

Adopt the Harm Education and Reduction for Opioid users (HERO) Initiative

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Executive Summary: Every day, more than 130 Americans die from opioid overdose. Current legislation is not sufficient to combat the opioid crisis. In this memo, we recommend adopting the Harm Education and Reduction for Opioid users (HERO) Initiative which will provide increased federal funding for harm reduction strategies: needle and syringe exchange programs, distribution of fentanyl test kits, naloxone distribution (overdose reversal agent) and will legalize and fund safe consumption sites. This will save billions of dollars in healthcare and rehabilitate substance users back into the workforce.

I. Burdens of the Opioid Crisis

In 2017, an estimated 1.7 million Americans suffered from substance use disorders related to prescription opioid pain relievers and more than 47,000 died as a result of opioid overdose (National Institute on Drug Abuse 2019). United States citizens are now more likely to die from an opioid overdose than in a motor vehicle crash (Injury Facts 2019). One in three persons who inject drugs (PWID) become infected with Hepatitis C virus (Centers for Disease Control and Prevention 2016a), and one in ten become infected with HIV (Centers for Disease Control and Prevention 2016b). The annual economic burden of opioid prescriptions, overdoses, abuse and dependence is an estimated \$78.5 billion (Florence et al. 2016). About ¼ of this cost is borne by the public sector, with a major contributor to this cost being lost employment and household productivity from opioid abuse and dependence (Florence et al. 2016). The staggering human and economic loss borne from this epidemic demand action in order to reduce overdose incidents and associated costs.

II. Harm Reduction Saves Lives

Harm reduction is a set of practical strategies aimed at reducing negative consequences associated with drug use. One negative consequence is transmission of HIV and viral hepatitis through the reuse of dirty needles by PWID (Centers for Disease Control and Prevention 2018a). Further harm results from drug contamination with fentanyl which was responsible for a majority of the 49,000 American opioid overdoses in 2017 (Ingraham 2018). While pharmacological agents such as Naloxone are known to reverse opioid overdoses, they are not readily available to persons who use drugs (PWUD). Facilities which provide harm reduction services allow access to educational strategies for substance users to set realistic goals, lower risk of overdose-related death, and minimize negative outcomes by providing them with necessary health services and referral to drug rehabilitation centers. The HERO Initiative will ensure federal funding for the creation and support of new/existing harm reduction facilities to allow for the following life-saving services:

i. Needle and Syringe Exchange Programs (NSEPs)

Safe NSEPs are community-based programs that provide free access to and safe disposal of needles and syringes. They are now legal in 28 states and the District of Columbia (Centers for Disease Control and Prevention 2018a). NSEPs reduce infection rates and can be cost effective (Abdul-Quader et al. 2013). A review of 15 studies analyzing the effectiveness of NSEPs found NSEPs to be associated with decreases in the prevalence of HIV and viral hepatitis (Abdul-Quader et al. 2013, Nguyen et al. 2014). In Baltimore, NSEPs organized by the health department have decreased needle-injected HIV instances from 64% to 8% (Baltimore City Health Department 2018).

ii. Fentanyl test kits

Fentanyl is an inexpensive drug with 50-100 times the potency of heroin that is often mixed unknowingly with heroin. Fentanyl testing kits allow for quick detection of fentanyl contamination in drugs (Smith 2018). Implementation of this easy-to-use tool has shown promising success in changing drug taking habits. One study found that if participants knew their drugs were contaminated with fentanyl, they would take less or no drug (45%), take the drug at a slower rate (42%), or take the drug in the presence of a friend (39%), indicating that home testing helps users to better anticipate and mitigate overdoses (Krieger et al. 2018).

iii. Naloxone

Naloxone is an “opioid antagonist” medication that reverses the life-threatening effects of an opioid overdose within minutes (Anne Arundel County Department of Health 2018). It has no potential for abuse and can easily be administered by minimally trained non-medical professionals (Harm Reduction Coalition 2019). Between the years of 1996 and 2014, the CDC estimates that over 26,000 instances of opioid overdose were reversed using naloxone kits (Cordant Solutions 2017). The rate of naloxone administration by emergency medical services providers increased 75% between 2012 to 2016, exhibiting the need for greater naloxone distribution and administration training among the general public (Centers for Disease Control and Prevention 2018b). A 2013 study found that naloxone distribution to heroin users for lay overdose-reversal would increase quality-adjusted life-years and be highly cost effective, even under conservative assumptions (Coffin and Sullivan 2013).

iv. Safe consumption facilities

Safe consumption facilities are spaces where drug users can consume pre-obtained drugs in hygienic circumstances with trained staff to provide emergency response in the event of an overdose (CBC News 2013). Safe consumption facilities reduce needle sharing and drug use (Davidson et al. 2017). For example, in Vancouver, the number of drug users sharing needles dropped from almost 40% in 1996 to 1.7% in 2011 after the city opened Insite, the country’s first supervised injection site for drug users in 2003 (Wagener 2017). However, a lack of legally-operating/recognized consumption sites make it difficult to perform in depth data analysis on the effectiveness of these programs. Nonprofit organizations are poised to implement the first large-scale safe consumption facility in Philadelphia called Safehouse with support from local and state government but are awaiting support from federal government (National Public Radio 2019, Safehouse 2019).

III. Stakeholders

Without action, the annual number of opioid overdose deaths is projected to increase from 33,100 in 2015 to 81,700 in 2025 (Chen et al. 2019). Recent years have seen an increase in the number of children needing foster care placement due to parental drug abuse; as of 2016, more than a third of children in the foster care system qualified due to parental drug abuse (Administration for Children & Families 2017). The combination of increasing fatalities and strain on health care, the national economic burden, and psychosocial/cultural consequences caused by the opioid epidemic make it a far-reaching problem that affects/will affect most Americans.

IV. Policy Options*i. Implement the HERO Initiative*

The federal government should fully legalize, fund and expand all the above-mentioned harm reduction services, offering them out of federally run harm reduction facilities. These harm reduction facilities will follow a structure similar to current NSEPs that are attempting to expand their services such as Safehouse in Philadelphia. Patients will be accessed, provided appropriate harm reduction treatment and then checked out with an offer for additional help and services (National Public Radio 2019, Safehouse 2019). These federal facilities will start in those states most affected by the opioid crisis (West Virginia,

Ohio, and Washington D.C.) and will serve as safe spaces for PWUD. Provided services will include educational materials (e.g. naloxone training), referral to mental health and addiction treatment, HIV and hepatitis screening, needle exchange and a safe place to inject previously obtained drugs.

Advantages: PWUD can access approved, safe care that is proven to reduce opioid-related fatalities. Facilities will create jobs and reduce economic burden on the federal government and U.S. citizens from overdose medical care. Facilities will be able to collect local public health data that can be used at the federal level to better fight the epidemic. There is bipartisan support in fighting the epidemic; both sides will win favor by supporting strategies to combat it.

Disadvantages: Implementation of the HERO initiative will require some politicians and the general public to overcome moral objections regarding allowance of needle and naloxone distribution and safe consumption facilities. Large startup costs will also be incurred as new facilities are identified and set up in key cities across the U.S.

ii. Partially implement the HERO Initiative

The federal government will provide no additional funding for the above legal harm reduction measures but will support these programs legally. Nonprofit organizations will continue to provide harm reduction services without federal funding. For example, Kaleo, a pharmaceutical company, has pledged to provide naloxone to non-profit organizations. In addition, harm reduction facilities, which are currently not legal through federal law, will be legalized and federally protected. Private funded non-profit groups like Safehouse or state governments would be permitted to set up and run harm reduction facilities. This will be similar to the legalization and partial funding of NSEPs passed in 2015, see Appendix 1.

Advantages: Federally legal safe injection facilities may facilitate easier route for eventual implementation of the completely proposed HERO initiative which includes legalization and funding of safe consumption facilities.

Disadvantages: Implementation of this option will not guarantee the creation of harm reduction

facilities and thus will not reap full economic and social benefits. Facilities will need to secure funding sources and if funds are not allocated for paying staff, they will be run on volunteer service only (similar to present day) and thus no new jobs will be created.

iii. Reject the HERO Initiative

The federal government rejects harm reduction as a strategy in fighting the opioid epidemic.

Advantages: Rejection of the HERO initiative may mean that funding can be allocated to sponsoring of research for alternative treatment options (SUPPORT Act), which also holds bipartisan support.

Disadvantages: The measures outlined in the HERO initiative have been shown to save lives and encourage safer drug use and entrance into treatment programs. Rejection of this initiative will cost thousands of lives and continue to exacerbate the opioid epidemic in this nation. In addition, rejection of the HERO initiative will not allow for the creation of new jobs in the United States and will instead cost Americans even more money in healthcare costs, funding of treatment programs and lost wages.

V. Recommendation

We recommend option 1, full funding of the HERO Initiative, as this policy recommendation provides the most resources to the population in need and will reap the most long-term economic benefit.

VI. Appendix

Needle and Syringe Exchange Programs (NSEPs)

- The few needle exchange programs in the U.S. are solely state-funded (Centers for Disease Control and Prevention 2016b). For example, in 2015, then-Indiana governor Mike Pence (R) authorized limited needle exchange in response to the state's largest-ever HIV outbreak (Rich and Adashi 2015).
- At the end of 2015, Congress partially repealed a 1988 ban on federally funding NSEPs; funds can be allocated for all associated costs, except the needles and syringes themselves (Stanton 2016).

Fentanyl test kits

- Other states are now considering laws to facilitate distribution and legal use of testing kits by PWUD and lay citizens (Association of State and Territorial Health Officials 2018, Johns Hopkins Bloomberg American Health Initiative 2019)

following a successful pilot program in San Francisco that informed users of risks and increased community engagement (Harm Reduction Coalition 2018).

Naloxone

- Currently in the U.S., the law varies from state to state as to who (EMS, law enforcement, lay family and friends) is legally allowed to administer naloxone (Centers for Disease Control and Prevention 2018c).
- A recent study found that states that implemented policy to increase access of naloxone by allowing pharmacists to distribute

naloxone resulted in a 34% reduction in opioid deaths (Abouk et al. 2019).

Safe consumption facilities

- As of 2016, Project Inform listed only 100 legal safe consumption facilities in the world, none in the United States (Project Inform 2016).
- Reports from an illegally-operated U.S. safe consumption site show that in two years the site had over 2,500 observed injections. 92% of these users said they would have needed to inject in a public space without access to this facility (Project Inform 2016).

References

- Abdul-Quader, Abu S., Jonathan Feelemyer, Shilpa Modi, Ellen S. Stein, Alya Briceno, Salaam Semaan, Tara Horvath, Gail E. Kennedy, and Don C. Des Jarlais. 2013. "Effectiveness of Structural-Level Needle/Syringe Programs to Reduce HCV and HIV Infection Among People Who Inject Drugs: A Systematic Review." *AIDS and Behavior* 17 (9):2878-2892. doi.org/10.1007/s10461-013-0593-y.
- Abouk, Rahi, Rosalie Liccardo Pacula, David Powell. 2019. "Association Between State Laws Facilitating Pharmacy Distribution of Naloxone and Risk of Fatal Overdose" *JAMA Internal Medicine* 179 (6). doi: 10.1001/jamainternmed.2019.0272.
- Administration for Children & Families. 2017. "Number of Children in Foster Care Continues to Increase." Last modified November 30, 2017. <https://www.acf.hhs.gov/media/press/2017/number-of-children-in-foster-care-continues-to-increase>.
- Anne Arundel County Department of Health. 2018. "Naloxone: Frequently Asked Questions." Last modified September 19, 2018. <https://www.aahealth.org/naloxone-frequently-asked-question>.
- Association of State and Territorial Health Officials. 2018. "States Consider Fentanyl Testing Legislation." Last modified May 3, 2018. <http://www.astho.org/StatePublicHealth/States-Consider-Fentanyl-Testing-Legislation/05-03-18/>.
- Baltimore City Health Department. 2018. "Public Health Heroes: Needle Exchange Team." Last modified January 26, 2018. <https://health.baltimorecity.gov/news/bmore-healthy-blog/2018-01-26-public-health-heroes-needle-exchange-team>.
- Centers for Disease Control and Prevention. 2016a. "Access to Clean Syringes." Last modified August 05, 2016. <https://www.cdc.gov/policy/hst/hi5/cleansyringes/index.html>.
- Centers for Disease Control and Prevention. 2016b. "HIV and Injection Drug Use - Vital Signs - CDC." Last modified November 29, 2016. <https://www.cdc.gov/vitalsigns/hiv-drug-use/index.html>.
- Centers for Disease Control and Prevention. 2018a. "HIV/AIDS." Last modified December 13, 2018. <https://www.cdc.gov/hiv/risk/ssps.html>.
- Centers for Disease Control and Prevention. 2018b. "Morbidity and Mortality Weekly Report (MMWR)." Last modified August 09, 2018. https://www.cdc.gov/mmwr/volumes/67/wr/mm6731a2.htm?s_cid=mm6731a2_w.
- Centers for Disease Control and Prevention. 2018c. "Opioid Overdose." Last modified December 19, 2018. <https://www.cdc.gov/drugoverdose/opioids/fentanyl.html>.
- CBC News. 2013. "Harm Reduction More Effective than War on Drugs in B.C." Last modified June 24, 2013. <https://www.cbc.ca/news/canada/british-columbia/harm-reduction-more-effective-than-war-on-drugs-in-b-c-1.1326963>.
- Chen Q., Marc R. Larochelle, Davis T. Weaver, Anna P. Lietz, Peter P. Mueller, Sarah Mercaldo, Sarah E. Wakeman, Kenneth A. Freedberg, Tiana J. Raphael, Amy B. Knudsen, Pari V. Pandharipande, Jagpreet Chhatwal. 2019. "Prevention of Prescription Opioid Misuse and Projected Overdose Deaths in the United States." *JAMA Network Open* 2(2): e187621. doi:10.1001/jammanetworkopen.2018.7621.
- Coffin, Phillip O., and Sean D. Sullivan. 2013. "Cost-Effectiveness of Distributing Naloxone to Heroin Users for Lay Overdose Reversal." *Annals of Internal Medicine* 158 (1): 1-9.

- doi.org/10.7326/0003-4819-158-1-201301010-00003.
- Cordant Solutions. 2017. "The History of Naloxone." Last modified July 05, 2017. <http://cordantsolutions.com/the-history-of-naloxone/>.
- Davidson, Peter J., Andrea M. Lopez, Alex H. Kral. 2017. "Using Drugs in Un/safe Spaces: Impact of Perceived Illegality on an Underground Supervised Injecting Facility in the United States." *International Journal of Drug Policy* 53: 37-44. doi.org/10.1016/j.drugpo.2017.12.005.
- Florence, Curtis S., Chao Zhou, Feijun Luo, and Likang Xu. 2016 "The Economic Burden of Prescription Opioid Overdose, Abuse, and Dependence in the United States, 2013." *Medical Care* 54 (10): 901-06. doi:10.1097/mlr.0000000000000625.
- Harm Reduction Coalition. 2018. "Fentanyl Test Strip Pilot." Last Modified February 18, 2018. <https://harmreduction.org/issue-area/overdose-prevention-issue-area/fentanyl-test-strip-pilot/>.
- Harm Reduction Coalition. n.d. "Understanding Naloxone." Accessed February 25, 2019. <https://harmreduction.org/issues/overdose-prevention/overview/overdose-basics/understanding-naloxone/>.
- Ingraham, Christopher. 2018. "Fentanyl Use Drove Drug Overdose Deaths to a Record High in 2017, CDC Estimates." *The Washington Post*. Last modified August 15, 2018. https://www.washingtonpost.com/business/2018/08/15/fentanyl-use-drove-drug-overdose-deaths-record-high-cdc-estimates/?utm_term=.9d62313a933c.
- Injury Facts. n.d. "Odds of Dying." Accessed February 25, 2019. <https://injuryfacts.nsc.org/all-injuries/preventable-death-overview/odds-of-dying/>.
- Johns Hopkins Bloomberg American Health Initiative. n.d. "Aligning Research and the Law." Accessed May 20, 2019. <https://americanhealth.jhu.edu/article/aligning-research-and-law>.
- Krieger, Maxwell S., William C. Goedel, Jane A. Buxton, Mark Lysyshyn, Edward Bernstein, Susan G. Sherman, Josiah D. Rich, Scott E. Hadland, Traci C. Green, Brandon D.L. Marshall. 2018. "Use of Rapid Fentanyl Test Strips among Young Adults Who Use Drugs." *International Journal of Drug Policy* 61: 52-58. doi.org/10.1016/j.drugpo.2018.09.009.
- National Institute on Drug Abuse. 2019. "Opioid Overdose Crisis." Last modified January 22, 2019. <https://www.drugabuse.gov/drugs-abuse/opioids/opioid-overdose-crisis#one>.
- National Public Radio. 2019. "Supporters Sue To Open Safe Injection Site In Philadelphia, Citing Religious Freedom" Last modified April 13, 2019. <https://www.npr.org/sections/health-shots/2019/04/13/710253334/supporters-sue-to-open-safe-injection-site-in-philadelphia-citing-religious-free>.
- Nguyen, Trang, Brian Weir, Don C. Des Jarlais, Steven D. Pinkerton, and David R. Holtgrave. 2014. "Syringe Exchange in the United States: A National Level Economic Evaluation of Hypothetical Increases in Investment." *AIDS and Behavior* 18 (11): 2144-2155. <https://doi.org/10.1007/s10461-014-0789-9>.
- Project Inform. 2016. "REPORT: Safe Consumption Spaces in the United States: Uniting for a National Movement." Accessed February 25, 2019. <https://www.projectinform.org/scs2016/>.
- Rich, Josiah D., and Eli Y. Adashi. 2015. "Lessons From the Indiana HIV Outbreak." *JAMA* 314 (1): 23-24. doi:10.1001/jama.2015.6303.
- Safehouse. n.d. "The Safehouse Model." Accessed May 20, 2019. <https://www.safehousephilly.org/safehouse-model>.
- Smith, Cooper. 2018. "Checking for Fentanyl." *AddictionCenter*. Last modified June 21, 2018. <https://www.addictioncenter.com/community/checking-for-fentanyl/>.
- Stanton, John. 2016. "After Decades, Congress Effectively Lifts Ban On Federally Funded Needle Exchanges." *BuzzFeed News*. Last modified January 06, 2016. <https://www.buzzfeednews.com/article/johnstanton/after-decades-congress-effectively-lifts-ban-on-federally-fu>.
- Wagener, Dan. 2017. "Harm Reduction." *DrugAbuse.com*. Last modified October 25, 2017. <https://drugabuse.com/harm-reduction/>.

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