On the Edge of a Breakthrough

The Antidote to the Opioid Epidemic is Rooted in Data

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NASA put a man on the moon with 400,000 people and the computing power of approximately 4 calculators. That computing power = 1 Google search.

DIR Forum 2018 attendees w/ “Smart” phones and inherent ingenuity can solve societies complex problems.

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Opioid Crisis

Overview

174 Americans

die every day from an opioid overdose (including prescription opioids and heroin).

67,000

estimated overdose deaths in 2016.

$500 Billion

The estimated economic impact of prescription opioid dependence in 2014.

* 2016 CDC/New York Times “An Opioid Crisis Foretold April 2018.

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Opioid Crisis

Overview

300,000

people reported using heroin in the past year.

16.3%

increase in overdose deaths between June 2016 and June 2017.

90,000

estimated projected overdose deaths in 2025.

* 2016 CDC/New York Times “An Opioid Crisis Foretold April 2018.

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Opioid Crisis

Overview

2.6 Million+

Grandparents who take care of their grandchildren.

92,100

children placed in foster care in 2016.

21,000+

infants born with Neonatal Abstinence Syndrome in 2016.

* 2016 CDC/New York Times “An Opioid Crisis Foretold April 2018.

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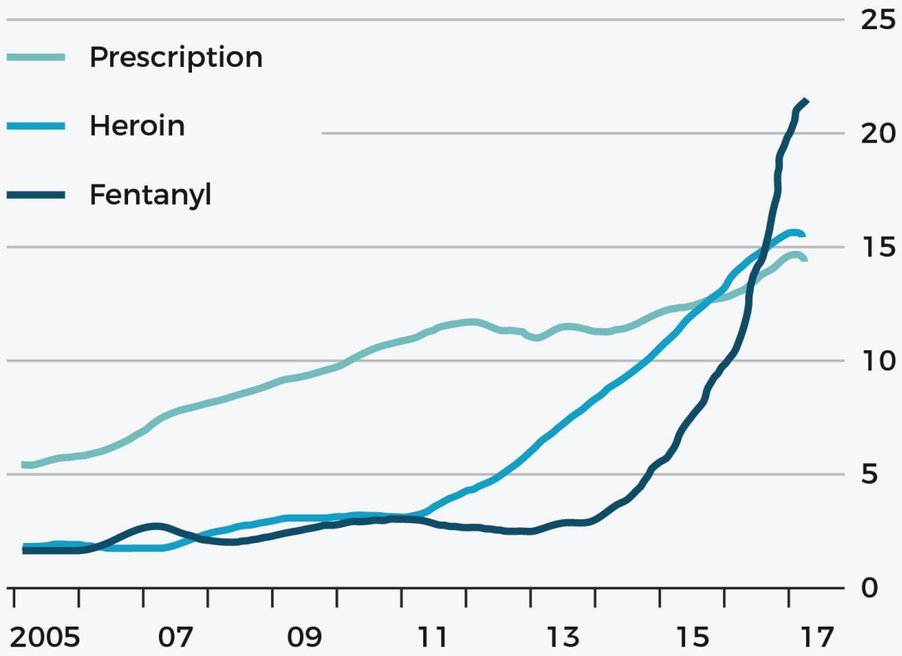
The needle...

United States, opioid-overdose deaths

By drug type, 12-month rolling total, '000

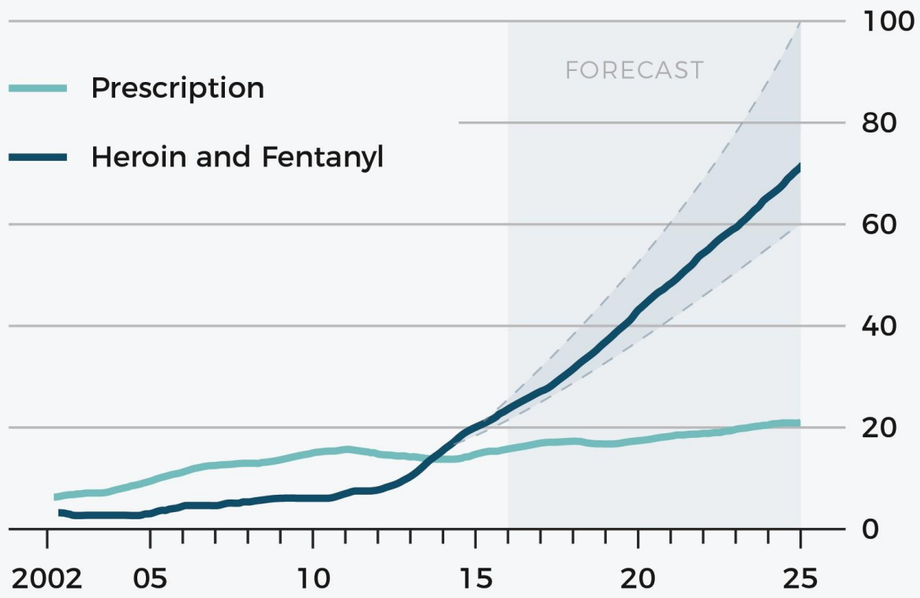


Source: Centres for Disease Control and Prevention

...and the damage done

United States, opioid-overdose deaths

By drug type, '000



Source: "A Dynamic Transmission DIsease Model of the Opioid Epidemic", by D. Sinclair, H. Jalal, M. Roberts & D. Burker, University of Pittsburgh 2017

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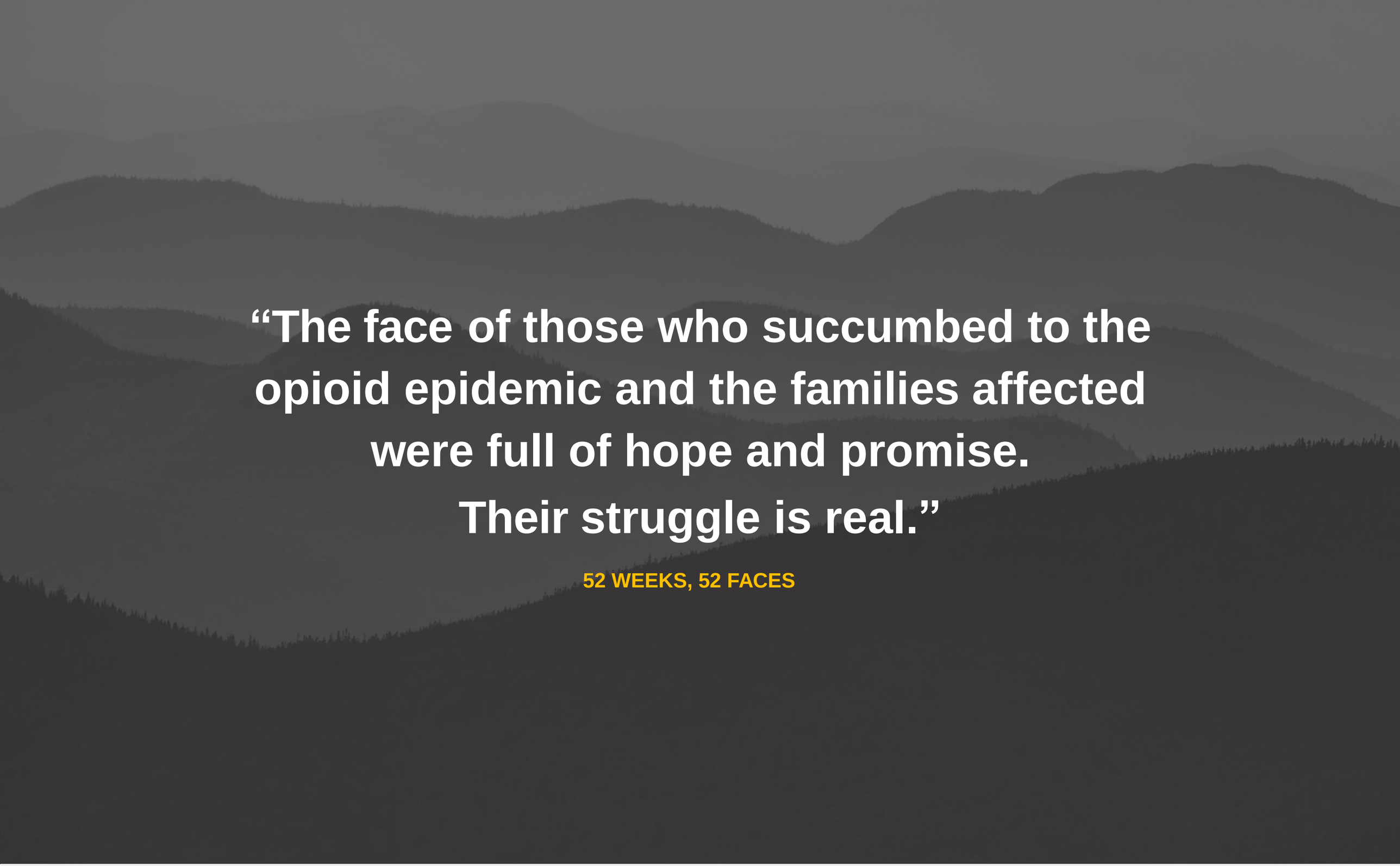

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Communities Devastated

“It’s an emotional pull in my heart when I look down and see my grandson... it brings me joy that he’s with me, but it brings me sadness because I know that something devastating went on for him to be with us.”

Cheryl Makin

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Social Impact of the Future

“It’s the cry, it’s so different from other infants. The cry will pierce your soul because it tells you how much pain these babies are in.”

Sherri Smith, RN

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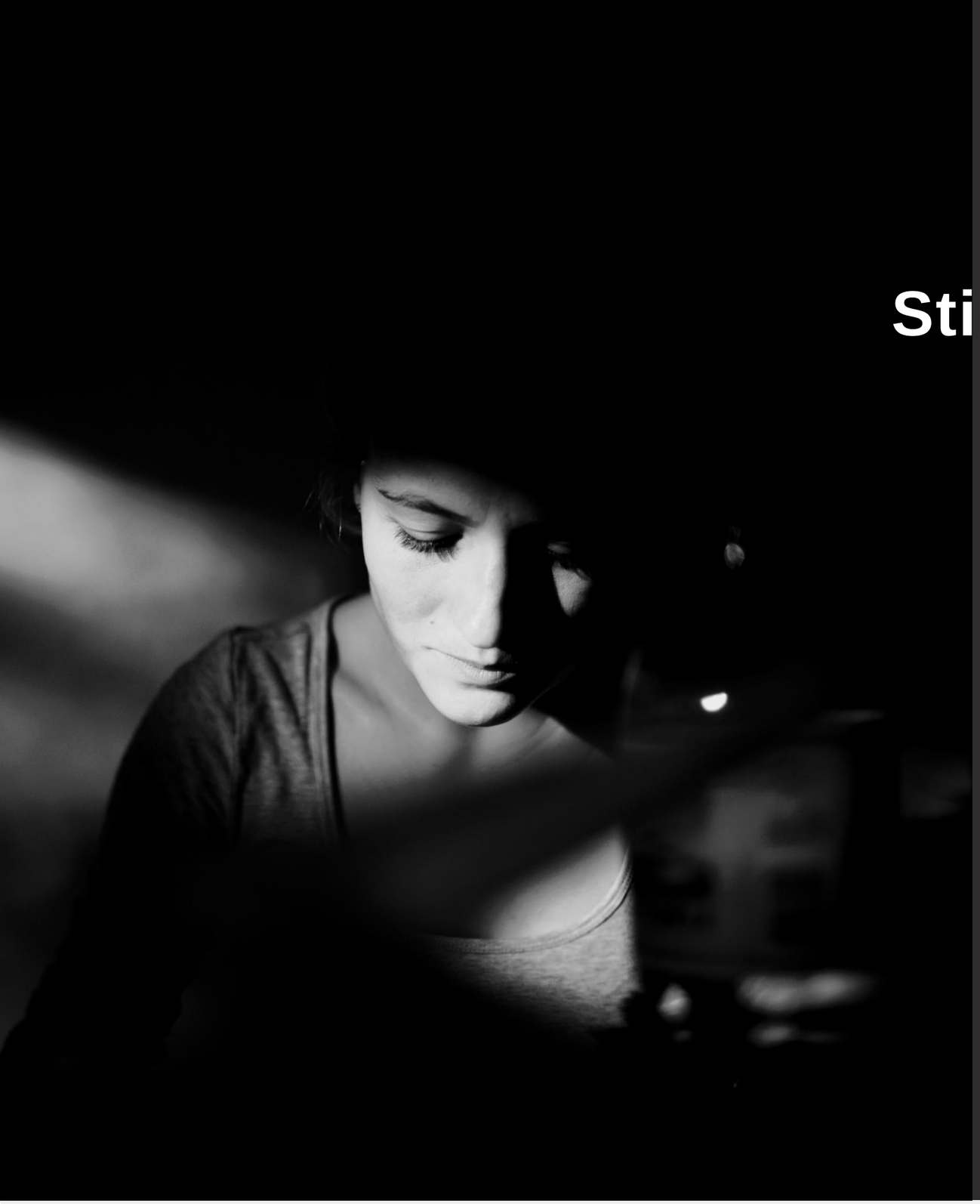

Stigma of Addiction

“Being an addict is not something I ever woke up and wanted to be. It’s not something that can be fixed overnight."

Anonymous

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Key Question

How can we empower state and local leaders to reduce opioid misuse, improve outcomes, and reduce the economic impact of addiction?

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Answer

By moving towards a comprehensive approach that focuses on insights that drive actions.

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Turning the Tide

Continuous Insight ⟶ Action

Measurement

Management

Mitigation

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Data Challenges

Where this data is located

Cleansing the data be
time consumig and can offer
no discernable insights

Significant barriers to data
due to policies.

Complex data can inhibit
getting to insights

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Medicaid, Public Health, and PDMP Data

Social Services

Foster Care and Public Assistance

Public Safety, Judicial and Corrections Data

Education Data

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New Data Mindset

• Data as a platform by bringing various quality data together.

• Develop consistency around information in order to answer specific questions.

• An ecosystem that has the ability to collaborate across entities.

• Develop rapid insight to drive actionable interventions

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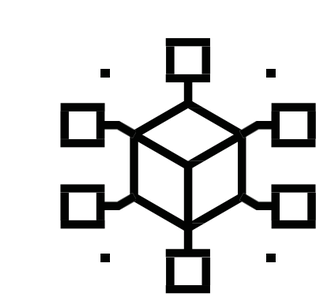
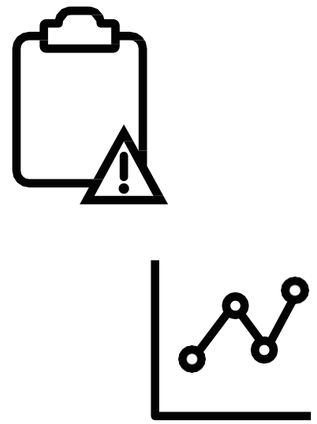
Linked 31 datasets across agencies to form a 360º view of the individual.



De-identification, Secure record linkage



Risk models. Red Flags, Alerts, Interventions

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DATA SHARING MINDSET

Ensuring Privacy

Platform Design

- Built considering HIPPA, FERPA, PHI, 1075, CJIS, and PCI requirements and regulations

Security Considerations

- Partnered with state CISO to leverage agency security and IT / CIO representation
- Develop comprehensive security plan

Privacy Considerations

- Continuous partnership with privacy office and legal counsel to establish standard processes for data-sharing agreements

Data Ownership

- Provide clarity, process and responsibilities for data ownership to remain with agency sources

Source: State Healthcare IT Connect Summit 2018, Deploying Analytics to Realize Accelerated Speed to Outcomes

Neonatal Abstinence Syndrome

The average **23 day** NICU stay can cost, on average, **$55,000 - $200,000** per episode.

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Metropolitan Area in Ohio

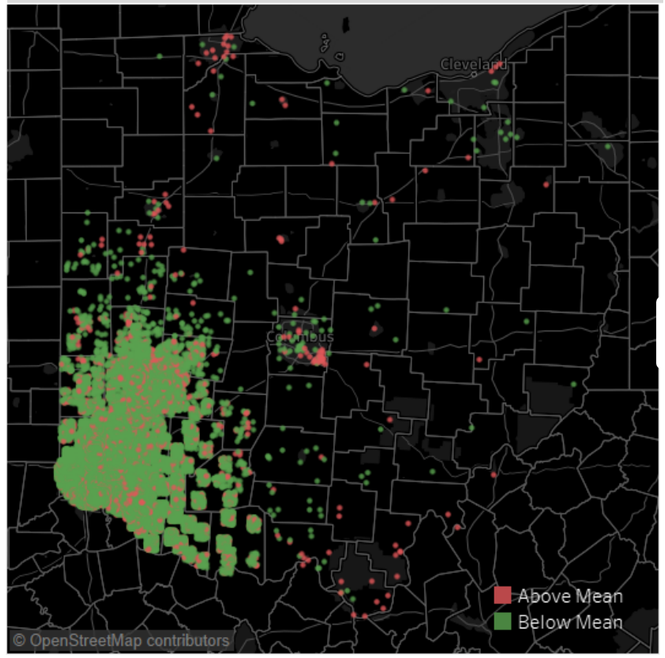
78,257
Births

Sex
M 39,914
F 38,343

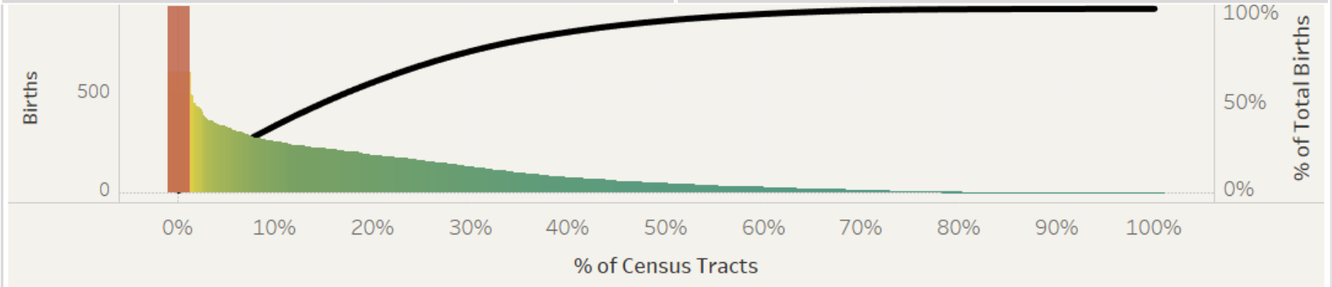
Neonatal Abstinence Syndrome
77,285 No
972 Yes

Infant Gestational Age Range
69,568 Not Pre-Term: > 36 Weeks
7,267 Moderately Pre-Term: 32-
1,422 Very Pre-Term: < 32 Weeks

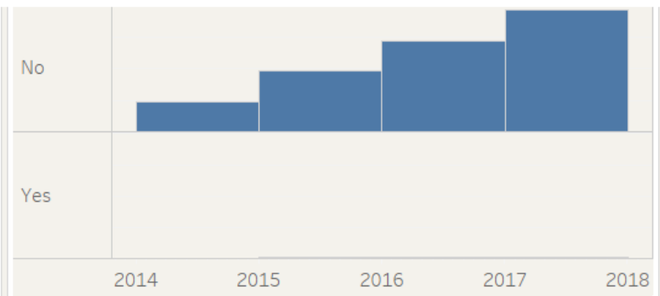
Infant Focus Map



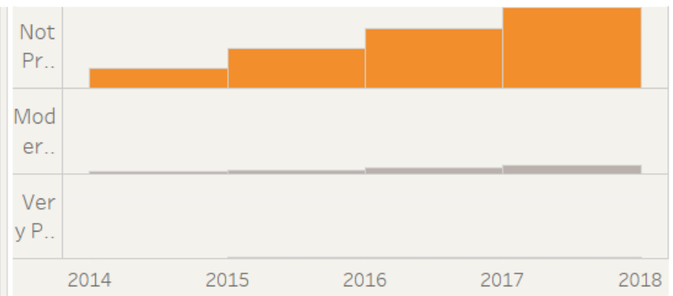
Pareto Census Tracts/Births



Cumulative Births with NAS

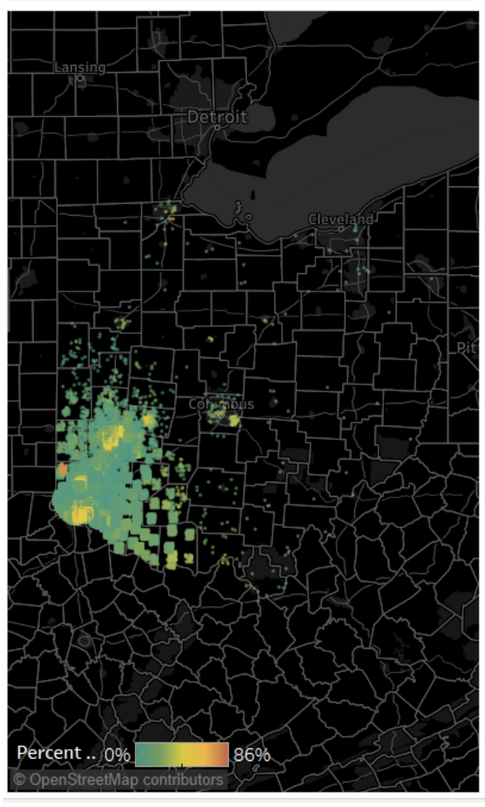


Cumulative Births by Gest. Age

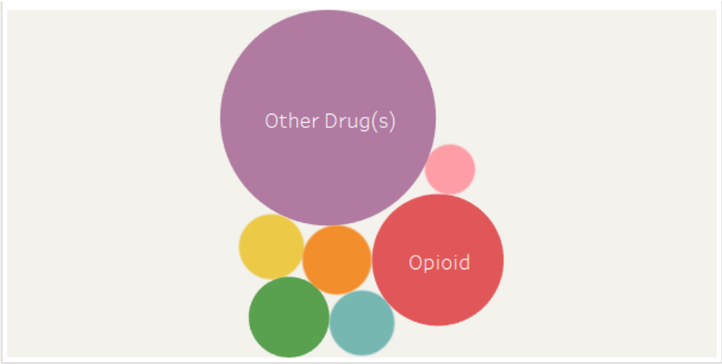


1 in 7 Mothers Tested Positive for Drug Use

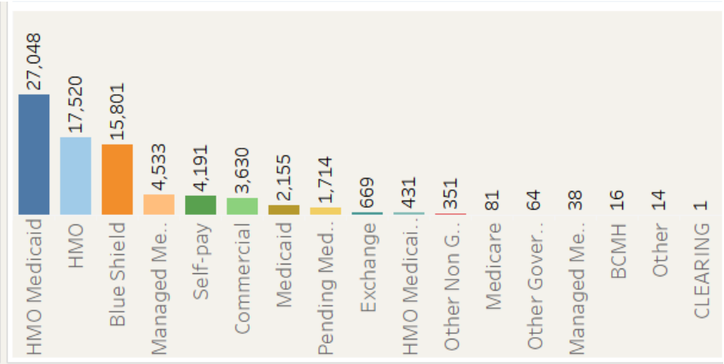
Maternal Focus Map



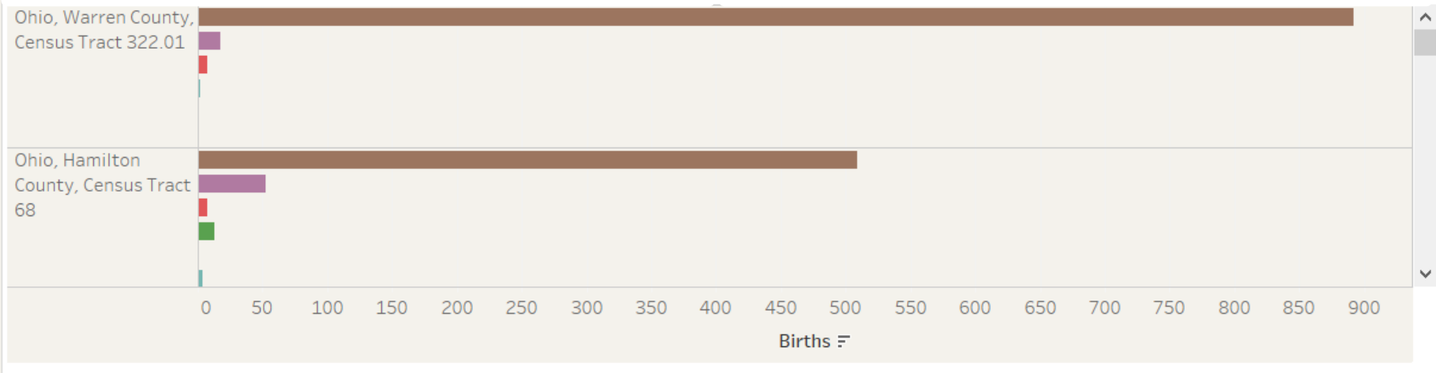
Maternal Drug Exposure



Insurers



Maternal Drug Exposure by Census Track



Census Track

“The best part is giving people hope when they feel like there’s not any.”

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Driving Social Engagement with Analytics

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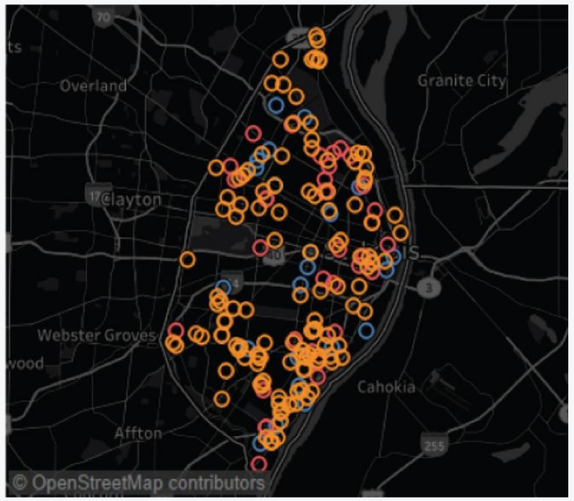
Midwest Metro Region

Time Slice Map



Time of Day

4 - Mid-Day, 10:00AM to 2:59PM

Decedent Residence

(All)

Sex

(All)

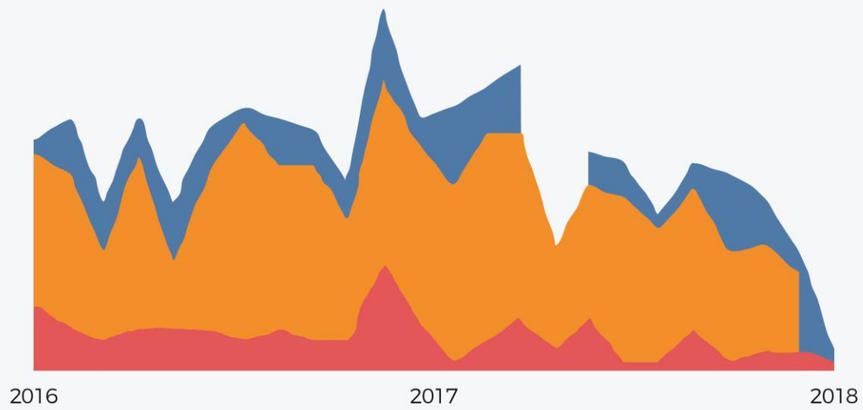
Race

(All)

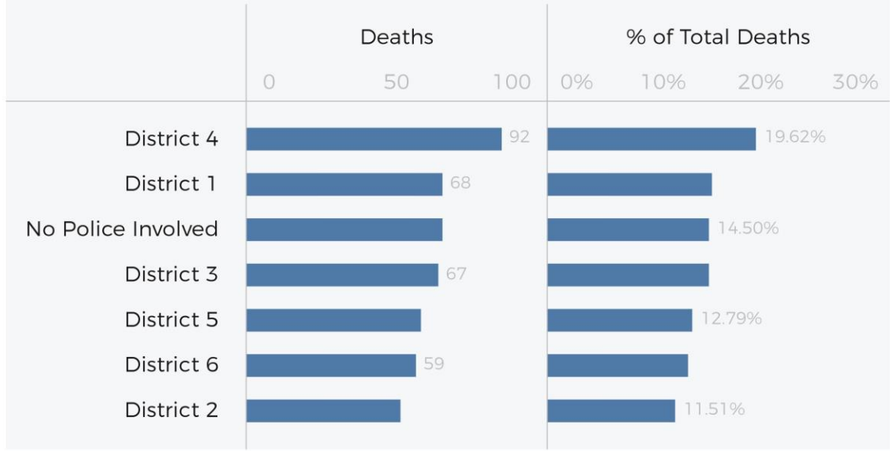
Age Range

(All)

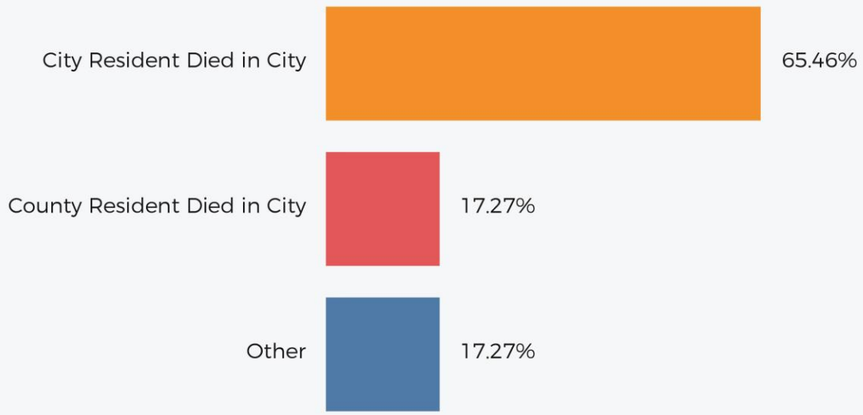
Breakdown of Deaths by Decedent Residence Over Month



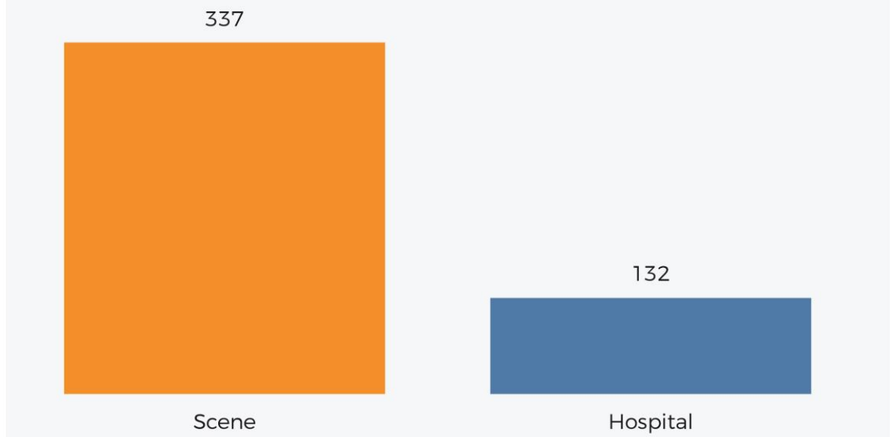
Count and Percentage of Deaths by Police District



Deaths by Residence of Decedent



Pronounced Dead Location



The highest number of opioid deaths occur during mid-day, 65% of city residents are victims for overdose.

Data: City of St. Louis Medical Examiner

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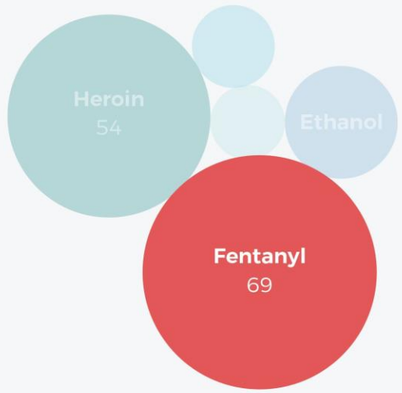
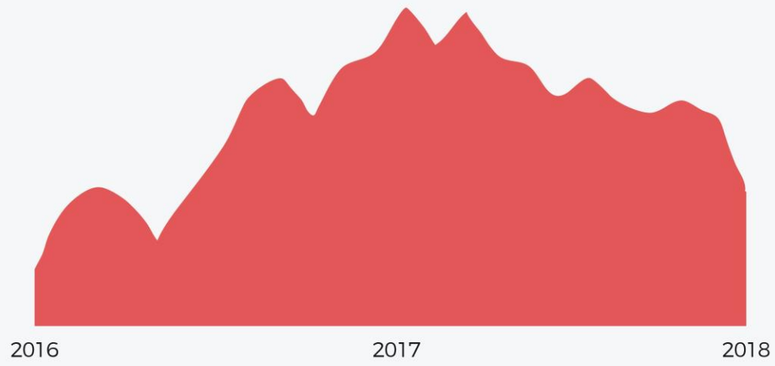
Midwest Metro Region

Drug of Choice Map

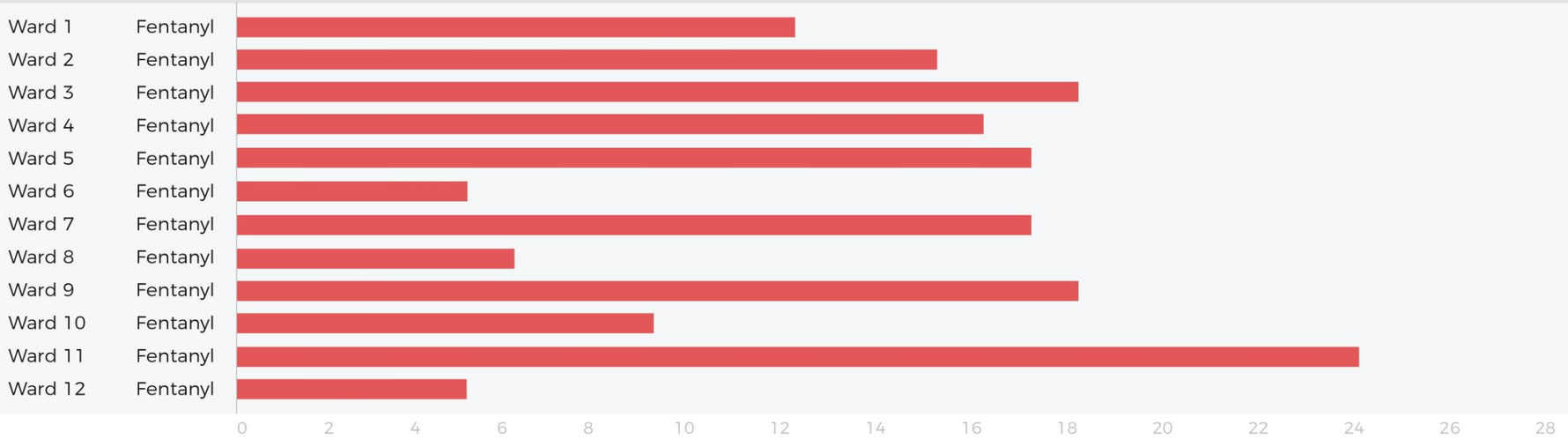
Drug of Choice



Moving Sum of Incidents by Drug Family Over Month



Drug Family Incidents by Wards



Share of Fentanyl as the overdose drug has significantly increased.

Data: City of St. Louis Medical Examiner

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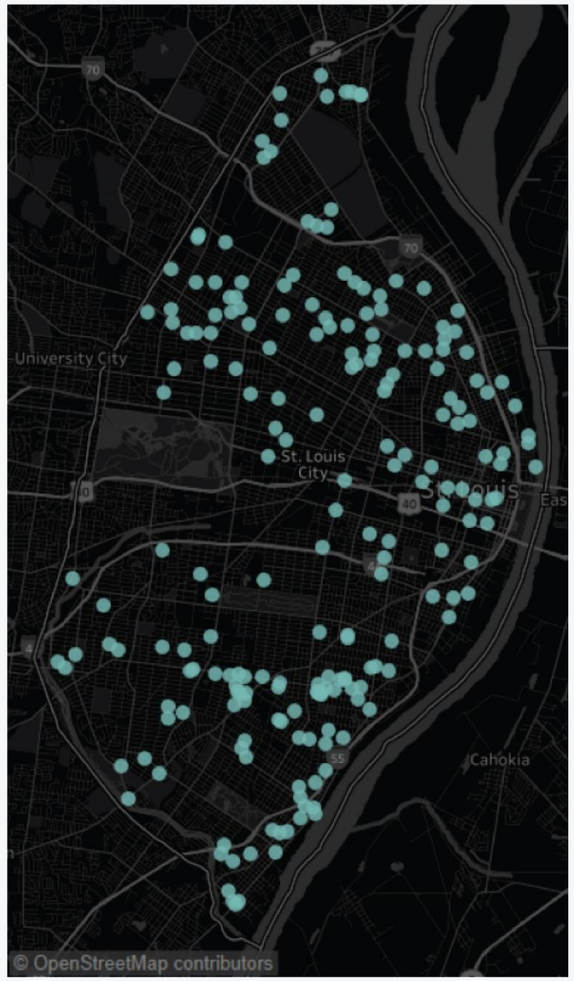
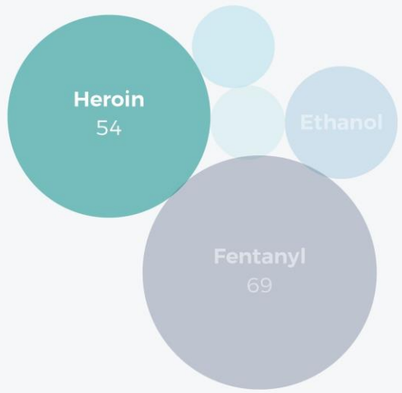
Midwest Metro Region

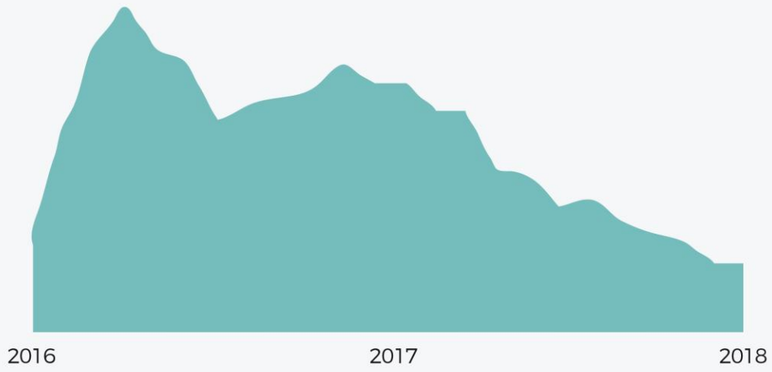
Drug of Choice Map



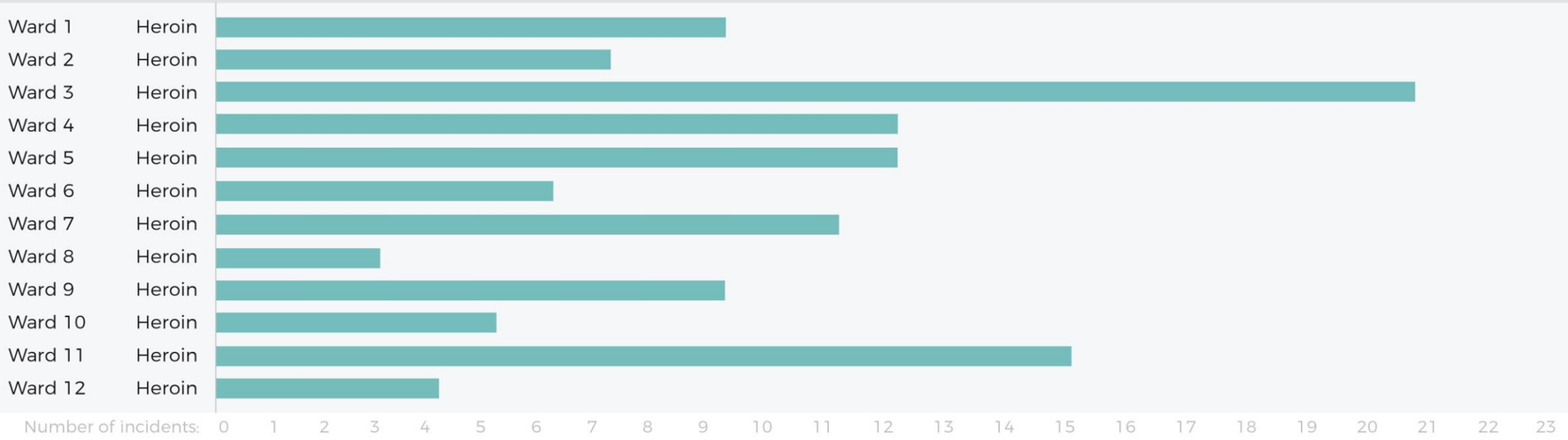
Drug of Choice



Moving Sum of Incidents by Drug Family Over Month



Drug Family Incidents by Wards



Share of Fentanyl as the overdose drug has significantly increased.

Data: City of St. Louis Medical Examiner

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The Challenge

Traditional, Siloed Delivery of Government Services

Focuses on transaction-based interactions → Treats circumstances in isolation → Ineffective spending → Imperfect outcomes

There is power in focusing on a person across across departments and programs.

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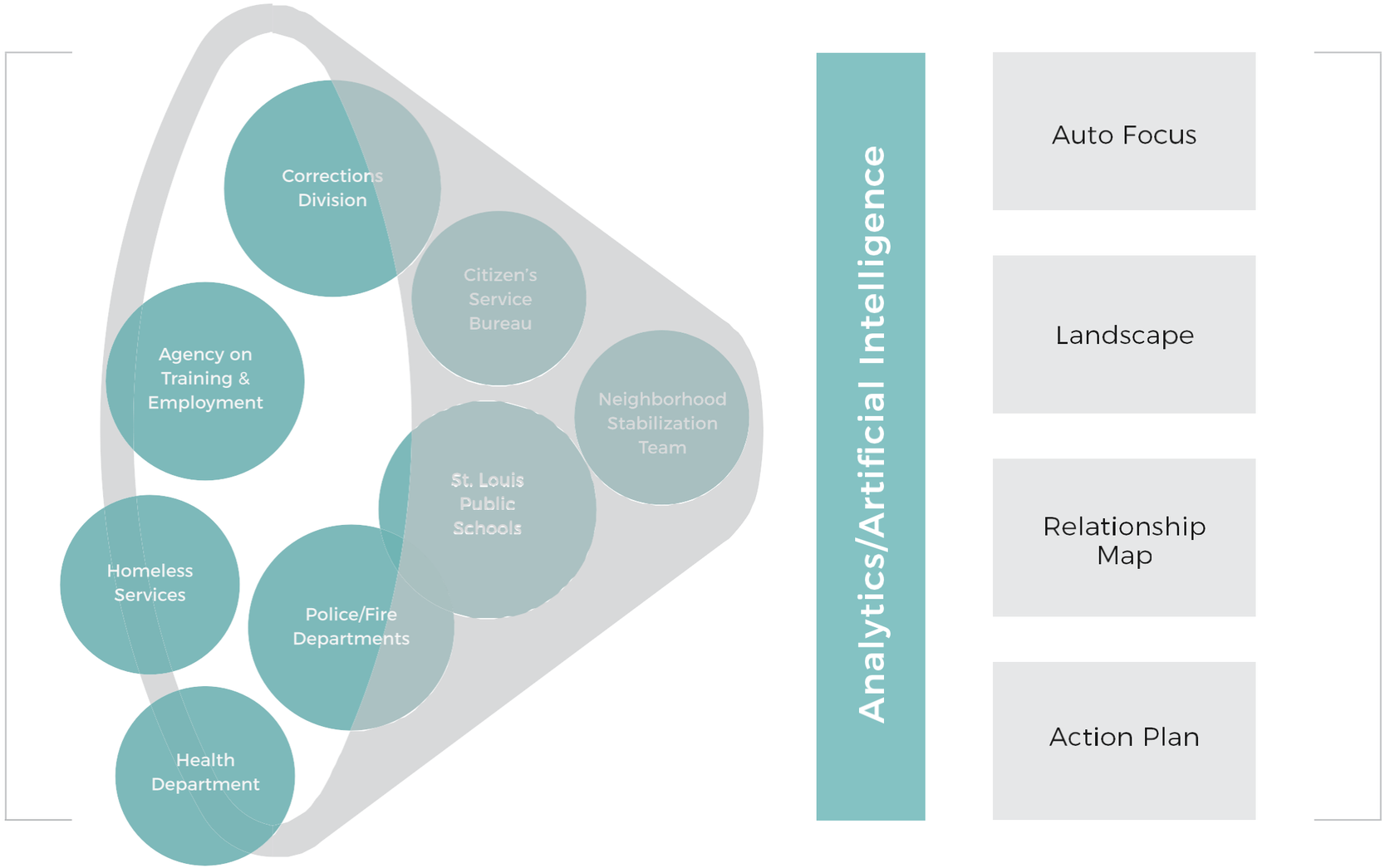
Community Engagement Through Data

Integrated security provides complete control over access to information



A set of application services that can be provided in a standalone portal or embedded within existing systems,

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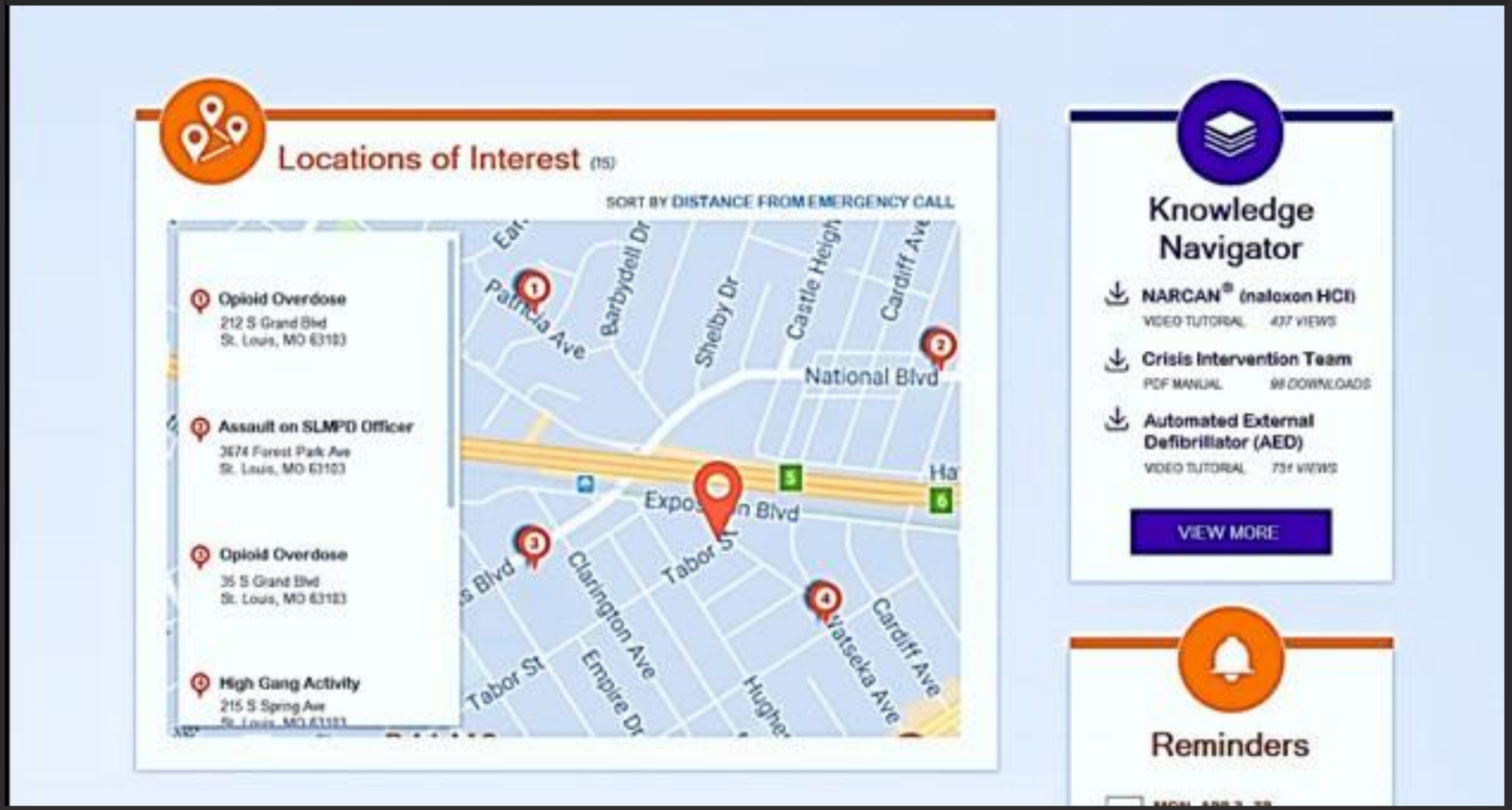

Integration Opportunity

OD Map from HIDTA: High Intensity Drug Trafficking Areas

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Emergency Call Assessment

How many individuals present, including subject? − 4 +

# of minors − 1 + # of females − 2 + # of males − 2 +

Is the home hot or cold? HOT — COLD

Subject's willingness to cooperate LOW — HIGH

Witness' willingness to cooperate LOW — HIGH

Witness' body language/eye contact POOR — GOOD

Concerns related to environmental safety LOW — HIGH

Follow-up Recommendation → YES | NO within 24 - 36 hrs

Follow-up Assessment

→ YES | NO

by

SOCIAL WORKER

within

− 24 - 36 hrs +

SUPPORTING ANALYSIS

Based on an analysis of population data, the circumstances of this emergency call indicate a moderate/high risk for unsafe or unhealthy conditions for minors:

- Poor body language/eye contact
- Moderate concerns related to environmental safety

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“All great and honorable actions are accompanied with great difficulties, and both must be enterprised and overcome with answerable courage.”

William Bradford
Plymouth Bay Colony 1630

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