Electronic Medical Records Vs. Insurance Claims: Comparing the Magnitude of Opioid Use Prior, During, and Following Surgery

Jessica C. Young, PhD

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Disclosures

- The project was funded from the following sources:
  - NIH/NIDA R36 DA04588501(PI: Young)
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  - This research was partially supported by a National Research Service Award Post-Doctoral Traineeship from the Agency for Healthcare Research and Quality sponsored by The Cecil G. Sheps Center for Health Services Research, The University of North Carolina at Chapel Hill, Grant No. T32-HS000032.
  - The database infrastructure used for this project was funded by the Department of Epidemiology, UNC Gillings School of Global Public Health; the Cecil G. Sheps Center for Health Services Research, UNC; the CER Strategic Initiative of UNC's Clinical & Translational Science Award (UL1TR002489); and the UNC School of Medicine.
- Co-authors:
  - ND's effort was supported by the US Food and Drug Administration (HHSF223201810183C).
  - MJF receives consulting fees via UNC from GlaxoSmithKline.

Background

Data: The Backbone of our Research

Prominence of Insurance Claims and Electronic Medical Records (EMR) in Pharmacoepidemiology research

How does our choice of data source impact our research?

Objective

Motivating Research Aim:

Risk of prolonged opioid use following surgery

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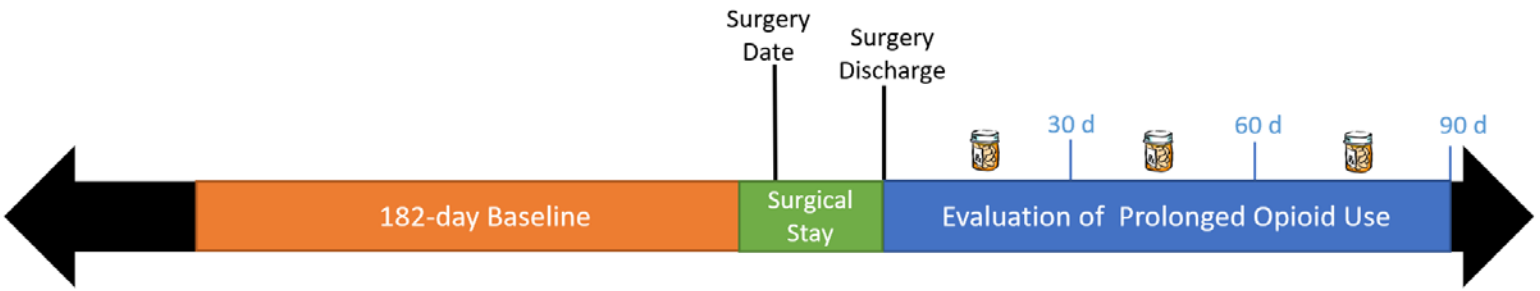
Today's Focus:

Using EMR and insurance claims, compare proportion of patients with opioid use in the context of 3 key study design elements



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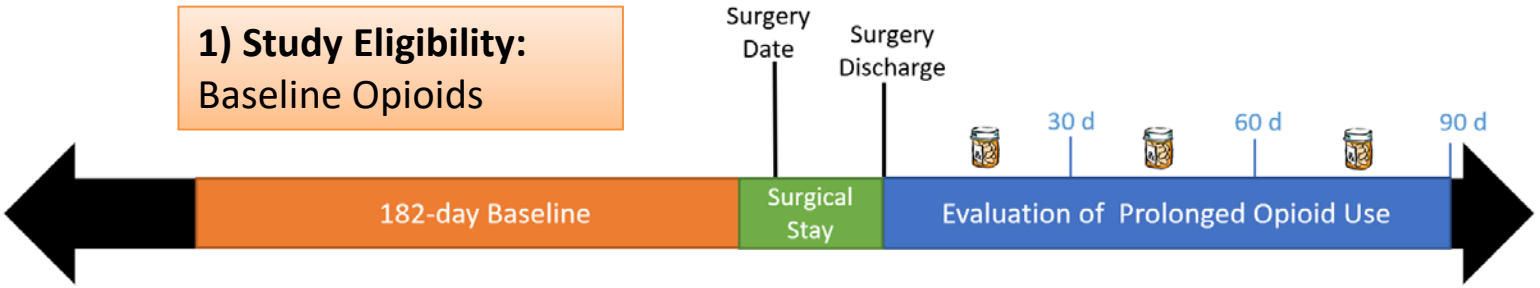

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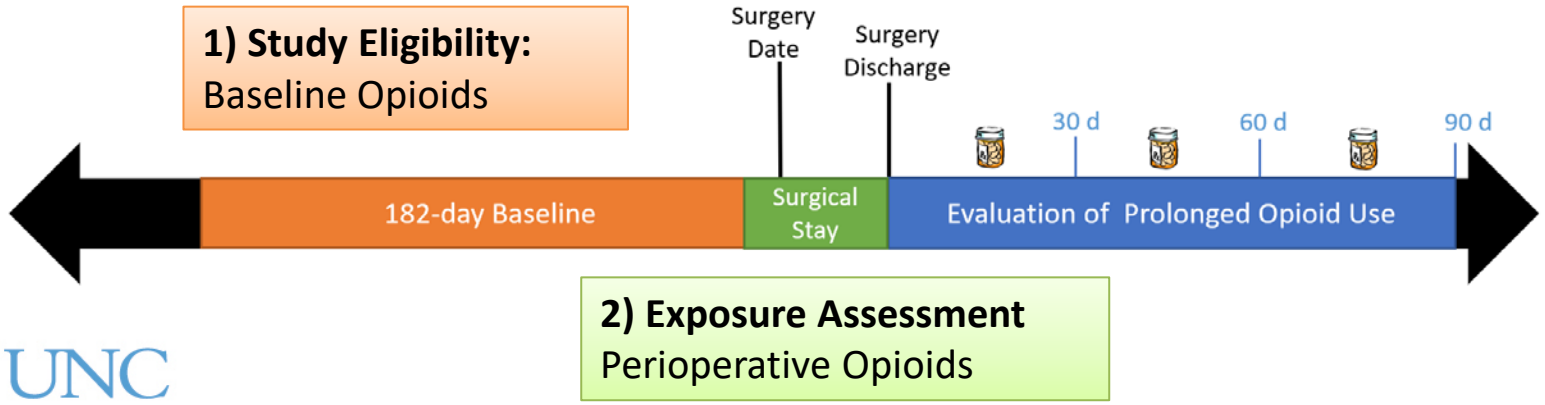

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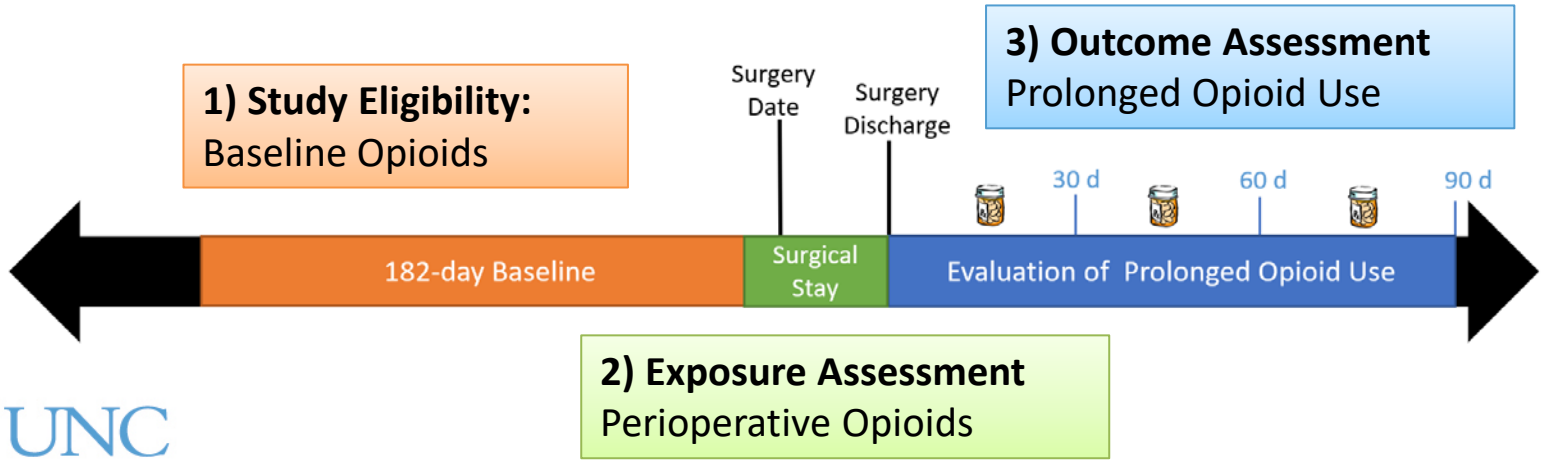

Data Sources

Population: N=5,975

Medicare patients undergoing surgery at UNC, 2015-2016

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- Prospectively collected at the time of healthcare delivery
- Basic demographics (age, sex, race)
- Diagnosis and procedure codes
- Dates of service, admission, and discharge

Data Sources

Population: N=5,975

Medicare patients undergoing surgery at UNC, 2015-2016

EMR

UNC Health System

Outpatient Medication Orders

Inpatient Medication Orders + Administrations

Claims

All reimbursed care across systems; Enrollment indicators

Outpatient Prescription Fills

Bundled Inpatient Payments

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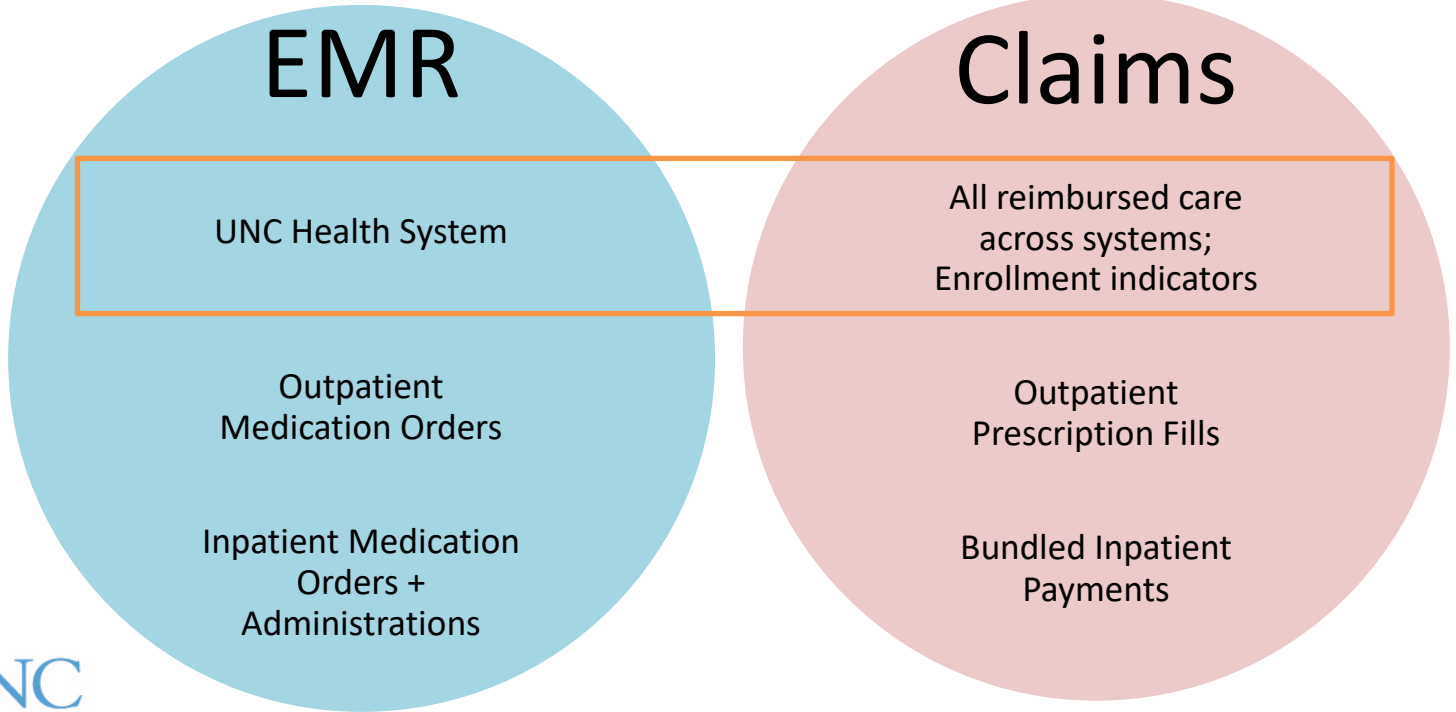

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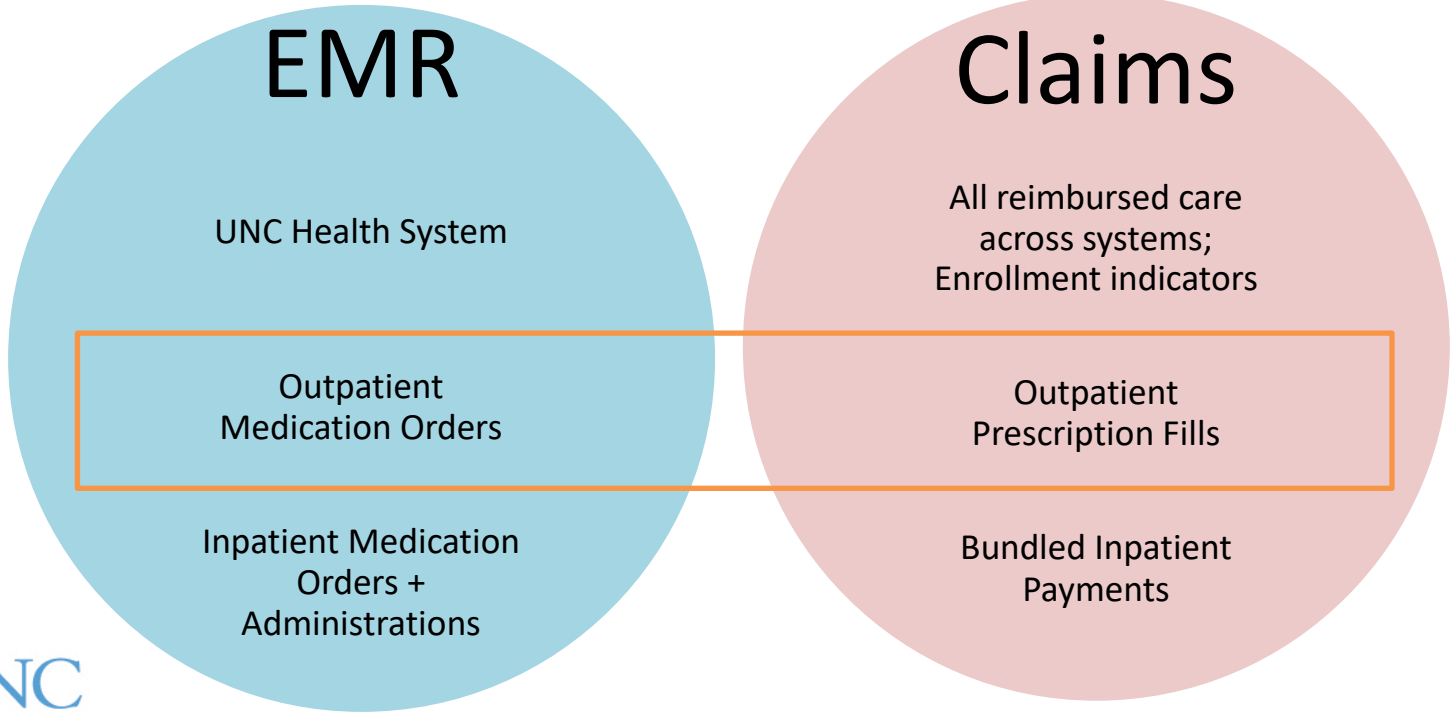

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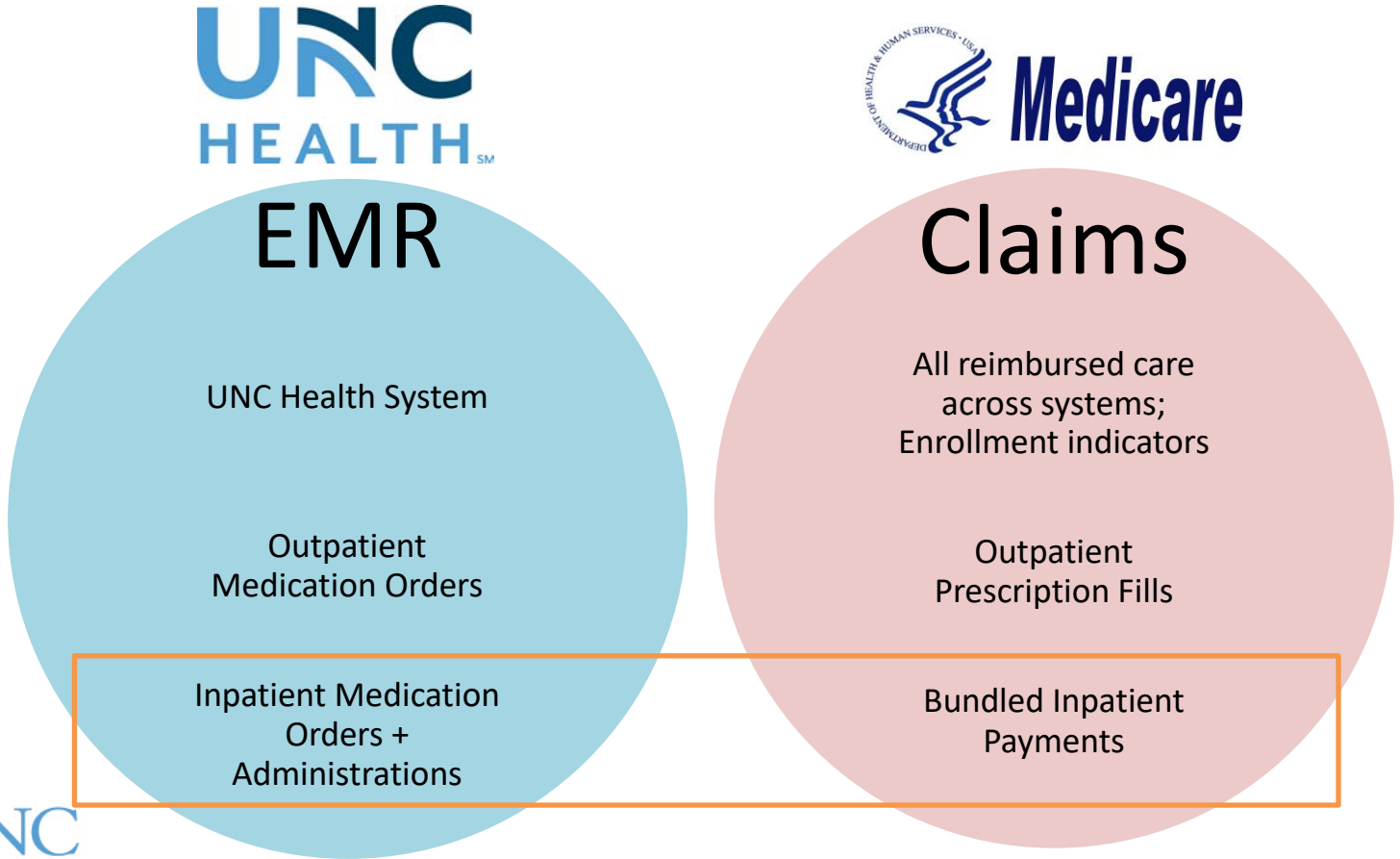
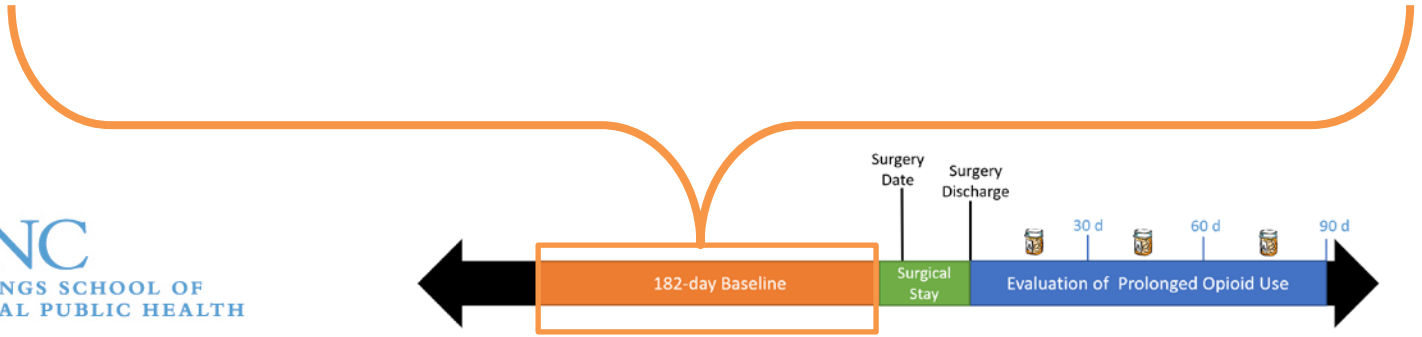


Results

Baseline Opioid Use



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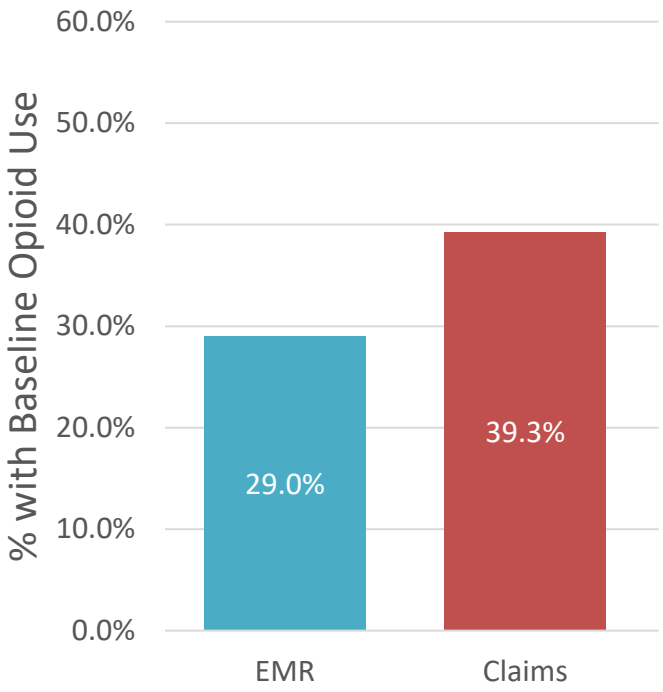

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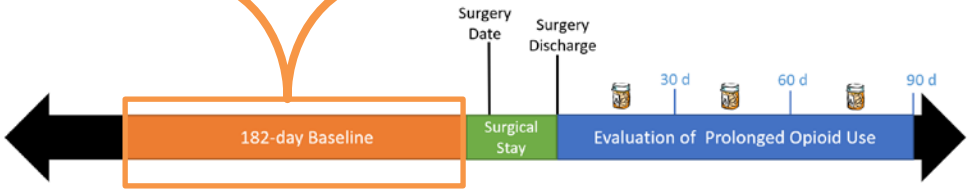
N=5,975 Medicare patients undergoing surgery @ UNC Health, 2015-16



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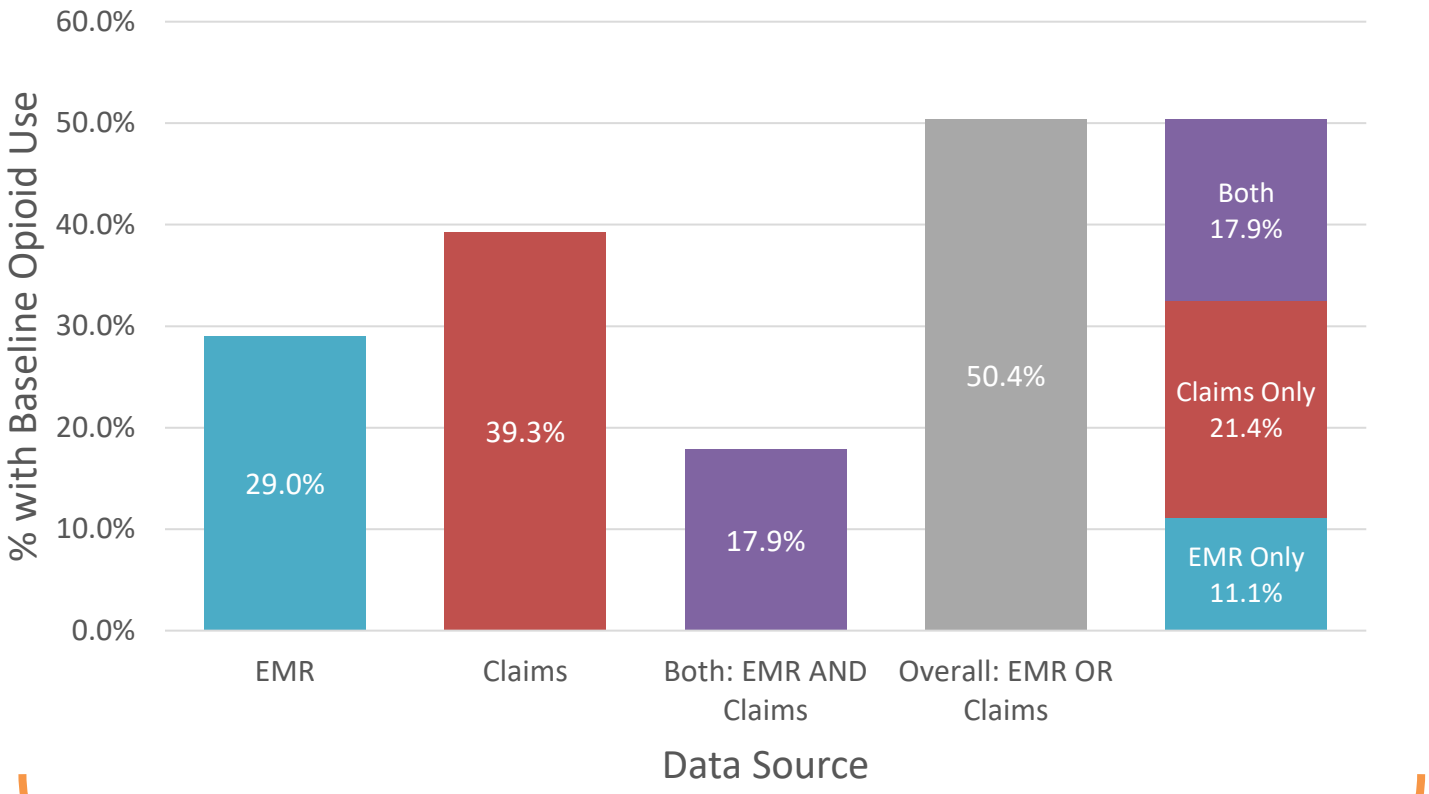

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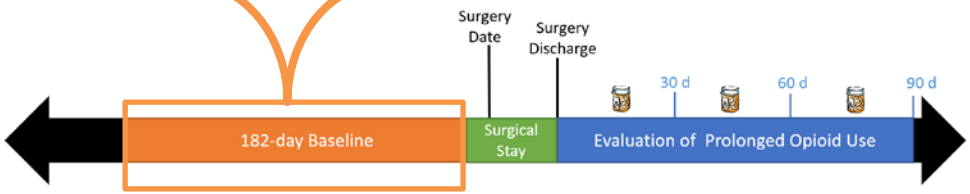

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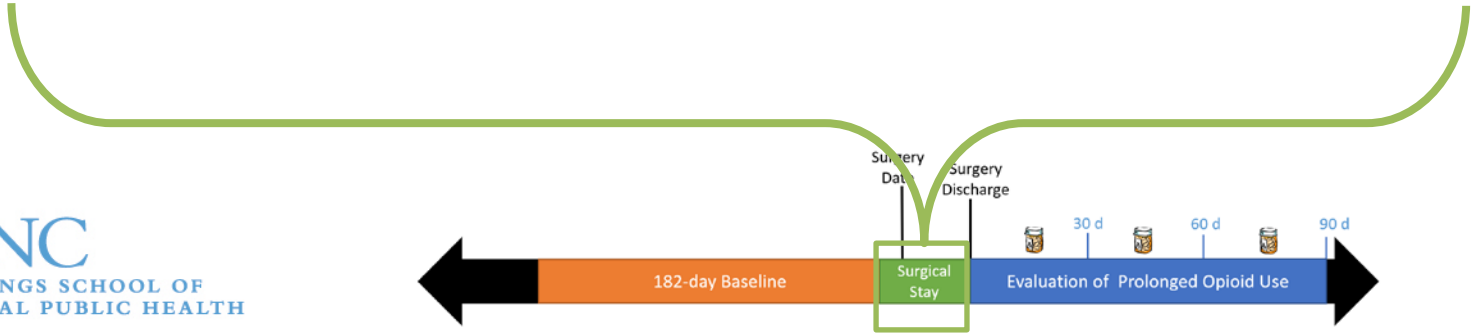
Perioperative Opioid Use



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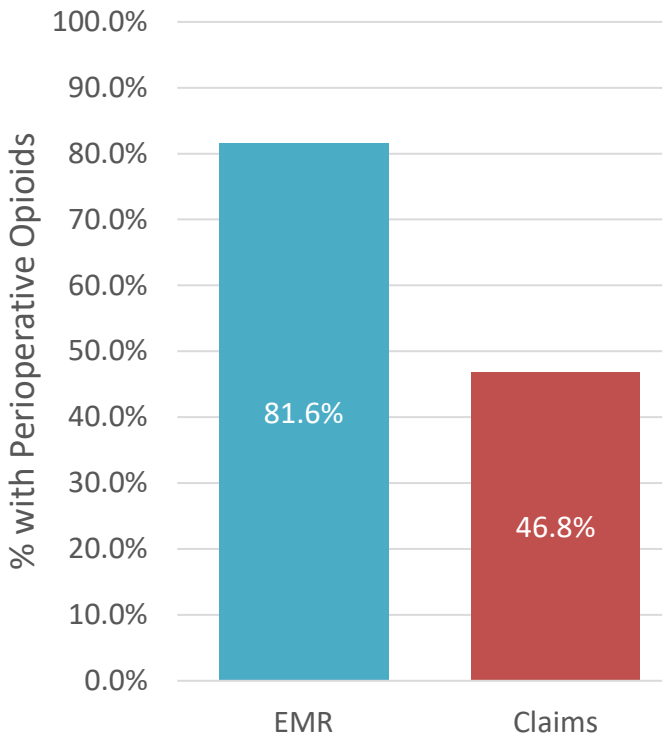

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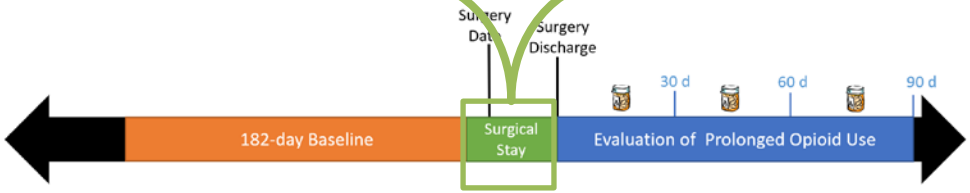

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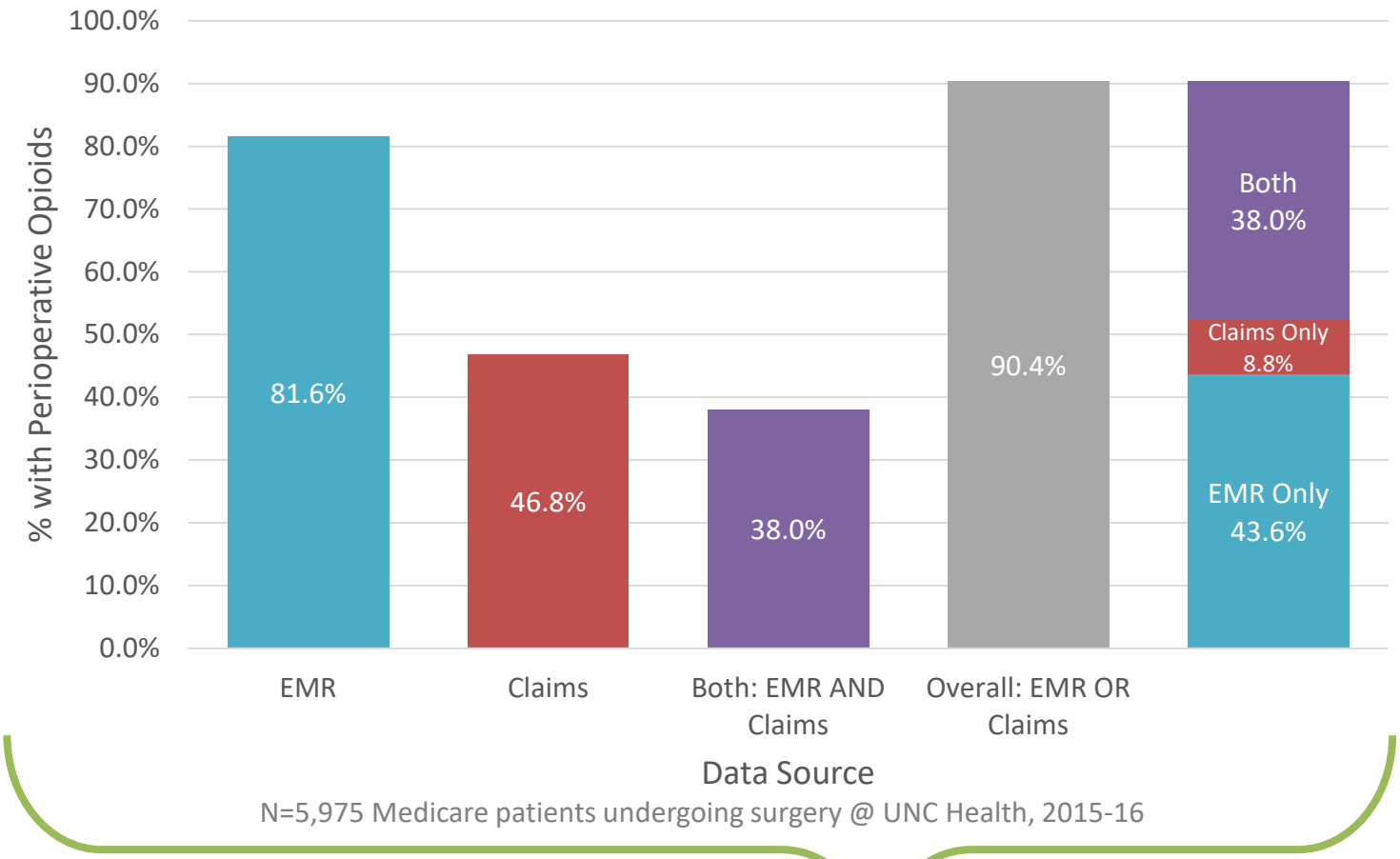

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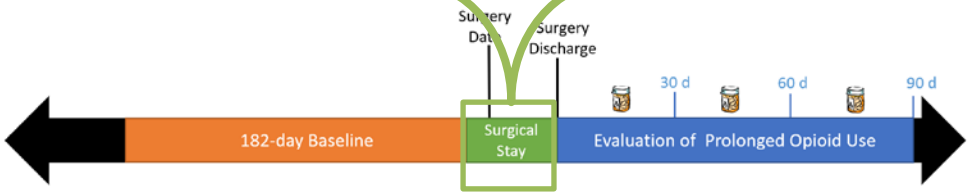

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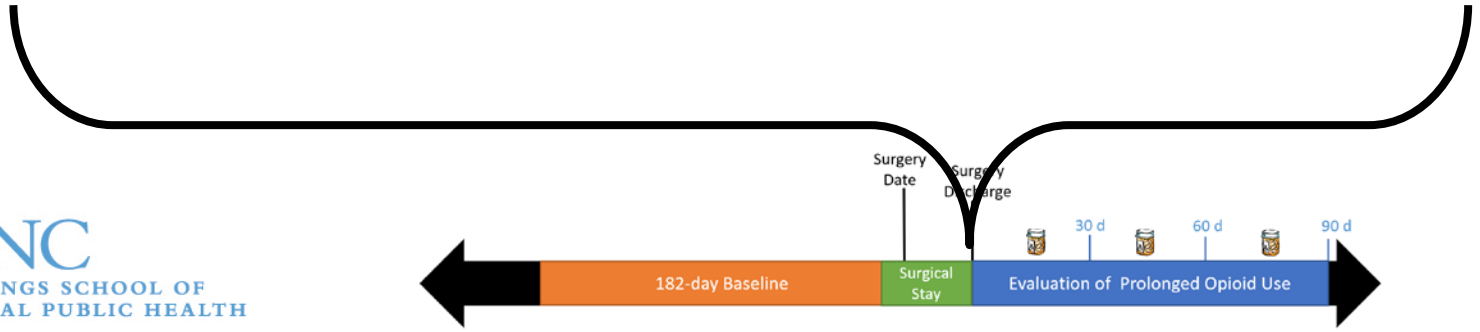
Discharge Opioids



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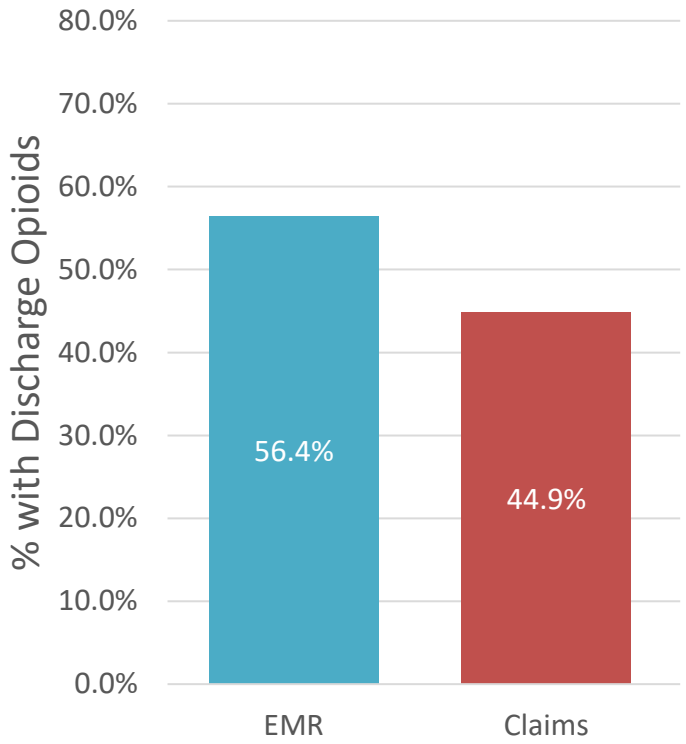
Discharge Opioid Prescriptions



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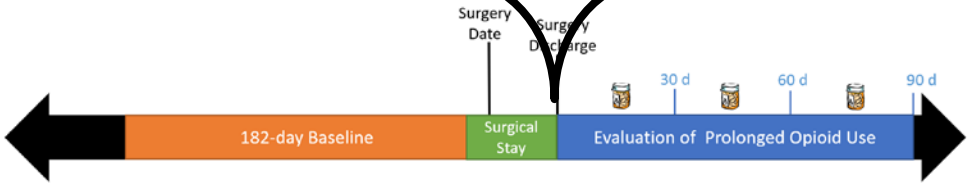

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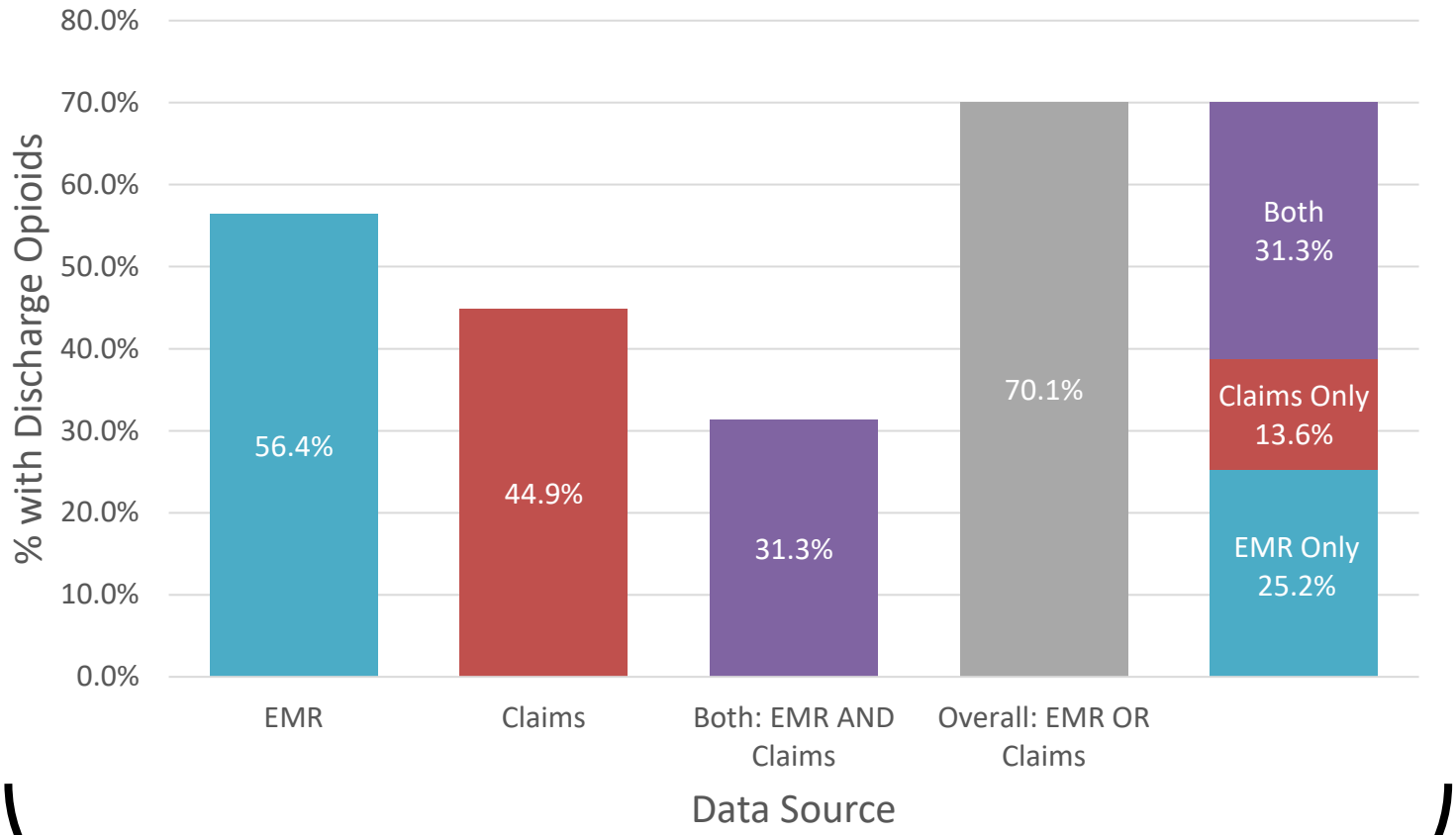

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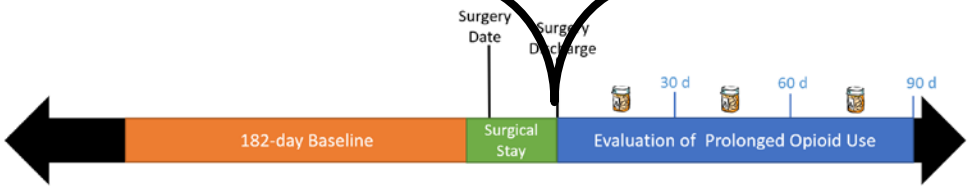

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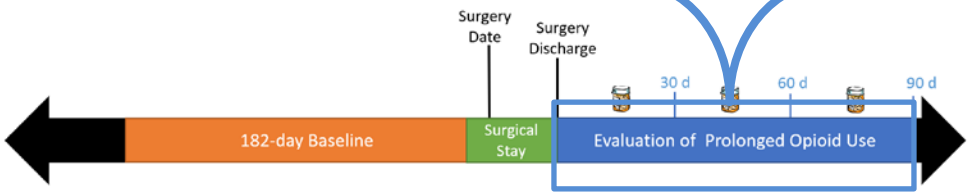
Outcome: Prolonged Opioid Use



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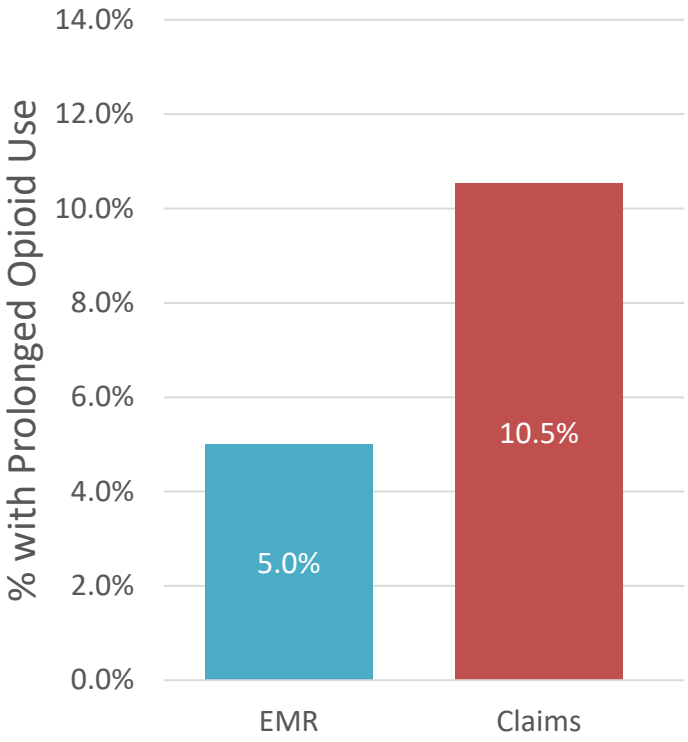

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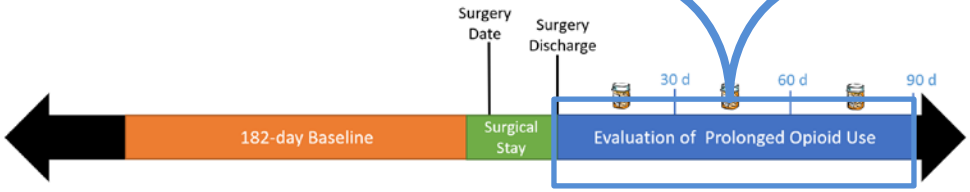

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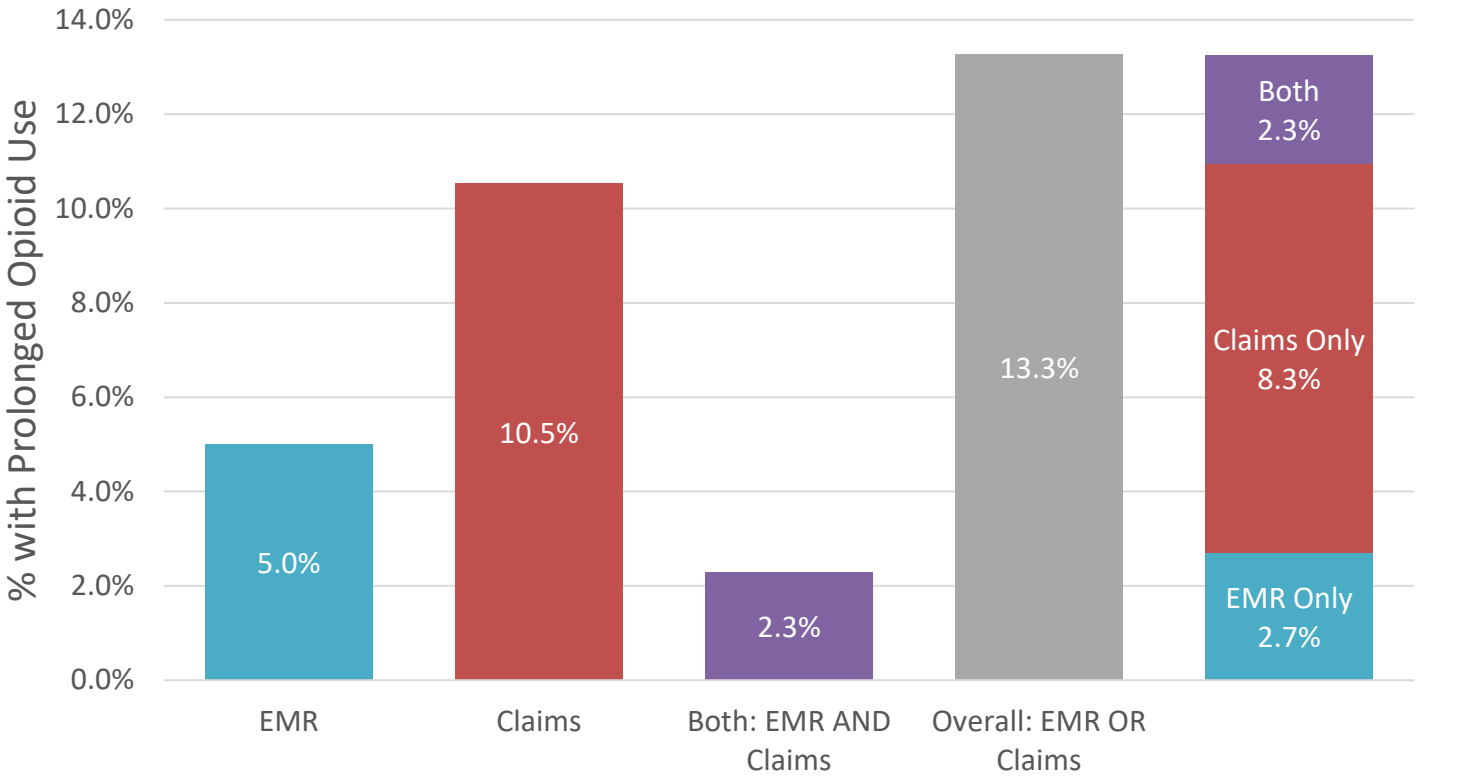

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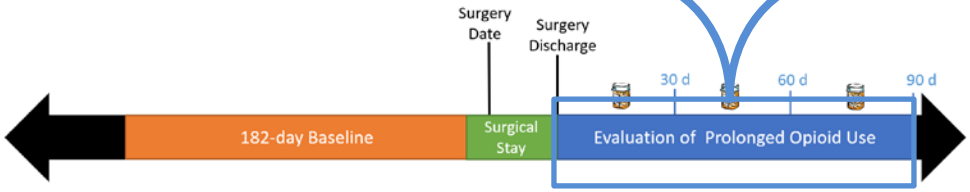

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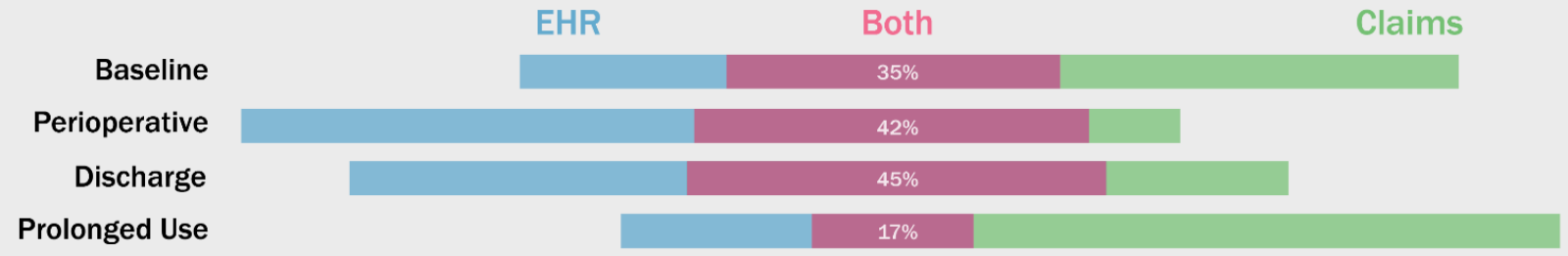
Discussion

Summary

Limited overlap in opioid use between data sources

*Less than half of surgical patients had agreement between claims and electronic health records on **whether opioids were even prescribed**.*



Baseline: 182 days pre-surgery
Prolonged use: Rx in 3 consecutive months post-surgery

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Summary

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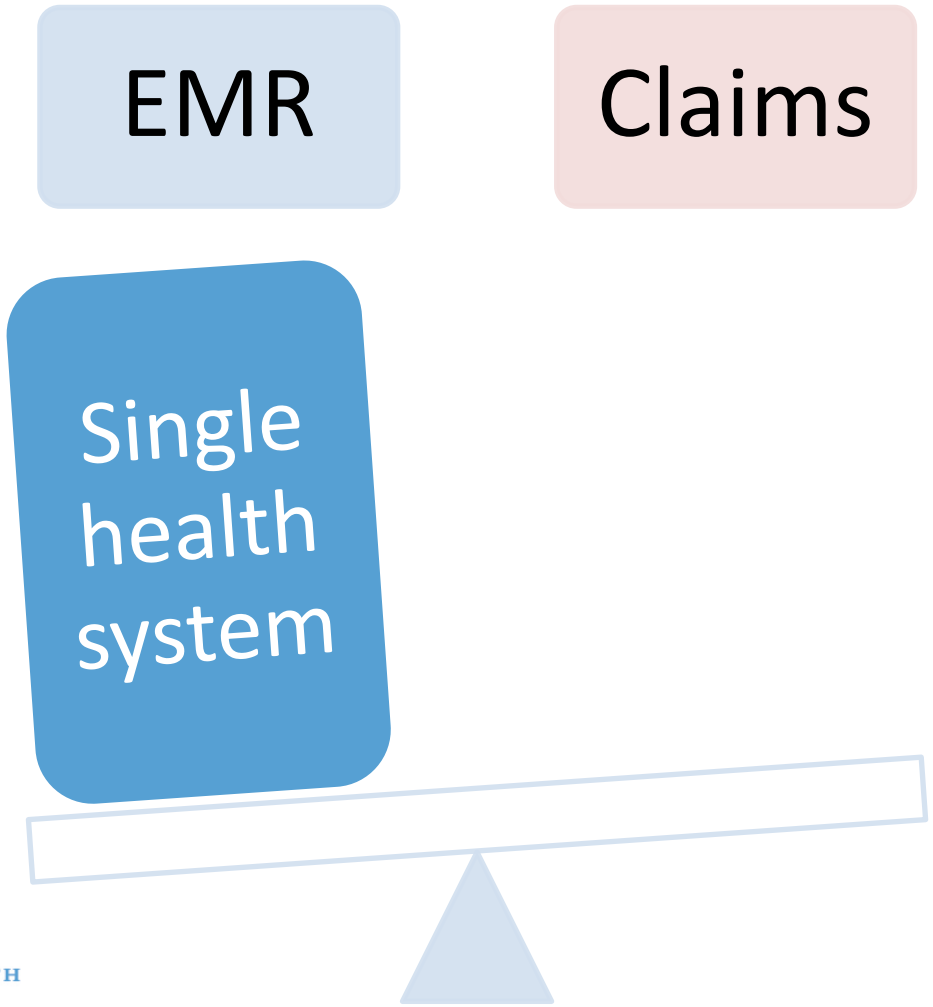
EMR

Claims

Summary

Limited overlap in opioid use between data sources



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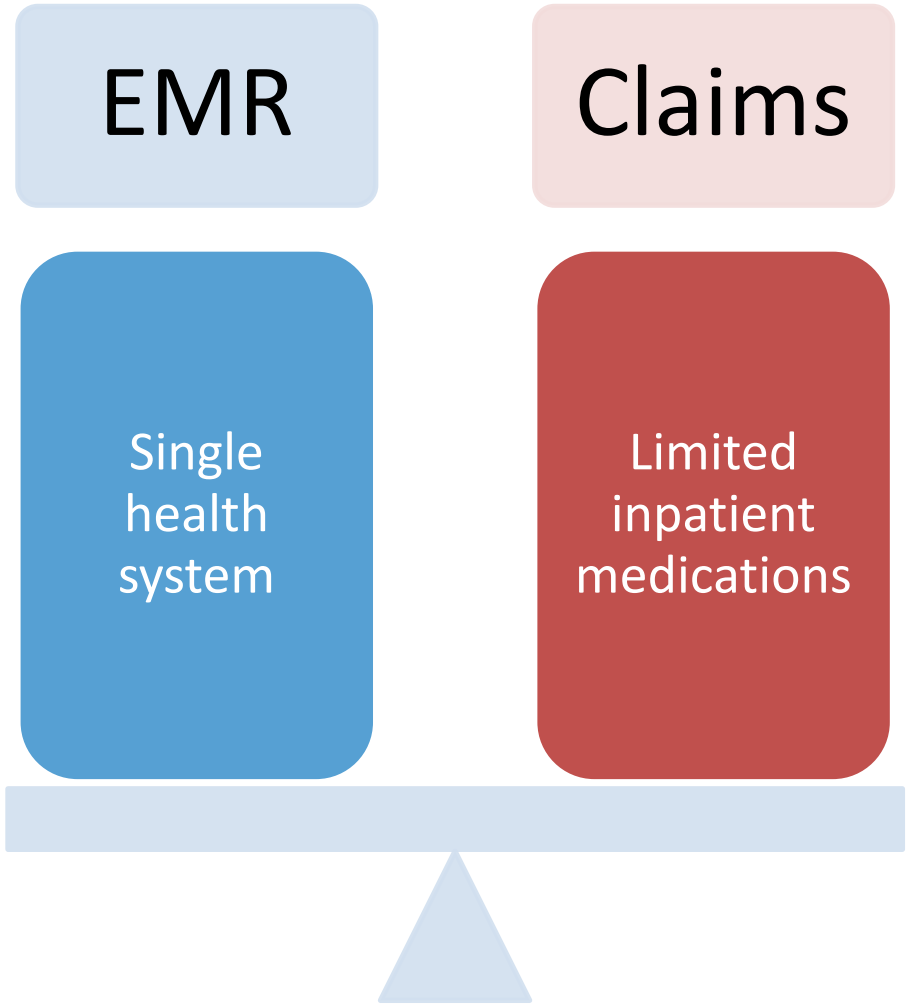

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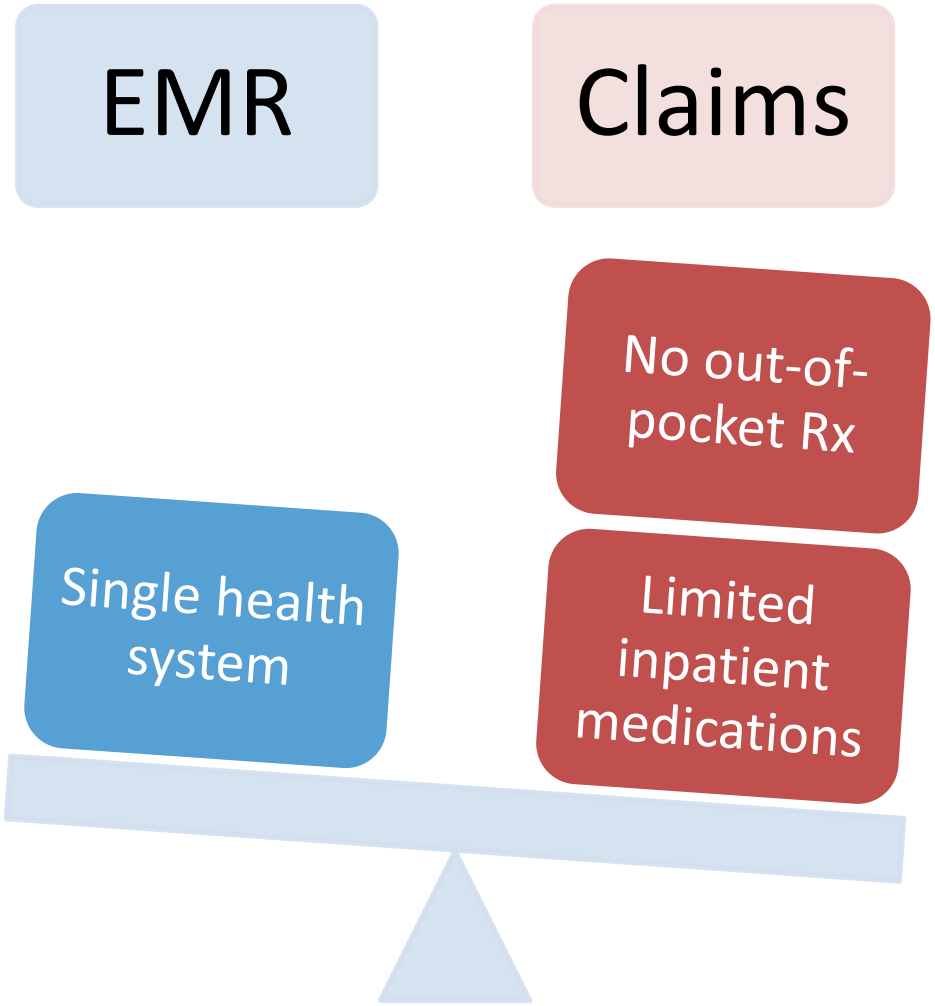

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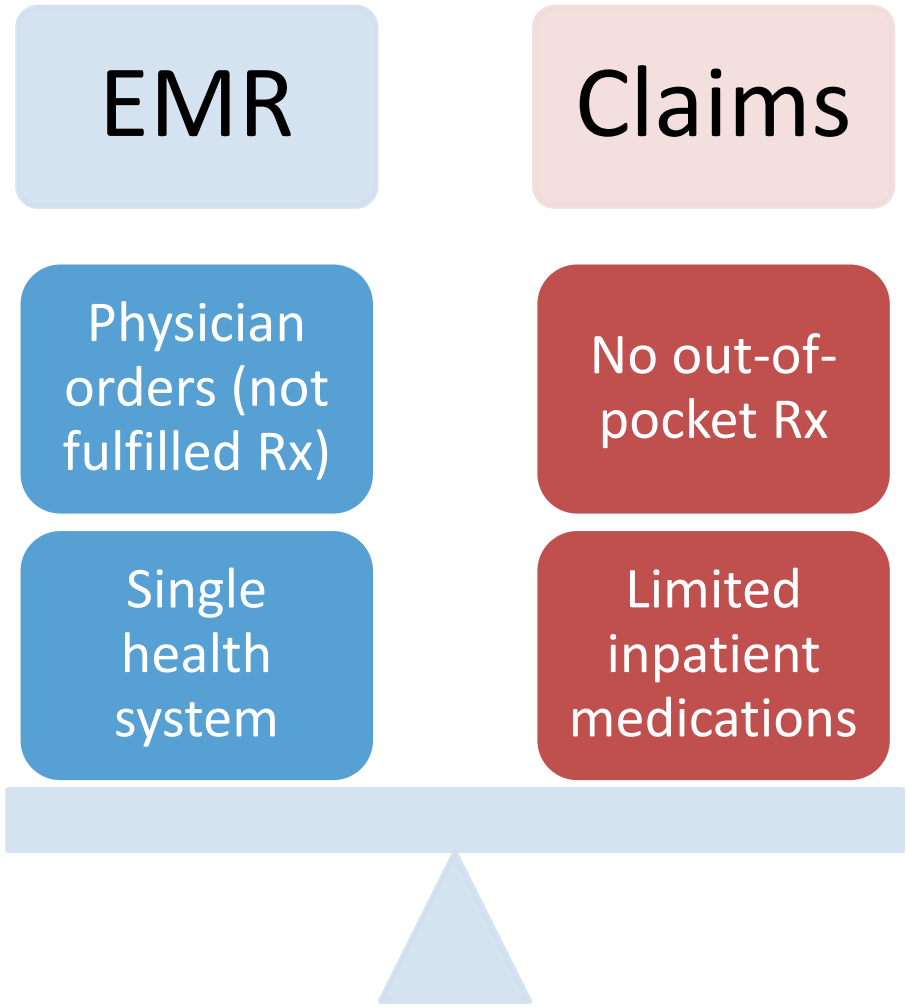

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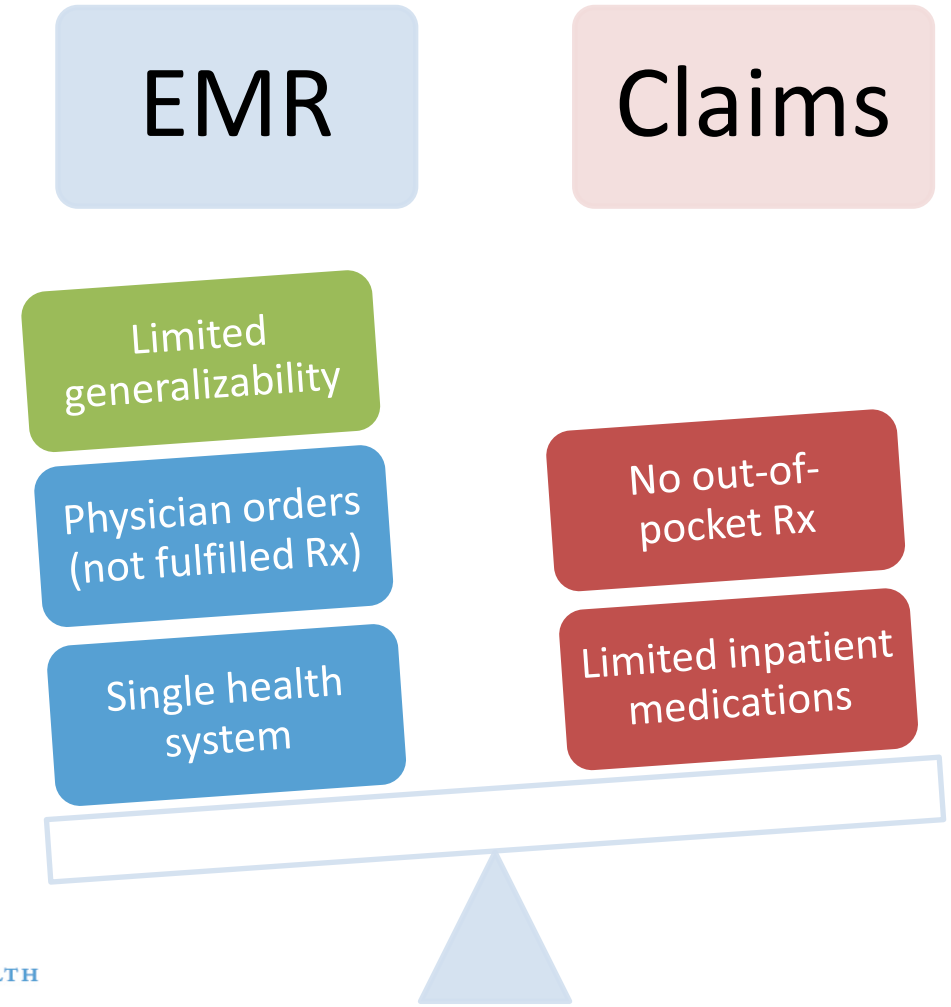

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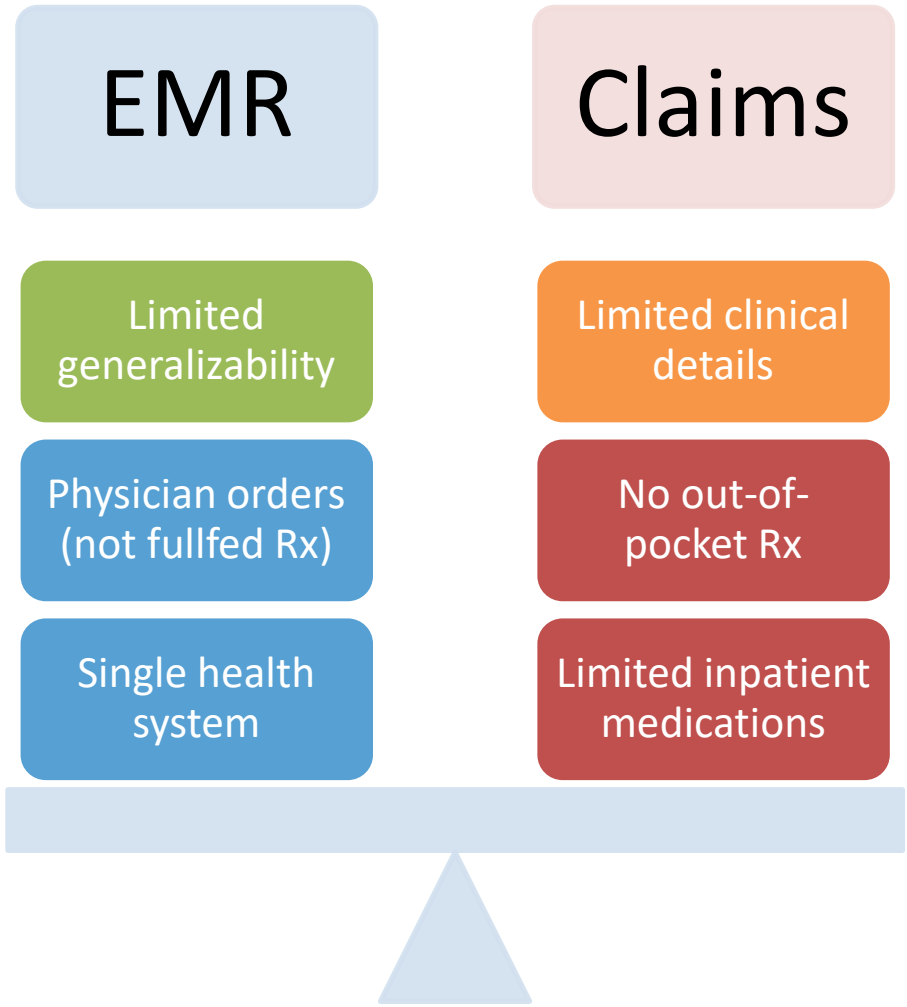
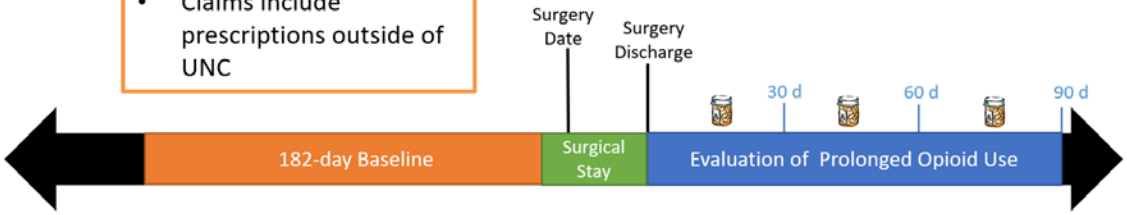


3 Key Study Design Elements

1) Study Eligibility:
Baseline Opioids

- Higher capture in claims
- Claims include prescriptions outside of UNC



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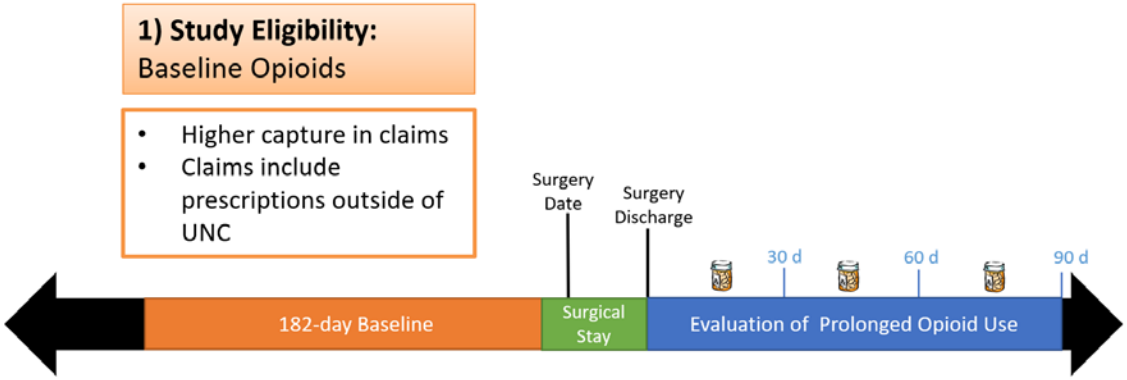

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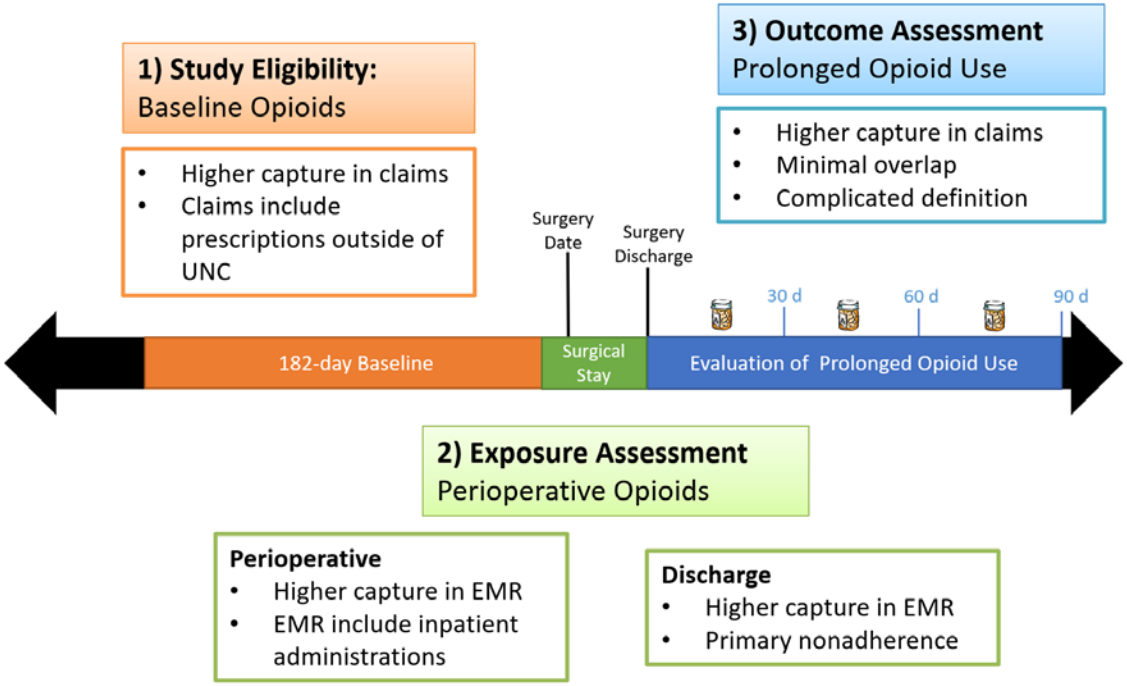
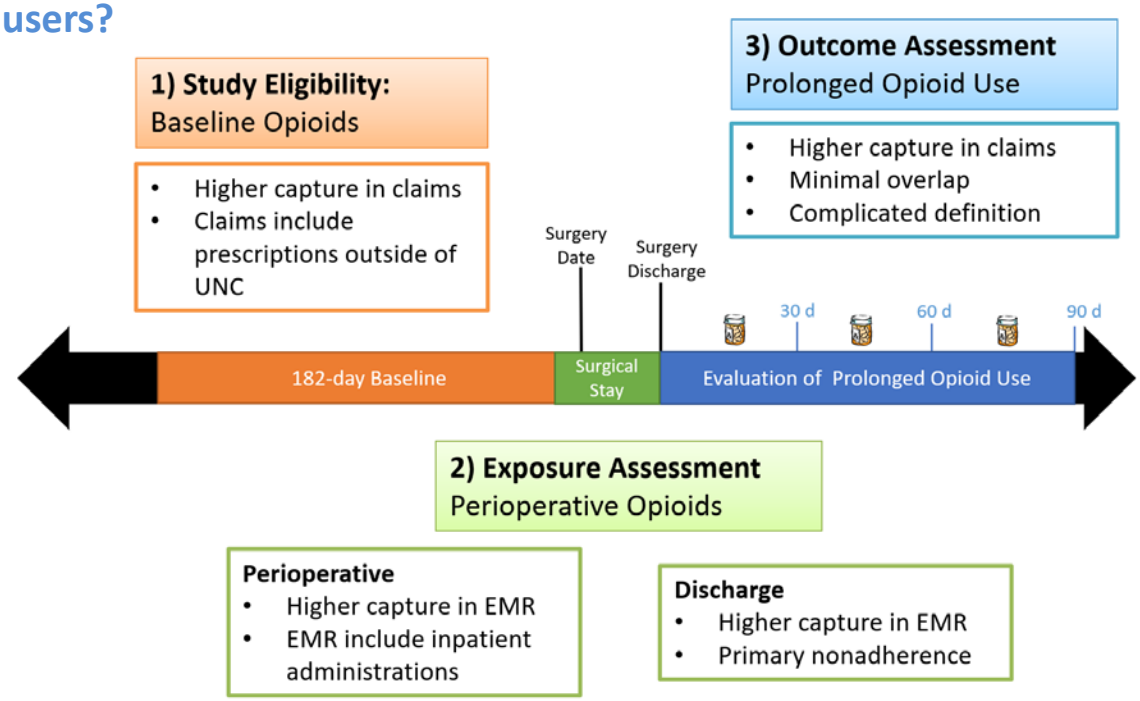


Critical Questions

EMR: How "new" are new users?



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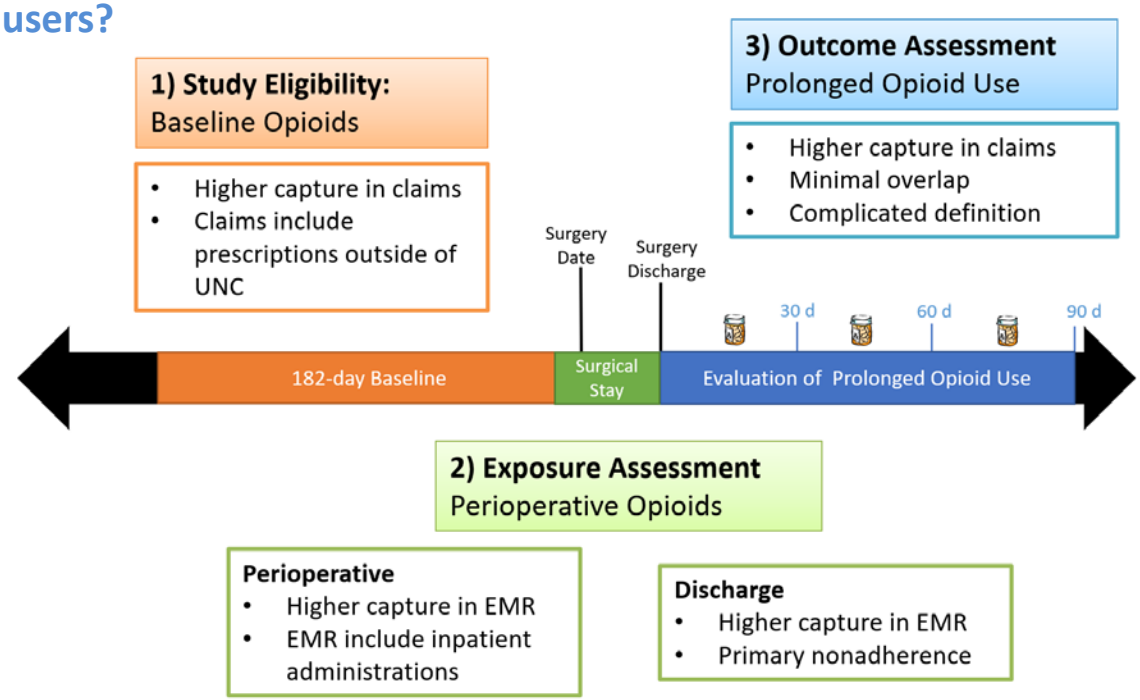

Claims: How often is the exposure administered in the inpatient setting?

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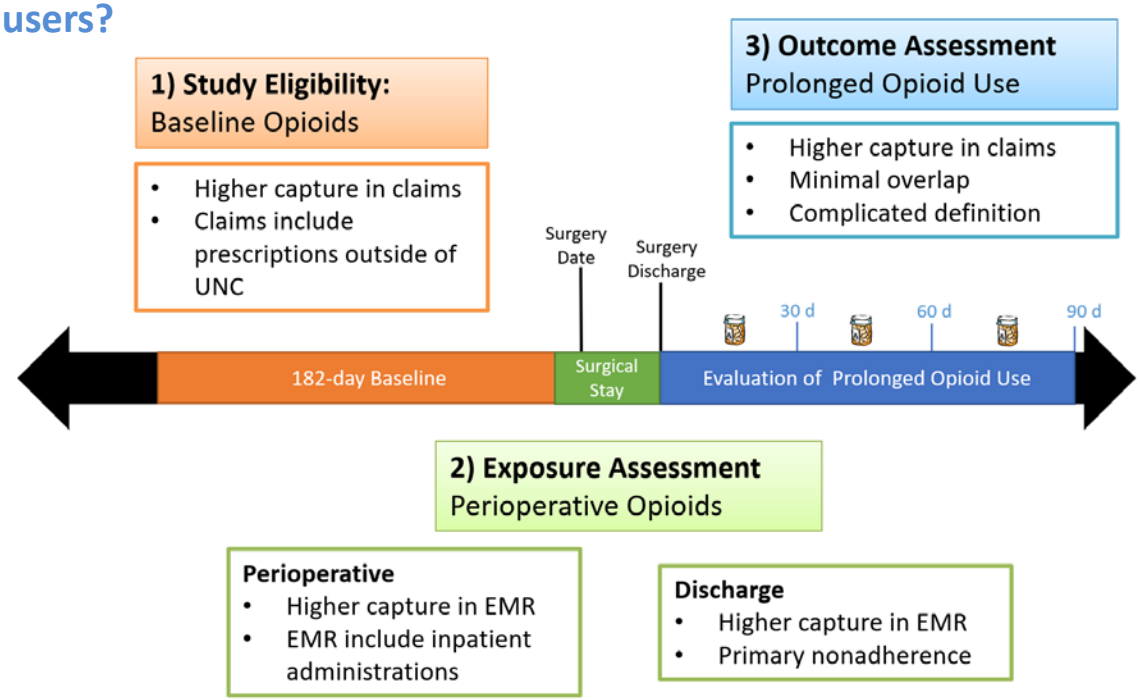

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Claims: Are we missing "exposures" paid for OOP?

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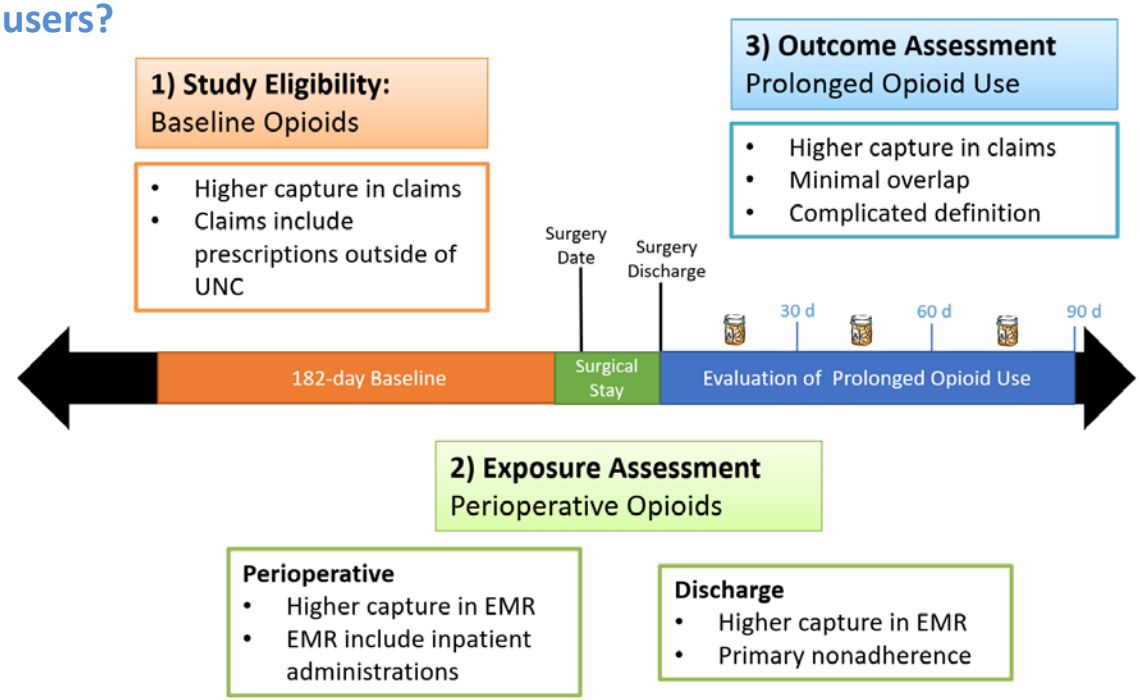

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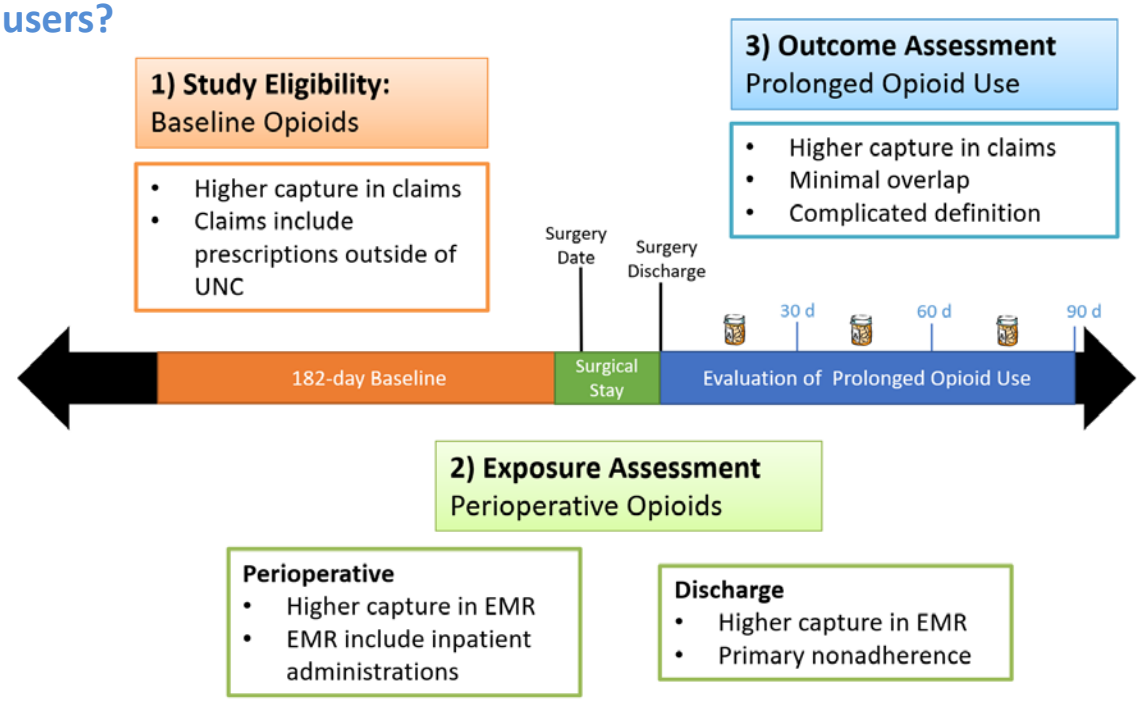

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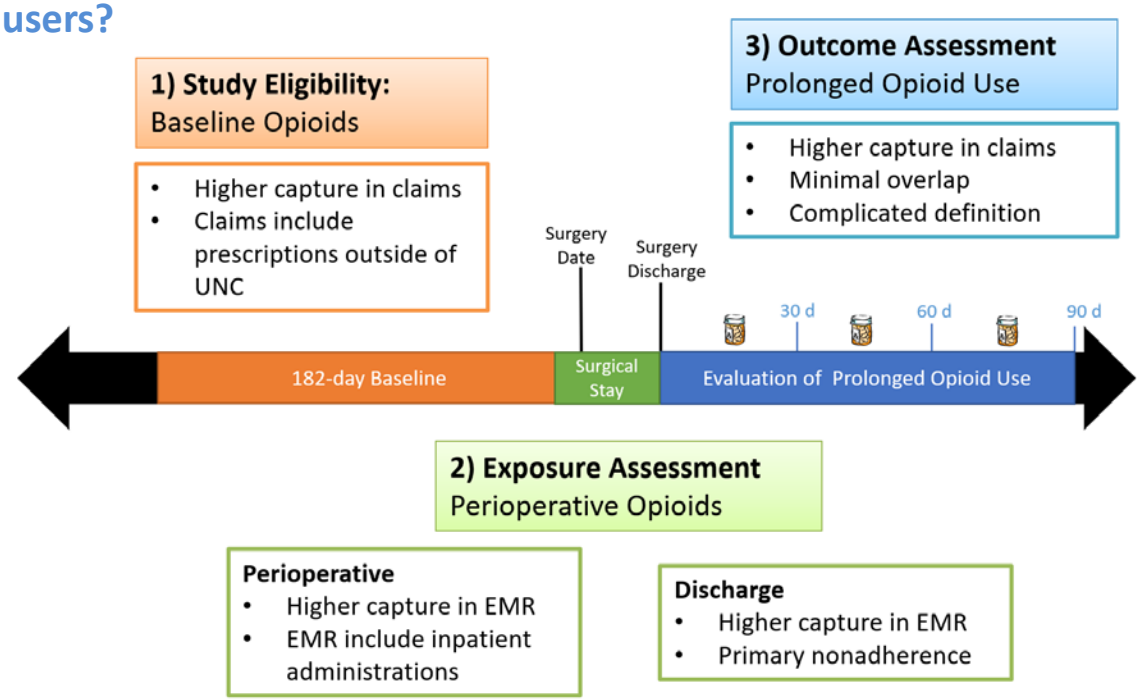

Claims: Are we missing outcome events paid for OOP?

Claims: How often is the exposure administered in the inpatient setting?

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EMR: Are "exposed" actually exposed?

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Lessons Learned

Both EMR and Claims data are valuable resources for health care research

Neither data source is perfect

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Linking EMR and Claims gives us a more complete picture → Linkage still doesn't offer a complete view of the "truth"

Lessons Learned

Both EMR and Claims data are valuable resources for health care research	Neither data source is perfect
Linking EMR and Claims gives us a more complete picture	Linkage still doesn't offer a complete view of the "truth"
Linkage can facilitate quantitative bias analyses	Challenges with estimating bias parameters

Lessons Learned

Both EMR and Claims data are valuable resources for health care research	Neither data source is perfect
Linking EMR and Claims gives us a more complete picture	Linkage still doesn't offer a complete view of the "truth"
Linkage can facilitate quantitative bias analyses	Challenges with estimating bias parameters
Context!	Must understand the data + proceed with caution

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Questions?

Jessica.Young@unc.edu

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