NATIONAL CENTER FOR CASE STUDY TEACHING IN SCIENCE

Inside the Opioid Crisis: Causes, Treatments, and Policies

by Cheuk Hin Li Pierre Elliott Trudeau High School Markham, ON, Canada



Part I – Abuse

"No doc! I don't think you've been listening to me!" James barked. "I have been taking Tylenol and Advil, and they are *not* working for me."

"Sorry, James. For now, I can prescribe some stronger painkillers, but please be careful with those. You need to..." Dr. Chang continued explaining, but James started to zone out. His pains were coming back again, and they hurt so much. He couldn't concentrate on a word the doctor said.

"Got it?"

"Yes, thank you Doc." James was sent home with 30 tablets of 5mg oxycodone CR, to be taken twice a day. As soon as he got home, he popped two pills into his mouth and chewed them. For the first time in his life, he did not feel limited by his pains. He felt a bit nauseous, and quickly fell asleep.

One week passed and he noticed that he had run out of tablets. He called the pharmacy.

"If you are taking two a day, you should have at least 16 tablets left," said the pharmacist.

"Maybe you didn't give me the right amount of tablets?" said James.

"We double count all narcotics, like the oxycodone that you are taking. That's because narcotics, which are addictive medications, are closely monitored by the government. Remember how you have to show us your ID and sign when receiving the Oxy? That's just another way of ensuring the medications are delivered to the person that needs them," explained the pharmacist.

"Ok, Ok, I've been taking it whenever I'm in pain. It's just so soothing everytime I chew on the meds, you know? It's... it's just... I constantly have these excruciating pains since the car accident."

"You *can't* chew the meds!" the pharmacist exclaimed, slowly regaining control of her anger. "These tablets are designed to release their contents gradually. When you chew it, the full dose gets released at once. You are very lucky that you didn't overdose from doing that."

"I'm sorry..."

"Schedule an appointment with your doctor. It's too early for a refill." The pharmacist hung up.

Weeks passed and Dr. Chang approved a refill for James, of course not without a warning. However, James could not fully stand up with his back pain and often had to crouch down in agony. He distinctly remembered that the doctor refused to increase his dosage, so he decided to take matters into his own hands and doubled his dose. He soon ran out of pills again.

"Hi, my name is James Chen and I want to request a refill please"

"Oh," said James, sensing the pharmacist's change of tone over the phone. "You umm... it's too early for a refill? But my original dose is not working anymore, and I *need* to take more to suppress the pain."

"Sorry, I can't do anything about it without a prescription. It seems like you are developing a tolerance for oxy. You should really see your doctor, James." The pharmacist hung up.

James was scared to see the doctor. He was guilty of not following his doctor's directions, and he blamed himself for everything that had happened. He decided to try to stop himself from taking so many pills. However, he could feel his heart racing, and he couldn't sleep at night because of the tremors and muscle twitches. At work, he had difficulty concentrating. At this point, he had no one to seek help from, although he knew that he needed the medication. With the help of a friend's friend, he found a temporary solution.

Questions

- 1. Watch the brief video "Susan's Brain: The Science of Addiction" at https://youtu.be/NDVV_M__CSI.
 - a. Explain how opioids like oxycodone works in the body.
 - b. Explain how tolerance develops.
- 2. How do some pharmacies ensure that narcotics are distributed in the right amounts, and to the right person?
 - a. Using the Centers for Disease Control and Prevention (CDC) website https://www.cdc.gov/drugoverdose/pdmp/states.html, briefly describe how the Prescription Drug Monitoring Program (PDMP) works.
- 3. What are some of the reasons that James became addicted to oxycodone?
- 4. Identify some of the symptoms of withdrawal that James experienced.
- 5. Conduct some online research. Describe some of the causes of the opioid epidemic in North America. Include at least one piece of data that shows the severity of the current crisis (e.g., number of deaths, amount of resources used).

Part II – More?

The next thing James knew, he was in a hospital bed; he woke up, fell back asleep, and woke up again. The last thing he was able to remember was taking some "borrowed" oxy on a street corner. He was surprised not to find handcuffs around his wrists.

"What happened?"

"You overdosed," said a man in a white coat.

"How much trouble am I in?"

"You are legally protected under the Good Samaritan Drug Overdose Act. The government wants to encourage people to stick around and save those who overdose on drugs." Dr. Rendall pointed at a kit on the bedside table. "You'll probably need this from now on."

James sat up and opened up the small package. Included was a printed card that read "Five Steps to Respond to an Opioid Overdose."

"What is this? Some kind of care kit?"

"Those are naloxone nasal sprays. Naloxone basically replaces oxy on the opioid receptors in the brain, and prevents the good feeling of dopamine from flooding your brain," Dr. Rendall explained.

"What's that in English?" James asked.

"It's basically an antidote that restores your breathing during an overdose and gives you enough time to seek emergency care." Dr. Rendall continued, "The kit comes from the hospital pharmacy. If you use opioid painkillers in an unhealthy way, if you are a family member or friend of an addict, or if you are being released from a correctional facility, you can get one of these for no charge."

"What now, Doc? I think I'm slowly losing control over my life."

"Well, first of all, you need some help." Dr. Rendall handed James some pamphlets. "There are multiple approaches to treating an addiction, like opioid agonist therapy, where you take medications to reduce withdrawal symptoms. I would also recommend you look at some of the support programs mentioned in the pamphlets."

"But what can I do about my back pain without oxy?"

"Some of the drugs used in the medication therapy can help with your pain, like methadone. You can also consider acupuncture, physical therapy, surgery, or massage therapy to treat your pain."

Ouestions

- 6. Read the *CBC News* article "Despite 'Good Samaritan' law, many drug users too scared of arrest to report overdoses," August 18, 2018, https://bit.ly/2U4uAJp.
 - a. Provide a one-sentence summary of the Good Samaritan Drug Overdose Act in Canada. Are there similar laws in the United States?
 - b. Why don't drug users call 9-1-1 even if they are aware of the act?
- 7. Explain how naloxone works.
- 8. Conduct some research and summarize the opioid agonist therapy (OAT) or medicated assisted treatment (MAT). Your summary should include the following information:
 - a. Which medications are used? Why are they used?
 - b. What are the benefits and disadvantages to OAT or MAT? List two of each.
 - c. What other options are available for the patient?
- 9. Conduct some research and identify two organizations that provide opioid addiction support in your local area. List the types of support that they offer.

Part III — Others Like Me

While James was waiting for discharge, he read up on the opioid crisis in Canada.

- "I can't believe people think that decriminalizing these dangerous drugs can help with the opioid crisis," James muttered to himself.
- "Well, they're already doing it on a small scale," a nurse responded to his comment.
- "How?"
- "There are places called safe consumption sites, where people can take illegal drugs as legally as possible."
- "Why would people go to these sites and take their drugs?"
- "First, they are staffed with professionals who can respond to emergencies and provide addiction support. Second, they provide sterile equipment and tests for diseases like HIV and STIs, which can be transmitted through sharing needles." The nurse caught herself, realizing she was sounding like she was reading off a script. She then simply said, "It's just a safer place to take drugs."
- "How does it help with the crisis though? Aren't they just giving them a place to overdose on drugs?"
- "That's what I thought too," the nurse continued. "Apparently, since the first safe consumption site opened in Vancouver, it has reduced incidences of overdoses, and none of the overdoses at the site have resulted in deaths."
- "That still doesn't really make sense to me."
- "I don't think the government is really trying to prevent people from getting addicted with this program, but rather to minimize the harm that may come with addiction," the nurse explained. "The government has also allowed doctors to prescribe methadone and heroin more easily, but that comes with problems as well."
- "Methadone? Like the drug to treat opioid addiction?"
- "Yes, there are two extremes to this problem. Some methadone clinics are accused of making big money out of selling methadone but providing insufficient follow up counselling," said the nurse. "Meanwhile, a large majority of doctors in Saskatchewan don't prescribe any methadone to treat addiction."
- "It seems to be a really complicated issue."
- "Yes... and done!" The nurse pulled out the IV needle and applied some gauze on the wound. "Apply some pressure on it and count down from 30. And then you are good to go!"
- "Thank you so much!"
- "No problem. Just remember to stay out of trouble."

James left the hospital. He had a lot to think about and even more things to do. His addiction was not over yet, but he was confident that he would overcome it.

Ouestions

- 10. Search the web and answer the following questions:
 - a. What are two benefits to having a safe consumption site?
 - b. List two reasons why there are no safe consumption sites in the United States.
- 11. Read the *CBC News* article "Sask. lacks doctors willing to prescribe methadone, opioid therapies, experts say," September 14, 2018, https://bit.ly/2RSaeWl.
 - a. Why are some doctors unwilling to prescribe methadone?
 - b. Suggest one way to increase the number of healthcare professionals who can prescribe OAT/MAT.

Project

Students should work in groups of three to prepare an eight-minute presentation on one of the following topics:

Topic 1

Implemented policy or actions taken to combat the opioid crisis (e.g., safe consumption sites, needle exchange programs, BOOST, facilitation of prescribing methadone and heroin, etc.). You should cover the following:

- Summary of policy/action
- How does it help alleviate the crisis?
- Is it effective? Are there any backlashes?
- What would you do to improve the program?

Useful link: The Centers for Disease Control and Prevention website is a good way to begin your research: https://www.cdc.gov/drugoverdose/index.html.

Topic 2

Potential actions that can be taken to combat the opioid crisis (e.g., decriminalization of illegal substances, mandatory pill testing, mandatory opioid prescribing training for doctors, heroin-assisted treatment, etc.). You should cover the following:

- Summary of policy/action
- Evidence/examples of successes in other countries
- Advantages/disadvantages of policy/action
- How or where should it be implemented? (E.g., at festivals, in rural areas, etc.)
- Do you recommend this policy/action? Why?

Students are encouraged to extend beyond the topics to demonstrate insight for the topic chosen. The presentation slides should be five to ten slides long. A minimum of three credible sources should be used, including at least one recent (i.e., published within the last three years) news article/publication. All sources must be cited properly using APA format, and shown at the end of the slides. Communication marks will be given based on the delivery of the presentation and the use of visuals/audio clips to enhance audience understanding.