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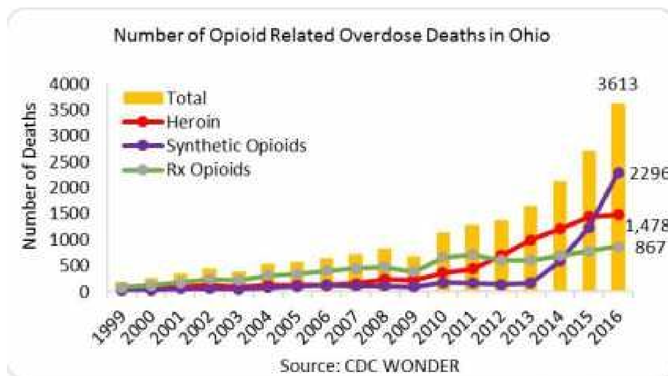
Midwest Region #2 (Kansas, Iowa, Michigan, Indiana, Missouri, Illinois, Ohio)

A. REGIONAL PARAMETERS:

Prescription painkillers are powerful drugs that interfere with the nervous system's transmission of the nerve signals we perceive as pain. Most painkillers also stimulate portions of the brain associated with pleasure. Thus, in addition to blocking pain, they produce a "high." In the Midwest region of the United States involving the states of Kansas, Iowa, Michigan, Indiana, Missouri, Illinois and Ohio the drugs that predominate are oxycodone, codeine, fentanyl and heroin. Heroin is the primary drug of abuse and fentanyl, also known as duragesic, is the secondary. Common slang terms for codeine are Sizzurp, Purple Drank, Cody. The slang terms that predominate for oxycodone are O.C., Oxy, OxyContin, Percodan or Percocet and those known for fentanyl are China and White. The common slang terms for heroin are extensive and numerous (H, Tar, Junk, Dragon, Dope).



The above graph from National Institute of Drug abuse shows common forms of opioids abused in Ohio (representative of the Midwest). It also shows a high increase in drug related deaths in the past 5 yrs.

These schedule II synthetic opioids commonly abused are prescribed for moderate to severe pain. They are monitored closely by the PDMP, an electronic database that monitors when

and who dispenses the drugs. Unlike the other synthetic opioids in the Midwestern region, heroin is a non-synthetic illegal opioid schedule I drug that is not utilized or distributed by any medical professional to relieve pain. Possession of a non-prescription opioid is illegal and can result in 2-7 years in prison. The fact that these drugs are classified as schedule I and II drugs according to the Drug Enforcement Agency (DEA) establishes that these drugs have a high potential for abuse. Most of the heroin and fentanyl used by Americans enters the country through Mexico.

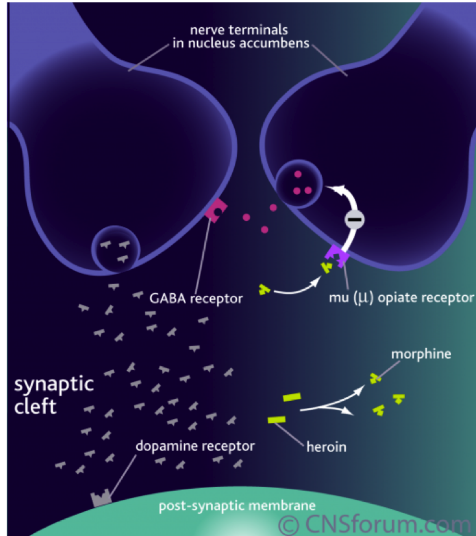
According to a 2017 Drug Enforcement Administration report, international gangs based in Mexico "remain the greatest criminal drug threat to the United States," and their most common method of smuggling drugs is vehicles legally coming into the U.S. They then transport them to stash houses in hub cities like Dallas, Los Angeles and Phoenix, and then distribute to the Midwest and East Coast. As for fentanyl, it mainly originates in China and comes in through the southwest border, Canada and the U.S. Postal Service. In 2008 there were more than 1200 Opioid Treatment Programs in the US to help control the grade of opioid overdoses, with 183 in the Midwest. The mean age of individual enrollees in this region was 34 years of age. According to the National Center for Health statistics, the percent of persons aged 12 years and over abusing opioids increase 10.6% in 2016. According to the Centers for Disease Control and Prevention (CDC), in the Midwestern region opioid overdoses increased by 70 percent from July 2016 through September 2017, approximately seven times more than the national average.

The Midwest Region is called the “Land of the Farms” because most organic farming that supplies the United States is originated in this region. The region’s climate and natural resources allow farming to be efficient which contributes greatly to the region’s economy. However, according to the Midwest Census Region, unemployment rate, as of October 2018, is 3.30%.

Compared to 3.20% in September of 2018 and 3.50% the previous year, the region has reached a rate lower than the regions long term average of 6.20%.

The Midwest Economic Policy Institute offers several strategies to help employers, contractors and labor unions combat the opioid crisis by incorporating substance misuse and mental health treatment into health care coverage, limiting the opioid dosages in health plan policies, educating workers on responsible use of prescription opioids and adding regular drug testing in employee policies. Opioids are the most commonly misused type of prescription medication in the U.S. Unsafe prescribing and dispensing practices, such as combining opioids and benzodiazepines, greatly increase the risk of opioid use disorder and fatal overdose. There are two key strategies to help address this priority: increasing the percentage of prescribers using the Prescription Monitoring Program (PMP) which helps providers monitor the prescriptions dispensed to patients and reducing the volume of inappropriate and high-risk opioid prescribing through improved prescriber education and the use of safe prescribing guidelines.

The opioids that are abused in the Midwestern region all have a similar mechanism of action. They all bind to an opiate receptor in the brain, spinal cord, and periphery. Receptors such as Mu (μ) which produces analgesia, Kappa (κ) which produces dysphoria and Delta (δ) are receptors in which the opioids bind to. To reduce sensation, they inhibit adenylyl-cyclase, an enzyme that breaks down adenosine triphosphate (ATP) to form cyclic adenosine monophosphate (cAMP) and decrease the neurotransmitters in the synaptic cleft (Bovill, 2018). The reduction of pain sensation is the primary cause of dependence and abuse of opioids. Adverse reactions include respiratory depression, constipation, hypotension, bradycardia, anxiety, restlessness, and urinary retention



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Opioids bind to mu receptors in the brain and spinal cord

Historically, the opioid crisis of the Midwest began during the 1990's, when doctors began prescribing opioids in increasingly large numbers to patients complaining of intolerable pain. The doctors were coerced into doing so by pharmaceutical companies, who falsely advertised the prescription opioids as a fast and effective way to deal with pain. As time went on, opioid users began moving to more potent kinds of drugs, particularly heroin and illicitly obtained fentanyl to reach a stronger high. Fentanyl and heroin thus became prevalent in Ohio, Michigan, Illinois and Iowa by 2014. As addiction reached an all time high by year 2017, opioid related deaths and emergency visits also peaked in the Midwestern states (Lopez, 2017)

After the medicine facilitated opioid outburst in the Midwest, medical professionals of the region are attempting to come up with alternative drugs to treat pain and treat those already suffering. In Illinois, Michigan and Ohio for example, medical professionals are now prescribing medical marijuana, or cannabis, in place of opioids after it has been legalized in all three states by Aug 2018. In addition, in Illinois and Wisconsin, first responders now carry naloxone on hand so that it may reverse opioid effects in emergency situations (Anderson 2018). Furthermore,

doctors are also examining patients more throroughly before prescribing them painkilling medications and pain management clinics are being monitored and encouraged to set lower dosages for certain prescription opioids (Anderson, 2015).

As the medical community tries to prevent new users from becoming addicts, the state governments are attempting to treat patients who've already become addicted. For ex, the HB1 law in Illinois has made it mandatory that medicare now cover medication assisted treatment options (methadone, buprenorphine and naltrexone) for opioid dependence. Likewise in Michigan and Ohio, an average of 6 medications for reversing opioid disorder are now covered under the Medicaid plan. Legal protections for those individuals who abuse opioids have also been put in place in Illinois and Indiana so they can seek rehab for substance abuse (Anderson, 2015). In addition, most state governments have passed stricter rules for managing the PDMP database within their state to prevent patients from running from doctor to doctor to fulfill their prescriptions. Lastly, state governments are also filing lawsuits against drug manufacturers, distributors and pharmacies that they believe are contributing to the opioid epidemic (Barlas, 2017, p 570).

The media is also doing its part to spread awareness about the opioid epidemic. In fact, in many rural territories and farms of the Midwest, communication through broadband and internet is the only reliable way of receiving news about the treatment options for those suffering. When faced with reduced availability of proper medical care, telemedicine has also become a viable tool for helping connect the Midwestern rural towns in Iowa and Kansas to get healthy within their community (Hezlett, 2018). It is only with a combined effort from the

federal and state governments, the medical team and the media that the Midwest can successfully contain the opioid crisis and reduce further opioid related injuries and deaths.

B. IMPACT STORY

Link to the story:

Zezima, Katie (Apr 7, 2016). "As the Opioid Epidemic Rages, the Fight against Addiction moves to a Ohio Courtroom". *The Washington Post.* Retrieved Nov 12, 2018 from https://www.washingtonpost.com/national/as-the-opioid-epidemic-rages-the-fight-against-addiction-moves-to-an-ohio-courtroom/2018/04/07/97b82b84-2636-11e8-874b-d517e912f125_story.html?utm_term=.22dea0c08846

The impact story I chose to discuss opens with a generalized statement of how Vinton County in Ohio is suing companies that manufacture and distribute powerful painkillers after advertising them as safe. The article discusses how drug offenders in Ohio are eating up 25% of the state's budget; A whopping $4 million is spent annually locking up drug abusers and then paying for the foster care of their children. "Teachers often have to buy shoes for students whose addicted parents send them to school in footwear held together with tape. Overdose deaths have surged. Foster care is overwhelmed. The jail is bursting at the seam" (Zezima 1). Someone needs to pay up for the added costs of foster care, healthcare and criminal prosecution that follows opioid abuse, creating neglective parents who cannot care for their children's needs. Hence, hundreds of lawsuits have been sewn into one and brought up in a federal courthouse in

Cleveland, demanding the judicial system for justice and compensation from opioid companies who started the drug crisis.

The article then goes on to discuss the personal story of Lily Niple, a party girl from a small town in Ohio who first got addicted to opioids as a form of letting off some steam during her busy days in college and while waitressing. Although she stopped using the opioids while pregnant, her baby was born prematurely anyway, illustrating the far reaching consequences of opioid in the body. Even when she wanted to come off the drugs after delivery, she was negligently put on them again by the medical community who saw no other way to treat her postpartum depression. After hitting an all time low in 2016 and considering suicide, she finally decided to join a rehab program to wean herself off the drugs. Now she's a mother of 4 children under the age of 12 and works with other mothers to help them overcome addiction (Zezima 5).

Lily Niple wants to become a voice for change

The reason this story stuck out to me was because it so clearly illustrates how doctors and pharmaceutical companies are at the very backbone of the opioid crisis. Even when Ms Niple wanted to stop her addiction for the sake of her health, family and children, the medical professionals were the first to prescribe her more opioids and put her back on the drug regimen post pregnancy for a medical issue that could have been dealt with through therapy. Although Ms Niple was strong enough to wean herself off the opioids, other patients are not as controlled.

Because they are not able to stop their addiction, their children are adversely affected and learn the use of dangerous drugs at an early age. In fact, as the story continues to state, a principal in Vinton County actually witnessed a 7 yr old " sit in her office and describe how to properly shoot heroin-something the child learned from watching it happen at home" (Zezima 6). This illustrates just how rampant opioid abuse has become in Midwestern families by 2016.

To further illustrate this point the article states "there were 202 drug related child protective service investigations [in Vinton County in 2016], a vast majority of which involved opioids" (Zezima 6). In fact, most of the abusers for these drugs have been mothers, much like Ms Niple. There are so many women arrested daily for drug abuse in Southern Ohio, that according to a sheriff, deputies must free another woman to open a slot for a new offender in one of their 23 regional jails. Ms Niple's story is typical of the region as the opioid epidemic is killing hundreds of people each day and cost the county $200 million in the past decade alone (Zezima 3). Many of these people are surrounded by depression and thoughts of suicide. In fact, in the case of Ms Niple, she even thought of hanging herself from the rope that was used to hold the pinata at a children's birthday party, because she saw no way out of her addiction (Zezima 5).

Such high incidences of drug abuse have obviously far reaching consequences for the community. When parents get arrested for opioid related crimes, schools and federal governments are left to take care of the children in these broken up families. This means that a large chunk of Ohio's state budget must be spent on caring for neglected children since parents who abuse opioids are held in custody for a median of 240 days (Dang 2). Furthermore, the state must create rehab programs and provide additional medications for drug abusing parents, which adds to healthcare costs. Sometimes, relatives are also dragged into taking care of these

neglected children, which means they must contribute additional time and money into raising them. Teachers also have to become counselors and educators for children whose lives are made chaotic by drugs, proving the whole community is affected by the opioid abuse of neglective parents, such as Lily Niple.

The regional factor that allowed Lily Niple to have a positive outcome was that Ohio state has legalized the use of alternative drugs that act as antagonists to opioids to help patients fight cravings and reduce addiction. These drugs include methadone, buprenorphine and naltrexone (Anderson 2015). Because these drugs are covered under medicaid and they are prescribed quite easily, with an average of 6 prescriptions given per patient, Ms. Niple met with a positive outcome and was able to curb her opioid addiction. Additionally, because the state has recently devoted more of the budget to opening rehab centers and because drug addicts are increasingly more immune from criminal prosecution for seeking rehab, Lily was able to get the addiction treatment she needed to cure herself and be there for her children. The outcome might have been different in a state which was not as proactive as Ohio in seeking treatment and weaning its population off of opioid addiction.

C. ROLE OF DENTAL HYGIENIST

Because many opioid abusers have other underlying conditions due to which they become addicts, it is important for the dental hygienist to correctly identify and document an accurate personal and medical history for the patient, including all prescription and OTC drugs he's taking, any previous incidences of drug abuse, history of sexual or physical assault, history

of depression or anxiety, current living conditions and any prior history of criminal activity (Fingerson 2014, p 10). Although this kind of an enquiry may seem like it's impinging on the patient's privacy, it is relevant and can give clues to the patient's current psychological status and how likely he is to become dependent on opioids if prescribed. In order to assess the patient's risks for opioid addiction, therefore it is necessary the dental hygienist build a relationship of trust, respect and one that's free of judgement. The dental hygienist must insure, that even if the patient discloses that he's a drug abuser or has a criminal record, he will not get in trouble for it. The patient will be much more likely to give accurate information, including any history of tobacco and alcohol abuse, surgeries, or prior failed drug rehab programs, if he knows he's in good hands with the dental team and that he will not be reported or charged for any criminal offenses if the info is disclosed.

Taking accurate medical history is crucial for dental hygeniest

It's important when treatment planning for a patient that abuses opioids or even one who's suspected of doing so, that the clinician or dental hygienist check all previous records of the patient in the clinic and in the PDMP database to accurately arrive at his previous intakes of drugs. Anyone that is suspected of "doctor shopping" or abusing opioids should preferably not be prescribed more opioids such as oxycodone or hydrocodone. In fact, such a patient is better

off being prescribed another analgesic that can treat pain and inflammation without causing euphoric addiction, such as NSAID's, acetaminophen or salicylates (Boston School of Dental Medicine, p. 22). Since opioid metabolism most commonly occurs in the liver, it is important that potential abusers not be given large doses of local anesthetics such as lidocaine since those will increase the metabolic load on the liver and may lead to adverse side effects. Rather than doing a painful procedure such as a root canal in one sitting which may require administration of an opioid for pain management, opioid abusers will benefit more if the appointment is broken down into 2-3 visits.

Direct clinical care of a patient who abuses opioids should involve a thorough EO/IO examination. Because opioid abusers also abuse other drugs such as tobacco and partake in dangerous social behaviors such as use of infected IV needles, their risk for oral cancer, HPV, HIV and fungal/bacterial infections may be high, so a thorough screening of their oral cavity is necessary (Delta Medical Center, 2018). During care, a patient who abuses opioids may experience low blood pressure, bradycardia, and respiratory depression which may get worse when lying down during dental treatment. So, such a patient must first be medically cleared, then situated upright and his vital signs monitored throughout the procedure, with preferably a trained medical personnel in the room in case of an emergency. Also, although opioid abusers should refrain from using further opioids, in the case it becomes necessary, drug use should be strictly monitored by the prescribing dentist, recorded in the patient's charts and PDMP. Additionally, patient recall should be shortened to ensure patient is doing well after drug use.

It is important for the dental hygienist to educate himself about all the common drugs of his region, including both opiate and non opiate choices, so he can correctly identify patients

which may be abusing any one of them. Opioids generally cause euphoria, decreased heart rate, blood pressure and breathing, constricted pupils, drowsiness, confusion, constipation, suppressed cough and hypothermia. Some opioids such as meth may also cause increased irritability, anxiety and psychosis (Delta Medical Center, 2018). It is important that the DH be able to physically identify the clinical manifestations of each opioid drug that is common to his region so that if a patient walks in with correlating symptoms, he can be further examined before being cleared for treatment. Even those patients that don't display the classic clinical symptoms of opioid abuse sometimes have intraoral markers that give them away. Because such patients often partake in dangerous sexual activity, they may have manifestations of viral and fungal infections, such as Candida Albicans, herpetic oral lesions, aphthous ulcers, NUG, and chronic periodontal disease. Seeing any of these symptoms clinically should raise a red flag for the DH to conduct further investigation before treating such a patient.

There are other trends opioid users show that the dental hygienist must be aware of. Among the other classes of drugs that opioid abusers use are alcohol, tobacco, benzodiazepines, cannabis, cocaines and amphetamines. So if a patient shows abuse history/clinical signs of any one drug such as tobacco, he should be looked up in the PDMP database immediately. Often opioid abusers also show other psychological disorders, such as depression, anxiety, dysthymia, insomnia and anti-social personality disorder (Delta Medical Center, 2018). So anyone that seems psychologically unfit should ideally be evaluated for opioid and other drug abuse. The general trend also seems to be men abuse narcotics more than women, in fact they are 1.5 times more likely to abuse legally prescribed drugs while 3 times as likely to abuse illegal alternatives, such as heroin. The younger population (those under 30) are also more likely to abuse drugs than

seniors 64 and over (Delta Medical Center, 2018). This does not mean that every young guy under 30 should be scrutinized for opioid abuse, but keeping these trends in mind, the dental hygienist should ask anyone falling under these statistics who's also displaying suspicious drug behavior further questions before treating or prescribing them anything.

If a DH does find out that a suspected patient is abusing drugs, either opioid or non opioid, it is important he effectively communicate with the patient to show him he sympathizes with the individual and he’s not out to get him. Rather than reporting him to the police, the dental hygienist should refer him to a dentist or physician that can prescribe him naltrexone and some type of drug rehab program to come off of his opioid addiction. The DH should also take care to not treat an opioid abuser any different from his other patients and give him the same quality of care as he would his other patients. So if the patient requires an analgesic to deal with the dental pain, the DH must be reasonable and ask him how bad the pain is rather than shooting down his pleas for premedication completely. The dental team may also want to prescribe opioids in limited amounts with clear directions, and prior to prescribing opioids assess the patient for opioid misuse risk. If risk exists, alternative treatment options should be considered but a patient should never be left unmedicated because this violates the core value of beneficence and goes against the professional responsibility we have towards our patients (Fingerson, 2014, p 21)

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