

## **Recommendations for Exploring the Impact of the Opioid Epidemic: A Proposed Management Framework**

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*It is imperative to prepare Business School Health Services Administration (HSAD) graduates with management tools to assess patient need and reduce barriers to care alongside clinicians. HSAD programs require interprofessional learning activities to shape competency and skill in community needs assessment. This HSAD program works collaboratively across the University community and with external partners to offer such an experience. Integrating this concept into the curriculum encourages graduates as early careerists to implement services and resources for patient need. Understanding that problems exists is a precursor to an economic valuation of such prevalent conditions as the dynamic opioid epidemic.*

### **BACKGROUND**

When used correctly, prescription opioids are helpful for treating acute and chronic pain (Viscusi, 2019). However, misusing prescription opioids puts individuals at risk for dependence, addiction, and even death (McCance-Katz, 2018; Viscusi, 2019). Reports for 2016 demonstrate an estimated 11.4 million people misused prescription opioids (United States Department of Health and Human Services (DHHS), 2019) at rate of about 130 deaths per day (McCance-Katz, 2018), a tripling of previous reported data (McIntyre, 2017). Consequently, recent research has found that opioid misuse is underreported on death certificates, with estimates of opioid-involved overdose deaths almost a quarter (24%) higher than officially reported (Ruhm, 2017).

Opioid overdoses were responsible for 147,654 ED visits, with estimated direct medical costs of \$152.8 million for 2014 (Guy, Pasalic and Zhang, 2018). These costs that contribute to the burden to society across industries and include those related to healthcare, workplace, and criminal justice. In addition to higher costs, greater usage of healthcare resources may lead to longer wait times, fewer appointment options, and increased staff workload. Accounting for all factors, research has supported that the estimated total

economic burden of prescription opioid overdose, abuse, and dependence easily surpassed \$78.5 billion for 2013 (Florence, Zhou, Luo and Xu, 2016). Despite the benefits that prescription opioids offer in pain management, the use, abuse, and overuse of these agents has contributed to significant health and economic burdens for patients, their families, and society. Of importance is that these values are significantly higher as a result of underreporting, or lack of proper ICD coding. Additional unidentified burden associated with opioid misuses costs include such valuations as premature fatality; related fatalities; non-fatal misuse; fatality risk reduction; decline in labor force participation; labor output decline; future-cost-effectiveness; and value of statistical life (Hoots and Seth, 2018). The purpose of this work is to lend to the discussion on the economic impacts associated with opioid abuse by providing HSAD early careerists with a management strategy to understand the direct, indirect, risk-adjusted and future impacts associated with the seen and unseen costs of the opioid epidemic.

## **RECOMMENDATIONS QUANTIFYING THE PROBLEM**

Quantifying the total economic impact of the opioid epidemic requires a deliberate plan. The federal government's Office of Management and Budget often uses the value of a statistical life (VSL) in estimating the valuation of fatality risk reduction measurements (Viscusi, 2013). Quantifying the costs of opioid-related overdose deaths is an example of estimating these costs or attaching a statistical value to life. Relying on this technique, particularly in regard to health and safety, demonstrates benefits of proposed regulations, policy, or program, as well as in informing cost-benefit analysis and regulatory impact analyses (Viscusi, 2013). Such valuations are typically based on how individuals trade off wealth for reduced mortality risks (Viscusi, 2013). As an example, wage differentials between occupations with different fatality risks can be used to infer how much greater occupational risk on the job would be accepted for greater compensation. Mortality risk valuations play a vital role in assessing the direct and indirect costs of the opioid epidemic. For instance, the decrease in clinician prescribed opioids may correlate to an increase in utilization of illicit opioid use (Viscusi, 2013; Viscusi, 2019). Before examining the potential economic impact, we suggest the following for health services administration early careerists to understand that a problem indeed exists.

### **Understanding that a Problem Indeed Exists**

A starting point in understanding that a problem indeed exists is for HSAD early careerists to recognize the impact of their clinicians' current prescribing behaviors on opioid accessibility. This will assist administrators in being able to evaluate costs, planning, and operational efficiency regarding the opioid crisis among ED utilization, acute care and chronic condition management. This involves becoming more familiar with the classifications of the discharge diagnosis codes for opioid related care and aggregately inferring conclusions about patients' experiences and needs. Also important is implementing a protocol for reporting to the state level prescription drug monitoring program. These interventions help to understand regional and national trends of state level experience with opioid related care and may inform legislation to combat and prevent future opioid misuse and its economic impact.

One major contributor of the economic burden is direct medical care costs related to ED utilization. One method of assessing the amount of opioid related ED visits is to utilize the NEDS (Nationwide Emergency Department Sample) database. The dataset includes patient-level and hospital-level characteristics, principal and secondary payers for the ED services rendered, presence of chronic or non-chronic diseases, principal diagnosis, and up to 30 secondary diagnoses all reported as ICD codes. The NEDS was designed to produce national and regional estimates about emergency department (ED) visits across the country. Information includes geographic characteristics, hospital characteristics, patient characteristics, and the nature of visits (e.g., common reasons for ED visits, acute and chronic conditions, and injuries). The NEDS was constructed using the HCUP State Emergency Department Databases (SEDD) and the State Inpatient Databases (SID).

### **Utilize a Nationwide Dataset**

Administrators can utilize the NEDS dataset to determine the number of ED encounters specific to ICD codes related to opioid use, abuse, addiction, relapse, and adverse reactions. This will bring awareness to how ED physicians are coding opioid related care. For instance, the NEDS 4th quarter data for ED visits from October 1, 2015 to December 31, 2015 included information from 1,043,488 ED visits. The discharge codes were queried and filtered to include all codes related to opioid use, abuse, addiction, relapse, and adverse reactions. These codes ranged from F1110-F1199. The resulting dataset contained data from 27,404 visits or about 2.6% of all visits, from which the frequency of each ICD-10 code was quantified. Microsoft Excel can be used to provide descriptive preliminary data; and to graph the results, and map opioid related encounters.

From the *NEDS dataset for 2015*, among the opioid-related visits (27,404 or about 2.6% of the total 1,043,488 ED visits), we found that opioid dependence (n=14003 or more than half (51.1%) of all opioid related visits and 1.3% of all ED visits) was the most prevalent discharge code, followed by opioid abuse (n=5941 or 21.7% of all opioid related visits and .57% of all ED visits) and opioid dependence with withdrawal (n=3872 or 14.13% of all opioid related visits and .37% of all ED visits).

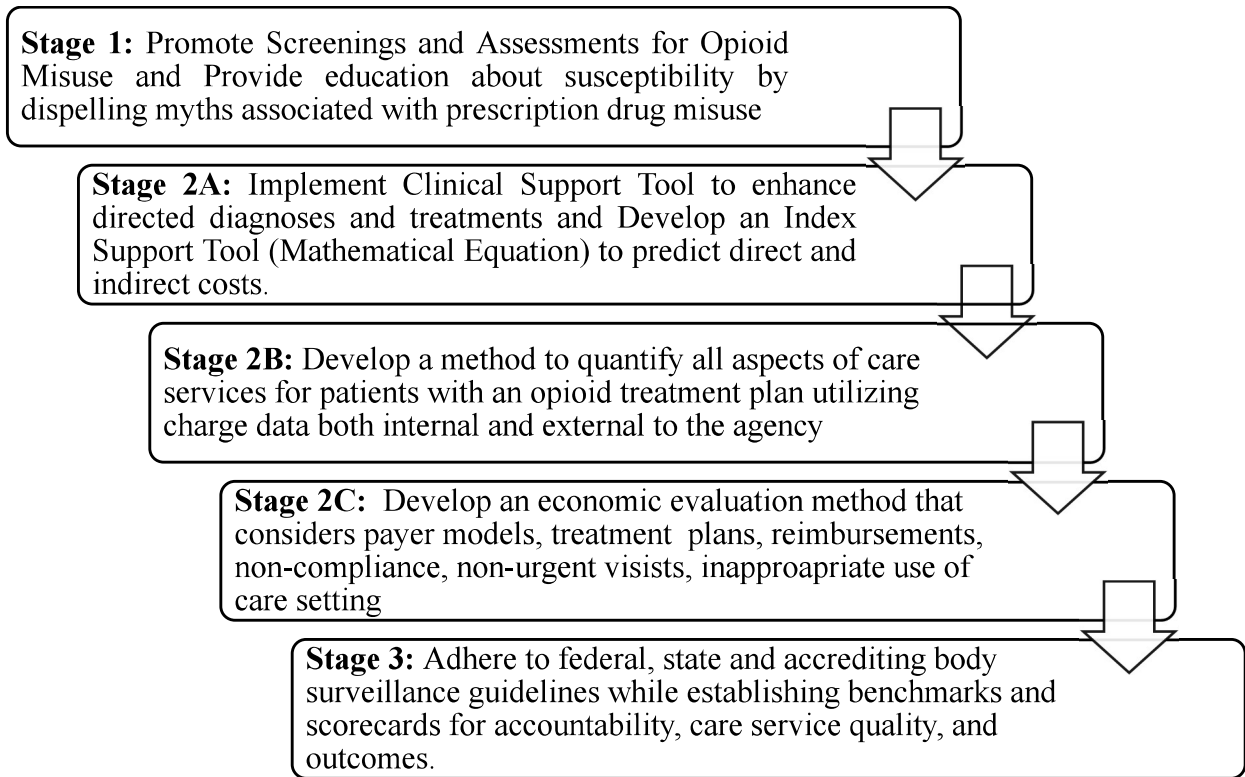
### **Include Supporting National and State Level Data**

A preliminary review of the literature demonstrates that the *National Survey on Drug Use and Health* developed a more comprehensive category for opioids and that for 2015, an estimated 2,144,000, or 0.8%, of persons aged 12 and older, reported an opioid use disorder; and 11,824,000, or 4.4%, of persons aged 12 and older, reported opioid misuse. From the Department of Health for a Midwest state in the US, we found that *for 2017 - 2018*, that of the 381,270 ED encounters, 746, or less than a quarter of a percent (0.2%), had an opioid related discharge code.

## **CONCLUSION**

It is expected that early careerists will have a better appreciation of the Administrator-Clinician dyad as they begin their careers by demonstrating a management strategy (Figure 1) based in economic realities and an urgency to lend to this national effort. Specifically, how to work with clinicians to develop, implement, administer and evaluate programs, resources and services for patients impacted by opioid misuse will be the meaningful use of such a framework. The premise surrounds an increased likelihood of implementing efforts to 1) Promote screenings and assessments for opioid misuse and provide education about susceptibility by dispelling myths associated prescription drug misuse; 2) Implement clinical support tool to enhance directed diagnoses and treatments and develop an index support tool (mathematical equation to predict direct and indirect costs; and 3) Adhere to federal, state and accrediting body surveillance guidelines while establishing benchmarks and scorecards for accountability, care service quality, and outcomes. A second part of this work will outline processes for each of the recommended stages in figure 1.

**FIGURE 1**  
**PROPOSED MANAGEMENT FRAMEWORK FOR OPIOID MISUSE EXPLORATION**



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**REFERENCES**

Community Catalyst. (2017). How Structural Racism Fuels the Response to the Opioid Crisis. Retrieved from <https://www.communitycatalyst.org/blog/how-structural-racism-fuels-the-response-to-the-opioid-crisis#.XPbHLCB7mUm>

Florence, C.S., Zhou, C., Luo, F., & Xu, L. (2016). The Economic Burden of Prescription Opioid Overdose, Abuse, and Dependence in the United States, 2013. *Med Care*, 54(10), 901-906.

Ghandnoosh and Anderson. (2017). Opioids; Treating an illness, Ending a War. The Sentencing Project. Retrieved from <https://www.sentencingproject.org/publications/opioids-treating-illness-ending-war/>

Guy, G.P., Pasalic, E., & Zhang, K. (2018). Emergency Department Visits Involving Opioid Overdoses, U.S., 2010–2014. *Am J Prev Med.*, 54(1), e37-e39.

Hoots, B., & Seth, P. (2018). 2018 Annual Surveillance Report of Drug-Related Risks and Outcomes — United States. Retrieved from <https://www.cdc.gov/drugoverdose/pdf/pubs/2018-cdc-drug-surveillance-report.pdf>

James, K., & Jordan, A. (2018). The Opioid Crisis in the Black Community. *The Journal of Law, Medicine, and Ethics*, 46(2), 404-421.

Lagisetty, P.A., Ross, R., Bohnert, A., Clay, M., & Maust, D.T. (2019). Buprenorphine Treatment Divide by Race/Ethnicity and Payment. *JAMA Psychiatry*. doi:10.1001/jamapsychiatry.2019.0876

- McCance-Katz, E.F. (2018). *An Update on the Opioid Crisis. Presented by the Substance Abuse and Mental Health Services Administration*. Retrieved from [https://www.samhsa.gov/sites/default/files/aatod\\_2018\\_final.pdf](https://www.samhsa.gov/sites/default/files/aatod_2018_final.pdf)
- McIntyre, E. (2017). Measuring the Impact: Rising Opioid Abuse Puts Pressure on Schools. *The Education Digest*, 82(5), 4-11.
- Ruhm, C. (2017). Geographic Variation in Opioid and Heroin Involved Drug Poisoning Fatality Rates. *American Journal of Preventive Medicine*, 53(6), 745-753.
- Viscusi E.R. (2019). Clinical Overview and Considerations for the Management of Opioid-induced Constipation in Patients with Chronic Noncancer Pain. *The Clinical Journal of Pain*, 35(2), 174–188.
- Viscusi, W. (2013, October). Using Data from the Census of Fatal Occupational Injuries to Estimate the ‘Value of a Statistical Life’. *Monthly Labor Review, U.S. Bureau of Labor Statistics*. <https://doi.org/10.21916/mlr.2013.35>
- US Department of Health and Human Services. (2019). What is the US Opioid Epidemic? Retrieved from <https://www.hhs.gov/opioids/about-the-epidemic/index.html>