Ohio Department of Health

OHIO'S PRESCRIPTION DRUG OVERDOSE EPIDEMIC

PMP DATA: A USEFUL TOOL

CSTE Webinar
July 31, 2012

OUTLINE:

Introduction of Prescription Drug Overdose in Ohio: Death Certificate and PMP Data

Description of PMP/Death Certificate Linkage Study

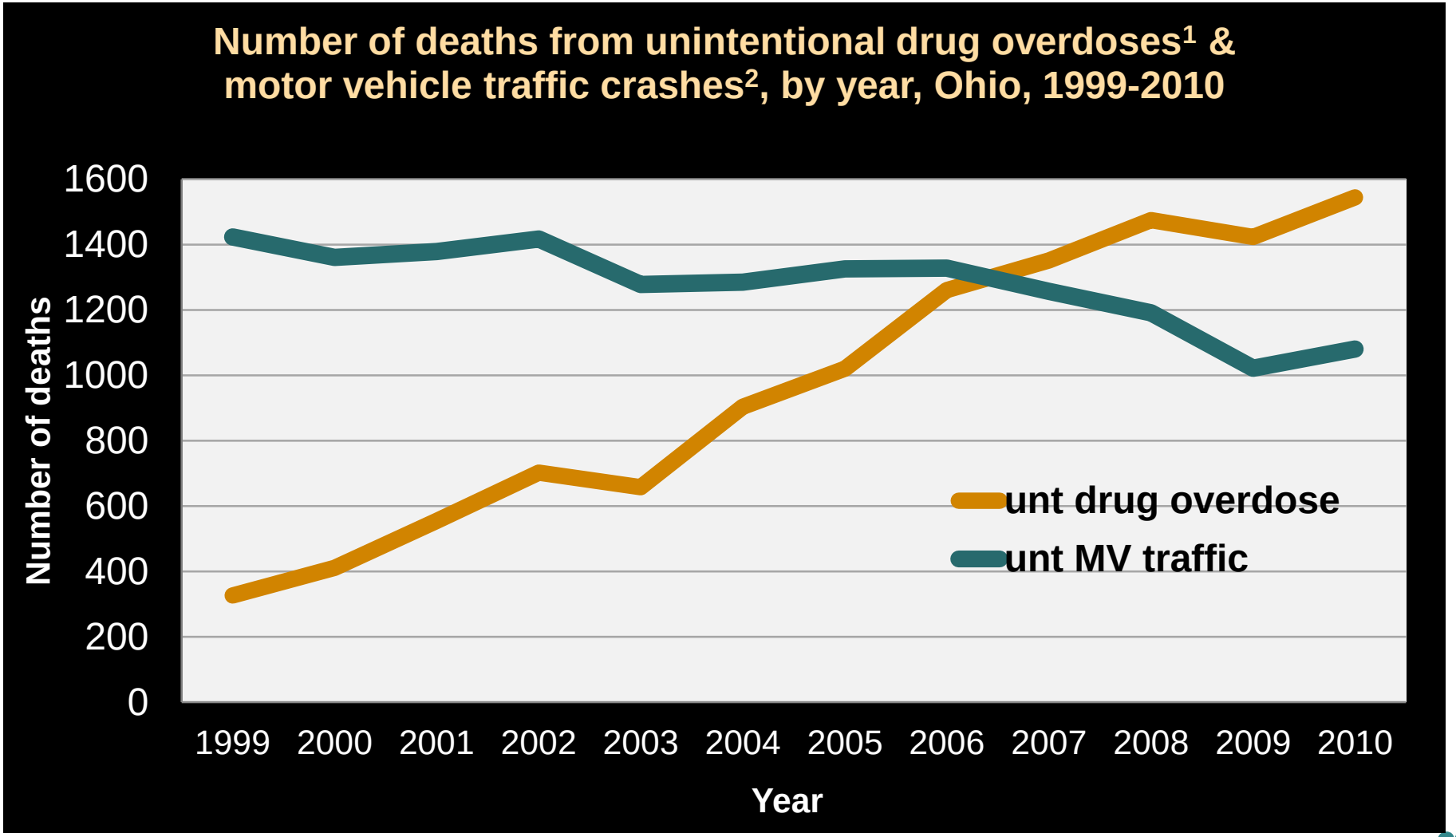
- **Methods**
- **Results**
- **Conclusions**

Use and Presentation of the Data to Inform Action

Future Plans for Use of PMP Data

OHIO DATA

In 2007, drug overdose became the leading cause of injury death in Ohio, **surpassing motor vehicle traffic crashes** for the first time on record. This trend continued through 2010.

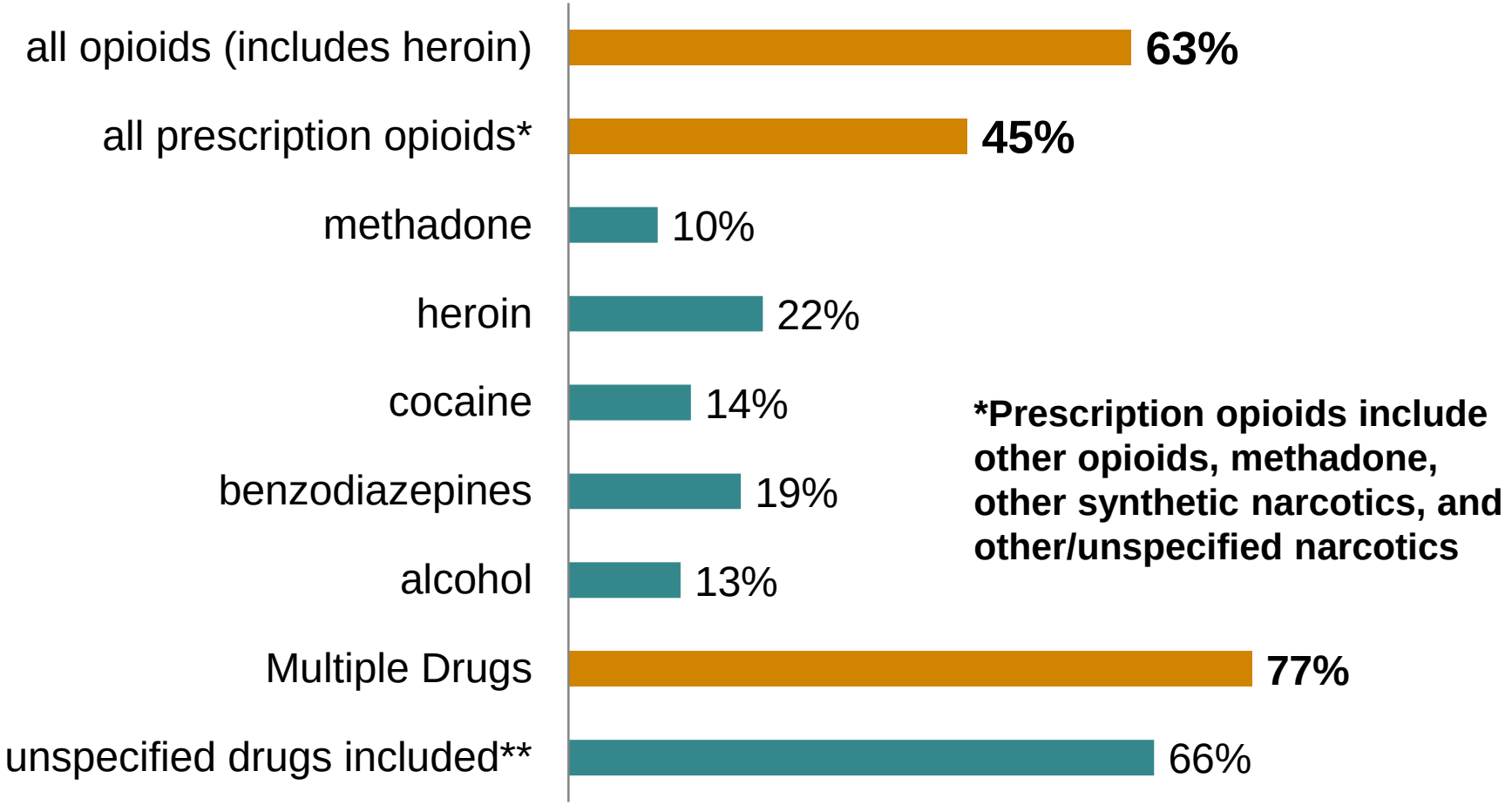


Source: 1, ODH Office of Vital Statistics 2. Ohio Department of Public Safety, Ohio Traffic Crash Facts

PROPORTION OF ALL UNINTENTIONAL DRUG OVERDOSE DEATHS INVOLVING SELECTED DRUGS, OHIO, 2010[1,2**]

[1]Source: ODH Office of Vital Statistics

[2]Multiple substances are usually involved in one death.



***Prescription opioids include other opioids, methadone, other synthetic narcotics, and other/unspecified narcotics**

****includes only cases where no specific drug is listed on the death certificate as contributing to death**

CONTRIBUTING FACTORS:

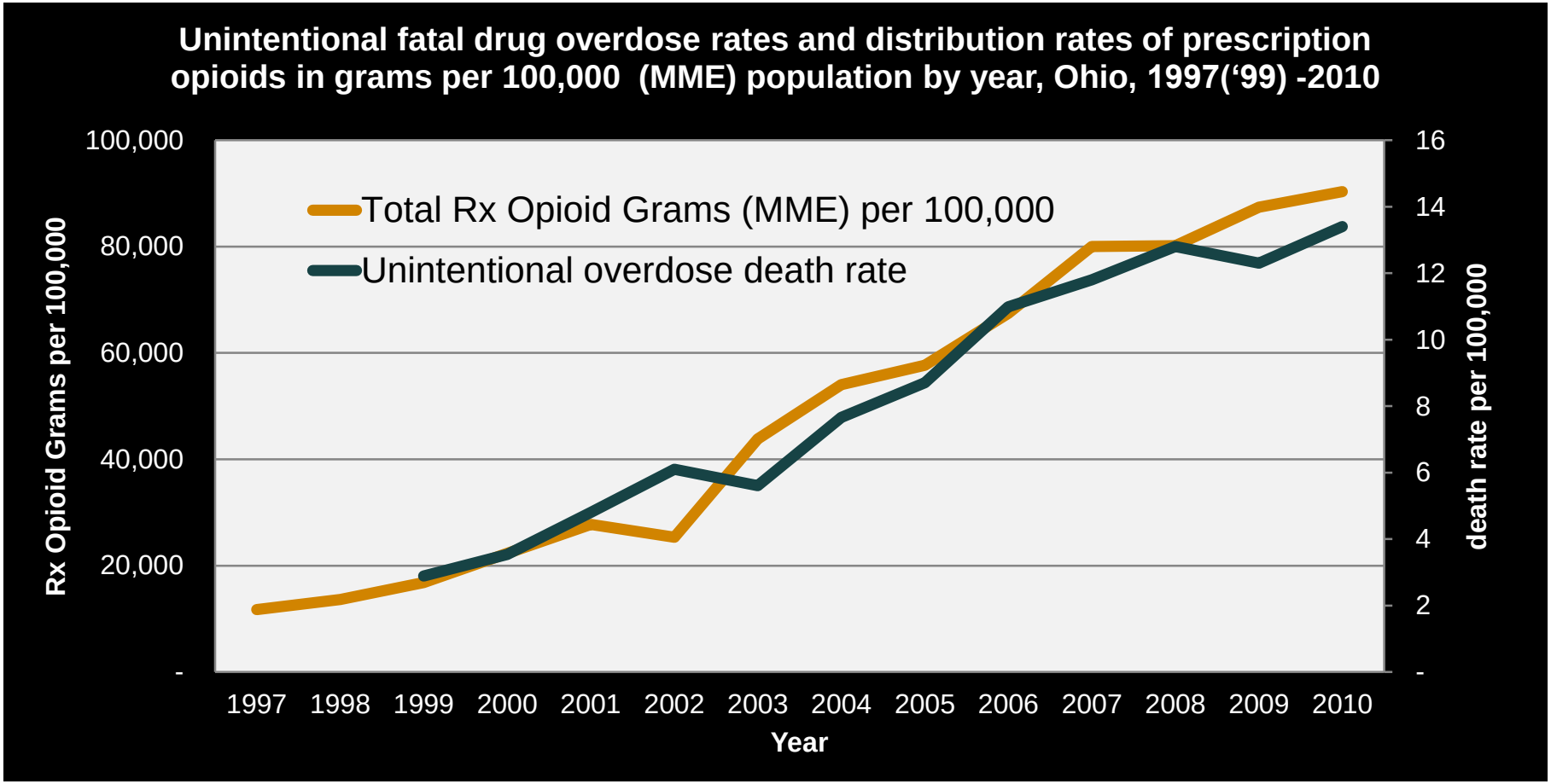
Distribution of opioids[1] to retail pharmacies in grams per 100,000 by drug, Ohio, 1997 to 2010[2]

[2]Source: DOJ, DEA, ARCOS reports

[1]In oral morphine equivalents using the following assumptions: (1) All drugs other than fentanyl are taken orally; fentanyl is applied transdermally. 2) These doses are approximately equianalgesic: morphine: 30 mg; codeine 200 mg; oxycodone and hydrocodone: 30 mg; hydromorphone; 7.5 mg; methadone: 4 mg; fentanyl: 0.4 mg; meperideine: 300 mg.

CONTRIBUTING FACTORS: OHIO DATA

There is a *strong* relationship between increases in exposure to prescription opioids and fatal unintentional overdose rates.



Sources: 1. Ohio Vital Statistics; 2. DEA, ARCOS Reports, Retail Drug Summary Reports by State, Cumulative Distribution Reports (Report 4) Ohio, 1997-2007 http://www.deadiversion.usdoj.gov/arcos/retail_drug_summary/index.html; 3. Calculation of oral morphine equivalents used the following assumptions: (1) All drugs other than fentanyl are taken orally; fentanyl is applied transdermally. 2) These doses are approximately equianalgesic: morphine: 30 mg; codeine 200 mg; oxycodone and hydrocodone: 30 mg; hydromorphone; 7.5 mg; methadone: 4 mg; fentanyl: 0.4 mg; meperidine: 300 mg ; 4. US Census Bureau, Ohio population estimates 1997-2010

Acknowledgement: Based on work by Len Paulozzi, CDC

OHIO'S PMP

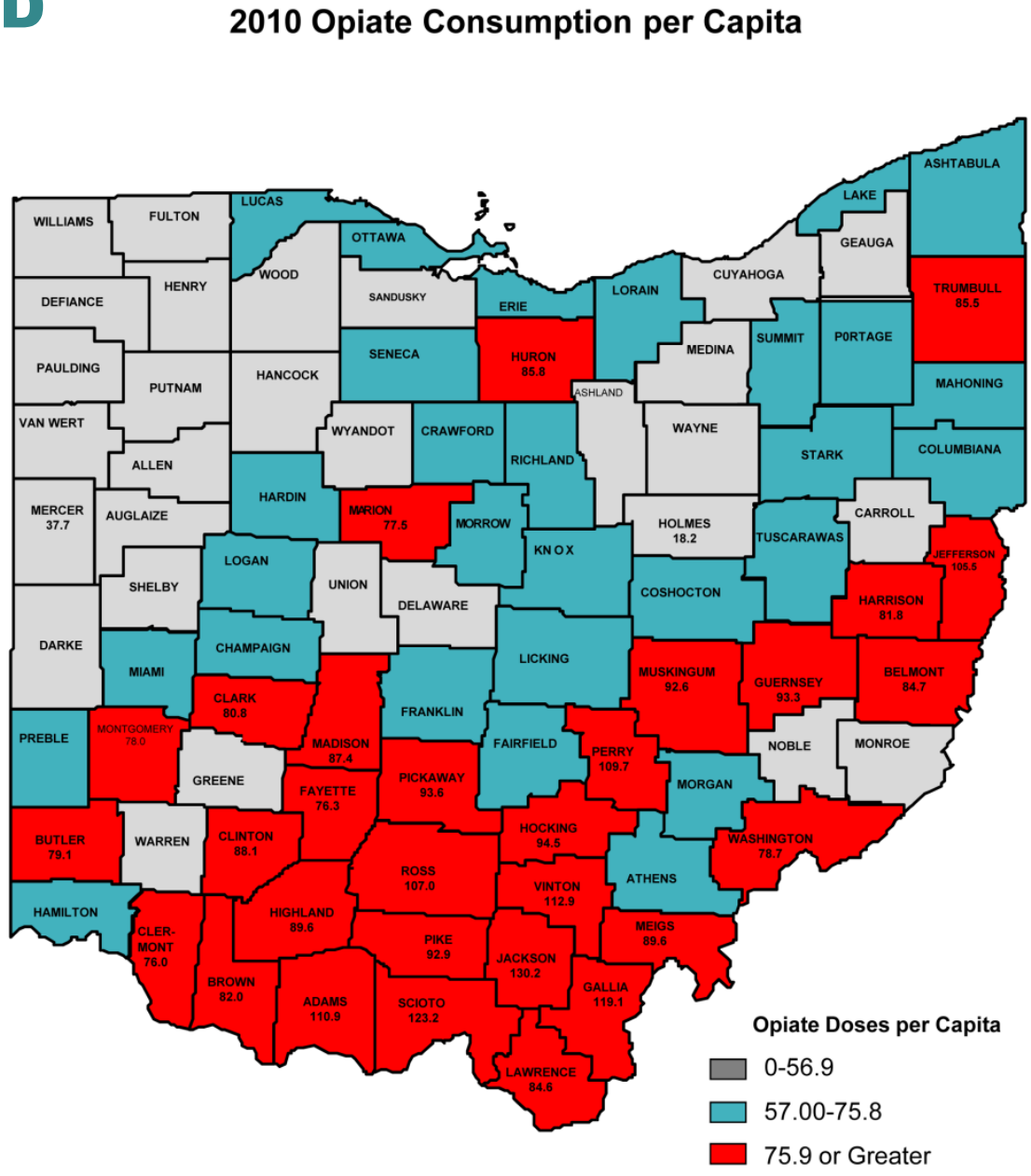
Ohio Automated Rx Reporting System (OARRxS)

PRESCRIPTION OPIOID DOSES PER CAPITA, OHIO, 2010

773 million opioid doses were dispensed through Ohio pharmacies.

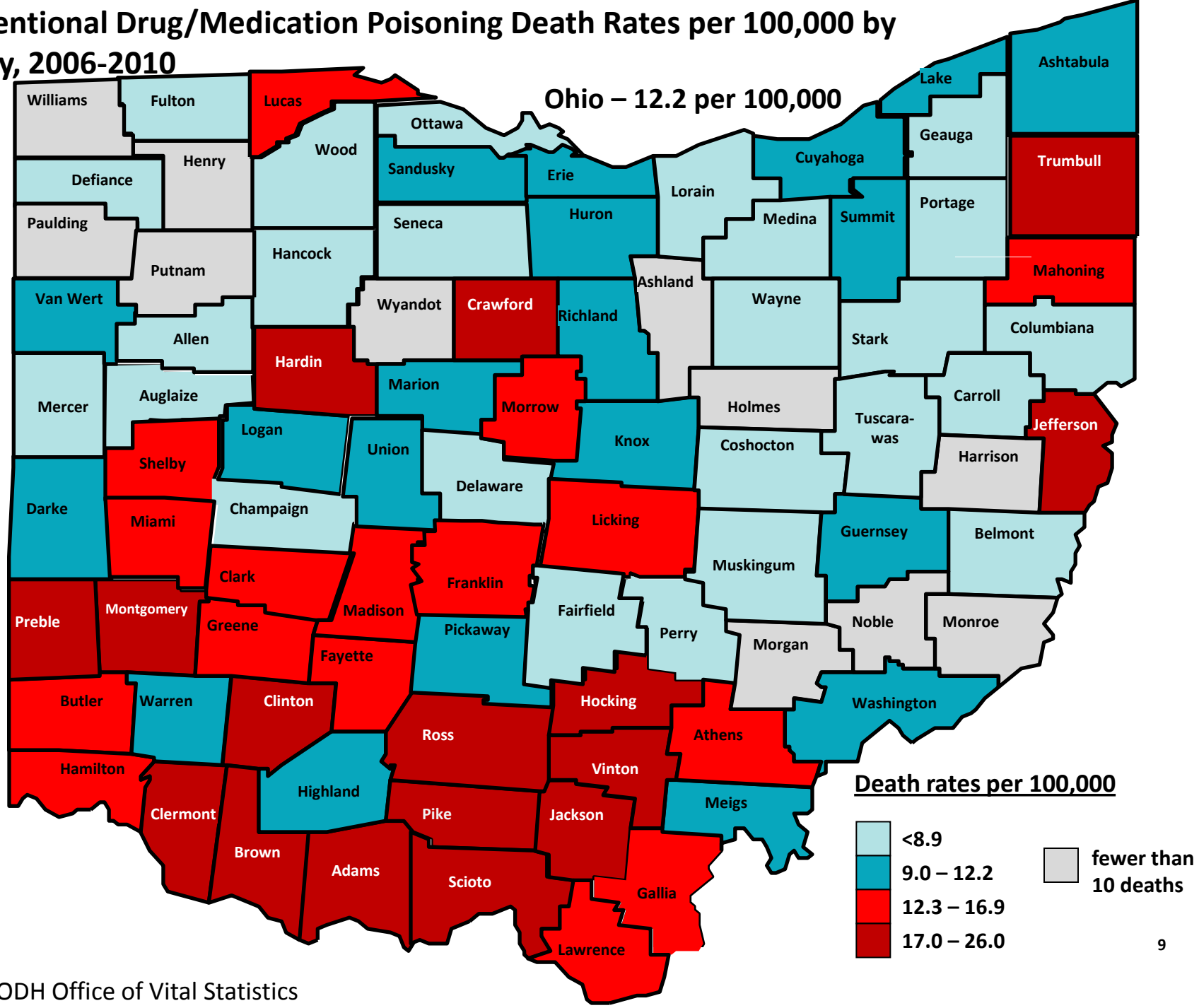
That's enough to provide 67 opioid doses to every single Ohioan.

- **Or the equivalent of:**
  - 2.1 million doses per day
  - 88,236 doses per hour
  - 1,471 doses per min.
  - **25 doses per second**



Source: Ohio Automated Rx Reporting System, Ohio Board of Pharmacy,

Unintentional Drug/Medication Poisoning Death Rates per 100,000 by County, 2006-2010



Source: ODH Office of Vital Statistics

ENHANCING KNOWLEDGE OF FATAL OVERDOSE VICTIMS IN OHIO

OARxRS (PMP) and Death Certificate Data Linkage Results

Modeled after:
Hall et al. ***Prescription Drug Use and Abuse Among Unintentional Overdose Fatalities*****. JAMA 2008.**

METHODS

DATA SOURCES

Death Records

- Maintained by the ODH's office of Vital Statistics.
- A death was determined to be due to poisoning when the coroner or certifying physician identified poisoning as the underlying cause of death. Drug-related poisonings were identified through ICD-10 codes X40-X44 in the death certificate files.

Ohio State Board of Pharmacy's Prescription Monitoring Program (PMP) – Ohio Automated Rx Reporting System (OARRS)

- Ohio pharmacies submit weekly reports to OAR$_x$RS regarding medications dispensed.
- The PMP provided ODH with de-identified data from 2006 to 2008 on medications dispensed to Ohio residents who died from poisoning in 2008.

METHODS

ODH identified Ohioans who died from drug poisoning (X40-X44) from January-December 2008

PMP matched decedents by

- Name,
- Date of birth,
- And/or address,

And returned de-identified data to ODH

- PMP data included filled prescriptions filled in Ohio[1] from 1/1/2006 to 8/6/2009[2]
- Analysis limited to prescriptions filled in Ohio prior to Jan 2009

1. A subset of decedents had a record of prescription drugs filled AFTER date of death
2. Ohio decedent prescriptions filled in other states were not captured.

Limitations

- PMP data is limited to substances dispensed in Ohio. Therefore, the # of prescriptions and prescribers may be underestimated (i.e., Doctor Shopping), while drug diversion may be overestimated.

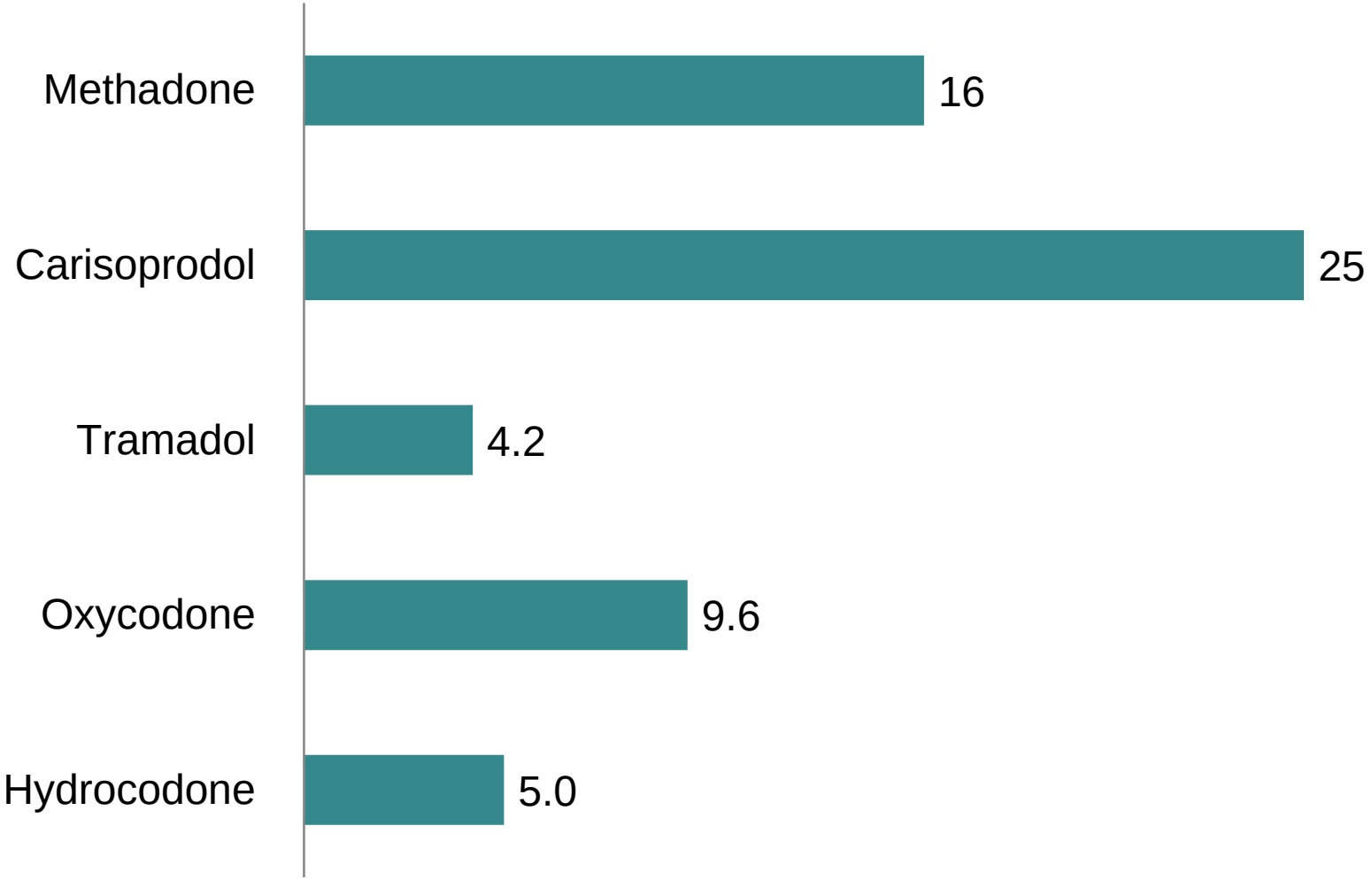
- Analysis was confined to 1,488 (95 percent) of the 1,568 unintentional poisoning decedents whose identity could be linked to an OARRS record.

- Date of death was not available for analysis due to confidentiality concerns. In all cases, prescriptions were filled less than 3 years before death (2006-2008), referred to as: ’the 2-plus year monitoring period’.

OHIO PMP/DEATH CERTIFICATE STUDY

RESULTS

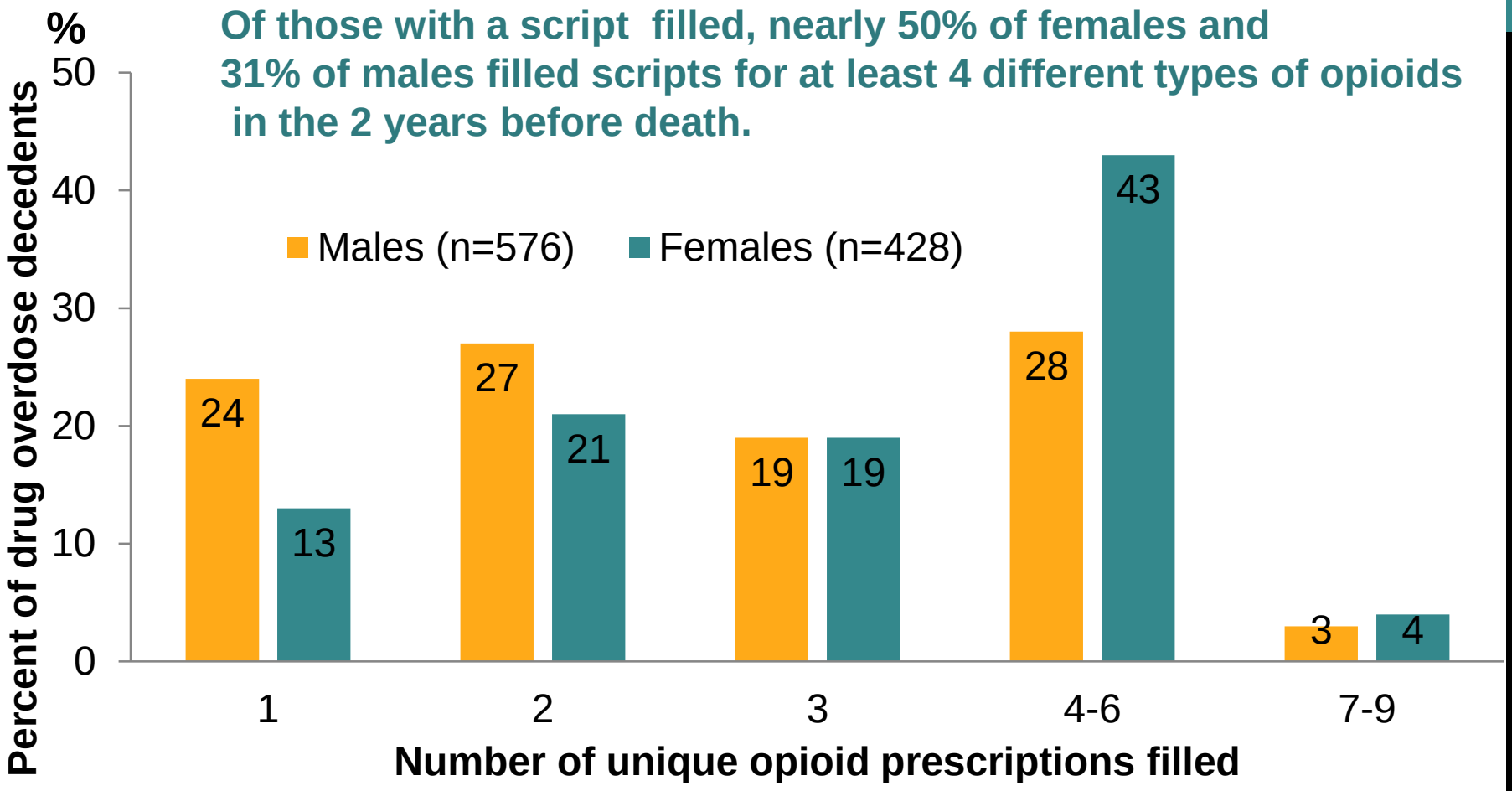
Ratio of decedent script rates to script rates[1] to among 2008 unintentional drug overdose decedents and 2007 Ohioans [2,3,4]



1 Age-adjusted 2 Prescriptions filled in Ohio 3 Source: 2007 Ohio State Board of Pharmacy OARRS Data 4 Decedent age distribution adjusted to match age distribution of state of Ohio.

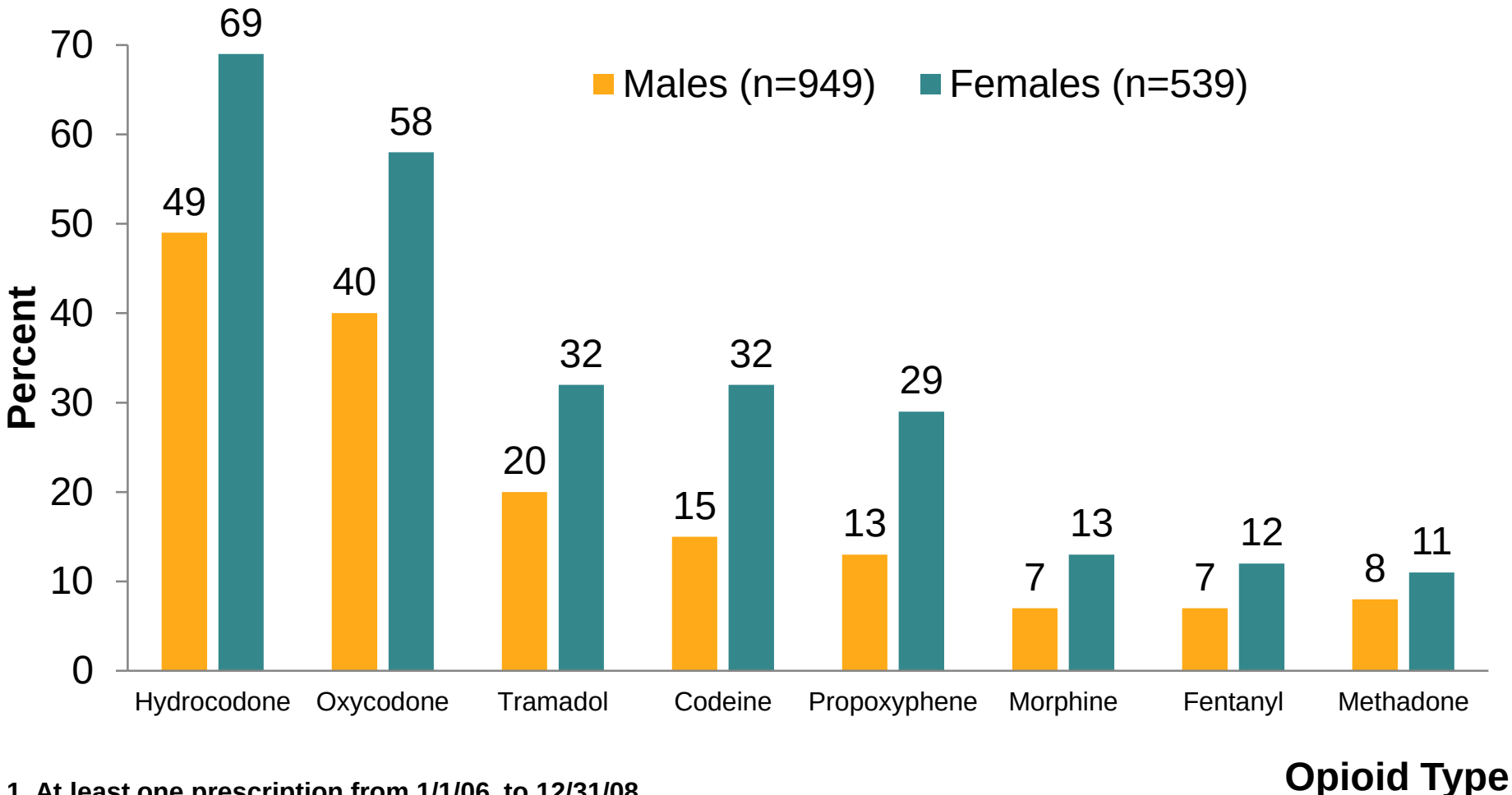
Proportion of opioid prescription fill history among 2008 unintentional drug overdose decedents[1] by number of unique opioid types[2] filled from 2006-08 and gender, Ohio[3,4]

Of those with a script filled, nearly 50% of females and 31% of males filled scripts for at least 4 different types of opioids in the 2 years before death.



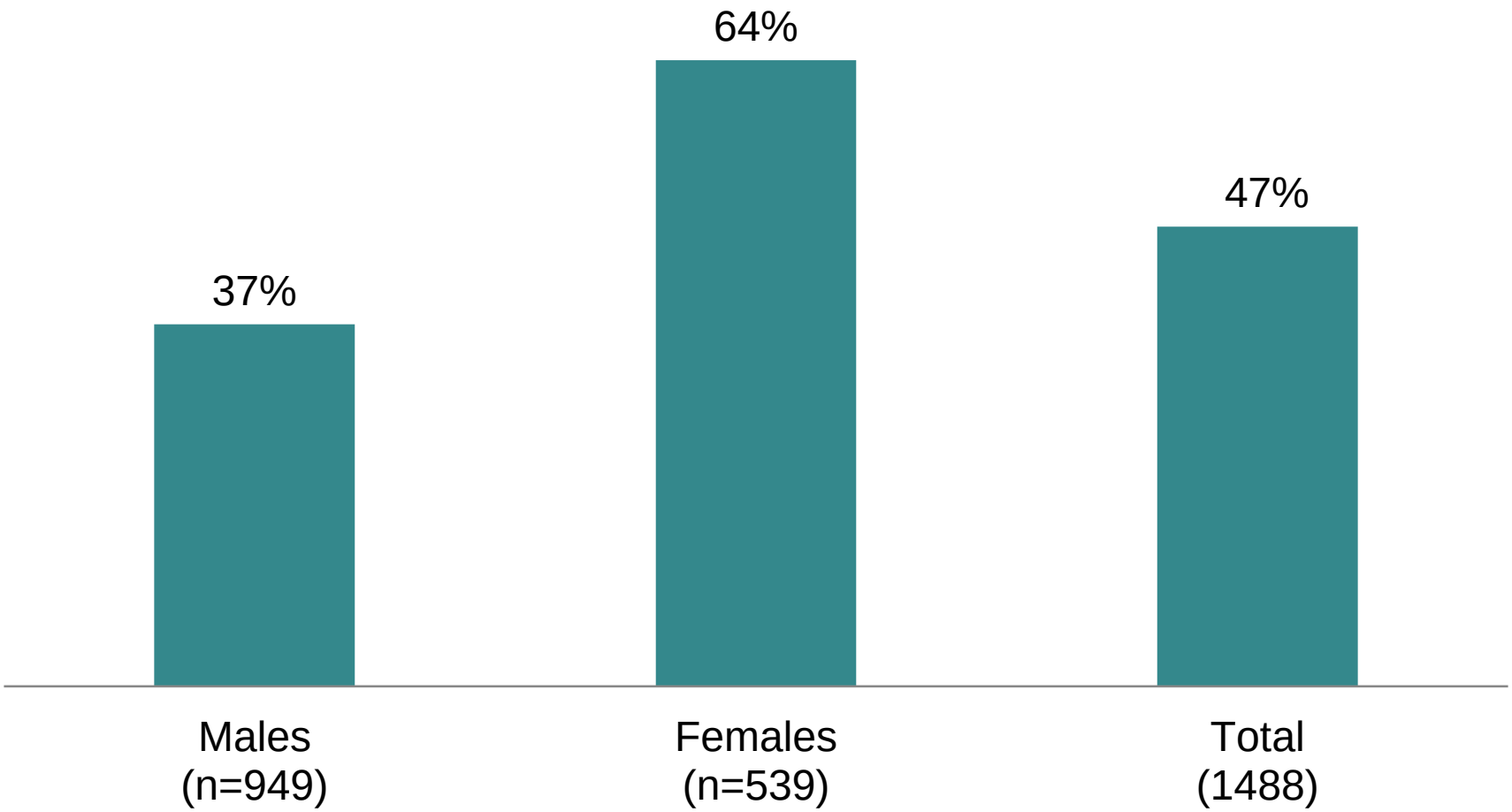
1. Included decedents with at least one opioid script filled from 1/1/06-12/31/08
2. Opioid types included: Buprenorphine, butorphanol, codeine, fentanyl, hydrocodone, hydromorphone, meperidine, methadone, morphine, oxycodone, oxymorphone, pentazocine, propoxyphene, tramadol
3. Prescriptions filled outside of Ohio not included 4Source: ODH Vital Stats and BOP OARRS

Percent of 2008 unintentional drug overdose deaths with specific opioid prescription filled between 2006-2008, Ohio[1,2,3]



1. At least one prescription from 1/1/06 to 12/31/08
2. Decedents may have filled prescriptions for multiple opioid types
3. Prescriptions filled outside of Ohio not included
4. Source: ODH Office of Vital Stats and BOP OARRS

Percent of 2008 unintentional poisoning decedents[1] with at least one opioid and one benzodiazepine filled between 2006-2008[2,3] by gender

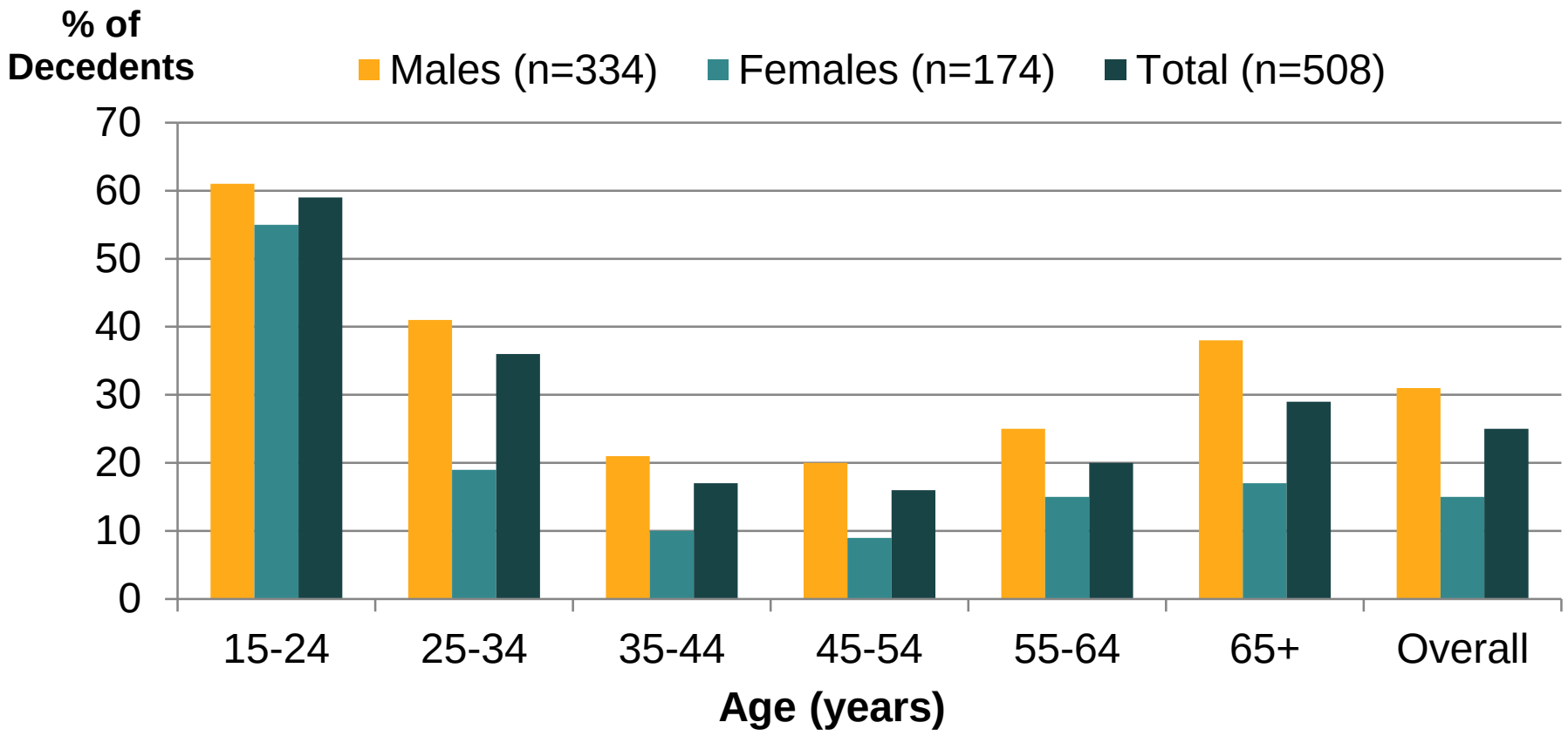


1. Source: ODH Office of Vital Statistics
2. Source: Ohio Automated Rx Reporting System database, Ohio State Board of Pharmacy, Columbus, OH (August 12, 2009).
3. Prescriptions filled outside of Ohio not included

DIVERSION AND ILLICIT DRUG USE

PRESCRIPTION DRUG DIVERSION

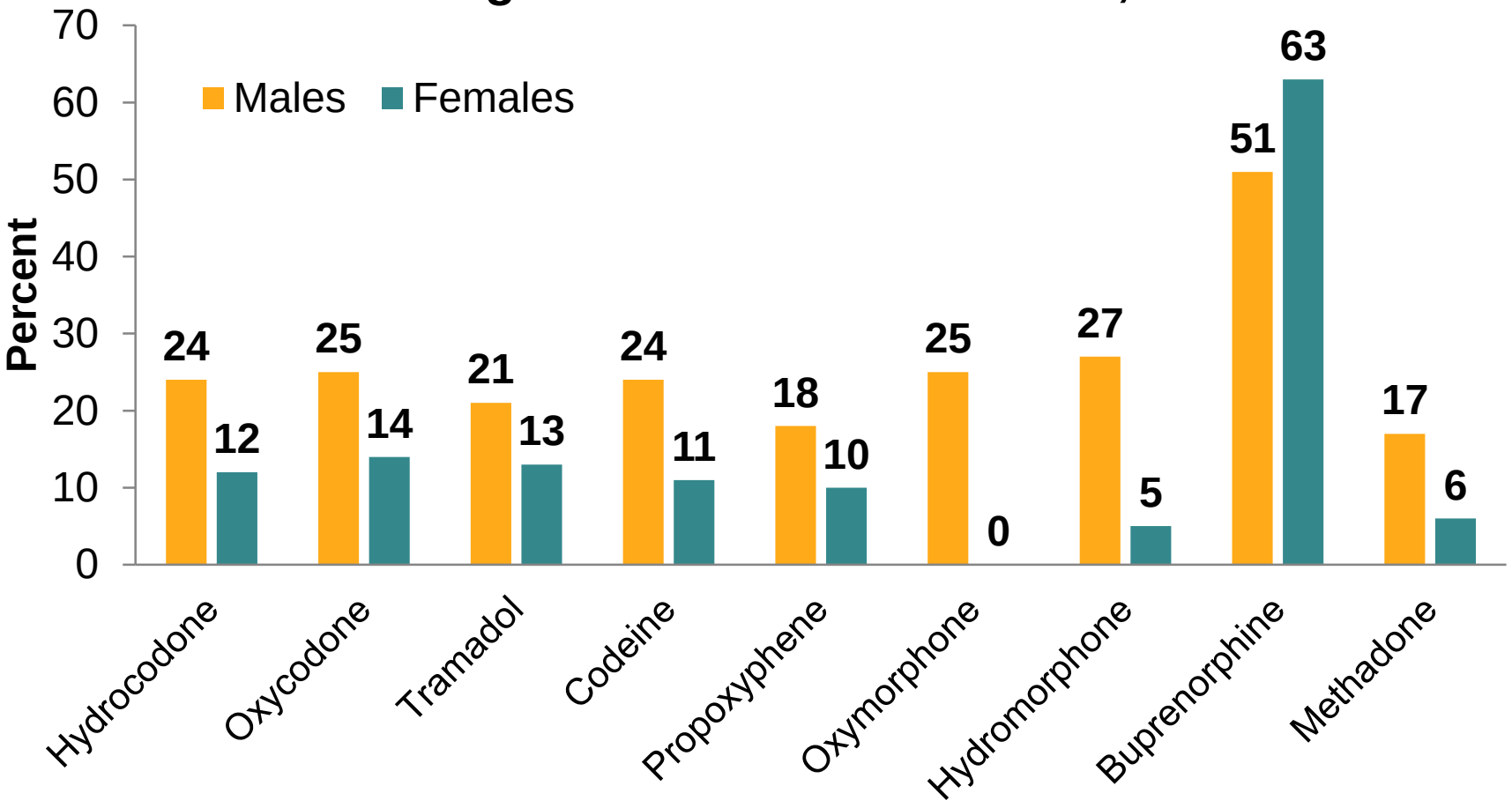
Percent of 2008 unintentional poisoning decedents[1] with prescription opioids on death certificate and no opioid prescription filled from 2006 to 2008 by age and gender[2-4]



1. Source: ODH Office of Vital Statistics
2. Source: Ohio Automated Rx Reporting System database, Ohio State Board of Pharmacy, Columbus, OH (August 12, 2009).
3. Analysis confined to decedents 15 years and older
4. Prescriptions filled outside of Ohio not included

ILLICIT DRUG USE

Percent of 2008 Decedents with Opioid Script who had Illicit Drug Use on Death Certificate, Ohio[1,2,3]

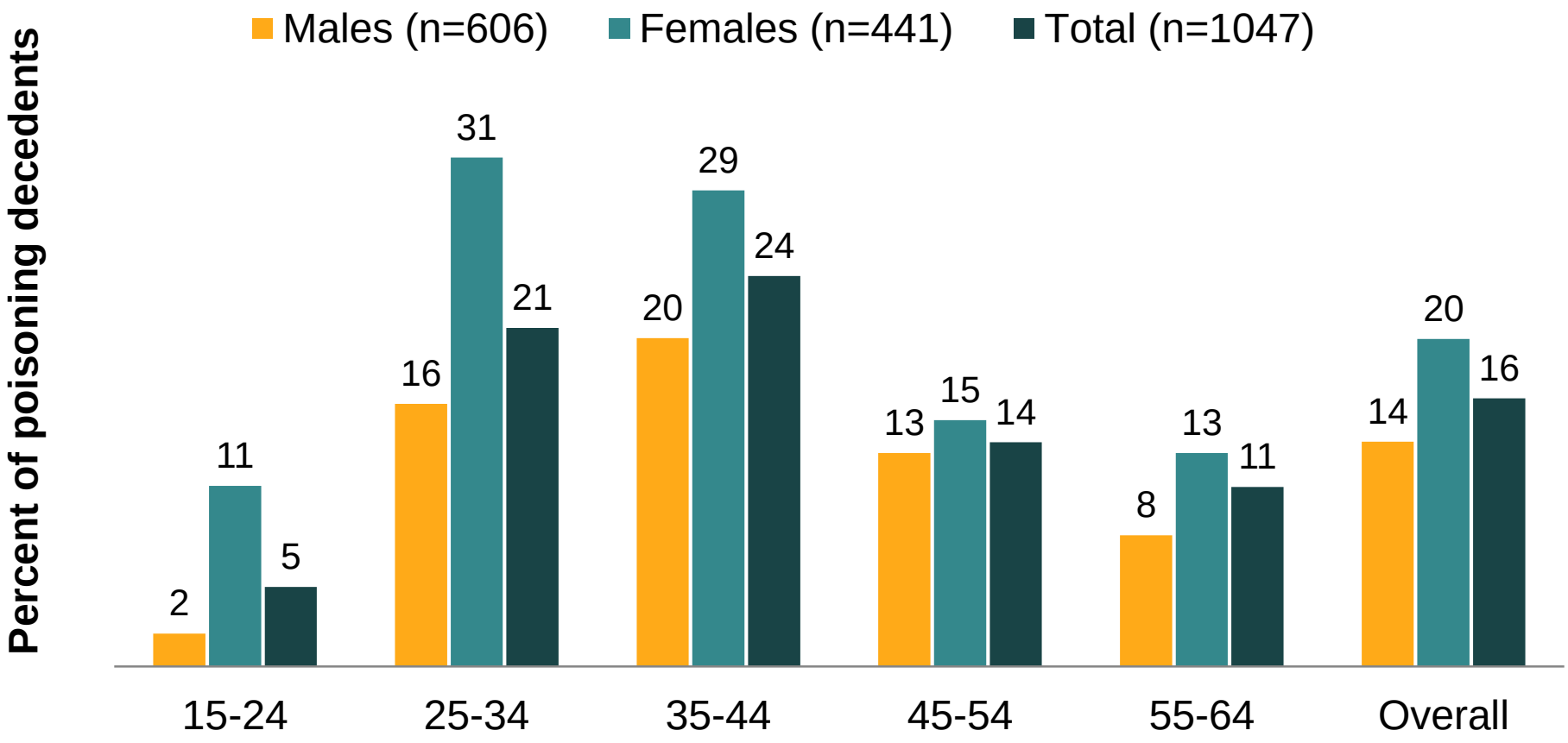


1. Illicit drug use: Heroin, cocaine, or hallucinogen on death certificate
2. Decedent filled at least one prescription for opioid type. Decedent may have filled prescriptions for more than one opioid type.
3. Sources: ODH Office of Vital Statistics and BOP OARRS

DOCTOR SHOPPING

Doctor Shopping

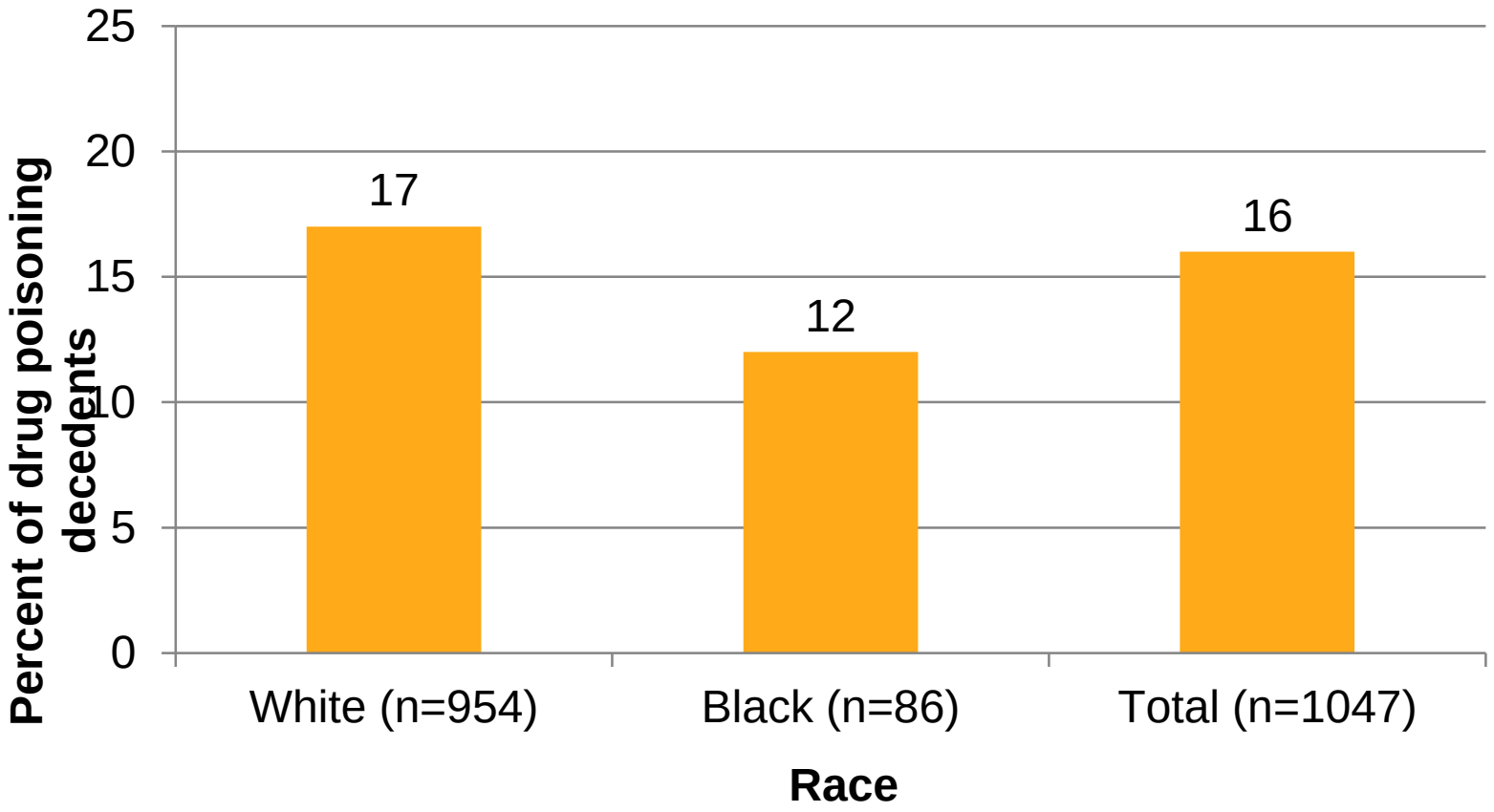
Percent of 2008 unintentional poisoning decedents who doctor shopped between 2006-2008 by age and gender [1-6]



1. Source: ODH Office of Vital Statistics
2. Source: Ohio Automated Rx Reporting System database, Ohio State Board of Pharmacy, Columbus, OH (August 12, 2009).
3. Doctor Shopping: Average 5 or more prescribers per year from 1/1/06 to 12/31/08.
4. No doctor shoppers over age 65 for males or females
5. Prescriptions filled outside of Ohio not included
6. Included decedents with at least one script filled 1/1/06-12/31/08

Doctor Shopping

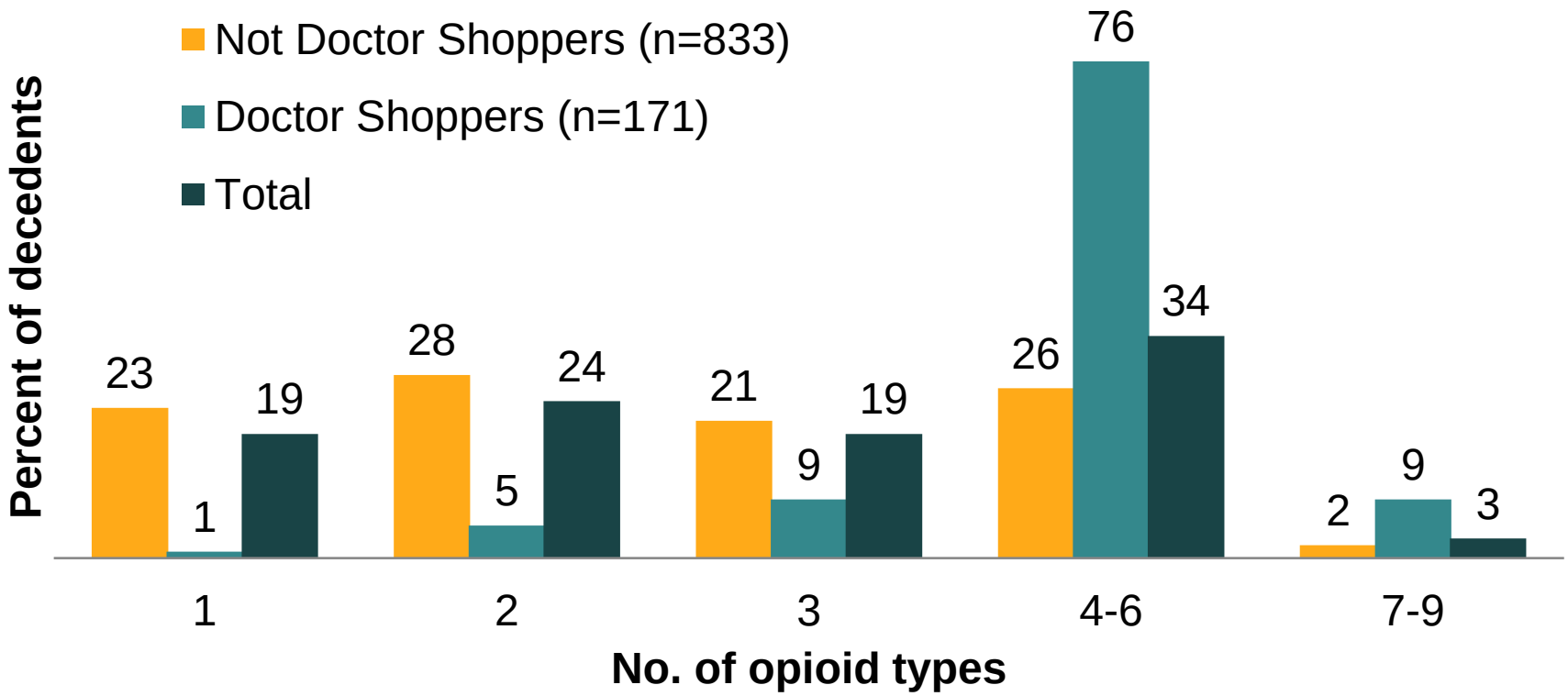
Percent of 2008 unintentional drug overdose decedents who doctor shopped between 2006-2008 by race, Ohio[1,2,3]



1. Opioid types included: Buprenorphine, butorphanol, codeine, fentanyl, hydrocodone, hydromorphone, meperidine, methadone, morphine, oxycodone, oxymorphone, pentazocine, propoxyphene, tramadol
2. Included only prescriptions filled in Ohio
3. Included decedents with at least one opioid script filled from 1/1/06-12/31/08
4. Doctor shopping: Average 5 prescribers per year from 1/1/06 to 12/31/08.

Doctor Shopping

Opioid prescription fill history for no. of different opioid types[1,2] among 2008 unintentional drug overdose decedents by doctor shopping history, Ohio[3.4]



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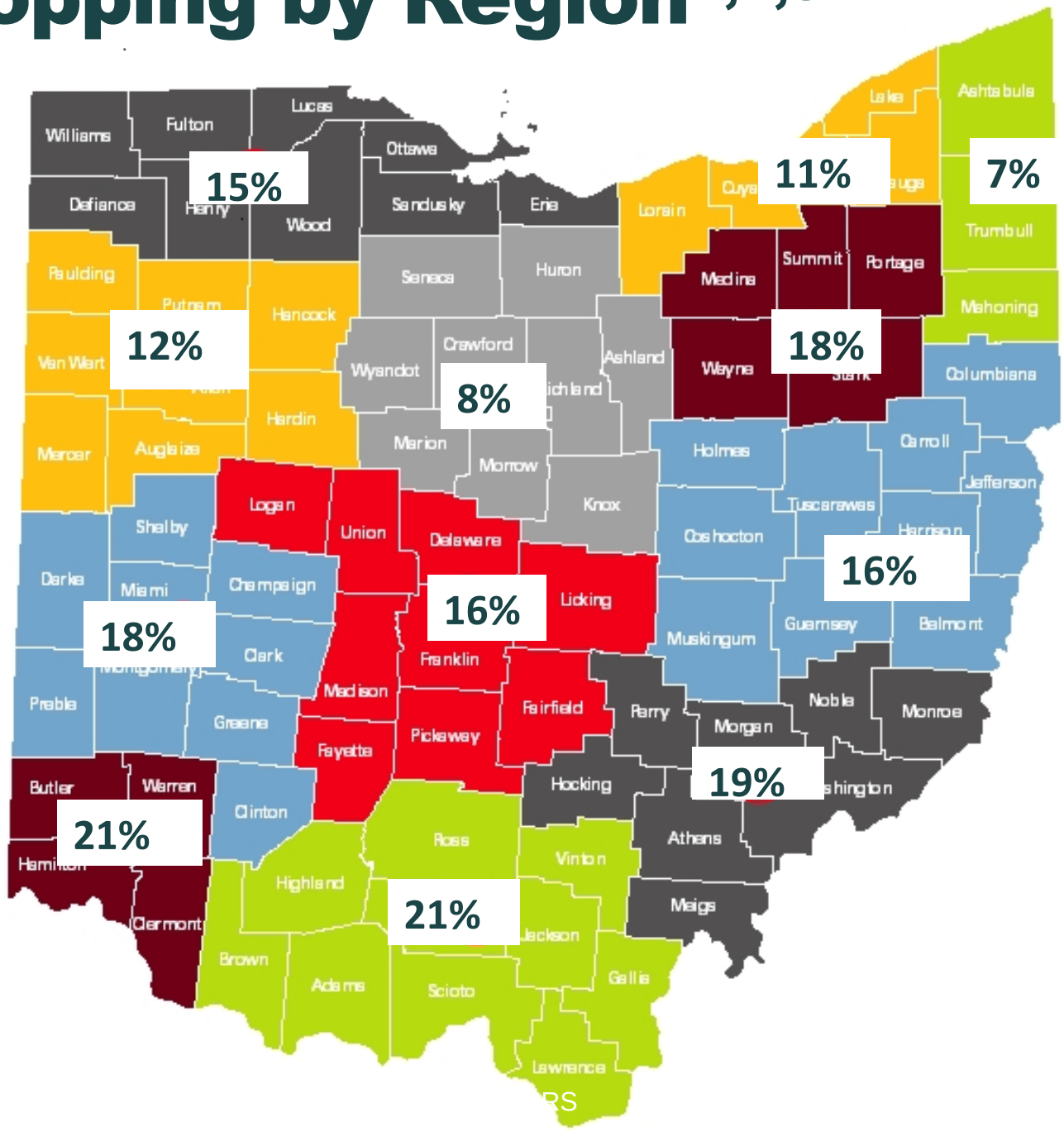
4. Doctor shopping: Average 5 prescribers per year from 1/1/06 to 12/31/08.

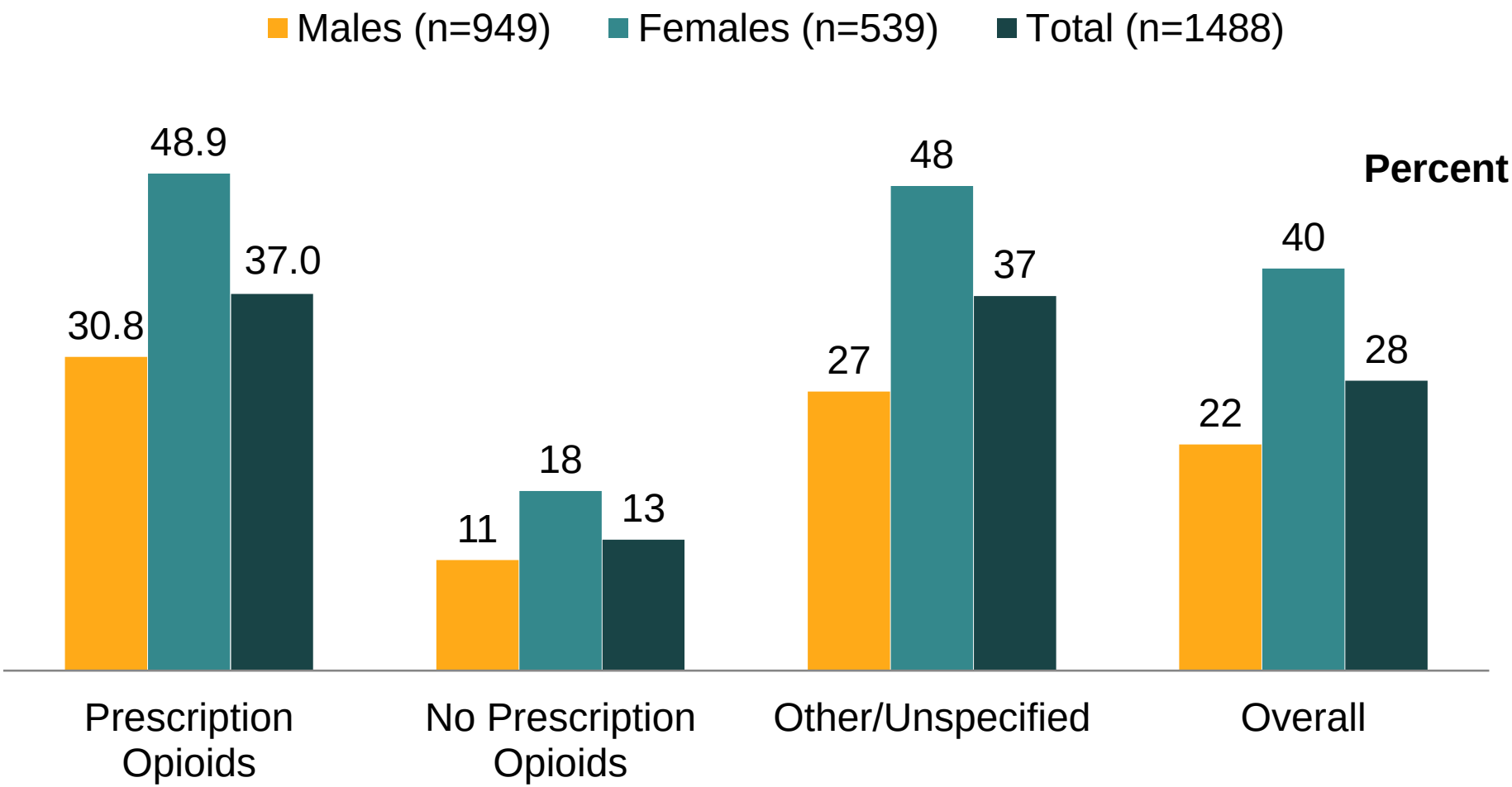
Doctor Shopping by Region[1,2,3]

Doctor shopping rate among Ohio unintentional drug poisoning decedents (2008): 16%



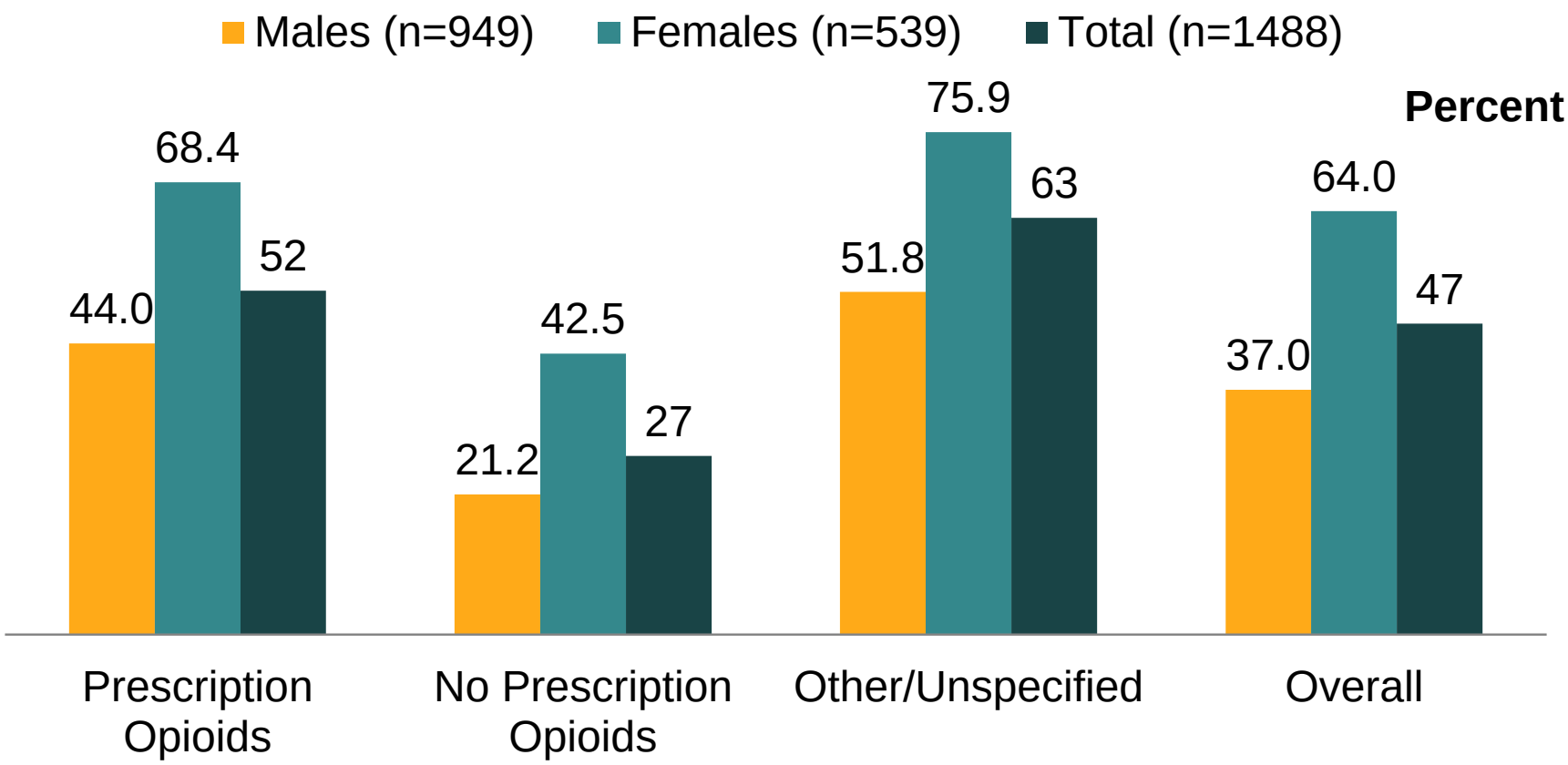
PROFILE OF OVERDOSES WITH UNSPECIFIED DRUGS ON DEATH CERTIFICATE

Percent of 2008 unintentional poisoning decedents[1] with at least one opioid prescription filled[2] per month between 2006-2008 by death certificate category and gender[3]



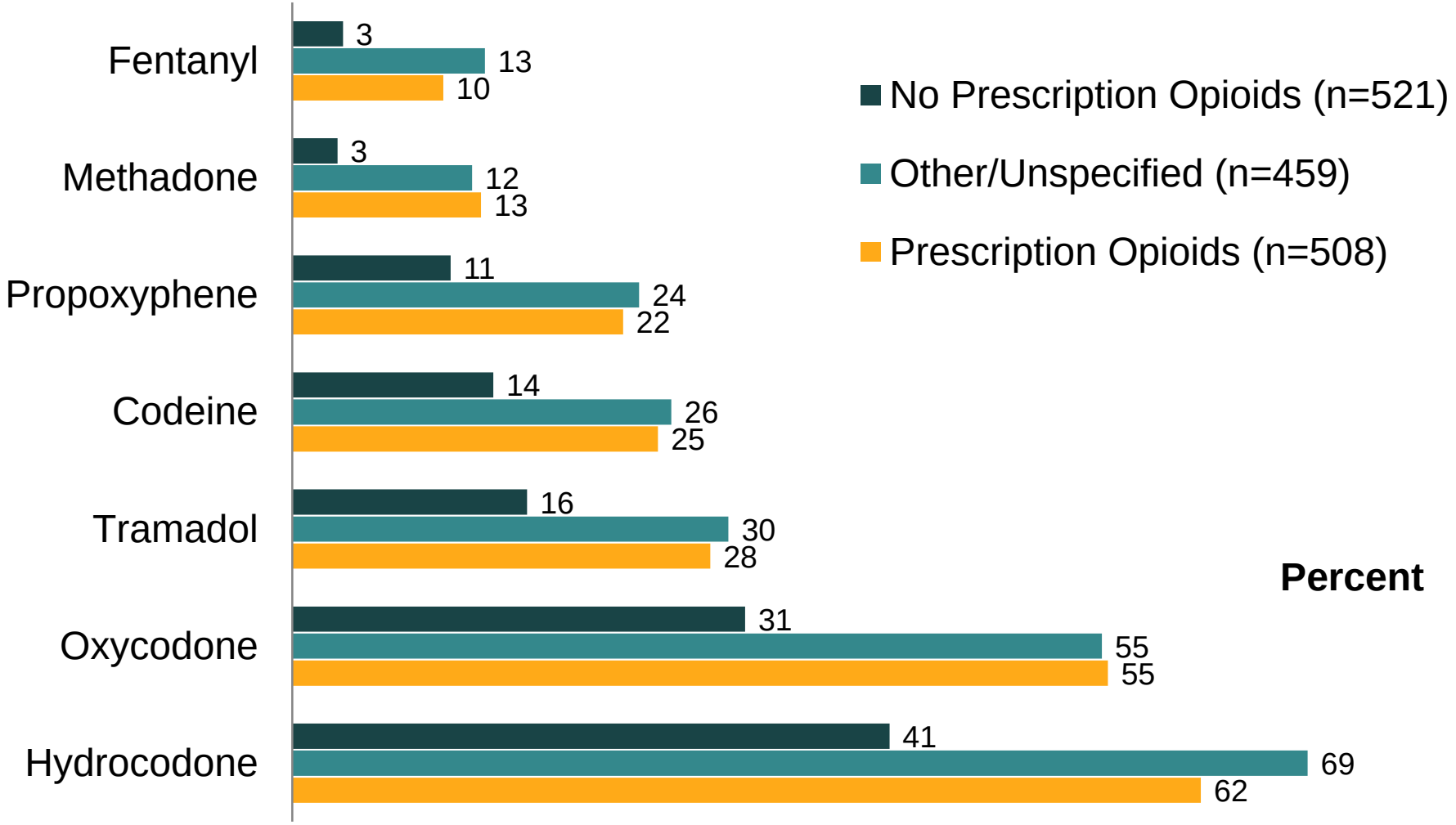
1. Source: ODH Office of Vital Statistics
2. Source: Ohio Automated Rx Reporting System database, Ohio State Board of Pharmacy, Columbus, Ohio (August 12, 2009).
3. Prescriptions filled outside of Ohio not included.

Percent of 2008 unintentional poisoning decedents[1] with at least one opioid and one benzodiazepine filled[2,3] between 2006-2008, by death certificate category and gender



1. Source: ODH Office of Vital Statistics
2. Source: Ohio Automated Rx Reporting System database, Ohio State Board of Pharmacy, Columbus, Ohio (August 12, 2009).
3. Prescriptions filled outside of Ohio not included.

Percent of 2008 unintentional poisoning decedents[1] with at least one prescription for selected opioid type[2,3] between 2006-2008 by death certificate category



1. Source: ODH Office of Vital Statistics
2. Source: Ohio Automated Rx Reporting System database, Ohio State Board of Pharmacy, Columbus, Ohio (August 12, 2009).
3. Prescriptions filled outside of Ohio not included.

USE AND PRESENTATION OF DATA TO DRIVE ACTION

HOW HAVE THE DATA BEEN USED?

- **Included in State Recommendations presented to the Directors of Health, Alcohol and Drug Addiction Services and the Governor.**
- **Included in publications/presentations/factsheets and on the website to raise awareness among stakeholder organizations (e.g., health care organizations, media, coalition members).**
- **Provided county-level data to local coalitions along with death data.**
- **Used to promote need for and possible rules regarding prescriber use of PMP.**
- **Helped establish need for prescribing guidelines for emergency departments/acute care and other settings.**

EXAMPLE OF PMP DATA USE:

DOCTOR SHOPPING AND DIVERSION[1,2]

Sixteen percent of 2008 fatal overdose victims had a history of ***doctor shopping***[3]

Among 2008 drug overdose decedents with a prescription opioid involved, ***25 percent*** obtained the opioid through ***diversion***[4,5]

Among fatal overdoses, Ohioans aged 25 to 44 are more likely to doctor shop while youth (15 to 24) are more likely to obtain drugs through diversion.[3-5]

1 Source: ODH Office of Vital Statistics
2 Source: Ohio Automated Rx Reporting System database, Ohio State Board of Pharmacy, Columbus, OH (08/12/09).
3 Filled prescriptions from at least 5 different prescribers per year
4 No record of prescription filled in Ohio from 1/1/06 to 12/31/08
5 Prescriptions filled outside of Ohio not included.

EXAMPLE OF PMP DATA USE:

OPIOID PRESCRIBING POLICIES BY E.D.s

Opiate ACTION TEAM

Professional Education Workgroup

Why Emergency Departments?

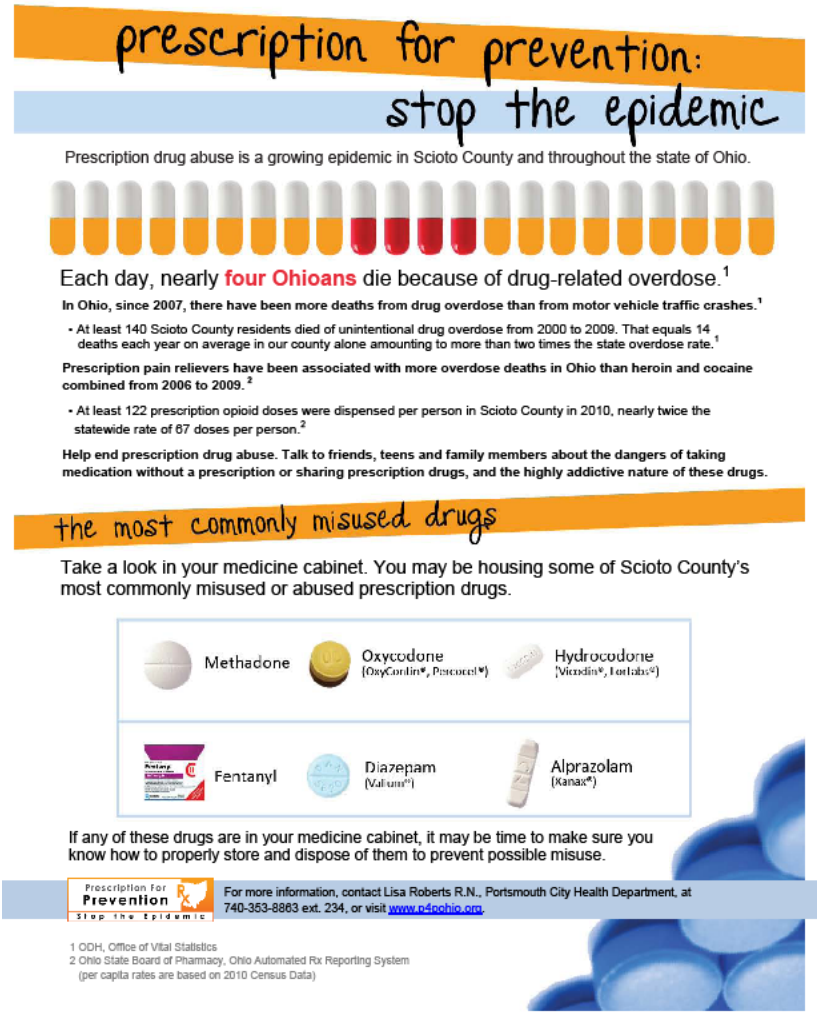
- The ED is an important ambulatory source for opioids for ages 0-39. This may be an even higher percentage in Ohio. (Source: 2006, NCHS)
- Nationally, opioid prescribing for pain-related ED visits increased from 23% in 1993 to 37% in 2005. (Source: JAMA, Trends in Opioid Prescribing by Race/Ethnicity for Patients Seeking Care in US EDs)
- ED treatment of pain is frequently indicated without the benefit of an established doctor-patient relationship and often in an environment of limited resources.
- Closure of "pill mills" may result in increased drug seeking behavior (e.g. doctor shopping) at Eds. **In Ohio, *16%* of 2008 fatal overdose victims had a history *doctor shopping* (filled prescriptions from at least 5 different prescribers per year).** (Source: OAARS & ODH Vital Statistics)

EXAMPLE OF PMP DATA USE:

Factsheets for High Risk Counties - Example

122 prescription opioid doses (9.7 million) were legally dispensed for every person in Scioto County in 2010, nearly twice the statewide rate of 67 doses per person.[2]

140 Scioto County residents died of unintentional drug overdose from 2000 to 2009. That equals 14 deaths each year on average in our county alone amounting to more than two times the state overdose rate.[1]



Sources: 1: ODH Vital Stats 2: Ohio Board of Pharmacy, OARRS

OTHER PLANS WITH PMP DATA

- **Continue existing efforts.**
- **Assist in evaluation of CDC Core Injury Grant Activities regarding prescription drug overdose.**
- **Duplicate linking study to assess changes over time.**
- **Drive policy and evaluate efforts for the Governor's Cabinet Opiate Action Team (GCOAT) – Assess changes in prescribing over time.**
  - Evaluating Opioid ED Prescribing Guidelines Implementation to examine prescriber and patient behavior (e.g., link DEA number to PMP data to identify prescriber specialty)
  - Considering state prescribing "trigger" at which point additional prescribing actions would be necessary. Assessing the numbers of potential patients to be impacted by various MME thresholds (i.e., 80, 100 MME)
  - Considering multiple drug use (i.e., Opioids and benzodiazepines) as a risk factor.

CONTACT INFORMATION

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