

# 2021 NASCIO Nomination

**PROJECT TITLE:** Opioid Open Data Dashboard Project

**CATEGORY:** Data Management, Analytics & Visualization

**STATE:** Commonwealth of Pennsylvania

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**PROJECT INITIATION:** March 2018

**PROJECT END:** December 2020

## EXECUTIVE SUMMARY:

The misuse of prescription and illicit opioids has ravaged communities across America, with Pennsylvania ranking among the hardest hit states. From the third quarter of 2016 to the third quarter of 2017, emergency room visits due to opioid overdoses increased by 80.6 percent. Pennsylvania had 5,456 fatal drug overdoses in 2017, a 65 percent increase since 2015, and fentanyl and other synthetic opioids were found to be increasingly responsible. The Kaiser Family Foundation’s analysis of data from the Centers for Disease Control and Prevention indicated that the age-adjusted rate of opioid overdose deaths in the state was 21.2 deaths per 100,000 people in 2017, compared to 14.9 deaths per 100,000 people in the United States as a whole. Pennsylvania ranked third in the U.S. for heroin use and seventh for overdose deaths; 47 percent of all drug overdose deaths were attributed to opioids.

On January 10, 2018, Pennsylvania Governor Tom Wolf signed a heroin and opioid disaster declaration to focus and intensify the state’s response to the opioid epidemic. A key component of this order was the formation of a Command Center comprised of state agencies to coordinate Pennsylvania’s response efforts. Shortly after, Pennsylvania launched an Opioid Data Dashboard (“Dashboard”) on the Commonwealth’s Open Data platform to communicate with local governments and the public about the opioid crisis and its effects on the state: <https://data.pa.gov/stories/s/9q45-nckt/>.

The Dashboard employs data storytelling technology to display a variety of opioid-related data at the state and county levels, as well as providing links to resources such as a statewide treatment locator. Maps and visualizations present metrics for county and state trends over time. As of December 2020, the amount of information available through the Dashboard has grown to 65 datasets, 135 data visualizations, and 46 interactive geospatial maps. It has been accessed approximately 2,300 times each month since its March 2018 launch.

Data and content provided by the Dashboard has assisted the Command Center to be successful in all of the impact measures in the PA Opioid Command Center Strategic Plan 2020—2023 (<https://www.governor.pa.gov/wp-content/uploads/2020/07/OCCStrategicPlan.pdf>), including a decrease in certain communicable diseases, decrease in overdose deaths, and enhanced supports for individuals struggling with addiction.

Additionally, Dashboard data has been leveraged to:

- help health care providers safely prescribe controlled substances and aid patients in getting the treatment they need
- understand differences across the state as well as at the county level – something that was not possible prior to the Dashboard
- improve and expand overdose prevention and response efforts
- identify counties who have experienced an increase in overdoses from 2019 to 2020

The Dashboard has also encouraged new and innovative thinking about the opioid crisis in Pennsylvania. The state hosted a code-a-thon (Code4PA) in the Fall of 2018 at four universities across the state, during which over 400 researchers, programmers, students, and others across 28 teams sought to display the opioid-related data provided by the Dashboard to identify and create applications that could help address the state’s opioid epidemic.

Pennsylvania hopes to continue to use geospatial maps on the Dashboard in tandem with other data systems, such as the Pennsylvania State Police’s Overdose Information Network (ODIN) system, to support innovative prevention, rescue, and treatment approaches by law enforcement and local and state governments.

The COVID-19 pandemic has layered a public health emergency on top of a public health crisis. This dynamic has exacerbated the opioid epidemic and brought new challenges to the response. The Dashboard will continue to be an integral tool in Pennsylvania’s ongoing battle to reduce opioid deaths, addiction, and overdoses.

### **IDEA:**

In 2016, Governor Wolf signed an executive order directing the establishment of an enterprise open data program and for state agencies to publish open datasets to a centralized portal. The administration recognized the value of data as an asset and its incredible potential to inform decision-making; improve understanding of complex issues; support research, innovation and community engagement; and improve public trust through enhanced transparency. Prior to this order, datasets were published across a multitude of agency websites, often in the form of static charts and tables in annual reports and similar publications.

When the Governor signed the statewide disaster declaration to address the opioid epidemic, the administration and the newly created Command Center made data-driven decision making and collaboration across jurisdictional boundaries central tenets of its work. Creating a Data dashboard and publishing open data enabled the Command Center to meet both objectives.

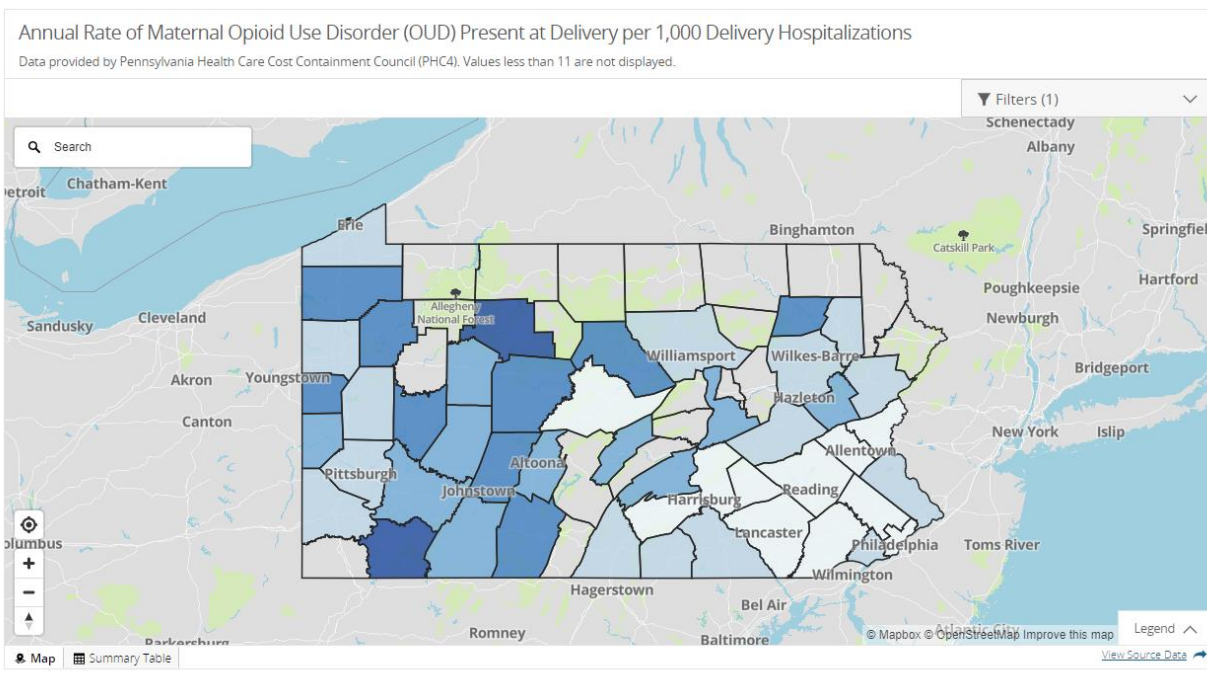
The Command Center continually utilizes the content, datasets, visualizations, and geospatial maps provided through the Dashboard to drive discussion and decision-making processes.

### **IMPLEMENTATION:**

The first iteration of the Dashboard was organized into three sections: Prevention, Rescue, and Treatment. A second iteration of the Dashboard recategorized these sections into Preventing Addiction, Saving Lives, and Getting People into Treatment. In its current iteration, the Dashboard has also added the sections of Get Help Now, Community Impacts, Learn More About Opioids, and View Source Data.



- **Preventing Addiction:** Provides information on the state’s Prescription Drug Monitoring Program and displays county-level data on opioid dispensations and prescriptions, opioid seizures and arrests, and prescription drug take-back locations.
- **Saving Lives:** Focuses on the availability of Naloxone to first responders and the public. This section provides county-level data and maps showing Naloxone administrations by emergency medical services (EMS) providers and trend data related to calls to the drug and alcohol treatment Get Help Now hotline. Additionally, it includes a map where individuals can obtain Naloxone.
- **Getting People into Treatment:** Shows the locations and contact information for drug and alcohol treatment facilities and provides the names and contact information for Single County Authorities which can assist individuals in finding treatment providers.
- **Get Help Now:** Links to information about treatment resources such as provider treatment options, Naloxone sites, drug take-back sites, and insurance assistance.
- **Community Impacts:** Shows the impact of opioids on families and children, the economy, the criminal justice system, and other opioid-related diseases (e.g., neonatal abstinence syndrome, hepatitis C, HIV).
- **Learn More About Opioids:** Connects users to other resources and data such as county and city public health and human services departments.
- **View Source Data:** Takes visitors to the Open Data PA platform, from which they can export datasets for their own analyses and create maps and charts for their specific needs.



Source: PA Opioid Data Dashboard, Community Impact, Annual Rate of Maternal Opioid Use Disorder (OUD) Present at Delivery per 1,000 Delivery Hospitalization.

Each section of the Dashboard provides an account of the opioid crisis through text, maps, charts, and links to other resources. Examples of datasets and visualizations made available through the Dashboard include:

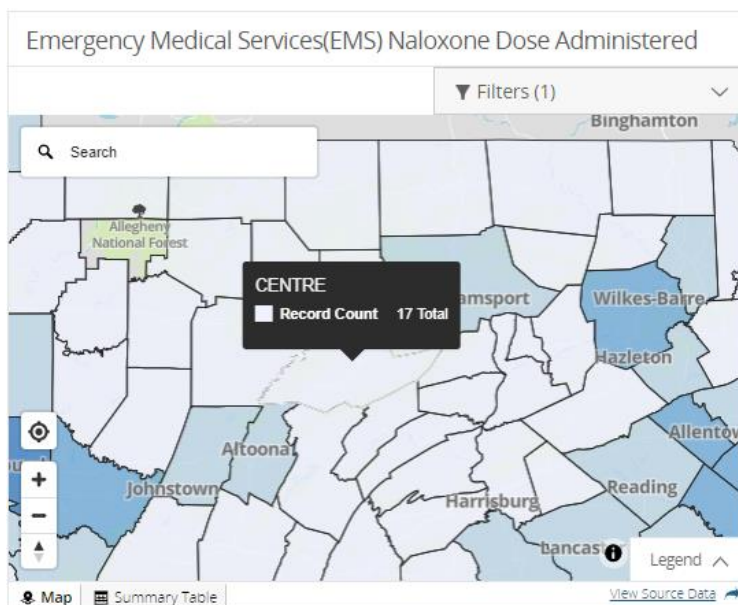
- **Risky Prescribing Measures, Quarter 3 2016 to Current, County & Statewide:** Shows quarterly trends in Risky Prescribing Measures, including Number/Rate of Individuals Seeing Prescribers and Dispensers, Number/Rate of Individuals with an Average Daily morphine milligram equivalents (MME), and Number/Rate of Individuals with Overlapping Opioid/Benzodiazepine Prescriptions.
- **Estimated Accidental and Undetermined Drug Overdose Deaths, 2012 to Current:** Displays annual counts of Accidental or Undetermined overdose deaths for 2012 forward, including provisional estimates of annual counts of overdose deaths for recent years.
- **Map for Emergency Medical Services (EMS) Naloxone Doses Administered:** Shows the number of doses of Naloxone administered throughout the Pennsylvania by county. Data is updated quarterly, starting with the first quarter of calendar year 2018.
- **Amount of Drug Seized by County, 2013 to Current:** Interactive bar graph depicts the quantity of opioids, in kilograms, seized by the Pennsylvania State Police quarterly, by county.
- **ED Visits Line Chart - Emergency Department (ED) Visits for Overdose Identified Through Syndromic Surveillance, 2016 Q3 to Current:** Line chart showing trends in overdose rates for Any Drug Overdoses, any Opioid Overdoses, and Heroin Overdoses at the state and county level.

## IMPACT:

### Improved Communication

Maps and other visual displays of opioid-related data have facilitated communication between state policymakers, community leaders, journalists, and the public about the opioid crisis. Accompanied by detailed narratives, the maps and visualizations tell the story of the epidemic and enable the state to show its progress and ongoing challenges in addressing the crisis. The Dashboard is an online resource for information about the problems of opioid use, misuse, and abuse. It has been accessed approximately 2,300 times each month since its March 2018 launch. Visits to the Dashboard are expected to continue to increase as more content is added, especially the Community Impact sections of the website. In addition, the Command Center uses the Dashboard to discuss data more often and in greater detail. For example, it can consider differences across the state as well as at the county level – something that was not possible prior to the Dashboard.

The Office of Drug Surveillance and Misuse Prevention (ODSMP), formerly known as



Source: PA Opioid Data Dashboard, Saving Lives, EMS Naloxone Doses Administered

the Prescription Drug Monitoring Program (PDMP) Office, works to help health care providers safely prescribe controlled substances and aid patients in getting the treatment they need. The ODSMP utilizes datasets provided on the Dashboard to work with local stakeholders to improve and expand overdose prevention and response efforts. The ODSMP has combined several metrics provided on the Dashboard, including EMS Naloxone administrations, emergency department visits, and deaths related to over the counter, prescription, or illicit drug overdoses (excluding alcohol-only related ED visits and deaths) to identify counties that have experienced an increase in overdoses from 2019 to 2020. Specifically, the ODSMP has performed the following analyses using datasets provided on the Dashboard.

- **Fatal and non-fatal any drug overdose hot spot maps**
  - Combines EMS Naloxone administrations; emergency department visits; and deaths related to over the counter, prescription, or illicit drug overdoses (excluding alcohol-only related ED visits and deaths). ED/EMS data as of August 2020; Death data as of November 2020.
  - Method: Percent change was calculated for each individual metric and counties were ranked based on percent change, with the highest percent change given a rank score of 1. The rank score for all three metrics, as well as a rank score for population, were added together for a final score, which was then ranked from worst (lowest total rank score) to best (highest total rank score).
- **Fatal and non-fatal any opioid overdose hot spot maps**
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  - Method: Percent change was calculated for each individual metric and counties were ranked based on percent change, with the highest percent change given a rank score of 1. The rank score for all three metrics, as well as a rank score for county population, were added together for a final score, which was then ranked from worst (lowest total rank score) to best (highest total rank score).

ODSMP is working with local opioid task forces, as well as public health and public safety stakeholders (e.g., local health departments, single county authorities, hospital/health system personnel, local government, etc.) to disseminate analysis outcomes such as the ones described above and to assist in localized prevention and response efforts.

#### **Awareness and Informed Decision Making**

Geospatial data mapping uses sophisticated software that analyzes data about geographical databases and provides computerized data to create custom maps. Through geospatial mapping, state and local officials, including those in the Command Center, can see where prevention, rescue, and treatment efforts are most needed.

By displaying county-level data on maps, gaps and needs for services are readily apparent through the visual representation of counties where there are few treatment facilities or areas where opioid-related deaths or seizures are highest. Geospatial data informs Command Center discussions and state and community planning. The Dashboard also gives the public and local governments current or recent data about the opioid epidemic.

Data awareness around opioid related diseases is also being promoted by federal agencies such as the HHS Office of the Assistant Secretary for Health (OASH), which has cited Pennsylvania as a state partner on its HIV website (<https://www.hiv.gov/federal-response/policies-issues/facilitating-expansion-of-ssps>). OASH has also provided linking from its website to pertinent opioid related impact sources and syringe services programs on Pennsylvania's Opioid Data Dashboard.

An example of how content and data provided on the Dashboard drove decisions for legislative change would be public data detailed on the Impacts on Opioid Related Diseases page of the Dashboard (<https://data.pa.gov/stories/s/fuzw-6yrs>) being used to advocate for Sterile Syringe Program (SSP) legislation.

The SSP working group used Dashboard content and datasets such as links to CDC syringe service program fact pages, established SSP programs in the U.S., opioid impacts on raising HIV and/or Hepatitis C risks, etc. as reference material, educational packets, and discussion topics in meetings with elected officials, leadership in the state House, Governor's office, and other parties due to the consistency, availability, and messaging of the information provided through the Dashboard.

Data and content provided by the Dashboard has assisted the Command Center to be successful in all of the impact measures listed on page six of Governor Wolf's PA Opioid Command Center Strategic Plan 2020—2023 (<https://www.governor.pa.gov/wp-content/uploads/2020/07/OCCStrategicPlan.pdf>). The public health accomplishments derived from the Opioid Command Center include decrease in certain communicable diseases, decrease in overdose deaths, and enhanced supports for individuals struggling with addiction. The Command Center has adopted data-driven decision making as a core value of the group and utilizes the dashboard in making evidence and data-informed decisions.

### **Innovation**

Making opioid-related data available on the Dashboard through the Commonwealth's Open Data platform encourages new and innovative thinking about the opioid crisis in Pennsylvania. The state hosted a code-a-thon (Code4PA) in the Fall of 2018 at four universities across the state, during which over 400 researchers, programmers, students, and others across 28 teams sought to display the opioid-related data provided by the Dashboard to identify and create applications that could help address the state's opioid epidemic.

Pennsylvania also hopes to continue to use geospatial maps on the Dashboard in tandem with other data systems, such as the Pennsylvania State Police's Overdose Information Network (ODIN) system, to support innovative prevention, rescue, and treatment approaches by law enforcement and local and state governments. Further, the Commonwealth's Open Data platform enables anyone to download datasets for their own analyses and use the data to create their own visualizations with the support of external BI/analytics tools, such as Tableau, Carto, and Excel. This capability sparks new strategies and approaches to tackle the state's opioid crisis.

The data and content chronicled on the Dashboard have shifted Pennsylvania's focus from immediate crisis response to long-term sustainability and allow for long-lasting policy actions to prevent further negative outcomes and the development of a comprehensive infrastructure to help individuals with addiction and their families. There will be opportunities for enhanced outcomes and further success through bridging these gaps.