

Optimizing Pain Management After Cardiac Surgery with Less Opioids

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INTRODUCTION

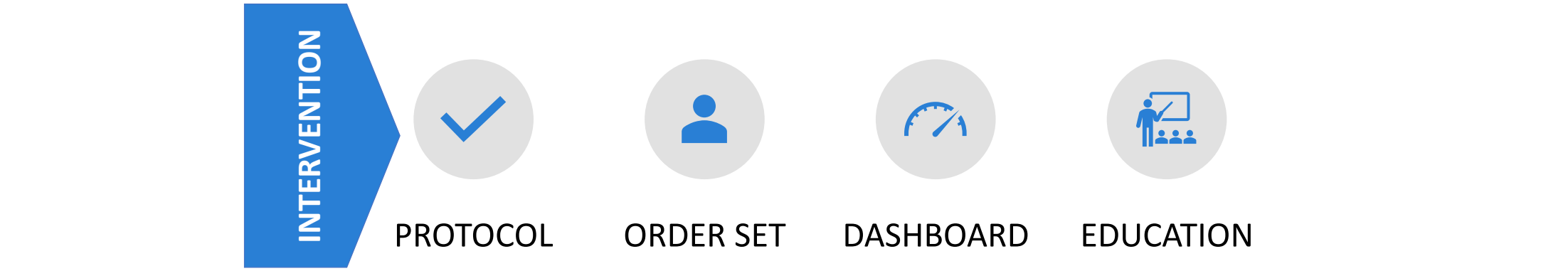
- In 2021 there were **106,000** deaths in the US due to overdoses (80% opioids)
- 16,706 deaths associated with a drug that was prescribed
- 1/3 of the prescriptions came from a surgical specialty
- 40x** more opioids receive surgical patients in the USA compared to other countries
- Non-opioid analgesia is not adopted broadly in CTS
- 10%** of CTS patients can develop long-term opioid use
- Overprescription of opioids (duration + # tabs + MME) increases the risk of long-term use and misuse

Project Aims:

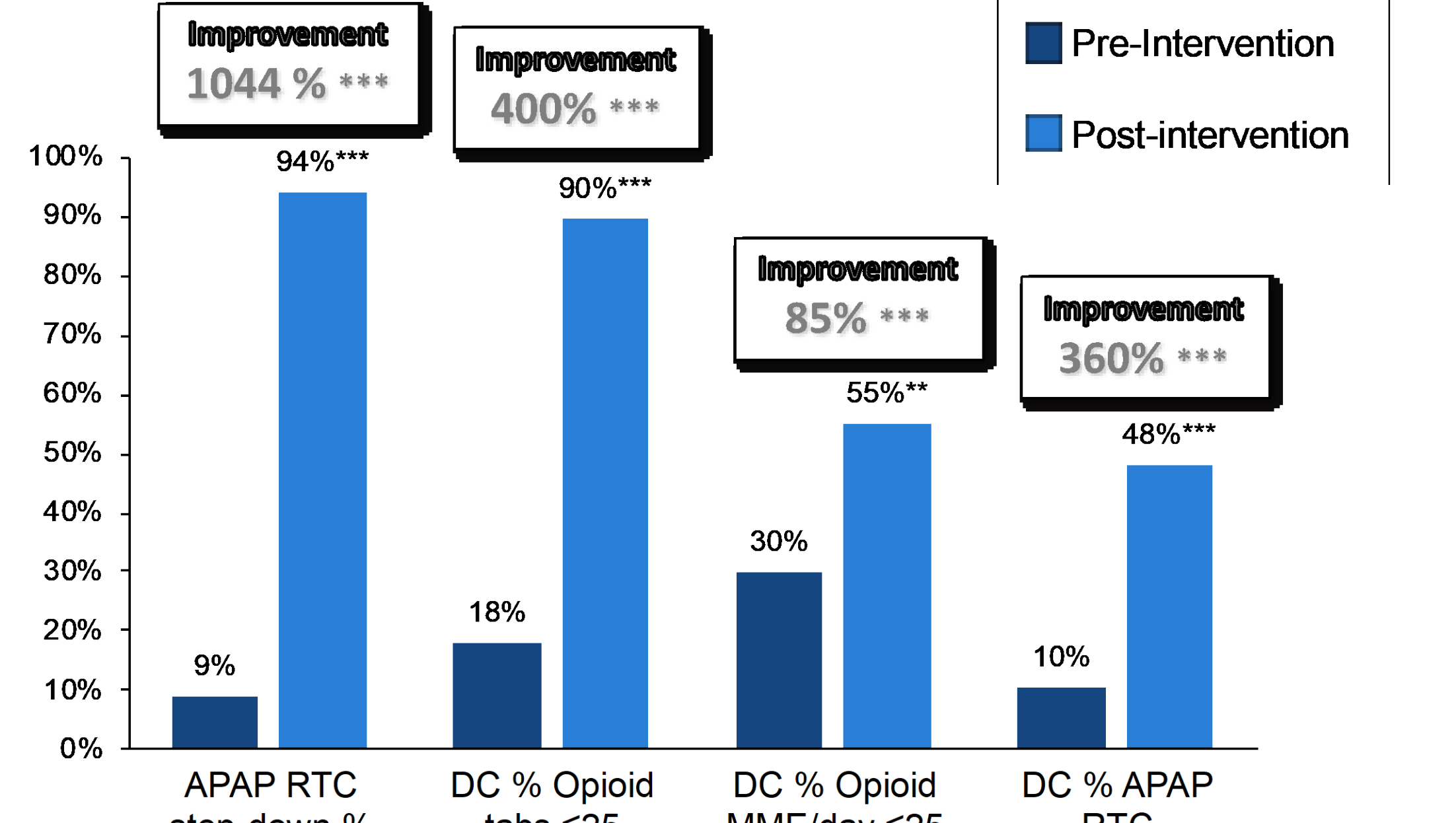
- ✓ Increase use of acetaminophen
- ✓ Decrease prescription of opioids at discharge

METHODS

Design	Setting	Sample	Sample size	Ethical Review
Pre-intervention post-intervention design	Cardiac surgery step-down unit Large, urban, quaternary teaching hospital, at the cardiac surgery step-down unit, in the Northeast of the United States	Convenience sample of consecutive patients Adult patients over the age of 18 years old. Elective CABG, valve surgery, or a combination.	67 patient pre-intervention and 67 post-intervention for a significance level of 0.05 and a power of 80%.	PERC IRB



RESULTS (patients by aim)



Note: APAP = Acetaminophen; RTC = Round the clock; DC = discharge; MME = Morphine Milligram Equivalents; RTC = as needed; **p < 0.01 for χ^2 ; ***p < 0.001 for χ^2

CONCLUSIONS

- Our intervention for cardiac surgery patients:
- ✓ Increased the overall use of acetaminophen
 - ✓ Decreased the overprescription of opioids at discharge

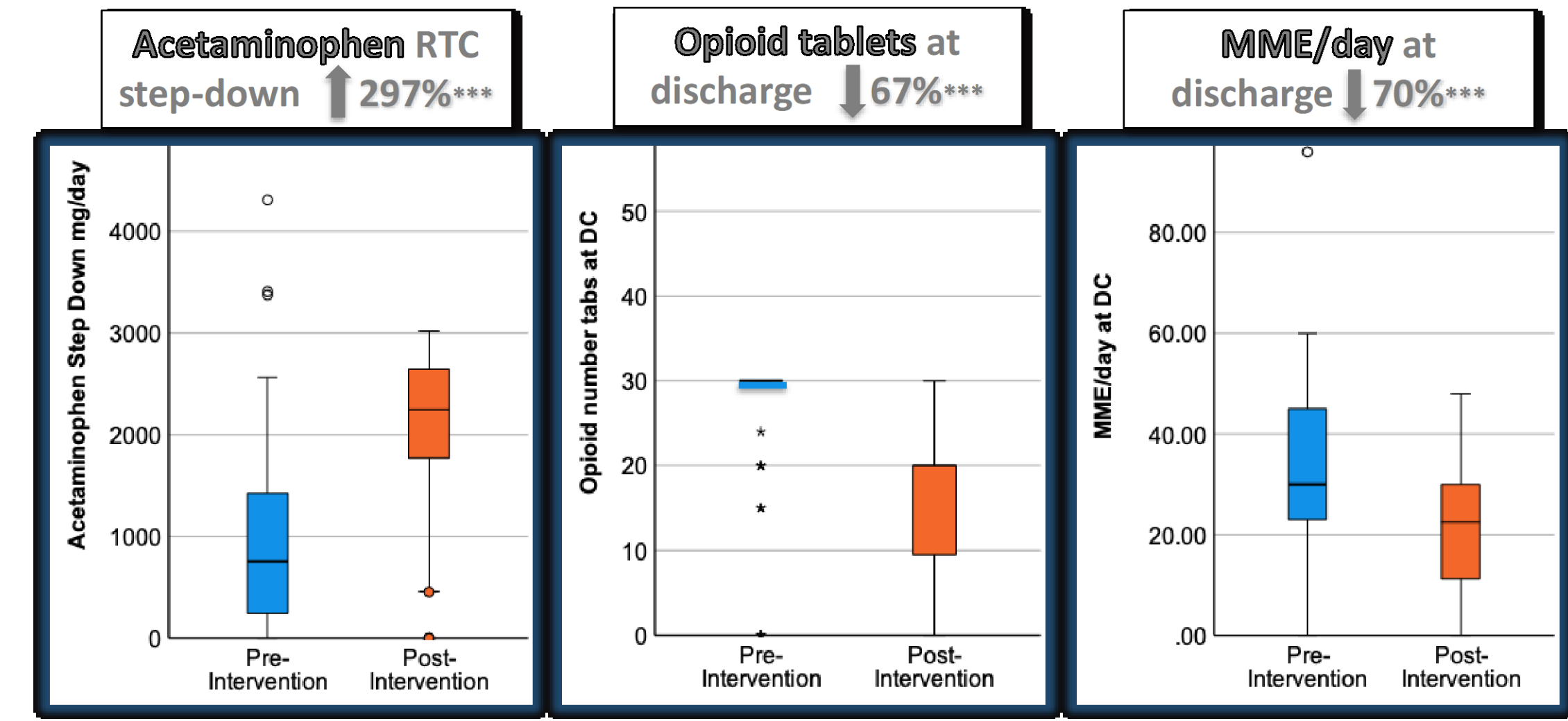
The proportion of cardiac surgery patients discharged with ≤ 25 opioid tablets increased by 400%



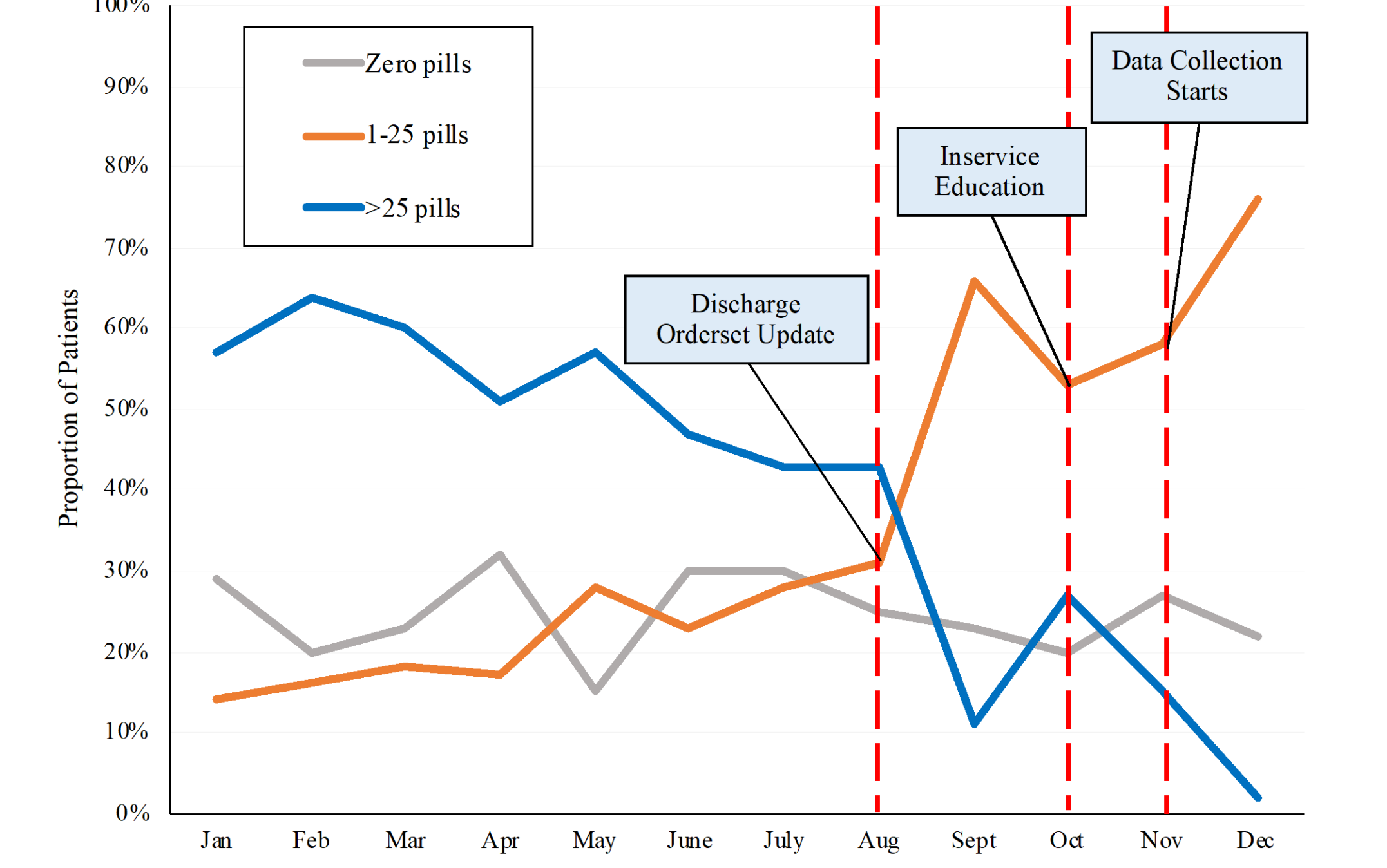
Baseline Characteristics

	Pre-Intervention	Post-Intervention	p-value
Age, median (IQR)	63 (13)	64 (14)	0.25
Female patients, n (%)	25 (37%)	17 (25%)	0.136
Race, n (%)			NA
Asian	9 (13%)	9 (13%)	
Black/African American	4 (6%)	4 (6%)	
Hispanic/other	19 (28%)	18 (27%)	
White	33 (49%)	34 (51%)	
Not documented	2 (3%)	2 (3%)	
Surgical procedure, n (%)			<0.01
AVR	12 (18%)	6 (9%)	
AV+CABG	2 (25%)	5 (7.5%)	
CABG	17 (25%)	34 (51%)	
MV Replacement	2 (3%)	7 (10%)	
MV Repair	34 (51%)	14 (21%)	
MV+CABG	0	1 (1%)	
STS death risk, median (IQR)	0.8% (0.8%)	1.2% (1.6%)	<0.05
Pre-op HAIc, median (IQR)	5.6% (0.08%)	6% (1.3%)	<0.01
Post-op LOS, median (IQR)	6 (2)	7 (2)	0.059

Results (medications)



Impact of Interventions on Timeline



Dashboard

	CY 2018	CY 2019	CY 2020	CY 2021	CY 2022	2023 YTD	Nov 2022	Dec 2022	Jan 2023	Roll 3Mth
Pre-OP Opioid Usage per day(Morphine Equivalent MG), median	15.8	15.7	15.5	15.4	15.3	15.2	15.1	15.0	14.9	14.8
ICU Opioid usage per day(Morphine Equivalent MG), median	15.8	15.7	15.5	15.4	15.3	15.2	15.1	15.0	14.9	14.8
Gabapentin ICU usage (MG per day), median	15.8	15.7	15.5	15.4	15.3	15.2	15.1	15.0	14.9	14.8
Acetaminophen ICU usage (MG per day), median	15.8	15.7	15.5	15.4	15.3	15.2	15.1	15.0	14.9	14.8
Ketorolac ICU usage (MG per day), median	15.8	15.7	15.5	15.4	15.3	15.2	15.1	15.0	14.9	14.8
Post-Op Opioid usage per day(Morphine Equivalent MG), median	15.8	15.7	15.5	15.4	15.3	15.2	15.1	15.0	14.9	14.8
Post-ICU Opioid usage per day(Morphine Equivalent MG), median	15.8	15.7	15.5	15.4	15.3	15.2	15.1	15.0	14.9	14.8
Gabapentin post-ICU usage (MG per day), median	15.8	15.7	15.5	15.4	15.3	15.2	15.1	15.0	14.9	14.8
Acetaminophen post-ICU usage (MG per day), median	15.8	15.7	15.5	15.4	15.3	15.2	15.1	15.0	14.9	14.8
Ketorolac post-ICU usage (MG per day), median	15.8	15.7	15.5	15.4	15.3	15.2	15.1	15.0	14.9	14.8
Morphine equivalents 24 hours before discharge, median	15.8	15.7	15.5	15.4	15.3	15.2	15.1	15.0	14.9	14.8
Morphine equivalents prescribed at discharge per day, median	15.8	15.7	15.5	15.4	15.3	15.2	15.1	15.0	14.9	14.8
Nbr of Opioid pills given to the patient at discharge, median	15.8	15.7	15.5	15.4	15.3	15.2	15.1	15.0	14.9	14.8

