

POLYTECHNIC

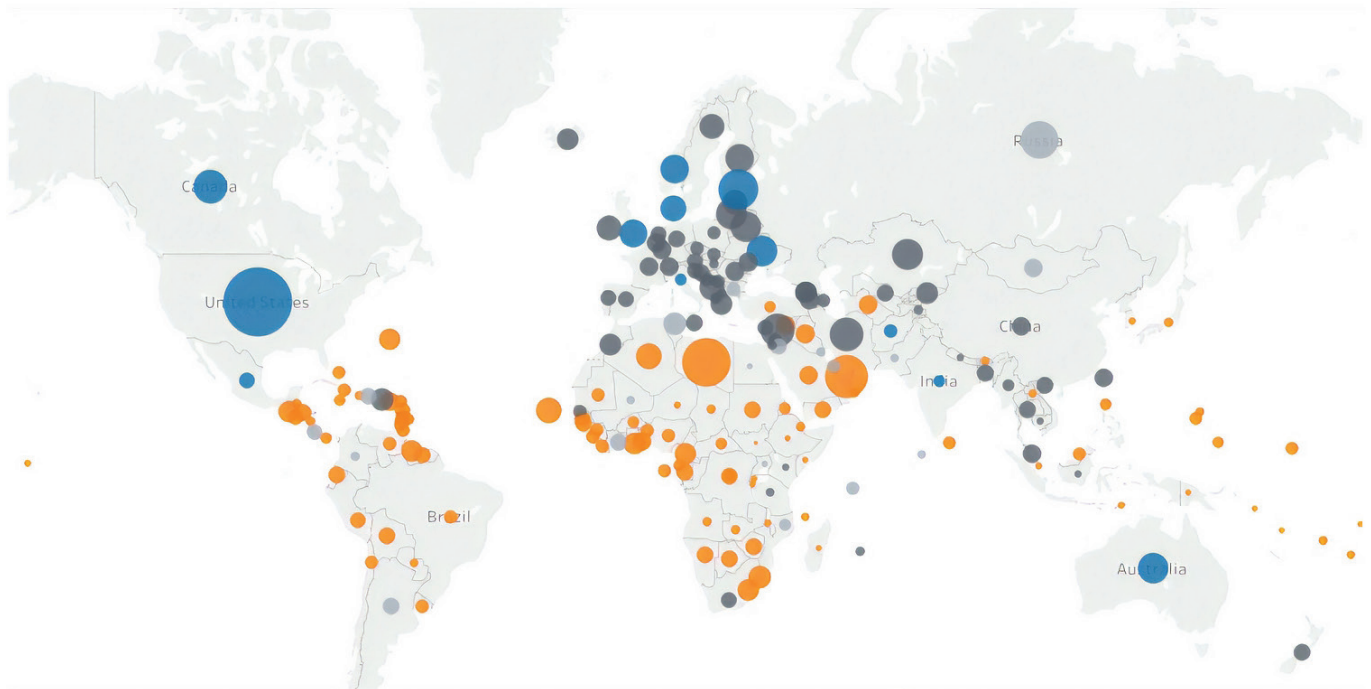
Visualization of Global Opioid Use Disorder Rates Based on Harm Reduction Availability

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For the past two decades, the United States has seen a dramatic increase in opioid overdose rates. The U.S. government has taken a supply-reduction approach to tackle this public health crisis, increasing the restrictions to access opioid prescriptions and strengthening law enforcement against the illicit market. However, this punitive approach has indirectly turned dependent users to more harmful drugs, such as fentanyl. This public health issue needs an integrative policy that includes prevention, treatment, and education. Alternative strategies—harm reduction—have been spreading globally to reduce the harms associated with drug use, instead of punishing users. These alternative strategies are shown to decrease infectious diseases and overdose rates. However, according to Harm Reduction International, the implementation of these practices faces many challenges, such as lack of funding, accessibility, and stigma against drug users.

This project aims to develop a visual dashboard that will inform future research questions, provide insight for policymakers, ignite discussion, and raise public awareness. In this research, the dashboard is created using Tableau visualization software. To date, we have been able to visualize the comparisons of opioid-related death rates from 1990 to 2017, availability of harm reduction programs, and the socio-demographic index (SDI) of 195 countries. The interactive features of the visualizations allow users to get personalized insights. Further research aims to collect more data on the harm reduction status on a county/state level to give detailed insight on where the programs are in demand. Future implications will include developing web-based platforms to make it shareable and accessible to the public.

Research advisor Vetricia Byrd writes: “Soyol’s research examines the opioid crisis from a different perspective. Using data visualization principles and visual analytics to uncover new insights into a global problem will help inform stakeholders, at all levels, who are in positions to impact and implement change.”



Region1	Year	Program availability	SDI Highlighter	Death per 100'000
All	2017	<ul style="list-style-type: none"> ■ Both+Naloxone ■ NSP & OST ■ NSP or OST ■ None 	<ul style="list-style-type: none"> □ High SDI □ High-middle SDI □ Middle SDI □ Low-middle SDI □ Low SDI 	<ul style="list-style-type: none"> 0.06 5.00 10.00 14.57
Location	All			

The dashboard produced in this project is an interactive visualization where users can filter specific region/location and year of interest and highlight SDI regions. This image provides a snapshot of opioid-related death rates and harm reduction availability in 2017. Size shows deaths from opioid use disorders per 100,000 in a selected year. Colors represent which harm reductions are available.