

Addressing Misconceptions about MAT

I had the privilege of testifying before both the Arizona House and the Senate Health Committees in support of the Arizona Governor's proposal to address the state's opioid epidemic. As the CEO of the largest Opioid Treatment Program network in the state, I was enthused to see the passion of our state leadership towards dealing with this important issue. However, I was also very shocked at many of the misconceptions held by both our state leadership and by other behavioral health providers on the efficacy of treatment modalities for treating those suffering from opioid-use disorders (OUDs). In fact, these very misconceptions and the stigma that they promulgate are some of the largest reasons why people avoid seeking necessary treatment. Below are a few of the questions that were raised during these hearings.

Are there more effective treatments than medications for treating those suffering from OUD? The addiction treatment infrastructure in the US was built over the last several decades to primarily treat alcoholism and other substance-use disorders without the use of medications; thus when talking about addiction treatment we repeatedly hear of a need for "beds" and detox facilities, which historically have not incorporated MAT maintenance into their treatment protocols. However, many people erroneously think that we can rely on this infrastructure to treat the current opioid epidemic that is ravishing our nation. Research tells us that opioid dependency needs a very different modality of treatment than other types of addictionsⁱ. In fact, SAMHSA, the CDC, the WHO and all other major global and national health agencies agree that MAT is the most effective treatment for those suffering from OUD and that abstinence-based treatment (treatment without MAT) works for approximately 8-10% of those suffering from OUD^{ii iii}. According to Mary Jane Kreek, the world renowned neurobiologist, "all proper prospective studies have shown that more than 90 percent of opiate addicts in abstinence-based treatment return to opiate abuse within one year^{iv}". Study after study has confirmed that MAT, and methadone treatment in particular, decreases overdose death rates by 75%^v. In fact, research tells us that if someone enters into inpatient detox treatment for OUD, they are more likely to die of an overdose after treatment than if they were to drop out of treatment prior to completion^{vi}. Yet, in every conversation that I was a part of during these hearings I heard the need for more beds being repeated incessantly.

MAT is just a short-term treatment to help someone recover from the effects of opioids. While detox and in-patient care might be appropriate for users with shorter histories of opioid use who don't meet the DSM-V (the diagnostic manual for clinicians) criteria for OUD, brain scan technology tells us that it takes at least 14 months for the brain of someone with a longer history of use to heal and sometimes even longer^{vii}. That is why modalities such as detox (even with accompanying short-term MAT) and 28-day residential treatment without accompanying MAT maintenance does not work for most people suffering from OUD^{viii}. According to Surgeon General Murthy's report (I'd encourage all to read: *Facing Addiction in America*) "Patients who receive MAT for fewer than 90 days have not shown improved outcomes. Individuals who receive MAT for fewer than 3 years are more likely to relapse than those who are in treatment for 3 or more years^{ix}". However, research tells us that while MAT is the most preferred treatment for this disease and methadone treatment has the greatest potential for healing the patient's brain, it is a long-term course of treatment. 25% of patients who receive methadone eventually can be tapered off of the medication, but another 25% stay on it indefinitely and the remaining 50% typically return to treatment intermittently throughout their lives. Thus, while MAT can help an OUD patient's brain heal^x, many patient's brain chemistry never stabilizes and they must remain on MAT for their entire lives^{xi}.

Aren't treatments such as methadone and buprenorphine, which are both opioids, simply replacing one addiction for another? Methadone and buprenorphine actually have more chemical similarities to your brain's natural opiates (ie endorphins and encephalins) than to opioids which is why these medications don't cause a high when given in a stabilizing dose^{xii}. When someone uses illicit opioids for extended lengths of time, their brain ceases to produce its own endorphins without an external stimulus; thus MAT replaces the lacking endorphins, which stabilizes the person's brain so they can deal with the psycho-social components of their addiction. Additionally defining a "dependence" on a medication as an "addiction" is a misuse of terms. Both NIDA^{xiii} and ASAM^{xiv} define addiction as being defined by continuing a bad behavior in spite of negative consequences. You do not get HIV, hepatitis C, overdose, gunshot wounds or arrest from MAT; you get that with heroin use.

Isn't it sufficient to provide just one medication to those suffering from OUD? Much like with treating other disorders (think depression or ADD), different people respond to different medications. While research shows that methadone and buprenorphine (and possibly injectable naltrexone) are equally effective when matched with the right person, it is a leap to say they are equally effective for the population as a whole (though experts agree that both buprenorphine and naltrexone are safer, more easily accessible, and less divertible than methadone). In fact, we are starting to get a glimpse via research on what percentages of people respond best to which medications. For instance, when you look at global studies where treatment programming and the cost to the patient are similar between medications, you see that approximately 70-80% of patients are on methadone and 20-30% are on buprenorphine, which may allude to the appropriate genetic responsiveness ratios to each medication^{xv}. Similarly, researchers have identified the gene that determines if people will respond to naltrexone treatment and have shown that only a minority of the US population actually carries the gene^{xvi}. In an attempt to determine the best treatment modality for the largest number of people, researchers have randomly assigned patients to different modalities in the same setting and found that methadone treatment works for a larger number of people than other medications^{xvii}. Of note, the trait which makes buprenorphine safer than methadone is also one of its key drawbacks; buprenorphine has a ceiling effect which means that it is only effective up to a certain dose, so for users with a more intense history of use, buprenorphine would have little effect while methadone would be preferred. Additionally, some forms of MAT can actually help a patient's brain heal after drug use. With the use of excessive opioids, the brain's opiate receptor density decreases ("down regulation"), thus tolerance occurs as more opioids are needed to get the same effect. As you take away the opioid, the receptors begin to come back (up-regulation), thus increasing the sensitivity to opioids. Upregulation happens with naltrexone treatment (and possibly with buprenorphine) as well though to a much larger degree than with opioids^{xviii}. As such, after a period of abstinence (or naltrexone treatment), the brain becomes hyper-sensitive to opioids, which is the reason many people overdose after detoxing. Methadone however has not been shown to cause this phenomenon^{xix} and thus with the course of methadone treatment, some patient's receptors can begin to regenerate^{xx}.

While I am sure that our national and state leaders have the best intentions when asking these questions, the belief in these misconceptions are some of the most significant contributors to the stigma and shame that are actively deterring some of our most vulnerable citizens from getting the one treatment modality that will most likely save their lives. In fact, according to the Surgeon General's report, only approximately 20% of those suffering from OUD in the US are getting MAT, whereas in other countries that provide MAT, the number is between 40-50%^{xxi}. There is not a one-size fits all approach

to treatment for this disease. And in reality, the most effective treatment modality is a combination of many treatments tailored to each individual's needs. However, it is imperative, in the midst of this epidemic, that we base our decisions on facts and evidence rather than on philosophies, vested business interests, anecdotal evidence or personal experiences. Only then will we be able to move the needle in this arduous fight.

I would encourage anyone who is interested in this topic to conduct a quick search on Google Scholar to learn more about this topic. Methadone treatment in particular has more research behind it than any other treatment for any type of addiction^{xxii}. A copy of this article with included citations can be found here http://communitymedicalservices.org/addiction_facts_50_432197346.pdf and further research can be found on NIDA's FAQ page <http://www.drugwarfacts.org/chapter/methadone>.

ⁱ <https://www.ncbi.nlm.nih.gov/pubmed/17052031>

ⁱⁱ http://www.who.int/substance_abuse/activities/treatment_opioid_dependence/en/

ⁱⁱⁱ <http://www.drugwarfacts.org/node/3236>

^{iv} <http://projects.huffingtonpost.com/dying-to-be-free-heroin-treatment>

^v <https://www.asam.org/docs/default-source/advocacy/mat-talking-points-final.pdf?sfvrsn=0>

^{vi} <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC153851/>

^{vii} <https://www.drugabuse.gov/publications/drugs-brains-behavior-science-addiction/treatment-recovery>

^{viii} <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3411273/>

^{ix} <https://addiction.surgeongeneral.gov/surgeon-generals-report.pdf>

^x <https://jamanetwork.com/journals/jama/article-abstract/375208?redirect=true>

^{xi} <https://www.health.harvard.edu/mind-and-mood/treating-opiate-addiction-part-i-detoxification-and-maintenance>

^{xii} <http://www.abc.net.au/radionational/programs/healthreport/addiction/3554406>

^{xiii} <https://www.drugabuse.gov/publications/media-guide/science-drug-abuse-addiction-basics>

^{xiv} https://www.asam.org/docs/default-source/public-policy-statements/1definition_of_addiction_short_4-11.pdf?sfvrsn=6e36cc2_0

^{xv} <http://theconversation.com/a-snapshot-of-methadone-and-buprenorphine-treatment-in-australia-7752>

^{xvi} <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2666924/#R7>

^{xvii} <https://www.ncbi.nlm.nih.gov/pubmed/23961726>

^{xviii} <https://www.ncbi.nlm.nih.gov/pubmed/8275346>

^{xix} <https://www.ncbi.nlm.nih.gov/pubmed/26390873>

^{xx} <http://onlinelibrary.wiley.com/doi/10.1046/j.1360-0443.1999.9479612.x/full>

^{xxi} <http://www.who.int/bulletin/volumes/86/3/08-010308/en/>

^{xxii} <https://www.health.harvard.edu/mind-and-mood/treating-opiate-addiction-part-i-detoxification-and-maintenance>