

# Facilitators and Barriers to Naloxone Prescribing in Three Large Health Systems

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# DISCLOSURES

The following personal financial relationships with commercial interests relevant to this presentation existed during the past 12 months:

None to disclose

# STUDY RATIONALE

- Patients on chronic pharmaceutical opioids for pain could also benefit from medication safety/overdose education and naloxone prescription
- Primary care and HIV clinics in large health systems offer opportunity to reach many at risk

# OBJECTIVES

- Assess knowledge, attitudes and beliefs about overdose prevention and naloxone prescription among primary care and HIV clinicians, pharmacists and clinic administrators
- Determine the barriers and facilitators to overdose risk assessment, counseling and naloxone prescription

# METHODS: STUDY DESIGN

- 10 one hour qualitative focus groups at clinic sites over lunch
- Semi-structured focus group guide developed by investigators based on the Theory of Planned Behavior and the Health Belief Model

# FOCUS GROUP GUIDE: SELECTED CONSTRUCTS

Constructs	Sample question
Knowledge	What do you know about naloxone?
Susceptibility	Who do you think is at risk of overdose?
Benefits	What benefits and risks do you see in prescribing naloxone to your patients?
Barriers	Have there been any barriers to counseling patients in your practice about overdose or prescribing them naloxone?
Facilitators	How could these barriers be addressed? What would help you provide effective counseling to your patients?

# METHODS: STUDY POPULATION

Medical providers and staff at:

1. Federally Qualified Health Centers and HIV Clinic at Denver Health, a safety net system
2. Academic Internal Medicine, Family Medicine and Infectious Disease practices, Univ. of Colorado
3. Managed care primary care clinics, Kaiser Permanente Colorado



# METHODS: ANALYSIS

- Focus groups audio recorded and professionally transcribed
- Data coded by team members and managed using ATLAS.ti
- Team based, constant comparative analysis

# FOCUS GROUP PARTICIPANTS

<b>Characteristics of participants (N=56)</b>	<b>n</b>
Physician	31
Pharmacist	7
Nurse	6
Nurse Practitioner	4
Administrator	3
Counselor	2
Physician's Assistant	2
Medical Assistant	1
White	47
Asian	4
Latino/Hispanic	3
African American	2
Female	33

# RESULTS: THEMES EMERGED IN 4 CONSTRUCTS

1. Knowledge gaps and needs
2. Perceived benefits of overdose education & naloxone
3. Barriers
  - Practical
  - Attitudinal
4. Facilitators

# 1. KNOWLEDGE

- Little knowledge about naloxone for bystander use
- Direct knowledge of naloxone was limited to “in hospital” use or medical school training
- Confusion with addiction treatment medications: Suboxone™ (buprenorphine/naloxone), naltrexone
- Uncertainty about who to prescribe to
- Concerns about adverse effects
- As a consequence, little prescribing

# 1. KNOWLEDGE

Respondents identified a wide spectrum of patients who could be prescribed naloxone, including patients with:

- High-dose opioid prescriptions
- Concomitant mental health problems
- Impulsivity
- Poorly controlled pain
- Patients requesting early refills

# 1. KNOWLEDGE

“I think the patients on the maximum dose are a good place to start, but I think that’s not... those aren’t the only people at risk for overdose and in fact those are probably the most tolerant of all our patients...”

I had a patient whose daughter accidentally overdosed on her meds...so, I’m wondering, shouldn’t we be offering it more broadly...?”

# 1. KNOWLEDGE

“I probably just don’t have quite as much knowledge about the outpatient safety of it to feel comfortable prescribing it right now.”

## 2. BENEFITS

- Direct: preventing death from accidental overdose
- Indirect: alerting patients and their significant others to the overdose potential of opioids, enhancing medication safety



## 2. BENEFITS

“Actually I think even prescribing it to a patient [on high doses]... just that conversation that alerts their minds, would just perhaps make them think about that possibility [overdose]. It might be just enough to scare them just a little.”

# 3. BARRIERS: PRACTICAL

- Adding training to administer naloxone to already busy clinic schedules
- Difficulty assembling atomizer device
- How to train bystanders/family, if available
- Confidentiality of providing patient instructions at the pharmacy counter

### 3. BARRIERS: ATTITUDINAL

- Giving mixed messages about opioids to patients/families
- Giving permission for riskier use, encouraging more use
- Being viewed negatively for targeting patients for overdose education or naloxone

### 3. BARRIERS: ATTITUDINAL

“...the naloxone might give them permission to play with their dose, and you know, try and get high. That type of thing at higher doses, but I think that since we’ve got such tight control over when they get their refills and that type of thing, that that would be somewhat of a mitigation.”

# 3. BARRIERS: ATTITUDINAL

“I feel like patients would be almost offended, like oh, you’re singling me out and I’m cherry picked to do this...”

# 4. FACILITATORS

- Guidelines that could be applied in a standard fashion
- Reducing stigma by including household members as potential recipients
- Improved communication from emergency departments about overdoses among providers' patients
- Guidance on opioid risk management after an overdose

# 4. FACILITATORS

“So I would want there to be guidelines in place... institutionally sanctioned as to how to risk stratify patients and what the appropriate prescribing guidelines would be.”

# NEXT STEPS: ADDRESS BARRIERS IDENTIFIED

## 1. *Enhance provider-patient communication*

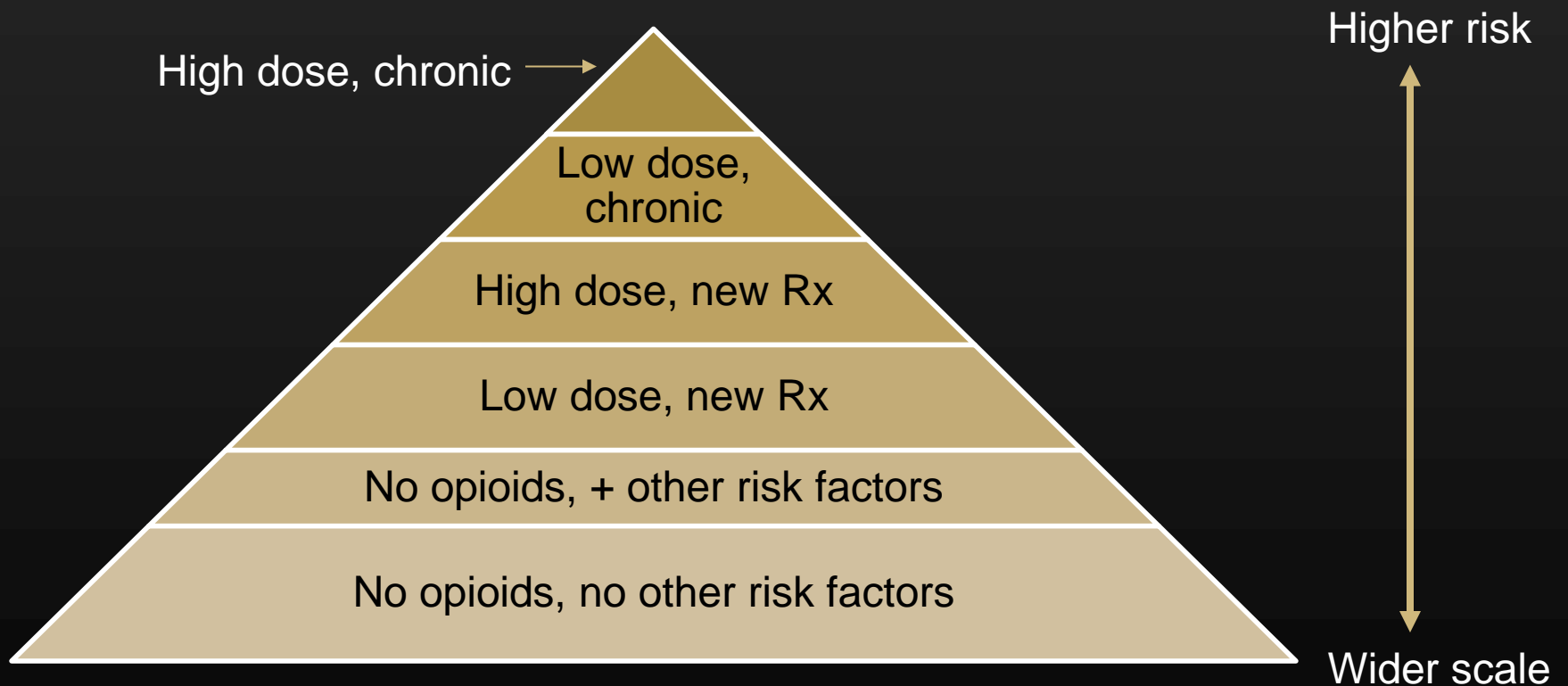
- Guided by individual qualitative interviews with patients prescribed high-dose opioids for pain
- Explore communication preferences for overdose education & naloxone prescription



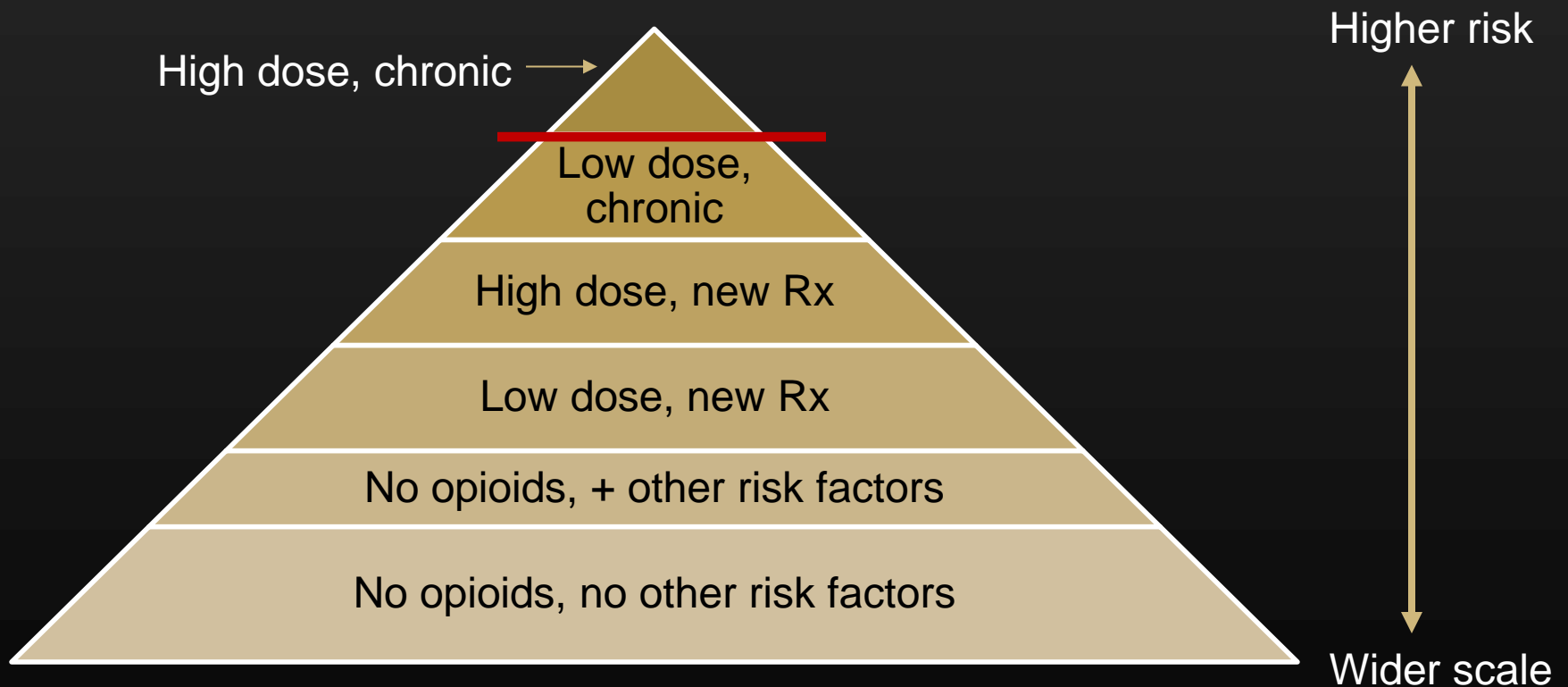
# NEXT STEPS: ADDRESS BARRIERS IDENTIFIED

- 2. Provide guidance to primary care providers about patient selection*
  - **Self-selection:** patient or family member requests based on self-assessment of risk
  - **Risk-based:** provider assesses individual risk and prescribes based on criteria
  - **Universal:** all patients prescribed an opioid, independent of risk characteristics

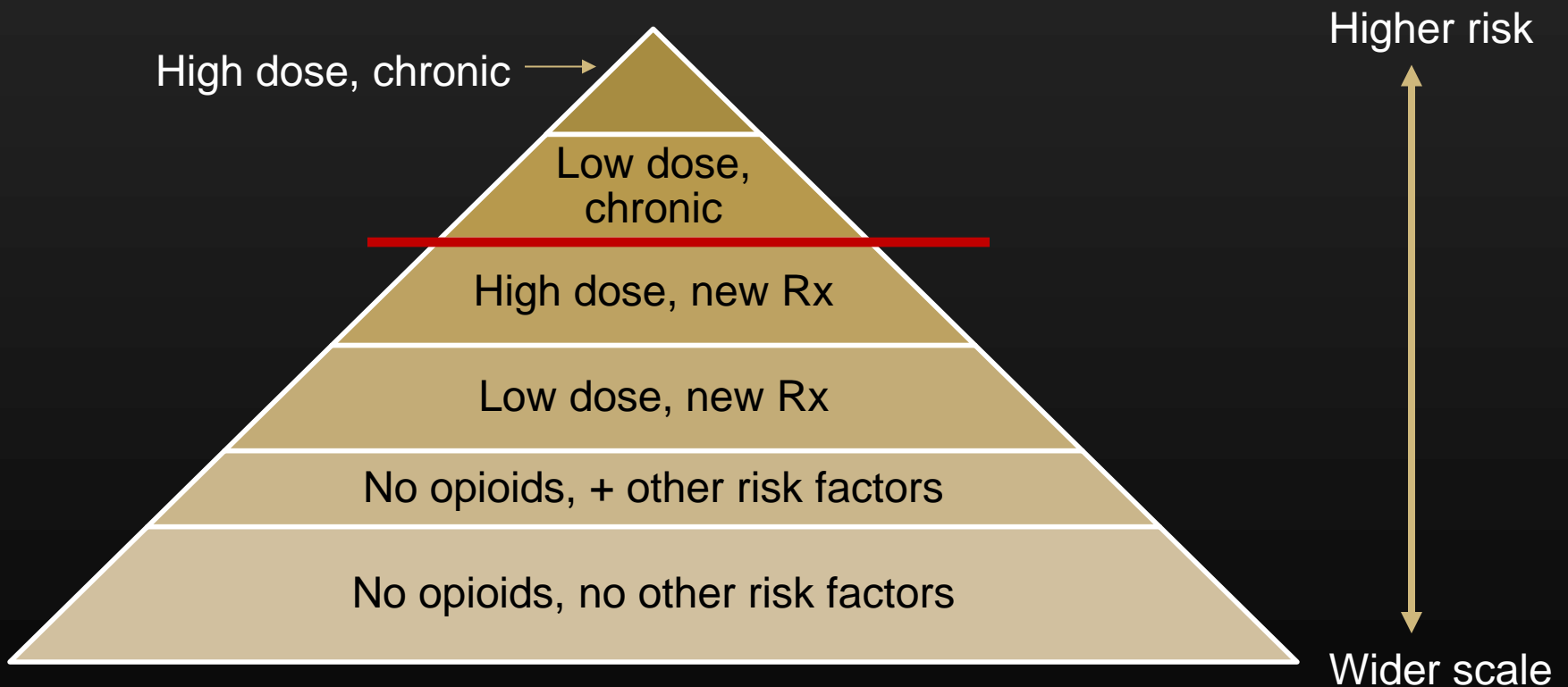
# RISK-BASED VS. UNIVERSAL PRESCRIBING



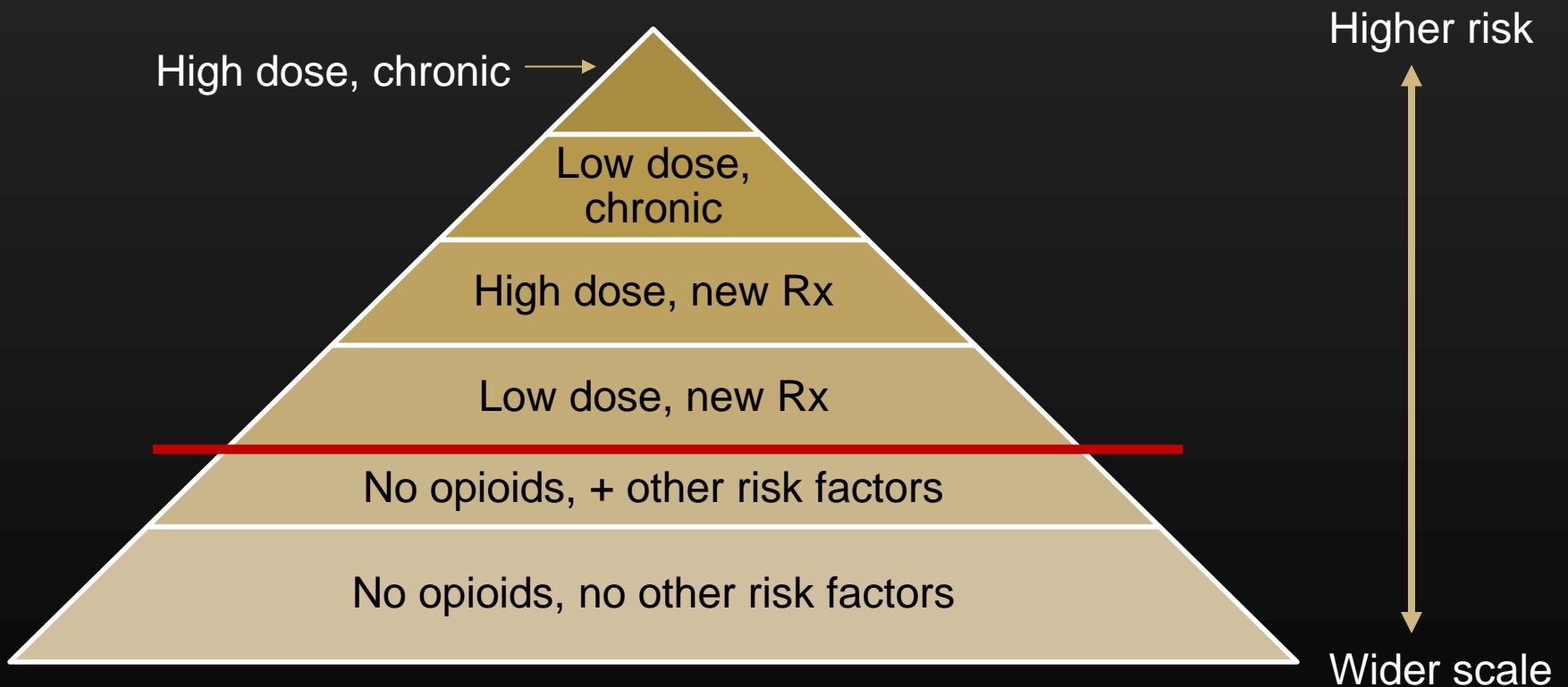
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# RISK-BASED VS. UNIVERSAL PRESCRIBING

	Pros	Cons
Risk-based	<ul style="list-style-type: none"><li>• Reaches the right people</li><li>• Engages patients in important conversations about risk</li></ul>	<ul style="list-style-type: none"><li>• Time consuming</li><li>• Complicated</li><li>• May miss people at risk</li></ul>
Universal	<ul style="list-style-type: none"><li>• Reaches more people</li><li>• Less targeting/stigma</li><li>• More efficient for clinical unit</li></ul>	<ul style="list-style-type: none"><li>• Higher cost</li><li>• Higher opportunity costs</li><li>• More potential for rare adverse events &amp; inappropriate administration</li></ul>

# PREDICTIVE RISK MODEL DEVELOPMENT: AIM

Using electronic health record data, develop a predictive risk model to predict fatal and nonfatal overdose among people prescribed chronic opioids

# PREDICTIVE RISK MODEL DEVELOPMENT: POPULATION

## Inclusion

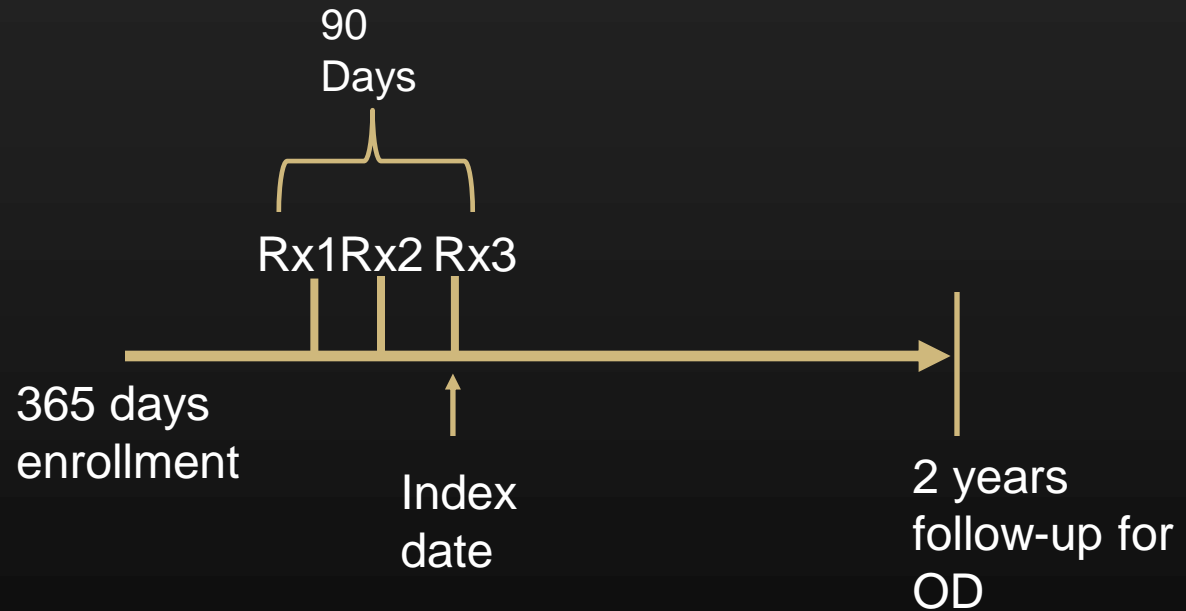
- Kaiser Permanente Colorado members with 3+ opioid prescriptions in 90 days between 2006 and 2013
- N=69,938

## Exclusion

- <1 year continuous enrollment in year prior to index date
- No pharmacy coverage
- <18 years
- Cancer
- Do Not Resuscitate order
- N=30,537



# PREDICTIVE RISK MODEL DEVELOPMENT: DESIGN



2006

2013

# PREDICTIVE RISK MODEL DEVELOPMENT: OUTCOMES

1. Non-fatal overdose: diagnostic coding (ICD-9)
2. Fatal overdose based on death records obtained on members

# PREDICTIVE RISK MODEL DEVELOPMENT: PREDICTORS

- Identified in one year prior to index date
- Informed by risk factor literature, use in clinical practice, and availability of data, *such as*
  - Demographics
  - Medication features: Opioid dose, long-acting formulations
  - Patient diagnoses: Mental health diagnoses, tobacco use, alcohol use disorders

# PREDICTIVE RISK MODEL DEVELOPMENT: ANALYSIS

- Define rate of fatal and nonfatal overdose at 4 time points: 30 days, 90 days, 1 year, 2 year
- Censor at date of event, disenrollment or follow-up
- Model effect of predictors using Cox regression analysis, a time-to-event analysis

# PREDICTIVE RISK MODELLING: PRELIMINARY FINDINGS

	30 Days	90 Days	1 year	2 years
<b>No. overdose events</b>	7	21	66	114
<b>Person-years</b>	3,212	9,516	36,359	65,543
<b>Overdoses/100,000 person years</b>	218	221	182	174

# PREDICTIVE RISK MODELLING: UNADJUSTED FINDINGS

Characteristic	HR (95% CI)	
	90 days	2 years
<b>Age</b>		
18-30	1.5 (0.5, 5.1)	<b>2.7 (1.6, 4.6)</b>
31-40	1.3 (0.4, 4.2)	1.3 (0.7, 2.5)
41-50	0.4 (0.1, 2.2)	1.1 (0.6, 2.0)
51-64	0.4 (0.1, 1.5)	0.9 (0.5, 1.5)
≥65	1.0 (ref)	1.0 (ref)
<b>High dose (&gt;100 MME)</b>	1.8 (0.3, 14.0)	<b>3.7 (2.0, 7.1)</b>
<b>Long acting opioid</b>	2.4 (0.6, 10.3)	<b>3.0 (1.7, 5.3)</b>
<b>Mental health</b>	<b>7.1 (2.6, 19.5)</b>	<b>3.5 (2.4, 5.2)</b>
<b>Tobacco use</b>	<b>3.1 (1.3, 7.4)</b>	<b>2.2 (1.5, 3.2)</b>
<b>Alcohol use disorder</b>	<b>3.7 (1.1, 12.5)</b>	<b>5.0 (3.1, 8.1)</b>

MME=average milligrams morphine equivalent, HR=hazard ratio, CI=confidence interval

# PREDICTIVE RISK MODELLING: NEXT STEPS

- Build multivariable model using Cox proportional hazards regression
- Assess for collinearity & interactions
- Evaluate predictive model: calibration & discrimination
- Validate the model
  - Internal: bootstrapping methods
  - External: safety net health system

# FUTURE DIRECTIONS FOR THE FIELD

- Address provider concerns with evidence
  - Patient satisfaction
  - Patient safety
  - Effects on patient behavior
- Explore the supply, cost and implementation implications of prescribing at various risk thresholds
- Consider whether a threshold of overdose for which naloxone is *not* indicated



# THANK YOU

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