Prescription Behavior Surveillance System

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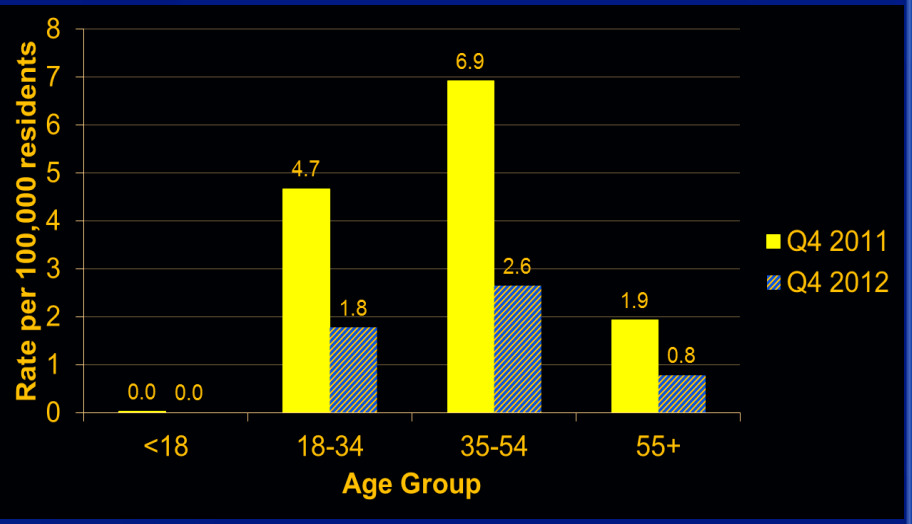


Harold Rogers PDMP National Meeting
Washington, DC, September 26, 2013

Prescription Behavior Surveillance System Why?

Google's Chief Economist, Hal Varian:

"The sexy job in the next 10 years will be statistician. Because now, we really do have essentially free and ubiquitous data. So the complementary factor is the ability to understand that data and extract value from it."

Itinerary of the Talk

- Prescription drug monitoring programs (PDMPs) as surveillance systems
- Background on PBSS
- Descriptive measures: patients
- Descriptive measures: providers

PDMP Attributes As a Surveillance System: Strengths

- Simplicity: single data source, few data elements
- Representativeness: population-based
- Timeliness: excellent
- Data quality: insurance and system error checks
- Acceptability: mandatory
- Cost: little additional cost to analyze data

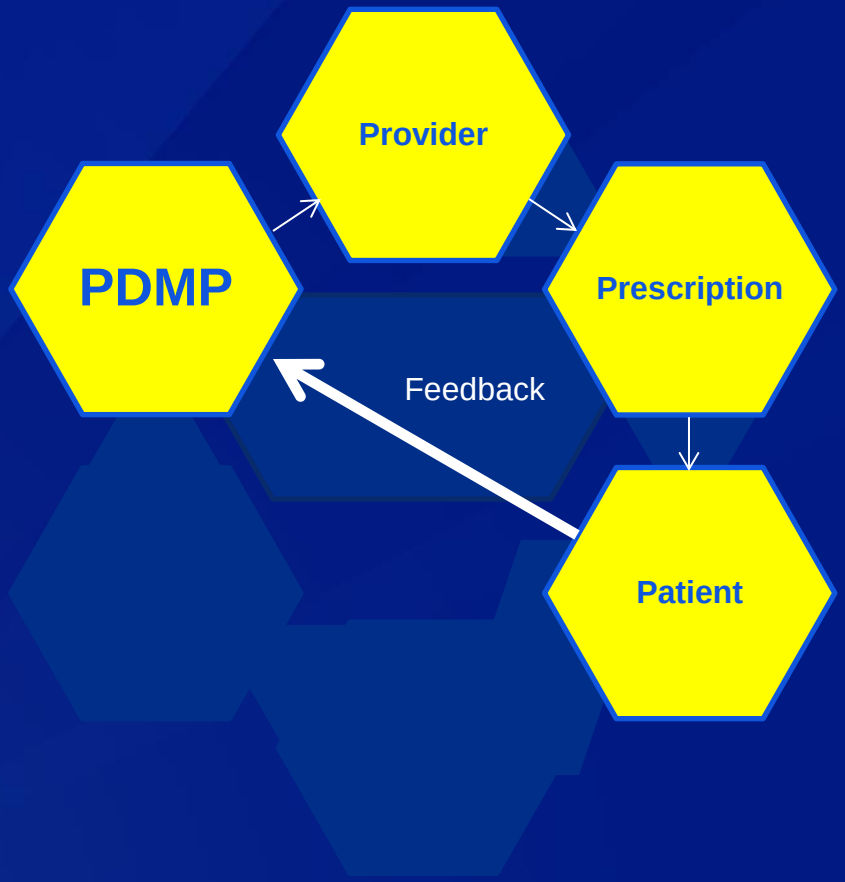
See: Lee et al, eds., Principles and Practice of Public Health Surveillance, 3rd edition, 2010.

PDMP Attributes As a Surveillance System: Weaknesses

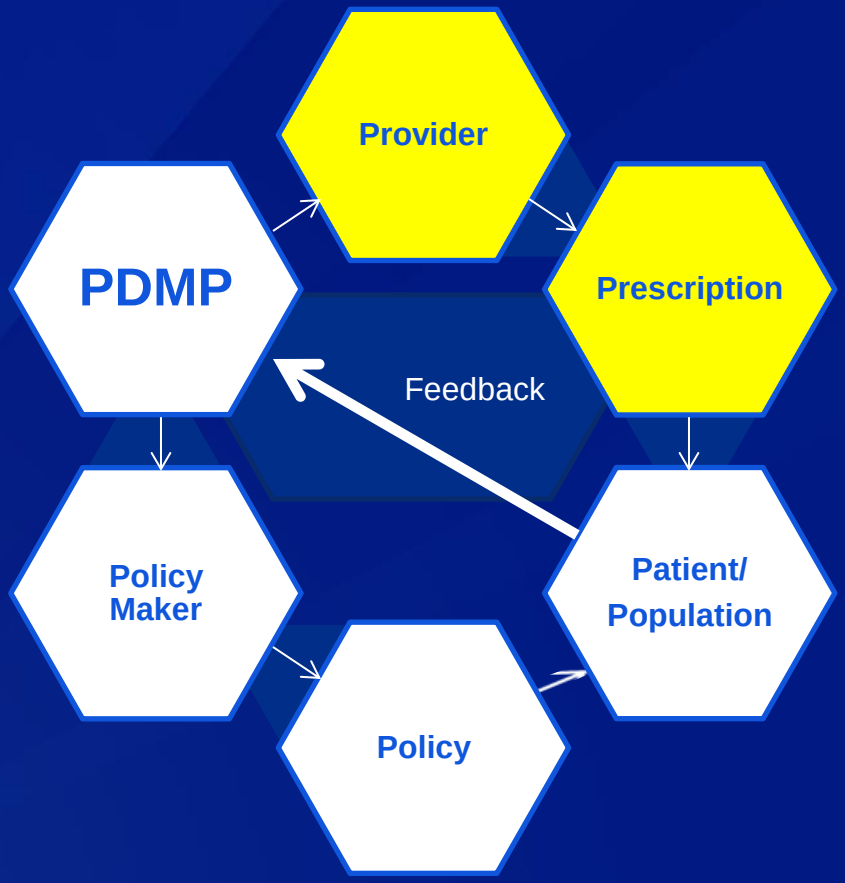
- Predictive value positive: unclear, metrics untested
- Flexibility: fields collected not easily changed
- Stability: funding unstable or inadequate in places

See: Lee et al, eds., Principles and Practice of Public Health Surveillance, 3rd edition, 2010.

Role of PDMP Data in CS Prescribing Process



Role of PDMP Data in CS Policy Development



Prescription Behavior Surveillance System (PBSS)

- Support from CDC's Injury Center and FDA
- Bureau of Justice Assistance funded the PDMP Center of Excellence (COE) at Brandeis University
- COE tasked to establish Prescription Behavior Surveillance System
- Purposes:
  - To create a public health surveillance and evaluation tool based on de-identified, longitudinal data from state PDMPs.
  - To inventory and evaluate prescriber educational initiatives that aim to enable safer prescribing of controlled substances, using the PBSS database when feasible to assess the effectiveness of selected prescriber initiatives.

Time Course for Surveillance Component of PBSS

- May 2012: COE sent first invites to PDMPs
- Dec 2012: PBSS indicators finalized
- August 2013:
  - 7 states completed Data Use Agreements (DUAs) for the PBSS project, and of these:
    - 5 states provided de-identified PDMP data to COE (CA, DE, FL, ID, ME)
    - 2 states are preparing de-identified data to send to COE (IN, KY)
    - Together represent 23% of the US population
  - Preliminary results in 40+ report tables from FL
  - Draft surveillance report

PDMP Information Repurposed in PBSS

- Patient characteristics
  - Sex and age group
  - Residence zip code
- Prescriber/pharmacy characteristics
  - Practice zip code
- Prescription characteristics
  - Date dispensed
  - Drug class, schedule, subtypes (derived from NDC codes)
  - Opioid dosage (derived from other variables)
  - Source of payment (where available)

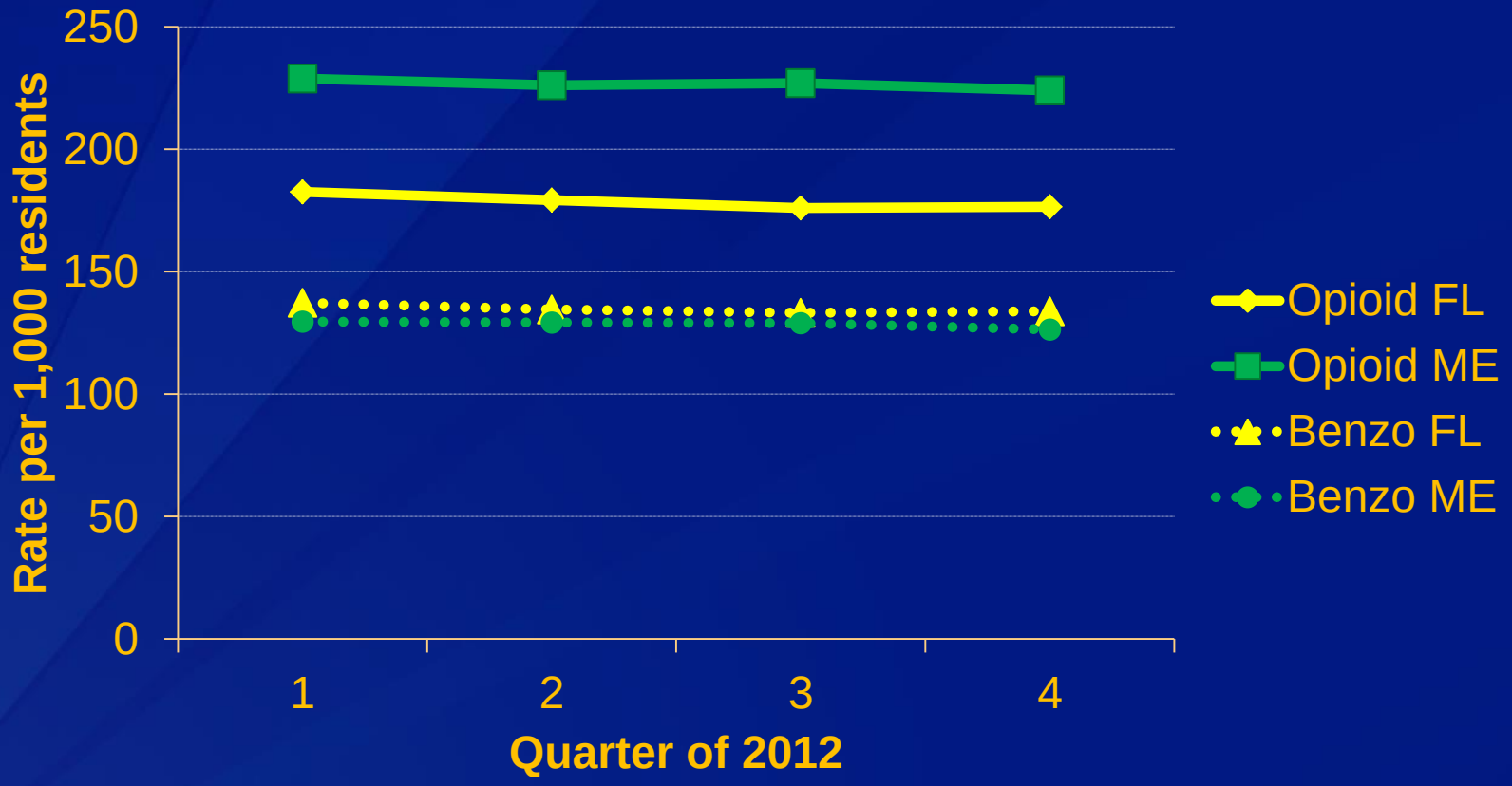
Descriptive Measures/Indicators in PBSS: Patients and Prescriptions

- Population-based prescription rates
- Mean daily opioid dosage
- Percentage of prescribed days with overlap
- Multiple provider episodes (MPE) per 100,000 residents (using BJA definition)
- Percentage of rx involved in MPE
- Specific drug combinations
- Payer types, e.g., cash (where available)

Notes for PBSS Results: Florida

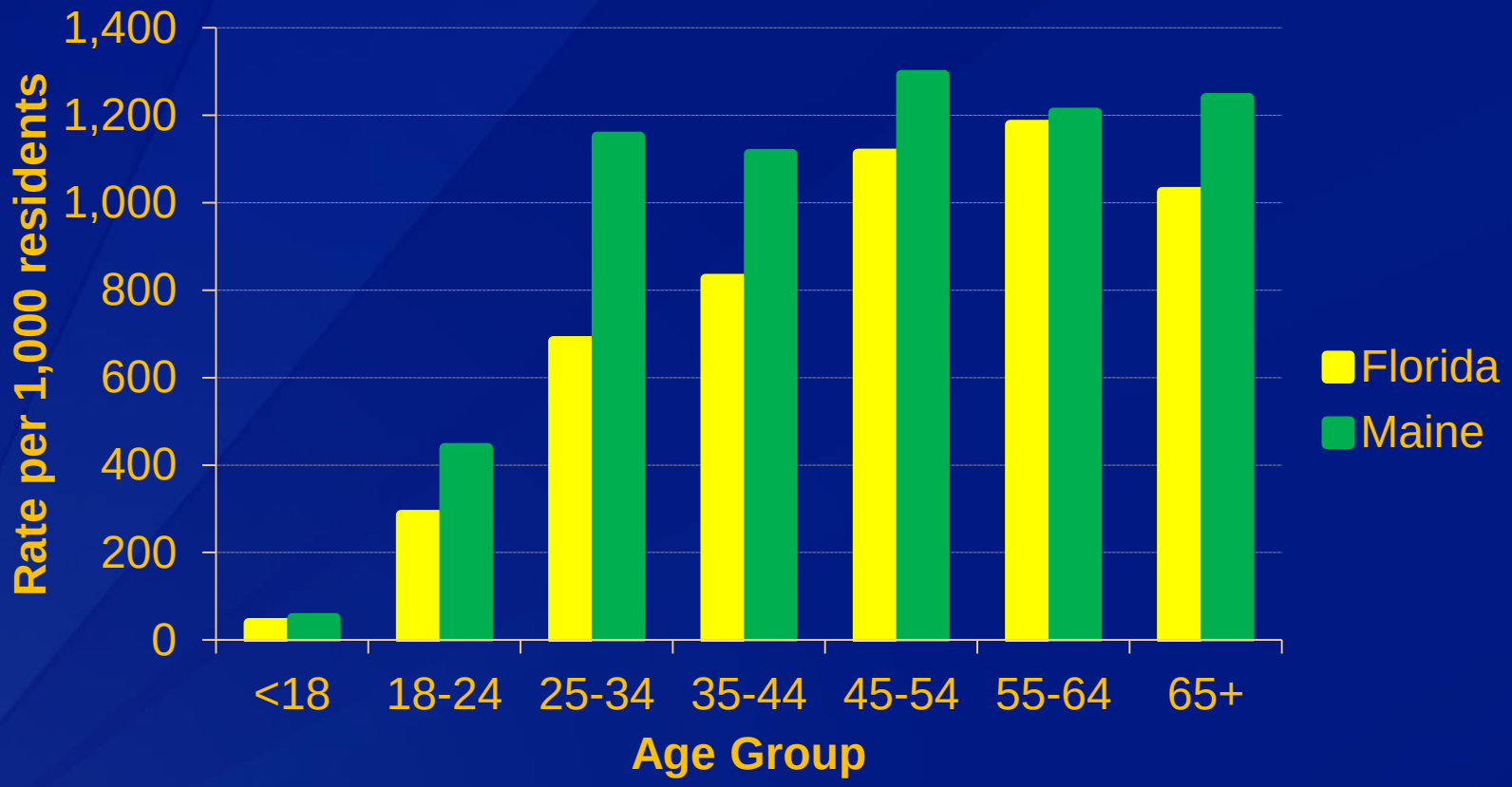
- PDMP operable in October, 2011
- PDMP CS II-IV
- Dispensers not required to report controlled substances for patients under 16 years of age
- Results restricted to state residents unless indicated otherwise
- All results unpublished and preliminary

Opioid and benzodiazepine prescription rates, Florida and Maine, by quarter, 2012 (PBSS)



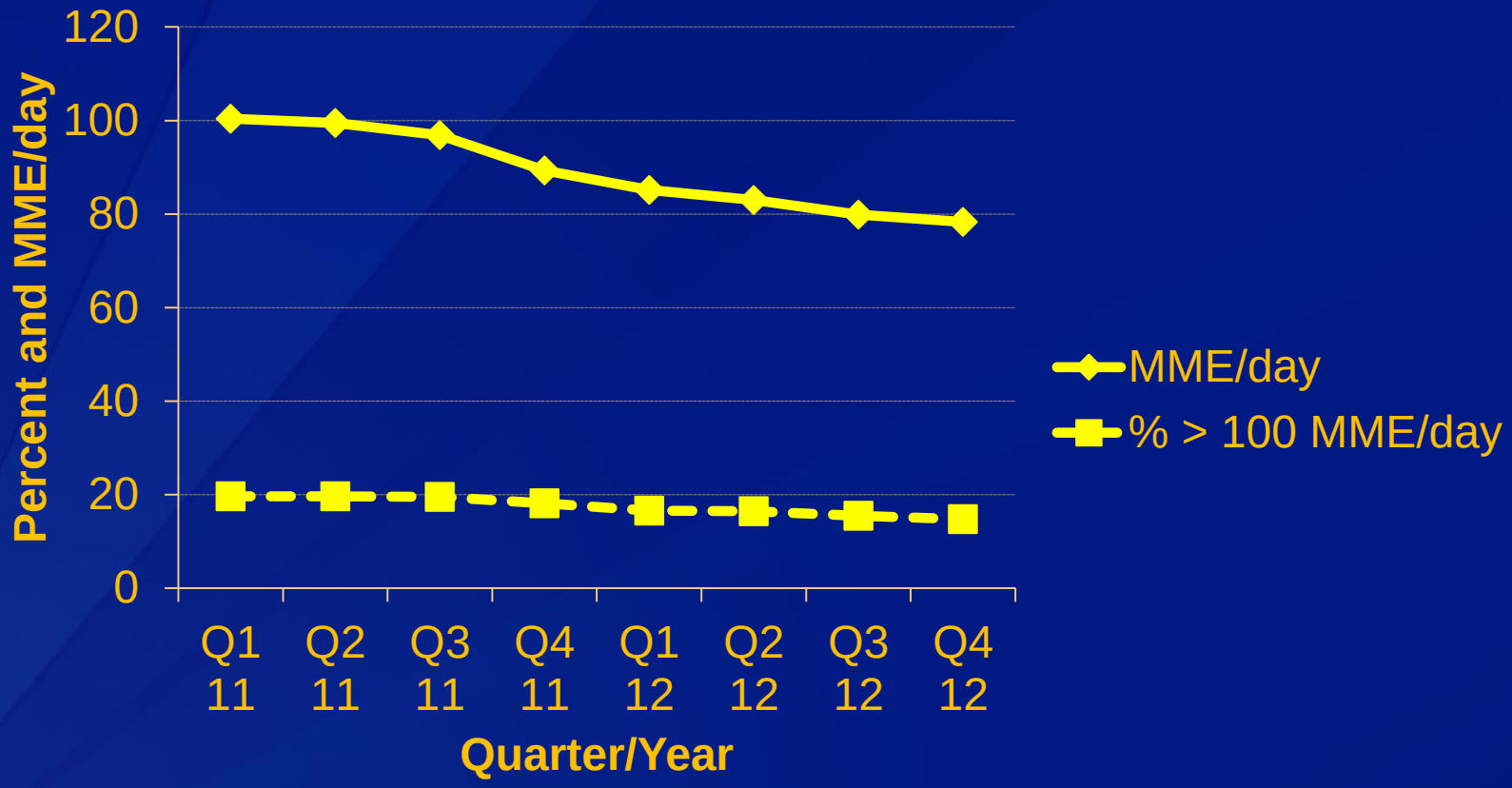
Limited to state residents.

Opioid prescription rates by age group, Florida and Maine, 2012



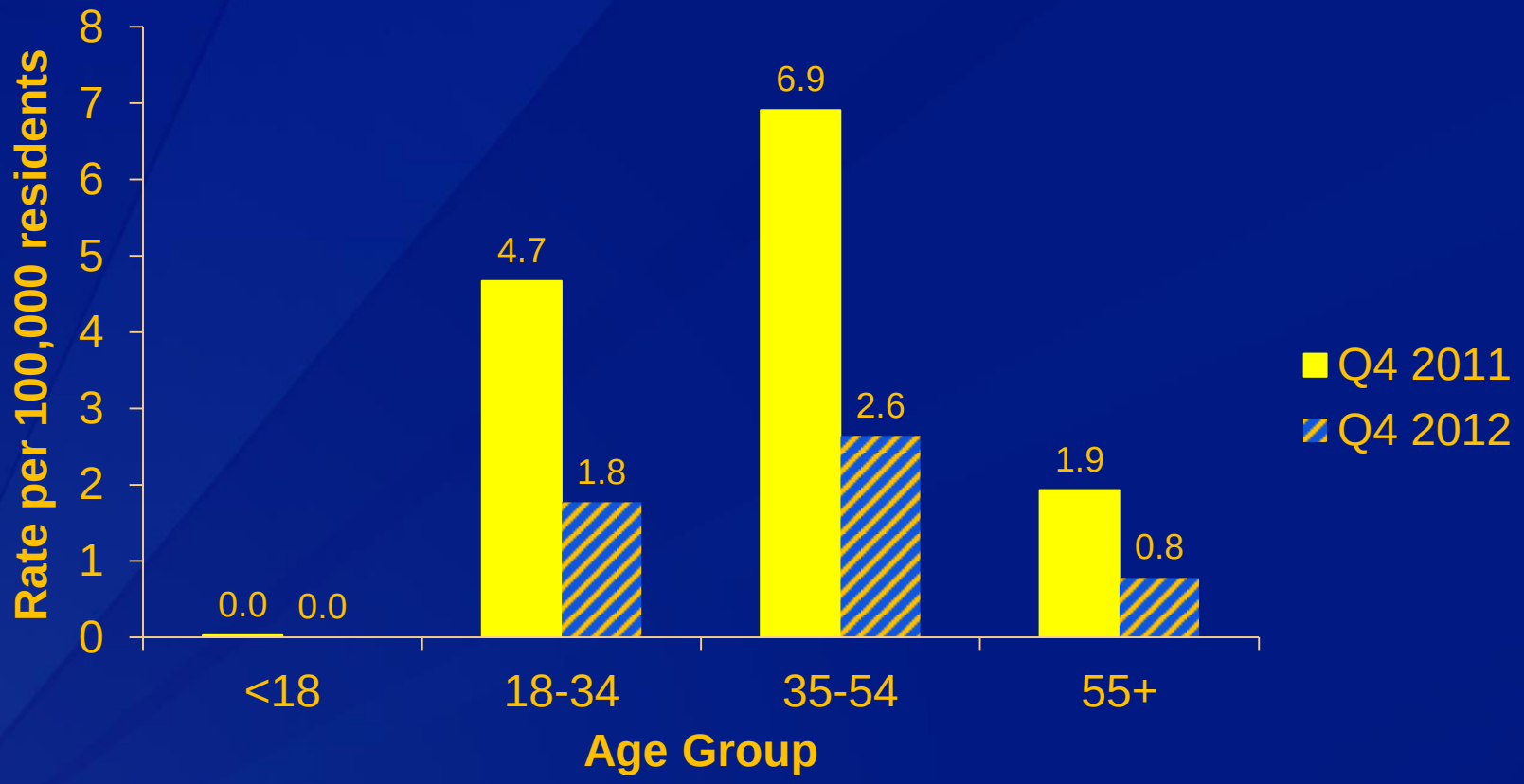
Limited to state residents.

Daily opioid dosage in MME and high dosage by quarter, Florida, 2011-2012



Note: First 3 quarters of 2011 data is incomplete and should be interpreted with caution.

Multiple-provider episode rates* for CS II drugs, Quarter 4 of 2011 vs. Quarter 4 of 2012, Florida

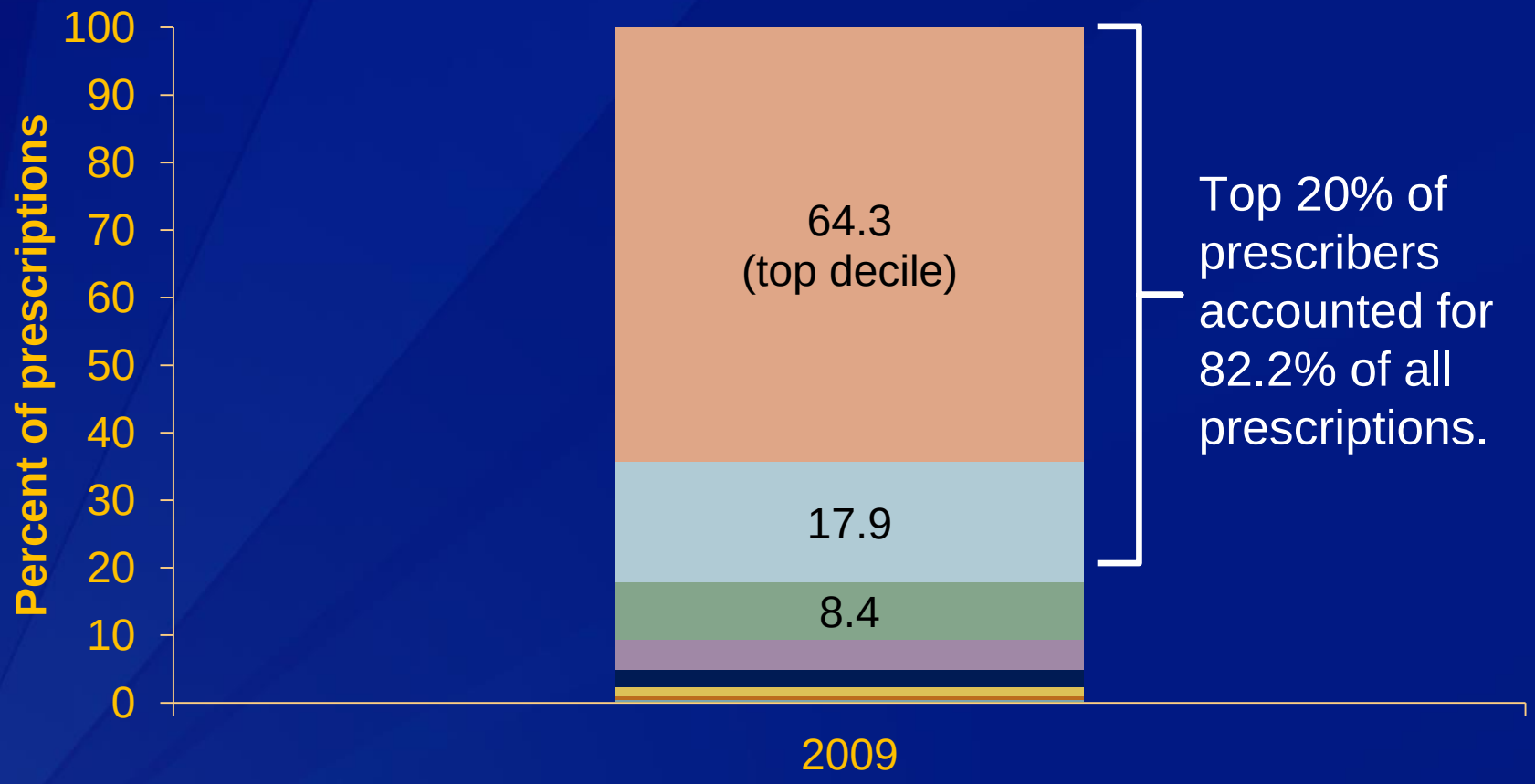


*Having CSII rx from 5+ prescribers dispensed at 5+ pharmacies during one quarter. Limited to state residents.

Descriptive Measures/Indicators in PBSS: Prescribers

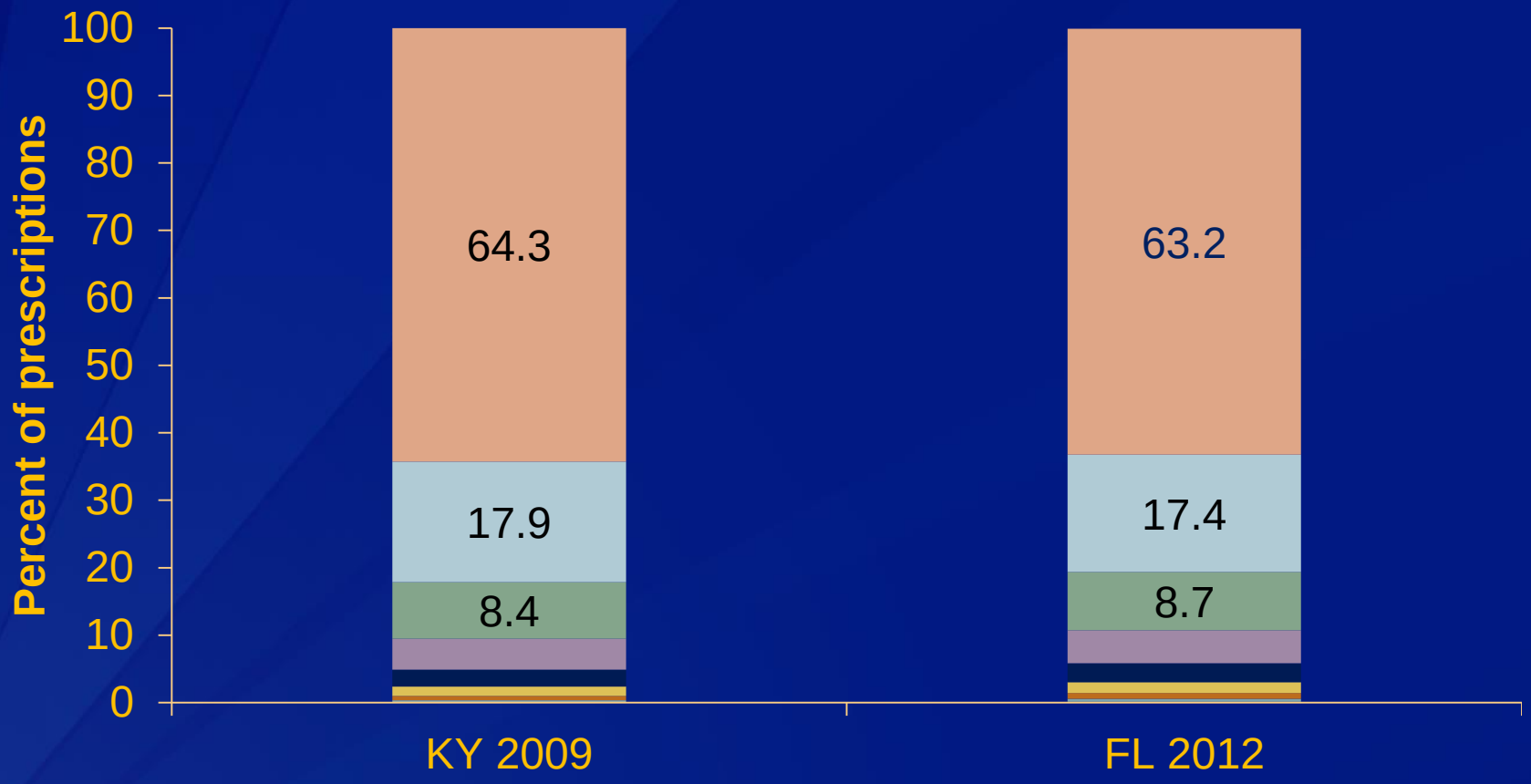
- Prescription volume by prescriber decile
  - Deciles defined by how many prescriptions per time period
- Prescription volume by pharmacy decile
  - Deciles defined by how many prescriptions per time period
- Mean daily opioid dosage prescribed
- Percent cash payment (where available)
- Distance travelled

Two Years Ago at Harold Rogers: Percent of CS II-V prescriptions by prescriber decile by year, KY, 2009



Blumenschein, K, et al. Independent Evaluation of the Impact and Effectiveness of the Kentucky All Schedule Prescription Electronic Reporting Program (KASPER) Institute for Pharmaceutical Outcomes and Policy , Univ of Kentucky, 2010

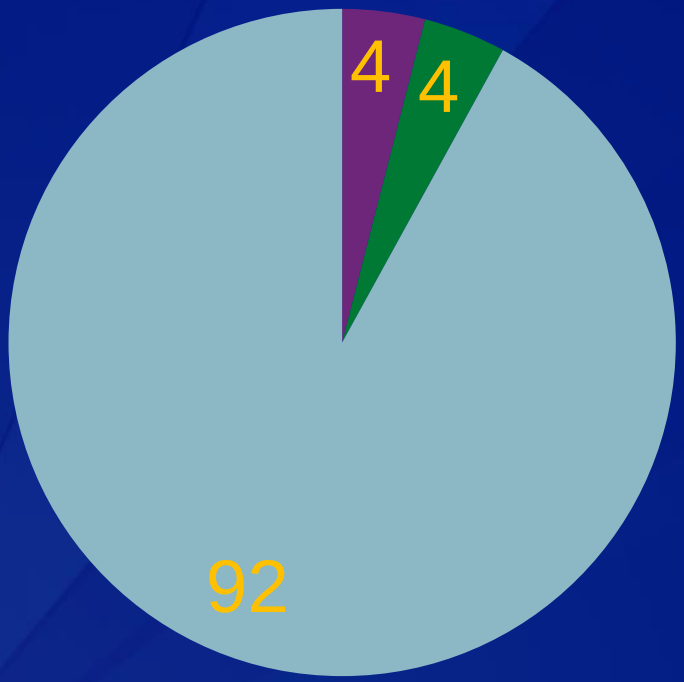
Percent of CS prescriptions by prescriber decile by year, KY, 2009 (CSII-V) and FL, 2012 (CSII-IV)



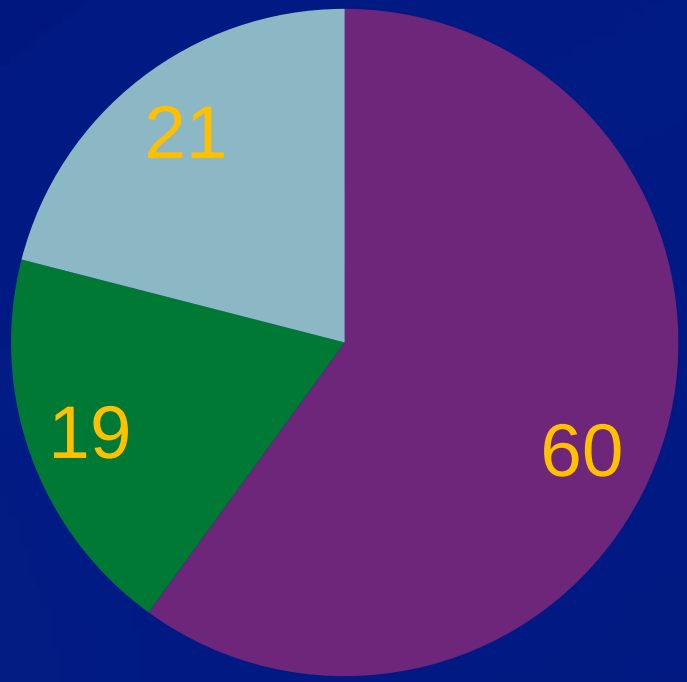
Sources: Kentucky: Blumenschein, K, et al. Independent Evaluation of the Impact and Effectiveness of the Kentucky All Schedule Prescription Electronic Reporting Program (KASPER) Institute for Pharmaceutical Outcomes and Policy , Univ of Kentucky, 2010. Florida: PBSS

Distribution of CS II-IV prescriptions by prescriber percentiles, Oregon, Jan-Sept, 2012

% of Prescribers

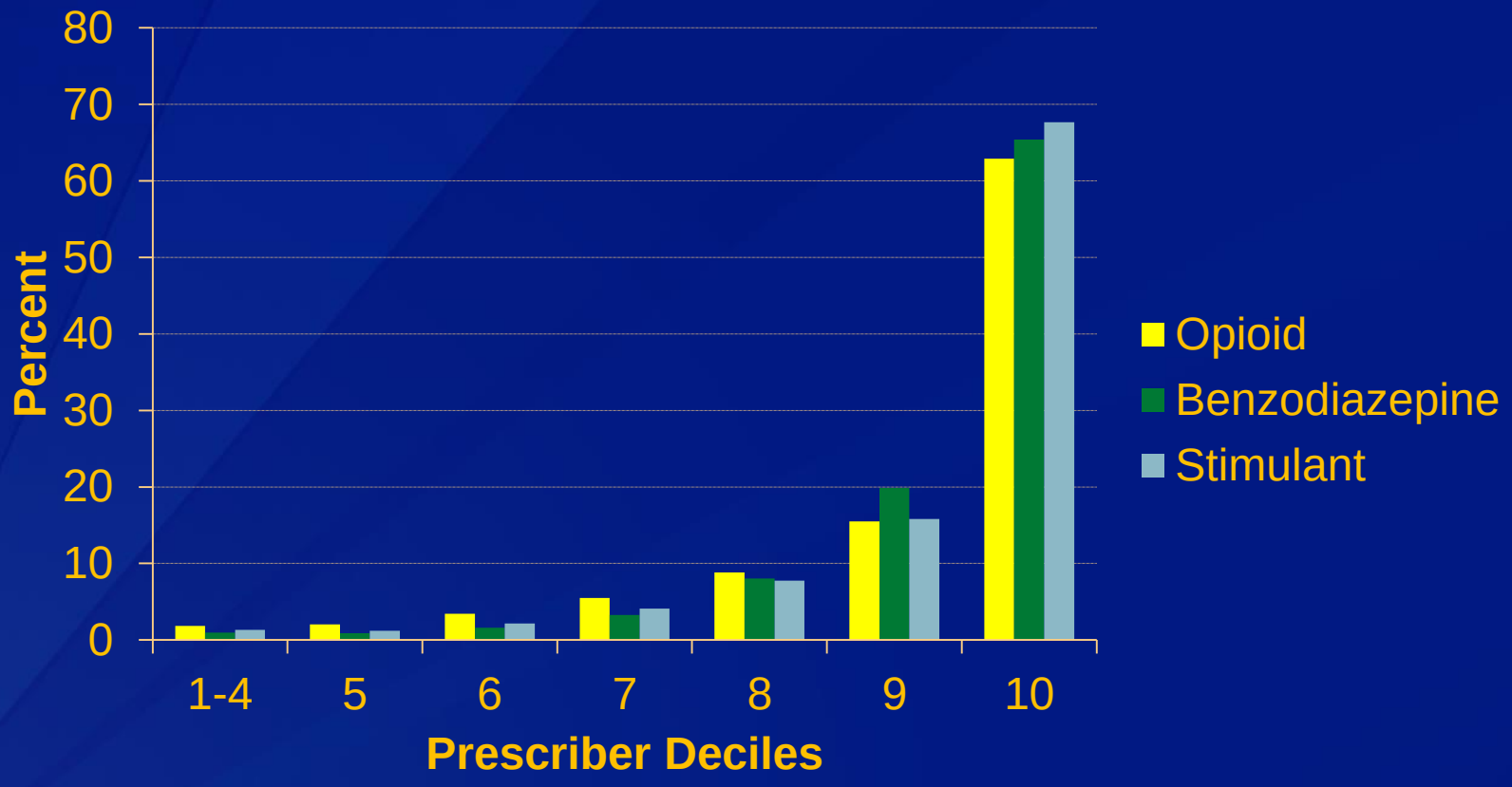


% of CS Prescriptions

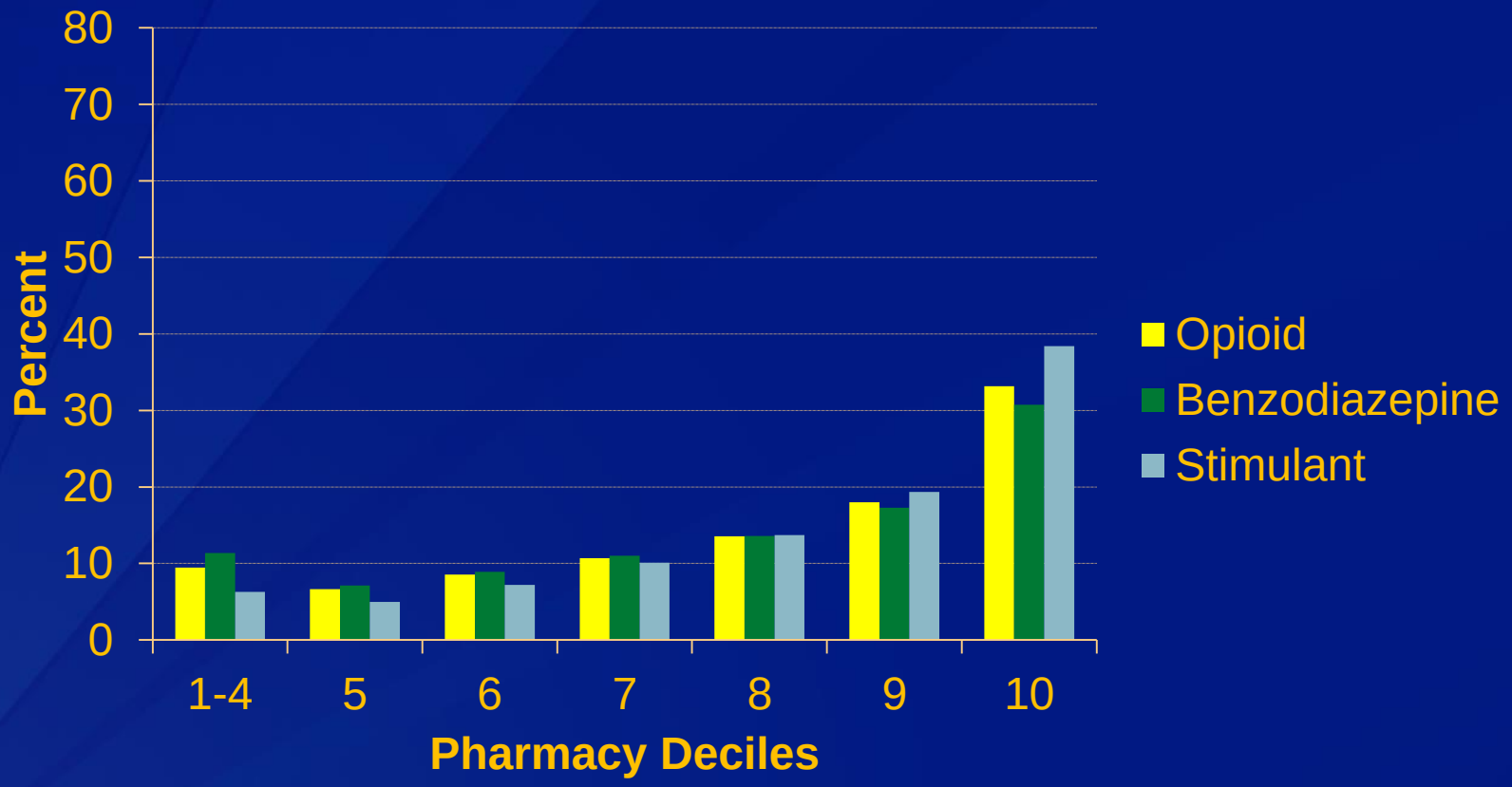


Oregon Health Authority. Prescription Drug Dispensing in Oregon, October 1, 2011 – March 31, 2012

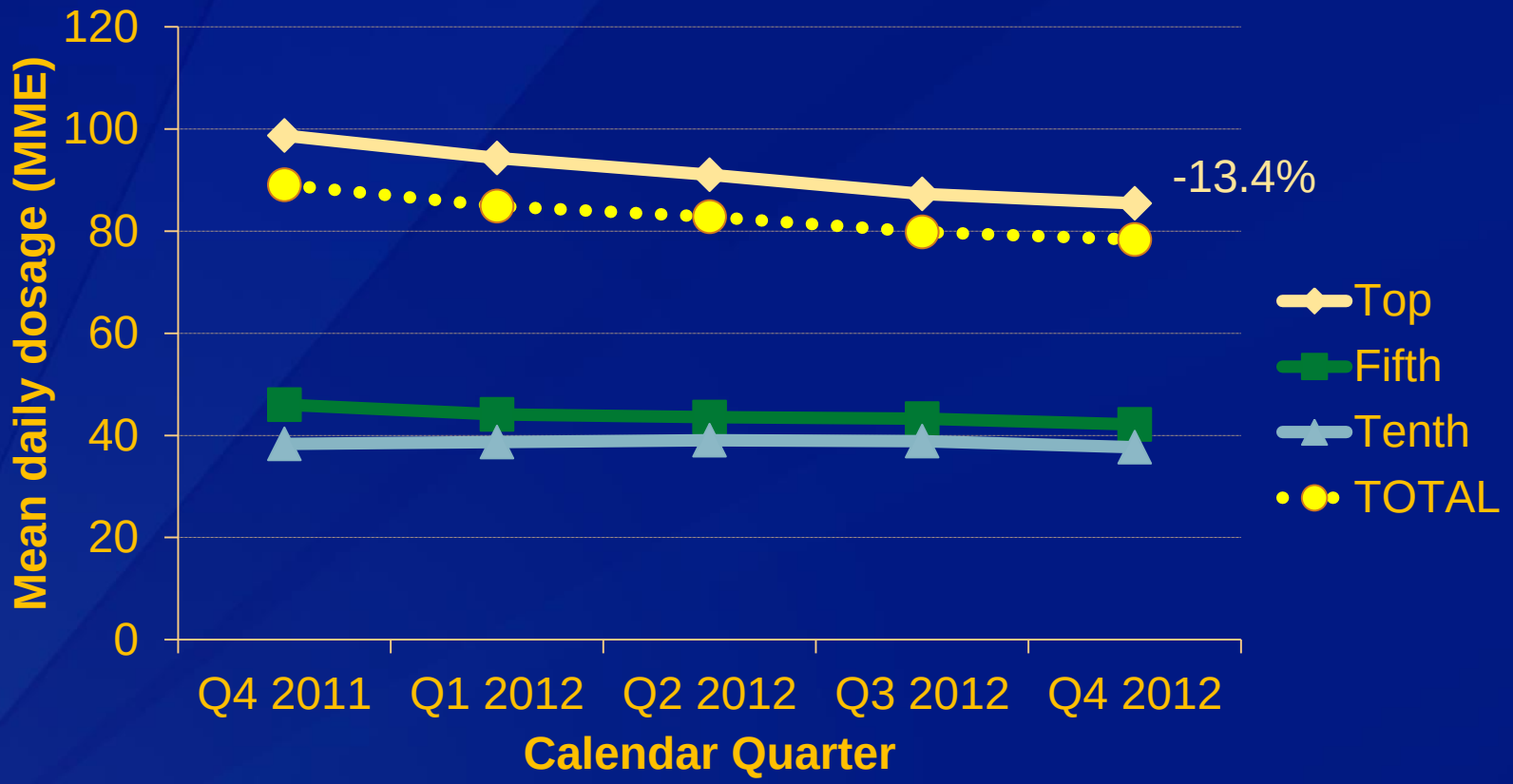
Percent of prescriptions accounted for by prescriber decile by CS type, Florida, 2012



Percent of prescriptions accounted for by pharmacy decile by CS type, Florida, 2012

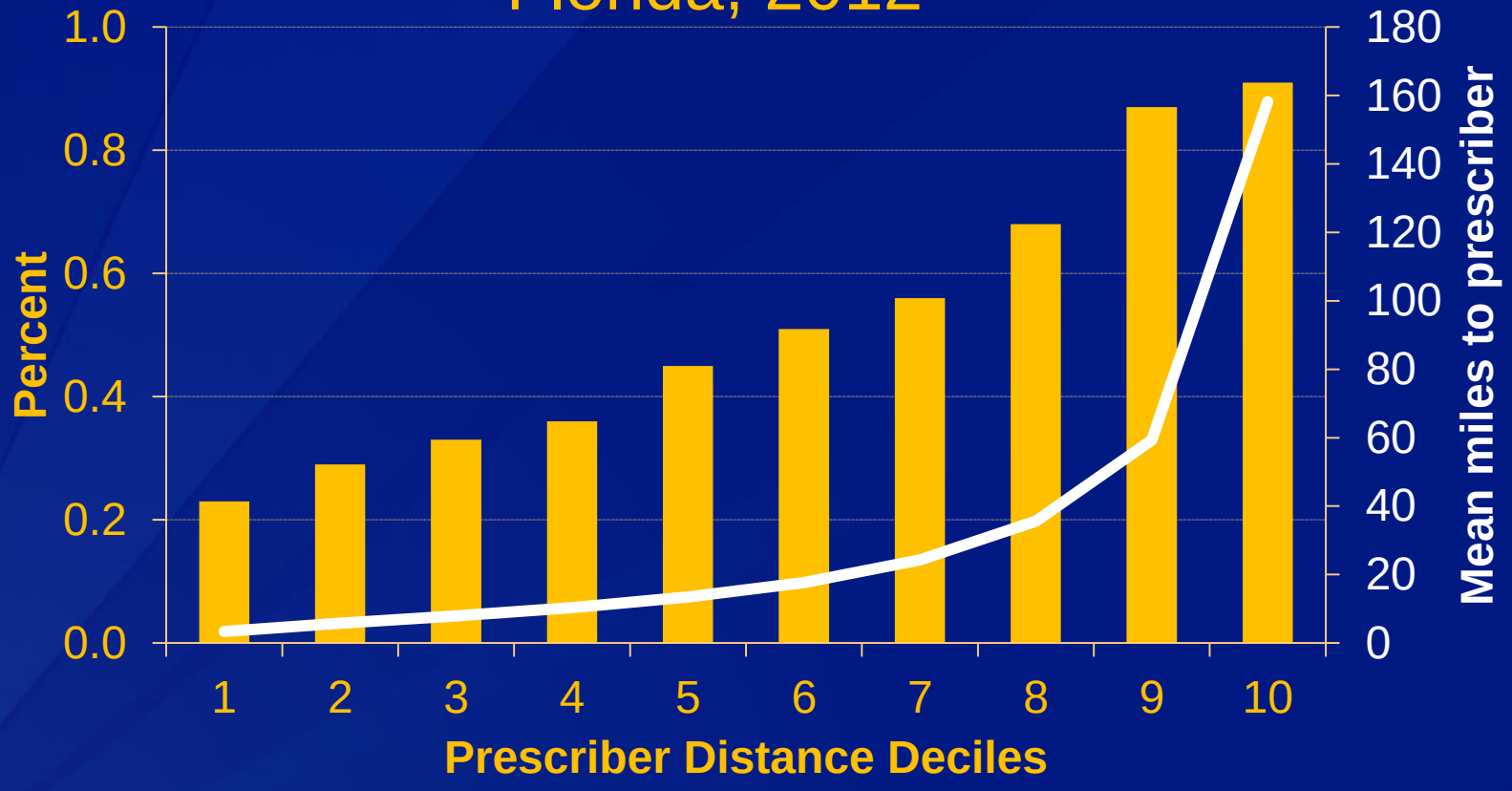


Mean daily opioid dosage by prescriber decile by quarter, Florida, Q4 2011 to Q4 2012



Prescriber deciles are based on number of opioid prescriptions.

Percent of a prescriber's patients seeing multiple providers by distance deciles, Florida, 2012



Prescribers are divided into deciles according to the mean distance between them and their patients for all CS prescriptions. Multiple providers means 5+ prescribers and 5+ pharmacies in 3 months. Includes out of state residents.

Conclusions about PBSS

- ✓ Compilation and analysis PDMP data from multiple states with less than 6 months lag
- ✓ Millions of records transformed into population-based, actionable information about both patients and providers
- ✓ Information relevant to developing and evaluating state policy initiatives
- ✓ With results from larger numbers of states, relevance to the national situation.

Acknowledgements

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Thank You

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The findings and conclusions in this report are those of the author and do not necessarily represent the official position of the Centers for Disease Control and Prevention/the Agency for Toxic Substances and Disease Registry.