



Medical Response to the Opioid Epidemic

Nancy S Goldstein* and Christina Gunderson

Department of Acute and Chronic Care, Johns Hopkins School of Nursing, Baltimore, MD 21205, USA

*Corresponding author: Nancy S Goldstein, Department of Acute and Chronic Care, Johns Hopkins School of Nursing, Baltimore, MD 21205, USA, Tel: 410-614-6062; E-mail: ngoldst1@jhmi.edu

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Introduction

Opioid substance use disorder and related overdose deaths have reached epidemic levels throughout the United States and continue to rise. According to a recent Abell Report, there were nearly 52,500 overdose deaths in 2015, 63% of which were associated with opioid use [1]. While advances in treatment options have been made in many cities including Medication Assisted Treatment (MAT), counselling, support groups, and needle exchange programs, it has not been enough to halt the momentum of the growing epidemic. One potential road block to curbing the epidemic in the U.S. is the resistance of many states to utilize well-established treatment options. Over a decade ago, the World Health Organization reported that Needle Syringe Programs (NSPs) significantly reduce Human Immunodeficiency Virus (HIV) and Hepatitis C Virus (HCV) infection, are cost-effective, increase recruitment into treatment programs, and have no convincing evidence of major, unintentional negative consequences [2]. The WHO's findings continue to be replicated and gain support. The Centers for Disease Control and Prevention (CDC) and U.S. Department of Health and Human Services (HHS) guidance describes NSPs as an effective element of a comprehensive approach to HIV prevention in People Who Inject Drugs (PWID) [3]. Furthermore, in 2016 the federal government changed its position on needle exchange programs and allocated federal funding to states experiencing or at risk for significant increases in HCV and/or HIV infection due to injection drug use [4]. Now more than ever, particularly with the introduction of the powerful and deadly fentanyl, the scope of current harm reduction strategies must broaden and begin to view addiction as a health concern instead of a crime.

What is Working Internationally?

In Europe, Safe Consumption Spaces (SCSs), also referred to as drug consumption rooms or Safe Injection Facilities (SIFs), and were first established in Switzerland in 1986. While controversial, the number of SCSs increased across Europe as the harm reduction effort gained momentum throughout the 1990s. According to the European Monitoring Centre for Drugs and Drug Addiction [5], there were 86 SCSs across Europe: 31 facilities in 25 cities in the Netherlands; 24 in 15 cities in Germany; 12 in three cities in Spain; one in Norway; and one in Luxembourg; five in three cities in Denmark; 12 in eight cities in Switzerland; and six-year trial facilities had been approved to open in France (in cities that apply for it) as of February 2016.

These sites typically include sterile syringes, counselling services before, during, and after drug consumption, medical treatment for overdoses, and referrals to addiction treatment and other appropriate medical services [5]. The harm reducing benefits of providing SIFs include increased access to health and social services, hygienic injection drug use resulting in decreased incidence of infectious

disease, reduced public drug use, and the ability to reach the highest-risk drug users who are not yet ready to quit [5].

Sydney, Australia currently has one SIF which has been operating since 2001 [6]. Australia's Drug and Alcohol Foundation acknowledges that while there are inherent risks associated with injection drug use, SIFs create a safer environment for PWID. The site has been largely successful with nearly 6,000 overdose interventions without any fatalities, more than 12,000 referrals to treatment and/or social welfare services, no increase in local crime, 50% decrease in syringes found in public places, provided health services to clients-70% of which had no previous access to care, and has been shown to be cost effective as of 2015 [6,7]. Efforts are currently underway to open a second facility in Melbourne, Australia.

The first North American SCS, Insite, was opened in downtown Vancouver, Canada in 2003 in response to Canada's growing opioid and heroin epidemic [8]. Insite is part of a continuum of care, a critical first step from chronic addiction to possible recovery. It is a space where individuals can use drugs in a non-judgmental, person-centered environment and build trusting relationships with health care providers and social workers to increase clients' chances of pursuing treatment services [8]. To date, Insite has 18,093 clients with nearly 3.5 million visits, over 40,000 treatment visits, and roughly 5,000 overdose interventions without any deaths [8]. The adjoining detox facility, Onsite, received 464 admissions from Insite in 2015 with a 54% completion rate [8]. Due to the success of the two SIFs in Vancouver, three additional SCSs were approved by Health Canada earlier this year and 13 additional SCS applications are currently under review [9]. There is some dispute regarding operational cost and cost-effectiveness of Insite. According to a recent Abell Report, the annual cost of operations at a SIF in Vancouver, Canada is \$3 million which is offset by the \$6 million per year saved in healthcare costs [1]. However, Jozaghi et al. [10] reported the annual operational cost of Insite to be \$1.5 million with an estimated annual savings of up to \$25 million due to HIV prevention alone.

Responses by U.S. Cities

Opioids, both illicit and prescription, are the main cause of overdose-related deaths in the U.S., and opioids were involved in 33,091 deaths in 2015 [4]. New York City has been hit particularly hard by the on-going opioid epidemic and is on the forefront of the fight against opioid misuse. In 2015, there were 2,386 opioid-related overdoses (deaths, ED visits, and hospitalizations) in NYC [11].

A staggering 107,300 individuals in NY State, as of 2015, received opioid substance use disorder treatment [12]. The Office of Alcoholism and Substance Abuse Services (OASAS) oversees a treatment system that includes nearly 12,500 treatment beds throughout the state, and in fiscal year 2016, \$1.4 billion was allocated to OASAS for opioid

substance use treatment and prevention. These are just two of many examples of NY's concentrated effort to curb the epidemic. Despite the state's massive effort, opioid and heroin use continued to rise. In response, Governor Andrew Cuomo charged the New York Heroin and Opioid Task Force with establishing an immediate and comprehensive action plan to tackle the crisis from every angle [12]. The New York State Opioid and Heroin Task Force's Report [12] included a multitude of multifaceted recommendations in the realms of prevention, treatment, recovery, and enforcement.

However, many believed the final recommendations set forth by the task force were not comprehensive enough to exact an adequate level of success. In September 2016, \$100,000 in funding was allocated to study the feasibility of SIFs in NYC [13]. Mayor Svante Myrick of Ithaca, NY has also unveiled a plan for SIFs; as in NYC, implementation plans have not been initiated. However, SIF NYC is a growing coalition of public health and criminal reform groups along with NYC residents campaigning for SIFs [14].

The greater Chicago, Illinois area, as of 2011, led the country in heroin-related emergency department visits with nearly 25,000 [15]. In response, the Heroin Crisis Act was passed in Illinois in 2015 to address several issues including promoting naloxone education and usage, requiring Medicaid coverage of MAT and other treatment services [16]. Thus, Cook County politicians including Chicago Mayor Rahm Emanuel came together to create the Chicago-Cook Task Force on Heroin to further improve prevention of heroin use. The Chicago-Cook Task Force on Heroin [16] focused largely on the distribution of naloxone, improving community education to reduce bias, and advocating for funding of treatment programs and Medicaid and private insurance coverage of MAT. Harm reduction methods to aid those in active addiction and not yet ready for treatment have not been addressed.

In most U.S. cities, the focus of news and research has been on the epidemic itself, blaming over-prescription of opioids, drug cartels, lack of funding, and the failed War on Drugs as the main cause(s). While these factors certainly play a role, they fail to acknowledge what the root of the issue is in many areas. For example, the literature on Baltimore primarily focuses on the impact social determinants of health have on illegal substance misuse.

In Baltimore, there exists a systemic cycle of disparity attributable to decades of racism, poverty, and inequity with 23.7% of the population living below the Federal poverty level [17]. On March 1, 2017, Governor Larry Hogan signed an Executive Order declaring a State of Emergency regarding the heroin, fentanyl, and opioid crisis in Maryland [18]. The Executive Order is in response to the opioid crisis devastating Maryland communities. Its purpose is to cut through political and legal red tape by activating the governor's emergency management authority and facilitate coordination between the state and local jurisdictions [18]. This is a more urgent approach than other cities/states have taken. However, a specific plan has not yet been released.

As discussed previously, SIFs have been an effective harm reduction method on an international level and it is time for the U.S. to catch up. Washington State is home to the first U.S. needle exchange program which opened in Tacoma in 1988. On the forefront of the battle against opioid and heroin misuse, Seattle is now moving forward as a prototype for SIFs in the

U.S. This decision comes in response to heroin and opioid use in the greater Seattle area [19] reaching crisis levels in 2015 with 229 opioid

related deaths [20]. Subsequently, the Heroin and Prescription Opioid Addiction Task Force [19] was created by King County Executive Dow Constantine, Seattle Mayor Ed Murray, Renton Mayor Denis Law, and Auburn Mayor Nancy Backus and charged with developing short- and long-term strategies to prevent opioid misuse and overdose, as well as, improve access to treatment and other necessary health care services. The King County Heroin and Prescription Opiate Addiction Task Force's Final Report and Recommendations [19] include establishment of at least two Community Health Engagement Locations (CHEL sites) where supervised safe consumption for adults in the King County region can occur. In January 2017, Murray and Constantine announced plans to move forward with all of the King County Task Force's recommendations, including the two pilot SIFs. While opposition argues that allowing individuals to inject drugs is not compassionate and will not solve the opioid epidemic, the Task Force views the SIFs as an extension of the city's well-established needle exchange programs [21]. The locations and funding source for the SIFs are yet to be determined [21].

Associated Health Care Costs

Healthcare costs associated with the opioid problem are massive due to high rates of Emergency Department (ED) visits and hospitalizations, as well as costs associated with infectious disease treatment secondary to intravenous drug use, particularly HIV and HCV. In the state of Maryland, ED visit costs related solely to heroin and prescription opioids was over \$3 million in 2014. Furthermore, it is estimated that total healthcare costs for PWID is \$6.6 billion per year [22].

When considering cost, other related effects outside of healthcare are of noteworthy importance, including crime rates. Social traumas that lead to riots, such as the deaths of Freddie Gray, Michael Brown, Keith Lamont Scott, and Sylville Smith disrupt the well-instituted drug distribution chain. This results in distribution anarchy which can lead to rising tempers, higher prices, and an increase in shootings; rioters quickly target pharmacies to obtain opioids or stores selling products with high street values [23]. Similarly, it costs persons with substance use disorder \$10 to \$100 per day to support their active addiction; this alone is a huge driver of crime related cost [23].

Long-term Health Consequences

Health quality outcomes are bleak due to the risks associated with injection drug use including abscess, HIV, HCV, endocarditis, and overdose. In 2015, drug overdoses were responsible for over 52,000 deaths in the U.S., 63% of which involved opioids. Additionally, for every death related to overdose, there are thousands of nonlethal overdose incidents [1]. New York State had a record 825 heroin related deaths in 2014, nearly 25 times the number chronicled a decade earlier, as well as, 1,008 prescription opioid related deaths [24]. The Chicago area's per capita rate of heroin-related ED visits was found to be three times the national average [16]. In Baltimore City, Maryland, 24% of PWID are HIV positive and 84% are HCV positive [1]. Baltimore City also recorded 609 heroin and fentanyl related deaths January through September of 2016 versus 267 during the same time frame in 2015 [25]. In Washington State, drug overdose fatalities have been steadily rising. One Seattle study of PWID found a 73% HCV prevalence rate [26].

Conclusion

The facilities Australia and Canada have been the most extensively evaluated and have the strongest evidence to date. This is an on-going process and the SIFs in Canada, Australia, and Europe have all been found to significantly reduce overdose related deaths, incidence of infectious disease, and opioid related hospitalizations [27,28]. The sites work in conjunction with established detox and other treatment services by increasing their utilization and making healthcare services available to the most marginalized persons with active addiction. These centers have not increased drug use or trafficking, and have in fact decreased crime in surrounding areas [28]. SCSs/SIFs would also serve to improve public health by decreasing public injection, resulting in fewer used syringes in public places such as parks and playgrounds. These factors all contribute to substantial cost savings as well. When taking the elements of decreased overdose related deaths, HIV and HCV rates, local crime related to drug use, number of used syringes in public spaces, and an increase in treatment service enrollment into consideration, allocating funds for supervised consumption spaces would benefit all parties involved from individual health, population health, and cost perspectives. Despite these findings, it remains unclear whether SIFs are fully legal under international drug treaties. While legal ramifications are not the focus of this review, it should be noted that the United Nations International Narcotics Board issued the Flexibility of Treaty Provisions as Regards Harm Reduction Approaches in 2002 [29]. In regards to SCSs, the Provisions states "... even supplying a drug addict with the drug he depends on could be seen as a sort of rehabilitation and social reintegration, assuming that once his drug requirements are taken care of, he will not need to involve himself in criminal activities to finance his dependence" (p: 5).

Over time, current harm reduction methods may slow the rise of opioid misuse.

However, it could take years to reverse the effects put into motion by over-prescribing and the War on Drugs. This is not in the scope of this literature review. However, over-prescribing opioids is another issue that needs serious attention with education and legislative assistance. It is essential that we help those in active addiction and put an end to the associated stigma.

Treatment is not one size fits all, and harm reduction methods must aim to include individuals not ready to stop using. While the most progressive U.S. cities are moving towards incorporating SIFs, there still remain many states in the country that have not yet approved established harm reduction methods such as needle exchange programs. The next step in effectively fighting the opioid epidemic in the U.S. may require taking a page from international models by implementing safe injection facilities in combination with well-established harm reduction techniques.

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