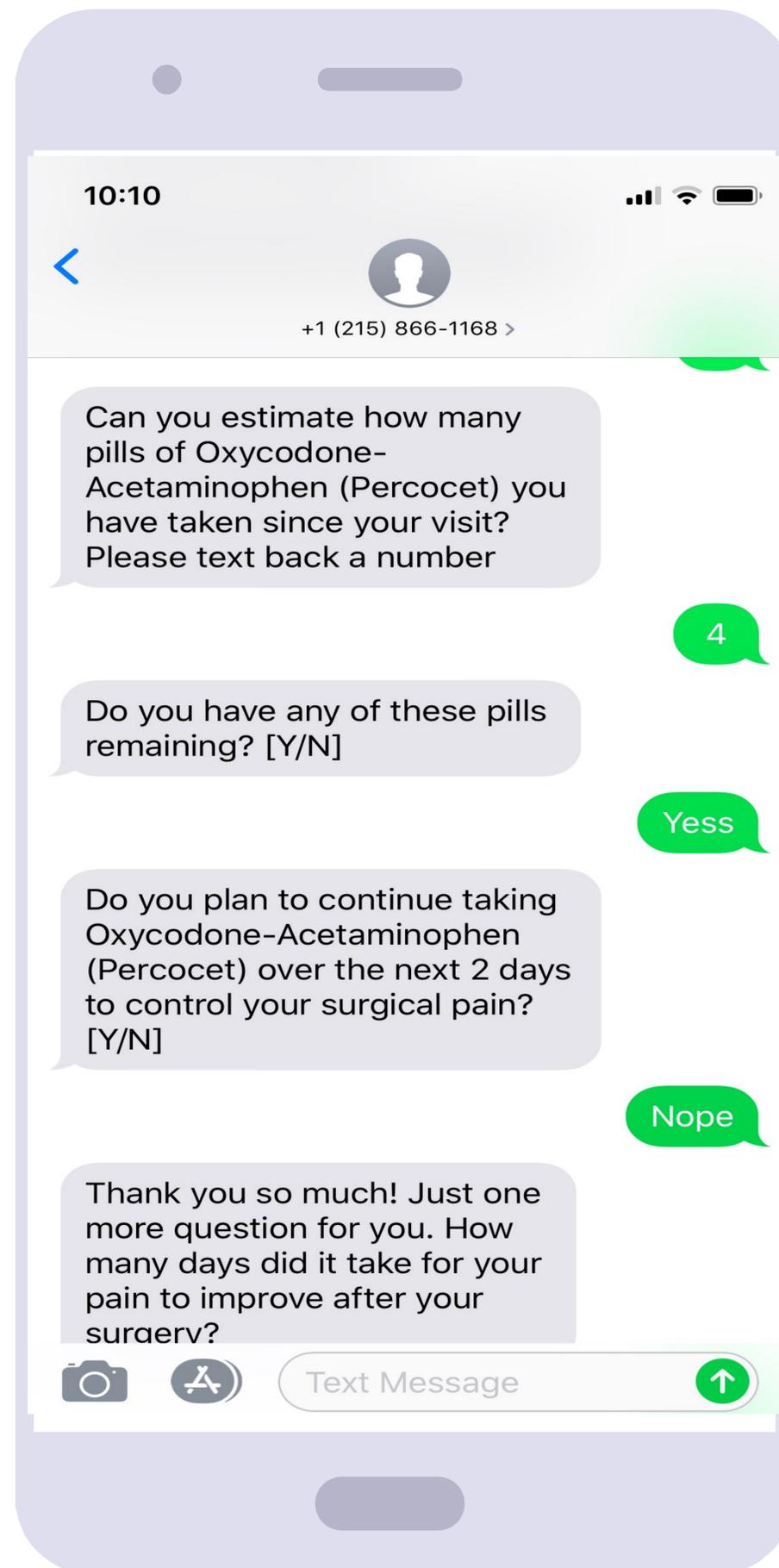


Opportunity:

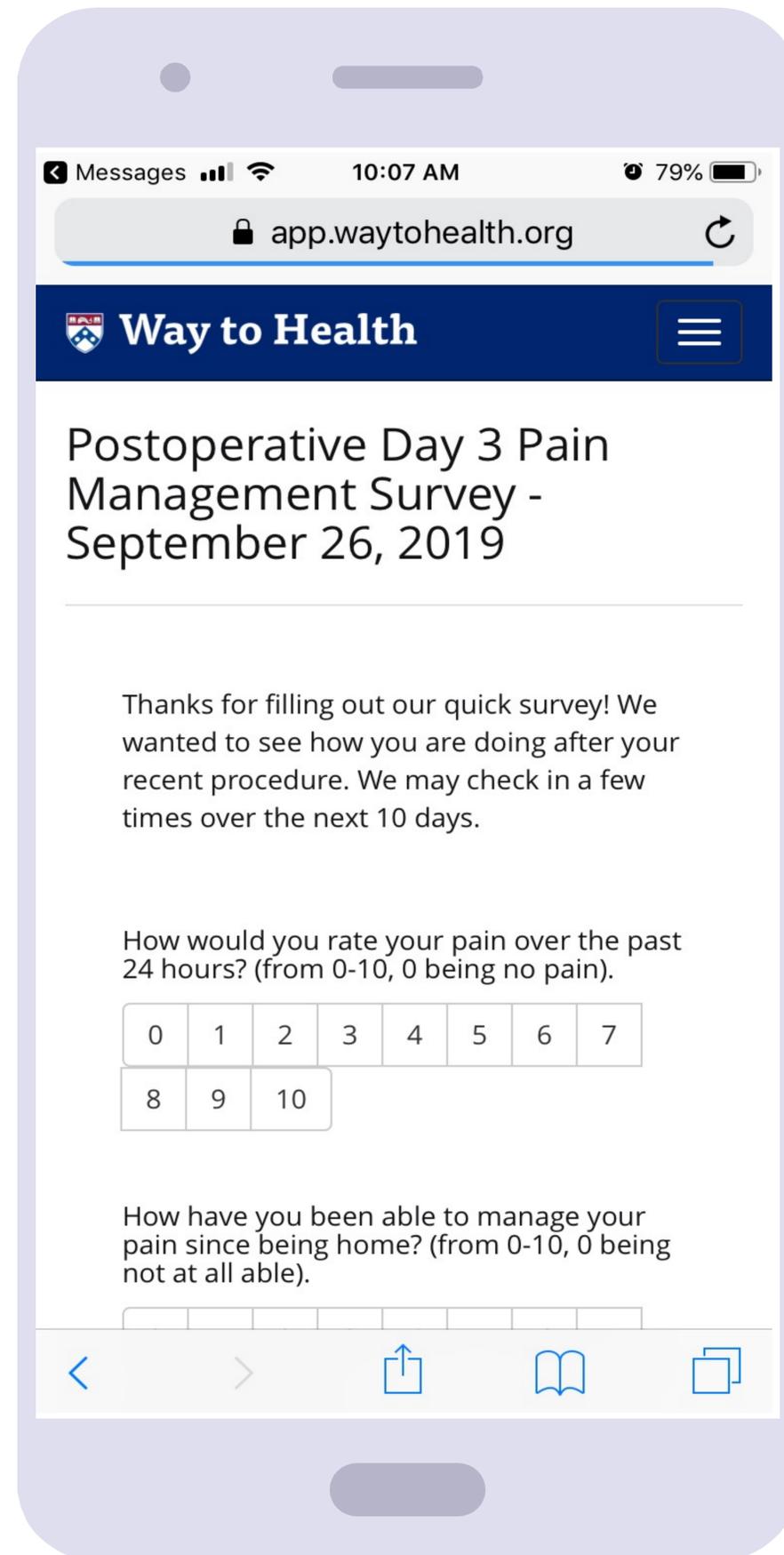
Gather **patient-reported data** to inform providers and generate indication specific guidelines for acute opioid prescribing



Text-Based Conversation



Mobile Web Survey



Randomized Trial of Engagement Methods

Text-Message vs. Web Survey

	Text-message survey (n = 60)	Mobile Web Survey (n=60)
Responded	36 (60%)	32 (53%)
Completed all questions	27(45%)	29 (48%)

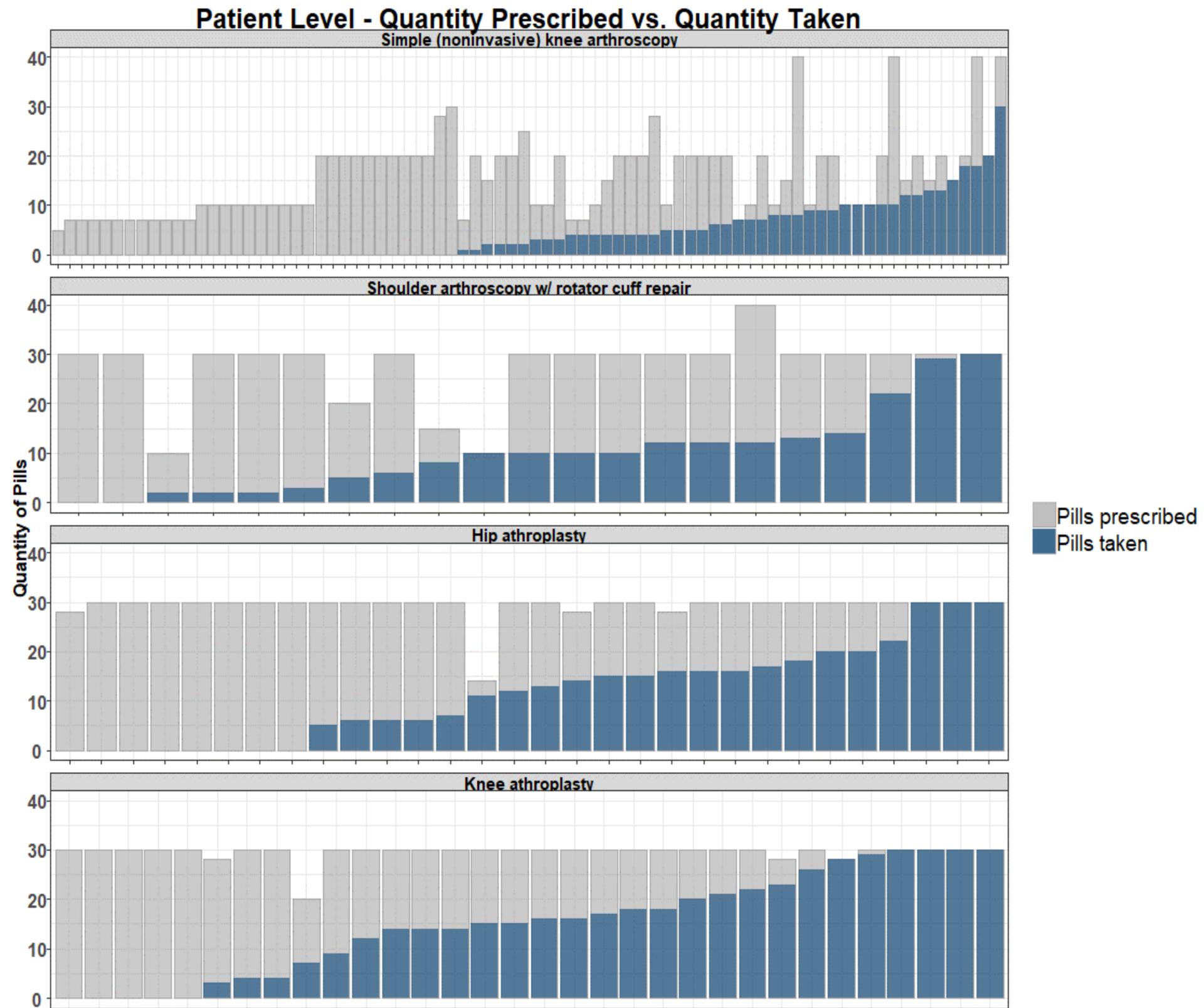
Data to Date

**Manual Text Messaging >700 patients
9/2018-6/2019**

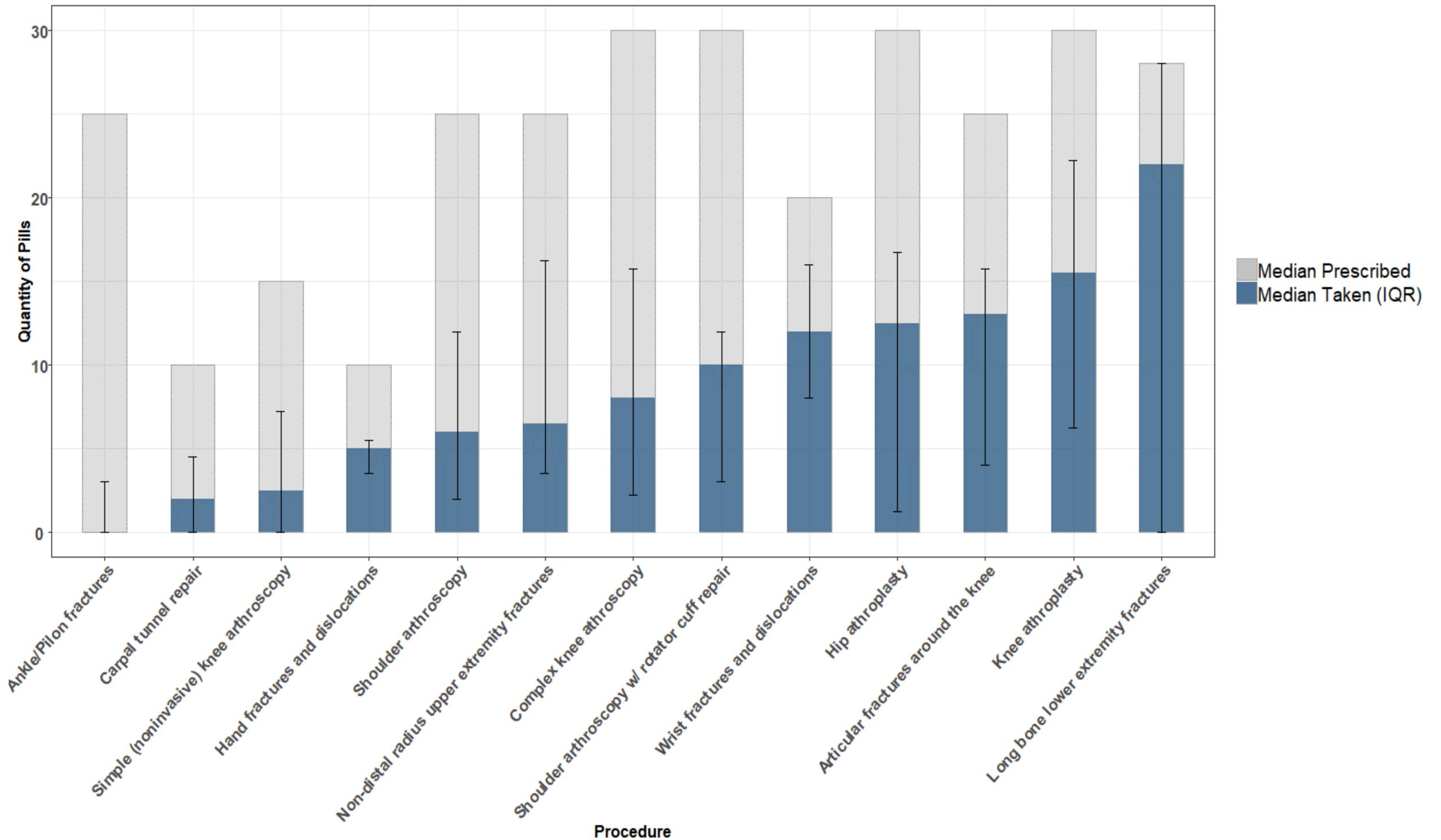
**Automated System >400 patients
6/2019-**



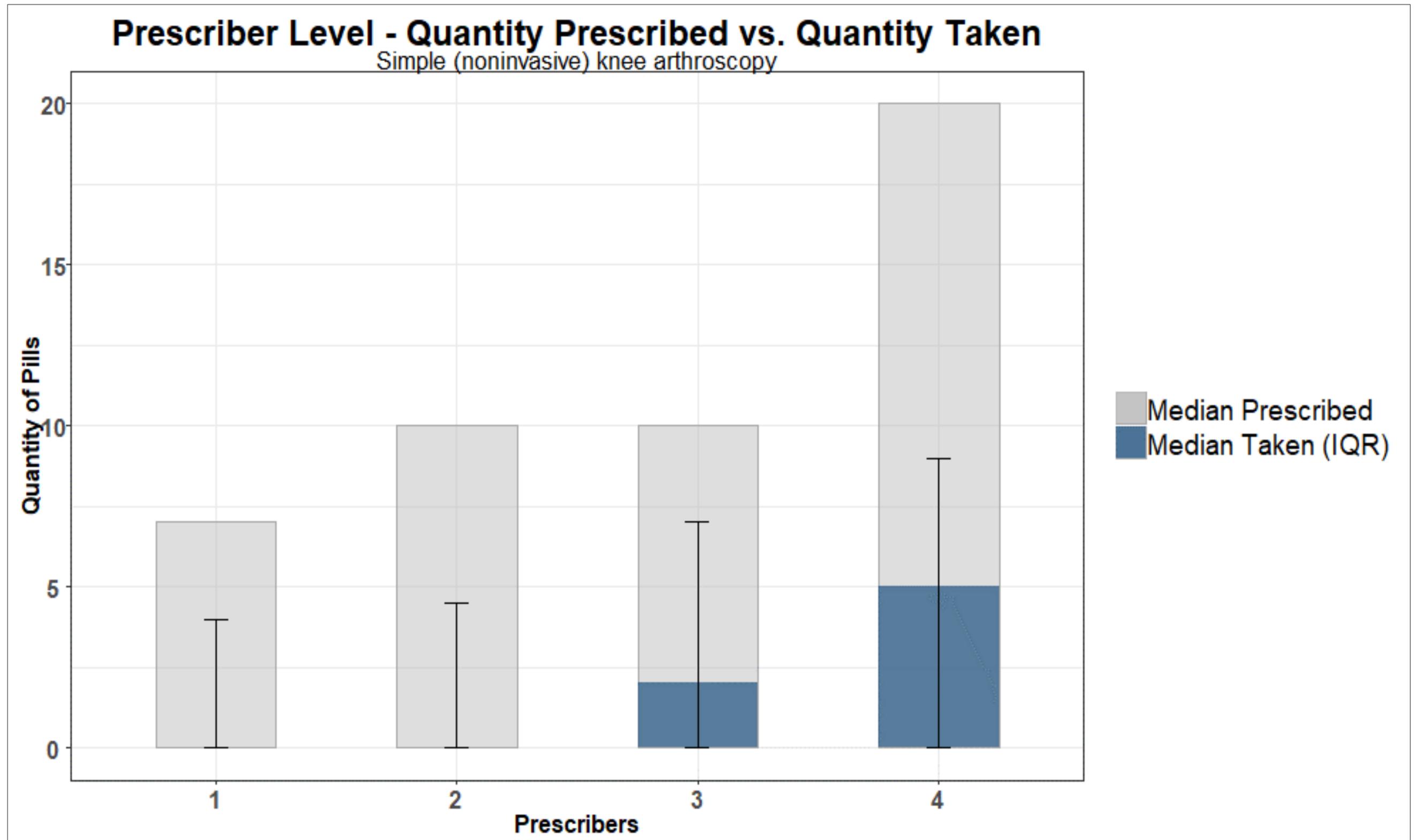
Automated Text-Messaging Data – Patient-level



Automated Text-Messaging Data – Procedure-level



Automated Text-Messaging Data – Prescriber-level



Next Steps

Implement, Test Acute Opioid Prescribing Ordersets With Lower Defaults:

- Procedure specific ordersets for high-volume procedures: aimed to address 75th percentile of patient reported use
- General orderset for other procedures
 - 'Minor' procedure (0,10 pills)
 - 'Moderate' procedure (10,20 pills)
 - 'Major' procedure (20,30 pills)
- Social comparison feedback report cards



Thank you

- Please email me if interested in collaborating:
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Team/Physician Leads

- Orthopedics: Brian Sennett, Samir Mehta, Eric Hume
- Neurosurgery: Zarina Ali
- Urology: Daniel Lee
- Pain Medicine: Michael Ashburn, John Farrar
- Emergency Medicine: Kit Delgado, Anish Agarwal