Postsurgical Opioid Prescribing Trends, 2006-2015

Jessica C. Young

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- No conflicts of interest to report

Background

Opioids for Surgical Pain

Opioids play an important role in management of postsurgical pain

"Paul is part of an experiment. Instead of giving him morphine for his kidney stone, they are testing the healing power of laughter."

Opioids for Surgical Pain

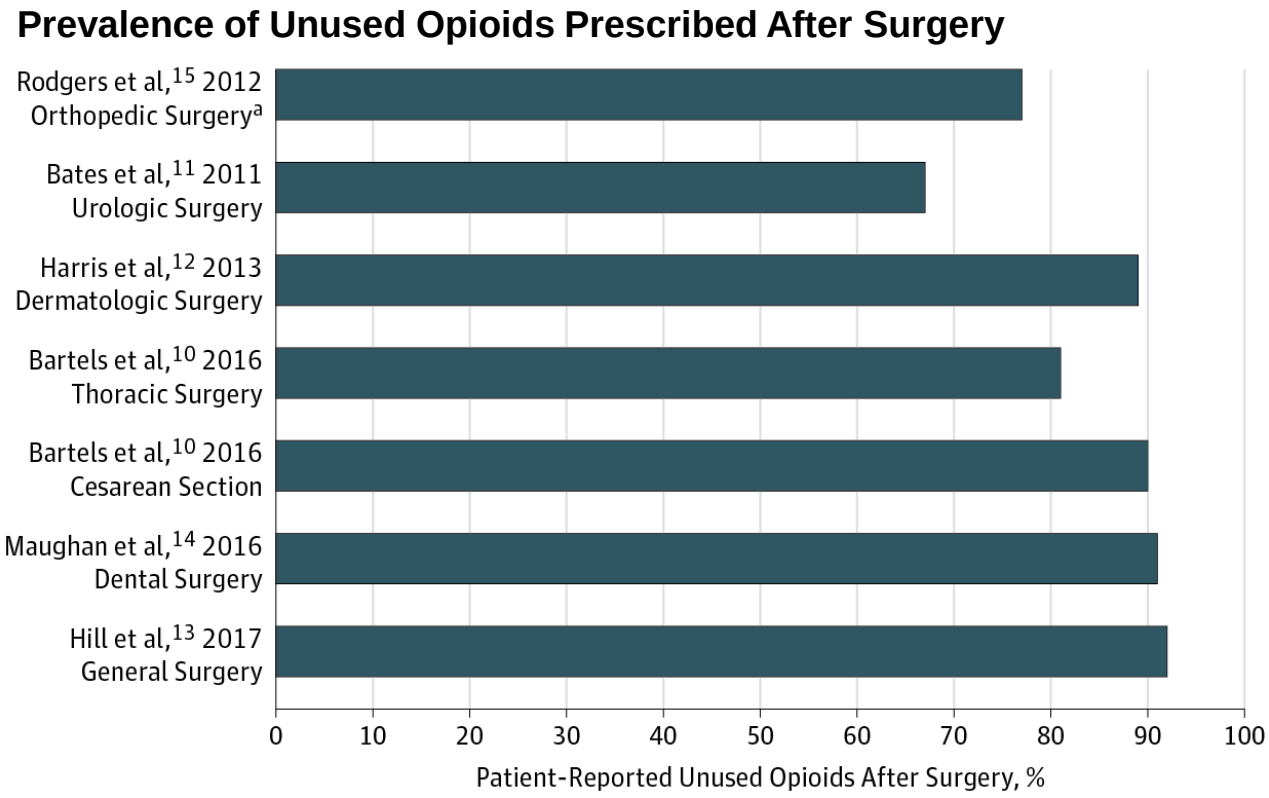
Opioids play an important role in management of postsurgical pain

Clinical challenge of striking the balance between safe and adequate pain management

"Paul is part of an experiment. Instead of giving him morphine for his kidney stone, they are testing the healing power of laughter."

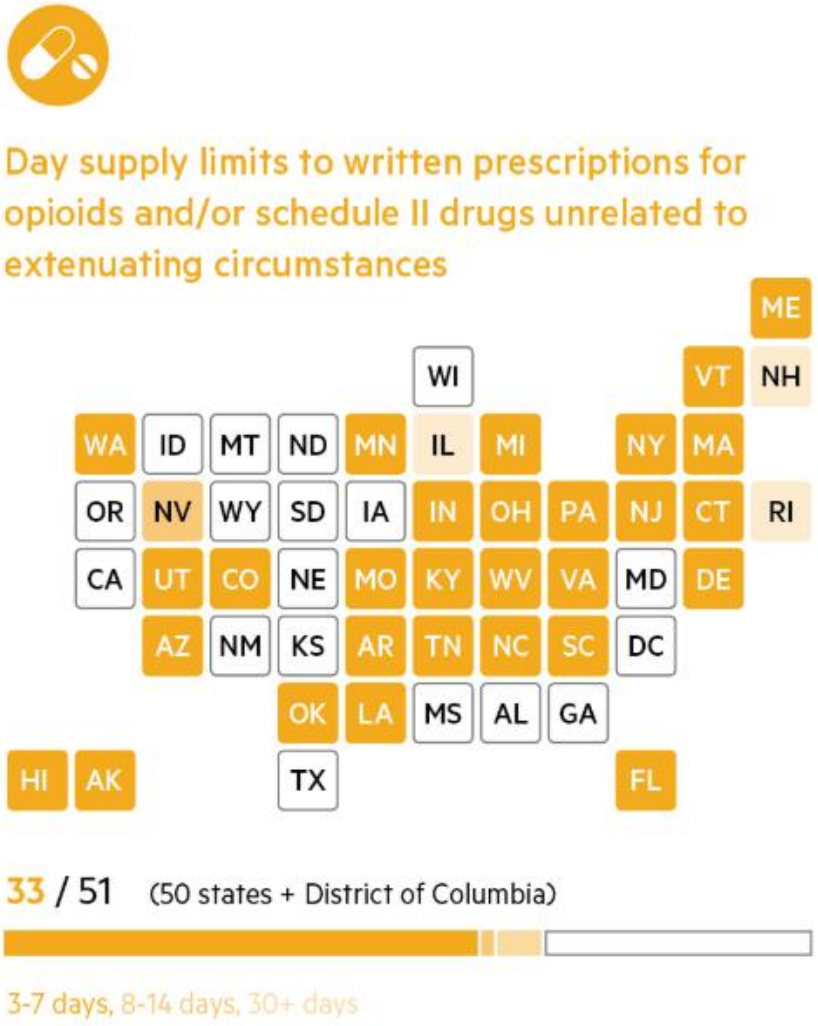
Unused Opioids After Surgery

Patients routinely receive more opioids than medically necessary for adequate postsurgical pain management.



JAMA Surg. 2017;152(11):1066-1071. doi:10.1001/jamasurg.2017.0831

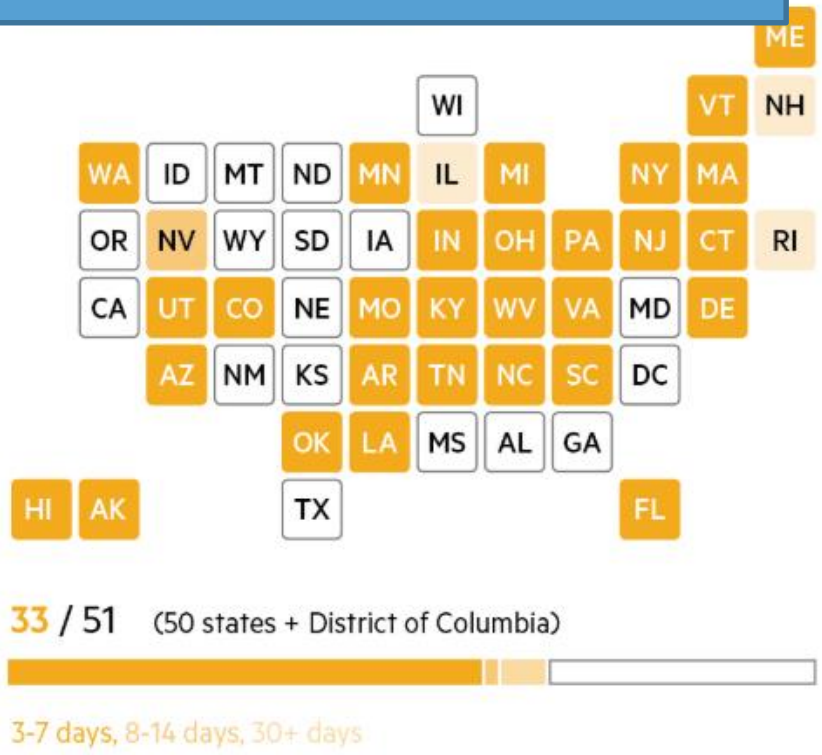
Day Supply Prescribing Limits



https://www.athenahealth.com/insight/infographic-opioid-regulations-state-by-state

Day Supply Prescribing Limits

- Policies vary state by state
- Little evidence informing cutpoints



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Objectives

Among a broad cohort of opioid-naïve surgical patients in the US, examine trends in:

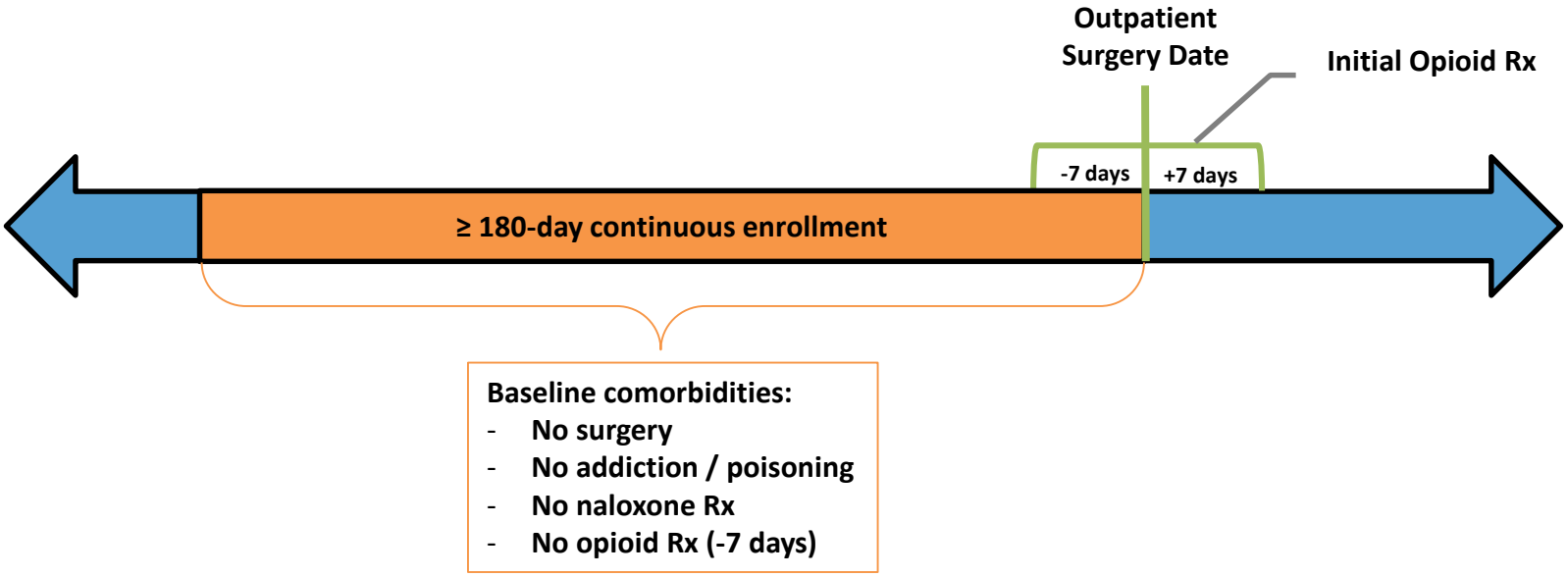
1) The proportion of patients filling opioid prescriptions for postsurgical pain

2) The initial volume of opioids prescribed

Methods

Study Schematic

Data Source: MarketScan Commercial Claims and Medicare Supplemental (2006 – 2015)



Annual Trends

Proportion of patients receiving a perioperative opioid Rx

Proportion of patients whose initial opioid Rx exceeded varying cutpoints

- Days Supply: 7 days

Annual Trends

Proportion of patients receiving a perioperative opioid Rx

Proportion of patients whose initial opioid Rx exceeded varying cutpoints

- Days Supply: 7 days
- Dosage: 400 MME
- Quantity Dispensed: 50 qty

Results

Surgical Population

Total Surgeries	N = 5,148,485
Female	54.5%
Age – Median (IQR)	47 (27, 60)
Under 25	23.3%
25-44	22.0%
45-64	39.2%
65-84	14.0%
85+	1.6%
Perioperative Opioid Rx	55.5%
Initial DS	5 (3,6)
Initial Qty	30 (28,40)
Initial MME	240 (180, 360)

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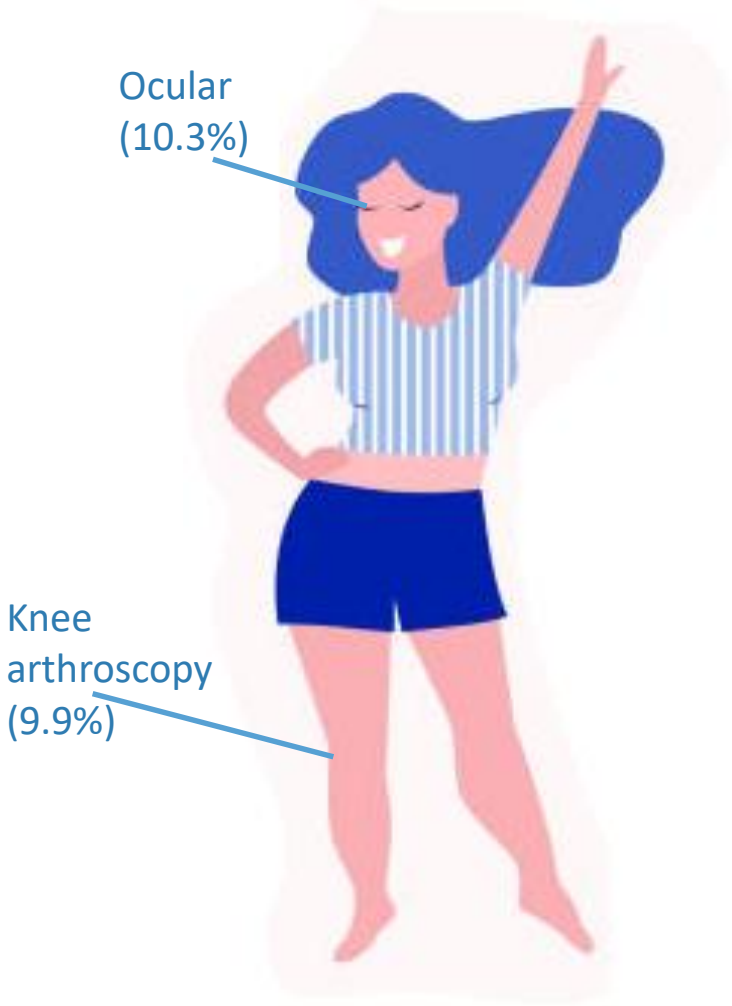

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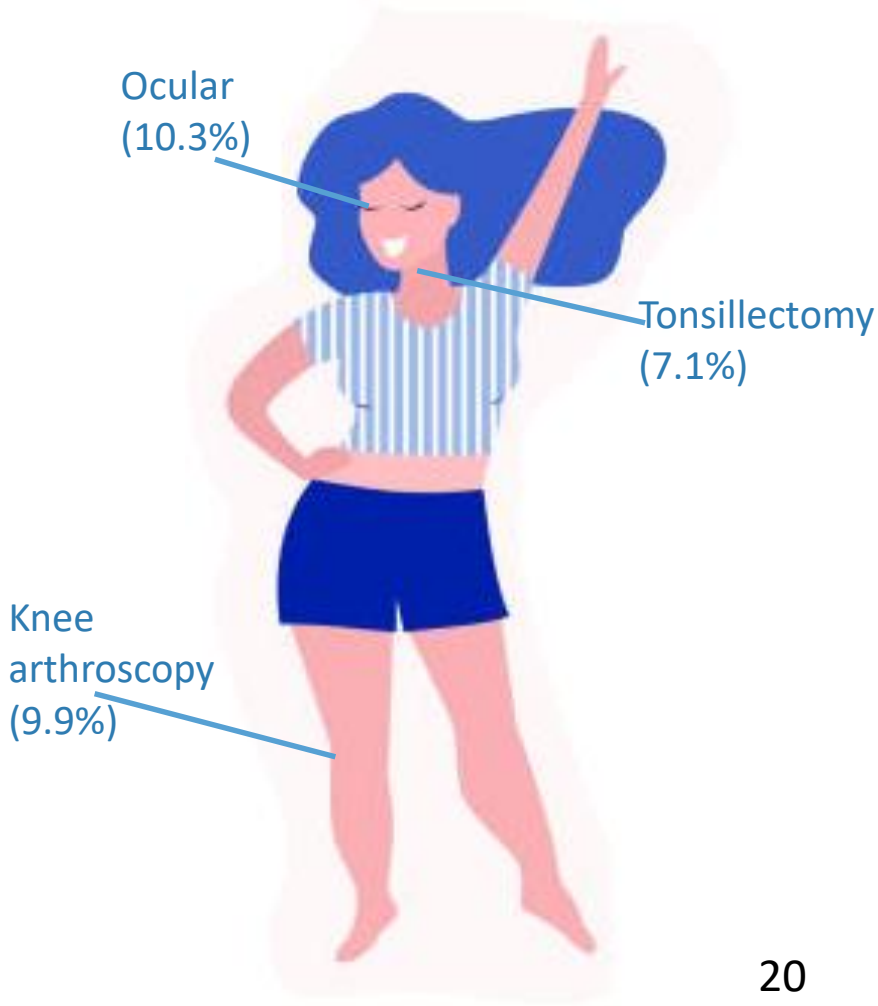

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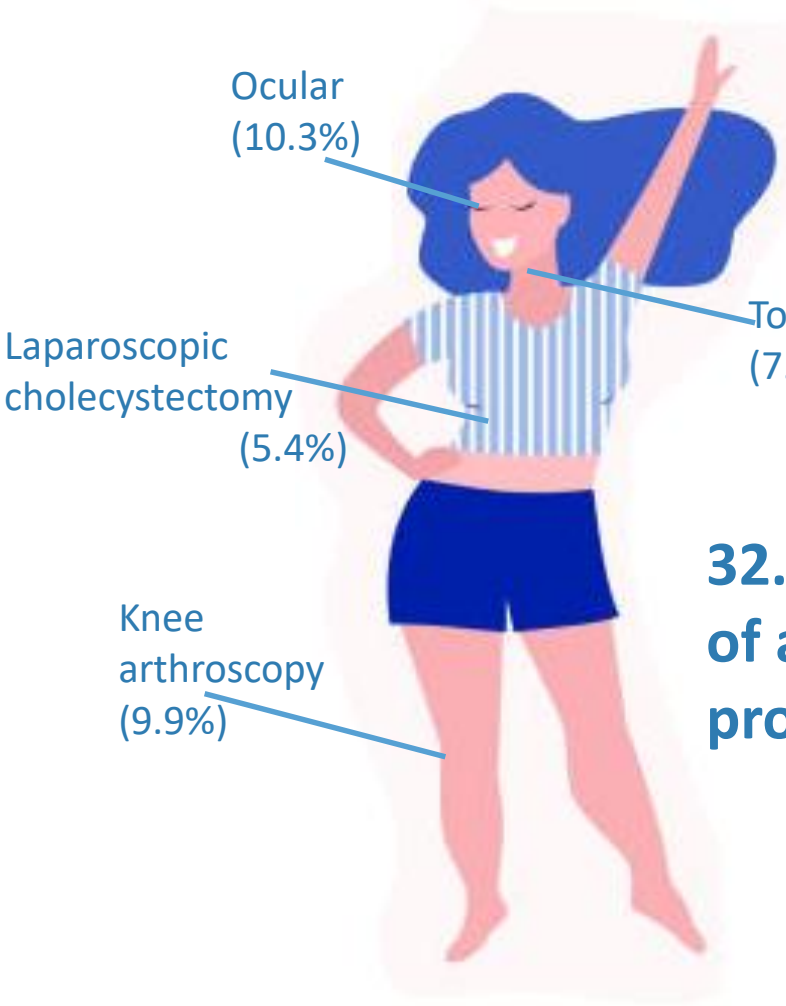
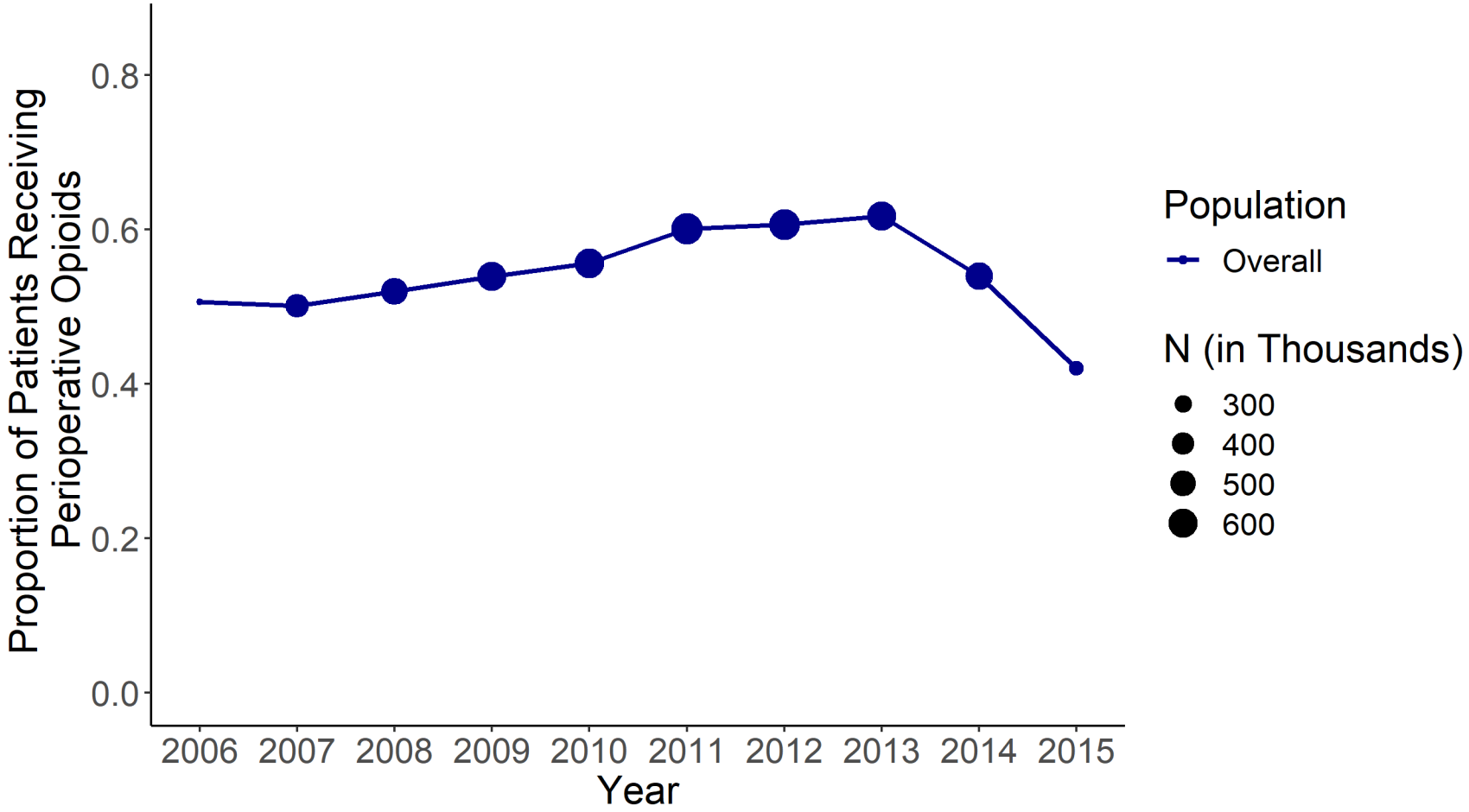


32.7% of all procedures

1) Examine trends in the proportion of patients filling opioid prescriptions for postsurgical pain

Perioperative Opioid Rx by Year



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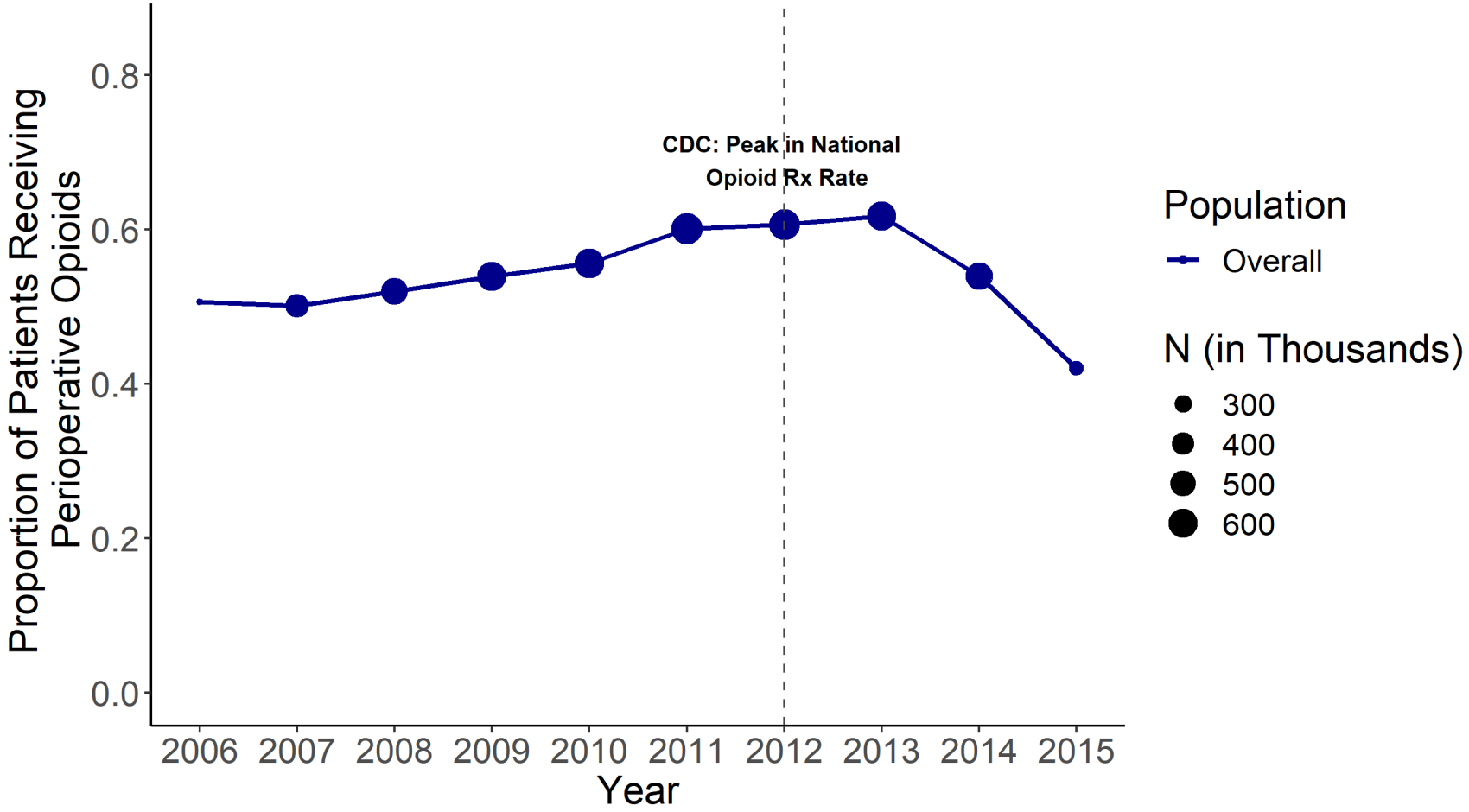

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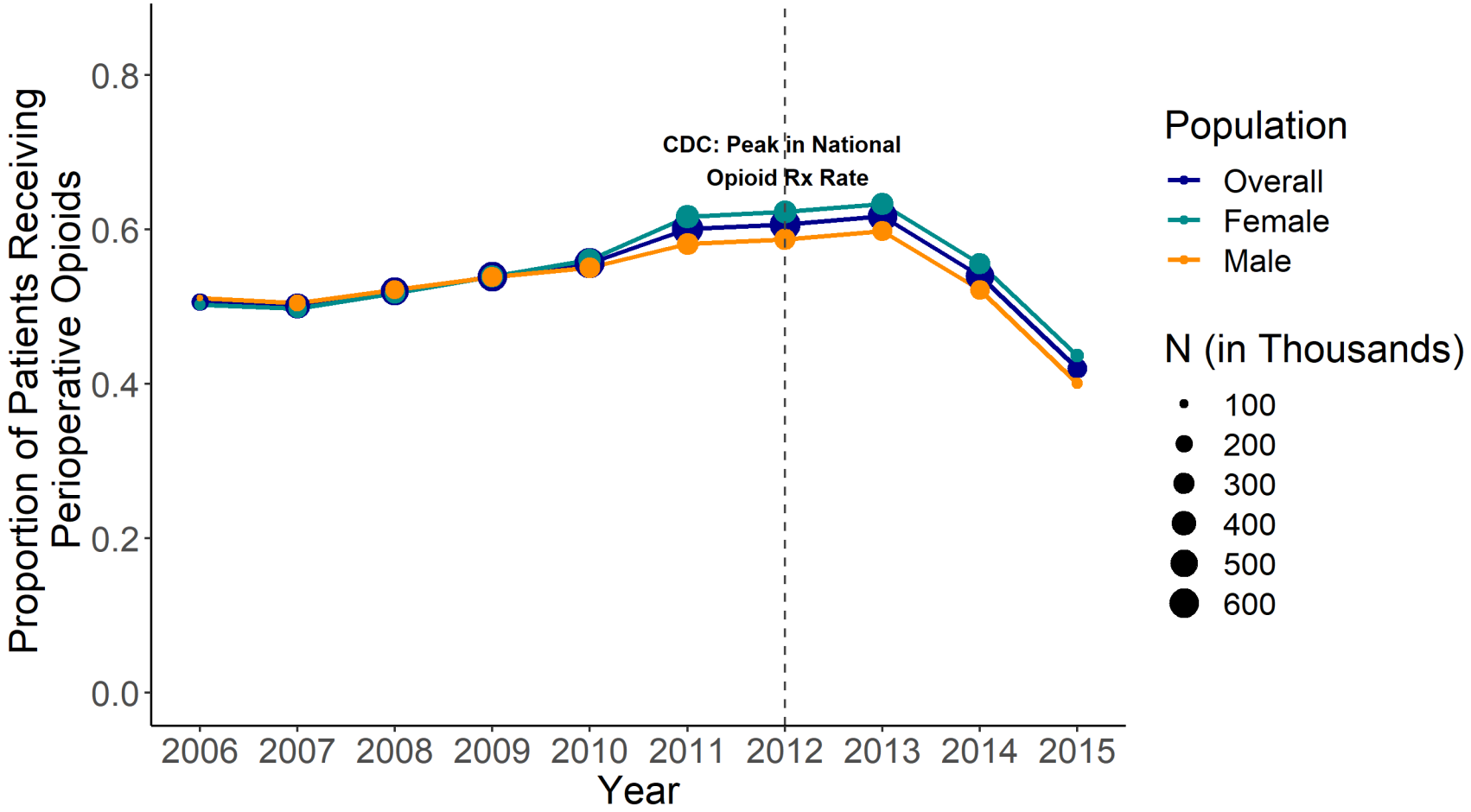

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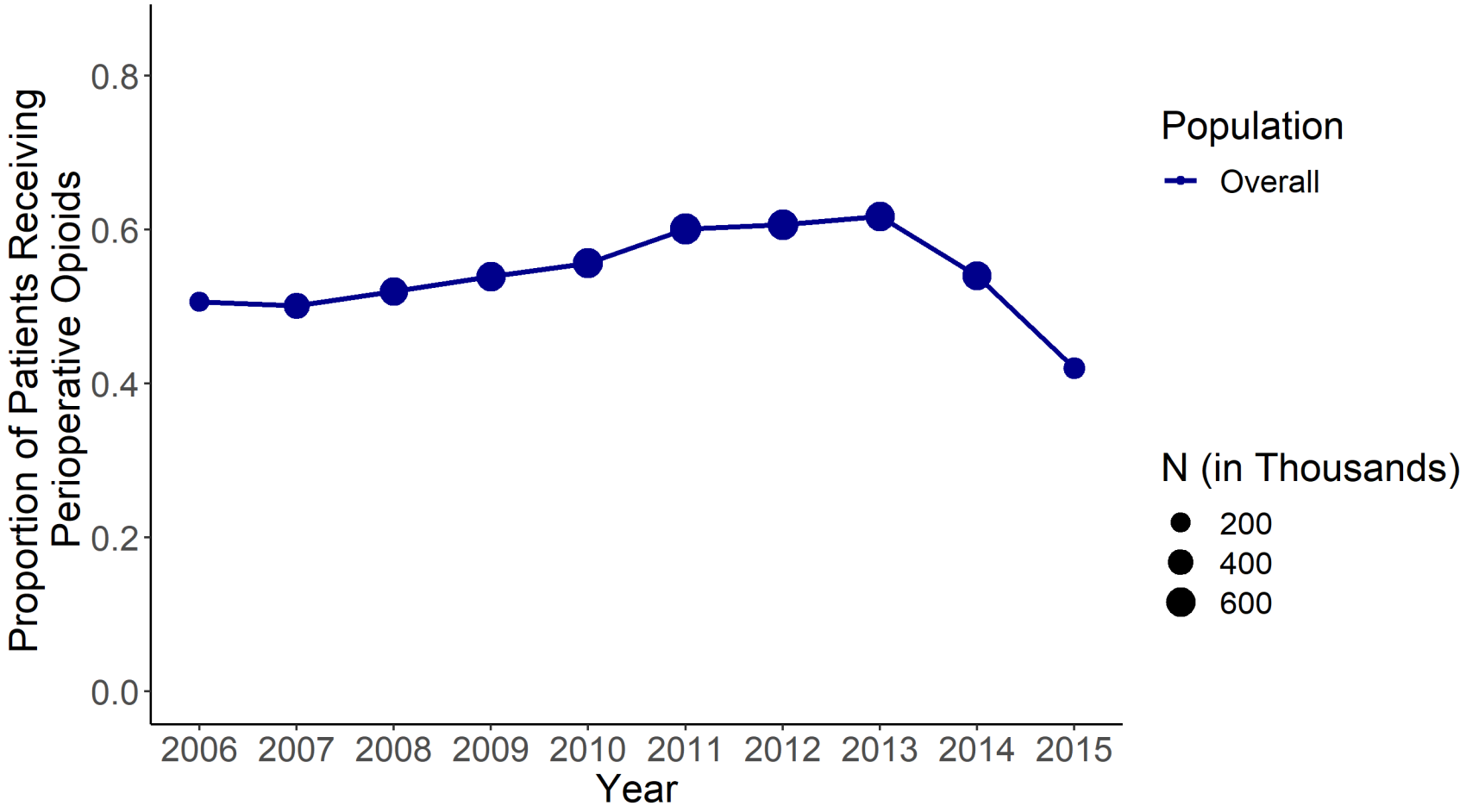

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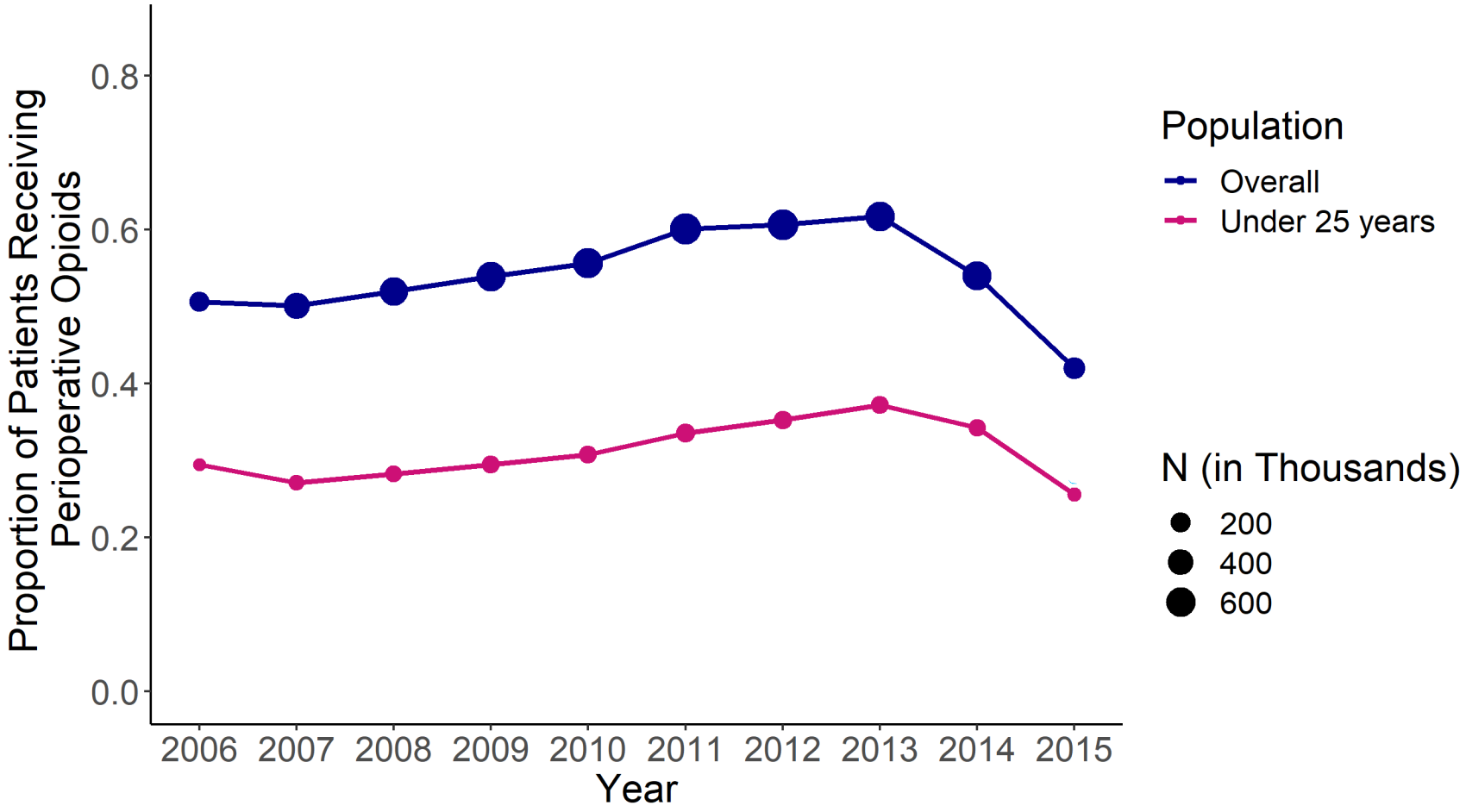

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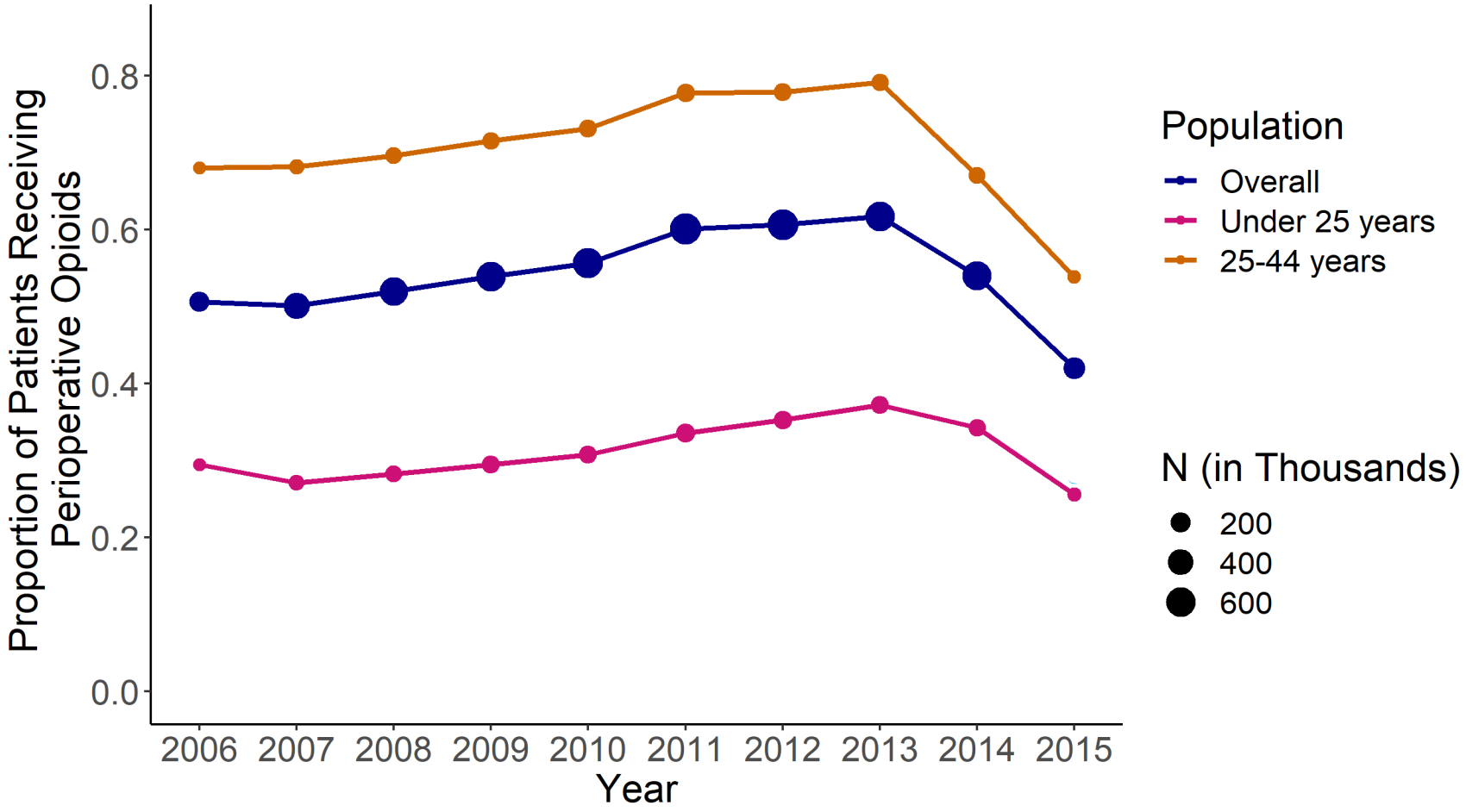
Perioperative Opioid Rx by Year



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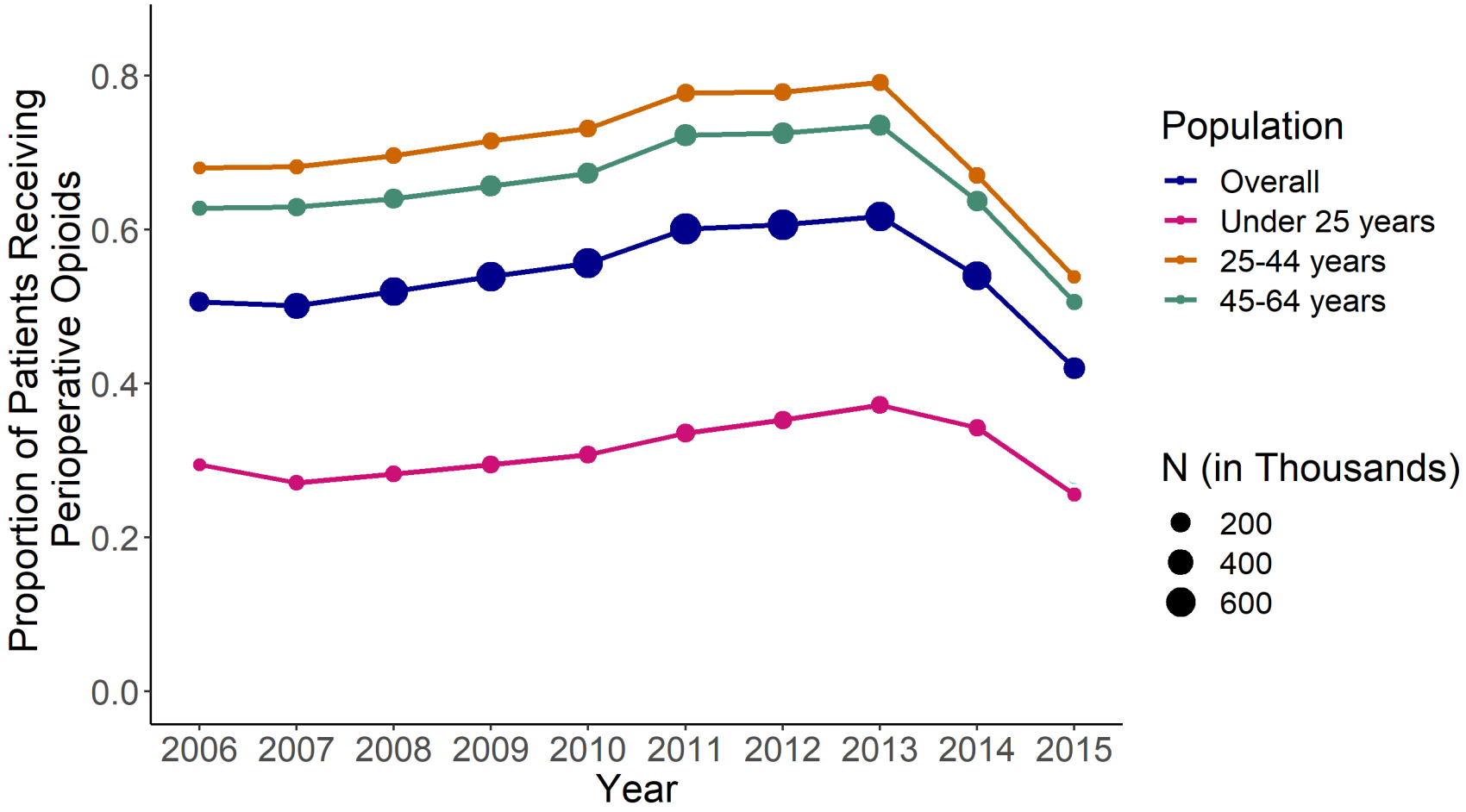

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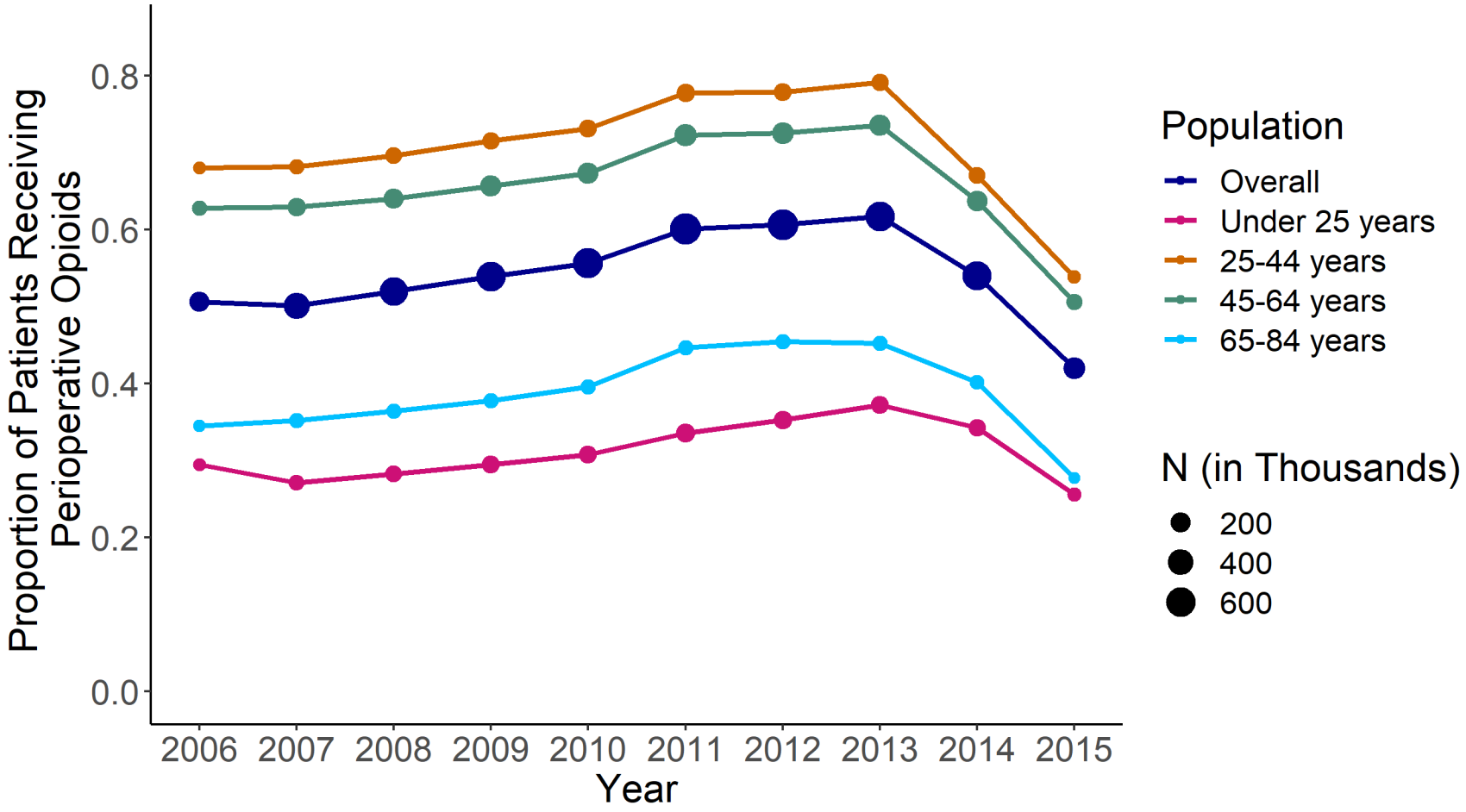

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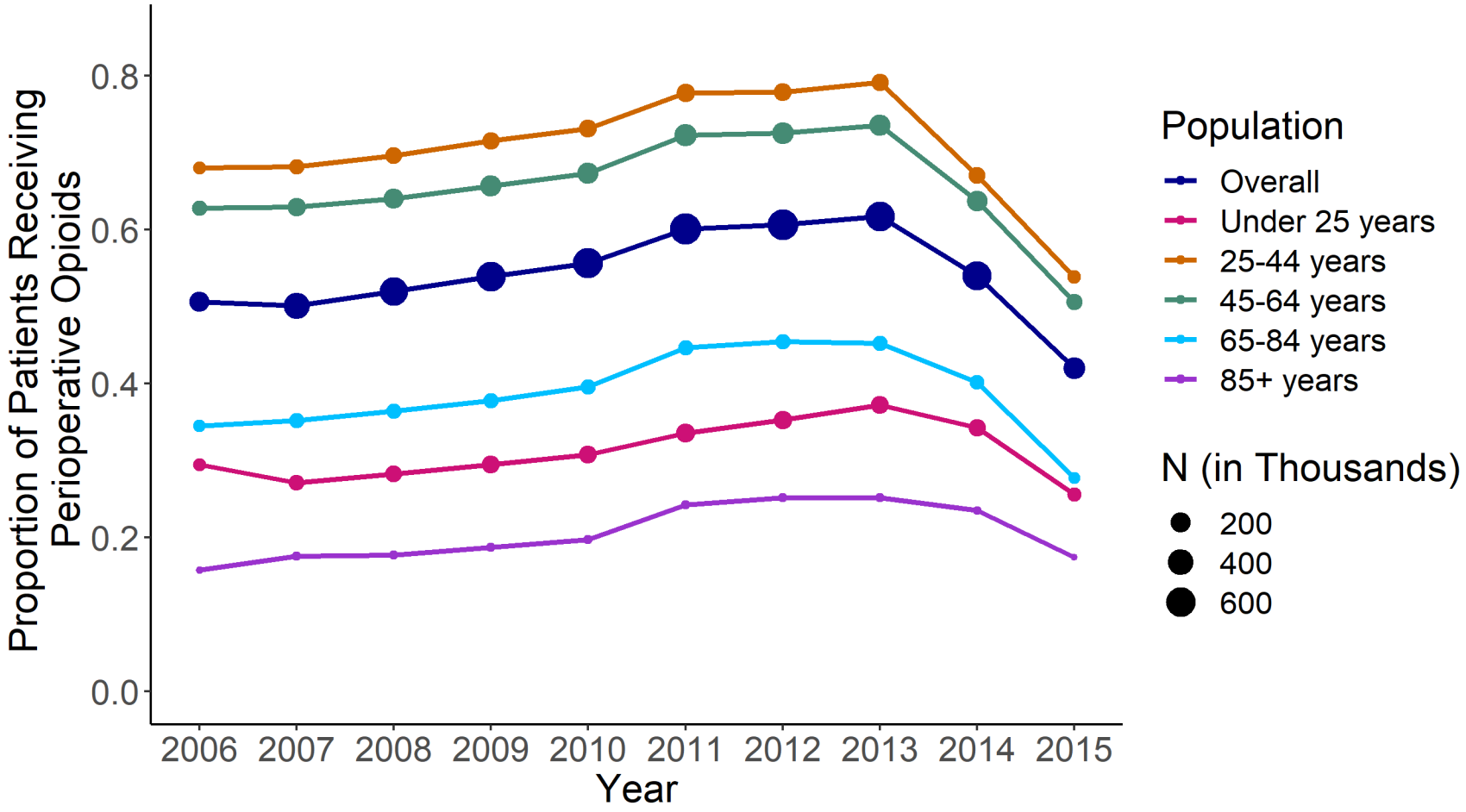
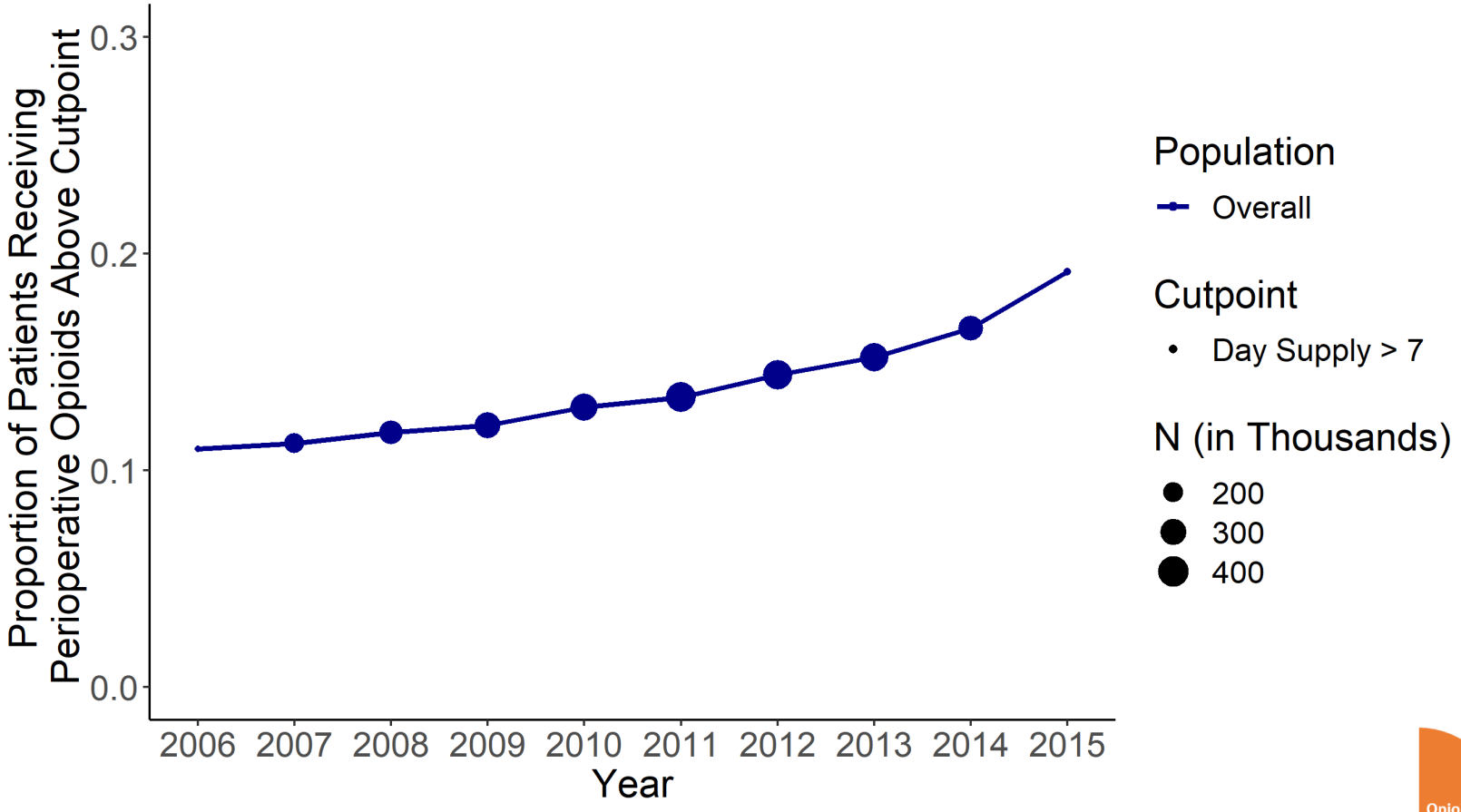
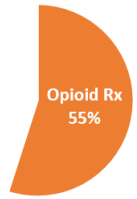


2) Examine trends in the proportion of patients receiving prescriptions above varying cutpoints

Opioid Rx Exceeding Cutpoints by Year





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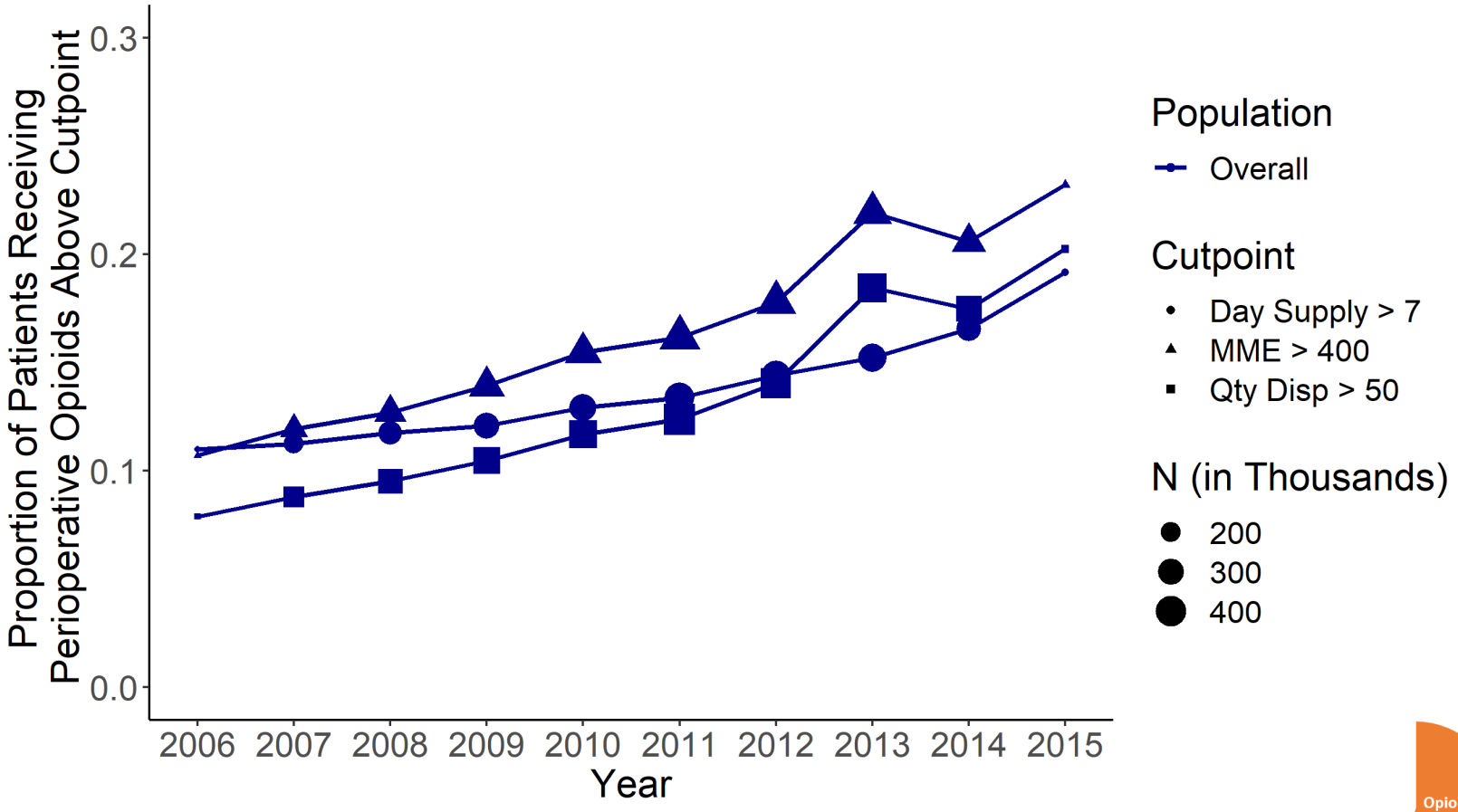

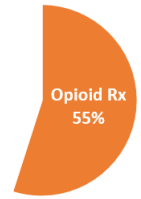

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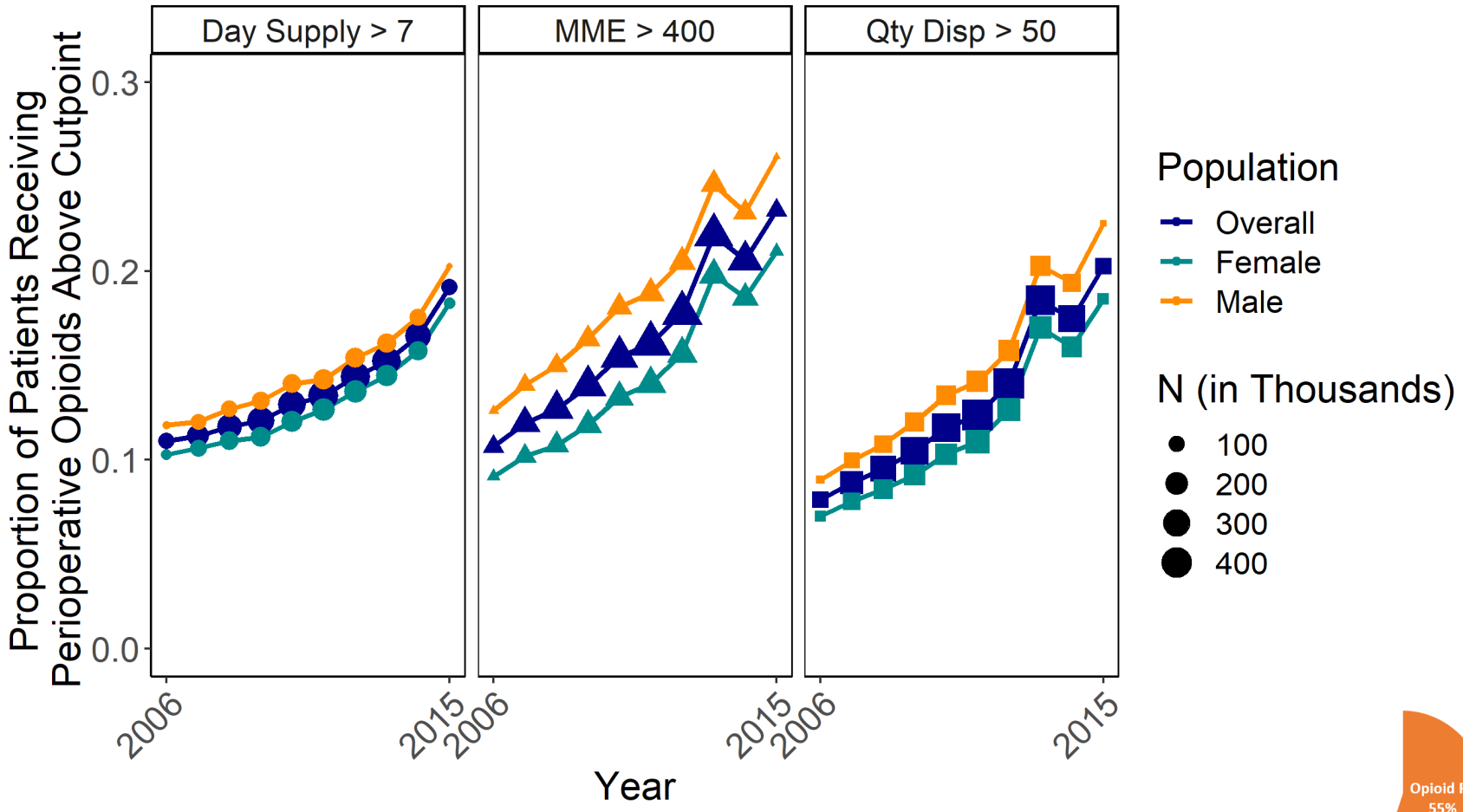

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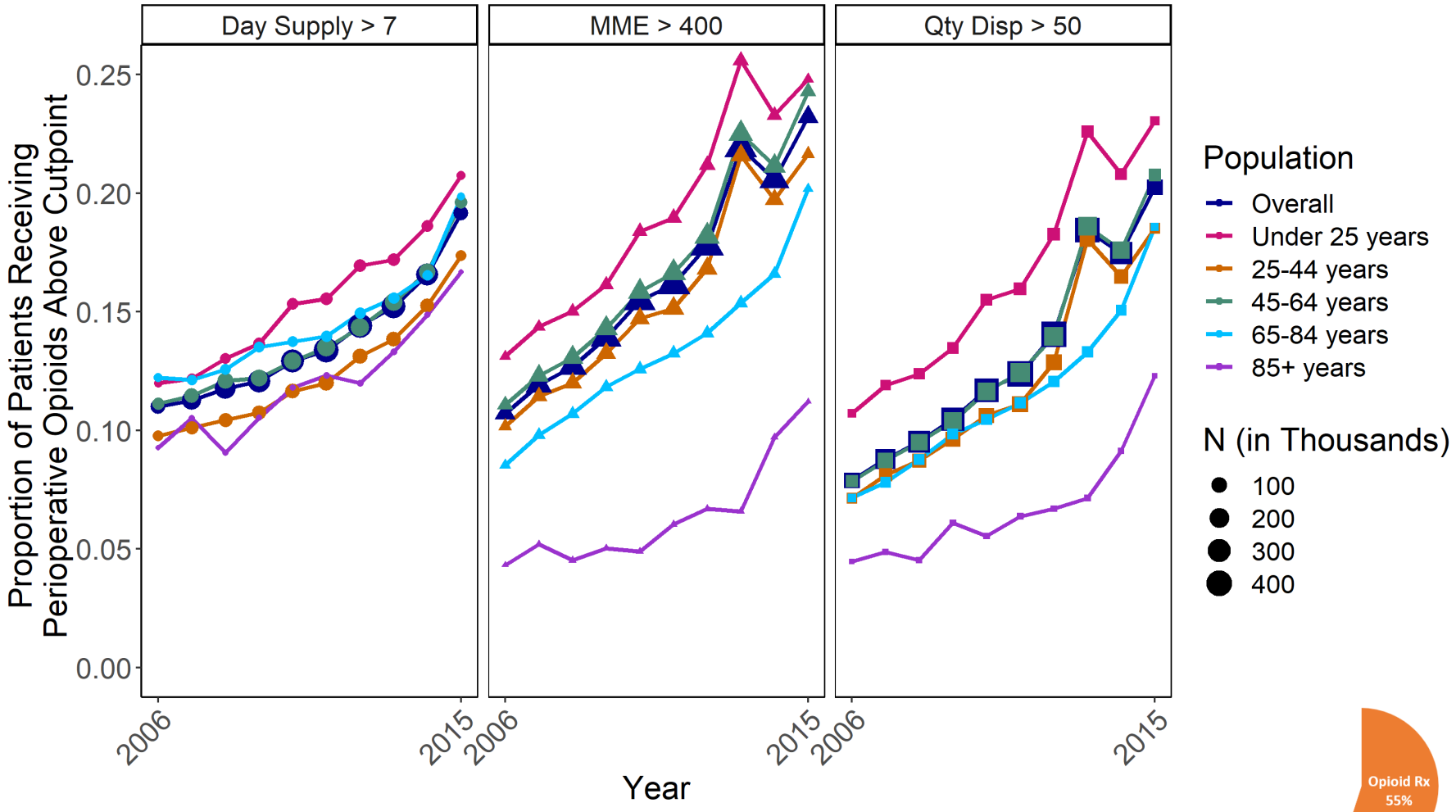
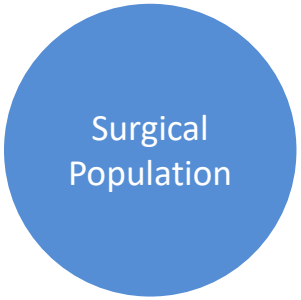
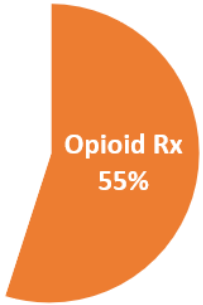
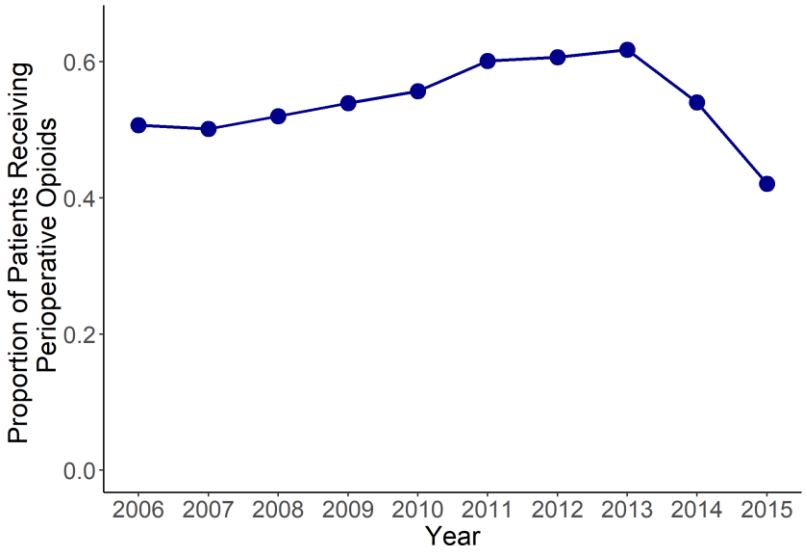
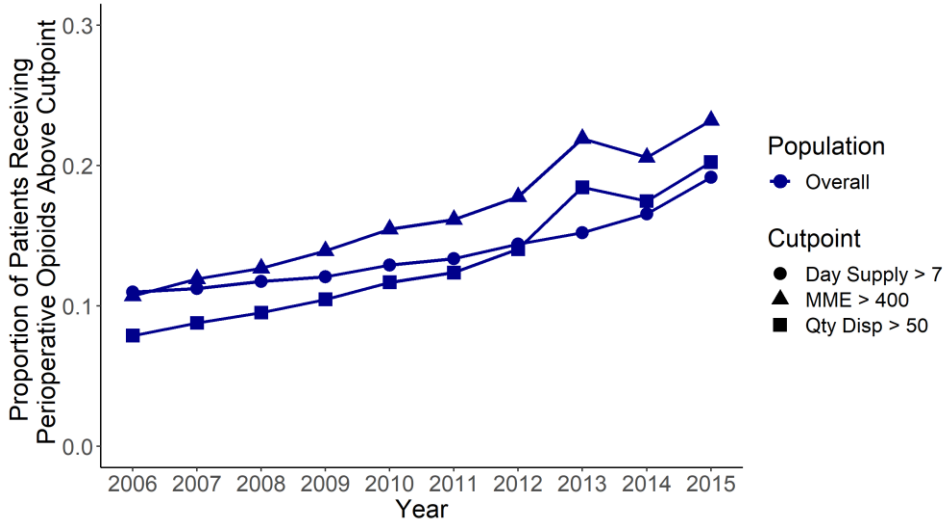


Summary of Trends



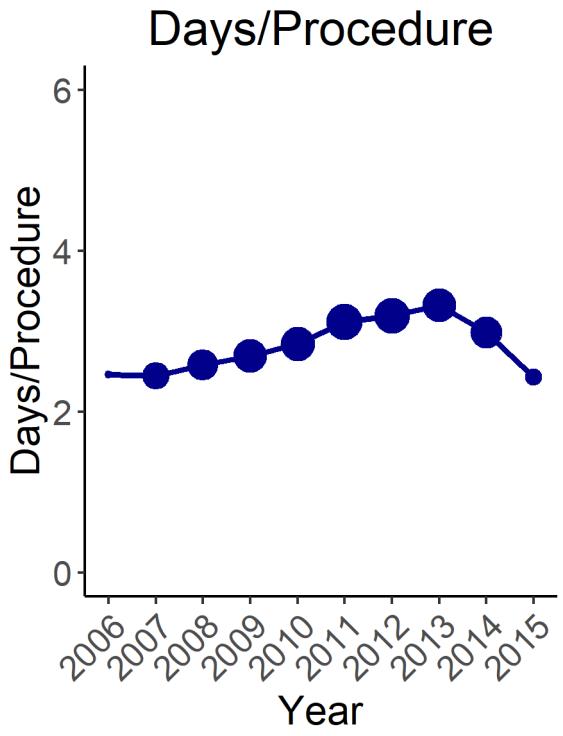






Overall Trends in Prescribing
The Net Effect?

Opioids Prescribed / Procedure



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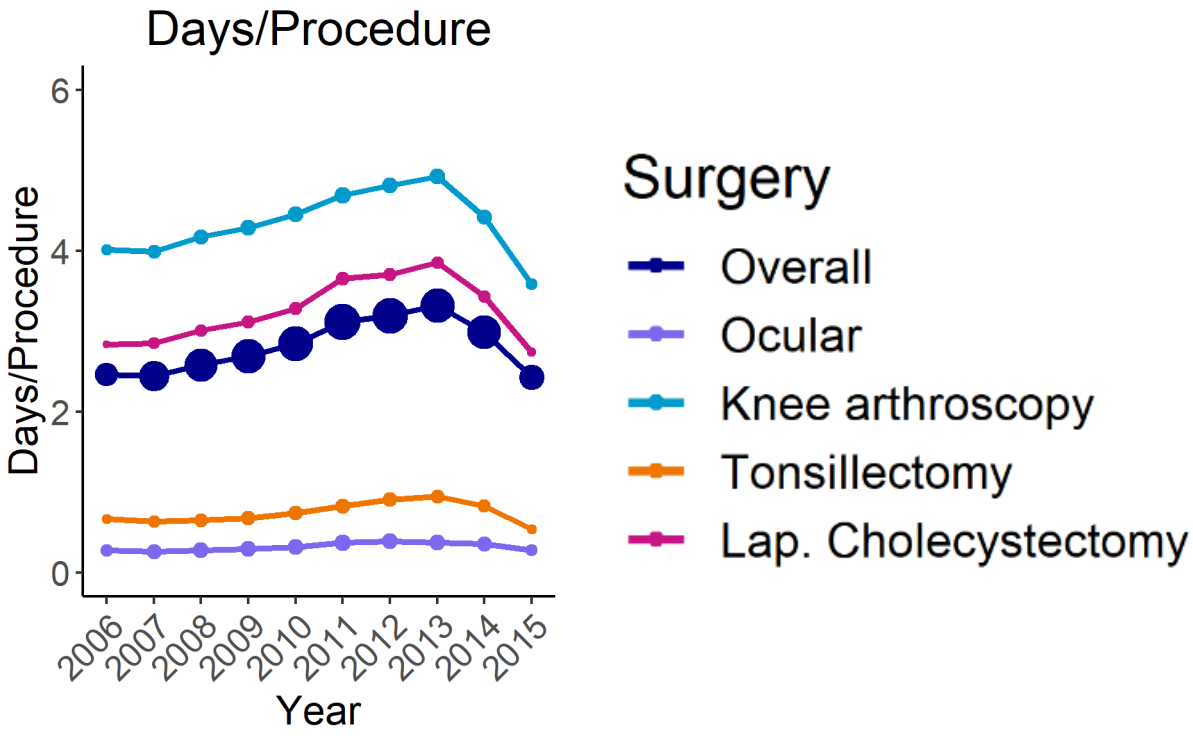

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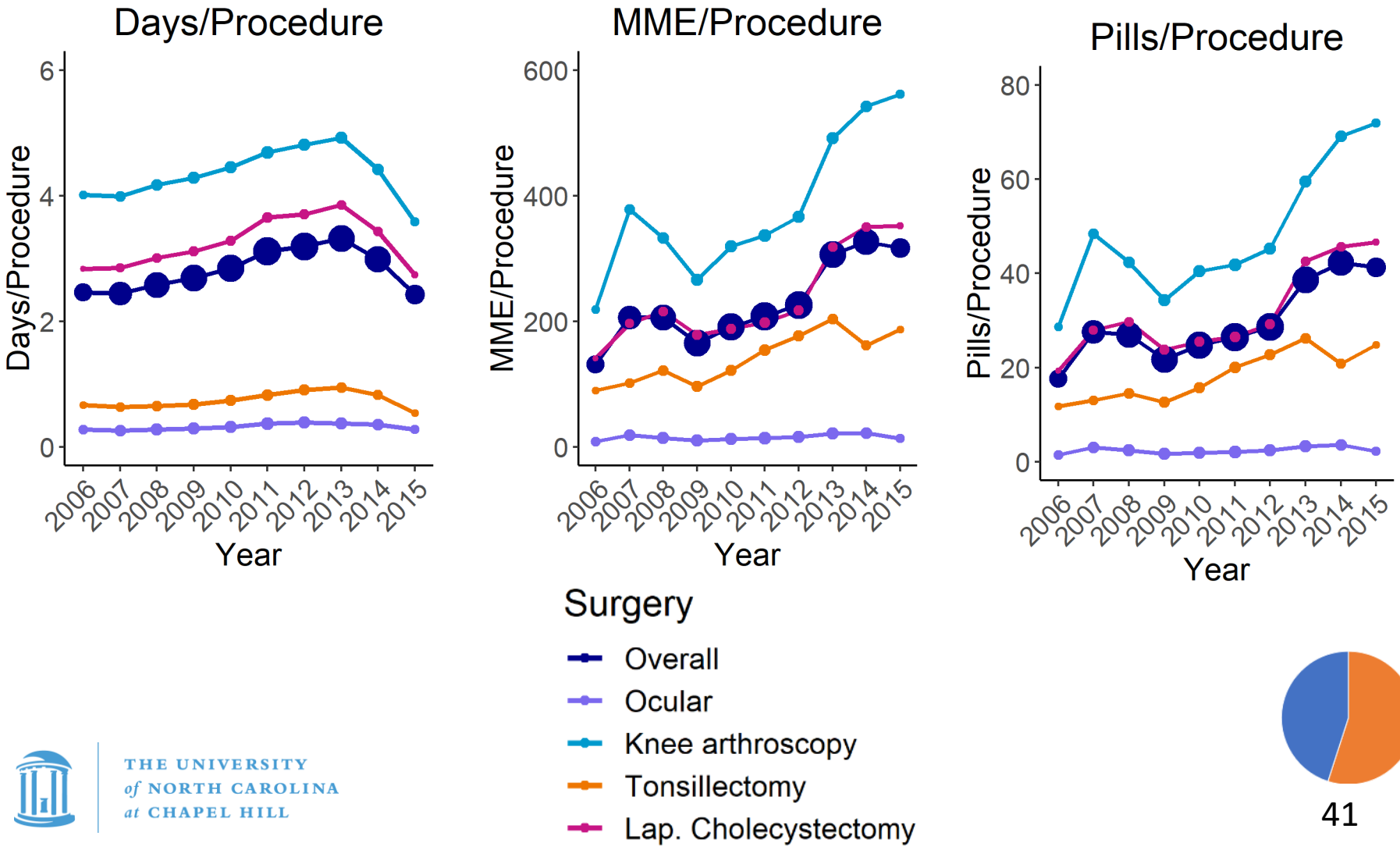
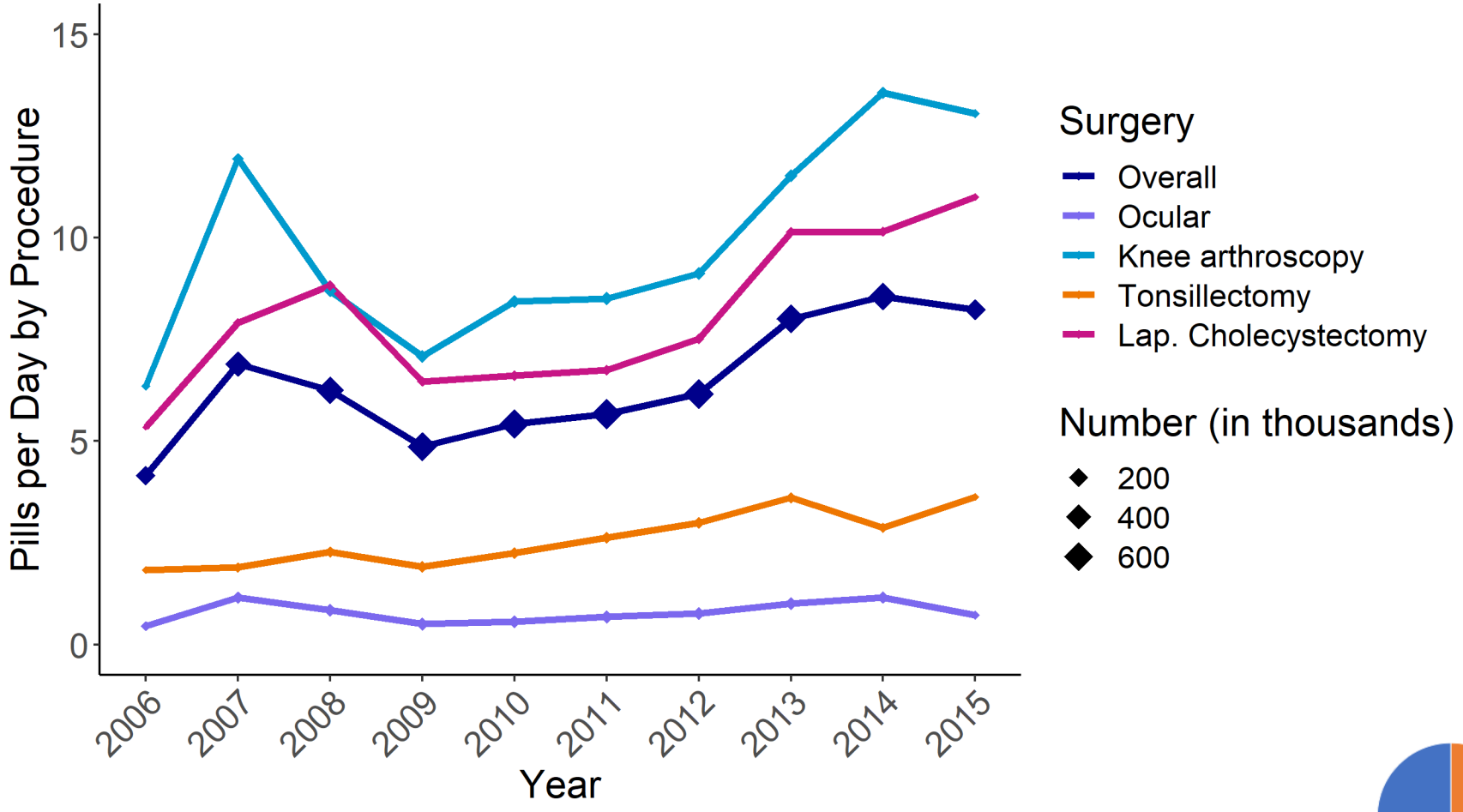


Pills per Day / Procedure



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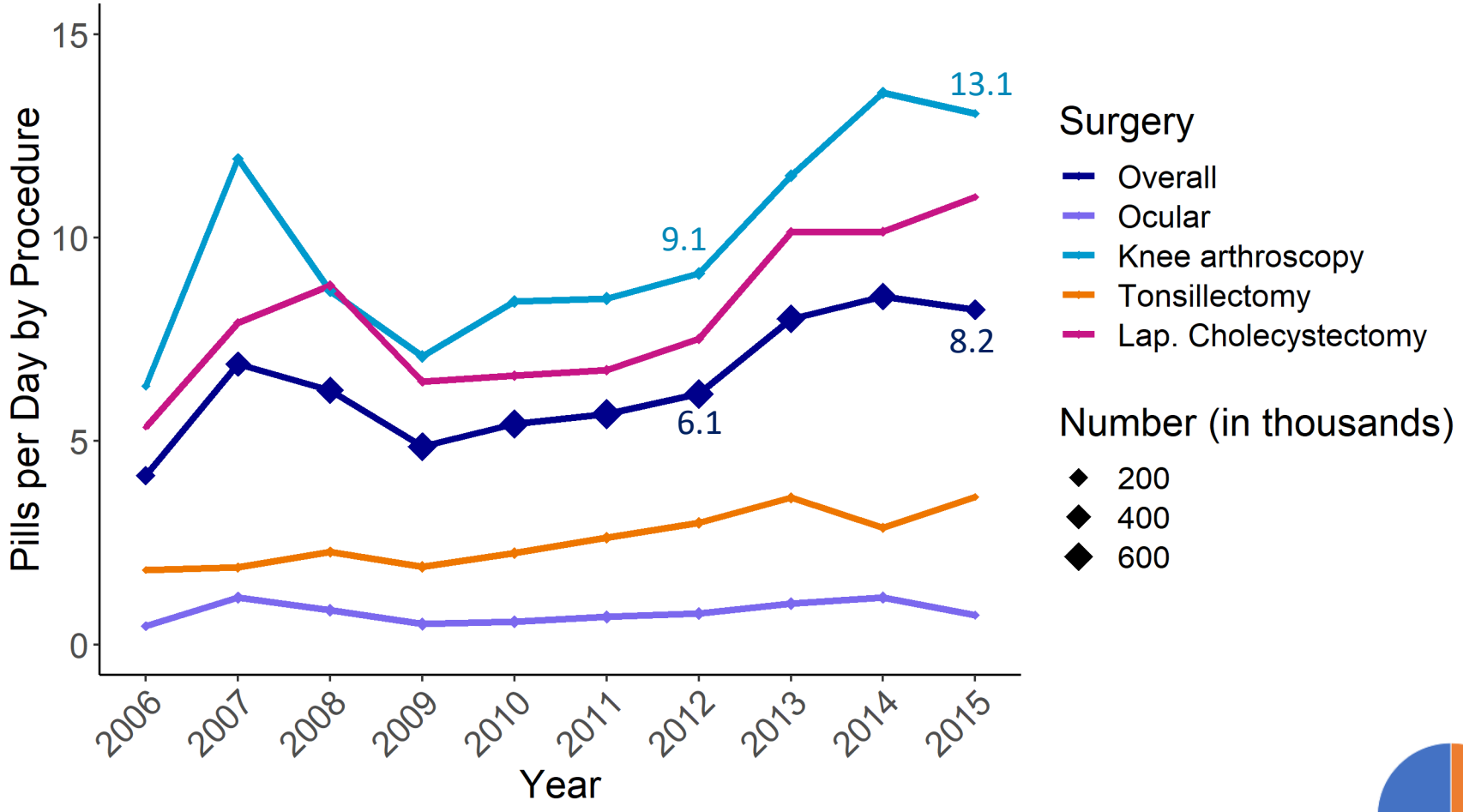

Conclusions

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- The proportion of surgical patients receiving a perioperative opioid began to decrease after 2013
- Among those receiving opioids, the probability of receiving a prescription above recommended thresholds continued to increase
- On average, the quantity of pills and dosage dispensed per surgery increased throughout the study period

Strengths and Limitations

Strengths

- Large claims data, 2006-2015
- Broad surgical population
- Detailed information on days supplied, quantity and dosage dispensed

Limitations

- Commercially insured patients
- Limited information on pain severity
- Limited ability to identify prescribing physician

Public Health Impact

- Characterizing opioid use is complicated
- Different dimensions of opioid prescribing can yield different perspectives on prescribing trends
  - Quantity and dosing are specified on a prescription
  - Days supplied can decrease without quantity and dosage dispensed decreasing
- Moving forward:
  - ERAS protocols
  - Multimodal analgesia
  - Realistic discussions and expectations
  - Multidisciplinary teams

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- Virginia Pate
- Michele Jonsson Funk

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- Sara Levintow

UNC Pharmacoepidemiology

Thank You

Jessica.Young@unc.edu

ANNALS OF SURGERY
A MONTHLY REVIEW OF SURGICAL SCIENCE SINCE 1885

ORIGINAL ARTICLE

Postsurgical Opioid Prescriptions and Risk of Long-term Use

An Observational Cohort Study Across the United States

Jessica C. Young, MSPH,✉ Nabarun Dasgupta, MPH, PhD,† Brooke A. Chidgey, MD,‡ and Michele Jonsson Funk, PhD**

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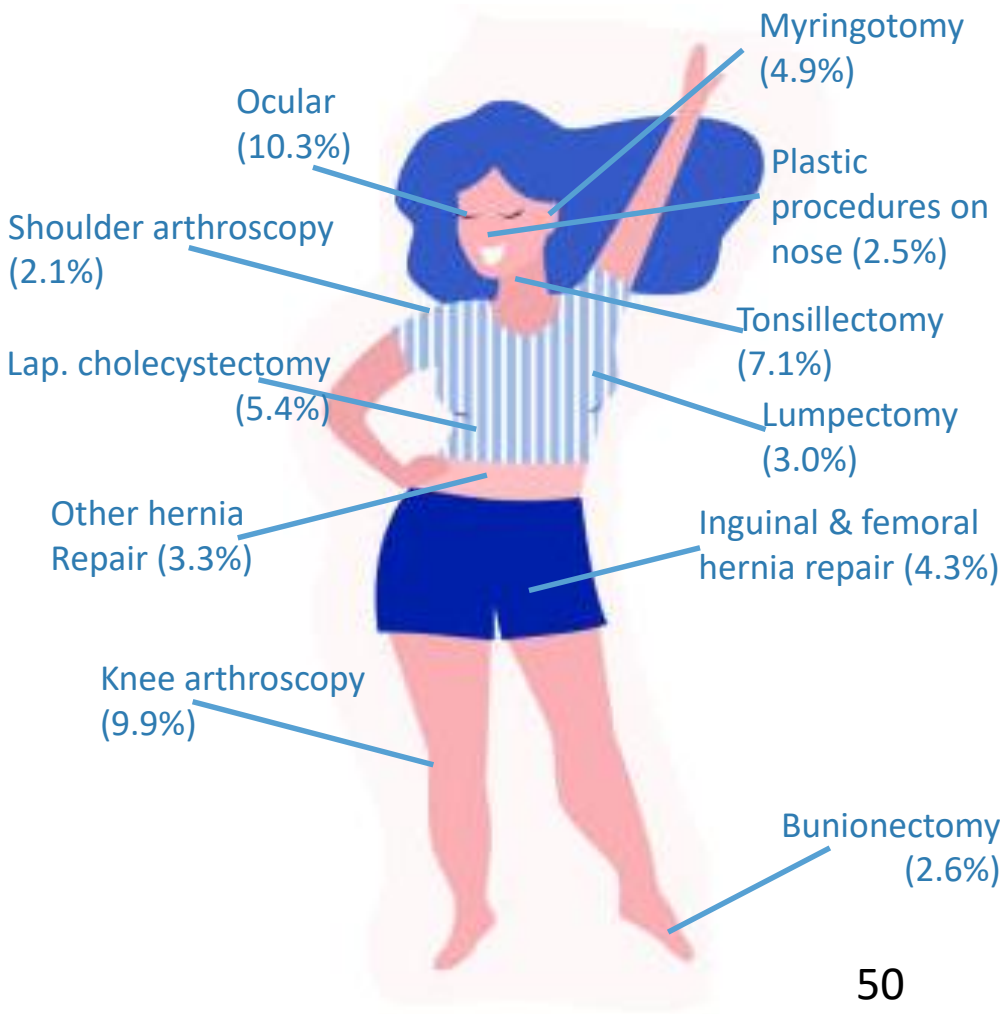
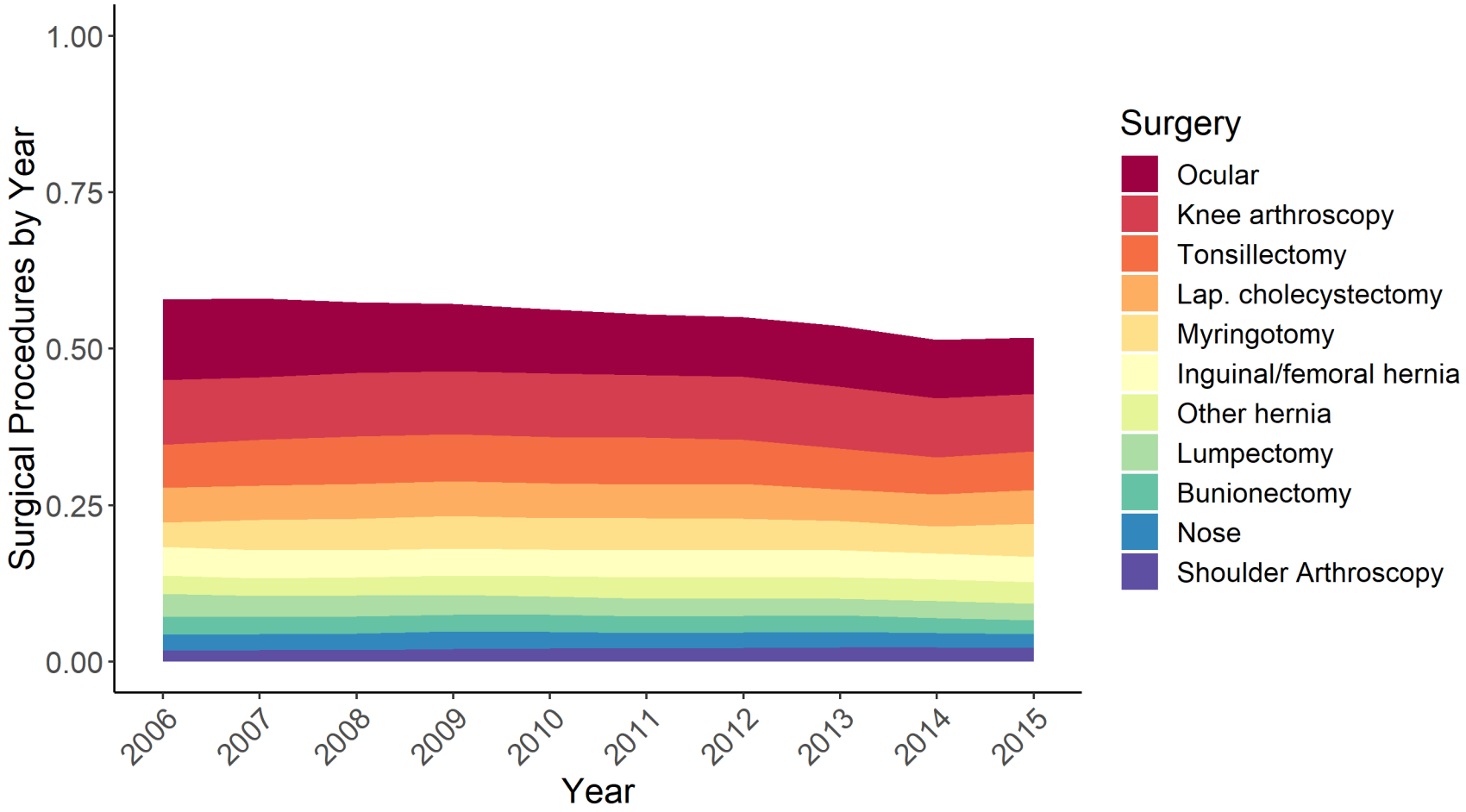
Procedures with N>100,000



Surgical Procedures by Year



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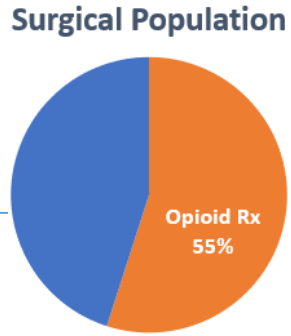

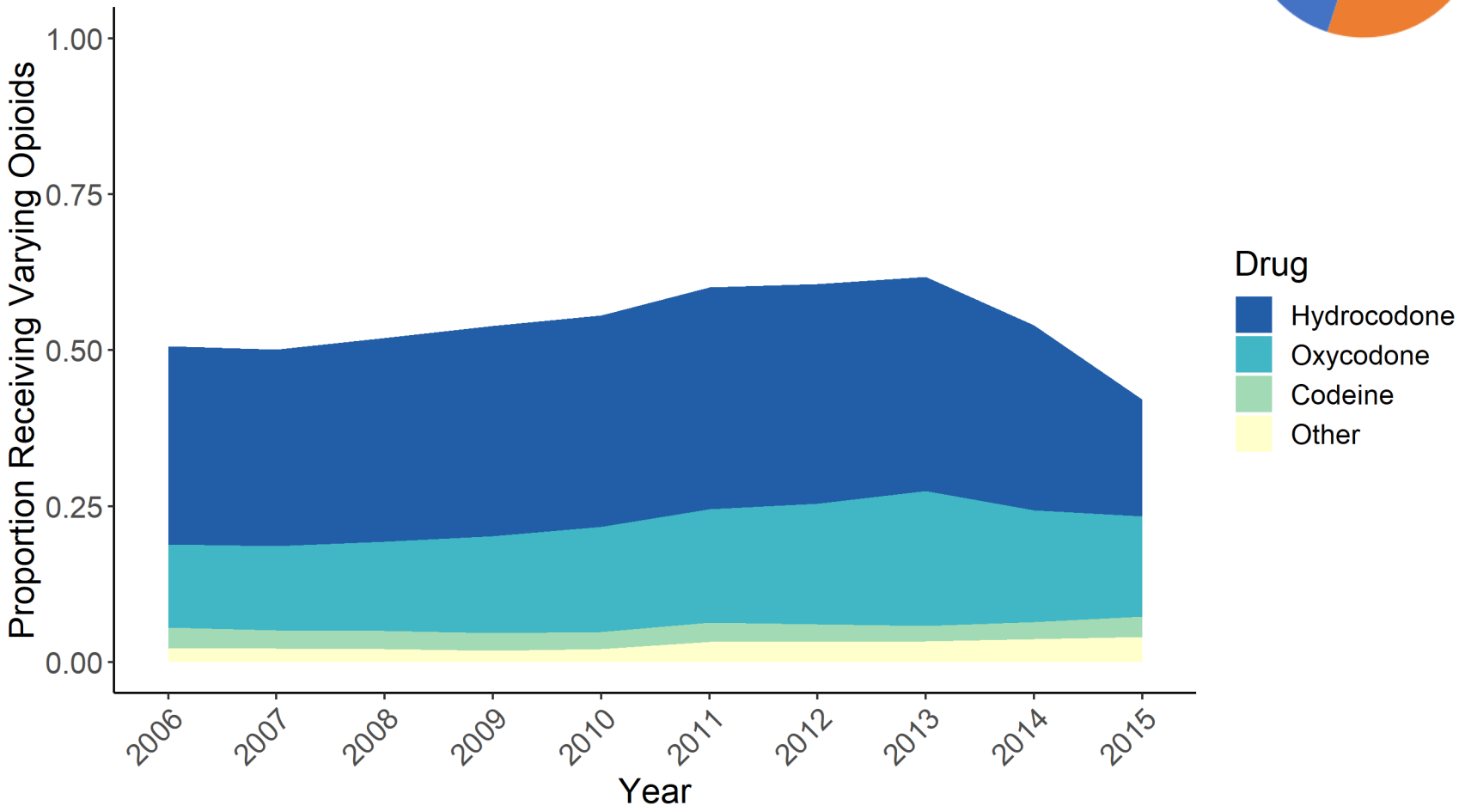

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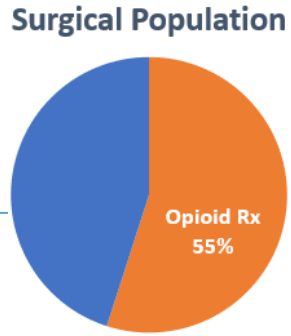

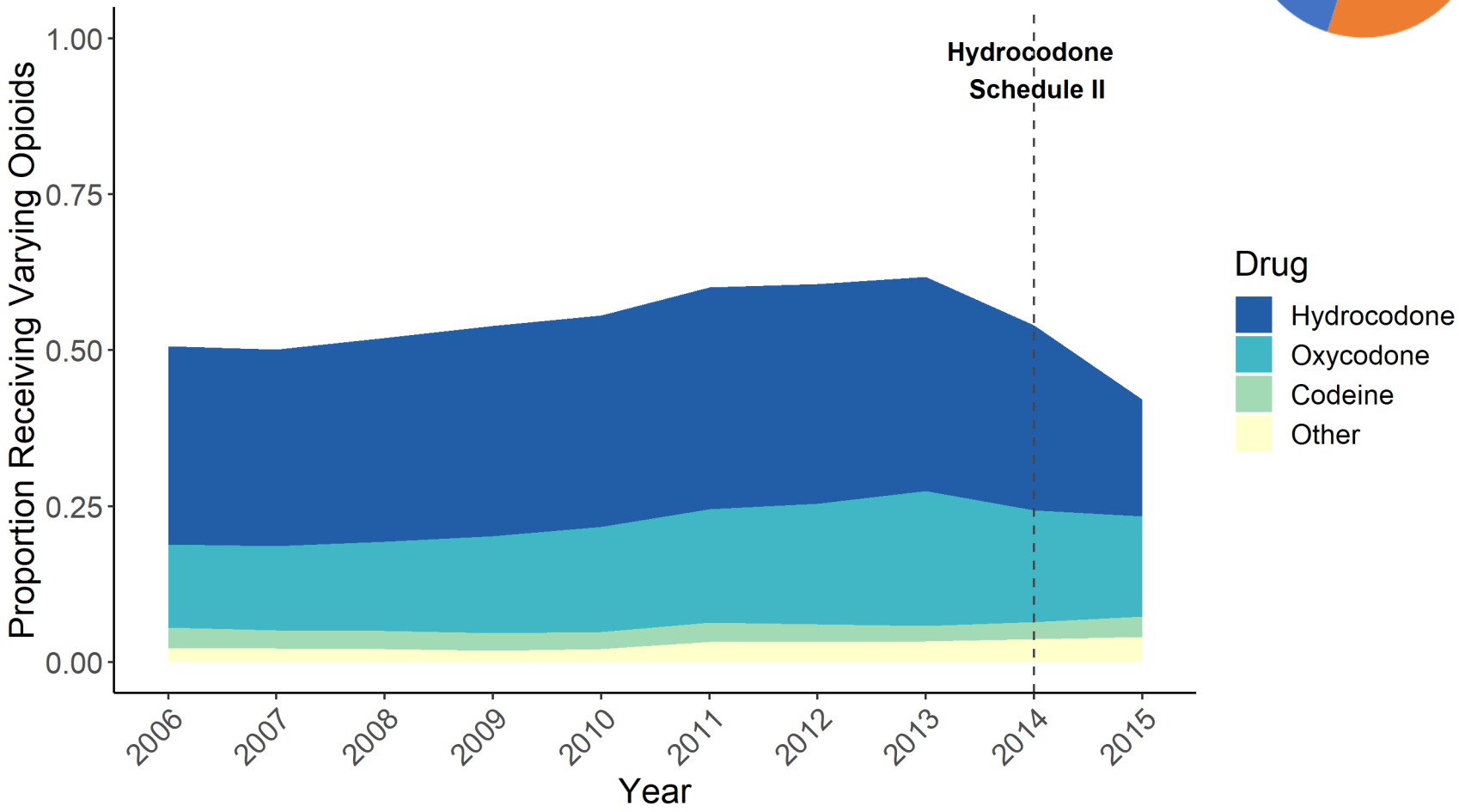

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Surgery Type		
Ocular	532,522	10.3%
Knee arthroscopy surgery	511,067	9.9%
Tonsillectomy/adenoidectomy	363,390	7.1%
Laparoscopic cholecystectomy	279,812	5.4%
Myringotomy	252,076	4.9%
Inguinal and femoral hernia repair	220,804	4.3%
Other hernia repair	167,504	3.3%
Lumpectomy	152,829	3.0%
Bunionectomy	136,017	2.6%
Plastic procedures on nose	129,735	2.5%
Shoulder Arthroscopy	107,695	2.1%

Perioperative Opioid Prescribing

	Proportion of all post-surgical opioid initiators	Days Supplied	Quantity Dispensed	Total MME
		Median (IQR)	Median (IQR)	Median (IQR)
Overall	N=2,857,115	5 (3,6)	30 (28,40)	240 (180, 360)
Gender				
Female	55.34%	5 (3,6)	30 (25,40)	225 (180, 300)
Male	44.65%	5 (3,6)	30 (30,40)	240 (180, 360)
Age Category				
Under 25	23.3%	5 (3,6)	30 (28,42)	240 (150,360)
25-44	22.0%	5 (3,5)	30 (25,40)	225 (180,337.5)
45-64	39.2%	5 (3,6)	30 (30,40)	240 (180,360)
65-84	14.0%	5 (3,6)	30 (24,40)	225 (150,300)
85+	1.6%	5 (3,5)	30 (20,30)	180 (120,240)

Variation in Postsurgical Prescribing

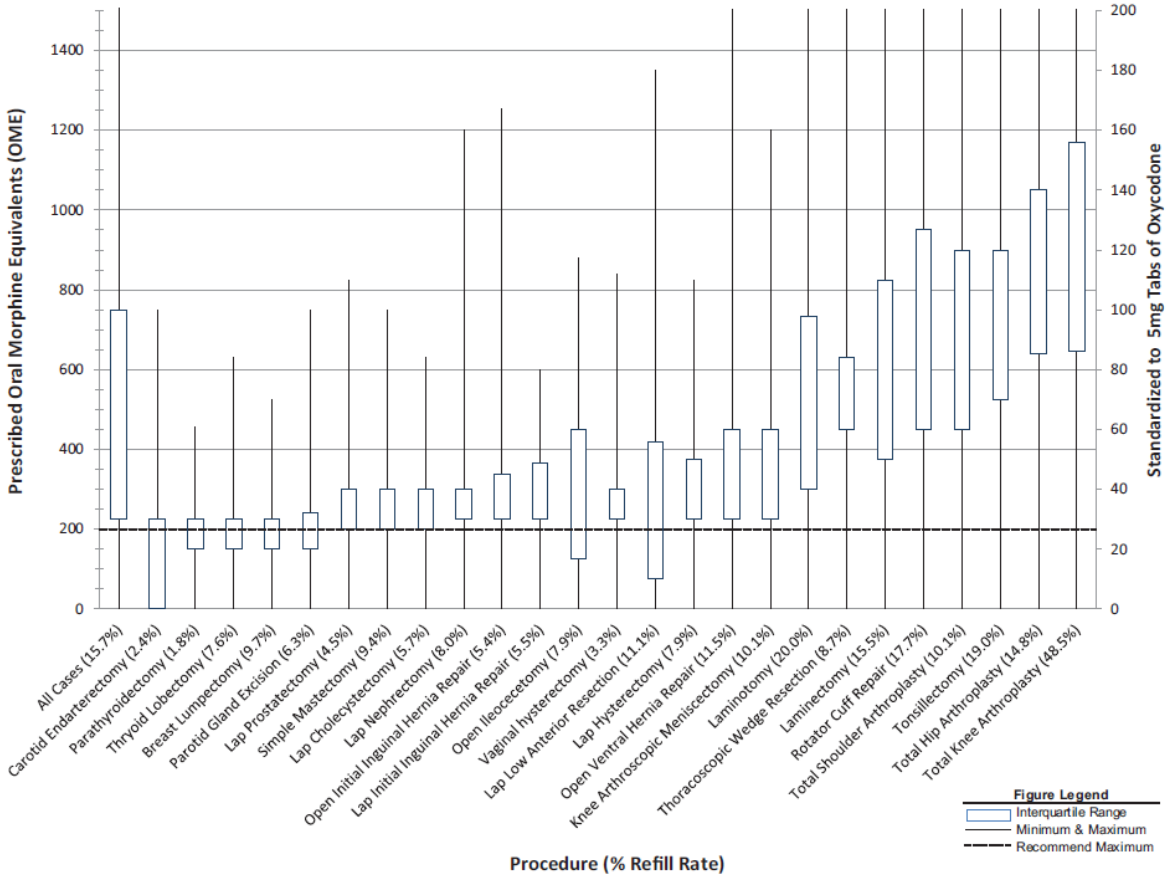

FIGURE 1. Discharge opioid prescribing practices in opioid-naïve patients across 25 common elective surgical procedures.

THE UNIVERSITY of NORTH CAROLINA at CHAPEL HILL

Ann Surg. 2017 Oct;266(4):564-573. doi: 10.1097/SLA.0000000000002365.

From: **Association of Opioid Prescribing With Opioid Consumption After Surgery in Michigan**

JAMA Surg. 2019;154(1):e184234. doi:10.1001/jamasurg.2018.4234

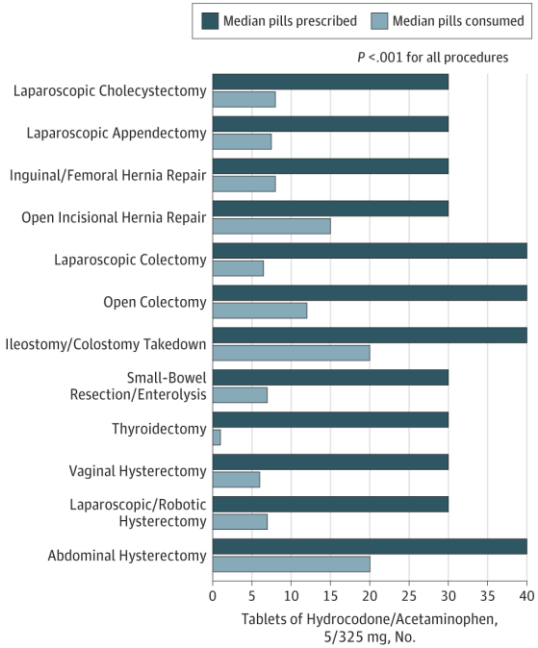

Figure Legend:

Opioid Prescription Size and ConsumptionMedian opioid prescription size and patient-reported consumption for all 12 procedures in tablets of hydrocodone/acetaminophen, 5/325 mg. Quantity of opioid prescribed was significantly greater than patient consumption for all procedures.