Taking Action Against Opioids through Research and Best Practice
Session 1002-7, March 6, 2018
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Molly Jeffery, PhD, Scientific Director of Emergency Care Research, Mayo Clinic
Conflict of Interest

Darshak Sanghavi, MD  
Chief Medical Officer, OptumLabs

Has no real or apparent conflicts of interest to report.
Conflict of Interest

Molly Jeffery, PhD
Scientific Director of Emergency Care Research
Mayo Clinic

Has no real or apparent conflicts of interest to report.
Agenda

- The Opioid crisis
- The Opioid Key Performance Indicator dashboard as an action framework
- The role of quality measurement
- Developing the framework
- KPIs in 4 domains
  - prevention, pain management, OUD treatment and maternal & child health

- Using administrative data to develop insights
  - How opioid use has changed over time
  - Where opioid use starts
  - Risks in continuing to use opioids
  - Impact of CDC guidelines on physicians’ prescribing behavior?
Learning Objectives

• Discuss the need for a framework to accurately measure the impact and understand the root causes of the opioid epidemic

• Define the four components of the opioid epidemic: prevention, pain management, opioid use disorder treatment, and maternal and child health

• Explain how data and analytics can contribute to a better understanding of the opioid epidemic
Opioid KPI Dashboard

An action framework for confronting the epidemic
A national health care crisis

Every 18 minutes there is a death from opioid overdose.

1,375% increase in opioid treatment spending over five years.

$78.5B estimated costs of U.S. prescription opioid epidemic.

4.5M Americans are estimated to have a substance use disorder with prescription pain killers.

Strong link versus weak link sports

Strong Link Sport: Basketball

Weak Link Sport: Soccer
But what about soccer — can we explain this?
Polling Question 1

At peak, which was cause of more deaths in a year?

- HIV
- Drug overdose
- Guns
- Auto accidents
The White House Opioid Commission Report

56 recommendations, including:

- Block grant federal funding for states
- A national multi-media and education campaign
- A national curriculum for opioid prescribers
- Nationwide state Prescription Drug Monitoring Program (PDMP) data sharing and integration with EMRs
- Nationwide federal drug courts
- Federal resources for pain management, addiction and other opioid-related research and development
- Removal of reimbursement and policy barriers to substance use disorder (SUD) treatment (i.e., MAT, counseling and inpatient)
- Modified insurance policies that encourage non-opioid treatments for pain when appropriate
- Naloxone administration by all emergency technicians

“If we are to invest in combating this epidemic, we must invest in only those programs that achieve quantifiable goals and metrics.” — Governor Chris Christie
Quality measures

• A health care quality measure is a way to calculate whether and how often the health and health care system does what it should.
Measure development pathway

Average time from measure conception to implementation

1 to 3 years
Key Performance Indicator (KPI) dashboard framework

PREVENTION + PAIN MANAGEMENT + OUD TREATMENT + MATERNAL & CHILD HEALTH

Enterprise Opioid Task Force:
- UHG,
- Optum & UHC Experts

Expert Advisory Panel

- Comprehensive view of the opioid issue
- Standardized metrics & definitions
- Cross-enterprise value and business unit utility
- Public health leadership
Opioids and pain management:

**Co-Chairs**

**Opioid Use Disorder and Prevention**

**Thomas McLellan, PhD**

Chair of the Board, Treatment Research Institute (TRI) and Professor Emeritus of Psychology, University of Pennsylvania School of Medicine. Former Deputy Director of the White House Office of National Drug Control Policy under President Barack Obama

**Pain Management**

**Mark Wallace, MD**

Professor of Clinical Anesthesiology, Chair Division of Pain Medicine, University of California, San Diego Medical Center. Member of the CDC Prescribing Opioids for Chronic Pain Workgroup that issued the 2016 guidelines

<table>
<thead>
<tr>
<th>Area of Expertise</th>
<th>First</th>
<th>Last</th>
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<tbody>
<tr>
<td>Substance Use Disorder</td>
<td>Yngvild</td>
<td>Olson, MD</td>
<td>Board, FASAM, clinician</td>
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<tr>
<td>Integrative Medicine</td>
<td>Bob</td>
<td>Saper, MD</td>
<td>Boston University School of Medicine and Public Health</td>
</tr>
<tr>
<td>Policy and HEOR</td>
<td>Kun</td>
<td>Zhang, PhD</td>
<td>Center for Disease Control and Prevention, Prescription Drug Overdose-Health Systems Team</td>
</tr>
<tr>
<td>HEO, nonmedical determinants</td>
<td>Ellen</td>
<td>Meara, PhD</td>
<td>Dartmouth College</td>
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<tr>
<td>Psychiatry, Substance abuse</td>
<td>Joji</td>
<td>Suzuki, MD</td>
<td>Harvard Medical School; Brigham and Womens</td>
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<tr>
<td>Pain Mgmt, Anesthesiology, Back Pain</td>
<td>Paul</td>
<td>Christo, MD</td>
<td>Johns Hopkins University</td>
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<tr>
<td>Pain Mgmt, Anesthesiology and Psychiatry</td>
<td>Michael</td>
<td>Hooten, MD</td>
<td>Mayo Clinic</td>
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<tr>
<td>HEOR</td>
<td>Molly</td>
<td>Jeffery, PhD</td>
<td>Mayo Clinic</td>
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<tr>
<td>Policy</td>
<td>Audra</td>
<td>Stock, LPC, MAC</td>
<td>SAMHSA</td>
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<td>Physical Therapy</td>
<td>Julie Mae</td>
<td>Fritz, PT, PhD</td>
<td>University of Utah</td>
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<tr>
<td>Health Services</td>
<td>Gary</td>
<td>Franklin, MD</td>
<td>University of Washington</td>
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<tr>
<td>Pediatrics, policy</td>
<td>Patrick</td>
<td>Stephen, MD</td>
<td>Vanderbilt University</td>
</tr>
<tr>
<td>Policy (invited)</td>
<td>Don</td>
<td>Schwarz, MD</td>
<td>RWJF</td>
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Polling Question 2

What % of first fill opioid Rx are compliant w/ CDC Guidelines?

• 40%
• 55%
• 65%
• 85%
<table>
<thead>
<tr>
<th>Prevention</th>
<th>Date 2016</th>
<th>OUD Treatment</th>
<th>Date 2016</th>
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<tbody>
<tr>
<td>Cases of OD per 100,000 person years</td>
<td>35.9</td>
<td>Evidence of MAT among patients with OUD or OD</td>
<td>27.8%</td>
</tr>
<tr>
<td>Initial opioid Rx per CDC Guidelines</td>
<td>55.4%</td>
<td>Prevalence of OUD per 1000 person years</td>
<td>7.97</td>
</tr>
<tr>
<td>New opioid fillers per 1000 enrollees</td>
<td>122</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percentage of new fillers who avoid chronic use</td>
<td>97.0%</td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>Pain Management</th>
<th>Date 2016</th>
<th>Maternal, Infant and Child Health</th>
<th>Date 2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chronic pain treatment with opioids is well-managed</td>
<td>9.37%</td>
<td>Cases of OD per 100,000 person years (under age 18)</td>
<td>7.23</td>
</tr>
<tr>
<td>Post-surgical pain is well-managed</td>
<td>95.3%</td>
<td>Initial opioid Rx per CDC Guidelines (under age 18)</td>
<td>68.6%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Percentage infants with NAS born to mothers on MAT</td>
<td>20.6%</td>
</tr>
</tbody>
</table>

All members had medical and pharmacy enrollment in the year. Initial opioid fill defined as no evidence of opioid fill in 12 months prior. Patients with active cancer, or non-community dwelling are excluded. Members are 18 or older, except in MCH group.

The population includes Commercial and MA available in OptumLabs. Medicaid, PacifiCare, Oxford and Legacy systems are not included.

Last data update 7/20/2017; Claims complete until 04/2017.
# Opioid Dashboard: Key performance metrics

<table>
<thead>
<tr>
<th>Domain areas</th>
<th>Primary outcome measures</th>
<th>2016</th>
<th>Secondary process measures</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Prevention</strong></td>
<td>New opioid fillers per 1000 enrollees</td>
<td>122</td>
<td>Initial opioid prescription is prescribed while patient is not exposed to benzodiazepines*</td>
<td>91.1%</td>
</tr>
<tr>
<td></td>
<td>Initial opioid prescription compliant with CDC recommendations (composite)</td>
<td>55.4%</td>
<td>Initial prescription is not for methadone*</td>
<td>100.0%</td>
</tr>
<tr>
<td></td>
<td>New opioid fillers who avoid chronic use</td>
<td>97.9%</td>
<td>No use of opioids for new low back pain patients</td>
<td>87.1%</td>
</tr>
<tr>
<td></td>
<td>Prevalence of opioid overdose (OD) per 100,000 enrollees</td>
<td>35.9</td>
<td>No concurrent opioid and benzodiazepine use</td>
<td>78.0%</td>
</tr>
<tr>
<td><strong>Pain Management</strong></td>
<td>Chronic pain treatment with opioids is optimally managed (composite)</td>
<td>9.4%</td>
<td>Appropriate contact before second opioid prescription</td>
<td>54.0%</td>
</tr>
<tr>
<td></td>
<td>Avoidance of breakthrough post-surgical pain leading to ED visit and new opioid prescription</td>
<td>95.3%</td>
<td>Evidence of non-pharmacological treatment for pain among chronic opioid users**</td>
<td>45.9%</td>
</tr>
<tr>
<td><strong>Opioid Use Disorder (OUD) Treatment</strong></td>
<td>Evidence of medication-assisted treatment (MAT) among patients with OUD or OD</td>
<td>27.8%</td>
<td>Evidence of MAT following OD</td>
<td>10.8%</td>
</tr>
<tr>
<td></td>
<td>Prevalence of opioid use disorder per 1000 person years</td>
<td>7.97</td>
<td>No opioid prescription following MAT initiation</td>
<td>79.7%</td>
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<tr>
<td></td>
<td>Percentage of infants with NAS born to mothers on MAT</td>
<td>20.6%</td>
<td>Evidence of naloxone fill among patients with OUD or OD</td>
<td>0.73%</td>
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<tr>
<td></td>
<td>Rate per 1,000 births of infants born with neonatal abstinence syndrome (NAS)</td>
<td>1.22</td>
<td>No opioid prescription following any OUD or OD Dx</td>
<td>41.0%</td>
</tr>
<tr>
<td><strong>Maternal, Infant, &amp; Child Health</strong></td>
<td>Initial opioid prescription compliant with CDC recommendations for patients under 18y age (composite)</td>
<td>68.6%</td>
<td>New opioid filler per 1000 enrollees under 18y age</td>
<td>36</td>
</tr>
<tr>
<td></td>
<td>Prevalence of OD per 100,000 person years in patients under 18y age</td>
<td>7.23</td>
<td>Prevalence of OUD per 1000 person years in patients under 18y age</td>
<td>0.21</td>
</tr>
</tbody>
</table>

*Composite measures for: Initial opioid prescription compliant with CDC recommendations

**Composite measures for: Chronic pain treatment with opioids is optimally managed

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*Composite measures for: Initial opioid prescription compliant with CDC recommendations

**Composite measures for: Chronic pain treatment with opioids is optimally managed
% of 1st Fills Noncompliant with CDC Guidelines at the County Level

<table>
<thead>
<tr>
<th>Percentile</th>
<th>Value</th>
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<tbody>
<tr>
<td>Mean</td>
<td>0.54</td>
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<tr>
<td>Standard dev</td>
<td>0.17</td>
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<tr>
<td>5% Percentile</td>
<td>0.29</td>
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<tr>
<td>25% Percentile</td>
<td>0.48</td>
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<tr>
<td>50% Percentile</td>
<td>0.54</td>
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<tr>
<td>75% Percentile</td>
<td>0.62</td>
</tr>
<tr>
<td>95% Percentile</td>
<td>0.80</td>
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</table>

Percent of new opioid fills not compliant with CDC guidelines
KPIs show wide variation suggesting opportunities for significant improvement

- New Opioid fills per 1,000 enrollees at the county level, 2016
New opioid fillers per 1000 enrollees, by county, 2016 (blue = better performance)
An action framework for reversing the opioid epidemic
PREVENTION: Measuring compliance with the CDC prescribing guidelines (2016)

OUTCOME MEASURE

55.4%
Initial opioid prescription compliant with CDC recommendations

PROCESS MEASURES

99.6%
Initial opioid prescription is for short acting formulation

77.2%
Initial opioid prescription is for <50MME/day

79.7%
Initial opioid prescription is for <=7 days supply

78.0%
No concurrent opioid and benzodiazepine use

100%
Initial prescription is not for methadone
North Carolina: Initial opioid Rx is compliant with CDC recommendations, by county, 2016

• (blue = better performance)
North Carolina: Initial opioid Rx is for < 50 MME/day, by county, 2016
• (blue = better performance)
North Carolina: Initial opioid Rx is for < 7 days’ supply, by county, 2016

• (blue = better performance)
**PREVENTION: Additional prescribing indicators**

**OUTCOME MEASURES**

- New opioid fillers per 1,000 enrollees: 122
- New opioid fillers who avoid chronic use: 97.9%
- Prevalence of opioid overdose (OD) per 100,000 person-years: 35.9

**PROCESS MEASURES**

- No use of opioids for new low back pain patients: 87.1%
- No concurrent opioid and benzodiazepine use: 78.0%
- Appropriate contact with provider before second opioid prescription: 54.0%
PAIN MANAGEMENT: Chronic Pain

OUTCOME MEASURE

9.4%
Chronic pain treatment with opioids is optimally managed

PROCESS MEASURES

95.1%
Appropriate contact with provider among chronic opioid users

45.9%
Evidence of non-opioid pharmacological treatment for pain among chronic opioid users

23.8%
Evidence of non-pharmacological therapy for pain among chronic opioid users

85.3%
No ED visit for breakthrough pain among chronic opioid users

*Subject to the limitations of claims data
We are working on a research project with an OptumLabs partner to identify measurement opportunities related to many high prevalence surgeries.

Outcome Measures

95.3% Avoidance of breakthrough postsurgical pain leading to ED visit and new opioid prescription.

Process Measures

PAIN MANAGEMENT: Measuring post-surgical pain management
OUD TREATMENT: Access and Prevalence Measures

**OUTCOME MEASURES**

- **Evidence of medication-assisted treatment (MAT) among patients with OUD or OD:** 27.8%
- **Prevalence of OUD per 1,000 person years:** 8

*subject to the limitations of claims data

**PROCESS MEASURES**

- **Evidence of MAT following OD:** 10.8%
- **No opioid prescription following any OUD or OD diagnosis:** 41.0%
- **Evidence of naloxone fill among patients with OUD or OD:** 0.7%
MAT among patients with OUD, by county, 2016

- Blue = better performance
MATERNAL & CHILD HEALTH: Neonatal Abstinence Syndrome (NAS)

OUTCOME MEASURE

20.6%
Percentage of infants with NAS born to mothers on MAT**

PROCESS MEASURES

1.2 Cases per 1,000 live births of infants born with NAS

**MAT = buprenorphine, methadone and naltrexone

*Commercially insured members only (does not include Medicaid)
OUTCOME MEASURE

Opioid prescribing in children and adolescents (<=18 years)*

68.6%

Initial opioid prescription compliant with CDC recommendations for patients under 18y age

PROCESS MEASURES

36
New opioid filler per 1000 enrollees under 18y age

7.2
Prevalence of OD per 100,000 person-years under 18y age

0.21
Prevalence of OUD per 1000 person-years under 18y age

MATERNAL & CHILD HEALTH: Other Measures

*Commercially insured members only (does not include Medicaid)
*Note: CDC Guidelines are recommendations for adults over 18 years. These were used as a gauge of pediatric prescribing issues.
Using administrative data to gain new insights into the opioid epidemic
Questions we set out to answer

• With the amount of attention paid to the opioid epidemic, how has opioid use changed over time?

• Where does opioid use start? What’s the risk of continuing to use opioids?

• Have the CDC guidelines changed physicians’ prescribing behavior?
Polling Question 3

How many people get their first prescription opioid Rx in the ER?

1. About 5%
2. About 15%
3. About 30%
4. About 50%
Adjusted quarterly use prevalence

- Disabled MCR: 41% in 2016
- Aged MCR: 15% in 2016
- COM: 6% in 2016
Concentration in chronic episodes

<table>
<thead>
<tr>
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<th>Episodes</th>
<th>MME</th>
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<tbody>
<tr>
<td><strong>Commercial</strong></td>
<td>3%</td>
<td>62%</td>
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<tr>
<td><strong>Aged Medicare</strong></td>
<td>7%</td>
<td>70%</td>
</tr>
<tr>
<td><strong>Disabled Medicare</strong></td>
<td>14%</td>
<td>89%</td>
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</table>

Acute episodes vs Chronic episodes
Source of first fill

<table>
<thead>
<tr>
<th></th>
<th>COM</th>
<th>Aged MCR</th>
<th>Disabled MCR</th>
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<tbody>
<tr>
<td>ED</td>
<td>13</td>
<td>12</td>
<td>17</td>
</tr>
<tr>
<td>Unknown</td>
<td>26</td>
<td>15</td>
<td>16</td>
</tr>
<tr>
<td>Non-ED</td>
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Prescription more than 7 days

<table>
<thead>
<tr>
<th>Category</th>
<th>Not ED</th>
<th>ED</th>
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</thead>
<tbody>
<tr>
<td>Disabled Medicare</td>
<td>43%</td>
<td>4%</td>
</tr>
<tr>
<td>Aged Medicare</td>
<td>37%</td>
<td>5%</td>
</tr>
<tr>
<td>Commercial</td>
<td>19%</td>
<td>3%</td>
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### Prescription more than 50 MME per day

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<th>Category</th>
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<th>ED</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Disabled Medicare</td>
<td>18%</td>
<td>14%</td>
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</tr>
<tr>
<td>Aged Medicare</td>
<td>18%</td>
<td>13%</td>
<td></td>
</tr>
<tr>
<td>Commercial</td>
<td>23%</td>
<td>14%</td>
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Long term Use (10+fills or 120+ days supply)

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<tbody>
<tr>
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<td>Aged</td>
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<td></td>
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<tr>
<td>Commercial</td>
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</table>
CDC Guidelines: March 2016
Targeted at chronic opioid use in primary care settings

Recommendations and Reports

Assessing Risk and Addressing Harms of Opioid Use

11. Clinicians should avoid prescribing opioid pain medication and benzodiazepines concurrently whenever possible (recommendation category: A, evidence type: 3).
Polling Question 4

How many elderly people taking opioids are also taking benzodiazepines?

1. Less than 5%
2. About 10%
3. About 20%
4. About 40%
Overlapping prescriptions of opioids and benzodiazepines

Disabled Medicare population

Aged Medicare population

Commercial population

n.s.: not statistically significant

* statistically significant (FWER 0.05)

Chronic episodes
Non-chronic episodes
Implications

FINDINGS

- Prevalence of opioid use has peaked, but not decreased much since
  - Very high rates of use in disabled Medicare population
  - Average daily dose above safe levels in disabled Medicare, chronic Commercial
- Best practice prescriptions reduce risk of chronic use in opioid naive
  - ED much better at this
- CDC guidelines have not changed prescriber behavior on co-prescription of benzodiazepines

POLICY IMPLICATIONS

- Focus on keeping opioid naïve people naïve
- Safe prescribing practices for complex patients
- Access to non-opioid treatment will be key
- Lots of opportunity for improvement
- Quick wins: e.g., default prescriptions for acute pain with low dose, short duration
- Need careful, thoughtful approaches to caring for complex patients to avoid harms
Key questions to continue asking

• Can we generalize findings for population health?

• What issues need more study?

• How will quality improvement framework impact value-based payment?

• How do we target providers?
Questions

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Darshak.sanghavi@optumlabs.com

Remember to complete online session evaluation