

OCAD University Open Research Repository

Faculty of Design

2020

Wicked Problems: The Opioid Crisis

Kim, Joseph, Ma, Maggie, Lourie, Teresa, Tsai, Elysha and Kang, Zimmy

Suggested citation:

Kim, Joseph, Ma, Maggie, Lourie, Teresa, Tsai, Elysha and Kang, Zimmy (2020) Wicked Problems: The Opioid Crisis. In: Proceedings of Relating Systems Thinking and Design (RSD9) 2020 Symposium., 9-17 Oct 2020, Ahmedabad, India. Available at http://openresearch.ocadu.ca/id/eprint/3812/

Open Research is a publicly accessible, curated repository for the preservation and dissemination of scholarly and creative output of the OCAD University community. Material in Open Research is open access and made available via the consent of the author and/or rights holder on a non-exclusive basis.

The OCAD University Library is committed to accessibility as outlined in the <u>Ontario Human Rights Code</u> and the <u>Accessibility for Ontarians with Disabilities Act (AODA)</u> and is working to improve accessibility of the Open Research Repository collection. If you require an accessible version of a repository item contact us at <u>repository@ocadu.ca</u>.

OPIOID CRISIS

Joseph Kim • Maggie Ma • Teresa Lourie • Elysha Tsai • Zimmy Kang

Opioids are defined as drugs/narcotics that are largely known for reducing severe pain but can become highly addictive. Some types are completely legal and are prescribable by a doctor in various amounts (codeine, fentanyl, morphine, etc.), while others, like heroin, are illegal. These types of drugs have gained popularity in medical contexts for their ability to manage pain caused by physical injuries, cancer, and other illnesses; however, when administered over long periods of time, patients become at great risk for addiction. Over the course of the last few decades, the worst addiction epidemic in United States history has emerged, demonstrating a dramatic increase in the number of opioid-related deaths per year, especially in areas such as Massachusetts and Western Pennsylvania. As pharmaceutical companies began to promote the use of opioids for noncancer related pain with little regard for research on the risks, more and more people became addicted after being legally prescribed opioids by their doctors.

The opioid-related mortality rate rose and became more commonly tied with heroin and synthetic drugs such as fentanyl in the second and third waves of the epidemic. Although efforts have been made by the U.S. government to prevent overprescription of narcotics and enact legislation supporting treatment, the opioid crisis is still considered a **wicked problem**. Due to the widespread nature of this issue and the way it branches into the different lenses of STEEP (social, technological, economic, environmental, political), there exists no all-encompassing solutions that can completely solve the problem. Our gigamap not only aims to illustrate the interconnectedness between each of the causes,

effects, and feedback loops in our problem, but also suggests leverage points

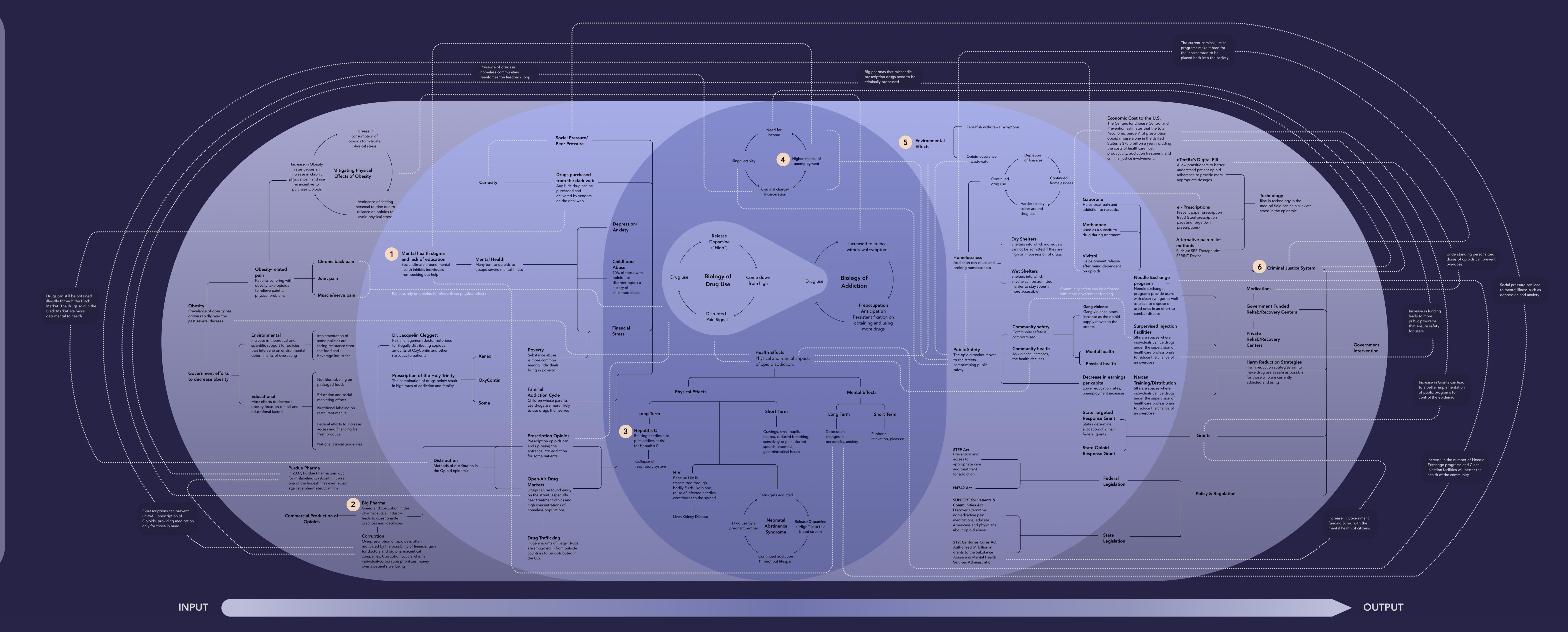
that could be introduced to help manage the crisis. These intervention methods

introduce ideas our team has generated in efforts to address individual issues at

different levels in the wicked problem.

OPIOIDS BY NUMBERS OPIOID

Setting the Scene **Pre-Existing Conditions** In the 1980s, pain became increasingly recognized as a problem that required adequate treatment. The US began to pass intractable pain treatment acts, which removed the threat of prosecution for physicians who treated their patients' pain with controlled substances. Before the present epidemic, opioids were prescribed mainly for short-term uses such as pain relief after surgery or to relieve advanced cancer or other terminal patients. Nevertheless, the idea that opioids might be safer and less addictive than was previously thought began to take root. System Vulnerability The structure of the health-care system in the United States also contributed to the overprescription of opioids. Because many doctors are in private practice, they can benefit financially by increasing the number of patients that they see, as well as by ensuring patient satisfaction, which can incentivize the overprescription of pain medication. Prescription opioids are also cheap in the short term, and patients' health-insurance plans often covered pain medication but not pain-management approaches such as physical therapy. Racial & Socio-Economic Attitudes Purdue Pharma focused the initial marketing of OxyContin on suburban and rural white communities, taking advantage of the stereotypes of a drug addict as an African-American or Hispanic living in the inner city to thwart potential concerns about addiction. The company targeted doctors who were "serving patients that were not thought to be at risk for addiction," says Helena Hansen, an anthropologist and psychiatrist at NYU Langone Health in New York City, "There was a definite racial subtext to that." Overdose Death Rates Involving Opioids by Type Other Synthetic Opioids



Opioid Epidemic Occurred in Three Waves:

Prescription Opoids A sharp increase in the prescribing of opioid and opioid-combination medications for the treatment of pain. The increase in opioid prescriptions was influenced by reassurances given to prescribers by pharmaceutical companies and medical societies claiming that the risk of addiction to prescription opioids was very low. Second Wave (2010) Heroin Early efforts to decrease opioid prescribing began to take effect, making prescription opioids harder to obtain. Addicts turned to heroin—a cheap, widely available, and potent illegal opioid.

Synthetic Opioids (Fentanyl)
The sharpest rise in drug-related deaths occurred in 2016 with over 20,000 deaths from fentanyl and related drugs. The increase in fentanyl deaths has been linked to illicitly manufactured fentanyl (not diverted medical fentanyl) used to replace or adulterate other drugs of abuse.

Third Wave (2013)

1990s: Pharmacies advertise painkillers as non-addictive, and began promoting for more types of pain

Drug companies often marketed

Healthcare providers prescribe at greater rates for the financial benefits and false

sense of security

their products to doctors

directly, offering free trials and

paying for more prescriptions

Prescription-related deaths increase as patients become more susceptible to addiction

PROBLEM Issues with fraud, abuse, and misuse of Lack of knowledge surrounding the nature of opioids obtained through Medicaid and the addiction creates confusion in the general Children's Health Insurance Program (CHIP), population about the dangers of drug use. including drug diversion - the redirection of Not only do these misunderstandings prescription drugs for an illegal purpose, such contribute to the stigma that alienates as recreational use or resale. addicts, but they also perpetuate the misinformed decisions that feed this crisis. PREFERRED FUTURE PREFERRED FUTURE Safe and professional prescriptions for appropriate dosages of opioids and other A well-informed public that understands and strong painkillers. avoids the risks of drug use, but shows sympathy toward those struggling with Opioid Use Disorder. INTERVENTION METHOD **INTERVENTION METHOD** A unified drug education system that is Stricter law enforcement and incrimination for implemented in schools and job training opioid-related fraud cases. Advancements in nationwide would help improve the quality of technology for other pain relief methods, common knowledge about the crisis. such as the SPR Therapeutics' SPRINT Device, Requiring the public to learn about these as well as e - prescriptions to decrease paper education would also lessen the stigma that often prevents users from seeking help and reintegrating into normalcy. **POTENTIAL NEGATIVE** POTENTIAL NEGATIVE **EXTERNALITIES EXTERNALITIES** Advancements in technology may be too Parents may be uncomfortable with their expensive and require a steep learning curve children being exposed to these topics at too early an age for staff. Patients may not be able to afford new pain Could be deemed as "inappropriate" relief devices and methods. similar to the way that sex education is seen

Hepatitis C and HIV when reusing needles. In 2016, the Federal Government changed its legal position on NEPs, allocating funds to support these endeavors. However, within the state, most of the budget went to treatment of Hepatitis C and HIV, instead of NEPs. PREFERRED FUTURE without addiction. **INTERVENTION METHOD** New policy implementation, increased funding, and inforced regulation of the number of harm reduction strategies such as clean needle exchange programs and safe injection facilities would help ensure that communities with higher rates of addiction receive enough disease prevention. POTENTIAL NEGATIVE **EXTERNALITIES** Federal funding of NEPs would contradict law enforcement efforts in the US's "war on drugs" by signaling tacit governmental approval of illegal drug use Availability of sterile syringes could cause a rise in drug abuse and diminish public health Federal approval of NEPs and removal of an obstacle to unsafe drug use could have a corrupting influence on children

Poor criminal justice system thwarts prisoner's streamlined integration back into the public, increasing chances of homelessness as addicts struggle to obtain professional jobs. PREFERRED FUTURE Support systems that integrate addicts back into society and professional fields so they don't experience financial insecurity and fall into the loop of homelessness. INTERVENTION METHOD Increased programs that find and match job opportunities with those out of rehab from Opioid Use Disorder and experiencing chronic mental illnesses. Jobs that are designated and reserved for past addicts. POTENTIAL NEGATIVE **EXTERNALITIES** Stigma against addiction and mental illness can discourage customers from supporting these businesses Possibility of relapse might hinder performance of employee

from opoids to enter wastewater. Eventually, they enter streams, lakes and rivers, and thus affect ecosystems and other species. PREFERRED FUTURE environment; the natural world is unaffected. INTERVENTION METHOD Increased investment in filtering mechanism technology so chemicals in wastewater don't enter the natural world. The filtering mechanism may be installed in plumbing systems and other places where wastewate enforcement of proper disposal of drugs, such as community disposal centers/bins. POTENTIAL NEGATIVE **EXTERNALITIES** Production of filtering systems may also result in additional pollution and contamination of ecosystems. Government funding will need to increase significantly, thus leading to higher taxes and possible resistance from the community. Implementation of new filtration systems could disrupt the already existing ecosystem.

perpetuates stigma around addiction and reinforces corrupt cycles within the criminal justice system. PREFERRED FUTURE A world where addiction is seen as an illness rather than a weakness, and getting help is accessible and free of shame. People can come forward about their struggle without fear of legal prosecution. **INTERVENTION METHOD** Decriminalize the possession and use of illicit substances. In 2001, Portugal took a major step by decriminalizing all drugs. This drastic measure paid off, and in 2015 they reported one of the lowest overdose death rates in Europe. POTENTIAL NEGATIVE **EXTERNALITIES** Initial spike in drug use (as was seen in Portugal) Controversy may polarize political parties and create societal unease

PERSONAL
COMMUNAL
NATIONAL
INTRACONNECTIONS
INTERCONNECTIONS
LEVERAGE POINTS