medication-assisted treatment 101
medication overview & a review of the evidence

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Part 1

the neuroscience of addiction
substances affect the brain

{ chemically
structurally
behaviorally}
the **reward** pathway

drugs & alcohol act on the reward pathway, the same region activated by:

- eating
- sex
- drinking
- other pleasurable activities
chemical changes
the role of dopamine

• increase in available dopamine

• results in pleasurable feelings

• the behavior is reinforced

• the effect of previously pleasurable activities is blunted
non-drug user  heavy cocaine user

(National Institute on Drug Abuse, 2010)
smoker

alcoholic

obese

cocaine

non-smoker

normal

normal

normal

(Volkow, 2001)
Decreased Brain Metabolism in Drug Abuser

- Healthy brain
- Diseased brain/cocaine abuser

Decreased Heart Metabolism in Heart Disease Patient

- Healthy heart
- Diseased heart

(National Institute on Drug Abuse, 2010)
serotonin
endogenous opioids
GABA

glutamate
structural changes
Healthy elderly person

Person with Alzheimer’s disease

Heavy drinker

(National Institute on Alcohol Abuse & Alcoholism, 2004)
control brain  

alcoholic brain

(National Institute on Alcohol Abuse & Alcoholism, 2004)
behavioral changes
behaviors that are rewarded are likely to be repeated.

Classical and operant conditioning
positive reinforcement
negative reinforcement
environmental cues
recovery
healthy brain

cocaine abuser (10 days clean)

cocaine abuser (100 days clean)

(National Institute on Drug Abuse, 2007)
normal control  meth abuser (1 month of abstinence)  meth abuser (14 months of abstinence)
review: substances affect the brain...

chemically
structurally
behaviorally
Part 2

mythbusting
the facts and fiction
of medication-assisted treatment
“…treatment for a substance use disorder that includes a pharmacological intervention as part of a comprehensive substance abuse treatment plan...”
how MAT works

{ eases withdrawal
  reduces cravings
  induces illness }
myth #1: MAT is just replacing one drug with another.
<table>
<thead>
<tr>
<th>MAT vs. illicit drugs</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>prescribed/monitored by a medical provider</td>
<td>obtained by illegal means</td>
</tr>
<tr>
<td>FDA-approved</td>
<td>not legally permitted</td>
</tr>
<tr>
<td>regulated potency</td>
<td>potency varies</td>
</tr>
<tr>
<td>curbs cravings and withdrawal symptoms</td>
<td>results in euphoria or a “high”</td>
</tr>
</tbody>
</table>
myth #2: MAT doesn’t work.
to be approved by the FDA, medications must be shown to be **safe**, but also **effective**
treatment outcomes for buprenorphine (Suboxone)
treatment outcomes for methadone

- increased treatment retention
- decreased illicit opioid use
- 8-10 fold decrease in drug-related deaths
- increase in employment rates
- decrease in criminal activities
treatment outcomes for alcohol medications

- reduces total number of drinking days
- reduces number of heavy drinking days
- increased likelihood for abstinence
- reduces the risk of relapse
- reductions in criminal recidivism
myth #3: If someone is clean, they don’t need MAT.
drug overdose is one of the leading causes of death for individuals being released from prison or jail
Drug overdose was the leading cause of death for those released from Washington State prisons between 1999 and 2003 (Binswanger et al., 2007).

Before...

- Homicides,
- Suicides,
- Heart disease, and...
- Motor vehicle accidents

Reductions in Mortality
myth #4: MAT isn’t supported by 12-Step programs.
“No A.A. member should ‘play doctor’;’ all medical advice and treatment should come from a qualified physician.”

--A.A. General Service Office
(Member Medications & Other Drugs brochure)
“...just as it is wrong to enable or support any alcoholic to become readdicted to any drug, it’s equally wrong to **deprive** any alcoholic of medication, which can **alleviate** or control other disabling physical and/or emotional problems.”

--A.A. General Service Office

*(Member Medications & Other Drugs brochure)*
“NA as a whole has no opinion on outside issues, including prescribed medications. Use of psychiatric medication and other medically indicated drugs prescribed by a physician and taken under medical supervision is not seen as compromising a person’s recovery in NA.”
myth #5: MAT is too expensive
many MAT medications can be found on state Medicaid/Medicare formularies
RBHA formulary

\{ buprenorphine/naloxone, buprenorphine, disulfiram, acamprosate, naltrexone \}
for those patients who do not qualify for Medicaid or Medicare, many patient assistance programs are available through the drug manufacturers.
additional MAT funding sources

- grant funding
- private insurance
- prescription discount cards
- tribal funds
Part 3

the medications
uses and considerations
medications for alcohol

- naltrexone
- acamprosate
- disulfiram
naltrexone (Depade®, ReVia®, Vivitrol®)

**mechanism:** blocks the pleasurable effects of alcohol; reduces alcohol cravings

**pros** can be used for alcohol & opioid dependence, non-addictive, reduces drinking episodes & volume, extended release available

**cons** non-compliance
acamprosate (Campral®)

mechanism: assists in post-acute withdrawal symptoms (e.g. irritability, anxiety, agitation)

**pros** non-addictive, can assist patient in maintaining abstinence, not easily abused/misused, affordable

**cons** patient must be abstinent to begin treatment
disulfiram (Antabuse®)

mechanism: makes patient physically ill when ingesting alcohol

pros non-addictive, affordable ($60/mos), useful with chronic alcoholism

cons non-compliance, risk of death for those with existing health conditions, may not be appropriate for SMI px’s
medications for opioids

{ methadone
  buprenorphine
  naltrexone }
how do opioids work?

- **Full agonist** (e.g., methadone)
- **Partial agonist** (e.g., buprenorphine)
- **Antagonist** (e.g., naloxone)
methadone (Methadose®, Dolophine®)

mechanism: full agonist (acts on opioid receptors), alleviates withdrawal symptoms & cravings

**pros** affordable (usually gov’t subsidized), convenient dosing (1x/day), demonstrated safety for pregnant women

**cons** intoxication with too high a dose, risk of overdose
buprenorphine (Subutex®)
buprenorphine/naloxone (Suboxone®)

**Mechanism:** Partial agonist - blocks euphoric effects of opioids, alleviates withdrawal, assists with cravings

**Pros**
- Easier to taper than methadone,
- Less risk of OD than methadone,
- Available in a sublingual film, naloxone discourages abuse

**Cons**
- Costly $$$

*buprenorphine/naloxone (Suboxone®)*

![Suboxone®](image)
buprenorphine/naloxone (Bunavail®)

new FDA-approved buprenorphine/naloxone generic sublingual film

expected release: Oct. 2014

manufacturer claims 2x the bioavailability - allows for lower dose (arguably less risk for abuse)
upcoming products

**injectable** buprenorphine; once a month dosing

buprenorphine **implant**, good for 6 months

more to come....
naltrexone (Depade®, ReVia®, Vivitrol®)

**mechanism:** full antagonist (blocks opioid receptors)

**pros** prevents euphoric effects of opioids; non-addictive; extended release available

**cons** non-compliance
Part 4

building a case for MAT
a review of the evidence and patient benefits
substance abuse treatment is effective and cost-neutral…

…but half of consumers will be lost to attrition
benefits of MAT

- reduced criminal activity
- reduced substance use
- improved treatment retention
- lower risk of overdose
- improved functioning
- employment
improved treatment retention
counseling only

23 days in community treatment

0 offenders remained in treatment at 1 year

n=204; randomly assigned

(counseling + methadone)

166 days in community treatment

1/3 of offenders remained in treatment at 1 year

(Kinlock, Gordon, Schwartz, Fitzgerald & Grady, 2009)
reductions in substance use
204 prison inmates received counseling or counseling and methadone treatment services (Kinlock et al., 2009)

2x as many inmates in the counseling only group screened positive for opioids at 1 year post-release
interim methadone treatment

(Schwartz, Jaffe, Grady, Das, Highfield, & Wilson, 2009)
buprenorphine clinical trials

24

4,500 opioid-addicted patients

buprenorphine was significantly more effective at reducing illicit opiate use than placebo

(Mattick, Kimber, Breen & Davoli, 2008)
naltrexone v placebo

- fewer slips
- fewer significant relapses
- fewer total drinking days

(O’Brien, Volpicelli, & Volpicelli, 1996)

naltrexone v placebo

- reduced consumption
- fewer relapses
- cont’d abstinence

(O’Malley et al., 1992)
reduced mortality
8-10 fold reduction in deaths for opiate dependent individuals using methadone

13x higher mortality rate for opiate users than non opiate users
death rates in treated & untreated heroin addicts

matched cohort: 0.15
methadone: 0.85
voluntary discharge: 1.65
involuntary discharge: 6.91
untreated: 7.2
MAT has also been found to reduce risky behaviors—IV drug use and unprotected sex—reducing HIV and Hepatitis C.
reductions in criminal activity
MAT can reduce criminal activity and reincarceration.
Reductions in Recidivism

Annual Crime Days Before Methadone Treatment and During Methadone Treatment (amongst 6 programs) (Ball & Ross, 1991)
• 342 inmates with opioid dependence

• methadone maintenance while incarcerated; referral for methadone clinic upon release

• reincarceration rates were reduced by 70% while participants were enrolled in treatment

(Dolan et al., 2004)
• 300+ opiate dependent clients

• interim **methadone treatment** vs. no treatment/waiting list

• significantly fewer **arrests** at 6 months

(Schwartz, Jaffe, O’Grady, Kinlock, Gordon, Kelly, Wilson & Ahmed, 2009)
improvements in employment status
↑ functioning

↑ employment outcomes
cost savings
$27,802
average annual cost per offender for incarceration in Pima County jail

$11,442
average cost per offender for one year of out-of-pocket MAT services and standard probation

If an offender pays 40% of his or her treatment costs, the cost of one year of standard probation and MAT services drops to $7,354
$16,360

annual savings per year, per offender, when providing MAT services to an offender on community supervision, as opposed to incarcerating that individual for one year
$72.5 billion

annual healthcare costs related to prescription opioid misuse/abuse
MAT cost-savings

- improved health outcomes
- improved productivity
- reduced absenteeism & presenteeism
- reduced criminal activity
- reduced recidivism/reincarceration
Part 5

MAT referral process simplified
identifying appropriate candidates
and locating providers
identifying MAT candidates
appropriate MAT candidates

- history of use
- previous failed treatment attempts
- openness to try MAT
active psychosis
serious health conditions
dependent on multiple substances

inappropriate MAT candidates
medical professionals will make the ultimate **determination** around **eligibility**...
locating an MAT provider
The Substance Abuse and Mental Health Services Administration’s buprenorphine physician locator can identify those providers in your area who are certified to prescribe buprenorphine.
the Single-State Agency (SSA) for substance abuse treatment providers for your state can point you to MAT providers in your area…
other MAT provider resources

in-house treatment coordinators/liaisons

existing contracted providers

requesting MAT of existing providers
help us help you...

-name of agency
-contact info.
-forms of MAT
-forms of payment

OR...

names of providers you’re referring to
funding MAT
financing

Medicare/Medicaid

private insurance

patient-assistance programs

prescription discount cards

grant funding

tribal funds
healthcare reform implications

changes in age restrictions

employer mandates

Medicaid expansion

health exchanges

substance abuse treatment parity
strengthening relationships with MAT providers
strengthening relationships { cross-trainings liaisons contractual arrangements}