Laurie Baty: Afternoon, I'm sorry that our interpreters are not here, but if you wait, maybe they'll come. That's the end of my sign language. Good afternoon. I'm Laurie Baty, the Director of the DEA Museum here at DEA headquarters. Welcome to our fourth and final lecture of 2018 fiscal year. A special welcome to those of you live streaming. In particular folks going through CME outfitters for their CME use. Thanks for being here. As a reminder, please silence your cell phones, now. Today's some new and not so new drugs topic is rather current. I would say opioids and heroin. Our speakers run the gamut from DEA's, Intel through medical doctors working on addiction issues. **[00:01:00]** Past lectures were on marijuana, synthetic drugs and cocaine. By considering these topics, we have been able to connect leading experts with our public, both employees and individuals outside of law enforcement. Dr. Mark Gold who worked with us on putting together the lecture series will again moderate and I'll turn the program over to him. Dr. Gold.

[Applause]

Dr. Gold: Thanks for being here. And I see a lot of familiar faces from the previous programs, I like that very much. Today we were all in the midst of an opioid crisis or epidemic and the data's pretty clear whether you look at the CDC data and we'll hear a little about that. Well you just read the newspapers, it's hard to ignore that, opioids or are everywhere. This program will attempt **[00:02:00]** to give a comprehensive overview. Then after formal presentations, the speakers will have plenty of time to answer questions, questions that you email in or text in, or questions that come from the live audience. But regardless of where you look, it's hard to ignore how many people are dying of overdoses, how many people are being rescued by Narcan, and how difficult the crisis is and how it's morphed so quickly from prescription opioids to heroin, to heroin plus other drugs as adulterants.

Fortunately for this celebrity, there was availability of Narcan. I could tell stories and if somebody asks about the Yale Emergency Room in the early 1970s with Narcan and how we had to break open vials to rescue people. And oftentimes we'd cut ourselves in the process **[00:03:00]**. Things have really developed, but they haven't developed completely, you still don't have Narcan on planes. And this was the subject of a recent blog and you know, even if you're on your own plane, you might not have Narcan you might have to stop. So it's really almost every week we have some tragedy that comes to attention, but everyday there is a crisis for somebody as so many people have been, or have overdosed, some have rescued, some have looked for treatments. And, you know, we've dealt with that here, We've dealt with it in the cocaine panel and I see our DEA expert in talking in a very early on about how cocaine has been adulterated with fentanyl.

When people think about overdoses, it's not the history that gives you a clue as to whether **[00:04:00]** you give Narcan, you just give it on the basis of the clinical presentation. So, you know, clearly drug overdoses are now the leading causes

of injury related death, eclipsing motor vehicle accidents, misuse of prescriptions have continued. There is a growing use of heroin and heroin mixed with fentanyl. The epidemic seems to be worsening, and in a recent paper by Keith Humphreys, they estimated that over 500,000 people could die in the continuation of this opioid crisis. It's a national epidemic, summarized here.

We have to start the panel, Dr. Teresa Rummans, who's a professor at Mayo Clinic in Rochester and an expert on how this got started and how good intentions contributed to bad outcomes. She's been a leader **[00:05:00]** in both psychiatry and addiction psychiatry and a prominent member of the American College of Psychiatrists, a role model and mentor who's worked tirelessly to make a difference in both psychiatry and addictions. So, without further ado, Dr. Rummans.

[Applause]

Dr. Rummans: Dr Gold, thank you very much for inviting me to join this very great group and talk to you a little bit about some of the work that some colleagues of mine and I put together a recently and published in the Mayo Clinic proceedings. And that's really basically about this particular opioid epidemic. There have been many over the years since the early 1800s since the DEA Museum highlights, but why is this one any different and that's what I want talk a little bit about and so how some really good intentions **[00:06:00]** that started this off, turned into the really bad problem that we've got right now.

I think most of you are probably sitting in this room know a lot of the data that I'm going to present, but I'm just going to give a little twist to it at the same time. As you can see the opioid epidemic, both the epidemic and the deaths from the opioids are changing almost daily as we sit here and talk they're continuing to change. This slide was done -- the data from the CDC was in 2016 and at that point we had 64,000 deaths from opioids. As many of you know, last year in 2017 there were 72,000 deaths from opioids. No telling how many they're going to be this year at the end of 2018. So this is a rapidly changing problem.

This, I think highlights it pretty well too. This 2015/2016 slide looks at the causes of death from the CDC standpoint and of course heart disease and cancer always upfront, but if you take a look at this **[00:07:00]** -- I don't have a pointer to point, but there's the drug overdose in the middle, but that's really kind of an understatement here because if you really think about this, there are a number of other categories here that are really influenced by drugs, drug deaths, whether it's alcohol or other drugs, motor vehicle accidents, how many motor vehicle accidents that caused death are caused by alcohol or other drugs. Suicide obviously oftentimes is from drugs and the fact probably the statistic that I only learned in a few years ago, which really surprised me was how frequently on the firearm deaths are really associated with suicide. It's not homicide. Three fourths of them are suicide, not homicide. So if you put all of these categories

together, the number of deaths because of alcohol, drugs in general are mental health issues are only third to heart disease and cancer. So they eclipse, everything else **[00:08:00]**. That's why this subject is so important.

So how does the U.S. compare with the rest of the world with regards to the opioid use? Back in 2016, it was, it was pretty well known that data was coming out showing that 80% of all the opioids used around the world were used in the United States and that's why you were hearing so much about the death problem here in this country. However, just in the last couple of years, it's becoming a worldwide problem. The number of deaths from tramadol in Nigeria and Gabon have just skyrocketed. And so there was an interesting paper just published in Lancet recently looking at the number of opioid deaths in the Middle East and Africa. So this problem is everywhere, not just here. So how did we get here and why, why now?

Part of it is addressing the chronic pain and what do I mean by that? In 1980 there was a five-sentence. Yes, five sentences **[00:09:00]** letter to the editor in the New England Journal of Medicine that probably started part of the problem that we're dealing with today. Well meaning, but a problem, they looked at the number of people that were in the hospital at the time, there were about 10,000 over a year or two and looked at all of these individuals who had been given opioids while they were in the hospital to try to find out how many of them actually became addictive. Well in the hospital they didn't become addicted and that's what they published. As a result of that, a number of physicians who were pain doctors started advocating that we should be treating chronic pain with opioids and that's exactly what they did and there was then a special push to primary care physicians.

So that was really the beginning. So the 1980s was lots of education and push for doctors to start actually treating chronic pain with opioids, not just acute pain from injuries or terminal pain from cancer and other causes, but now all pain, and especially chronic pain **[00:10:00]**. So, but that didn't end the story. There are many other factors to this and one of them as more and more people were being treated for chronic pain then everybody was being asked about their pain issues. So in 2001 the joint commission, which is the group of individuals who go from hospital to hospital to evaluate the hospital's status and whether or not they can stay open or not. Decided that what they really needed because pain was such an issue for so many people that we should be monitoring this much closer than we did. And I think many of you, if you're in the medical field, have heard about this because it was known as the fifth vital sign.

So people would come in and take your blood pressure and your pulse and your temperature and it also asks you about your pain control. But by 2009, the joint commission realized that this was not a smart thing that they did. And this really did contribute to more and more people being given opioids. So in 2009, they tried to **[00:11:00]** retract what they had recommended, but it was a little too late

because I don't know how many of you work in hospitals or have been in a hospital, but the nursing staff still are asking individuals today about going in multiple times in an hour. What's your pain control? What's your pain control, and do you need medications for it?

So about the round the same time the patient's satisfaction data started becoming something that was being advocated that we really start paying attention to and use it as a proxy for looking at quality of care. And it started basically about the same time that joint commission was looking at the fifth vital sign from the Institute of Medicine or the IOM putting forth they are crossing the quality chasm and how the health care system of the 21st century could really improve itself. They came up with six areas and one of the areas that they pointed out was patient centeredness**[00:12:00]**, but there were really no metrics or way of measuring patient's centeredness. So what they started doing is using the patient's satisfaction data as a proxy for looking at quality and outcomes, even though there was no data and there is still no data to show that this is, that they really do measure quality and outcomes.

So shortly after this occurred, then CMS got involved, and in 2005 the Deficit Reduction Act required hospitals to participate in HCAHPS, which includes both questions on pain control and patient satisfaction. And you say, well big deal that that's already happening with the joint commission and patient satisfaction. But the kicker was then CMS, which is obviously the biggest payer of, of medical care in the country because of Medicare and Medicaid said we will now start reimbursing physicians and hospitals based on these metrics. So based on how well you **[00:13:00]** control someone's pain level, it started out at about 2% as more of as a penalty if you weren't really controlling patients' pain well. But then by 2010 it became much larger. And the patient experience domain comprised about 30% of the total score for reimbursement. So this was huge. Even though there was no evidence still to show that this really did equate with quality and outcomes. So this became obviously a huge problem even though it is changing slowly now, but the retail pharmacies and the insurance companies also played a role in this. Both groups charge for, as I said before, for smaller prescriptions when they needed refills rather than just receiving larger amount up front, and both charged for much more for non opioid medications, for pain and **[00:14:00]** for the opioids.

So how did we get here? This is a combination of factors as I've already alluded to that set the stage for this. There is not one group of people or one situation that you can point a finger at and said, this is a cause of this problem. It involves all of us, everybody in this room, everybody on this planet. Now, as it's starting to move worldwide. Health care providers began prescribing opioids that should not have been prescribed for chronic pain patients and more opioids were sitting out just available for other people to actually get them. Physicians in hospitals were being assessed routinely for how well they were controlling patients' pain,

even though pain is a human condition that can't be totally eliminated, and then on top of it getting reimbursed for it, which obviously would fuel the fire.

Now after 30, **[00:15:00]** almost 40 years of this patients actually expect and in many cases demand that all of their pain is controlled and will not accept the fact that they may have to live with mild pain or moderate pain and that there is not going to be a quick cure. And as a result of that is, as in this last year, as many states as you well know, are having physicians cutback on the number of opioids if they're allowed to prescribe it one time. The illegal drug market is moving in, with very cheap agents that are, that are deadly.

So what can be done to stop this crisis and not unintentionally create another one, because we don't want to do exactly what I've just seen in Florida in the last week when I was down there though the laws are changing, people are having to be registered **[00:16:00]** to prescribe these medicines, they have to go on certain websites to see if the patient is getting prescriptions elsewhere, etc, etc, etc. So there are a number of people saying, I'm just not going to prescribe them. People walk into their office on large amounts of benzodiazepines or opioids and the doctor says well I'm just not going to prescribe it, and they're going through **full** withdrawal when they're cut off suddenly. That's not what you want either. You don't want one extreme to the other, which we have a tendency to do. So how do we deal with this problem? Everyone has to take ownership like I've already said, and we have to work together to make a change. The health care provider practices need to change on how we assess and treat pain that is happening, that's being mandated. So no more are doctors going to be giving a 30-day supply or a 60-day supply to somebody who's had a minor procedure, so this is, this is happening, but that alone will not curb this.

Government regulations, including using patients' **[00:17:00]** satisfaction data as a proxy for quality and outcomes, and then also for reimbursement needs to change. Insurance companies and pharmacies need to work together, with health care providers and patients to support non-opioid pain treatment. They're not just other medications, but they're wonderful pain programs to help people from a multidisciplinary perspective on how they may manage their pain and still have a productive life and a good quality of life. And then finally, our whole society needs to be educated about the fact that pain will not always be controlled and it will not always be eliminated, but there are ways that we can try and help people manage it so that their quality of life remains as good as it possibly can.

So with that, I'll stop and turn it over to the next person.

Dr. Gold: Thank you.

[Applause]

Dr. Gold: Wow!. Even right on time **[00:18:00]**. The next speaker is Dr. Bruce Goldberger. He is a forensic toxicology expert, maybe the nation's number one forensic toxicologist, meaning that he tells us what the cause of death is, and his talk is really about cause of death. This is, just from the news today, a recent news of, of ways to use forensic reporting to maybe change prescribing by sending out death reports. There's Dr. Goldberger as I knew him and when we were collaborators, we've both aged a little bit, but, he's, we're really delighted that he could come.

[Applause]

Dr. Goldberger: Thank you, Dr. Gold. So today I'm going to speak about the opioid crisis, the epidemic of overdoses and deaths and the prior talk **[00:19:00]** just before me really laid the foundation perfectly about where we are today because I'd like to start always talking about how do we get here, and this is published in the New York Times about a month ago where it states bleak new estimates and drug epidemic. A record 72,000 overdose deaths in 2017. That's actually an underestimation of deaths I believe, because not all the deaths have been recorded and tracked by the CDC. These are only provisional numbers.

This is a chart that was published in the New York Times based on the provisional CDC data, and you'll see that the synthetic opioids have taken over this picture of intentional and/or the overdoses and the deaths.

We can see that the entire country primarily has been affected by this increase in drug **[00:20:00]** overdose deaths. Only a few countries or a few states have a diminished numbers, but most of the states, the numbers have increased significantly. When I tried to lay the foundation for where we are today, I always like to look back at the past and where we're coming from and on this slide I showed some of the most common drugs that we find in our decedents who died from drug overdoses, and most of our deaths, as you see, are related to mixed drug overdose, primarily with combination of opioids and benzodiazepines and sometimes stimulants, but today we have this new market of drugs. As was indicated, when we pull back the prescription drugs, the legal drugs, people who are addicted tend to seek illicit drug. There's a new terminology out there called NPS novel psychoactive substances. I don't really care for that terminology and there is some effort today **[00:21:00]** now to rewrite that terminology because it doesn't really look at the drugs specifically. It's just a terminology for a wide range of drugs like synthetic cannabinoids. When I arrived last night at DCA, I was listening to WTOP in the cab and they were speaking about the roughly 200 or so a K2 overdoses here in DC in the last couple of days. That's not new because in New Haven a couple of weeks ago there were hundreds of, of overdoses and across the country thousands. Move down to the opioids or, or I liked this new term Fentalogs because we say fentanyl, fentanyl analogs, we coined a new term, Fentalogs and here they are. These are synthetic opioids. Over on the left of this slide shows some, but **[00:22:00]** certainly not all of the

possible hundreds of different analogs. Some of the more common ones that we have seen are drugs like Acetylfentanyl, Carfentanil, Furanylfentanyl, Valerylfentanyl. Those are just a few that have killed hundreds, maybe thousands of people across the U.S. There's also other synthetic opioids like U-47700. How they come up with this terminology, I don't know, but there are deaths associated with ingestion of these compounds.

When I look at the drug data and I sign out and review of over 3000 cases per year, and about 40 or 50% of them are going to be drug overdose cases. Almost, I'd say less than 5% of them are single drug overdose cases. It's always, almost always a multi-drug substance abuse death. Before say 2010 **[00:23:00]** or so before we began to see some of these new drugs, it was always a prescription opioid with a prescription Benzodiazepine like oxycodone and alprazolam. Now we see heroin with fentanyl, with cocaine or fentanyl with methamphetamine. We'll get to that soon, but it's always a mixture, which is very interesting to me. Rarely do I ever see a fentanyl or fentanyl analog only death. It's always a mix. And then we also know that the number of drugs that are ingested is directly related to the incidents of fatal overdose, particularly with the less potent fentanyl analogs. As soon as you put Carfentanil into the mixture, which is a very potent fentanyl analog, it really doesn't take a whole lot to kill.

As a toxicologist and as physicians, they evaluate these considerations. Many times, we see the speed ball effect, where the, **[00:24:00]** the drug user is ingesting heroin with cocaine or fentanyl with cocaine or with methamphetamine. In some instances that's deliberate. In other instances it's not deliberate and that needs to be considered, but in many instances it is fatal. When you mix a depressant with a stimulant, the effects don't counteract one another, perhaps it's even more fatal. So it's not like a mixing caffeine with alcohol as, as an antidote, it doesn't work. We see combined drug effect. If you mix cocaine with methamphetamine or cocaine with heroin, you get at least an additive effect. So both drugs are affecting the central nervous system independently and sometimes or some cases you might get a synergistic effect, which would be like one plus one is three or four, so there's an enhanced effect that has to be considered. **[00:25:00]** That's especially true when you mix opioid with a benzodiazepine. In some of these cases as a toxicologist, I have to consider the frequency of drug administration. Granted, many of these people who die of drug overdose are chronic users and they've developed a high degree of tolerance, so it's curious why they die on that particular day and we really don't know why because it's not necessarily dose dependent, but they do die.

Many of our decedents are administered Narcan, but it's often way too late. We conducted a study at the University of Florida where we looked at a series of Carfentanil overdose deaths and a number of those decedents were administered Narcan either at home or in the field, but they were dead. These are some common opioid drug combinations. Of course, the traditional opioid with a benzodiazepine, that's your oxycodone with alprazolam combination, but

nowadays we have **[00:26:00]** fentanyl or fentanyl analog with cocaine and/or methamphetamine. So a couple months ago Dr. Gold and I had a conversation at the Rx Drug Summit because this was a big topic at the summit and we wondered, is it Fentanyl cut with cocaine or is it cocaine cut with fentanyl? I don't think anyone has the answer, and it's deliberate most times it's mixed together.

This slide looks familiar, but it's a little bit more update, I think. Then the last one, but you'll see that the synthetic opioids other than methadone is climbing exponentially, but what's important to note on this slide is that drug epidemics come in waves, so we'll see the methadone wave that peaked around 2006. That was related to the use of methadone and pain management **[00:27:00]**. When OxyContin was discouraged and many of the pain doctors changed to methadone, we saw this increase in methadone related deaths.

Now that the leading a governmental agency that's providing the surveillance for this current epidemic is the CDC, and they have two sections within the CDC, the National Center for Injury Prevention and Control, and the National Center for Health Statistics, one is located in DC, the other is in Atlanta, but they shorter work simultaneously and together and using many millions of dollars that have been allocated by congress, there are now state based programs around the country, not all 50 states, but hopefully one day there will be all 50 states participating in this data collection. We can better quantify the role of these drugs **[00:28:00]** in decedents. So I know that the writing is too small, but you'll see from many of the CDC publications, the MMWR and others, these data are now available. So I suggest that you go to the MMWR website and you can see these data.

This is a slide that shows the number of percentage of opioid overdose decedents testing positive for Fentanyl analogs and U-47700 in about 10 states.

This is slide, you can't read, but what it does show is that presence of illicit drug cocaine, methamphetamine, and heroin in the Fentanyl related deaths, so it's very interesting data. It shows that a very significant portion of the Fentanyl and Fentanyl analog deaths also test positive for illicit drugs.

This **[00:29:00]** is a slide also from MMWR showing the percentage of opioid overdose deaths testing positive for Fentanyl and Fentanyl analog by states, same 10 states. The light box shows Fentanyl and the blue box shows a Fentanyl analog. So this is very regional as well and the DEA can quantify this better than I ever could. In Florida, we were a very heavy Fentanyl analog state for about a year and a half, and now we see very little analog, but we see mostly Fentanyl. In the northeast, it was very heavy in Fentanyl and light in Fentanyl analog that's demonstrated on this slide. This shows the percentage of opioid overdose deaths in which prescription opioids only illicit opioids only and both prescription and illicit opioids were detected in these states. So there's a lot of

very detailed data related to these deaths **[00:30:00]** that you can get from the CDC.

At the university of Florida, we developed the state's dashboard for tracking a overdose deaths, for tracking the state PDMP and the use of the PDMP and the system is called Florida Drug-Related Outcomes Surveillance and Tracking System or FROST. And there's many states around the country that have dashboards they're somewhat similar, but the dashboard in Florida is very useful. We can take a look at these data from 2016 on the left side, it shows Alprazolam and there were 813 deaths in Florida as an example, and in 97.8% of the cases the Alprazolam was found in combination with another drug. So almost every single case where a decedent died with Alprazolam, there was another drug on board **[00:31:00]**, and no surprise Oxycodone was the most common. You can get these data right from the FROST website.

So this slide demonstrates the polysubstance use phenomenon in this current epidemic. This is a screen I know it's very hard to look at or see the data, but these or this slide shows that deaths with Fentanyl analog in 2016, the darker the color the higher the rate is per 100,000 population. So you'll see that the southeast and the southwest portion of the State of Florida and also the Jacksonville area were affected most by a Fentanyl analog. Over on the left lower left panel, we show co-occurring substances and the number one co-occurring substances and about 50% of the cases looks cocaine so in almost 50% of the Fentanyl analog deaths we also found cocaine **[00:32:00]**. We also show the frequency of Fentanyl analog occurrences in Florida and there were 552 Carfentanil overdoses in Florida in 2016. That moved into 2017 into the first half of 2017, and now we haven't or I haven't seen a Carfentanil death in maybe three months.

Early on there was great concern about Fentanyl caused deaths, and this is somehow related to prescription Fentanyl use in Florida, and we wanted to show that that's not the case. We wanted to show that this was illicit Fentanyl. So what we show is Fentanyl deaths in that light blue line, and then we show the Fentanyl prescriptions in that orange line. So you'll see that the rise in Fentanyl deaths beginning in about 2014, and on this slide **[00:33:00]**, it's demonstrated through 15 increased exponentially, but the number of prescriptions was almost the same. So we know this is not at all related to prescription Fentanyl which is good in a way. We don't want to place blame on the physicians that are prescribing that important drug.

This is a slide that shows Carfentanil involved deaths in the Sarasota area that's a little bit south of Tampa, if you're not familiar and the rest of Florida by month, beginning with the first ever identified case of Carfentanil and a decedent in the U.S. It began in Florida, it moved quickly to Southeast Florida as well as into Ohio, but the first ever case, I believe was in Sarasota. The dark blue on this

slide shows the beginning of this epidemic in June of 2016. The light blue shows Carfentanil deaths for the rest of the state **[00:34:00]** through June 2017.

There's some other signals I think we should not forget about, and it's already been mentioned earlier. There are other signals of the opioid epidemic. Of course I already showed you the monthly Carfentanil involved deaths in the Sarasota area and that's on the left panel, but how long does it take to get the Carfentanil test results from the laboratory? Two or three months. So by that point, you might have hundreds of people. Now there are systems being put into place now across all 50 states to improve the turnaround time of that toxicology testing, but we're not quite there yet. But on the right side, I show you that data that corresponds perfectly to the Carfentanil deaths. On the top right shows, EMS Narcan Administrations in that county where that was mostly hit, it's Bradenton, Florida **[00:35:00]** which is Manatee County. So you'll see June and July that peak of the Narcan Administrations, and then we also see overdose admissions at Manatee Memorial Hospital which is the primary hospital in that area.

On this slide, it's a bit hard to see, particularly on this screen, but every one of those dots represents a Carfentanil death, and I'll let this slide cycle through once or twice so you can see this. So with modern day technology and epidemiology, we can Geo Track every single death and that's what we've done for that area. So the map is going to recycle right there so you can begin to see the spread of Carfentanil across Manatee and Sarasota County as well as DeSoto, one small pocket in the State of Florida with a very high rate of death due to Carfentanil.

[00:36:00]

So as this epidemic proceeds, there's been a lot of discussion on how do we respond, and I've been in many listening groups as a participant, or last week I was a leader of a Postmortem Toxicology Listening Group where we put together experts in pathology and toxicology to think about how we move forward. And this is a paper that was published a few weeks ago titled The Opioid Epidemic: Moving Toward an Integrated, Holistic Analytical Response. There were many federal agencies that had input into this paper and maybe some of you have seen this paper, but what we did is we identified some of the recent advances since the occurrence of this epidemic a few years ago, and we identified many needs. I know this document has made it to the White House, it's going to make its way to congress **[00:37:00]**, all of this through ONDCP to try to strategize where we need to go and where we need funding. So the CDC has allocated many millions of dollars NIST, DOJ, NIJ and many other, and the DEA of course have allocated many millions as well to fight this epidemic. So thank you very much.

[Applause]

Dr. Mark Gold: And for people who are watching at home or from the office online, there is a box on the side that you can click to ask any questions, and we'll be able to sort those questions if you send them in. Next we have Brian Fuehrlein, oh, we don't, we have Dolores Breiner. That's great. You're next, so much for that. She **[00:38:00]** is a DEA Specialists, Intelligence Researcher who is working in the area of opioids and who we're looking forward to explaining what's happening and what the surveillances and how we can understand this problem moving forward. Dr. Goldberger later, a pretty wide swath of this isn't just opioids, this is polydrug abuse, and we have the doctors and the pain point of view. We now have your point of view.

[Applause]

Dolores Breiner: Good afternoon. So my name is Dolores Breiner. I'm an Intelligence Analyst here at the DEA headquarters. I work in the Domestic Strategic Intelligence Unit and I'm responsible for keeping track of the heroin situation on behalf of the DEA. The United States continues to face **[00:39:00]** a serious crisis involving heroin use. National Survey Data and Mortality Statistics indicate that individuals from every demographic use heroin and the deaths related to heroin on the rise. Today, I will present you with an overview of the heroin situation in the United States.

Where does the heroin on our streets come from? The majority of the heroin consumed in the United States comes from Mexico, a small amount comes from South America, and less than 1% comes from Southwest Asia. Mexican Cartels continue to dominate the heroin market in the United States. The legal ports of entry at the southwest border remain the primary entry points for heroin into the United States. The majority of the flow is through privately owned vehicles and tractor trailers, where the heroin is commingled with legal goods **[00:40:00]**. Mexican Cartels control the movement of the heroin across the southwest border until it reaches its destination in cities all over the United States. Most of the heroin sees at the U.S. Mexico border occurs in San Diego and California, San Diego, California, and Tucson, Arizona sector. However, all **cow corridors** across the U.S. Mexico border are used to smuggle heroin into United States. Mexican Cartels distribute heroin to street gangs and other drug trafficking organizations who cut and packaged bulk heroin into smaller amounts for retail distribution at the local level.

Source of origin for heroin in the United States, the following chart shows that starting with 2013, the type of heroin were available in the U.S. shifted **[00:41:00]** from South American heroin represented by the pink bar and to mostly Mexican represented by the green bar. DEA chemists are able to detect the geographic source of origin through chemical analysis.

Heroin availability at the street level. Heroin is available throughout the United States. Heroin comes in various forms. It is still fine powder, sticky tar, chunky

gummy, pasty pills or black rock-like substance that shatters glass. Powder heroin generally comes in white or brown, but can vary in color based upon the cutting agents used. White powder heroin is the most popular form of heroin in the United States, and this form can be smoked ingested or injected.

Heroin purity levels **[00:42:00]** for heroin sold at the street level. Purity levels vary by type. White powder heroin typically has the highest purity level, averaging from 10% to 40%, but we have seen heroin purity levels reach as high as 90%. Tar heroin averages 25 percent purity. Brown powder heroin averages at 12% purity. The unpredictable strength increases the risk of overdose and accidental death.

Heroin use in the United States. National level achievement data and statistics indicate that they are number of admissions to publicly funded facilities for heroin abuse increased about 26% from 2014 to 2015. Young adults aged 20 to 34 comprise the largest group admitted for heroin treatment, followed by adults 45 or older.

[00:43:00]

Age of first use among admissions aged 12 and older, of those admitted for treatment, the largest group of first time users was in the 21-to-25-year-old range, followed by the 17-to-18-year age group. Statistical data on age at first use shows that heroin use begins as early as 12 years of age and at every age throughout adulthood.

Heroin related overdose death totals; since 2010 deaths related to heroin have been increasing. According to CDC drug overdose deaths data, they were 15,469 deaths caused by heroin in the United States in 2016, a 19% increase from 2015. Preliminary reporting shows that heroin related deaths increased to about 16,000 slightly more than **[00:44:00]** the prior year.

Deaths by region, rates of deaths involving heroin increased in almost all U.S. census regions with some of the largest increases occurring in the northeast and the south. As a chart indicates the northeast and the Midwest regions had a higher rate of death than the south and the west, but however, all showing upward trend. Mortality statistics also indicate that individuals from every demographic now use heroin.

The following map shows a comparison of states using age adjusted rates of death. Total deaths per state are standardized to allow a comparison when the age profiles are quite different. The largest concentrations of deaths occurring in the streets that had shaded in the darker red hues **[00:45:00]**.

Causes -- possible causes for increasing overdose deaths. Heroin related deaths are believed to have increased due to the use of illicit Fentanyl as a

cutting agent. Fentanyl is a very dangerous drug that is more potent than heroin; therefore, elevates the risk to the user when combined with heroin. A heroin user might be unprepared for the strength of the heroine Fentanyl mix, it can fall victim to respiratory depression or death. An increase in heroin deaths may also be due to the increase in a number of first time users along with a younger heroin population of users whose lower tolerance level puts them at a greater risk of overdose or death. Similarly those returning to heroin use after a period of abstinence now have a decreased tolerance and unprepared **[00:46:00]** for a dose that they were previously accustomed to. This concludes my presentation. Thank you.

Dr. Mark Gold: Thanks to all the speakers. It's always amazing to see people who were such subject experts condense and summarize their presentations so that they make everyone else on time. Thanks. Everybody is busy here. I know that that's a cautionary note. So the next speaker is Brian Fuehrlein who was a PhD student of mine, and is on the Yale Faculty as an Assistant Professor, also a Director of the Psychiatric Emergency Room. And as Dr. Goldberger said he comes from New Haven, Connecticut, maybe he would be able to tell us why a 100 people had overdoses in the green there, and **[00:47:00]** whether any of them were given Narcan and how many of them are alive. But in addition, just there is a global problem that he's addressing and has to address all the time. What do you do after rescue? What's the quickest way to get somebody to the point where they're not on the verge of overdose again? And how can we start their treatment and recovery process? Dr. Brian Fuehrlein.

Dr. Brian Fuehrlein: Thank you Dr. Gold, and everybody else. This is, it's a real pleasure for me to be here. Hopefully, we're going to end on maybe a little bit of an uplifting note. I'm a clinician. I see patients every day in the psychiatric emergency room at VA Connecticut where I'm from, and we are doing some things there to get patients who are addicted to heroin and opioids on life saving medications **[00:48:00]** and getting them down the path to recovery. So I'm going to talk a little bit about that from a clinical perspective.

So what we're doing is a novel approach to initiation of Buprenorphine in the emergency room. And what I want to talk a little bit about to lay the foundation is what causes a Substance Use Disorder. I recognize that many people in the audience may be -- very few people in the audience are clinicians and I want to explain a one or two minute synopsis as to why someone might get addicted to a substance. So in our brain, we have what's called a reward system, and the reward system is designed to reinforce things that are critical for our survival. So these things include drinking water when you're thirsty, eating food when you're hungry, and they also include things like sexual activity to procreate ourselves as a species. So we have a very **[00:49:00]**, very powerful system in our brain driven by a molecule called Dopamine which maybe you've heard of that as pleasure molecule. And this system is there to tell us things that are important for us to survive, and I circled in yellow here is deep within our brain, but we have

a cortex also within our brain that is the larger structure on the outside of the brain. The cortex guides our long term thinking and planning. So everybody is here today not because you're getting a surge of Dopamine as exciting as this might be, you're not here for immediate pleasure for your reward system, but yet you're all here.

So we're all here today because we have long term goals and objectives whether it would be to learn something about the current opioid epidemic to become a better employee, whether it's because your supervisor told you, you had to be here, whatever the reason might be, we're all here today **[00:50:00]**, and that's driven by our cortex and our cortex guides the majority of our behavior. In fact, the cortex and the reward system usually oppose each other. If there was a spread of food out there and there were doughnuts in fruit, the reward system would say eat the doughnuts. The cortex would say eat the fruit, and usually our cortex wins that battle. Our cortex guides long term decision making, and the vast majority of the time our cortex tells us what to do and we listened to the cortex because it's better for us. If you think about lower level organisms, they only really are driven by a reward system. There are only really trying to survive, to find food, to procreate that's what they do, but we have evolved a cortex.

Now if you introduce a drug of abuse like heroin that is going to activate that reward system far greater than the doughnuts or sexual activity, far greater. So when you start introducing drugs of abuse to a primitive powerful system that system can become **[00:51:00]** what we call hijacked by that drug of abuse, where the brain can start to interpret that thing, that drug of abuse, as something that's important for our survival, much like water or food or procreating. So these powerful drugs of abuse tap into a very, very powerful system, and when the brain changes and the person becomes addicted to the substance or develops the substance use disorder, that brain interprets the next use of that substance as something that's critical for survival.

So the way that I can also help explain this is if you imagine holding your breath. So if you hold your breath, depending on your level of fitness, it may not be difficult yet, but you know after 30 seconds or so, it may start to become a little bit challenging for you. If you were to keep holding your breath for a minute, it may start to become distracting. You may not be able to concentrate on what I'm saying, and if you were able to continue to hold your breath **[00:52:00]** more than that pretty soon it would become the only thing that's important to your brain is getting more oxygen. That's it. Nothing else matters. And if I told you the only way you could obtain the oxygen is to quit your job or to rob from **711** to buy the oxygen. You wouldn't want to do that, but you might do it because you have to breathe to survive and your brain understands that oxygen is necessary for survival, and you'll do whatever it takes to take that next breath of oxygen despite consequences, and then you'll deal with the consequences later. To the brain that's addicted to a substance, it's constantly seeking the next hit of that substance because it interprets it as life saving or unnecessary. And when that

person finally obtains the heroin that they'd been trying to obtain by whatever means necessary, and they use again, they're not often feeling high or on top of the world like maybe you didn't when you breathed again, you just feel normal again and now you can function **[00:53:00]** and now you have to deal with all the consequences that you created by obtaining your next use of a substance.

So that is like a two-minute incredibly simplistic explanation as to why a brain can get addicted to a substance, and hopefully, it can help you to understand if you have loved ones or family who are addicted to a substance can help you to understand a little bit what that brain might be going through all the time. Constantly obsessing about the next use when the next use, and when the next use finally arrives, they're normal and they can function again.

So my perspective on the Opioid Use Disorder as a clinician, this graph was not showed previously, and I'm happy about that. I think all of mine have not been. So this, this very simply to slide shows, they followed patients who met criteria for an Opioid Use Disorder for 30 years. The average age at the beginning of the study was 25. They followed people for 30 years to see what happens to people who meet criteria for an Opioid Use Disorder. As you can see approximately **[00:54:00]** 30 years out, 48% were dead and with 12% being unknown, probably more in the deceased group. And then you have only 22% at the 30-year mark that were absent, doesn't speak to quality of life, it doesn't speak to absence throughout the duration. At the 30-year mark, 22% were absent at that time point. So the moral of this story is if you have an Opioid Use Disorder at the age of 25, according to this study, you have a 50/50 chance of making it to your 50s, and if you make it to your 50s you have, you can see the percentage of the other things that might be going on. You might still be using, you might be on Methadone, you might be incarcerated. So it is a very-- it's a very bad illness. There aren't that many other illnesses that affect so many 25-year-olds that carry a poor prognosis like this.

The things that I see and that Dr. Goldberg alluded to are the mixing of substances. These are the things that if I see a patient in my emergency room doing any of these three things **[00:55:00]** or these three things being done to them, this to me is life or death. If I have a 25-year-old patient injecting heroin or who has been Narcanned already once before, meaning they basically already died and had to be resuscitated, or if they're mixing with alcohol or benzos as Dr. Goldberger has spoke about the mixing of benzos in particular. To me, these patients are life or death. I will do anything that I can do within my power in the emergency room that day when that patient is in front of me to get them into some type of lifesaving treatment because I might be the last doctor they see alive if these things apply. So we have Opioid Use Disorder in general being a bad illness, and then we have specific behaviors that I look for that make me even more worried that death is approaching, and this is a very challenging illness. But we have Medication Assisted Treatment, so this is a term that you will hear. It is a buzzword now and these medications are lifesaving **[00:56:00]**.

For many substance use disorders, all we have is psychosocial programming groups, AANA other things like that. For some, we have medications. For opioids in particular, the medications are incredibly, incredibly helpful. In general, we have three groups of medications, Buprenorphine, Methadone and Extended Release Naltrexone. That's a once a month injectable form. Those are the three medications that we generally refer to when we think of Medication Assisted Treatment.

So this graph shows two groups of patients that were followed and it was a one year study, so the access at the bottom is 365 days. There were two groups. The group in orange which has the steep drop-off were Detox from opioids and then sent on their way. The group in blue, the line, they were initiated on maintenance treatment so Medication Assisted Treatment. In this study, it was Buprenorphine. And you can see the orange group **[00:57:00]** by day 50, so it was a one year study by day 50 basically all had dropped out and what's not on this slide is by the one year mark 25% in that cohort had died. In the blue line, 75% were still involved in treatment at the one year mark. So we -- I learned in fellowship and I still teach it to all the students who work with me, Detox is not treatment. Detoxing a patient means sending them home, particularly from opioids is not helpful. We have to get them enrolled in treatment.

So this is again a little bit small. This was a study done at Yale where they initiated Buprenorphine in an emergency room and they wanted to see what the retention and treatment was following the initiation of Buprenorphine, again, a Medication Assisted Treatment in an emergency room setting, and you can just. This is a summary of that slide. The slide will be available to you. You can read the details if you'd like, but basically the moral of the story as compared to Standard of Care in an emergency room **[00:58:00]** which is either do an intervention like talked to them about the problem or just give them a referral which are sort of two standard things that are done in an emergency room. Obviously the brief intervention is better, but the third thing in this study was do the intervention and initiate buprenorphine. That group where the initiation of buprenorphine occurred did far better at the 30 day mark according to this study. We use some of this data as a way to try to get medication assisted treatment to our patients and our emergency room in VA Connecticut. It's important to note that when you are initiating medication assisted treatment, you have to have follow-up on the back end. You have to have doctors and providers who can continue medication assisted treatment. I am not an outpatient doctor. I'm an emergency room doctor, so therefore I do not follow patients. I can initiate buprenorphine all day long, but if I don't have a referral base to send patients to continue to get buprenorphine, it doesn't really help them because they'll be with me, they'll get it and then they'll leave and they won't have access so access **[00:59:00]** to medication assisted treatment is important. At VA Connecticut we're lucky in that we have a lot of resources to VA and other federal entity and we do amazing work with having access to resources, so I'm going to talk from last few minutes about a model that we do to initiate medication assisted

treatment in an emergency room setting, as I mentioned, because it can be lifesaving.

This is a brief slide showing all the services that we have available to our veterans. The highest would be the highest level of care that would be our emergency room and the bottom would be sort of the lower levels of care, sort of going down as you go from highest things or most intense things to the bottom, which would be the lowest intense things, which would be as simply an AA or NA referrals, just got to meetings. That would be the lowest level. Patients don't even need a prescription for that. They can just go to a meeting on their own. My emergency room is a 24/7/365 psychiatric emergency room where we deal with psychiatric emergencies only, but we mainly deal with emergencies related to drugs and alcohol, but also **[01:00:00]** psychiatric problems as well. They often go hand in hand. We have a 14 bed unit. Our patients are mostly voluntary and we're staffed overall by approximately 30 MDs who work around the clock 24x7 and we have all 30 MDs have been required to obtain a license to be able to initiate buprenorphine in the ER.

What we do is a patient will come in and they will say, I have an opioid use disorder. I'm injecting heroin. However, they will come in and they will say, I need help for that. The old model would be we would send them to a detox unit and they would be detoxed and then they would be on their way. That's sort of the old model that we're trying to avoid. Now, unless they refuse, we aggressively try to get them on medication assisted treatment. We no longer will detox them. We will initiate buprenorphine with the goal, not to take you off it right away, but to titrate higher up on the dose and then maintain you on it and then refer you to one of our many resources that we have at the VA to continue the process of medication assisted treatment **[01:01:00]**. This is a brief overview of how we would do it, we will hold them in the ER until they develop symptoms of opioid withdrawal we'll then dose them with [Inaudible 01:01:07] very standard protocol of buprenorphine will get them feeling better. We may even hold them an extra day or two in the ER sometimes two or three days to get them feeling well, stabilize them on a maintenance dose, and then we're able to refer them out to the clinic and we even have an intermediary clinic where patients can go back and forth, daily going home, coming back to continue the buprenorphine until they can get into our established buprenorphine clinic if there's a wait. We're able to accomplish this by having all of our providers have a buprenorphine waiver, but also having the follow-up on the back end, so I wanted to just speak a little bit about diversion of buprenorphine. I did a brief literature review from other countries as well, and you can see some of the data here.

The diversion of buprenorphine in my experience occurs primarily for patients who are trying to treat their own addiction **[01:02:00]** a little bit different than why someone might use heroin. Someone who might use heroin is seeking a pleasurable sensation. Someone who is diverting or trying to use buprenorphine for non-medical purposes by getting it off the street is primarily doing it maybe

they don't have access to care, maybe they can't afford to go to the doctor, but they know that the doctor has detoxed them with buprenorphine before, so they buy buprenorphine on the street. They try to get the buprenorphine themselves. They do a protocol that we would do in the ER. They try to do it themselves and they try to then taper the buprenorphine down to get themselves feeling better, but again, detox is not a treatment, so even if they were to successfully manage that whole process, they still have an underlying opioid use disorder that they need treatment for and they're not engaged in that treatment, but there are diversion rates of buprenorphine. The street cost, from what I could find is approximately $2 per milligram. In summary, opioid use disorder is a very deadly illness and people die from it all the time is as we've heard. Medication assisted treatment is incredibly important **[01:03:00]**. It can be lifesaving and we need to be able to expand medication assisted treatment of all medications to as many patients as we can and with proper resources as what we have you can easily be able to initiate that in an ER, which is where many patients will present following an overdose reversal Narcan. Now we have them captive. Now we can start them on medication assisted treatment instead of simply reversing them saving their life and then sending them on their way that that's not helpful. So hopefully everyone appreciates that there is some hope and that initiating and following a little protocol actually can be very helpful and can save some lives. Thank you very much.

[Applause]

Dr. Mark Gold: So let’s all take seats up here. We'll answer some of the questions on the web. This is basically the Keith Humphreys slide that puts everything in perspective that he was saying well over 500,000 people would be expected to die and that **[01:04:00]** no single policy change would be expected to have a greater than 4% effect. We’ve got mics anyone who is wanting to e-mail a question in, please do, we'll start taking them and all of the panel for those of you who are here, they'll stay around after the questions if somebody has a particular question for them or wants them to send them reprints or anything we did that in the past and that proved to be very helpful. You have a question from the internet?

Female: Yes I have a question from e-mail and this is for Dr. Goldberger, does the FROST system report provider level query data for outreach and if a provider is enrolled but not queering the PDMP, is that information shared with anyone for intervention? **[01:05:00]**

Dr. Goldberger: The answer to the first question is I believe yes and we are planning to update the FROST dashboard with much more PDMP data. Answer to the second question is no.

Dr. Mark Gold: You know, Bruce, one question that came up in my mind was you showed a lot of polysubstance use and a lot of misuse in the decedents data, what percent of them have cannabis in their body at the time that they die?

Dr. Goldberger: I don't have that number in front of me, but it's a large percentage. We made it a rule in Florida to test all of our decedents who died unnaturally to test for cannabis so the figure is 30 or 40 percent.

Dr. Mark Gold: So I thought in some states maybe it was 50 and the reason I was asking was one hypothesis about cannabis access would be that it might reduce **[01:06:00]** opioid misuse but from a forensic toxicologist point of view, do you see any evidence of that?

Dr. Goldberger: No, I see no evidence right now. Florida is near legalization of recreational marijuana. We're not quite there yet. I think there'll be a lot of work to be done to actually establish some sort of relationship between cannabis and opioid addiction.

Dr. Mark Gold: Anybody with a live question? There are mics on the side. There's one in the front area you are in charge of the mics so go right ahead. Thank you.

Female: Yeah I have one question about, I loved all your data and data is really what runs us a great deal and I wondered over the past 20 years we have seen dramatic decreases in mental health funding, the dramatic decrease in **[01:07:00]** inpatient detox and drug programs to basically, as you stated, detox and move where they used to be inpatient for quite a period of time and I'm wondering if the increase in addictions and the failure of getting off the drugs has to do with also the decrease in that funding.

Dr. Mark Gold: So Dr. Rummans being a previous chairperson and psychiatrist maybe and then Brian as well, the psychiatrist up here.

Dr. Rummans: Well I don't know the data, maybe Dr. Gold does, but obviously it's not helped matters at all, but I'm not sure that there's actually specific data about that, but they do correlate, but I can't say that they're causal.

Dr. Mark Gold: You know, I mean, a quick answer on is there has been some efforts that has led the way on this and **Nora** has a recent editorial in the New England Journal, how many **[01:08:00]** of the overdose deaths are accidental and in [Inaudible 01:08:06] point of view, there could be as many as 40 percent of the overdose deaths that were comorbid psychiatry and many of them have significant untreated depression. i know as a chairman in Florida, we lost a lot of depression beds and we lost a lot of treatment beds for depression and I just think that dual disorders are quite real and very important and typically if you only treat one side of the equation, the other side doesn't go away. If a person has

significant depression plus substance use disorder treatment of either doesn't cure the other and you end up with both.

Dr. Fuehrlein: Yeah one thing I'll say along the same lines is I've heard **[01:09:00]** stories of patients who are in dire need of an opiate treatment program and they come into an emergency room basically having been narcanned and their life had been saved and it's just critical of a patient is we see in almost any field of medicine, someone who basically just died and they're coming in to ask for help and the insurance companies will say opiate detox can be done as an outpatient so we will not pay for any inpatient services whatsoever, be discharged and see your doctor in clinic and follow up next week to maybe be provided a medication. We don't have that problem at the VA because again we have resources but most people are not veterans and don't have access to what we do but it's quite amazing how the short stays and the insurance companies on willingness to do certain thing. Sometimes that can have an effect on patients and like Dr. Gold said, the dual diagnosis is so important in the psych ER that I'm in, the vast majority of patients who present have both mental health problems and **[01:10:00]** drug or alcohol problems the vast majority of both.

Dr. Mark Gold: Dr. Goldberger made comment on this too, but we've excluded for this discussion today, the dual disorders that might be infectious diseases, so you have Hepatitis c and HIV and all kinds of infectious comorbidities. Same thing applies that in the ideal world, the whole person would be evaluated and treated and therefore they could be helped in a way that we haven't been able to do that.

Dr. Goldberger: Some of the new CDC work, we'll be looking at those comorbidities for sure, but I think it's important to look at the one population of the students that do have these disorders and that would be your prescription opioid abuser versus the new generation, fentanyl, fentanyl analog abuser **[01:11:00]** which is a completely different character in my mind. Prescription opioids, a large percentage of those overdose deaths are going to be intentional or suicide, from when it comes to fentanyl or fentanyl analog death I'd say the majority are all accidental deaths not suicide.

Dr. Mark Gold: That's a very good point.

Female: We have several questions that have come in from e-mail, so I'm going to ask one and then see if there's another one from the audience. This is for Dr. Fuehrlein, are people then on buprenorphine for life as they would be on methadone?

Dr. Fuehrlein: Yeah, this is a really an interesting question and we would not address this in an emergency room setting. We would simply say for now we need to get you on buprenorphine, get you stabilized, get you feeling better, get

your brain healing, and then you can address with your outpatient provider down the road at some point whether or not this medication is something you should stay on for longer or whether **[01:12:00]** or not it's something that you can come off. The most important thing in my mind is their engagement in a treatment program outside of the medication assisted treatment. If you think about a patient who's not engaged with an AA/NA program who is not going to their doctor very often, who's not enrolled in any other group setting, who's not doing any other psychosocial programming and they're only taking buprenorphine or methadone and they've managed to stay sober for a period of time, removing the medication assisted treatment, we'll now remove the one thing that's likely keeping them sober unless they're having some serious side effect or problem with the medication, I don't know why one would want to remove the one thing that's keeping them well. Now someone is incredibly engaged in a psychosocial program, going to daily meetings as a sponsor, very solid in recovery and maybe now is a good time to maybe try to come off the medication to see whether or not they continue to need it. It's like any other medication I mean, when you start insulin for diabetes, **[01:13:00]** you know sometimes, you have to tell patients, unfortunately this might be something that you have to stick with for a while, If not forever, but everybody's panicked about medication assisted treatment and how long do I have to stay on this for and I shy away from that conversation in the ER and say, don't worry about that right now. It's one day at a time right now we're going to get your sober, we're going to get you on the medication when you get you feeling better and we can have that conversation down the road.

Female: I said we'd, come inside. I actually have a followup question to what you just discussed. What about using naltrexone if you're trying to come off of buprenorphine or methadone, is that something that has been done and has that worked because that blocks the opioid receptors without giving any of the analgesic effects that you would see with the buprenorphine or the methadone?

Dr. Fuehrlein: Yeah so I know Dr. Gold has a few points about this too. The extended release naltrexone **[01:14:00]** on the recent data is showing that if you're able to get a patient initiated on extended release naltrexone, it is as good as buprenorphine. The problem being it's more difficult to get them initiated. In the emergency room setting it's very difficult to get them initiated because we have to wait a longer period of time and we typically don't have the luxury of holding onto them for that long and buprenorphine is something that's easier for us to do, but many of our outpatient providers, we might get them on buprenorphine and then at some point they might decide, you know what I want to switch to the extended release naltrexone instead and we are all in favor of that and for special populations like homeless patients it's very difficult for them to get to a buprenorphine clinic, hard for them to go to a methadone clinic but the homeless team outreach can easily find them once a month to give them the injection. Extended release naltrexone is an excellent choice and we're using it more and more at the VA and the model that I showed was one model for

buprenorphine, but yes, if someone can be on extended release naltrexone, that's also a very good choice.

Dr. Mark Gold: He's perfect **[01:15:00]**

Female: We're going to go back to e-mail for this one and this is for Dolores, the vast majority of heroin is coming into the US from Mexico heroin/fentanyl mixtures are becoming more prominent, at least in this present area and is there any Intel, whether the heroin is being cut before or after crossing the border?

Dolores: There is Intel that heroin and fentanyl mix is coming in, in bulk quantities across the border and we do know that it is being used as a cutting agent before distribution at the retail level.

Female: There was a question, yeah?

Female: Good afternoon, thank you for all your very interesting discussions I was curious about, I don't know how to pronounce this **[01:16:00]** [Inaudible 01:16:01] study.

Dr. Mark Gold: Yeah, that's the name of the author.

Female: What country was that in?

Dr. Mark Gold: I think you're talking about the long term.

Female: That's a longitudinal.

Dr. Mark Gold: That's a guy at UCLA.

Dr. Fuehrlein: Yeah that was in the United States.

Female: In the United States.

Dr. Fuehrlein: It was a, it was a jail population also that they followed over a period of time where they recruited the population from. I believe it was in Philadelphia.

Dr. Mark Gold: Do you think it was Philadelphia?

Dr. Fuehrlein: I'm not sure. It was definitely in the United States.

Female: Is there any equivalent longitudinal study in a country that has used buprenorphine for a few decades?

Dr. Mark Gold: No.

Female: Because I think it will really support what you're looking at and what you're looking to.

Dr. Mark Gold: It's much, you know, it's a complicated and Dr. Fuehrlein has done a good job of giving all the adjectives that was a prison population. If [Inaudible 01:16:53] was here, he would say there's a lot of data from impaired health professionals studied for 50 years as well, **[01:17:00]** and it's a different disease in late onset health professionals with physician health programs. It's not just determined by the name of the drug, it's also a whole host of [Inaudible 01:17:14] demographic brain development and other issues.

Female: Thank you.

Male: Hi, how are you all doing?

Dr. Mark Gold: Hi.

Male: This might vary by region but I wanted to know when your experiences do people who have these drug disorders and these addictions, these patients seem to be still kind of functioning within a society or are they on the fringes of society and if they are on the fringes, have you seen that getting them involved more in their communities has been a way to holistically help them along with their treatment?

Dr. Fuehrlein: The disease process sort of follows **[01:18:00]** a trajectory where, and depending on the drug, it can be a long trajectory or a relatively brief trajectory. Alcohol for example, there may be a long period of time where someone is incredibly functional and doing very well and at some point later in life, they start to do poorly. With opiates maybe a much faster trajectory, but still generally a trajectory where people are doing okay, they're functioning, and then gradually they fall off with a variety of psychosocial problems, whether it be loss of job and homelessness and loss of relationships and other medical problems and things like that. Again, I'm at the VA, the VA has a very good system of what we call work therapy and there's a program where if veterans are homeless, there's a large, there's a large housing program there, there's also intensive work therapy and comprehensive work therapy and other programs where veterans will gradually obtain employment first unpaid, but giving them some structure gradually they're able to get more permanent jobs at the VA and then be **[01:19:00]** peer specialists and other things like that to help other veterans and so it's a long process of one medication assisted treatment, but also taking into account all these other psychosocial programs which are critical for someone's holistic recovery especially when they've gone far enough in their addiction that now they've lost many things that are important to them.

Dr. Mark Gold: You know, we started in the field with very few people going into addiction medicine or addiction psychiatry. You were stigmatized even as a medical professional for choosing that as a career choice and has that changed any **Terry**?

Dr. Rummans: No really.

Dr. Mark Gold: Not really, so you know, so like in the Columbia University, you Google **CASA** addiction report, they said one of the main challenges is manpower challenges, you have a lack of interest on the part of physicians or other health providers and then they said there was a tremendous work burnout among drug counselors **[01:20:00]** so that almost it like three years was, was unheard of and there's so much turnover in storefront community treatment facilities. We do have delivery problems, the stigma at all levels but, you know, I gave grand rounds at Mayo Clinic and people showed up and there's a lot of interest in an addiction now at the nation's best medical schools Wash U and Mayo and Yale and there isn't we're hopeful that the new people coming up, we'll see this is the peace corps medicine something that they could spend a career making a big difference.

Dr. Rummans: And just to follow up a little bit on what Dr. Gold just said to, it gets back to what I was saying about this whole patient satisfaction issue and a lot of [Inaudible 01:20:52] folks in the addictions world, especially initially just getting nailed on patient satisfaction and so as a result, **[01:21:00]** people don't want to do it there and it's just easier to dole out the drugs than it is to try and help somebody not do that but you have to remember, everyone is affected by this problem, whether you're rich or poor man or woman, black, white, young, old, everyone is being impacted. So it may be your neighbor, it's half of the jail population now I mean, the biggest place is treating the addiction problems is in the jails and the prisons right now, not in our hospitals, but in the unfortunately the legal system, Dolores can speak to that so none of us are immune from this, none of us.

Dr. Mark Gold: So we'll go quickly and again the panel will stay up here if you guys want to come up at the end may ask them anything. So let's go for two quick questions.

Female: All right, so do you see the cocaine fitting into the opioid crisis equation?

Dr. Goldberger: I can't say yet, but we know that we're in the midst of **[01:22:00]** a cocaine epidemic and beginning to see an increase in methamphetamine in regions of the country that we never ever saw methamphetamine. Yes, we have a problem with both substances. A part of it is we see deaths involving the opioid plus the stimulant, but we also see many more cocaine, cocaine users and methamphetamine users.

Dr. Fuehrlein: I can't say yet, but I started looking at all of the urine drug screens for all patients who present to the psychiatric emergency room and now for the past three months we've been testing for fentanyl for all patients and there's a significant percentage who tested negative for opiates, positive for cocaine and positive for fentanyl and when you ask the patient, did you know you were using fentanyl? It's quite a stark reaction that they have, which is no. That was not my intention. I thought I was using cocaine **[01:23:00]** I don't want to die. What is going on? Quite a reaction

Dr. Mark Gold: Last one

Female: Okay do you know if the opioid heroin crisis has hit Europe and Asia yet, and if so, how are they combating the problem and are they being more or less successful?

Dr. Goldberger: Answer Europe yes and there are European agencies UNODC I believe is the agency in Europe that's like the DEA here, that's a tracking drug use in Europe, in the union and they produce a lot of very fine documents. In Asia no, they have stimulant tissues they have methamphetamine and cocaine issue and ketamine but not the opioid problem, no, oh yeah starting to grow there.

Female: I want to say that there are a number of questions for Dr. Fuehrlein **[01:24:00]** on how you're setting up your clinic, so I will make sure that he gets all of them via e-mail so that you can respond.
Dr. Mark Gold: That's great well it was a global teleconference. We thank everybody for being here as well as online and thank you CME Outfitters.

Laurie Baty: It's thank you, thank you, thank you. That was wonderful.

[Applause]

Laurie Baty: We've had, this is the fourth as I said this is the fourth of four lectures that we've had this year looking at a new look at old and not so old drugs and if I think this was a high a great send off if you will. For those of you from DEA and those of you who came from the outside we've got exciting news last week where actually these two buildings are going to be renovated over the next two years. Part of that renovation is the museum will be closed starting in about 10 months. It will be closed for not quite a year and what we're doing is we're looking at all of the current exhibits **[01:25:00]** that we have and as part of that we're revisiting what our lecture series will be like for the coming year and I just wanted to let you all know that we're really going to be looking at DEA, who we are, what we do, how we do it, where we do it and we're hoping to draw panel discussions from individuals from the DEA labs, agents, diversion and our support staff so stay tuned for where we're headed next year and thank you all

very much one for being here, but also for being in the audience. Okay that's it, thank you.

[Applause]