Using Engineering Tools and Research to Fight the Opioid Epidemic

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- Research: Opioid Use Disorder Pharmacotherapy Implementation Study (WI, OH, FL), Dental No-Show, and Increasing the Use of Teleretinal Imaging for Diabetic Retinopathy
The Opioid Epidemic

• **Urgent public health issue** in the U.S.
  • 78 Americans die every day from an opioid overdose [1]

  • Drug overdose is the leading cause of accidental death in the U.S. **Opioid misuse disorders are driving this epidemic** [2]
    • 40% due to prescription painkillers, 22% due to heroin → **62% overdose deaths due to opiates**

• Overdose risk increases after leaving a controlled environment
  • E.g. When a patient leaves detox, residential treatment or incarceration.
U.S. Overdose Epidemic Driven by Opioid Pain Relievers

4,030 opioid deaths in 1999

16,235 Rx Opioid Deaths in 2013

Original Data CDC Matt Gladden, CDC
Number of Unintentional Overdose Involving Selected Drugs, Ohio 1999-2016

Source: CDC Wonder
Neonatal Abstinence Syndrome and Maternal Opioid Dependence During Delivery, Ohio, 2004-2014

Number of Patients/Hospitalizations

Year

Hospitalizations for NAS
Maternal Opioid Dependence

Original Source: Ohio Department of Health; Neonatal Abstinence Syndrome (NAS) in Ohio 2004-2014 Report
Preventing Overdose Deaths

For those with Opioid Use Disorders.....

• Primary Evidence = Pharmacotherapy
Suboxone: Buprenorphine + naloxone for treatment of OUD
Extended Release Naltrexone (Vivitrol®)

• Treatment for alcohol dependence and prevention of opioid relapse
Test of a Payer/Treatment Agency Model to Increase Implementation of Buprenorphine in Opiate Addiction
Payer-Provider Model to Implement the EVP Buprenorphine

**Need** = Concerns with Opioid Misuse in Ohio

**Gaps** = EVP Adoption Rate & Role of Payer

Role of the County Board Payer

Low use of Opioid Treatment Medications
Ohio County Boards
Treatment Arm


Payer Roles
- Partner with Providers
- *Levers*: Financing/Purchasing; Regulatory & Policy; Operations Management

Provider Roles
- Partner with Payer
- NIATx Model

Partnering Roles & TA
- Annual Meetings
- Monthly Coach Calls
- Monthly Payer/Provider Calls
- Coach Site Visit
Control Arm


Payer Roles
- Partner with Providers
- Levers: Financing; Purchasing; Regulatory & Policy; Operations Management

Provider Roles
- Partner with Payer
- NIATx Model

Partnering Roles & TA
- Annual Meetings
- Monthly Coach Calls
- Monthly Payer/Provider Calls
## Results

<table>
<thead>
<tr>
<th>Phases</th>
<th>% Buprenorphine Use for Patients w/Opioid Addiction Dx.</th>
<th>Treatment Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Control</td>
<td>Treatment</td>
</tr>
<tr>
<td>Baseline</td>
<td>10.89%</td>
<td>9.46%</td>
</tr>
<tr>
<td>Intervention</td>
<td>19.64%</td>
<td>28.48%</td>
</tr>
<tr>
<td>Sustainability</td>
<td>18.62%</td>
<td>32.77%</td>
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</tbody>
</table>
## Payer Roles (Payer Perspective)

<table>
<thead>
<tr>
<th></th>
<th>Control</th>
<th>Intervention</th>
<th>p Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provide Public Outreach</td>
<td>4.6</td>
<td>4.3</td>
<td>p=.894</td>
</tr>
<tr>
<td>Encourage Providers to do Public Outreach</td>
<td>4.9</td>
<td>4.9</td>
<td>p=.847</td>
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<tr>
<td>Provide Start-up Funds</td>
<td>6.6</td>
<td>5.9</td>
<td>p=.809</td>
</tr>
<tr>
<td>Provide Reimbursement</td>
<td>6.8</td>
<td>6.1</td>
<td>p=.928</td>
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<tr>
<td>Institute Committee</td>
<td>1.3</td>
<td>4.9</td>
<td>p=.029*</td>
</tr>
<tr>
<td>Provider Expectations</td>
<td>4.8</td>
<td>6</td>
<td>p=.028*</td>
</tr>
</tbody>
</table>

Scale: 1 = Strong Disagree, 7 = Strongly Agree

## Barriers (Payer Perspective)

<table>
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<tr>
<th></th>
<th>Control</th>
<th>Intervention</th>
<th>p Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insufficient Funds</td>
<td>4.9</td>
<td>4.1</td>
<td>p=.574</td>
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<tr>
<td>Buprenorphine Costs</td>
<td>3.6</td>
<td>4.0</td>
<td>p=.959</td>
</tr>
<tr>
<td>Diversion Concerns</td>
<td>5.8</td>
<td>5.1</td>
<td>p=.954</td>
</tr>
<tr>
<td>Lack of Criminal Justice Support</td>
<td>4.1</td>
<td>4.3</td>
<td>p=.773</td>
</tr>
<tr>
<td>Provider Knowledge</td>
<td>2.4</td>
<td>2.9</td>
<td>p=.863</td>
</tr>
<tr>
<td>Anti-MAT Thinking</td>
<td>5.5</td>
<td>5.3</td>
<td>p=.757</td>
</tr>
<tr>
<td>Physicians Unwilling to RX</td>
<td>5.0</td>
<td>6.7</td>
<td>p=.014*</td>
</tr>
<tr>
<td>Buprenorphine Cap</td>
<td>4.9</td>
<td>6.7</td>
<td>p=.004*</td>
</tr>
</tbody>
</table>

Scale: 1 = Strong Disagree, 7 = Strongly Agree
What treatment agencies learned

• Leadership is key

• This a change to treatment philosophy and workflow

• The role of medical staff becomes more prominent
What treatment agencies learned

• Treatment $’s alone will not address the opioid treatment pharmacotherapy gap

• There is a need for capacity expansion
Treatment capacity building...

For your staff...

- Education is needed once .... and again.
- Find champions and work with opinion leaders.
- Doctors often need to talk to doctors.
Treatment capacity building...

For workflow...

• Take as much work off the physician prescriber as possible.

• Make sure pharmacotherapy is part of the screening process.

• Make sure the billing processes are in place and reimbursement is maximized.
Use the NIATx Model

- Executive sponsors and change leaders are key.

- Realize continuous improvements will be needed to make your OUD pharmacotherapy program a success. So, use PDCA cycles and pilot tests.
Five Key Principles
Evidence-based predictors of change

• Understand and involve the customer
• Focus on key problems
• Select the right change agent
• Seek ideas from outside the field and organization
• Do rapid-cycle testing
Conducting a Change Exercise

**PDSA cycles**
- Plan the change
- Do the plan
- Study the results
- Act on the new knowledge

**Rapid cycle changes**
- Changes should be doable in 3 weeks
Change Cycles

Hunches
Theories
Ideas

Changes that
Result in
Improvement

Reference: Langley, Nolan, Nolan, Norman, & Provost. The Improvement Guide
AIM: To increase the number of people on MAT

Target Objective

measurable - specific

What is your baseline?

How many people are on MAT now?

Who will be on the Change Team?

Instructions for the Change Team:
What are the barriers to scaling up MAT?

What possible changes might help achieve the objective?

Prioritize the changes listed above and select one to try.

Outline the implementation process you will use to test your change.

What will be done? (Plan)

Who will do it? (Do)

Resources Needed

What data will be gathered? (Study)

What? Who? How often?

How will progress be monitored to determine success and to assess need for further change?

How? Who will do it? How often?

What is the next step? (Action):