

# Postoperative Patient- Prescriber Networks and Prescribing Coordination

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## Background

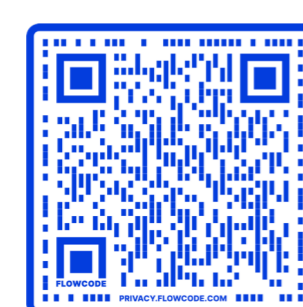
- In the US, over 91% of patients are prescribed an opioid after surgery<sup>1</sup>
- Many patients continue to use opioids after surgery for greater than 3 months<sup>2</sup>
- Postoperative prescribing guidelines can reduce initial prescriptions, but there is little known about how to coordinate initial and ongoing prescriptions
- To reduce risk of overdose, prescribing guidelines recommend avoiding cumulative opioid doses greater than 90 morphine milligram equivalents (MMEs) per day and combining opioids with benzodiazepines<sup>3</sup>

## Objective

To evaluate the impact of prescriber connections on postoperative opioid prescribing discoordination



Supplement



Contact



# Do patients of connected prescribers have coordinated opioid prescriptions?

## Results

Patient-prescriber networks are sparsely and weakly connected

Measure	Mean (SD)
Prescribers per patient	8.59 (5.24)
Opioid prescribers per patient	1.95 (1.50)
Density	0.05 (0.11)
Prescriber tie weight	0.10 (0.27)
Opioid prescriber tie weight	0.11 (0.42)

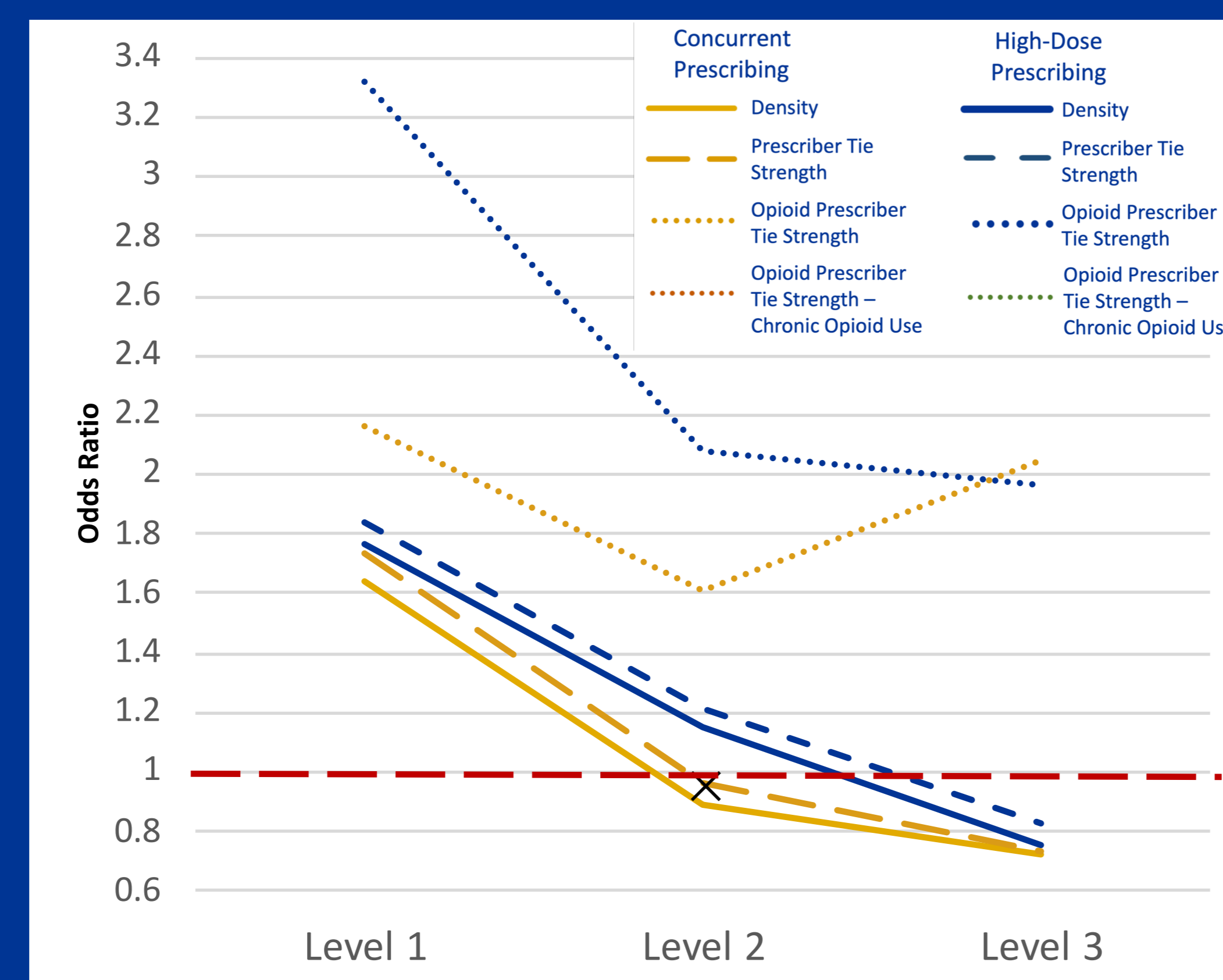


Figure 1. Results of multivariate mixed-effects logistic regression model of prescribing discoordination by network measure tercile; reference group = Level 0; X = not significant

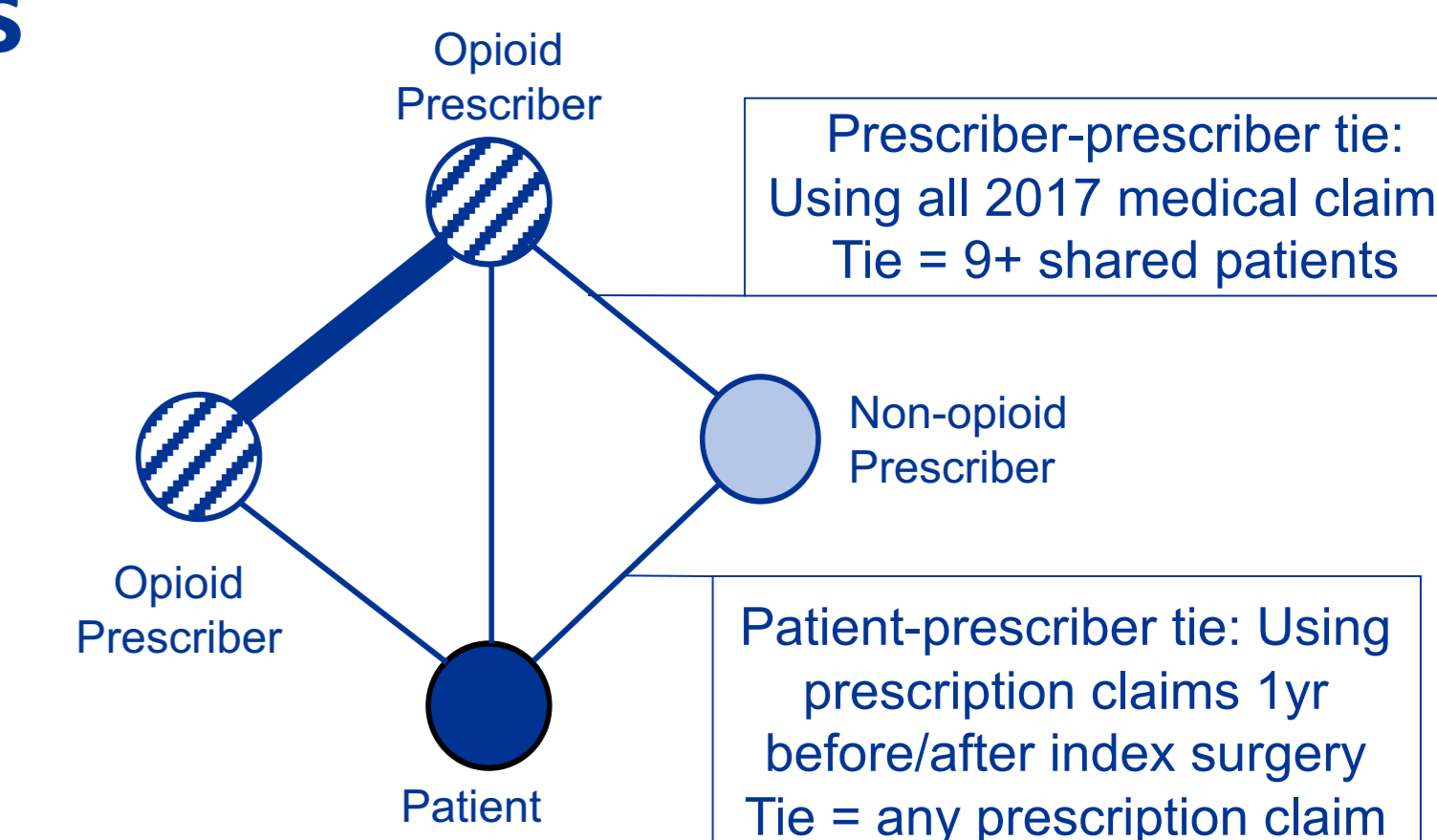
High density and prescriber tie strength is associated with a 17-28% decrease in prescribing discoordination

## Conclusions

- While being in a weakly/sparsely connected network increased risk for prescribing discoordination, being in a strong/dense network was associated with decreased risk for prescribing discoordination
- Ties between opioid prescribers are particularly helpful for patients with chronic opioid use in reducing concurrent prescribing
- Policies that support prescriber connections may reduce high-risk opioid prescribing and prevent overdoses

## Study Design

- Data from 2017-2018 administrative claims from Optum's de-identified Clinformatics® Data Mart Database
- Using egocentric social network analysis



## Sample

53,273 adult patients who underwent common surgical procedures in 2018 (list of procedures and full sample description available in supplement)

- Female: 67.9%, white: 70.2%, age: 54.4 years
- Chronic Opioid Use: 7.8%

257,058 prescribers

## Study Variables

Network Measures (4 levels: 0, terciles 1-3)

Density

- Proportion of existing prescriber ties to possible prescriber ties, scale 0-1.

Prescriber and opioid prescriber tie weight

- Mean weight of all prescriber to prescriber ties in a network, scale 0-3

Prescribing Discoordination (binary)

High-dose prescribing

- >90 MMEs cumulative opioids/day

Concurrent prescribing

- >30 days of concurrent opioid and benzodiazepine prescriptions