Medical Co-Morbidities - Warner-Greer

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This presentation is entitled Medical Comorbidities: Diagnosis, Prevention and Complications. I will now pass it over to Dr. Carolyn Warner-Greer to begin our presentation.

00:10

Hello, my name is Carolyn Warner-Greer. I'm an addiction medicine physician in Fort Wayne, Indiana. And today we're going to talk about medical comorbidities. I have no relevant financial disclosures.

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Today, our objectives are first to learn and figure out some fine points on how to conduct an appropriate history and a physical exam for persons who present with a substance use disorder, and then to look at some key medical comorbidities that can occur with ongoing substance use disorder.

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So today, the first thing we'll talk a little bit about is routine and preventative health care. And then we'll go on into some medical consequences of specific drugs and alcohol use.

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In general, patients who have substance use disorder report that they get poor medical care. There's a lot of reasons for this, I think, compassion fatigue from health care providers as well. Stigma and lack of knowledge can result in patients experiencing prejudice when seeking legitimate health care. Because of that, they also may experience barriers in actually having access to a health care provider. And the end consequences are is that our patients even when they achieve recovery from their substance use, they might find themselves having a decreased life expectancy because of untreated medical illnesses that could have been prevented or treated appropriately early in the

disease course. Often, I have patients tell me, "As soon as I tell them that I'm in treatment for my opiate use disorder, they tell me you're not going to get pain meds, or they stop looking at me like I'm a person instead of looking at me like I'm a criminal."

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General, generally, when we see someone for a medical evaluation, we want to take a good history and that history has to be focused on expected stigmata that we might find from a history of or ongoing substance use. A particular physical exam that pinpoints important issues that may be unique to someone who's in recovery from a substance use disorder or somebody who's actively in addiction currently. I always find with a medical history that I ask "when is the last time you saw a doctor" versus "who is your doctor" because often patients will identify as being the patient when they actually haven't been seen. I also ask "Are there any medical visits that you may have missed?" Because that sometimes will lend to the understanding of the gaps in health care that have existed so far.

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When I ask about medicines, I ask, "What medicines do you take? Are they prescribed or not? And then what medicines are you supposed to take or what medications have been recommended for you?" Because again, our patients, especially those who are struggling with active addiction, often will have decreased access to prescribed medications. Tests are generally what are indicated by the National Preventative Task Force as far as screening for illness, as well as targeted lab and radiology exams for anything that comes up in the medical history of the physical exam. Patients with substance use disorder frequently do not get the appropriate preventative counseling. Much of their visit is focused either on the treatment of their substance use disorder or catching up on the treatment for medical problems. And we forget to talk about the general preventative counseling.

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One of the big things with that is immunizations. Adults in the United States generally have not, are not receiving appropriate immunizations, but specifically patients in this high risk category. The other focus too is preventative screening. That patients who don't seek health care often will get behind on those preventative screenings, such as screening for different cancers, screening for skin survey, looking for domestic violence or other co-occurring mental health disorders, things that routinely would be done with a well adult exam, often get put by the side when we're addressing substance use.

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When we look at alcohol, I think the good thing to know is to remember that it affects every single organ system in the body. Women tend to experience sequelae of alcohol much faster than men due to their higher body fat composition. There's been a lot of literature saying "Is there any amount of alcohol that is safe?" That I know that many of us have learned or events in the lay media that said that if you drink a glass of wine, your risk of cardiovascular diseases decreased or it even can reduce your risk of cancer. But I believe when we look at the general health data that's been collected

throughout the entire world over the last decade, that we found that there's really no amount of alcohol that's safe. If there is a theoretical benefit with one organ system, there is a negative efficacy, there's a negative effect on another organ system.

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Classically, what we would expect to see with alcohol use are manifestations of portal hypertension due to the impact on the liver. These would be spider angiomas, which are little broken vessels, maybe with the center or red point often on the cheeks, the chest, the neck. Palmer erythema, which results from increased estrogen because of the disruption in steroid hormone production by the liver. Jaundice obviously is a good clue. Ascites, gynecomastia in men again from increased estrogen, and often some muscle wasting might occur because of the poor nutrition that can go along with chronic health.

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GI complications of alcohol use are numerous. Again, it's a direct direct toxin on the esophageal tract in the stomach. Mallory-Weiss tears are tears in the esophageal lining- esophageal lining can occur with repetitive vomiting. Esophageal varices, which can result in upper GI bleeds are result again of portal hypertension. Pancreatitis is an end result from the toxic effect of alcohol on the liver or on the pancreas. This is dose related and often will improve with abstinence from alcohol.

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When we look at alcohol related liver disease, it's a spectrum which goes from first the liver being replaced with deposits of fat, which causes liver enlargement. Unfortunately those liver fat deposits will fibros- causing fibrosis in smaller livers and then eventually, in some people cirrhosis, which is that that scar tissue makes the liver hurt and then they just don't- it's not able to work.

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So a classic laboratory finding with alcohol related liver disease is the AST/ALT ratio is greater than one and often greater than two. It should be noted also a small portion of patients who develop cirrhosis will go on to develop hepatocellular carcinoma which is rare, but it's uniformly fatal.

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The respiratory risks of alcohol use occur from sedation often- so untreated obstructive sleep apnea or aspiration which can have an infectious risk of pneumonia. Infectious risk again hepatitis is more common and with alcohol use. Subacute bacterial peritonitis presents with the classic triad of increased temperature, pain and the non surgical abdomen. It's important to culture the infected acidic fluid prior to starting antibiotics to have a better outcome.

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TB is increased risk in alcohol which might be somewhat from community risk factors as well as decreased efficacy of the immune system. The nutrition deficiencies with vitamins and minerals are immense with alcohol use, largely because most of the calories in someone who's struggling with alcohol use come from alcohol and not from our American diet of fortified foods. Many of these are the vit- the vitamin B family, vitamin D, magnesium, calcium and folate. These should just be empirically replaced in patients with significant alcohol use.

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The cardiovascular risks of alcohol include hypertension, and cardiomyopathy. This is a dilated cardiomyopathy. The term a "holiday heart" occurs when someone has acute onset of dilated cardiomyopathy from what we see often is a market increase in alcohol use over the holidays. The primary arrhythmia we see with cardiomyopathy would be atrial fibrillation.

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Heme/oncology will see an anemia, which is typically macrocytic. Alcohol is a direct toxin on the bone marrow so we can see pancytopenia or thrombocytopenia. Can also see thrombocytopenia from splenic sequestering of platelets because of the portal hypertension as well as splenomegaly. There's a coagulopathy which is directly connected to decreased hepatic function. And specifically we will see a greater risk of breast, oral, GI, and hepatic cancer with alcohol use; there is no safe threshold of alcohol that does not increase that risk. That's typically why the idea that if alcohol reduces the risk of coronary artery disease, specifically, red wines, that the increased risk of cancer kind of outweighs that benefit. So...

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The neurological impacts of alcohol: there's the classic Wernicke's encephalopathy and Korsakoff's syndrome. There is- these are all great boards questions not just on the American Preventative Medicine board, but also basically any board that you'll ever sit for.

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A good mnemonic is the COAT RACK. With Wernicke's, which we will see is as a result of thiamine deficiency, vitamin b1. Thiamine is a cofactor for many energy, energy meta- metabolic pathways. So we'll see confusion, ophthalmoplegia, which can be usually more than one thing... the stagnus, lateral rectus palsy- palsy, ataxia, which is because of the cerebellar dysfunction, which can result in a broad based gait, maybe short tiny steps or even the inability to completely to walk. And then of course, this is related to thiamine deficiency. Another great boards question is that the thiamine requirement for these energy cofactors, processes really increases when glucose metabolism is high. So it's important to replace thiamine, you know as high as 500 milligrams IV. We know that oral thiamine replacement is typically not very reliable, and so this is an IV supplementation prior to administering glucose, so...

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Korsakoff's syndrome, patients rarely recover from this. it's typically described as an anterograde and retrograde amnesia, confabulation and then actual psychosis.

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Alcohol has a direct effect on the endocrine system specifically with hypogonadism. This is not only from the reduction of production of sex- steroid hormones in the liver, but also a direct effect on the testicular ability to produce gonadotropins or sorry, gonadal hormones. Alcohol results in decreased fertility and hyperlipidemia as well.

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Moving on to tobacco, which again is the leading cause of preventable death in our country. There again is no amount of tobacco or even nicotine that is associated with good outcomes in your health. Cerebrovasc- or cardiovascular... Tobacco affects every part of the blood vessels and every blood vessel in the body. So when we see vascular disease, we see hypertension, coronary artery disease, and peripheral vascular disease.

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Gastrointestinal we'll see reflux and peptic ulcer disease, and increased risk of pancreatitis. And in patients who have pancreatitis from a different insult, specifically from alcohol, tobacco use increases the incidence and the severity as well... Inflammatory bowel disease such as Crohn's and an inflammatory bowel disease, as well as malignancy increase with tobacco use.

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Tobacco is a direct suppressant on the respiratory system, so we will see increased risk of COPD and emphysema, lung cancers, asthma, pneumothorax, pulmonary hypertension and then infectious complications such as pneumonia, pneumonia and chronic bronchitis.

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Tobacco is associated with almost every cancer death, specifically increased risks that are very associated with with the oral and the entire GI tract, lung, breast, cervical, bladder, and kidney. Tobacco causes a hypercoagulable state which increases the risk of deep venous thrombosis and pulmonary embolism.

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Because of the tobacco risk on the small vessels of the brain, there's a great deal of neurological sequelae, specifically ischemia. Tobacco suppresses the immune system, therefore the risk of infectious disease increases. And then from a re- reproductive standpoint, tobacco, again associated

with blood vessel disease will result in erectile dysfunction and possibly infertility.

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There was a large campaign for patients in recovery because tobacco sometimes is viewed as not a problem or a lesser problem than the other drugs and alcohol that are used. And frequently, some of our interventions for patients who are achieving recovery will downplay the negative impact of tobacco on overall wellness and health. And we know that when patients get into recovery, and I frequently say to my patients, "Okay, your biggest risk right now, of death is not that, you know, fentanyl overdose that we were worried about a year ago. Your biggest risk of death and premature death now is associated with your tobacco use and reducing your life expectancy."

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We've known for decades that patients who continue to use tobacco have an increased predicted return to all substance use, whether it be alcohol or the other drugs. We know that that's maybe because of the setting where tobacco is used, because of the neurolimbic association with tobacco and drug use, but we know that when someone continues to smoke that their likelihood of achieving abstinence or their degree of recovery is decreased. So then this brings up with when someone is in a residential treatment program or a program that has a high oversights as a PHP, or even IOP, should they allow tobacco? The cons of that approach are that this might be a barrier to treatment. That patients might not even seek treatment, if they're told they have to give up cigarettes. I think most patients going into residential treatment understand that they can no longer use cocaine and heroin. But the idea of stopping the use of tobacco may be a barrier for anyone even going there.

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There's been some experiments of this. And the- the- usually interventions in treatment areas are, let's say the staff isn't allowed to smoke, the patients aren't allowed to smoke. Can they use vaporized nicotine? Can they smoke outdoors, but not indoors? Varying approaches to this. And Philadelphia and New York present different outcomes. You know, Philadelphia recently has had a ban on public-funded recovery centers and probably more lay literature has reported that like 85% of the patients who leave, they say they left because of the tobacco ban. Whereas New York says that they've reported decreased tobacco use in staff as well as in patients and that it has not inhibited patients staying in treatment. It's not the main reason people leave. So there's a lot more to be studied in this. But I think one thing that came out to me that was just unheard of was that multiple treatment, residential treatment programs don't even address tobacco use. So they don't address that there's medications, there's clinical interventions, that it's just an accepted part of being in recovery. And that we clearly know that that isn't, you know, that is not...

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Moving on- opioids. Opioids are associated with infectious disease. Sexually transmitted diseases are associated with opioid use mostly because of environmental risk factors. We know classically that soft tissue and bone inj- infectious infections such as osteomyelitis, and infected abscess sites, cellulitis, as well as right-sided endocarditis are associated with IV drug use.

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Hepatitis C and HIV are increased with all opioid use, I should say, opioid use that is by inhalation, insufflation or by IV administration. The respiratory risks of opioids include overdose. When we predominantly saw heroin and opioid pain reliever overdoses, overdose was associated with a respiratory arrest, which eventually without intervention would lead to cardiac arrest. When we see more fentanyl and fentanyl analogs, we're finding that cardiac arrest occurs faster. It's important to educate our patients in addressing an overdose that they need to not only administer naloxone, but pay attention to not just the "B" but the "C" of the first responders. That if the patient's not breathing to also look and see if they have a pulse. Naloxone doesn't work really well if it just stays in the blood vessels in the nose. It needs to have circulation to get to where it needs to be in the body to reverse the cause of the overdose in the first place.

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Opioids are associated with reduction in steroid hormones. This has to do with an hepatic effect. And this is also not just non-prescribed opioids or pain relievers, but also medicines to treat opioid use disorder. They're all opioids as far as their impact on endocrine reduction and steroid hormones. Opioid overdose and use can be associated with trauma, which can present as rhabdo or compartment syndrome. So important when someone has an overdose to address them, to look at their limbs. Look for old injuries that might not be pointed out right away in in a medical emergency.

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Opioid use is associated with obstructive- worsening of obstructive sleep apnea. And a known complication of opioid use, even medicines to treat opioid use disorder, is constipation. So asking about constipation, aggressive treatment whether lifestyle modifications or medication should be offered at every visit.

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The etiology of opioid-induced hypogonadism kind of occurs in multiple pathways of the hypothalamus pituitary gonad access. It inhibits gonadotrophins- and it also or sorry, GnRH and as well as FSH and LH. But it also increases the activity of 5-alpha reductase which will make more testosterone switch over to estradiol.

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Presentation sometimes is low libido, but not always. Sometimes the presentation can be muscle wasting, increased body fat, depression, down the road, rarely osteoporosis. But the important thing is to ask about this, and too, when patients who are in long term treatment for opioid use disorder with an opioid, that we include this in our workup for depression, for decreased energy and things like

that, and then, if not offering it ourselves, make sure that we have a good partnership with someone who will recognize that low testosterone could occur in a 40 year old, who is treated with methadone for the past 10 years, and make sure that they don't have any barriers to replacements.

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Another thing that comes up a lot when we treat patients for opioid use disorder with medications is the idea of QT prolongation. And this is not only related to methadone treatment, and to a lesser extent, buprenorphine but also with other psychotropic medications we use. A normal QT interval, which would be calculated based on the ventricular rate, or the heart rate, is less than 430 milliseconds for men, and less than for 450 milliseconds for women. There's some classic medications that will increase this QT interval and we know that when it is increased to a certain point, it can increase the risk of a particular vintec- ventricular arrhythmia called torsades de pointes or twisting of the points, which can result in sudden cardiac death.

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Some common psychiatric medications that are used and might not because they're used as a as needed with hydroxyzine. Sometimes you can find to your horror that your patient is taking 300-400 milligrams of hydroxyzine a day... Citalopram and doses over 40 milligrams have been associated or considered higher risk for increasing the QT prolongation. Hypomagnesemia, hypokalemia and hypocalcemia are also related with it.

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So what do we do when we are treating someone with methadone and we're trying to see what's the risk of this? Because again, in your little EHR, it will pop up and say this is high risk for QT prolongation. So, the idea of getting an EKG on patients at the beginning before starting methadone and then throughout their course and their dose escalation is a barrier to care. Opiate treatment programs typically do not have an EKG machine available to them. We've already established today that patients have difficulty in tapping into the healthcare system, especially when they're just starting recovery. And to say we need to get an EKG before starting a life-sustaining medication is probably folly. There's no information in the literature that says that that should be done.

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So the the typical approach by people who treat patients with methadone is to get a really good family medical history. To ask about all medications. To ask if they take them as prescribed. To look at the family history. Does the grandpa have sudden cardiac death? Have you had a syncopal episode that no one can figure out why? Those kinds of things... to take a really good history, and then maybe when we get these higher doses of methadone, which we're finding are necessar, as we're treating fentanyl use, to maybe get an EKG at 120 milligrams.

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I like personally, I treat these patients with methadone. I like to work with primary care and even

I like personally, I treat these patients with methadone. I like to work with primary care and even cardiology on what do we do because reflexively stopping a life-sustaining medication, and just switching them over to buprenorphine maybe is not, is not going to have the best outcome overall.

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When looking up medicines and their the impact... simply saying they have QT prolongation- does it mean that they're super impactful? Or maybe they rarely are impactful? The Flockhart Table is an app developed by the IU School of Medicine. It's recently been updated in the past maybe several months. And it is a really good guide to how should I interpret this particular medication regimen? What should I be looking for? Crediblemeds is another website that has been helpful historically in looking at medications to see if they have an impact on QT prolongation. What is the impact? And then, when looking at a history, there's modifiable and non-modifiable risk factors for QT prolongation, and then torsades de pointes. So these should just be looked at. The modifiable ones we should try to modify those before we start making the medication changes. So...

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Another medicine that we use to treat opioid use has kind of evolved over time so long-acting injectable naltrexone or oral naltrexone. When this medicine first came out, I believe that most of the instruction I got as a young provider was "you have to check their liver function test beforehand. If they tell you they have a history of liver disease, this is a contraindication. If they have Hepatitis C, this is contraindication to using this medication." And albeit that we use naltrexone less often than buprenorphine and methadone for the treatment of opioid use. It is a mainstay in treating alcohol use disorder. We know that people who use opioids and people who have an alcohol use disorder baseline have a higher risk of hepatic disease from the onset, and stopping opioids and alcohol is going to impact that significantly. So it's not just a medication side effect. The outcome of the medication may reduce the risk of elevated LFTs and liver disease.

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So the guidelines have been changed in our provider clinical support system recently, I think May of 2022, saying that we don't need to check LFTs prior to starting treatment with naltrexone. And that if they do get elevated, if you want to check them again in six months or a year that it doesn't... the LFTs don't get elevated any higher than with a placebo. So you don't need to make medication changes based just on elevated LFTs. Should we look at why they're elevated? Of course. But reflexively just stopping a medication, especially if it's helpful and may result in a behavior and another illness that is going to cause more elevation. So and then I think we've known this for a while, but hepatitis C and hepatitis B are not a contraindication to initiating naltrexone if it's indicated.

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When we look at stimulants we're predominantly talking about methamphetamine and cocaine. They wreak havoc on the central nervous system, as far as generally from a vascular standpoint. So the risk of hemorrhagic strokes and ischemic strokes as well in cocaine. There's not a lot of evidence that

cocaine use is associated with seizures. And therefore, if someone presents with cocaine use and a new onset of a seizure should probably be looking for other etiologies: Other toxins, closed head injuries, those kinds of things.

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The cardiovascular impact, again, stimulants are not good for your blood vessels. So coronary artery disease, high blood pressure, aortic dissection, and ventricular arrhythmias. The classic boards question was that you cannot give a beta blocker if someone is using unopposed alpha blockers such as methamphetamine or cocaine, because that will result in a fatal arrhythmia. That's not felt to be true anymore. I think that's one historical thought versus an actual thing. So if a beta blocker's indicated in the cardiovascular emergency, you can go ahead and get that. So...

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The GI system again is generally... vascular ischemic bowel can occur with acute methamphetamine or cocaine use as well as colitis.

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A question that comes up often in primary care is, you know, do I need an EKG before starting- before a prescribed stimulant for patients. And we saw during COVID, that there was very little data collected before starting prescribed stimulants, probably on a higher risk population. But for kids and young adults- no. That- we're just not expecting to see something without any, you know, anything in their history, it's probably not going to be too helpful. if they have an EKG, go ahead and look at it, but probably not necessary.

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When we talk older adults, you know 55 and older, the data is not great. I think the biggest data is that we should really be considering whether we're using stimulants in older adults. And most people are finding in their practice that we're getting new patients who've been placed on a stimulant, maybe from telehealth or maybe not a lot of great intervention for it and you know, the toothpaste is out of the tube, what are we going to do next? The risk of stimulants generally is increased hypertension, tachycardia, and possibly vasospasm. So at minimum, we should be checking blood pressure and heart rate every six months. I would imagine that most of us check that with every visit, and we see these patients more often than every six months. Should we get an EKG, if we do, look for things like QRS widening and conduction delays, because those increase the risk of ventricular arrhythmia with a stimulant.

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The morbidity of the stimulants as far as medical complications is that the vascular tends to result in the cardiac and strokes problem and then the cause of death is cardiac or cerebrovascular. But stimulants have another effect even if there's no vascular consequences as far as when patients who

are using stimulants experience psychosis, they are increased risk of self-induced trauma as well as trauma from the community because they're experiencing psychosis. In which case the trump- the cause of death is equally traumatic.

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When we look in people who inject drugs or IV drug use, the main medical complication that we worry about because of the sequelae is HIV. We've known that people who inject drugs that are- encompass about 10% of new HIV cases since 2012. The reduction that we've seen is in great part because we've stepped up harm reduction. Syringe service programs are felt to reduce the incidence of HIV as high as 50%. Also, lesser impact, just because of the lack of availability or opportunity, using preexposure prophylaxis medications for those who are at high risk or having overdose prevention sites, which again, will increase the likelihood that sterile technique is used with injecting drugs will hopefully have a greater role in reducing HIV cases as they become more prevalent and available to people who inject drugs.

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Hepatitis, again, has a huge association with injection drug use, we believe that about 65% of patients who inject drugs will have an exposure and develop antibodies to hepatitis C. The reduction in hepatitis C is going to come from not only sort of service programs, but when we treat patients with medicines to treat their opioid use, even if they don't achieve abstinence, they will most likely achieve a reduction in use, which will reduce the likelihood of acquiring or transmitting HCV.

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The treatment of HCV with medicines is recommended for every stage of recovery. I will still hear occasionally they'll say, "Well, they're still using so I'm not going to treat their hep C because they'll just get it again." I think one way to wrap your head around this outside of me just telling you no, that's not true, is that patients who have hepatitis C are placing people who don't have hepatitis C at risk for now be- getting hepatitis C. So when we treat a patient who has hep C, we're reducing the likelihood that they're going to transmit it to people who don't have hep C and the more people the less indec- cases of h of hepatitis C that we get in our community, the less new cases we will see.

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We know that IV drug use again is the most common risk factor now for new hepatitis B. As a result of getting people immunized, we're still gonna see hep B from...

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So pre-exposure prophylaxis: the public health goals that lead for 2030- one of the goals is that we want to reduce new HIV infections by 75% in just two years, and then by 90% in 2030. And we have the tools to do that. In PrEP and and then post-exposure prophylaxis or PEP, are available and can be prescribed by non-specialists. The problem is, is we need to just identify patients who are at risk,

have those patients feel comfortable telling us they're at risk and ensure that insurances continue to cover these effective medications. The CDC and the FDA endorsed PrEP as an effective strategy to reduce, reduce new cases of HIV infections among people who inject drugs. However, fewer than one in 500 of people who inject drugs have had a prescription for PrEP. So long injecting... long acting injecting forms of PrEP are not on the horizon anymore; they're available. They have not been evaluated as far as a good strategy for persons who inject drugs. However, the availability of these medications or this medication too has come under threat as well by insurance companies feeling that they don't have to cover those even though they are preventative health care, making them carved out because they're associated with a lifestyle. So hopefully the advocacy of ASAM and other bodies will make sure that we continue to have access for our patients who need these life sustaining medications.

33:31

Other medical complications of IV drug use include soft tissue and bone infections such as osteomyelitis, or cellulitis. Endocarditis is associated with an injection drug use. Some boards questions would be that about 75% of these infections are Staph aureus often methicillin resistant. Streptococcus is another one that's involved and even fungal endocarditis has been seen as well. The classic physical exam that you might have described in a Boards question would include, forget about a fever, a new onset murmur, someone who's very very sick and has an echo that shows vegetations on their tricuspid or pulmonic valve, - but some other, lesser known

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Things could include ostler nodes which are just painful red ulcers, raised ulcers on the hands, the feet, other parts of the body. Roth spots if you're someone who typically does a fundoscopic exam on your patients. It will be seen on the retina. Splinter hemorrhages, which are just linear hemorrhages in the nail bed. And then the the other classic things to know that a patient has presented to us a history of IV drug use and is very very sick.

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Some interesting data has been collected on cardiothoracic surgeons and how they're going to approach someone who presents with infective endocarditis who needs a surgical intervention, likely a valve replacement. So, again, this was done in 2021, so I think the study was more like 2010 to 2016 or so. But predominantly, the thoracic surgeons were male and white, and all over the country. And the interesting thing was, is that their idea that if they're going to operate on someone who needed a valve replaced because of infective endocarditis, and they didn't use drugs, about 90% would do that. But if they did use drugs, then they will only about one in four would. And these surgeons said that they would- would not limit the number of surgeries they would do if the endocarditis was related to a valve, they wouldn't limit at all. And but however, if it was related to drug use, then about 80, almost 85% said they would, and then the scary number was that 65. So three out of five said that they have declined to operate on a patient who otherwise had an indication because their endocarditis was associated with a drug use. So those are some scary reports, that again, just emphasizes what some of our patients who are really very ill see in American hospital setting.

36:13

A common misnomer with patients is that there are no complications if you are inhaling, or smoking a drug or you're using it by insufflation. That, you know, hey, you're a new patient of mine, I'd like to screen you for HIV, syphilis, or hepatitis C, and they say, "Oh, no, I've never injected. So I'm not at risk," but we are at risk. Sharing any kind of equipment, whether it be a plate, a razor, clearly, glass pipes, or stems can increase the risk of infectious disease. The reasons for this are, if there are chips in the glass, blood can be transmitted when we're sharing a pipe. Often, when people are in active addiction and impaired by the drug that they're using, they're not going to have to exercise good barriers with sexual activity. Burns can get infected and then when you're around, someone else has hepatitis C, you have reduced integrity in the skin. Patients can get cut in their mouth with pipes. So harm reduction often includes safe practices, not only for injection, but also for insufflation, inhalation.

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A lot of that's education, a lot of it is getting sterile one time use tools for patients who continue to inhale or use drugs by insufflation. As always, Canada's got a leg up on the United States in these best practices and is a great source of resource if you want to educate your patients.

37:43

Cannabis, when we talk about the classic medical complication I think is more described than ever seen in real life, that would be hyperemesis syndrome. And this just has a lot with downregulating the CBD receptors in the brain and upregulation in the gut, typically is reported to be seen with chronic daily cannabis use. The classic history will be that "My nausea and vomiting gets better with hot showers." I would say most cyclic emesis syndromes are relieved with hot showers however, and that the symptoms would resolve with abstinence or cessation of cannabis use.

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Often there's this reverse causation theory where a patient is using cannabis every day they get nauseous and have vomiting so they use more cannabis because they think that that's gonna help with their nausea.

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Medical cannabis is a thing now in most states, not the state I practice, but in most states. There's been a lot of randomized controlled trials here suggesting that some things do respond to THC and to cannabis products, which are there's a wide spectrum.

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Generally medical cannabis should not be recommended as a first or second line treatment for most of the indications. There's some evidence moderate level of evidence that cannabanoid products

might be playing a role in the treatment of chronic pain, specificity. There's evidence that shows that cannabinoid products are helpful in certain forms of epilepsy. But not a great evidence, but some evidence that cannabis products can be helpful with nausea and vomiting from chemotherapy. That's refractory to typical anti emetics wasting from HIV or cancer. That's refractory to typical medical interventions. When we're looking at our patients, though, there is a significant risk of increasing psychological morbidity and even substance use morbidity. So I think recommending cannabis as a response for psychiatric illness and stuff. It has to be done with a lot of thought and weighing the pros and the cons for that individual patient and to have really good discussions about, "Now that you're using cannabis for anxiety. What have you learned so far?" as well as harm reduction with medical cannabis that often medical cannabis looks like a candy. And so, safe storage, make sure that purchasing is from reliable sources, those kinds of things are good conversations to have.

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So inclusion- conclusion, I think the emphasis for this audience is that when we're seeing a patient for who is presenting with a substance use disorder, or seeking treatment for that, that our history should really reflect what they share about their substance use and their lifestyle, and their lack of access to healthcare during active addiction, as well as to do a really good physical exam. And then with our ongoing treatment, that we don't want to ignore patients' physical health. That it's, if I'm seeing a patient, I'm treating them for alcohol use disorder that I need to make note of, because I'm a healthcare professional, of their hypertension, of their tobacco use, of their, you know, increased or decreased BMI, and to incorporate that in the care of the total person.

41:06

I teach patients all the time how to advocate for themselves when they're seeking health care, that if they feel that they're being stigmatized to, to share a little bit about what their course has been. "Yes, I'm treated with methadone. You know why, because I haven't used fentanyl in a year and a half." To make sure that they're not believing the lie that they're less than and apart from, and that they need to bring support with them. If they're going to the emergency room, someone who can stick up for them, and ensure that they're getting appropriate care.

41:36

To never ever, ever, ever downplay tobacco and alcohol use with any patient that we're seeing in any setting. And then, for myself as an addiction medicine provider, that I have partnered with my primary care colleagues, that we can be a team in helping our patients and that I often will see my patients more often than my primary care colleagues to bring them up to speed about what's going on. And then also with our primary care doctors, to treat our patients with respect and the intensive care that they require and that they need.

42:12

Physical health does not stop just because someone has an active addiction. So it's really important to address preventative health care and safety issues with patients no matter what degree that they are in the line of the recovery. An added a note for anyone who's doing a chart, that tobacco use and

alcohol use should be in someone's history of present illness, not in their social history. They are substances that can be treated with medications just like any other substance use. They honestly- that they're just recreational is as cocaine is. So those should be included in the history of present illness or the medical history. Again, if you have questions that pop up, you can get in touch with ASAM either by the website, emailing or using the phone number. Thank you very much.