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Medical Street Wisdom: A Community-based Study on the Precarity and Utility of
Unapproved Opioid Overdose Reversal Techniques among Syringe Exchange Clientele

A thesis submitted in partial satisfaction of the
requirements for the degree Master of Arts
in Sociology

by

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ABSTRACT

Medical Street Wisdom: A Community-based Study on the Precarity and Utility of
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In the United States, people who inject drugs intravenously (IVUs) often respond to opioid overdoses using intervention techniques that are not medically approved due to the unique legal, embodied, social and environmental risks IVUs, but not professionals, must navigate. Despite an unprecedented legislative shift towards harm reduction-informed overdose drug policy in the past decade, which help mitigate several risks complicating IVUs' ability to respond by medically approved means, lay methods remain a common practice. While expert critiques of these methods are prevalent in medical and public health educational discourse, the unique cultural meanings and uses that unapproved methods hold among IVUs remain underacknowledged in professional medicine and underexamined in social scientific literature. Because medical and public health discourse discounts the methods without adequately addressing the unique risks IVUs contend with that professionals do not, IVUs are unable—not merely unwilling—to follow recommended medical practices. I argue that this medical lay knowledge must be recognized as an enduring cultural feature and an essential survival method among those who hold and apply this knowledge, and that the precarity of unapproved methods can be mitigated by policies and research practices that engage and validate, not erase and discredit, these alternative ways of knowing.

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INTRODUCTION

Maryanne, a 47-year-old white woman who has been using heroin on and off since her teens, sat down with me in the back office of a syringe exchange that had been converted into a makeshift storage space. Cardboard boxes full of sterile drug injection supplies and other assorted health items were stacked around the perimeter of the room, seemingly demarcating our conversation space in the center. Clutching a tiny white dog in her arms that yipped periodically, Maryanne proceeded to recount her successive encounters with opioid overdoses—both witnessed and her own—in a tone of fatigued familiarity. On several occasions, Maryanne had found herself alone with an overdose victim; most recently, this was her husband. She described searching her home and her memory for medical solutions to this overdose she was poorly equipped to handle alone and with few resources.

The Narcan didn't work. I even hit [injected] him with meth and that didn't bring him out. I mean he was dying. He was out for at least ten minutes. I kept hitting his heart, like right here (points to chest cavity). I think maybe that's what kept him alive, because every time I hit him maybe his heart was pumping for a few seconds. So, I kept him alive for as long as I could... and then finally I just said screw this, I go 'I'm not taking you to the hospital or calling 911,' you know what I mean? I ran in and got ice at the gas station, put ice on his nut sack and he came out like he got a shock. It's weird, you know what I mean? I stuck ice cubes in somebody's butt [before] and that's just crap [ineffective] you know, but when I put it on his nut sack – that's what I was told to do a long time ago by some old timer – it brought him right out... He got brain damaged from it though, you can tell. His neurotransmitters and receptor sites are all not bright no more, he fried 'em.

Maryanne's story is reflective of many of the situations that overdose bystanders who use drugs find themselves in—confronted with a medical emergency that demands urgent care yet unable to access proper medical resources due to situational constraints, including fear of legal repercussions, poverty, and stigma. The likelihood that Maryanne's husband would die or suffer serious injuries due to his overdose increased with each passing minute that he lay inert and breathless. Although calling 911 would have been the surest way for

Maryanne to prevent these outcomes, this recourse was so far removed from her perceived options that she felt no need to elaborate her rationale in our interview (“you know what I mean?”). Her story is but one testament to the fact that not all people understand the “harm” in the same way. Rather, harm is a socially situated phenomenon that varies according to one’s values and life circumstances. In resorting to lifesaving techniques not approved by medical professionals, Maryanne carefully balanced social, legal, and medical risks. While her actions may have assisted in her husband’s survival, they did not fully preserve his health. Saving him from whatever institutional consequences she anticipated a hospital visit or 911 call would incur, Maryanne chose to guard her husband’s social safety at the expense of his neurological health.

For most of 2018, I conducted weekly interviews with clients at a syringe exchange program in Santa Barbara County, setting aside my interview materials whenever the staff needed assistance running the exchange. During the first several interviews I conducted, colorful overdose revival tales like this struck me as outlandish and improbable, a few “crazy stories” that I was unlikely to hear again. But I soon learned that informal overdose revival practices were customary among the syringe exchange clientele. Injecting the victim with saltwater, sugar water, milk, epinephrine or methamphetamine; shaking, punching, or slapping them; placing them in a cold shower, putting ice on their genitals or in their rectum—these are all methods interviewees have described using. There are also more conventional, professionally sanctioned methods that overdose bystanders apply: CPR, rescue breaths, sternum rub, naloxone injection, and calling for professional help. Most overdose revival stories, like Maryanne’s, include an assortment of professionally recommended techniques, unofficial “home remedies” disavowed by health professionals yet

validated by experience and peer approval, and syntheses of the two. These overdose revival methods reveal unique forms of everyday survival knowledge created and shared among a marginalized group. They reveal a societal arrangement that has condoned the deprivation and exclusion of a stigmatized group from medical services long enough to span generations, from the “old timers” Maryanne cites to my youngest interviewees in their early twenties.

In this thesis, I argue that alternative layperson techniques reveal more than myth, misinformation and desperation, and demonstrate a unique form of subaltern pragmatism underexamined in sociological literature. The syringe exchange clients in this study, who I refer to by the accurate but admittedly imperfect term “IVUs” (intravenous drug users), synthesize professional medical recommendations and shared community wisdom about opioid overdose to create a syncretic form of knowledge that I term “medical street wisdom.” This broad term encompasses the diverse ideas, beliefs, skills, and problem-solving abilities people like Maryanne employ when a heroin dose ends up being *just* potent enough to result in a medical emergency. These lay medical skills are critically important to IVUs who employ them, as they grant autonomy, privacy, and the flexibility to innovate when unpredictable circumstances demand this. They are also an artifact of shared culture and social solidarity held by a group of people who rely upon their own resourcefulness and mutual support to survive amidst social neglect, economic scarcity, medical precarity. Unapproved overdose reversal methods hold their own dangers, however, and are an inadequate substitute for professional medical technologies and services that people who experience fewer barriers to care appreciate.

In the following two sections, I provide a brief synopsis of the opioid overdose epidemic, also describing how opioid overdoses occur and what can be done to prevent them.

I contextualize the opioid epidemic as it affects the state of California, also describing my site and methods. In my review of the literature, I draw upon sociological and anthropological studies on knowledge, authority, health inequity, culture and risk. I also cite public health and medical research on epidemiological trends in overdose, the effects of health policy on these trends, overdose reversal guidelines, and other health research on opioids throughout the paper. In the findings section of this paper, I outline the many forms of risk that IVUs responding to opioid overdoses must attend to, explaining how this process disinclines them to follow medical recommendations incommensurate with their felt needs and vulnerabilities. I then examine the many sources of knowledge that comprise IVU lay medical knowledge on overdose, the skill of risk mitigation among them. While overdose lay knowledge attests to IVUs' resilience and ingenuity, they are not reliable substitutes for professionally-recommended response procedures. Ultimately, I argue, the enduring presence of alternative lay reversal techniques in IVU subculture is a telling indicator of health and social inequities in the United States.

BACKGROUND

The rate of opioid-related overdose fatalities has steadily risen throughout the past decade to become one of the leading causes of death in the United States behind heart disease, cancer, chronic lower respiratory disease and suicide (Pierce 2019). The specific types of opioids claiming lives have evolved throughout what is now termed the "Opioid Overdose Epidemic," beginning with rampant over-prescription of opioid painkillers in the early 1990s ("Understanding the Epidemic" 2020). By the time regulators began imposing stricter prescribing guidelines in the mid-2000s, an influx of heroin had already flooded the

street market to offer opioid addicts a cheaper alternative, surpassing pharmaceuticals as the opioid causing most deaths by 2018. The Centers for Disease Control and Prevention (CDC) has designated the past decade as the “third wave” of the opioid overdose epidemic—an era marked by increasing prevalence of fentanyl and synthetic opioids in the illicit drug market, now leading contributors to opioid overdose mortality.

The most recent data available through the CDC indicates that roughly 47,000 opioid overdose deaths occurred in 2018 alone, reflecting a mortality rate of 14.6 annual deaths per 100,000 people (CDC 2020, Kaiser 2020). While this marks a 5.1 percent decrease from the previous year and first ever downturn since the early nineties, mortality rates still loom above the 1990 and 2010 rates of 1 and 3 respective annual deaths per 100,000 people (Kaiser 2020; Rosenberg 2019; SCP Rep. No. 17, 2017). At present, opioid overdose is second only to HIV/AIDS as the most common cause of death among IVUs, the primary demographic sampled in this study (United Nations 2019, WHO 2014).

Opioid overdoses kill people by depriving the brain of oxygen. This class of drugs, which includes prescription painkillers like morphine and hydrocodone as well as illicit drugs like heroin and opium, attenuate pain by binding to specific opioid receptors in the brain, spinal cord, and other areas of the body that influence sensation. But these very receptors that opioid molecules interact with to fulfill their therapeutic role in pain management can also be found in parts of the brain that regulate breathing and other bodily functions. In excess, opioids induce respiratory depression, suffocating the brain and other essential organs, often causing heart failure (Pattinson 2009; WHO 2014).

Death following an overdose rarely occurs immediately, however, and bystanders who are capable of performing basic life saving functions can greatly increase an individual’s

chance of survival. Although most overdoses are witnessed by friends, partners or family members, a 2014 study by the World Health Organization found that nearly 40% of opioid deaths occurred in the presence of others. This research suggests that many of these overdose deaths may have been prevented if only those bystanders present were better equipped to respond (WHO 2014).

Historically, the U.S. government has framed opioid overdose as a criminal, not medical event, with policies dissuading bystanders from calling 911 due to their fear or arrest or punishment, and restricting possession of naloxone—the lifesaving overdose reversal medication that is involved in most successful overdose reversal—to gatekeepers within the medical professions. Naloxone carries no adverse health effects at any dosage, even when mistakenly administered to people who aren't experiencing an opioid overdose (Harm Reduction Coalition 2020). Despite this high level of product safety, the Food and Drug Administration did not approve the manufacture of naloxone designed for use by non-professionals until 2014—fifteen years after the CDC first observed increasing rates of opioid-related deaths in 1999 and more than four decades after the FDA first approved naloxone for professional use 1971 (McClellan et al. 2018). According to a meta-analysis of opioid-related drug laws by the Prescription Drug Abuse Policy System (PDAPS), it was not until 2017 that all states had ratified some form legislation aimed at increasing public naloxone access, also referred to as “naloxone access laws” (2020). Around 2010, states also gradually began to introduce Good Samaritan 911 Caller Laws, which are laws designed to decrease hesitation among overdose bystanders in contacting emergency services by ensuring these bystanders (and sometimes victims) certain legal protections against minor drug violations.

These state and federal measures to improve overdose bystander response rates are relatively new, and the scope of these laws and overdose-related public health appropriations vary greatly by state, leaving bystanders in many regions of the US—especially Southern, politically conservative-leaning states—with far less recourse than others (PDAPS 2020; Rees et al. 2017). The War on Drugs that has driven the United States to incarcerate a greater proportion of its citizens than any other developed country in the world, and that has disproportionately punished racial minorities and the poor, leaving an indelible imprint on the cultural fabric of the country (Alexander 2020; Travis, Western, and Redburn 2014). Many people who use drugs have witnessed, or themselves experienced, an opioid overdose in situations of felt (and in many, cases very real) social exclusion—mistrustful of the state and emergency services and lacking the training and technologies most effective in treating opioid overdose (Latimore & Bergstein 2017; National Conference of State Legislatures 2017). This study examines the cultural practices that have developed, and that continue to develop, within these high stakes spaces where social exclusion poses a routine threat to life.

METHODOLOGY

This research study draws on community-participant research at a syringe exchange program that serves three small cities in Santa Barbara County, California. The Pacific Pride Foundation (PPF) is a non-profit organization whose primary missions are to serve the county's LGBTQ+ population, to reduce the transmission of HIV/AIDS in the county, and to assist intravenous drug users in mitigating health risks associated with their use. The only

syringe exchange service in the county, PPF runs weekly 2-hour syringe exchange services in Santa Barbara, Lompoc, and Santa Maria, California.¹

I began volunteering at the organizations' Lompoc site in February 2018, and three months later gained approval from the organization and the University of California, Santa Barbara's Institutional Review Board to conduct participant observation and client interviews. In return for the opportunity to collect research data, I share client feedback and research with the organization's staff and directors on an ongoing basis.

For this study, I conducted 35 semi-structured client interviews from July – October 2018, and continue ongoing fieldwork as a volunteer participant observer. Using a grounded theory approach (Charmaz 2014), I revised my interview guide in the early stages of the interview process to home in on emergent themes, including opioid overdoses. Interviews ranged from 30 to 90 minutes, with an average length of 50 minutes. I concluded each interview with a 32-question demographic survey and provided a \$5 cash incentive to all interviewees.

In Santa Maria, where the exchange is run out of the foundation's headquarters, I conducted the interviews in a private room. In Santa Barbara and Lompoc, where exchange is run out of a mobile Health Utility Vehicle (similar in appearance to a small ambulance), I conducted interviews in the public outdoor locations where it parked during exchange hours. On a few occasions, I conducted interviews in the front seats of an interviewee's parked vehicle or my own. Between interviews, I helped the staff dispense syringes and other health supplies, and recorded field observations.

¹ As of March 2020, syringe exchange services in Lompoc have been suspended due to staffing, community opposition to the program, and logistical difficulties posed by the coronavirus pandemic.

I also conducted 8 one-hour semi-structured interviews with other community stakeholders to help me better understand the experiences and perspectives that professionals who are involved in opioid overdose response, education and addiction treatment hold. These include one addiction specialist, two local police officers (interviewed together), one EMT, the lead EMT trainer for Santa Barbara County, one former methadone clinic employee, two syringe exchange program staff members, and division chief of Santa Barbara's alcohol and drug programs. I audio recorded and transcribed all interviews, input survey data into a spreadsheet, and saved all audio, text, fieldnotes and survey data on a secure database. I typed all fieldnotes within 24 hours of participant observation and upload them to a secure online database. I assigned each interviewee a pseudonym for this thesis and all subsequent publications.

Although one purpose of this research project is to elucidate the barriers to healthcare that IV opioid users confront, I did not select interviewees based on their drug of choice or their purpose for attending the syringe exchange. Three of my interviewees claimed that they were not currently injecting drugs (all were former IV drug users), and six interviewees stated that methamphetamine, not heroin or opioids, was their current drug of choice. I found that polysubstance use was common, however, as the majority reported using both heroin and methamphetamine in the past week. Eighty percent of my interviewees identified heroin as their drug of choice.

Client interviewees' ages ranged from 20 – 66, and the mean age was 42. Two thirds identified as male, one third identified as female, and none identified as trans or nonbinary. The majority were white (49%), followed by Latinx (34%), Black (11%), Native American (3%), and multiple races not specified (3%). This interview sample is generally

representative of the Pacific Pride Foundation's general clientele base with respect to age, gender, race and drug of choice. At the time of our interviews the majority of my interviewees were either homeless or living out of a vehicle (55%), unemployed or participating in the informal economy (62%). Those who were employed worked blue collar or service sector jobs that included construction, restaurant cooking, recycling and welding. Since closing the interview phase of this project in November 2018, I remain a weekly volunteer and continue participant observation, primarily in Santa Barbara.

I did not move to California, a state with the 7th lowest rate of annual opioid overdoses in the nation, to study the opioid epidemic, but rather to attend the graduate school that has enabled me to conduct this research, University of California at Santa Barbara. In the early stages of research, I often lamented the fact that I was not working closer to rural Missouri where I grew up. Beyond holding many personal ties and being more familiar with the cultural politics of the region, the Midwest seemed to me more representative of what the opioid epidemic came to be known for through media coverage—the image of a rural, middle-aged, disenfranchised working-class person whose whiteness recast addiction as medical, rather than criminal (and racialized problem) throughout much of the nation's social consciousness.

I soon realized that I was not researching quite the same epidemic that small town Midwestern epicenters were known for and also that a study on opioids in a county along California's Coast lends unique and critical insights. The clients are in this study racially diverse, and, like most residents in California, live in semi-urban, rather than rural areas (US Census Bureau 2020). Contrary my assumption that most of the clients I encountered would have become addicted to pharmaceutical opioids during the heyday of over-prescription, I

found that many had begun using heroin directly. Heroin predates the opioid epidemic, but only recently have those already affected by heroin addiction garnered attention for being victims of a larger social problem.

California's policy responses to the opioid epidemic were quicker and more targeted than most states. It was among the first to states impose stricter opioid prescribing restrictions on pain doctors, allocated more funding to public health funding towards than most states and sooner, and is among the states voted to expand Medicaid under Obama's Affordable Care Act (ACA), making healthcare available to low-income populations and the majority of interviewees in this study (Department of Health Care Services 2020).² Potent synthetic opioids, which are associated with higher overdose risk than heroin alone, did not become prevalent in California until recently, years after they were prevalent in the Eastern and Central United States (Karlman 2017).

Despite having a low overdose mortality rate compared to other states, California represents a significant slice of America's opioid epidemic. By virtue of its sheer population size, California claims more total annual opioid-related deaths than all but two other states—Ohio and West Virginia (Kaiser Family Foundation 2020). Furthermore, inter-state comparisons that position some states above others with respect to opioid epidemic's human toll can have the effect of diminishing the catastrophic loss throughout the nation. The United States is such a global outlier in measures drug addiction and overdose prevalence that even California, with a low relative domestic opioid overdose rate, would rank above all but four *countries* (United States, China, India, then Russia) in net annual illicit drug overdose deaths

² This state-subsidized healthcare does not cover an estimated 2 million undocumented immigrants who live in the state, a health issue that I do not examine in this study.

(CDC 2020; Ritchie 2018).³ This thesis illuminates what a “better” opioid crisis outcome looks in one site within the worst affected nation. Santa Barbara County, it should be noted, has slightly higher rates of opioid overdoses than the state average, with the highest rate of overdoses occurring in the city of Santa Barbara (Santa Barbara Public Health Department 2018).⁴

REVIEW OF THE LITERATURE

I. Professional Medical Knowledge and Authority

Overdose response procedures and technologies that are developed by medical researchers endorsed by medical professionals bear the qualities of what medical anthropologist Brigitte Jordan terms “authoritative knowledge” (1993), a concept that draws upon medical sociologist Paul Starr’s theories on the relationship between professional roles, scientific knowledge, and systems of authority (Starr 2008). Compared to laypersons’ intuitive knowledge about their bodies and how to heal them, Jordan contends that the institution of western medicine is comprised of “rules that carry more weight than others either because they explain the state of the world better for the purposes at hand (‘cultural authority’) or because they are associated with a stronger power base (‘structural superiority’), and usually both” (Jordan, as cited in Browner & Press 1996:142). Professional medical knowledge has the positive quality of cultural authority, according to Starr, because

³ According to most recent available figures by *Our World in Data*, a dataset compiled by the University of Oxford, the highest number of overdose deaths involving illicit drugs in 2017 were (in thousands) the United States (67.6), India (11.2), Russia (9.5), and Iran (3.4). The CDC’s state-by-state figures of US illicit drug overdose deaths indicate 2017 drug overdose deaths as California (5.4) and nationwide (70.2). Adjusting for the 2.6 thousand death discrepancy in total US deaths between Oxford and CDC datasets would still position California and the four countries in this rank order. This discrepancy may be due to inclusion criteria, data source, or time of measurement.

⁴ Public health experts have not determined the cause for Santa Barbara’s slightly elevated opioid overdose rates.

this body meets specific criteria that a society or group considers important—here, the rigor of empirical research—that a majority of the general public considers legitimate (Starr 2008).

While our western medical institutions offer great opportunities in managing and improving population health, the culture of professional medicine also has hegemonic qualities, historically overshadowing and sometimes erasing alternative ways of knowing (Kovach 2010; Popay & Williams 1996). While scientific research methods are strictly empirical in principle, the medical researchers, practitioners, and institutions that produce scientific knowledge are inherently guided by organizational objectives, organizational cultures, and personal values systems that patients have little power to influence (Arskey 1994; Epstein 1995). Here, power and knowledge, as Foucault asserts, are deeply intertwined (Foucault 1980).

In matters of health and healthcare, people with certain ailments often find themselves dependent upon medications, technologies, or procedures that professional medical knowledge encompasses. But this knowledge/authority relation can also have the reverse effect, excluding certain groups of people rather than drawing them under its purview. The opioid overdose epidemic has created a scenario whereby lay knowledge and professional medical knowledge come into conflict. In most cases, opioid overdoses occur in the presence of non-[medical] professional bystanders who are best positioned to serve as first responders by physical proximity (WHO 2014). When lay responders' beliefs, values or preferred methods for managing opioid overdose scenarios conflict with medical recommendation, lay responders often draw upon folk wisdom that challenges professional medical knowledge claims. In order to exercise this autonomy, however, they must refrain

from using the public Emergency Medical Services system (ambulances, hospitals, etc.) (Latimore & Bergstein 2017).

II. Barriers to Compliance

An abundant public health and social science literature demonstrates how discord between the interests, capabilities, and values of patients/laypersons and the behavioral prescriptions that medical professionals and health outreach workers profess compels people who hold less privilege or social influence to deviate from recommended self-care practices, often despite their faith in professional medicine and their interest in being healthy. Barriers to compliance include socioeconomic status (Hummer & Hamilton 2019; Jaffré & Suh 2016; Link & Phelan 1995), cognitive and physical ability (Lutfey & Freese 2005), and social marginalization and stigma (Conrad & Barker 2010, Metzl & Hansen 2014). People are also less likely to follow medical recommendations that contradict their personal or cultural beliefs about what their problems are and how these problems should be treated (Mirsadraee et al. 2012), or when they judge the relative cost of following a medical recommendation—whether financial, physical, social, or psychological—to outweigh the benefits (Browner & Press 1996; Jaffré & Suh 2016; Tavory & Swidler 2009).

Studies on opioid overdose likewise find that the use of incomplete, incorrect or unapproved overdose reversal practices among IVU overdose bystanders are often associated with similar limiting factors. These include limited access to overdose education and limited social connections with trained peers (Powis et al. 1999; Strang 2000), hesitancy to use emergency services due to perceived stigma among health professionals (Lloyd 2013; Van Boekel et al. 2013) or fear of legal consequence (Latimore & Bergstein 2017; Moore 2004;

Wagner et al. 2010), the social fear of inducing opioid withdrawal in the victim by administering naloxone to them (Heavey et al. 2018), and socially-conditioned group attitudes about the relative consequences of medical, legal and social risks (Moore 2004; Rhodes 2002).

III. Lay Knowledge

An individual's inability or choice not to access professional medical care or adhere to professional medical recommendations does not prevent one from engaging in self-care practices or accessing alternative forms of care that fall outside the purview of western medicine.⁵ This study examines *lay medical knowledge*, a concept that has multiple referents in social scientific literature on health and medicine. Lay medical knowledge may refer to beliefs that contradict professional/scientific knowledge claims about the correct diagnosis, etiology, or treatment of a given ailment (Banks and Prior 2001); distinct cultural meanings of illness (Arskey 1994); professionally endorsed medical knowledge, skills, or techniques that laypersons learn to use independently (Lewis 2017); improvised medical techniques and home remedies that people use when they can't access professional treatment (Nichter 2003, Pearce 1993); or grassroots research and political movements that challenge institutional norms surrounding a public health issue (Epstein 1995).

⁵ In North America, Chinese or Oriental Medicine, Naturopathy, Homeopathy, and Ayurveda are considered Complementary and Alternative Medicines (CAM) that some use in place or in addition to western medicine, however, socioeconomic and cultural barriers strongly limit access to these forms of care among the demographic sample of this study, and emergency overdose triage systems in the U.S. rely exclusively on western medical intuitions (Saper 2016).

In this study, I contend that risk assessment, pragmatic problem-solving abilities, and habituated everyday practices are essential (and interrelated) dimensions of unofficial IVU overdose knowledge that merit further analysis.

IV. Elements of Medical Street Wisdom

Understanding and Navigating Risk

The various ways that IVUs experience and understand risk directly inform the lay medical practices they create, apply, and share. Discourse on risk is also an indicator of broader social phenomenon. Medical anthropologists Laury Oaks and Barbara Herr Harthorn suggest that the meaning of risk—what it is, who it affects, what risks matter, and what people in turn matter—reflect disagreements over social, cultural, and political values and power (Oaks & Harthorn 2003). Lay medical practices that specific groups of people rely upon to mitigate risks that are either not addressed through healthcare systems, or that are not recognized as being truthful or worthy threats to their wellbeing, reflect a subjugation of knowledge—what de Sousa Santos terms “epistemicide” (2007)—and social neglect.

In his study on the social relations of risk in heroin users’ lifestyles, sociologist Tim Rhodes argues that people’s assessments of risk acceptability are not rooted in singular notions about what is healthy or harmless, a theoretical perspective he labels “singular rationality theories of risk” (Rhodes 1995). Rather, peoples’ risk perceptions are socially situated in local meaning systems and contextually situated in relation to other immediate risks. In this study, I argue that the inadequacies certain people find with authoritative medical knowledge can be understood through a “singular risk rationality” framework. Some professional medical recommendations are built around singular definitions of harm that

presume a uniform subject population. This discursive focus on the exclusive goal of health preservation, as defined by health professionals who hold different privileges and cultural values than the patients they serve, tend to discount accompanying risks and diverse forms of vulnerability.

The social dimension of this “situated theory of risk” posits that culture influences how people understand risks, whether at the macro-level of national or ethnic identity or more local levels of peer or family group culture. Social psychological theories emphasize the ways group-level interactions can iteratively structure and restructure people’s understandings of risk. This can be through peer pressure (Marin et al. 2017), or through interpersonal comparison among group members (Nichter 2001). Mary Douglas argues that acculturated understandings of risk may become permanent, pre-reflexive perceptual frameworks over time (Douglas 1992).

Social theories of risk calculation predominate in the social scientific literature, and in this study, I place equal attention on external forces that make certain people more vulnerable to certain harms than others (political, economic, medical, etc.), distinguishing the unequal *conditions* under which people experience risks from the subjective cognitive schemas they use to interpret, evaluate, and prioritize certain risks over others. People live and move in different environments, some of which are safer than others, and inhabit different bodies that may be more or less susceptible to certain social harms or physical ailments. For the purposes of this study, I conceptualize two forms harm vulnerability that differentiate peoples’ experiences of risk uniquely based on their subject positions: “embodied risks” and “identity-based risks.”

Embodied risks threaten an individual's body by virtue of their anatomy and physiology. All people contend with varied sets of corporeal risks in their everyday lives, and some are more vulnerable to certain hazards than others. The injured body must contend with the prospect of reinjury, the addicted body, withdrawal, and the elderly or immunocompromised body, illness. In events that concern health and wellness, social theories about situated risk that don't foreground the inherent differences between people's bodies, their sensory experiences from within those bodies are necessarily incomplete. Risk perception is not only socially situated, but also corporeally situated insofar as physical risks themselves bear upon certain bodies differently than others.

Identity-based risks threaten the individual as a social or political subject. Situated risk theory must also account for the how factors such as race, ethnicity, sexuality, gender identity, citizenship, socioeconomic status, and other forms of social and political identity can *produce* unique threats that affect some people but not others. The legal consequences that IVUs must contend with due to the criminalization of drug use are a prime example of identity-based risk. In this study, I emphasize that "situated risks" must also include those social forces that actively situate people in positions of social or political risk independent of their choosing, controlling for all other environmental variables like time, location, and event.

Street Knowledge

The cognitive process of identifying, assessing, and responding to risks—whether social or physical—is central determinant of how IVU overdose bystanders select their course of action, and reflects a unique form of subaltern intelligence theorists rarely associate

with health and medicine specifically. A general definition of lay knowledge refers to alternative remedies, techniques, and understandings about body and that people they draw upon lieu of professional medicine, but in theorizing “medical street wisdom,” I also conceptualize the very *process* of selecting a course of action based on risk assessments to be an essential form of overdose lay knowledge.

Some of the skills IVUs have developed to contend with the omnipresent threat of arrest and the challenges of poverty share common non-medical features with everyday survival skills that racial minority groups have long cultivated in order to survive state-sanctioned police violence. Urban ethnographers Forrest Stuart (2016), Victor Rios (2011), and Elijah Anderson (2000) have studied the ways impoverished Black and Latinx residents of poor, urban neighborhoods learn to survive hostile policing, resource deprivation, and other everyday survival challenges through creativity, intelligence, and shared community knowledge. Elijah Anderson (2013) uses the term “street wisdom” to describe the ways young men in his study learn to discern and respond to imminent threats in public situations, a concept that Stuart applies (“cop wisdom”) in describing the dynamic skill sets and ever-growing body of shared community knowledge that residents of L.A.’s Skid Row devise to resist broken windows policing (Stuart 2016:21-22).

In a community-engaged participant research (CBPR) project aimed at improving health justice in a racially diverse, primarily low-income neighborhood, Public Health scholar Jason Corburn (2005) provides a definition of “street knowledge,” that doesn’t pertain directly to violence or policing. He refers to it simply as the variety of skill sets members of a given community hold that are, “different but equally valuable as academic

skills” (as cited in Hacker 2013:11). I find that IVUs draw upon multiple forms of street knowledge in order to navigate challenges that include criminalization, poverty, and stigma.

While these skills may not be medical techniques specifically, the challenges they address are often ongoing and affect all daily activities in some way. In the sections above I have explained how authoritative medical knowledge can exclude the marginalized and poor for not catering to the constraints of their lived realities; street knowledge can be conceived of as those skills people use to manage those constraints. I use the term “medical street wisdom” to encompass not only lay medical skills, but also those non-medical street skills that IVUs draw upon *in tandem* with medical skills to manage ancillary risks and challenges that don’t merely recede when a medical emergency occurs.

I build upon these theories about lay medical knowledge by demonstrating that street knowledge—which I summarize as the community-level knowledge that marginalized groups develop to accomplish daily living amid shared circumstances—is not separate from the lay medical knowledge. Rather, it is an essential element of lay medical knowledge that enables them to attend to health issues within the constraints of their lived realities.

Skills of Habit

Another form of lay medical knowledge that constitutes what I refer to as “medical street wisdom” are those pre-existing skill sets involving health or the body that one derives through everyday life routines. Theorists often invoke some approximation of Bourdieu’s theory of habitus—a system of acquired tastes and habits that become ingrained dispositions through everyday practice and repetition, iteratively shaping one’s social and cognitive and social worlds throughout life (Bourdieu 1984). In a similar cultural theory about knowledge

of habit, Tavory Swidler suggests that the practical styles and skills people regularly draw upon to resolve problems are culturally patterned “strategies of action” that develop through time. Using the metaphor of skills as tools, everyone carries a cultural “tool kit” they will draw from time and again (Swidler 1986).

Existing studies describe both social and technical habituated medical skills. Rubin suggests that an individual’s socioeconomic habitus engenders (or diminishes) the amount of “cultural health capital”—a discursive ability to negotiate for their desired treatment in clinical encounters—he or she holds (Rubin 2018). Bourgois (2009), Gelpi-Acosta (2015) and Rhodes (1995) have all invoked habitus to describe drug users’ injection practices and attitudes toward drug use may become second nature through daily repetition and socialization within a subculture. Drawing on the works of Bourdieu (2002) and Marcell Mauss (1936), Bourgois conceptualizes drug injection skills as “techniques of the body” (2009:91-93). A product of both culture and everyday routine, these quotidian techniques for managing the body can also be found in non-drug use contexts. Washing hands before every meal to prevent illness or injecting insulin several times a day to regulate glucose, for example, are routine body maintenance activities that gradually become pre-reflexive dispositions through repeated practice.

Drug injection and associated activities are often framed as deviant, but they are also decidedly medical interactions with the body and may foster certain skills that are applicable to other tasks. These theories also carry important implications about how through successive applications lay medical techniques—irrespective of risk and efficacy—can become reified instruments in personal tool kits and group cultures through successive application. In summary, I argue that one central dimension of lay medical knowledge relevant to this study

is habituated skill sets for managing health or manipulating the body that are sufficiently versatile as to help realize other tasks; the cultural lens through which an individual or group interprets problems will then inform what cross-utility functions this specific “tool” carries and when it may be applied.

Confrontation and Synthesis

Medical lay knowledge is rarely developed or used in isolation, and the boundaries of its division from scientific or professional knowledge are not precise. Banks and Prior conceptualize doctor-patient interactions as a political field—albeit an asymmetrical one—where the two actors may find themselves challenging one another over the validity of diagnosis and proposed treatment option. Lay and expert parties, they contend, “combine to construct diseases and their treatments” at the interpersonal level (Banks & Prior 2001:21). While this study builds on the post-structuralist premise that truth is not stable, but rather something that can only be understood within social meaning systems, Epstein (1995) describes a political contest in which both parties agreed upon the empirical criteria, but lay activists overpowered the gatekeepers to scientific research through the power of collective social mobilization. The two groups demonstrated mutual faith in the cultural authority of science, but in this rare example, lay activists reoriented the research processes to reflect their interests and values while maintaining a scientific rigor not frequently associated with lay knowledge. Because IVUs in this study are socioeconomically disempowered and socially marginalized, however, these “contest” examples of knowledge better explain why scientific/professional approaches to opioid overdose have been resistant to overt lay influence than they explain lay overdose practices themselves.

In this study I draw more closely on studies about syncretism, identifying borrowed and re-appropriated scientific knowledge within the private social worlds and practices of IVUs. This perspective does not focus political competition, but rather on the co-influential processes that may result from mere encounters between lay and professional groups. Latour's actor-network theory (2013) provides that knowledge is generated through collective processes of interaction and communication between groups and objects, a premise that Arskay (1994) draws upon to argue that laypersons necessarily influence scientific knowledge—however minutely or indirectly—as actors who move about and interact with others in the social world. I contend that Arskay's theory of scientific knowledge can be inverted to better understand certain critical dimensions of overdose lay knowledge. Lay persons do not generate medical knowledge in a cultural bubble, but also carry ideas and materials they have acquired interactions with medical professionals, institutions, and discourses into their epistemic fields. As Pearce asserts, individuals confronted with health problems formulate plans that integrate macro-level societal/cultural attitudes, meso-level knowledge drawn from the medical sector itself, and micro-level physical and psychological dimensions of their own experience (1993).

These processes of interaction and communication can also be carried out through material objects without direct social interaction. Star and Griesemer (1989) argue that knowledge inheres in objects that different groups interact with, assign meanings to, and utilize in different ways—but that certain core attributes of these “boundary objects” preserve a degree of shared meaning, irrespective of the beholder. Recalling Latour's notion that human-technology interactions can generate new knowledge, I argue that IVUs' reliance on various medical instruments necessarily draw them into a terrain of shared meaning where

lay knowledge and science intersect. Bourgois, for example, found that street-based heroin addicts in his study would ration methadone rather than taking it daily as prescribed (2009). They were not “abusing” methadone, as off-label drug use is often described, but rather using the synthetic drug for its manifest function—preventing withdrawal—in their own cultural field where that function carries different meanings than pharmaceutical companies assign it.

In this study, I conceive of two sets of syncretism between professional knowledge about opioid overdose and lay knowledge. First, to borrow from Tavory and Swidler, one may think of “tool kits” that contain a heterogenous assortment of cultural tools—learned medical knowledge and knowledge not derived from professionals (2009). As Wagner et al. found in their study on the efficacy of an overdose education program, many of the IVUs who successfully applied the techniques health educators taught them would still continue to use unapproved techniques in certain situations, often in tandem with learned skills (2010). And second, there are lay techniques that professional and nonprofessional knowledge into new hybrid forms that resist dichotomous categorization.

Pragmatic Selection

In matters concerning health, anthropologist Tola Olu Pearce found that members of the West African Yoruba would draw upon “different dimensions of a total repertoire [of professional and traditional techniques] that can be used at different times to solve various problems” (Pearce 1993:154). In this section I have outlined diverse forms of lay medical knowledge that resemble what Pearce might call a “total repertoire.” These include partial applications of professional medical knowledge, risk assessment capabilities, street knowledge, lay medical skills derived from everyday practice, and hybrid techniques that

share qualities of both lay and scientific knowledge. I use the term “pragmatic selection” to describe the process of identifying a problem, assessing whatever available skills, ideas and material resources one might apply to address the problem, and then determining what individual resource or specific collection of these resources will best resolve it. I define pragmatic selection not only as a process, but also as the capacity to identify possible solutions and orders of action. Because scientific knowledge and cultural beliefs can be incommensurate, and because the instruments and skills necessary to realize a specific treatment option may not be among available resources, pragmatic selection in lay medicine can be complex. Common phrases used to describe lay medicine like “folk knowledge” and “traditional medicine,” as well more pejorative labels like “wives’ tales,” “urban legends” and “witch doctors” (Snow 1974), belie the great judgment skills necessary to select among—and yet more difficult, to combine—separate, sometimes contradictory knowledge bases using limited resources.

In this study I find the pragmatic selection process to begin with assessing the accessibility and/or desirability of following the professional medical recommendations or lay procedures that one understands to be most effective at saving overdose victims from death. I equate these sets of prioritized methods—which for most include professional medical recommendations like administering Narcan or calling for EMTs—to what ethnomethodologist Harold Garfinkel (1968) conceptualizes as “rules of the game,” an analogy that Mathew Desmond cites in his ethnography of wildland firefighting (Desmond 2008; Heritage 2013:115-34). The most effective overdose reversal techniques, like the US Forest Service’s safety protocol Desmond writes of, are both rules for ‘games’ (situations to be resolved) that take place in unpredictable settings and times, with each event presenting a

unique set of hazards and resources, social and physical. These guidelines, Desmond contends, are “ideally possible but practically unattainable,” and therefore demand actors to reinterpret and revise them within each specific context they find themselves, accounting for practical limitations (2008:168-85). Because my study on opioid overdose examines a crisis situation where quick thinking is essential, I contend that this process of assessment is a fundamental component of lay medical knowledge on opioid overdose.

A second dimension of the lay skill I call “pragmatism” is the ability to synthesize lay and medical knowledge into new techniques and assess their efficacy, the examples of which I proved in the findings section. Recalling that ‘efficacy’ over lay overdose reversal is gauged not by the risk of overdose injury/mortality alone, but rather this risk as it is *situated in the unique context of other risks*, a lay method’s efficacy can depend upon multiple criteria beyond medical efficacy, the relative weight of which may vary according to the actor’s position and values.

According to psychologists and pragmatist philosopher William James (1975), the truth value of knowledge never holds one-to-one correspondence with reality. Rather, people often define knowledge as truth when it is useful, iteratively modifying truth criteria as new discoveries are made and the purposes of inquiry shift. I do not make ontological claims in this study, however, I find James’ theory a fitting analogy for the lay decision-making process. Because overdose responders must often negotiate multiple objectives simultaneously (all forms risk avoidance), there is no stable referent by which to measure ‘efficacy.’ In this epistemic gray area, lay responders must assess what James terms the “cash value” of their beliefs—the practical consequences (or benefits) of regarding an idea as truthful within a specific context (James 1975: xxvii).

FINDINGS

I divide my analysis into three sections: Judging Risk, Unapproved Lay Methods, and Professional Medical Knowledge and Technology. In each section, I argue that overdose lay knowledge is more complex than professional scientific discourse tends to portray it, and I analyze dimensions of this knowledge that tend to be underexamined and underrecognized. In the first section, I examine structural and environmental conditions that engender alternative overdose response practices, demonstrating how such practices shaped IVUs' unique experiences and perceptions of risk. In the second section, I analyze the different forms of knowledge IVUs create, apply, share, and learn from one another using their own logic, methods and resources. In the third section, I examine the ways that IVUs apply professional medical recommendations. In this section I demonstrate that professional medical knowledge is a central feature overdose lay knowledge, and argue that the ways of knowing are interrelated, sharing more in common than difference.

I. Judging Risk

What we would like to get out to those folks is that the public safety system that is here to prevent loss of life. And that's the EMS system's number one priority. Call 911...In a life-threatening situation there is no reason not to because the alternative is not acceptable...The alternative is death.

– *Steven, white male EMT Trainer, 30s*

The EMS system's number one stated priority—rescuing the victim's life—reflects a singular rationality perspective of risk indicative of the medical profession and medical knowledge. The lifesaving ethic discounts ancillary risks associated with an overdose rescue that responders might contend with, instead reducing harm to a single measure (the level injury that an overdose victim sustains). First responder recommendations convey an implicit

moral imperative to follow them directly because life is at stake, which requires acting in specific and pre-determined ways that have been proven to save lives. All of the clients I interviewed also emphasized their moral commitment to saving the lives of others even at times, at personal cost to themselves. However, they also demonstrated a more nuanced understanding of what is *healthy* or *harmless* than professional medical practices and knowledge systems acknowledge or allow.

In this project, I discovered that the clients that I interviewed have distinct understandings of health and harm that shape when, how, and whether they follow medical guidelines or pursue alternative means of dealing with overdose. First, not all of my interviewees agree that recommended response measures are the only medically effective means of saving an overdose victim. Second, they stressed that navigating legal, social, and physical risks are concerns they consider simultaneously in responding to overdoses, challenging the presumption that medical risks hold a de-facto higher status than others and therefore absolve comparison. As they stress, overdose risks are always situated in the context of other risks, and the significance of any given risk is better understood through its comparative relation to other risks.

The act of judging the relative importance of multiple risks while simultaneously assessing possible means of mitigating them introduces the act of deliberation to a process that professional medicine has designed to be pre-reflexive. Although lay responders' decisions may not always realize optimal *medical* outcomes, the courses of action they follow also help realize additional nonmedical objectives rarely validated by outsiders. Here, I summarize the ways the clients I interviewed make sense of different forms of risks they recognized. For simplicity, I separate my analysis of clients' understandings and navigation of different forms

of risk into distinct forms of risk they recognize: legal risks, embodied risks, assessments of risk thresholds, and contextual risks associated with unpredictable settings.

Legal Risk

[My friend] was scared of the cops, getting in trouble. She ended up pulling me out of her car with the needle still in my arm and leaving me in a parking lot...luckily a stranger walked by and called 911...She was scared of the cops, getting in trouble.

– Sarah, white female, 20

Legal risk, as the clients I interviewed attest, is dynamic. It varies through time, by political and cultural geography, and by person. In 2013, California became the tenth state to enact a “911 Good Samaritan Overdose Prevention Law” (GSL) to help reduce the rate of preventable opioid overdose deaths involving bystanders hesitant to call emergency services for fear of getting in legal trouble themselves. The bill states that it is not a crime for people to be under the influence of a controlled substance, to possess personal quantities of a controlled substance, or to possess drug use paraphernalia if they are seeking medical assistance in good faith or if they have overdosed and are needing assistance. Overall, clients characterized overdoses that occurred before the GSL passed as more precarious situations, both legally and medically.

I hit ‘em with the first one then I wait a minute or so and if I still don’t see no real response then I hit them with the second one, you know, and that usually does it. And if I really don’t see nothing then I’ll call 911 and they’ll come get ‘em. Now see before, before that law changed, you didn't have a chance, nobody would wanna take the time to call 911 and take you to the hospital because they’d get arrested, back in those days, you'd get...years you know what I mean. So a lotta guys died, a lot of people died you know because of that.

– Erik, Black male, 34

But now you have it to where if you call 911 you won’t get arrested and you won’t get in trouble. I think is good that that law changed too you know, because a lot of people were slipping through the cracks like that.

– Daniel, white male, 33

IVUs like Erik and Daniel are attuned to policy changes like GSLs, which drastically impact precarity of injecting drugs that carry a high overdose potential (heroin and heroin adulterants caused all of the overdoses I describe in this paper). James understands that using heroin in a policy environment with harsh criminal drug laws not only increases his chance of arrest, but also the level of intervention bystanders might be willing to offer him should he overdose.

Despite this, my interviewees did not all experience policy changes as definitive protection; some find no reassurance whatsoever. Among some families and social circles—especially minority communities who have disproportionately suffered from mass incarceration and state-sanctioned police violence—calling 911 remains a definitive cultural prohibition. Juan, who I interviewed just one day after he was discharged from jail, stated that he would drop an overdose victim off on the steps of a hospital and drive away before he could be targeted.

I don't, I don't call the cops. To me that's my, that's my enemy. I know the cops do good for us or whatever, but in my eyes, no. They're not good. I mean I've done so much time of my life. I've been doing time since I was 12 years old... To be honest with you, I've spent more of my life in jail than in the world. My life is more behind the wall than it is in the world.

– *Juan, Latinx male, 45*

Good Samaritan Laws that work to ensure legal protections in the present and future do not erase the traumas that the American judicial system has already inflicted on people like Juan, his friends, and his family. And, despite legal shifts, that trauma informs his response.

For communities long abused by government policies, a legacy of mistrust towards government services often overshadows whatever new promised securities may emerge far into the future. Only two of the thirty-five clients I interviewed stated that they would never

call 911, but their positions are significant. Regardless of whatever policy protections may be in place, the ability to call 911 is facilitated by social, economic, and racial (white) privilege. Educational rhetoric framing calling 911 as something necessary to save lives without offering possible alternatives implicitly concedes that certain categories of people will die. Furthermore, the moral undertones in “must,” “always,” and “should” statements used to communicate these recommendations impose further harm in the form of symbolic violence. By framing an act that certain people perceive as impossible as the only *ethical* option, the rhetoric contorts what is truly disempowerment into a narrative of culpability.

The majority of my interviewees stated that they would call 911 if they judged it to be absolutely necessary, especially in light of the 2013 GSL, but they interpret promised protections with caution. Drug policy varies by political geography, both within states and between them. and IVUs who seek to gauge legal risk must trace policy differences as they move between legal jurisdictions. Sarah, who had moved from California to attend college in North Carolina (the state where her overdose described above occurred), observed how legal risk may vary by political geographies not only between states, but also within states and even cities. This micro-level variation breeds uncertainty that may have contributed to her friend’s choice to abandon her in the parking lot. As Sarah stated,

In North Carolina there’s actually—or on campus at least, you cannot get in trouble by state, city or campus police, uh because of calling for a friend like, calling because of someone—she didn’t know that, I guess, or didn’t care didn’t whatever, but that was, that was [what happened].

While her friend was either fully oblivious of North Carolina’s policies, Sarah was better informed but still uncertain of how her occupational status as a student and current location within the college town might affect her and her friend’s legal security. While she knew student drug overdoses occurring on here campus were treated as non-criminal student

conduct violations, she was uncertain about whether such protections were state or university-level policies, and whether or not they extended beyond the jurisdiction of her campus (she overdosed in the parking lot of a fast-food restaurant in town).

Janet, a 50-year-old white woman, who I quote below, demonstrates that in order gauge the level of legal consequence a given situation may hold, she must not only understand drug policy where she lives, but also remain wary of possible loopholes within these protections, which may jeopardize some people in her social setting more greatly than others.

Yeah, I stuck him in the shower in our bath and stuck him in water. Yeah, that worked...And then also calling 911 works (laughs). That sometimes people won't do because they got like warrants in, in, in the system. They're wanted for some reason or another.

However willing to call 911, her decision about whether or not to do so involves several considerations. First, she must think about who she is with and whether or not anyone present is “wanted for some reason” under conditions that are not protected by the GSL. No state currently offers any legal protections to people with arrest warrants who seek emergency medical assistance in good faith (although many clarify that warrants are *not* covered), and of 45 states that have passed Good Samaritan Laws, California is one of 22 that do not provide any protection from parole or probation violations.⁶

Two police officers that I interviewed described the issue of upholding GS protections, stating that they rarely arrested people when “clearing the scene” to determine that a house is safe for EMTs to enter, responding to drug overdoses. One officer summarized,

⁶ Kansas, Maine, Oklahoma, Texas, and Wyoming have not passed GS Laws (PDAPS 2020).

Since the Good Samaritan Law, pretty much nobody gets arrested from these calls...As for probation, I recommend you contact the Probation office to see how that works, because ultimately it depends on the terms of their probation. [Officers] will usually call it in to the probation office on the spot.

- *Sergeant Michaels, white male, 30s*

Although the officers framed their roles in responding to overdoses as merely ensuring everyone's safety, the basic procedures they follow also enforce criminal law indirectly in sending records to the probation department.

These legislative loopholes leaving those with warrants, or probation or parole terms vulnerable before the law are incredibly problematic for IVUs, as many are judicially involved due to their being addicted to illegal substances. Chris and Amanda described how being addicted to heroin, for them, always renders their very bodies a violation of their probation terms.

I had a sales charge and then I had a possession for sales. So yeah, I'm on felony probation. Then I always violate my probation because I never report and I'm always getting high, so then I always go back for probation violations.

- *Amanda, white female, 34*

If and when my probation officer tests me, I'm gonna be positive. I'll probably do an eight-day flash (jail sentence).

- *Chris, white male, 35*

These legal loopholes are incredibly problematic for many IVUs, as their addictions are illegal ailments.

Janet, who professes a moral commitment to saving others even at cost to herself, continues to explain that when an overdose does turn fatal, legal terrain fundamentally changes.

You don't want 'em droppin' and ploppin' (dying) in your house either because you can get in trouble for that and it's like—it's crazy...But yeah I'd call 911. Without a doubt in my mind I'd do it."

- *Janet, white female, 50*

In most states, including California, people who have shared or sold drugs involved in an overdose death may be held liable for drug-induced manslaughter, a legal grey area that most GSL protections cannot cover. As this demonstrates, many overdoses where emergency medical support is most urgently needed also pose grave and uncertain legal counterincentive for those present to call for help.⁷

Since 2010, overdose legislation throughout the country has increasingly accommodated the ideological tenets of harm reduction in public policies (NCSL 2017). However existing legislation in the United States operates on more of a technical public health measure than a moral one. Rhetorically, the discursive commitment to value drug users' lives over their crimes inherent in legislation falls short to whatever extent the state retains its power to surveil, incarcerate, and discipline people already caught in the judicial system. Legal loopholes demonstrate that knowing who policy does not protect are as important, if not more, as knowing who they do.

Knowing policies and judging the prospective reach of harm reduction-informed policy, therefore, is an essential skill IVU lay responders rely on to protect themselves and others from nonmedical harms. As these cases illustrate, judging legal harms is not merely personal, but also social. IVUs must consider the extent to which how others present at the overdose may be in legal jeopardy if their presence is documented by law enforcement. Once an individual understands the legal terrain, they must then judge what level of medical risk merits intervention.

⁷ Available data indicates that at least 44 of the 48 that continental US states from 2011-2016 have prosecuted drug-induced homicide in the past decade. California has prosecuted at least 97 (Drug Policy Alliance 2007).

Embodied Risk

The legal risk of arrest can also “embodied risks,” which I define as the felt experience of physical or psychological pain and suffering, due to forced detox upon confinement. When a person who is addicted to opioids abruptly ceases drug use without the assistance of medication assisted treatments (MATs) that help alleviate the drugs’ withdrawal symptoms, such as methadone or buprenorphine, the body reacts adversely (TAGGS 2017). Withdrawal symptoms, which vary in severity according to one’s level of physiological dependence on opioids, may include uncontrollable rhinorrhea (nasal mucus discharge), mydriasis (pupil dilation), lacrimation (flow of tears), cold spells, perspiration, tremors, acute anorexia, restlessness, vomiting and diarrhea (Wesson & Ling 2003). These effects are more visceral in the nonclinical language of my interviewees: “shitting myself all over the place,” “muscles twitching and my legs kicking up randomly,” “every bone in my body hurting,” “tossing and turning, tingling all over,” “couldn’t sleep for weeks.” Most IVUs booked into the Santa Barbara County Jail are among the vast majority of inmates in the United States who do not receive MAT,⁸ a trauma severe enough for human rights watchdogs to label a violation of the Eighteenth Amendment barring “cruel and unusual punishment” (Bruce & Schleifer 2008; D’Hotman et al. 2019).

Paradoxically, IVUs may also contend with embodied risks in hospitals, the very institutions that treat life-threatening overdoses. Brooks speaks to his apprehension about sending an overdose victim to the ER.

[If] it was my house I certainly wouldn’t be calling to come to my house, you know what I mean I would do everything in my power not to have to because they’re gonna

⁸ In November 2020 the Santa Barbara Sheriff’s Office announced plans for a “jail-based competency treatment program” that includes medication assisted therapy, however the program is reserved only those who are not mentally competent to stand trial and includes only 10 beds for a jail population that can exceed on thousand inmates (SBC Sheriff’s Office 2020).

[be] flagged as a drug dealer at any hospital they go to, you know, and if they needed morphine they're not going to give them morphine just because of that, you know what I mean? And it will follow them wherever they go. And myself included.... [I would only call 911] if I had done everything in my willpower [to save them], as far as medical knowledge.

– *Brooks, white male, 35*

Medical institutionalization, Brooks fears, may create a paper trail documenting addiction that may result in differential treatment at a later date, namely the withholding of pain-relieving opioids during a surgery or the treatment of acute injury. One medical doctor that I interviewed in this study dispelled Brooks' concern, stating that if someone were to need morphine for an acute injury, they would receive it. Despite this, Brooks arrived at these conclusions on the basis of his own experiences with stigmatizing medical encounters, which have sedimented an enduring mistrust in his mind.

Interviewees also spoke about their experiences in the “patient role” at hospitals as a loss of control. Juan, who had voluntarily entered a hospital to have a drug use-related skin condition treated, described his fear of being unable to use heroin while booked there for multiple days.

I ain't goin' to go sit in the hospital, turn up sick while they operate on my hands and everything, be sick because of the heroin—I'm a heroin addict. I went and got myself some shit, you know, took it in the hospital...I was still gonna do the operation, but I wasn't gonna go sick, you know what I mean.

– *Juan, Latinx male, 45*

Because Juan planned his visit ahead of time, he was able to bring heroin into the facility and take it secretly. Most of the interviewees experienced short stays in the hospital when they were taken to the ER for opioid overdoses, however Juan's story speaks to the general insecurity IVUs feel about being institutionalized without their consent. As patients, they may lose control of their ability to acquire and consume heroin so as not to get “sick” from

withdrawal. Their experience of withdrawal as legitimate illness may not be regarded with the same urgency by hospital staff.

The legal, medical, and embodied risks overdose victims and bystanders face that I have outlined thus far pertain to institutionalization by arrest or hospital entry. However, IVUs also identify embodied risks in other professionally recommended overdose reversal procedures. Gabriela spoke to the ways that her social group's shared fear of withdrawal disinclined them to use Narcan, even when they could administer it in private.

Yes, I've kind of [overdosed], but they've never had to use Narcan. The thing they use is milk. Yep, you put the milk in the syringe---[they] put milk in your veins and you come right out of it, (snaps fingers) takes it like that. [The reason to use milk] is you don't get the aftereffects. Narcan you like feel sick and your body aches and you feel like shit, feel like you have the flu. With milk you don't get those side effects. You don't feel anything. You just don't feel shit. [With Narcan] you're high is gone too, everything is gone.

– Gabriela, Latinx female, 40

An opioid antagonist, the medication blocks those opioid receptors in the brain that heroin would normally affect. When the medication works in reversing an overdose, it also throws people addicted to opioids into immediate withdrawal.

Gabriela spoke not only to her preference for receiving a milk injection, but also the social pressure to use lay methods that she has experienced as an overdose responder. “I've used [Narcan] on somebody. I only had to use one spray luckily; I didn't have to use two. And they were pissed! But they came back...” Thus, while medical knowledge systems suggest Narcan because it is the only approved for overdose reversal, responders like Gabriela must navigate multiple forms of risk: withholding Narcan poses a medical risk to the victim, administering Narcan poses an embodied risk to the victim, and selecting between these two options poses a social risk to the Gabriela, who must anticipate the unconscious victim's reaction to whatever course of action she takes.

Judging Thresholds of Risk

IVUs contemplating the relative consequences and benefits of specific reversal methods often judge health risk as a threshold that, when crossed, merits more legally or socially compromising courses of action. At what point does an overdose victim's medical risk outweigh the risks of arrest, causing the victim to experience withdrawal, or violating subcultural codes against calling law enforcement to a private residence? Understanding how my interviewees judged this threshold and made decisions about how and when it had to be crossed is important to understanding the ways they navigate competing forms and understandings of risk.

Most IVUs in this study do not regard calling 911 as a yes or no decision; rather they regarded it as the possible endpoint—and one ideally avoided—of a longer process. The interviewees that I quote below describe following their own orders of operations, rearranging recommended steps, non-recommended steps, and independently judging when the victim's health risk outweighed social and legal risks associated with calling 911.

But um, so back then I would wait—I mean not *wait* [do nothing at all]. I would do my best to bring them out of it [on my own], and if they didn't start coming around within a certain amount of time then I would call 911, but I've never thankfully had to.

– *Alejandra, Latinx female, 32*

I hit 'em with the first one then I wait a minute or so and if I still don't see no real response then I hit them with the second one, you know, and that usually does it. And if I really don't see nothing then I'll call 911 and they'll come get 'em.

– *Erik, Black male, 34*

Policymakers and health policy researchers have described “hesitation to call 911” as another piece of the same public health issue that GS laws have been designed to mitigate. The word “hesitation,” however, belies the complexity and proactive nature of lay decision-making processes that may occur in this window. Here, Alejandra's personal social-legal-medical

triage judgments did not exclude calling 911 altogether. Yet, she confessed that she would only do so after a victim's risk or injury or death from ongoing unresponsiveness crossed a certain temporal threshold. And as the recognition of such "hesitation" among policymakers attests, the ways Janet assesses this threshold puts people suffering from an overdose at increased medical risk as she considers other forms of risk alongside medical risks.

Amanda, the 34-year-old white woman who lamented her felony probation terms for a sales charge, is more willing to call 911 if she does not feel equipped to deal with the overdose on her own. But she also evaluates risk thresholds *within* recommended courses of action, exposing the victim to a different set of health risks that she judges the benefit of EMS response to outweigh. She stated,

One time I didn't have Narcan on me because somebody had stolen my backpack the day before, so we had to call 911 for that one...I mean, it's not that I really feel super comfortable about [calling], but I mean if it's a difference of saving someone's life or not of course I'm gonna do it, you know. I just usually kind of call and then take off so, haha, so I'm not there when they come.

Abandoning an overdose victim once emergency responders have been dispatched leaves a victim vulnerable to further injury or death (e.g., choking on vomit, not receiving rescue breaths, prolonging the time it takes for EMTs to locate and assess the scene). However, Janet considers this health risk a necessary compromise that she must make in order to help the victim get a higher level of care while simultaneously mitigating the risks she perceives exposing herself to in the process.

Unpredictable Settings

With the rare exception of attempted suicide, opioid overdoses are not planned events. Anywhere people are using opioids—especially by injection—is liable to become the

site of an unexpected medical emergency. In the majority of overdose stories that my interviewees recounted, medical risk factors were socially mediated by the fears, values, and skills that bystanders carried with them into these situations. In other situations, immediate physical environments posed extreme obstacles to rescue. Observe the experience of Alejandra, 32.

I woke up the next day... I had on a sweater with no shirt or bra underneath, just a sweater, and I had on like pajama pants. And I was wet, I was soaking wet, but my pajama pants they were kinda dirty. And I was barefoot...My boyfriend was like, 'You're not gonna ask? You OD'd on me.' And he was like mad though. He said that he worked on me [performed CPR] for an hour. He was like, 'You were fuckin' dead! Your lips were purple, you were purple, you were fucking dead.' And he got like teary eyed...he couldn't call for help because we were in the main house, and the main house didn't have power or electricity or water. The back house was where our friend stayed. But he couldn't run down there and call because he had to keep breathing for me, and he didn't have a cellphone, so he was basically just there by himself.

On the evening that Alejandra overdosed, her and her boyfriend were challenged to perform basic everyday routines that require resources most take for granted—cooking, showering, texting, turning on a light at night. Recommended response procedures bottleneck at steps two (call 911) and three (administer Narcan). If a responder cannot perform one of these two steps, all recommendations require them to do the other; if they cannot perform either, there are no alternative suggestions beyond administering CPR indeterminately. Alejandra's boyfriend had neither Narcan nor a cellphone. While CPR can keep someone alive while they are experiencing respiratory depression by allowing oxygen to their brain, but it has no effect on the neurological processes that actually cause (or reverse) an opioid overdose. Fortunately, Alejandra's boyfriend was able to muster the stamina to keep breathing for her until the heroin's effects began to attenuate on their own, an outcome contingent upon opioid levels in her body.

Jamie, a 38-year-old white woman who had experienced regular homelessness and insecure living situations since a traumatic brain injury ten years prior, shared a similar story with me while I was dispensing Narcan, a tool she didn't own at the time. Since breaking up with her boyfriend a few months back, Jamie had taken up lone residence on a boat in the harbor that she could only reach by kayak. She stated,

I was paddling out in the dark and I saw this sailor guy who was hunched over in his boat like dead looking. I was like, 'Hey, dude! Dude, are you alright!?' He was like dead looking. And I paddled up to him and he was all vomit all over the place and blue and I was slappin' the shit out of him. Yelling in his face and splashing cold ocean water all over him 'till he was soaked. I was giving him rescue breaths even though there was puke everywhere. And he came back. I saved him.

Jamie and Alejandra's cases highlight the fact that overdose lay knowledge is not People who are living in precarious circumstances are often compelled to innovate out of a lack of viable alternative options in addition to nuanced understandings of competing forms of risks associated with overdose. Alejandra's boyfriend's rescue method was missing the most critical steps—calling 911 and administering Narcan—but he didn't apply any techniques that are not professionally recommended. According to medical recommendation, Jamie should have only yelled at the sailor and rapped her knuckles across his chest to see if she could get a response (not slap him in the face or splash him with cold water), but her rescue breaths would be considered a correct choice. Both cases demonstrate that lay techniques and "imperfect" rescue procedures emanate from situations of scarcity, precarity, and desperation. The examples also help contextualize the ways my participants might experience the socio-legal limitations (summarized above) as *practical* challenges that outsiders who do not contend with such threats to their wellbeing may easily dismiss as "poor choices." These findings attest to a dubiously simple notion that ought to inform policies and recommendations associated with drug overdose: *circumstances inform action*.

II. Unapproved Lay Methods

In the previous section, I described diverse legal, social, embodied, and environmental risks that IVUs may confront when responding to an opioid overdose, and I demonstrated how IVUs unique social positions and subjective interests may incline them to use unapproved overdose response procedures. I also argued that the choices my interviewees made during these medical crises should be understood as skills, not mere mistaken decisions as professional medical and scientific discourse portray them to be. The ability to triage medical, legal and social threats among the other forms of lay knowledge they cultivate and apply in lieu of recommendation. In most cases, IVUs do not merely omit medical recommendations in responding to overdoses, but also *add* new procedures to this list. In this section, identify two primary categories of overdose lay knowledge: injection and stimulation. Three important sources that IVUs in this study derive knowledge about—and belief in—these unapproved injection methods is through word of mouth, inference, trial and error, and everyday practices.

Injection

DON'T inject the person with any substance (e.g., saltwater, milk, stimulants). The only safe and appropriate treatment is naloxone.

– SAMHSA, *Opioid Overdose Prevention Toolkit*

Injecting overdose victims with substances other than Narcan was one of the most commonly used lay techniques that IVUs apply. Professional medical consensus provides that injecting overdose victims with anything but Narcan is risky, ineffective, and always strongly discouraged, however these methods are among the most commonly used alternative techniques that IVUs in this and other studies have reported using. Many injection

techniques, like other lay methods, are learned from others who practice them. Consider the following examples:

They said sugar, that's what I was told. I haven't done it, but I've seen it done. I'm still learning a lot of stuff too you know, other things that I didn't know and it's like, 'Wow, I didn't know that.'

– *Debra, Native American female, 62*

I mean I've heard you can like shoot them up with salt or stuff like that.

– *Amanda, white female, 34*

I heard uh salt, salt and water, I heard bleach and water, ummm, I think those are the only two.

– *Carlos, Latinx male, 34*

This shared community indicates a sense of solidarity and mutual social support among IVUs who educate one another about methods that are either not found or supported in medical literature. However, the quotes also demonstrate that beliefs about the efficacy vary by person and peer group, and there is little consensus among them. This is problematic, as these variations within community knowledge reveal that IVUs do not have a reliable reference for determining medical efficacy.

In addition to learning through peers, reversal methods that use injection as a means of intervention reflect a creative and resourceful application of pre-existing skill sets and accessible resources. Most of these solutions use common household items like milk, salt, sugar, and water that may be readily accessible when other items, like Narcan, are not. In using them, my interviewees demonstrate resourcefulness in surveying their setting for items to craft into alternative overdose remedies. Injection techniques also make use of items drug-related medical resources that IVUs often carry. Syringes, unsurprisingly, are one of the few items that an overdose bystander can nearly always expect to find at the site of a heroin

overdose. Victoria, Maryanne and Luis too illustrate how drug users prepares IVUs for this form of intervention:

You inject the salt, you like crush it up like as if your gonna slam meth, um crush it up with just water and you draw it up and you um hit ‘em with it. And um they’ll come out of it. That’s worked.

– *Victoria, Latinx female, 31*

My husband loves speed...And when [I overdosed] the only that worked was the only thing that worked was the speed. Brought me back. He finally found a vein and brought me back with the speed.

– *Maryanne, white female, 47*

Pinch of salt, pinch of salt in a spoon, skin pop it, that brings them out. That’s what I’ve learned...Hell yeah, that works man. Really does work.

– *Luis, Latinx male, 54*

As these examples demonstrate, IVUs who use these methods draw upon their own medical skills acquired through habituated intravenous drug use. Maryanne observes that salt dissolves into water in similar way as the speed she uses, which is also a water-soluble crystalline powder; and both Victoria and Luis use the same vernacular verbs—“slam,” “hit,” and “skin pop”—that IVUs use to describe the act of injecting drugs. Maryanne and her husband, who believe that speed, not salt, is a preferable remedy, tend to have speed around the house because her husband injects the drug daily. Already familiar with the veins that are easiest to register blood on Maryanne’s body, her husband acted quickly using the interpersonal injection skills he has developed in their relationship. The examples also demonstrate that IVUs quoted here derive much of their beliefs about the efficacy of unapproved injection methods on the basis of their experiences actually injecting (or being injected with) these unapproved concoctions, which “work” all three find.

IVUs find practical logic in these methods, which share common features with other recommended response procedures and positive outcomes. Stimulants like speed and sugar

water, for example, both provide *stimulation*, which is a category recommended overdose reversal procedure that I examine in the following section. Injecting non-stimulant liquids like saltwater and milk don't intuitively stimulate, but they share a common route of administration with Narcan, which can be injected.

Some IVUs have made inferences about what solutions should or should not be effective based on positive or negative past experiences, personal beliefs, and different cultural ways of knowing. Gabriela, the woman who said that she prefers injecting (or being injected with) milk over Narcan for opioid overdoses, associates the medication's painful withdrawal effects with actual injury to her body. "With milk you don't get those side effects... So I think milk is safer too. I mean you drink it," Gabriela stated.

Most clients that I interviewed after first hearing about milk injection from Gabriela did not report using or knowing about the method, which speaks to how specificity of knowledge about injection differs between individuals and small groups. Carlos, who is one of the few respondents that I had the opportunity to discuss milk with, suggested spoke of milk as a general remedy common in his culture. Although he didn't understand it to affect opioids, he recalled injecting milk to mitigate the jittery side effects of methamphetamine.

If it's a Hispanic or Mexican person, we use fucking milk for everything. That's what they implant in us and I don't know how true it is, but I guess some because they've done it to me and I think it just kills it, or something about it kind of neutralizes it.

In this study don't seek to make claims about Carlos' culture, but rather observe that subcultural values and beliefs may influence what knowledge is shared with whom, which in turn provides unique epistemic foundations for inferential problem solving.

Stimulation

DON'T slap or forcefully try to stimulate the person; it will only cause further injury. If you cannot wake the person by shouting, rubbing your knuckles on the sternum, or light pinching, the person may be unconscious.... DON'T put the person in a cold bath or shower. This increases the risk of falling, drowning, or going into shock.

– SAMHSA, *Opioid Overdose Prevention Toolkit*

In most educational programs and educational brochures, the first recommended step for responding to a suspected opioid overdose is to assess consciousness using two means of stimulation: yelling the person's name and performing a sternum rub. This step allows responders to assess whether or not the person is overdosing and needs further assistance, like Narcan and rescue breathing. When people do respond to stimulation, it also mitigates their risk of respiratory depression. Even if the person is very intoxicated, if they can walk and move about—and continue to do so until the drug's effects subside—survival is a likely outcome. The majority of unapproved rescue techniques interviewees in this study described using and knowing about fall within the category of stimulation. All of the stimulation “DON'Ts” listed in SAMHSA's *Overdose Prevention Toolkit* (above), and variations of them, are lay reversal techniques clients continue to use frequently. In this section, I apply the same analytic framework used above to analyze the causes, conditions, purposes and logic of unapproved injection techniques to examine stimulation, which I find to be the second primary category (not ranked) of unapproved overdose response techniques.

Unlike salt and sugar water solutions, which IVUs believe to work as medications that professional medicine labels as “myths” and “placebos,” unapproved stimulation techniques actually affect overdose victims' bodies through the same underlying mechanisms as the two corresponding interventions that are professionally recommended (yelling and sternum rub). Note that while SAMHSA describes unapproved injection techniques as not

“appropriate,” the same informational flyer does not contest the possible efficacy of unapproved stimulation techniques, but rather highlights the additional health risks they may pose—causing “further injury” and putting them “at risk” of falling, drowning, or going into shock. This professional medical discourse does not refute the notion that unapproved stimulation techniques do in fact *stimulate*.

Many of the most common unapproved stimulation techniques can be understood as logical extensions of approved stimulation techniques, not categorically distinct alternatives. A 51-year-old white man named Mike, for example, Michael, for example, simply builds upon the techniques offered. “Just wake him up and shake him around and shake him up and walk him around,” he stated, “and that gets ‘em to breathe again.” Jamie, who began “slapping the shit” out of the sailor only after yelling at him, explained to me that she had to do that and start pouring cold water over him when yelling alone didn’t work.

In some instances, lay responders evaluate stimulation itself as a medical risk and try to determine the extent to which subjecting the victim’s body to cold temperatures or physical trauma will carry a greater net health benefit than cost. Tracy, a 37-year-old white woman who was an EMT before she began (or resumed) using heroin, spoke about the cold shower as an issue of medical risk, not medical efficacy, and suggested that the method may be appropriate in certain situations.

I would give them saltwater. It will bring them right out... You can try, you know, painful stimuli, rubbing their sternum, just things like that, you know trying to—but if they're so far gone, you know you can throw them in a cold shower too. But that's kind of like a last resort...ice cubes up the ass is just gonna bring their core temperature down, which is gonna be worse.

Just as the interviewees that I quoted in the risk section of this paper weighed legal against medical risk, here Tracy evaluates the two medical risks against one another—hypothermia vs. prolonging overdose response time by using techniques that don't seem to be working.

With one foot in each world, Tracy's perspectives illustrate the conceptual divide between professional and lay understandings of risk. Compare her statements about a cold shower to those of Steven, a white EMT trainer who is currently practicing.

I know no evidence to support cold water or ice methods either... There are also potential issues with hypothermia. I mean, that's a hard thing with any of these things. Yeah, you aren't going to find any, evidence-based literature to support it.

Tracy and the EMT Trainer were each attuned to the medical risk that cooling an overdose victim's body poses, but the former EMT judges a cold shower to fall within an acceptable threshold of risk that they both agree ice methods do not. Whereas professional medicine disavows cooling techniques in a blanket rejection, the logic of street medicine acknowledges the fact that a cold shower is a form of stimulation—like sternum rubs and yelling—that shocks the body's senses. According to professional medicine, techniques that carry certain medical risks are unacceptable; in lay medicine, as Tracy demonstrates, a bystander may judge the acceptability of introducing new medical risks “as a last resort.”

Just as IVUs can usually count on finding salt, sugar, water and syringes within the vicinity of an overdose, most unapproved stimulation methods employ resources likely to be found in one's immediate physical environment. Ice and especially water are rarely far from anywhere that people are. Janet, who spoke of arrest warrants, plunged her son into her bathtub, Maryanne ran to the gas station for ice, and Jess, in a more unique case, splashed cold ocean water on the man who was docked in the harbor while paddling to the boat she sleeps on. Slapping, punching, and shaking—all professionally discouraged because of the

injuries they inflict—are all portable methods most able-bodied people can always count on having at their disposal.

Some interviewees in this study report using, or knowing how to use, less conventional tools. Tracy, who had extensive experience treating people in cardiac arrest, suggested that someone could use an automated external defibrillator (AED), or improvised AED, as a possible means of stimulation.

You could slap them. You could like um, shock them with a low voltage of something, yeah like...like a car battery. So you got cables to a car battery, you just put it down on them and *tssst* [spark noise], you know?... You just want to shock them because basically just they are so relaxed that their brain just forgets to breathe.

Her idea to jumpstart an overdose victim, which she fortunately had not yet needed to apply, highlights the same critical awareness of her environment that people who use unapproved injection reversal techniques hold. Tracy's statement, which was a response to my question, "what would you do if you do if you didn't have Narcan?" led her to quickly imagine possible settings she might find herself in.

Like unapproved injection methods and all other alternative lay reversal methods, the many variations of stimulation that I analyze in this section become shared community knowledge once people witness, apply, or hear about being used in successful outcomes. Several respondents stated that they had "heard of" or "saw" people recover from overdoses from cold water and ice stimulation techniques, and then incorporated this knowledge into their respective toolkits for possible future uses.

Consider the following statements about reversal methods involving ice:

I've heard you can put ice up their butt. But usually, I'll just smack them.

– *Amanda, white female, 34*

Yeah, the very first time I shot [from this new batch] I went out. And, um, basically woke up with ice cubes in my ass. Yeah, that woke me up! (laughs)

– *Melissa, white female, 37*

Whereas Amanda heard that sticking ice cubes “up their butt” may be effective, Melissa came to believe in the technique’s efficacy when she awoke from an overdose with ice melting inside her.

As the contradictions between respondents quoted in this section make clear, the “community” in my phrase “shared community knowledge” does not refer to a single unit of identity. Among IVUs in Santa Barbara, there are many *communities* sharing knowledge, and these communities (or individuals, or peer groups) are not all partaking in a single dialogue. These contrasting experiences and viewpoints among IVUs reiterate a central argument of this thesis. Lay methods indicate resourcefulness, skill, creativity, and social solidarity among members of a stigmatized group highly susceptible to the same medical emergency; but they also demonstrate that people who still feel compelled to use lay methods can never be fully certain what will work, under what conditions they will work, and when multiple methods are applied, which one’s were truly responsible for successful outcomes. In the leading quote of this thesis, Maryanne recalls forcing ice cubes into an overdoser’s body to no avail. As this method failed her, the victim’s body temperature cooled while remaining in a state of respiratory depression—a condition that most IVUs (including Maryanne) and medical experts alike understand to pose significant health risks and possible death.

III. Applying Professional Medical Knowledge and Using Medical Technologies

Lay medical knowledge, by definition, also includes professional expertise acquired or applied by nonprofessionals. In this section, I argue that medical street wisdom can only

be fully understood by accounting for how IVUs use professional medical knowledge and medical technologies. I identify four main categories of professional medical knowledge that can be found in overdose lay medicine: correct application, selective application, repurposing medical technologies, and contesting expert claims.

The interview excerpt below shows how all four dimensions of professional medical knowledge may be exercised in a single overdose response effort. When an acquaintance of Brooks' girlfriend overdosed in the bathroom, Brooks, his mother, and his girlfriend responded in concert:

I'm holding her by her belt loops in the shower and she just wasn't waking up and her lips were starting to turn blue. So, my mom was doing CPR on her and I was like oh fuck, alright [it's not working], you know... So, I was like, 'babe go get me my [first aid] box and in my box I had a bottle of Epinephrine and Lidocaine... So, my girlfriend first went for the Lidocaine and I'm like 'no, I don't want that, that's just gonna numb her up!' You know what I mean? So I was like, 'you know what, bring the epinephrine.' I didn't do [the epinephrine] straight to her chest or nothing like on that movie you know, it wasn't like that. I did her in the hand and she came out of it instantly. She wasn't fully awake, but it worked in that situation and she woke up.

– Brooks, white male, 35

Like the majority of IVUs in this study, Brooks' mother knew how to perform CPR, a recommended and critical lifesaving overdose response procedure (*correct application of expert protocols*), however Her use of CPR did not fall into a *set* of recommended procedures, however, as Brooks drew on lay techniques before and after she did so (*selective application*). Brooks then repurposed an epinephrine pen as an overdose reversal tool (*repurposing medical technologies*) that he reasoned might be effective despite a paucity of scientific research (*contesting expert claims*). Fortunately, she woke up.

Correct Application (per Medical Experts)

The vast majority of my interviewees reported administering CPR or rescue breaths, Narcan when it was available, and sometimes calling 911. Among all overdose reversal techniques my interviewees mentioned using, I found CPR to be the most universal skillset. Even among the majority of interviewees who had not formal training in CPR, nearly everyone knew the basics, and many had experience in applying it. Consider the following examples:

I was giving [the overdose victim] CPR and he was on the phone with 911—he had to call like three times you know trying to get them over here... You gotta keep making ‘em breathe.

– *Debra, Native American female, 62*

Or if I didn't have any Narcan, I go to work on ‘em. You know, make sure they're breathing, make sure they're not throwing up on themselves and you know...that's a lot of work for me for a guy I don't really like (author's emphasis).

– *Erik, Black male, 34*

But he couldn't run down there and call because he had to keep breathing for me.

– *Alejandra, Latinx female, 32*

Especially among the heroin users in this study, experiencing and attending to opioid overdose using CPR is such a routine feature of life that they often referred to the procedures using shared vernacular. They used the phrase “working on” to describe CPR, usually connoting a prolonged or exhausting experience, and “breathing form them” to describe rescue breathing without chest compressions. (The paramedics I interviewed recommend that lay persons only provide rescue breaths, but both methods are effective).

Four of my thirty-five interviewees, two of whom are quoted below, stated that they had learned the technique in occupational settings.

I learned CPR when I used to work for uh in-home care. I took a couple classes you know, and just in case one of my clients happened to pass out or something....or if

they're choking on food or something what to do to them, you know, it's just good to know, it's just good to know....

– Erik, Black male, 34

I'm certified in CPR and all that stuff... [I know what to do] if they're having seizure or swallowing their own vomit...I learned it in ROTC. I wanted to become career military.

– Luis, Latinx male, 54

Those who had formal CPR training emphasized the importance of clearing the victim's airway, with few others mentioned. Their training in CPR and other first aid procedures illustrate how the formal economy can be a site where IVUs can learn medical skills that serve them off the job.

Administering Narcan is another form of professional medical knowledge that has become a central feature of overdose lay knowledge after California's naloxone distribution initiative began in 2017. The three quotes below are representative accounts:

I just handed the Narcan to her because she was closer to [the overdose victim], you know. Speedy results you know, you have it you toss it [to the person who is closest].

– Debra, Native American female, 62

I Narcanned him and then I called 911 and like right before the paramedics showed up gave him the second dose. And he was alright....

– Erik, Black male, 34

It only took one [shot of Narcan] though, like he woke up instantly.

– Jesus, Latinx male, 27

Naloxone distribution programs, like the Santa Barbara syringe exchange, allow IVUs to carry the most effective (and only approved) overdose reversal medication into their communities.

The medication demands acquired skills. At the syringe exchange, staff briefly explain how to use Narcan when giving it out, and then refer clients to written instructions on the packaging. These instructions are one of the few means of direct overdose education that

IVUs in Santa Barbara County receive, and the instructions hold a dual function because they not only explain how to administer the medication, but also what recommended steps to follow before and after administering it. IVUs experienced in using Narcan tend to decline explanation, indicating that through repeated practice Narcan administration has become a practical skill for them. My interviewees' frequent use of Narcan attests to the fact that not following professional medical recommendations is often an issue of access, not interest, and that IVUs may be more willing to learn and apply professional medical knowledge when they can do so at their own discretion.

Selective Application of Medical Expert Protocols

Most overdose stories interviewees shared involve both medical recommendations and unapproved response procedures, not one or the other. I identify two primary forms of selective application: selective ordering (using recommended techniques but in unapproved order or timing), and hybrid techniques (using single techniques blend a lay technique with an unapproved technique). Consider the following examples of selective ordering.

I came running back down [with Narcan] and I had got the water too and I just gave her the Narcan, I poured a little bit of water—I was slapping her, did the Narcan, was waiting for it to work or whatever and I kept doing the water [until] she finally came out of it.

– *Alejandra, Latinx female, 32*

I hit him with that and um a lady friend gave him CPR, and he didn't want to go to the hospital but he ended up going. We didn't call 911 but he ended up going to the hospital after all.

– *Damien, Black male, 46*

Here, Alejandra administered Narcan, but then splashed cold water on the victim rather than performing rescue breaths while waiting for the medication to take effect. In another

example, Damien administered Narcan but did not immediately call 911 or take the victim to the hospital.

Other interview participants describe using what I refer to hybrid techniques—single procedures that draw on professional recommendations but also alter them. Maryanne, quoted in the very introduction of this thesis, synthesized both stimulation and CPR by slamming her fist into her husband’s chest. “Every time I hit him,” she reasoned, “maybe his heart was pumping for a few seconds.” Overdose injection methods also have hybrid characteristics; IVUs draw unapproved liquid solutions into syringes, which they then administer in the same way as injectable Narcan. In the last section of this chapter, I examine additional hybrid techniques IVUs have devised by repurposing pharmaceutical medications. First, however, I examine how some IVUs understand challenge the credibility of medical recommendations.

Interpreting and Contesting Professional Medical Knowledge

Thus far, I have primarily discussed how IVUs understand and evaluate efficacy in lay techniques, but I found that syringe exchange clients in this study also scrutinize the purported efficacy of professional medicine. The common inclination among IVUs to escalate stimulation beyond recommended thresholds of force by slapping and punching the victim is the one challenge they pose (more physical force and discomfort can work better, they find). Many also challenge the stated efficacy or optimal means of applying biomedical solutions. While most believe that Narcan is an effective overdose treatment option and prefer it to other unapproved interventions, for example, they challenge the biomedical premise that it is always an optimal intervention in all situations.

In Maryanne’s experience, Narcan kits designed for lay use are a relatively benign intervention compared to several of her alternative solutions. In her words, “the nose or the shot [auto injector] didn’t work. I tried both.” Several minutes after injecting her husband with Narcan, she saw no response and proceeded to use methamphetamine, and then ice. Maryanne remains skeptical about forms of Narcan that are approved for lay use, which in her experiences have always been less effective than the Narcan she was administered one time in the ER, which “brought [her] right out.” Maryanne reasons that she probably received a higher dosage of naloxone in the hospital than 4mg take-home kits contain, which is a probable conclusion. On this basis, she contends that Narcan is not the silver bullet solution to opioid overdose that many hail it to be. Rather, she understands Narcan to be a semi-effective intervention that should be supplemented with other techniques.

Maryanne is among a minority of clients who are skeptical about *all* take-home Narcan kits the syringe exchange dispenses; many more rank the multiple forms of Narcan we dispense by efficacy (there are injectable liquid vials, auto-injectors, and nasal sprays). While peer-reviewed studies find the three forms equally effective, my fieldnotes from two years of participant observation demonstrate that clients find the nasal spray far less effective than injectable forms.

“No, we only have the nasal spray,” I tell a young woman as I hand her the kit. Before taking it from my hands, she leaned backwards out of the Health Utility vehicle to alert her boyfriend waiting outside. “They only got the spray ones!” The bad news that it’s another spray week soon becomes a central topic of the waiting-in-line chatter that we hear outside the health utility vehicle. When the next client steps up into the HUV, we have already anticipated his first question. “So you don’t have the other ones?”

IVUs in this study have arrived at their conclusions about the variable quality of Narcan through their independent, “community-reviewed” research trials. On many occasions they

have used Narcan, been administered Narcan, or heard stories about a recent overdose, clients have learned that nasal spray, for them, is less effective than injectable forms.

Repurposing Medical Technologies

The last form of professional medical knowledge that I identify in overdose lay medicine is a form of selective application—repurposing of existing medical technologies. Scientific knowledge inheres in medical technologies, and I find that IVUs in this study modify existing technologies when they do not have access to better alternatives, or when they believe that they can actually improve existing technologies.

Logan, a 23-year-old white male, offered a means of improving the nasal spray. “Pierce it at the bottom there where the liquid is setting, and then just draw it up and hit ‘em with it. Works *way* better that way.” In this example, Logan challenged scientific claims that all forms of Narcan are equally effective, formulated and tested a hypothesis independently, and applied the injection skills he has learned through everyday practice.

In another example Chris, a 35-year-old white male, injected his roommate at a sober living facility with Vivitrol (naltrexone) pills he had been prescribed through a court-mandated recovery program. Like Narcan, naltrexone blocks the effects of opioids, but it is prescribed to prevent opioid users who are recovering from opioid addiction from relapsing, not reversing an overdose (medication assisted therapy).

It’s like Narcan... The mental health people would come to my sober living every day and I would take the pills and I would spit them out. Actually, crazy story. A guy overdosed in my house and I was able to dump my trash can and find three of the vivitrol pills, cook them up, and shoot them up—maybe save him. He ended up living, and later when I saw him come to jail, he gave me ten bags of chips because he was so grateful.

Chris secretly discarded the pills because he knew what they would do to him—kill the effects of heroin he was also using in secret, just as Narcan does. Chris was the only interviewee to mention naltrexone, but his case is significant given that it is a medication prescribed to people with opioid use disorder and likely present in many households. This case highlights the creative logic that people like Chris follow, re-appropriating a medication such as naltrexone that is marketed to “block the euphoric and sedative effects of opioids...[by] blocking opioid receptors” (SAMHSA 2020).

Brooks, quoted in the introduction to this section, was the only interviewee who reported using epinephrine in lieu of Narcan, citing the movie *Pulp Fiction* (1994) as his inspiration. This cinematic portrayal of an unapproved overdose reversal method was released about twenty years before naloxone access laws and naloxone distribution programs became common in the United States and speaks to the ways lay knowledge may emerge under political conditions that constrain heroin users’ abilities to seek and provide care. It also demonstrates how lay knowledge can move through multiple levels of culture, from individual or community beliefs to mass media portrayal.

The obscurity surrounding epinephrine as a possible overdose reversal method is indicative of the discursive gap that persists between medical knowledge and street wisdom. None of the overdose response educational brochures that I have encountered have made any mention of epinephrine as either a possible or discouraged method of intervention, however, anesthesiology researchers have found that Narcan and epinephrine are, “equally effective for cardiopulmonary resuscitation in rats” (Chen et al. 2006). Like Tracy’s hypothesis that an AED shock is more helpful than harmful when Narcan isn’t available, the paucity of published information on epinephrine in opioid overdose demonstrates how “mainstream

science” negates the practical logic found in street science. Brooks and Tracy, who feel compelled to find better-than-nothing alternatives to Narcan, both have a credible basis for hypothesizing about the potential efficacy of these solutions that target distal, not proximate mechanisms of opioid overdose, however they have no means of determining to what extent they may be effective (or ineffective).

DISCUSSION

In this thesis, I have examined personal, social, and environmental factors that occasion the use of overdose reversal techniques used among the clients of a syringe exchange services in Santa Barbara County, California. My observations about the underlying causes for overdose lay knowledge support existing literature on the topic. Stigma, resource scarcity, policing, resource scarcity (both material and educational), embodied experience and social pressure all exert considerable pressure on IVU lay responders to act in certain ways that often contradict “best practices” (as defined by medical professionals and public health educators). Bourgois, Moore and Rhodes conceptualize IVU nonadherence to public health recommendations as resulting from the discrepancy between professional medical recommendations and the “lived experience” of IVUs, a unique collection of needs, values, beliefs, and personal vulnerabilities. These social scientists have argued that public health initiatives seeking to “correct” IVUs’ “incorrect” self- and community-care are fundamentally misplaced, as rhetoric alone cannot change a marginalized group’s personal health behaviors when other risks remain unaddressed. The burden of change, I follow these authors in asserting, lies in the hands of lawmakers and

policymakers who must better account for IVUs lived experience in opioid overdose prevention laws and public health policy.

This study makes four principal contributions that build upon existing social scientific and health literature on drug use, opioid overdose, and unapproved lay overdose reversal practices. First, I examine several *productive* dimensions of lay overdose knowledge disavowed by professional medicine. I argue that improving opioid overdose outcomes among IVUs not only requires not only validating their experiences or recognizing the structural forces that shape their experiences and practices, but also mobilizing IVUs to serve as expert lay responders in their communities, as recommended by Strang et al. (2000).

Other productive dimensions of lay overdose knowledge include managing the multiple medical *and* non-medical legal, embodied, environmental and social risks IVUs contend with. Avoiding arrest, withdrawal, and social consternation by peers, and managing emergency medical situations in unpredictable settings with limited resources, are tangible accomplishments. Rhetorically separating these “lived experience” risks from medical risks, and categorically privileging the latter over all of the former only serves those with the power, privilege, and favorable circumstances to do so. Managing situated risk is an everyday survival technique that vulnerable and marginalized populations rely upon; capacitating IVU bystanders to revive their peers therefore requires incorporating these ancillary risk-mitigation needs into recommended lifesaving procedures.

Second, I call new attention to the underexamined *intersection* between professional and lay overdose knowledge and practice. Few overdoses, I found, are treated by IVUs fully “correctly” or “incorrectly,” as most incorporate alternative lay knowledge *and* professional medical recommendation. The overwhelming majority of IVUs in this study can quickly

identify a suspected opioid overdose. They also know how to perform CPR, administer Narcan, and use approved stimulation techniques. Because opioid overdose is a common occurrence among IVUs in Santa Barbara—both past and present—many also have practical experience *using* these techniques on overdose victims. I find that IVUs believe science and medicine are much greater than their skepticism, with deviation from recommendation being a resort rather than a first choice. When resources like Narcan are available, for example, they use it; and when calling 911 feels safe, they call. More attention should be paid to knowledge and practices occurring in this space where two ways of knowing overlap, as this study’s findings suggest that hybrid response practices may characterize the *majority* of lay interventions in opioid overdose.

My third contribution in this study is reapplying the sociological policy critiques “lived experience” policy critique in new historical circumstances—the “third stage” of the opioid overdose epidemic in the United States, as the 2010-era has been labeled by the CDC. Since the 2000s and early 2010s, the drug policy environment and street environments for drug users have changed considerably. Synthetic opioid adulterants are the norm, not the exception, in today’s illicit opioid market, rendering the domestic heroin supply more dangerous, difficult to measure, and likely to induce overdose than previous times. While I have not observed lay overdose reversal techniques to be significantly different than those observed in other studies, the continuity in lay knowledge between past and present is significant in itself, reaffirming that unapproved overdose reversal techniques remain predominant among IVUs at the turn of a new decade.

Policy has likewise changed. The California Good Samaritan 911 caller laws and naloxone access laws I describe in this paper took effect in 2013 and 2016, with Santa

Barbara County’s naloxone distribution program first taking effect in 2017. Some form of each policy has now been adopted in most US states, signifying that the call for opioid overdose prevention initiatives to address IVUs “lived experience” is now being met in new and unprecedented ways. The research I conducted from 2018-2020 in Santa Barbara County demonstrates both policy successes and shortcomings. As my interviewees’ stories attest, IVUs in this region have adapted their practices to this new policy environment while still retaining alternative methods in their overdose “toolkits.” They are more comfortable calling 911 than before, and nearly all of them who use opioids now carry—and when necessary, use—Narcan. In this sense, my findings suggest that these policies designed to improve the rate and efficacy of opioid lay overdose response are working, reducing the barriers that have obstructed IVUs from learning and applying medically recommended procedures.

Good Samaritan Laws and Naloxone access laws should be adopted in all states and improved to close those loopholes that continue to dissuade IVUs from adhering to best practices, as medically defined. Despite abundant evidence that harm reduction-informed laws and policies reduce opioid overdose mortality rates, Maine, Iowa, Kansas, Oklahoma, Texas, Wyoming, and Idaho have yet to pass Good Samaritan Law protections in their states. As a result, residents who overdose in those states are left in the hands of bystanders who likely hold the same fear of calling 911 that interviewees in this study held “before the law changed.” Wyoming and Kansas have also not passed comprehensive naloxone access laws to date *despite* the availability of federal funding for naloxone distribution and education to all states that apply. I argue both forms of legislation should be made a federal mandate, not an optional measure subject to partisan state-level politics. The economic, social, and legal infrastructure for combatting this form of preventable death now exists; for ethical if not

cost-saving reasons, such evidence-based policy reform should be universal across all states, closing all loopholes like “involuntary manslaughter” and probation/parole exceptions that weaken the legislation’s impact.

My fourth contribution is a critique about the politics of knowledge production and communication between people who hold scientific knowledge and IVUs who rely upon it. It is incorrect to assume that any professional or policymaker can impose new knowledge upon IVUs, fully replacing what they have learned through experience. I argue that in order to improve opioid overdose reversal outcomes, it is necessary to recognize that professional “experts” cannot simply replace an established body of medical lay knowledge already deeply ingrained in IVU culture.

More than stubborn pupils, IVUs have good reason for holding onto their toolkits. As history attests, policy varies geographically and through time. The Trump Administration leaves us with fair warning that opponents to progressive policies have become relentless in picking apart policies that advance health equity and civil rights. Furthermore, social, embodied, and environmental risks (including resource limitations) cannot be fully mitigated by policy improvements alone. Consider Jamie, who came upon an overdosing sailor while paddling to her makeshift home on a boat, Juan, who has spent more “my life behind bars than in the real world,” and Gabriela, who injects her peers with milk because they fear Narcan-induced withdrawal. The three lay responders illustrate how more overdose scenarios are plausible than medical recommendations or policy alone can account for.

Harm reduction-informed drug laws and health policies reduce the prevalence of unapproved overdose reversal procedures among lay responders; however, these measures alone are inadequate means of addressing the ongoing risks that IVUs are exposed to due to

their lack of critical information on medical risk and efficacy. Overdose lay knowledge is not a mere list of ideas or methods, but also a *disposition* to resolve problems as they arise. In recognizing there is no “ideal type” scenario for a drug overdose, we can observe that the current politics of medical research and knowledge distribution disadvantage those who are most likely to practice lay overdose reversal techniques.

The syringe exchange clients I interviewed for this study described partaking in their own forms of medical research on overdose reversal techniques, however, their only opportunities for conducting experiments on the efficacy of lay techniques are unwanted, occur during life-threatening emergencies, and require the bodies of unconscious overdose victims to serve as test subjects (in good faith efforts to save them). Harm reduction organizations and overdose educators are not culpable for this problem, and despite my critiques on certain shortcomings, I fully endorse public education initiatives on recommended overdose reversal techniques. However, IVUs and other overdose bystanders deserve a better avenue for inquiring about lay medicine.

Currently, overdose education is corrective morally freighted education about right and wrong; what it needs to be is corrective but also inclusive, allowing for back-and-forth communication between IVUs and experts rather than restricting education to top-down messaging alone. This must allow for IVUs to inquire about the *gradations* of medical risk and efficacy lay methods carry, as simply labeling an overdose reversal technique as “ineffective” does not fully prevent its use. IVUs would be better served by more comprehensive, nuanced information about medical risk and efficacy with which they can make independent choices using their own judgment.

When I concluded my interview with Maryanne, she walked out of the syringe exchange knowing that methamphetamine is more effective than saltwater in reversing an opioid overdose, and that placing ice on someone's genitals is more effective than inserting ice cubes their rectum; two weeks later, I concluded an interview with Tracy, who returned to shared living arrangement knowing that that saltwater, certainly, is the best remedy if a cold shower fails. It pains me, as an outsider aware of these discrepancies and the precarity that incomplete lifesaving knowledge carries, not to have adequate information on lay medicine to send them off with. If a substance other than Narcan is going to be injected either way, what risks does meth carry that saltwater does not? Are any of the techniques even partially effective? If so, which ones, and to what extent?

Because this thesis is a study on culture rather than an exhaustive policy analysis or a study on organizational structures, I cannot state where this communication gap emanates from. However, social scientists who have studied the politics of scientific research suggest that cultural norms in scientific research and the market structure healthcare in the US hold significant roles in determining what gets studied and who is privy to the results (Epstein 1995). What I can reliably assert based on my research findings is that answerable questions remain unanswered for many IVUs, and that insofar as unapproved techniques have been proven either "risky" or "ineffective" by professional researchers, unanswered questions negatively affect the health outcomes among IVUs who overdose.

I conclude that opioid overdose mortality should be addressed by a two-pronged approach. First, comprehensive, evidence-based policy reform that serves all US residents equally, irrespective of the state or county they live in. And second, avenues through which IVUs can address their inquiries about lay medicine should they feel a need to practice it. In

recognizing that alternative overdose lay knowledge is in fact a way of knowing, that it holds cultural meaning, and that it serves tangible ends, policymakers can better respect IVUs' demonstrated abilities to intervene in suspected opioid overdose medical emergencies.

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