Arkansas Prescription Drug Abuse Prevention Summit 2018

Hosted by the Arkansas Attorney General’s Office, Arkansas Department of Human Services, Arkansas State Board of Pharmacy, FBI, MidSOUTH Center for Prevention and Training, Office of the State Drug Director, University of Arkansas Criminal Justice Institute, and the U.S. Drug Enforcement Administration.

Medication Assisted Treatment for Opioid Use Disorder and Expanding Access

November 1, 2018
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Program Director
UAMS Center for Addiction Services and Treatment
Disclosure:

I am a member of the Central Addiction Advisory Board for Alkermes, Inc.
This Presentation Reviews

• Part I: The problem
• Part II: Potential solutions
• Part III: Expanding Access
Part I: The Problem

• Definitions

• Epidemiology
Part II: Potential Solutions

• Reasons for prescription drug misuse
• Factors in prescription drug misuse
• Intervention strategies
• Treatment
Part III: Expanding Access to MAT

• MATRIARC

• Project ECHO
Part I: The Problem

- Definitions
- Epidemiology
Definitions

• Misuse

• Non-medical use

• Use disorder
  - previously abuse/ dependence
Prescriptions

Misuse
- Incorrect use
  - By patient
- Mismanaged
  - By physicians
    - D ated
    - D uped
    - D isabled
    - D ishonest

Non-medical
- Illegal use
  - Not prescribed
  - Took for euphoria
- Most commonly used
- In US, age 12 +:
  - Past month 2%
  - Lifetime: 14%
Use Disorder
2 or more in 12 months

- Failure to fulfill role
- Hazardous use
- Craving
- Use despite relationship problems
- Larger/Longer than intended
- Tolerance
- Withdrawal
- Can’t Quit
- Much time spent
- ↓ Activities
- Use despite medical/psychological
Part I: The Problem

- Definitions
- Epidemiology
Non-medical use

- 2013 National Survey on Drug Use and Health (NSDUH)
  - 7% youth 12-17 lifetime non-medical use

- 2013 NSDUH
  - 20% young adults 18-25 lifetime non-medical use

- 115 Billion annual cost in 2017 US Dollars
Emergency Department Visits

2009 Drug Abuse Warning Network (DAWN)

• 4.6 million drug-related ED visits

• 45 % were drug misuse
  - 27 % non-medical use of pharmaceuticals
  - 50 % of these were opioid analgesics
Prescription Opioids
Opioid Overdose Deaths

3 Waves of the Rise in Opioid Overdose Deaths

Wave 1: Rise in Prescription Opioid Overdose Deaths
Wave 2: Rise in Heroin Overdose Deaths
Wave 3: Rise in Synthetic Opioid Overdose Deaths

Epidemiology

• Heroin Use
  - National Household Survey on Drug Use and Health (NSDUH 2016)
    - 948,000 Americans used heroin at least once
    - 13,000 were adolescents age 12-17

• Prescription Opioids (NSDUH 2016)
  - 11.5 million used prescription analgesics non-medically
  - 891,000 were adolescents aged 12-17
  - 641,000 misused prescription analgesics and heroin

• Opioid use disorder present in 2.4 million > age 12
Arkansas NSDUH Data

- 2006-2007 Data for ages 12 and older
- Past year non-medical use: 169,000 or 7.29% of the Arkansas population
- 66,000 (2.85%) of Arkansans reported needing but NOT receiving treatment for illicit drug use in the past year (2006-2007)
- Admissions to treatment for opiates in Arkansas (TEDS)

<table>
<thead>
<tr>
<th></th>
<th>2006</th>
<th>2008</th>
<th>2016</th>
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<tbody>
<tr>
<td>Heroin</td>
<td>40</td>
<td>52</td>
<td>211</td>
</tr>
<tr>
<td>Other opiates</td>
<td>778</td>
<td>1441</td>
<td>1572</td>
</tr>
</tbody>
</table>
Opioid dependence: Treatment Gaps

- Patients with opioid use disorder (NSDUH-2013)
  - Pain relievers: 1.9 million
  - Heroin: 517,000
- Less than half received any treatment
- Detoxification: limited effectiveness
- Access to treatment restricted
Part I: The Problem

• Definitions

• Epidemiology
This Presentation Reviews

• Part I: The problem

• Part II: Potential solutions
Part II: Potential Solutions

• Reasons for prescription drug misuse

• Factors in prescription drug misuse

• Intervention strategies

• Treatment
Non-medical Use Rx Opioids

- Relieve pain – 63-79 %
- Feel good or get high – 32 %
- Experimentation – 27 %
- M 2X > F to report “get high”
- Get high ↑ other drug use
- Existing addiction/safety < 10 %
Generational Angst?

• “We’re living in a time that seems decidedly more apocalyptic, especially since 9/11 and all the recent natural disasters. Maybe we need something to slow down”

- Friedman, 2006
Part II: Potential Solutions

• Reasons for prescription drug misuse
• Factors in prescription drug misuse
• Intervention strategies
• Treatment
Contributing Factors

- Parents don’t talk about Rx drugs
- Pain management: late 1980’s
- New pain meds: early 1990’s
  - Hydrocodone RX ↑ 376 %
  - Oxycodone Rx ↑ 380 %
- Media changes
  - DTCA
  - Internet
Protective Factors

- Parental discussion about risks
- Gatekeeper access to Rx drugs
- School based programs
  - Science curriculum
  - Media awareness training
- Pharmaceutical approaches
Awareness of Teens “Lingo”

- Pharming
- Pilz
- Pharm parties
- Trail mix or M & M’s
- Chill pills
- Big boy
Part II: Potential Solutions

• Reasons for prescription drug misuse

• Factors in prescription drug misuse

• Intervention strategies

• Treatment
Prevention

- **↓ Exposure**

- **Target high-risk**

  - Adolescents
  
  - Genetically vulnerable
  
  - Cognitive probs (schizophrenia, brain injury)
  
  - **↑ Stress reactive (depressed/anxious)**
Intervention

- School Nurses
- Computerized, involve parents
- Cognitive Behavioral Therapy
- Motivational Interviewing
- Medication Assisted Treatment
Questions?
Part II: Potential Solutions

• Reasons for prescription drug misuse
• Factors in prescription drug misuse
• Intervention strategies
• Treatment
"I medicate first and ask questions later."
"Sorry, no water. We’re just a support group."
Opiate Withdrawal

Early
• Lacrimation
• Yawning
• Rhinorrhea
• Sweating

Middle
• Restless Sleep
• Dilated Pupils
• Anorexia
• Piloerection (term cold turkey)
• Irritability
Late Opiate Withdrawal

• ↑all previous S/S
• Tachycardia
• Hypertension
• Nausea/vomiting
• Diarrhea

• Abdominal cramps
• Labile mood
• Depression
• Muscle spasm
• Weakness
• Bone pain
Diagrammatic summary of functional state of typical "mailine" heroin user. Arrows show the repetitive injection of heroin in uncertain dose, usually 10 to 30 mg but sometimes much more. Note that addict is hardly ever in a state of normal function ("straight").

From "Narcotic Blockade," by V. P. Dole, M. E. Nyswander, and M. J. Kreek, 1966, Archives of Internal Medicine, 118, p. 305.
Medication Stabilized Heroin User

Stabilization of patient in state of normal function by blockade treatment. A single daily oral dose of methadone prevents him from feeling symptoms of abstinence ("sick") or euphoria ("high"), even if he takes a shot of heroin. Dotted line indicates course if methadone is omitted.

From "Narcotic Blockade," by V. P. Dole, M. E. Nyswander, and M. J. Kreek, 1966, Archives of Internal Medicine, 118, p. 305.
GOALS FOR PHARMACOTHERAPY

• Prevention or reduction of withdrawal symptoms
• Prevention or reduction of drug craving
• Prevention of relapse to use of addictive drug
• Restoration toward normalcy

Source: MJ Kreek, Rationale for Maintenance Pharmacotherapy of Opiate Dependence, 1992
Medications for Opioid Use Disorder

- Naltrexone
- Methadone
- Buprenorphine (Delivery system alterations)
  - Sub Q depot injections
  - Transdermal patches
  - Sub-dermal implants
Medications for Opioid Dependence

- Naltrexone
- Methadone
- Buprenorphine
Rationale for Naltrexone
Block Pleasurable Drug Effects

- Extinction paradigm: no pleasure → no use
- Craving ↓ if heroin “not available”
- Naltrexone ↓ cue-induced craving
- Naltrexone ↓ priming-induced craving
Naltrexone

- Oral FDA 1984; Injectable FDA 2010
- Derivative of naloxone
- Displaces bound agonists
- Receptor affinity 20 X morphine
- Blocks heroin/opioids
- Peak plasma concentrations in 1hr
- Minimum 7 days abstinence before induction
Figure 2. Probability of opioid use by week by treatment group (N = 127), result of random regression analyses, using a linear model. All subjects were taking naltrexone 3 times a week as maintenance therapy. CM indicates contingency management; SO + CM, significant other involvement and CM.
Naltrexone: Treatment Retention

Figure 1. Retention by week by treatment group (N=127). All subjects were taking naltrexone 3 times a week as maintenance therapy. CM indicates contingency management; SO+CM, significant other involvement and CM.
Injectable Naltrexone
Injectable Naltrexone
Naltrexone Side Effects

- Nausea/Diarrhea
- Headache
- Insomnia
- Dizziness
- Possible liver toxicity
- Opioid analgesics NOT effective
Medications for Opioid Dependence

- Naltrexone
- Methadone
- Buprenorphine
DEATH RATES IN TREATED AND UNTREATED HEROIN ADDICTS


Opioid Agonist Treatment of Addiction - Payte - 1998
Crime among 491 patients before and during MMT at 6 programs

Adapted from Ball & Ross - The Effectiveness of Methadone Maintenance Treatment, 1991

Opioid Agonist Treatment of Addiction - Payte - 1998
Relapse to IV drug use after MMT
105 male patients who left treatment

Adapted from Ball & Ross - The Effectiveness of Methadone Maintenance Treatment, 1991

Opioid Agonist Treatment of Addiction - Payte - 1998
Methadone Side Effects

- Minimal sedation once tolerance achieved
- Constipation
- Increased appetite/weight gain
- ↓ Libido; May ↓ gonadal hormone levels
- Exhaustively studied: no evidence of harm
Medications for Opioid Dependence

• Naltrexone
• Methadone
• Buprenorphine (BUP)
Potential for Abuse and Dependence

• Buprenorphine is abusable

• Diversion and illicit use (by injection)

• Low abuse potential vs other opioids

Average Number of Cases of Abuse of Buprenorphine Products, Methadone, Tramadol, and Oxycodone per Drug-Abuse Expert

Combination of Buprenorphine plus Naloxone

• Sublingual buprenorphine good bioavailability
• Sublingual naloxone relatively poor bioavailability
• Combination ratio is 4/1 (buprenorphine/naloxone)
• Suboxone (2/0.5, 4/1, 8/2, 12/3 mg films)
• Generic BUP and BUP/naloxone available
• Sublingual naloxone has a bitter taste
• New brands available
  • Minty flavored tablet (Zubsolv®)
  • Buccal film (Bunavail®)
Combination of Buprenorphine plus Naloxone

• Sublingual use → predominantly BUP effect

• Dissolves/injects → predominantly naloxone effect
Efficacy and Safety of Buprenorphine
BUP Maintenance/Withdrawal: Retention

(Kakko et al., 2003)
Buprenorphine Safety

• Highly safe medication
  - Acute dosing
  - Chronic dosing

• Primary side effects:
  - Nausea
  - Constipation
  - Headaches

• No disruption in cognitive or psychomotor performance

• No evidence of organ damage with chronic dosing
Overdose Risk Minimal

- Very low risk
- High dose BUP → no respiratory depression
- No respiratory depression BUP vs methadone
- Overdose BUP + other CNS depressants:
  - Benzos
  - Etoh
  - Barbs
Buprenorphine

- Partial mu agonist
- Effects similar to other mu agonists
- ↓ risk of respiratory depression
- Lower physical dependence
- BUP/naloxone combination preferred
  - Unsupervised dosing
  - ↓ diversion
Impact of Medication Assisted Treatment

- **Methadone**
  - ↓ mortality (Grondblah, ‘90); ↓ IVDU (Ball & Ross, ‘91)
  - ↓ crime days (Ball & Ross);
  - ↓ rate of HIV seroconversion (Bourne, ‘88; Novick ‘90,; Metzger ‘93)
  - Improved employment, health, & social function

- **Buprenorphine**
  - ↓ opioid use; ↑ treatment retention (Cochrane Review, ‘14)
  - Improved outcomes prisoners (Kampman, 2015)
  - Improved outcomes in pregnancy (Jansson, 2017)
## Opiate Addiction Treatment Outcome*

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Effectiveness</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methadone Maintenance</td>
<td>50 – 80%</td>
</tr>
<tr>
<td>Naltrexone Maintenance</td>
<td>10 – 20%</td>
</tr>
<tr>
<td>“Drug Free” (non-pharmacotherapeutic)</td>
<td>5 – 30%</td>
</tr>
<tr>
<td>LAAM Maintenance</td>
<td>50 – 80%**</td>
</tr>
<tr>
<td>Buprenorphine-Naloxone Maintenance</td>
<td>40-50%</td>
</tr>
<tr>
<td>Short-term Detoxification (any mode)</td>
<td>5 – 20% (limited data)</td>
</tr>
</tbody>
</table>

* One year retention in treatment and/or follow-up with significant reduction or elimination of illicit use of opiates

** Maximum effective dose (24mg/ml) equal to 60 to 70 mg/d methadone. Data base on 6 month follow-up only.

Kreek, 1996; 2001
Opioid Agonist Therapy

For Some Patients OAT Can Be An Effective and Durable Band-Aid..... But More Is Usually Needed For Stable Remission—"Recovery"
Part III: Expanding Access to MAT

• MATRIARC
• Project ECHO
MATRIARC

- Medication Assisted Treatment Recovery Initiative for Arkansas Rural Communities
- Partnership with Arkansas Department of Health (DBHS)
- Access to Addiction Psychiatrist and other SUD treatment clinicians to provide support to those providing MAT around the state
MATRIARC

- Call center available 8:30-4:30
  - 501-526-8459
  - 833-872-7404

- Telemedicine consultation available
  - MAT questions
  - Psychiatric assessment questions

- Working in conjunction with the 8 Federally funded SUD treatment facilities in Arkansas
Moving Knowledge Instead of Patients and Providers
At ECHO, our mission is to democratize medical knowledge and get best practice care to underserved people all over the world.

Our goal is to touch the lives of 1 billion people by 2025.
70 million in the world infected with HCV

In New Mexico estimated number was greater than 28,000 in 2004. By 2017, 53,000 patients have tested positive for HCV antibody.

In 2004 less than 5% of patients in NM had been treated.
- 2,300 prisoners were HCV positive (~40% of those entering the corrections system), none were treated.
HCV Treatment 2004

**Good** news...
- Curable in 70% of cases

**Bad** news...
- Severe side effects:
  - anemia (100%)
  - neutropenia >35%
  - depression >25%
- No Primary Care Physicians treating HCV

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Rural New Mexico
Underserved Area for Healthcare Services

- 121,356 square miles
- 2.08 million people
- 47% Hispanic
- 10.2% Native American
- 19% poverty rate compared to 14.3% nationally
- 21% lack health insurance compared to 16% nationally

- 32 of 33 New Mexico counties are listed as Medically Underserved Areas (MUAs)
- 14 counties designated as Health Professional Shortage Areas (HPSA’s)

(Statistics from 2013)

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Goals of Project ECHO

Develop capacity to safely and effectively treat HCV in all areas of New Mexico and to monitor outcomes.

Develop a model to treat complex diseases in rural locations and developing countries.
Partners

- University of New Mexico School of Medicine, Department of Medicine, Telemedicine and CME
- NM Department of Corrections
- NM Department of Health
- Indian Health Service
- FQHCs and Community Clinics
- Primary Care Association
Project ECHO® is a lifelong learning and guided practice model that revolutionizes medical education and exponentially increases workforce capacity to provide best practice specialty care and reduce health disparities through its hub-and-spoke knowledge sharing networks. People need access to specialty care for complex conditions. Not enough specialists to treat everyone, especially in rural India. ECHO® trains primary care clinicians to provide specialty care services. Patients get the right care, in the right place, at the right time.
The ECHO Model

Amplication – Use Technology to leverage scarce resources

Case Based Learning to master complexity

Share Best Practices to reduce disparity

Web-based Database to Monitor Outcomes

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What is Best Practice in Medicine

- Algorithm
- Check Lists
- Process
- Wisdom Based on Experience

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Steps

- Train physicians, physician assistants, nurse practitioners, nurses, pharmacists, educators in HCV
- Train to use web-based software — iECHO & ECHO Health®
- Conduct teleECHO™ clinics — “Knowledge Networks”
- Initiate case-based guided practice — “Learning Loops”
- Collect data and monitor outcomes centrally
- Assess cost and effectiveness of programs
Benefits to Rural Clinicians

- No cost CMEs and Nursing CEUs
- Professional interaction with colleagues with similar interest
  - Less isolation with improved recruitment and retention
- A mix of work and learning
- Access to specialty consultation with GI, hepatology, psychiatry, infectious diseases, addiction specialist, pharmacist, patient educator

Copyright © ECHO Institute
ECHO model is not ‘traditional telemedicine’. Treating Physician retains responsibility for managing patient.

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How well has model worked?

- 600 HCV teleECHO Clinics have been conducted
- >6,000 patients entered HCV disease management program

**CME’s/CE’s issued:**
- Total CME hours 79000 hours at no cost for HCV and 19 other disease areas
### Project ECHO Clinicians

**HCV Knowledge Skills and Abilities (Self-Efficacy)**

<table>
<thead>
<tr>
<th>Community Clinicians N=25</th>
<th>BEFORE Participation MEAN (SD)</th>
<th>TODAY MEAN (SD)</th>
<th>Paired Difference (p-value) MEAN (SD)</th>
<th>Effect Size for the change</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Overall Competence</strong> (average of 9 items)</td>
<td>2.8* (0.9)</td>
<td>5.5* (0.6)</td>
<td>2.7 (0.9) (&lt;0.0001)</td>
<td>2.9</td>
</tr>
</tbody>
</table>

Cronbach’s alpha for the BEFORE ratings = 0.92 and Cronbach’s alpha for the TODAY ratings = 0.86 indicating a high degree of consistency in the ratings on the 9 items.


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ECHO Model™ is Cost Effective

- In 60% of Patients treated for HCV the model demonstrated cost savings
- Overall Cost per Discounted Quality of Life Year Gained was less than 3500 dollars
- ECHO creates value for all stakeholders of the healthcare system: patients, community clinicians, community clinics, communities, specialty care sites, government and 3rd-party payers


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Disease Selection

- Common diseases
- Management is complex
- Evolving treatments and medicines
- High societal impact (health and economic)
- Serious outcomes of untreated disease
- Improved outcomes with disease management
Cumulative number of buprenorphine-waivered physicians per million population in traditionally underserved zip codes in NM versus US

Currently there are 1582 Zip Codes in the US with the following characteristics:
1) Rural (less than 1,000 people per sq mile.)
2) More than 50% of people identify themselves as American Indian or Alaska Native, Asian American, Black or African American, Hispanic or Latino, or Native Hawaiian/Other Pacific Islander.
3) The average household income is less than $52,250.

10,629,084 people reside in these zip codes, with 784,455 of those living in NM. There are 479 licensed providers residing within these zip codes, 110 within New Mexico.
What Makes ECHO Work?

- Team Based Care
- Task Shifting
- Community of Practice (Social Network)
- Joy of Work
- Technology
- Knowledge Expansion
- Force Multiplication
- De-monopolizing Knowledge
- Movement Building vs. Organization Building
- Interprofessional Consultation
- Guided Practice
- Mentor/Mentee Relationship
- Community of Practice (Social Network)
## Successful Expansion into Multiple Diseases

<table>
<thead>
<tr>
<th>MON</th>
<th>TUE</th>
<th>WED</th>
<th>THURS</th>
<th>FRI</th>
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<tbody>
<tr>
<td>Rheumatology</td>
<td>HBV</td>
<td>Community Health Workers</td>
<td>CDC Good Health and Wellness in Indian Country</td>
<td>Opioid Addiction</td>
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<tr>
<td>• Bankhurst</td>
<td>• Thornton</td>
<td>• CHW Team</td>
<td>• Struminger</td>
<td>• Komaromy</td>
</tr>
<tr>
<td>Tuberculosis</td>
<td>Bone Health</td>
<td>Endocrinology &amp; Diabetes</td>
<td>Chronic Pain and Opioid Management</td>
<td>Nurse Practitioner/Certified Midwife Primary Care</td>
</tr>
<tr>
<td>• Burgos</td>
<td>• Lewiecki</td>
<td>• Bouchonville</td>
<td>• Comerci</td>
<td>• Van Roper</td>
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<tr>
<td>Cardiology</td>
<td>Crisis Intervention</td>
<td>Miners' Wellness</td>
<td>Prison Peer Education Program</td>
<td>Integrated Addictions and Psychiatry (IAP)</td>
</tr>
<tr>
<td>• Achrekar, Anderson &amp; Yatskowitz</td>
<td>for Community Policing Agencies</td>
<td>• Sood</td>
<td>• Thornton</td>
<td>• Komaromy</td>
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<tr>
<td>Reproductive Health</td>
<td>Seizures and Spells</td>
<td>Hepatitis C (HCV)</td>
<td>HIV/ HCV Corrections</td>
<td>Antimicrobial Stewardship</td>
</tr>
<tr>
<td>• Singh</td>
<td>• Imerman</td>
<td>• Arora</td>
<td>• Iandiorio &amp; Thornton</td>
<td>• Brett, Irizarry &amp; Mercier</td>
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</tbody>
</table>
Please fill out the survey so that you can receive CME for today's event.
Questions?

• Thank You
  - To all our guests
  - AR Department of Human Services DBHS
  - Peggy Healy
  - Anner Douglas
  - LeeAnna Hungerford
  - Department of Psychiatry
  - Todays Speakers
  - Dr. Sanjeev Arora project ECHO