Harold Rogers
Prescription Drug Monitoring Program
National Meeting

August 17, 2016
Assessment of Opioid-Related Deaths in Massachusetts
Trends in Opioid-Related Mortality: Massachusetts

- 350% increase in deaths since 2000
- 125% increase in the last three years
- Very significant increase in the rate of deaths
Spatial Distribution of Opioid-Related Mortality in MA

Opioid-related deaths in 2000 vs. 2013-2014

Annual Opioid-Related Death Rate by Municipality (2000) (per 10,000 Adults Age 18 to 64)

Annual Opioid-Related Death Rate by Municipality (2013-2014) (per 10,000 Adults Age 18 to 64)
Overview of Chapter 55 Legislation

• Signed into law in August 2015
• Report to the state legislature
• Must address 7 questions about opioid-related deaths
• Specifies major data sets across government
• Lowers legal barriers for use of some data

Chapter 55 of the Acts of 2015 provides for an examination and report relative to opiate overdoses in the commonwealth and serves as the Legal Basis for Cross-Agency Collaboration to Study the Alarming Trends in Opioid-related Deaths
Chapter 55: Preserving Privacy

**Chapter 55**

**Data Flow**

PSI = Project Specific Identifier  
CHIA = Center for Health Information and Analysis  
MITC =  
APCD = All Payer Claims Database

1. Split file between identifiers and analytic data  
2. CHIA Links identifier file with APCD Spine  
3. DPH wipes drive with PSI and identifiers  
4. Hand deliver PSI file and analytic file to MITC (encrypted)  
5. Store PSI file in common folder with all other PSI (encrypted)  
5. Store analytic file in separate folder (encrypted)
Chapter 55: Linking Partners

Ten data sets from six government agencies were linked together to provide an unprecedented view of the opioid overdose crisis in Massachusetts. The uniqueness of this data has brought together partners from government, academia, and industry to study ways to reduce the number of people who die of opioid overdoses.

Contributors: By the numbers
• 6 government agencies
• 7 academic institutions
• 3 private companies
Chapter 55: Linking Data

Data Sources
- DPH
- CHIA (MassHealth)
- EOPSS
- Jails & Prisons

System Attributes
- Data encrypted in transit & at rest
- Limited data sets unlinked at rest
- Simplified structure using summarized data
- Linking and analytics “on the fly”
- No residual files after query completed
- Analysts can’t see data
- Automatic cell suppression
- Possible resolution to issues related to 42 CFR part 2

All Doors Opening
- Significant coordination within DPH
- Financial and technical support from MassIT’s Data Office
- CHIA takes on role as linking agent (ongoing?)
- Coordination across agencies (legal & evaluation)
- High end machines for staff
- “Volunteer” analytic support from academia and industry
- Interest in comprehensive governance from academia
- Offers to train DPH staff

Chapter 55 Data Structure

APCD = All Payer Claims Database
Chapter 55: Linking to the Future

**PSI = Project Specific Identifier**

Chapter 55 Privacy Shield: Authorized users only, no write access, analysts cannot see data, automatic cell suppression, delete all temporary work files, full auditability of all data operations.

Enterprise SAS or other software (Cloud-based servers)

Machine 1

Machine 2

Machine 3

Machine 4

Machine 5

Machine 6

Machine 7

Machine 8

... additional data ...

... additional data ...

... additional data ...

... additional data ...

Machine N
The Chapter 55 work has allowed for a robust analysis of key PDMP measures with the other linked data sets.
Multiple Provider Episode Rates in Massachusetts (CY 2013).
Individuals with 5 or more Prescribers and 5 or more Pharmacies in 3 months, per 1,000 Residents

Source: Brandeis University, The Heller School for Social Policy and Management
Preliminary Findings of PDMP Data Linkages

Percent of Opioid Deaths with Specific Drug Present

Year and Quarter

Percent

- Fentanyl
- Likely Heroin
- Benzodiazepine
- Cocaine
- Prescription
Massachusetts Multiple Provider Episodes (MPEs) for Schedule II-V Opioid Prescriptions and Opioid Overdose Deaths Comparison by Year (2011-2015)
Preliminary Findings of PDMP Linkages

- Having both multiple prescribers and multiple pharmacies increases the risk of overdose deaths.
- There is nearly an 18-fold increase in the incidence of overdose death when obtaining prescriptions from 3 or more different pharmacies; this is nearly twice the incidence when compared to individuals who obtain prescriptions from 3 or more different prescribers (Incidence = 9.73)

<table>
<thead>
<tr>
<th>Incidence of overdose deaths associated with multiple provider episodes (MPEs)</th>
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<tbody>
<tr>
<td><strong>Prescribers</strong></td>
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<tr>
<td>Incidence (per 10,000 per year)</td>
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<tr>
<td>Opioid Deaths</td>
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<tr>
<td><strong>Pharmacies</strong></td>
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<tr>
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</tbody>
</table>
Preliminary Findings of PDMP Linkages

Proportion of Decedents with a Specific Drug in their Toxicology Results and the Contribution of Prescriptions to these Proportions
Chapter 55 – Key Findings from PDMP Linkage

• At least 2 out of 3 people who died of an opioid-related overdose had an opioid prescription between 2011 and 2014. However, only 8 percent of people who died from an opioid overdose had legal access to prescription opioids during the same month of death.

• Individuals who died from opiate-related overdoses are much more likely to have Illicit (not prescription) drugs present in post-mortem toxicology.

• The use of 3 or more prescribers within a 3 month period is associated with a 7-fold increase in risk of fatal opioid overdose (baseline = 1-2 prescribers).

• The data show that having a concurrent prescription for opioids and benzodiazepines results in a four-fold increased risk of opioid-related death.
• The Chapter 55 work has highlighted the alarming increase in overdoses attributed to heroin and most notably non-prescription fentanyl.

• How prescription opioid use/abuse impacts transitioning to these illicit drugs will be a key area of focus moving forward.

• Continuing linking PDMP data with other databases will play a critical role in addressing the opioid overdose crisis.
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