

Confronting an Epidemic: Opioid Overdose Prevention in Pennsylvania

State Epidemiological Outcomes Workgroup, 2016

BACKGROUND

Since the early 2000s, opioid-related overdose deaths have increased drastically in the United States. In 2011, the Centers for Disease Control and Prevention (CDC) declared prescription drug overdose an epidemic [1]. Today, five years later, not only are prescription-drug-related overdoses still on the rise, but so are heroin overdose deaths, as users transition from prescription painkillers to heroin as a less expensive alternative [1].

In 2012, the rate of residents dependent on or abusing opioids, 10.3 Pennsylvanians per 100,000 population, exceeded the national average of 8.3 residents per 100,000 population [2]. In Pennsylvania, the opioid story unfortunately mirrors the nationwide story. Pennsylvania has the 8th highest rate of drug overdose deaths in the nation and presently leads the nation in opioid overdose deaths among 18-24 year-old males [1, 3]. Numerically, a total of 2,732 drug overdose deaths occurred in 2014, which was a 13% increase from 2013 [1].

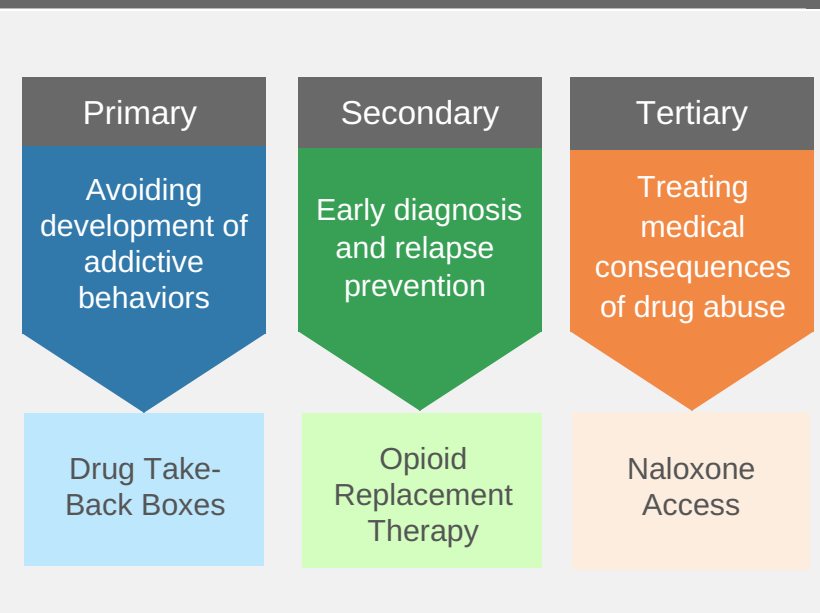
DATA

While considering prescription drug overdose and its prevention, the SEOW identified the following indicators as relevant and necessary to report on: overdose deaths, drug take-back boxes, opioid replacement therapy, availability of naloxone, and naloxone reversals. These indicators were chosen in order to cover all three levels of prevention; primary, secondary, and tertiary, presented to the right in **Figure 1**. Data for this brief were obtained from the Department of Drug and Alcohol Programs (DDAP), the Drug Enforcement Administration - Philadelphia Field Division (DEA), and SAMHSA.

SEOW

The State Epidemiological Outcomes Workgroup (SEOW) was revitalized through the Pennsylvania Strategic Prevention Framework - Partnerships for Success (SPF-PFS) grant, funded through the Substance Abuse and Mental Health Services Administration (SAMHSA); a substance abuse prevention initiative. The Pennsylvania SPF-PFS grant specifically addresses underage drinking and prescription drug abuse and misuse. The goal of the SEOW is to inform and enhance state and community decisions regarding substance abuse and mental illness prevention programs, practices, and policies. Through this data brief, the SEOW aims to provide a current snapshot of opioid overdose deaths and available resources for the prevention of opioid overdose deaths in the Commonwealth of Pennsylvania, as well as to provide recommendations to stakeholders dedicated to preventing this growing epidemic.

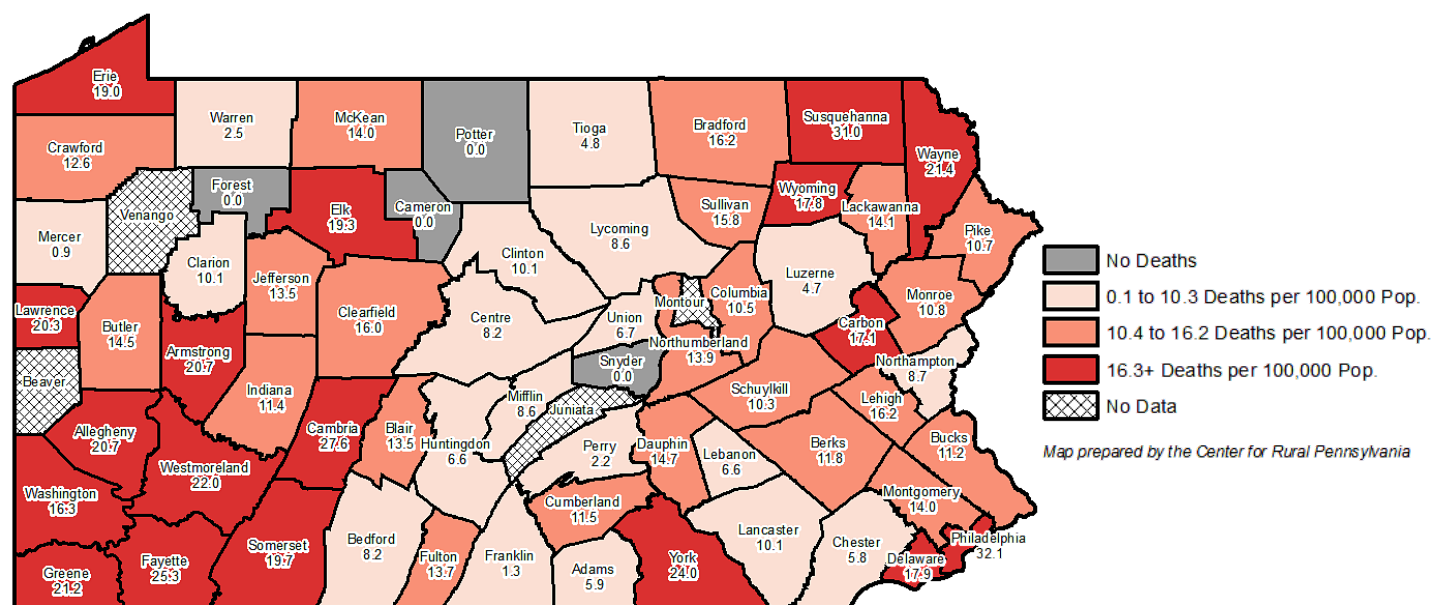
Figure 1. Opioid overdose prevention data used in this report.



The maps and tables in this report display county rates for each of the overdose and prevention indicators, calculated based on county populations. Counties are color-coded based on their indicator rate. The highest third of opioid-related overdose deaths, drug take-back boxes, and naloxone availability are indicated by the darkest shade of their assigned colors, with the middle and lower third of rates indicated with lighter shading, respectively. Mapping of opioid replacement treatment (ORT), in contrast, was not based on rate, but whether or not one, both, or neither form of ORT is presently available in a county.

OVERDOSE DEATHS

Map 1. Rate of reported overdose deaths with any opioid present per 100,000 population, by county, for the Commonwealth of Pennsylvania, 2014, *PA State Epidemiological Outcomes Workgroup*.



Data Source: Drug Enforcement Administration - Philadelphia Field Division

Map 1 shows all overdose deaths where at least one opioid was present, including, but not limited to, prescription painkillers and heroin. Counties shaded dark red are in the highest third of opioid-related overdose deaths for Pennsylvania. These data include both unintentional and intentional overdose deaths. Clustering of higher rates of opioid-related overdose deaths appear in and around the urban counties, Philadelphia and Allegheny, as well as the more rural northeast region of the state. **Table 1** below shows the counties with top numbers and per capita rates of opioid-related overdose deaths.

Table 1. Top 5 Pennsylvania counties in number of opioid-related overdose deaths and rates of opioid-related overdose deaths, 2014, *PA State Epidemiological Outcomes Workgroup*.

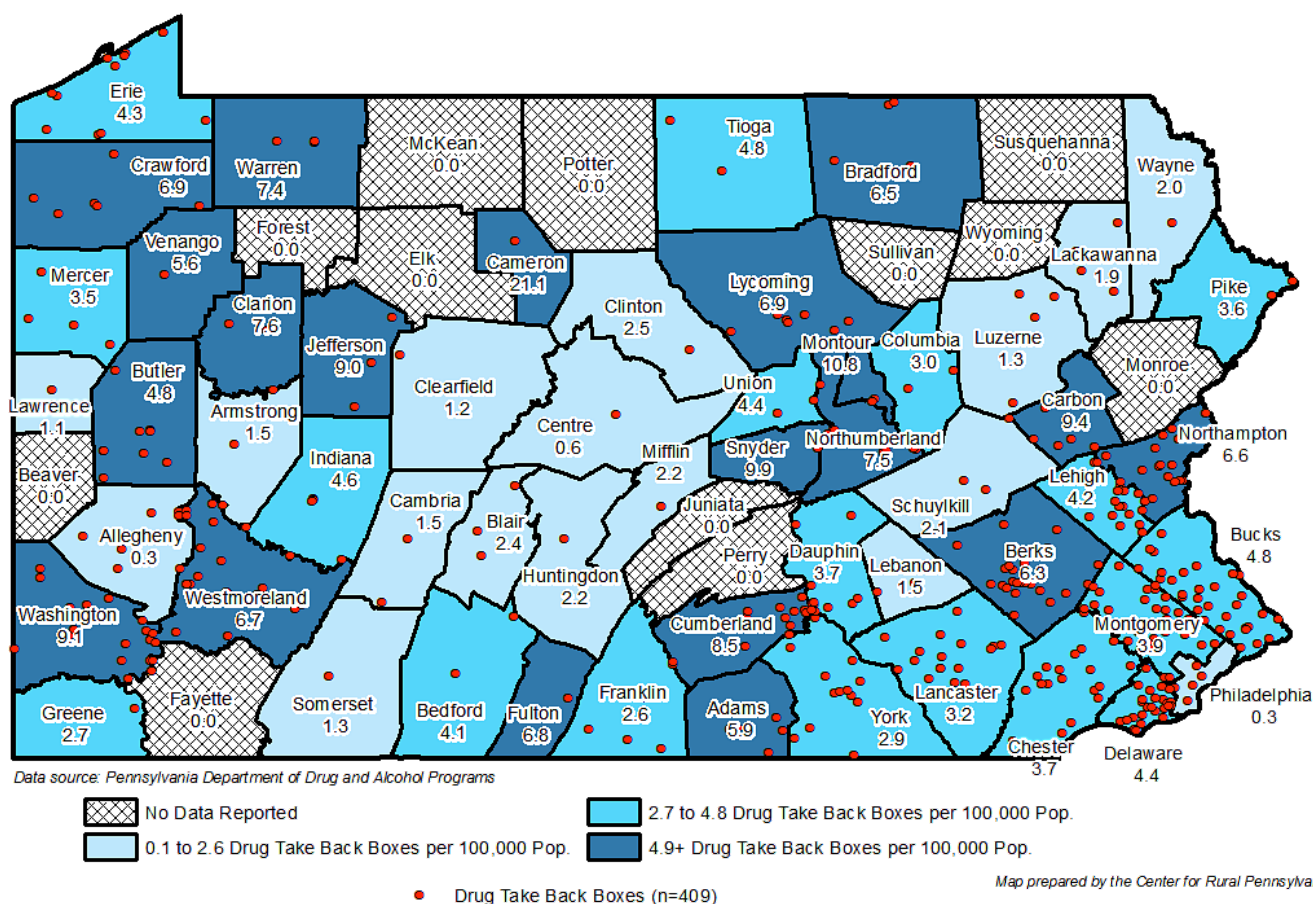
Rank	County	Number	Rank	County	Rate per 100,000
1	Philadelphia	502	1	Philadelphia	32.1
2	Allegheny	255	2	Susquehanna	31.0
3	Montgomery	114	3	Cambria	27.6
4	York	106	4	Fayette	25.3
5	Delaware	101	5	York	24.0

DRUG TAKE-BACK BOX LOCATIONS (Primary Prevention)

In 2013, nearly 2 million Americans age 12 or older misused a prescription drug for the first time [4]. This equates to about 5,500 new users per day. As many as 53% of people age 12 or older who reported misuse of prescription drugs obtained them from a friend or relative for free, while an additional 14.6% bought or took them from a friend or relative [5]. Though varying greatly and hard to quantify, it is estimated that between 2% and 45% of prescription drugs dispensed remain unused, lending to a major source of available drugs for misuse and abuse [6, 7].

Drug take-back boxes are secure, permanent collection units installed throughout Pennsylvania with the sole purpose of collecting unwanted prescription medications. These take-back boxes provide residents with a convenient, safe, and confidential method to dispose of unwanted prescription drugs, thus limiting availability and access [6, 7].

Map 2. Approximate locations and rate per 100,000 of drug take-back boxes in the Commonwealth of Pennsylvania, March 2016, *PA State Epidemiological Outcomes Workgroup*.

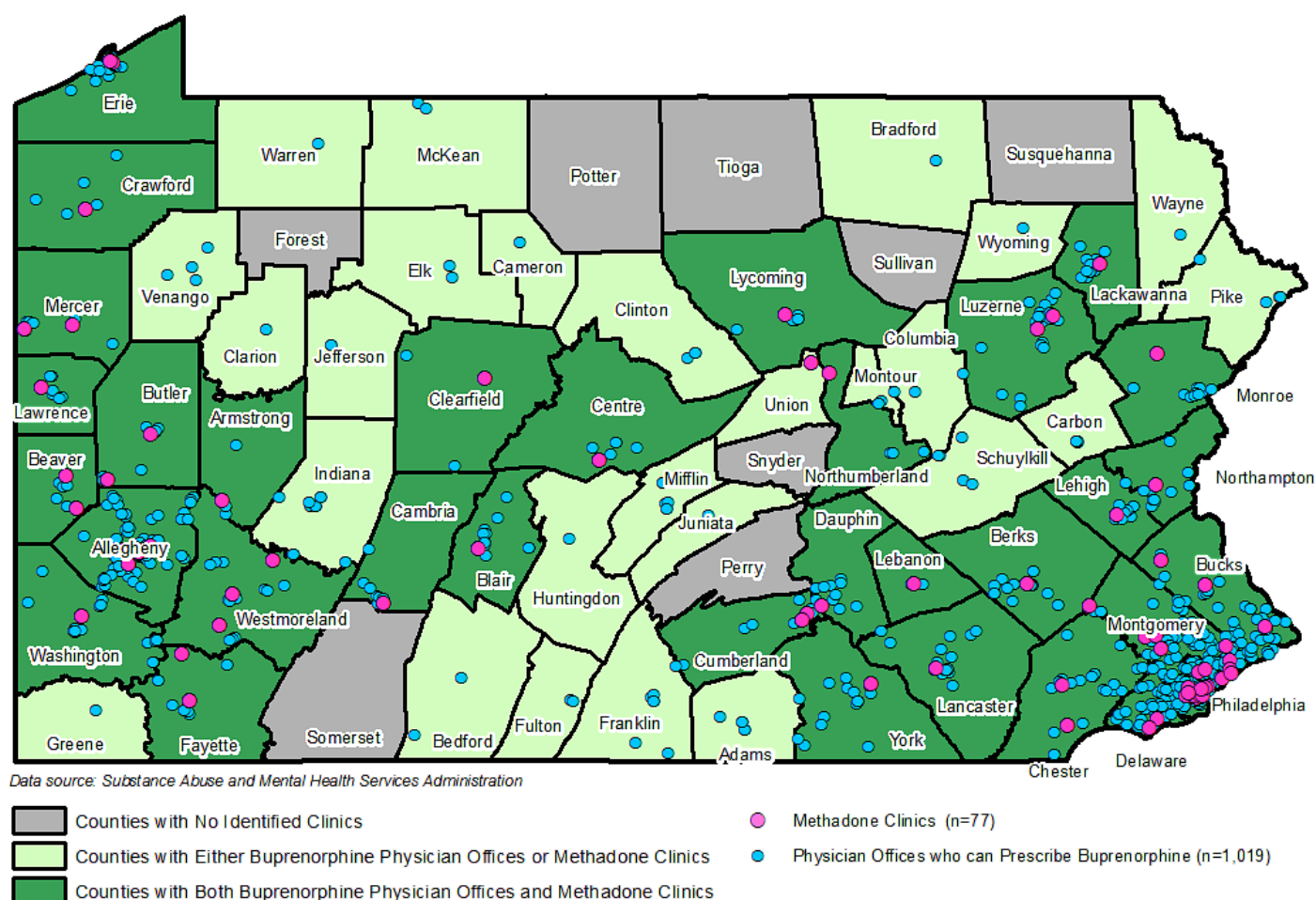


Map 2 shows the approximate locations of reported permanent Drug take-back boxes, designated by red points, throughout the state, as well as per capita rates of these receptacles. Notably, Philadelphia and Allegheny Counties, the two counties with the highest number of opioid overdose deaths, have the lowest rates of take-back boxes. Areas immediately surrounding these and other urban centers have large concentrations of Drug Take-Back Boxes, while other large areas have limited or no availability.

OPIOID REPLACEMENT THERAPY LOCATIONS (Secondary Prevention)

Opioid replacement therapy (ORT), displayed here in the forms of methadone and buprenorphine, is known to decrease the risk for fatal overdose among opioid users [8, 9]. Methadone, dispensed in an outpatient clinic setting, and buprenorphine, prescribed by authorized physicians, also increase the likelihood that a patient successfully maintains a longer period of sobriety, as well as improved productivity and quality of life.

Map 3. Opioid replacement therapy availability in the Commonwealth of Pennsylvania: Approximate locations of physicians' offices who can prescribe buprenorphine, locations of methadone clinics, and availability by county, March 2016, *PA State Epidemiological Outcomes Workgroup*.



Map prepared by the Center for Rural Pennsylvania

In **Map 3**, clustering of ORT availability is visible around urban centers, as well as smaller cities, including Harrisburg, Reading, Scranton, Wilkes-Barre, Allentown, and Erie areas. Conversely, an observable lack of ORT services emerges in the north central and northeast regions of the state.

Naloxone, commonly referred to by its brand name Narcan®, is an opioid antagonist that can quickly and safely reverse an active overdose. It can be administered through either intramuscular injection or intranasal mist. Implemented in November 2014, Pennsylvania Act 139, in part, aimed to increase availability and accessibility of naloxone to laypersons [10]. Through the provision of a standing pharmacy order, any individual seeking naloxone is now legally able to obtain the rescue drug at any pharmacy stocking the drug [10].

[illegible]

In **Map 4**, points represent the approximate locations of naloxone availability via police departments and pharmacies carrying the drug. Combined, these services were used to calculate a per capita rate of naloxone availability for each county. Similar to ORT, clustering of naloxone availability is around urban centers, eastern & western portions of state; in Philadelphia: a high number of naloxone availability is observed, but the rate is low.

OVERDOSE REVERSALS WITH NALOXONE BY LAW ENFORCEMENT

Act 139 also aimed to provide a greater number of law enforcement officers (LEOs) with naloxone as a means to increase availability of the rescue drug in overdose situations [10]. Frequently, LEOs are the first responders on the scene of an overdose, but are unequipped with naloxone [11]. By encouraging local police departments statewide to carry naloxone, Act 139 seeks to improve the likelihood that first responders arriving to the scene of an overdose can administer naloxone and thus, save a greater number of lives.

Table 2. Reported overdose reversals for the Commonwealth of Pennsylvania by police with naloxone in the period November 2014 to June 2016, *PA State Epidemiological Outcomes Workgroup*.

County	Number of Reversals	County	Number of Reversals	County	Number of Reversals	County	Number of Reversals
Adams	1	Chester	53	Lackawanna	26	Schuylkill	2
Allegheny	15	Cumberland	10	Lancaster	62	Washington	41
Armstrong	1	Dauphin	13	Lebanon	3	Westmoreland	2
Berks	3	Delaware	260	Lehigh	3	York	185
Bucks	84	Erie	6	Luzerne	11	*State Police	26
Butler	7	Franklin	8	Montgomery	57		
Carbon	22	Indiana	1	Philadelphia	132		
Total Overdose Reversals by Police: 1034							
Data Source: Pennsylvania Department of Drug and Alcohol Programs							

In **Table 2**, naloxone reversals administered by police are highest in the counties with the highest number of overdoses. This can be seen when referring back to overdose numbers in **Table 1**. The one exception to this is in Allegheny county which had 255 overdose deaths in 2014 compared to 15 reported reversals.

LIMITATIONS

The most important data limitation is a lack of standardized reporting. This may result in either over or under-reporting.

Over-reporting may be an issue when:

- Overdoses are incorrectly identified, but naloxone is still administered.
- Drug take-back box and take-back event outputs, commonly measured by total weight of drugs collected, include non-opioid prescription drugs.
- Pharmacies carrying naloxone may not have the drug presently stocked, resulting in a 24 to 48 hour wait to order and dispense the drug.

Under-reporting may be an issue when:

- Take-back box locations that are not reported to DDAP are not included in the list of locations.
- Police departments fail to record and/or report confirmed opioid overdose reversals; presently done on a voluntary basis.
- Police departments have naloxone available but have not reported that they carry the rescue drug.

The prevention indicators highlighted in this report do not represent an exhaustive list of overdose prevention approaches. Importantly, location of ORT services and drug take-back boxes provide information about availability of resources but are not a measure of access or utilization. New data to consider and collect for effective monitoring and planning include overdose reversals by EMTs and laypersons, quantity and type of drugs collected via take-back boxes, drugs collected at one day take-back events, and naloxone availability in public schools, per the recent Wolf Administration/Adapt Pharma partnership. As new prevention methods become available, such as implementation of Pennsylvania's new prescription drug monitoring program and awareness of different overdose prevention strategies such as naloxone administration training through community organizations, Pennsylvania will continue to make strides towards confronting the opioid epidemic.

Figure 2. Pennsylvania county-level overdose deaths and prevention indicators snapshot, 2016, PA State Epidemiological Outcomes Workgroup.

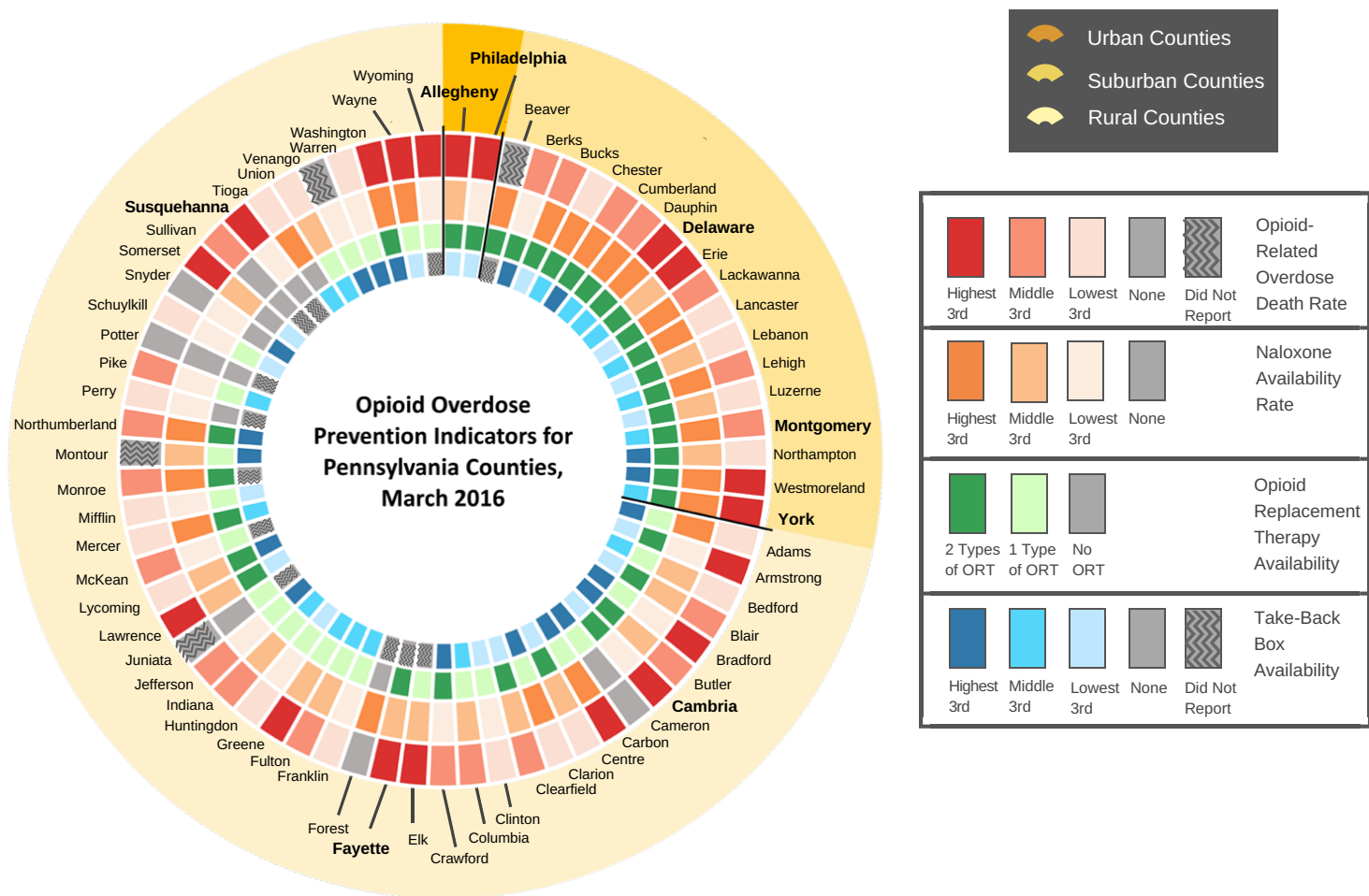


Figure 2 displays all of the indicators in this report for each county, including overdose deaths. Shading in the concentric rings correlates to the tertile rates, just as in the previous maps. The darker the shade, the higher the rate. Arranged by urban, suburban, and rural counties, the graphic displays a snapshot of prevention services among areas with similar population sizes. Urban, in this case is defined as having more than 1 million residents, suburban is defined as having a population density greater than the statewide density of 284 persons per square mile, and rural is defined as having a population density less than the statewide density of 284 persons per square mile [12]. **Bolded counties reflect counties with top numbers and rates of opioid-related overdose deaths as displayed previously in Table 1.** **Figure 2** shows that overall, many counties with high overdose rates are lacking the prevention resources needed to reduce overdose deaths, with the exception of Westmoreland and Washington counties. Understanding this need helps to identify gaps in services and areas for improvement regarding overdose prevention.

RECOMMENDATIONS

Based on the data presented in this report, the SEOW offers the following recommendations to strengthen the prevention of opioid overdose deaths in Pennsylvania:

1 Strengthen the quality of data collected related to opioid overdose.

Investing in standardized reporting techniques and building the capacity of those collecting data could greatly improve the quality of data related to opioid overdose and its prevention, effectively providing a more accurate picture of where Pennsylvania stands in addressing the opioid epidemic.

2 Focus on strategies that address every level of prevention.

Prevention services cannot be limited to a few approaches. Comprehensive strategies across primary, secondary, and tertiary prevention are key for reducing overdose deaths. Strategies could include implementing youth empowerment or leadership programs, connecting individuals who are early in dependence with substance abuse or mental health resources, and expanding naloxone availability with continued training as availability increases, respectively.

3 Tailor prevention strategies to meet the needs of diverse populations.

Pennsylvania is a diverse state both in terms of geography and demographics. Prevention strategies should reflect this diversity by addressing unique needs in rural, suburban, and urban environments, as well as being culturally and linguistically competent.

4 Support implementation of prescription monitoring programs.

A well-implemented prescription drug monitoring program can provide additional data on opioid prescribing trends and help healthcare professionals identify at-risk individuals in the early stages of dependence.

5 Continue to support harm reduction services.

Community organizations that provide harm reduction services play an integral role in overdose prevention, reaching a traditionally marginalized demographic, and provide essential social, medical, and public health services to people with substance use disorders.

6 Continue to support legislative successes.

The expansion of naloxone availability is largely contingent upon continued implementation of Act 139. Additionally, implementation of Pennsylvania's improved prescription drug monitoring program relies on the provisions of Act 191. Support of these laws promotes overdose prevention efforts statewide.

7 Reduce stigma related to substance abuse.

Working to reduce the stigma around substance abuse ultimately supports each of the previously mentioned recommendations. Ensuring that those experiencing substance dependence receive appropriate, quality care, and the necessary support and services to treat substance use disorder as a chronic disease.

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SUGGESTED CITATION

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