

BUILDING EPIDEMIOLOGICAL CAPACITY FOR DRUG OVERDOSE SURVEILLANCE IN THE U.S. HEALTH DEPARTMENTS

Svetla Slavova, Jennifer Sabel, James W. Davis, Dagan Wright, Denise Paone

Council of State and Territorial Epidemiologists (CSTE) Overdose Subcommittee, USA

Safety 2016 World Conference
21 September 2016
Tampere, Finland

Council of State and Territorial Epidemiologists

Strategic Plan 2015 – 2017

**ENSURE THAT PUBLIC HEALTH
EPIDEMIOLOGY INFORMS DECISION MAKING
IN AN ERA OF INCREASING COMPLEXITY
AND INSTANTANEOUS INFORMATION SHARING**

ADDRESS CRITICAL GAPS IN POPULATION HEALTH SURVEILLANCE

Develop a prepared workforce in public health informatics

Guide applied epidemiology workforce and program development

Adapt applied epidemiology practices to meet the challenges posed by advanced molecular detection

Identify methods to leverage the electronic health record for population health monitoring

Build applied epidemiology capacity in chronic and other non-infectious conditions

INCREASE VISIBILITY AND RECOGNITION AS THE APPLIED PUBLIC HEALTH EPIDEMIOLOGY RESOURCE

Be known as the organization whose members monitor the health of the population and respond to public health threats

Build stronger linkages with healthcare providers and their representative organizations

Improve collaboration, data linkages, and data usage across infectious and non-infectious program areas

CONTINUE TO BUILD A SUSTAINABLE FUNDING PORTFOLIO

Accelerate implementation of the funding diversification plan

Build expertise in fundraising

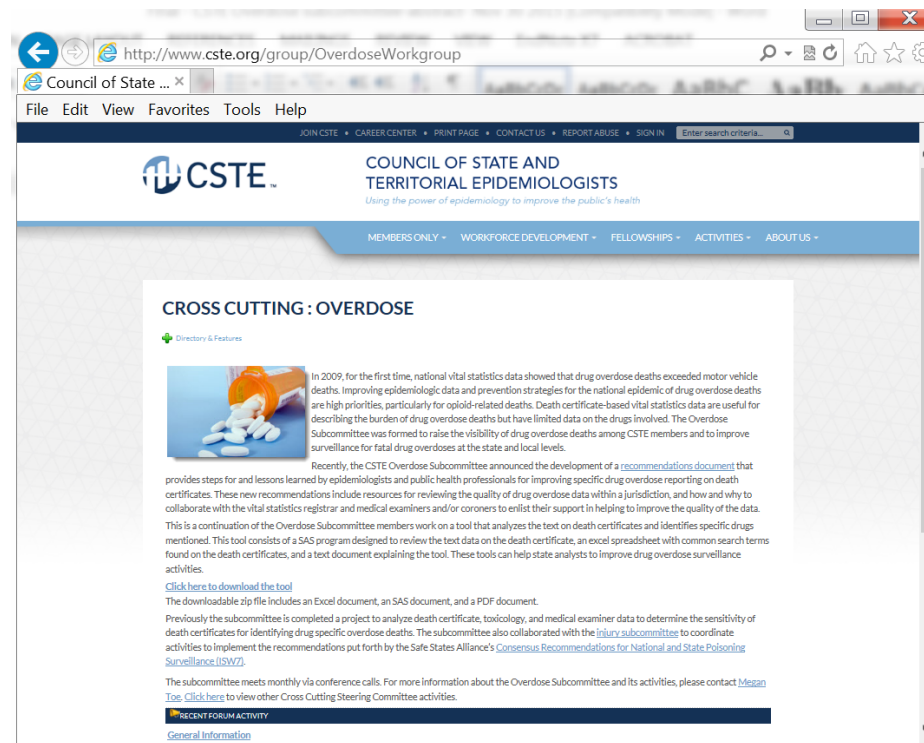


CSTE Overdose Subcommittee



CSTE Overdose Subcommittee

Formed in 2012 in response to the growing prescription drug overdose epidemic in the U.S., to raise CSTE membership awareness, and test and validate proposed drug overdose indicators before they were widely adopted as surveillance tools at national, state , and local levels.



CSTE Overdose Subcommittee



Accomplishments

Several major projects were completed with voluntary participation from CSTE Overdose Subcommittee members, resulting in surveillance recommendations, conference presentations, new epidemiological tools for analysis of overdose data, papers, and peer-reviewed publications.



Project 1:

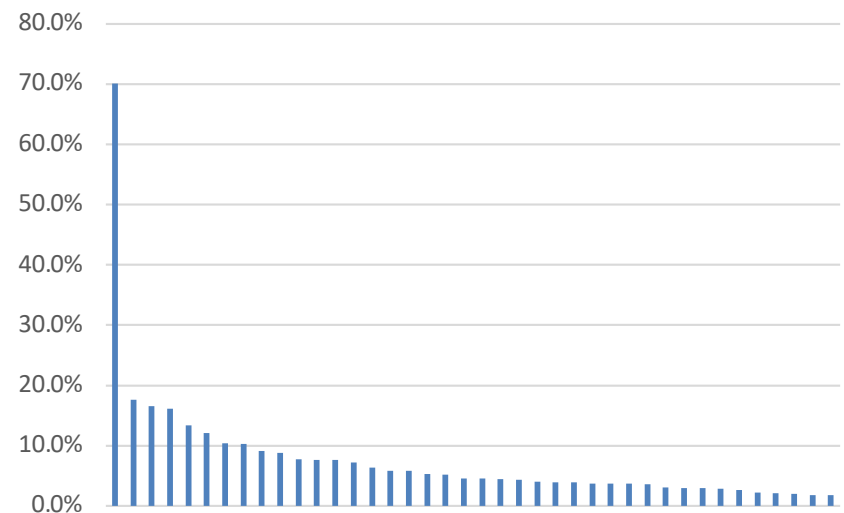
Evaluation of the state-to-state variability in drug overdose death indicators

Findings: There is a significant variation in the state/jurisdictional practices of certifying the manner of drug overdose death

Recommendations:

- It is better to report all drug overdoses, regardless of intent, for state-to-state comparisons.
- Categorization by intent is still useful, for example, to examine the proportion of the drug overdose deaths by intent over time within a given state/jurisdiction.

Percentage of Drug Overdose Deaths with "Undetermined" Intent, By State, 2014



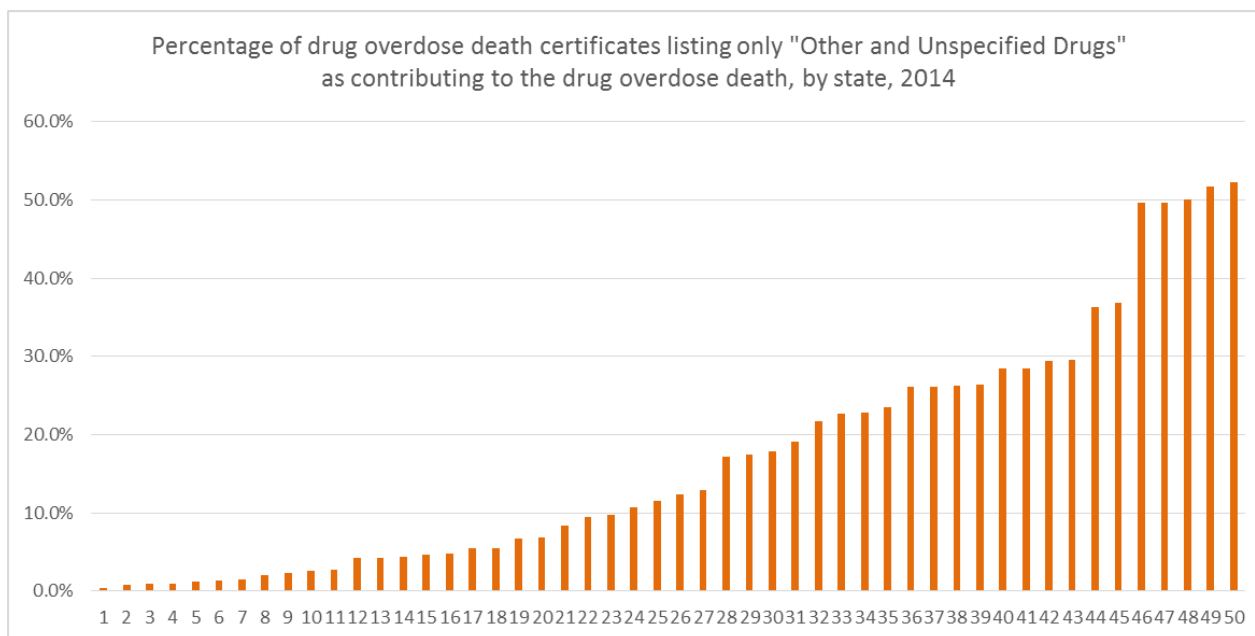
Project 1:

Evaluation of the state-to-state variability in drug overdose death indicators

Findings: The completeness and accuracy of information regarding specific drugs contributing to overdose deaths vary significantly among jurisdictions.

Recommendations:

- The comparison of jurisdictions should be based on total drug overdose rates.
- Trends in jurisdictional rates for specific drug types remain useful as long as the degree of specification of drugs does not vary markedly from year to year.



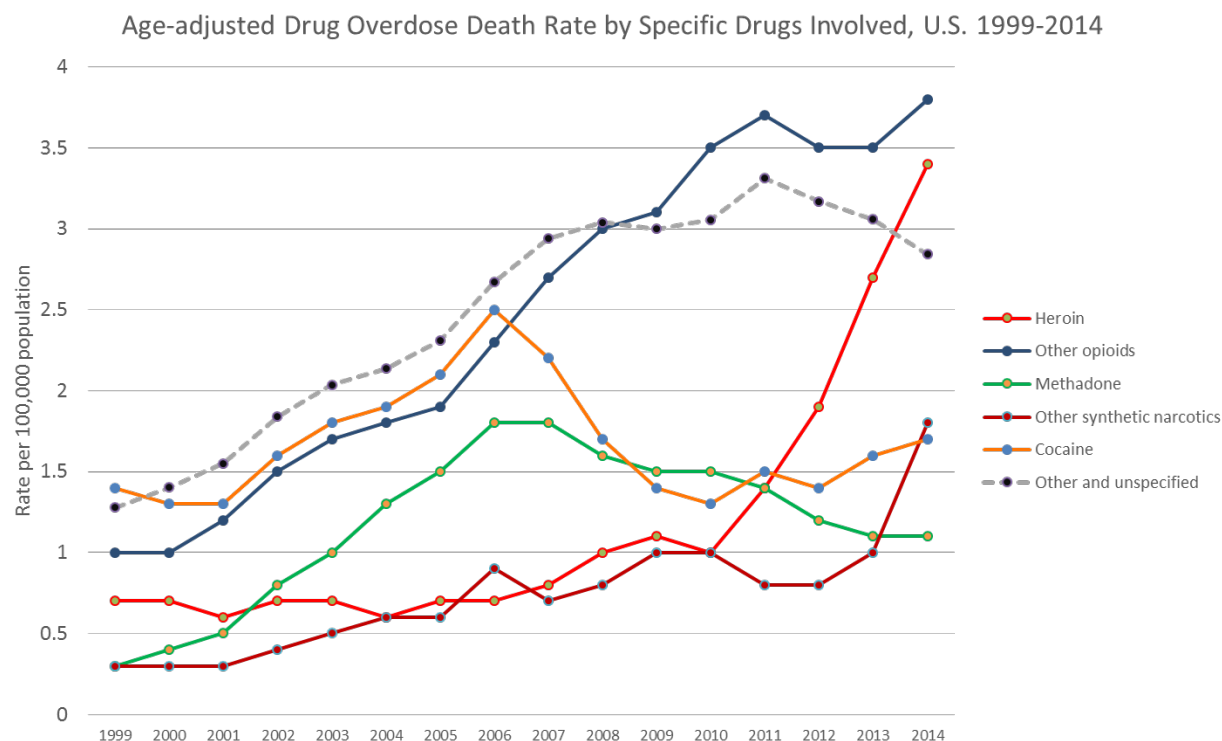
Project 1:

Evaluation of the state-to-state variability in drug overdose death indicators

Findings: The use of nonspecific language to identify contributing drugs on the death certificate results in undercounting various drug classes.

Recommendations:

- Always interpret rates for specific drugs contributing to overdose deaths in the context of the completeness and quality of the death certificates.
- Work with your coroners and medical examiners to improve the completeness of information listed on the death certificates.

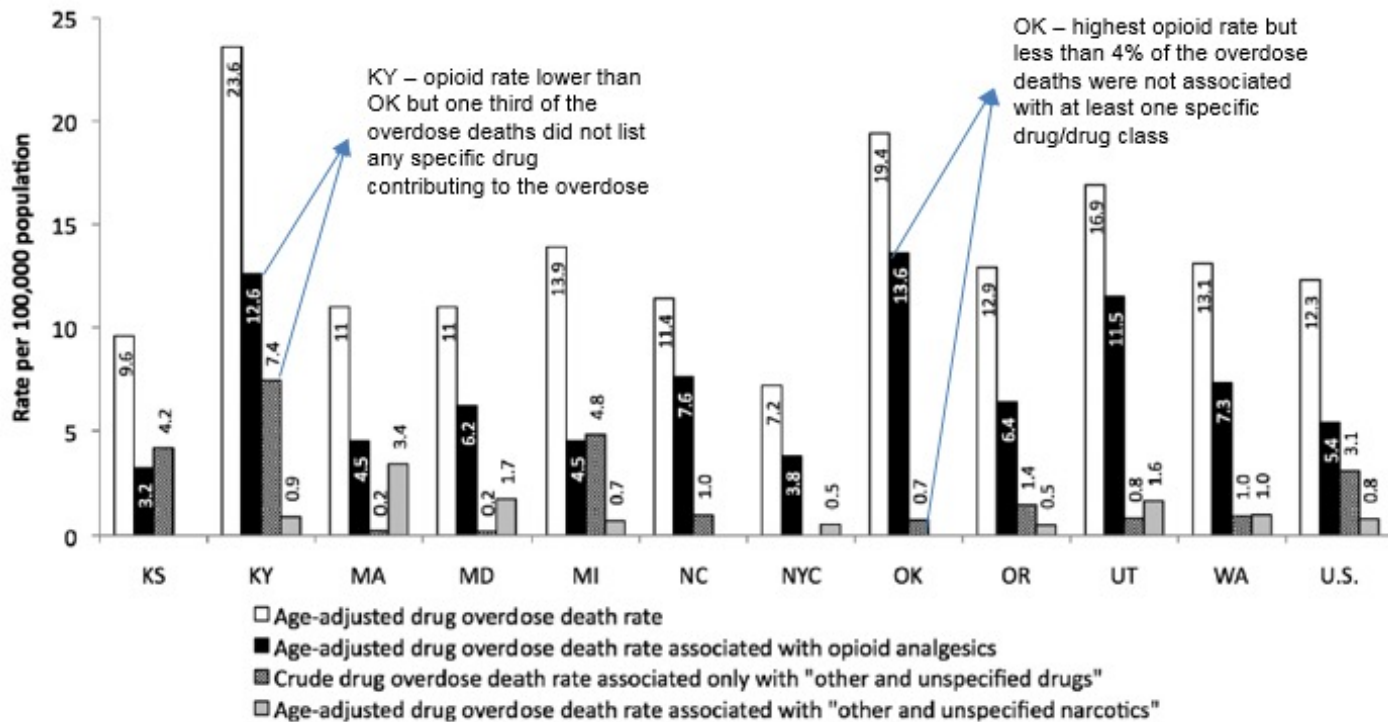


Drug Overdose Deaths: Let's Get Specific.

Slavova S., Bradley O'Brien D., Creppage K., Dao D., Fondario A., Haile E., Hume B., Largo T., Nguen C., Sabel J., Wright D.
Public Health Reports.

July-August 2015. Volume 130, pg.339-342

Figure. Drug overdose death rates^a, by jurisdiction: United States and selected states, 2010^b



^aPer the National Center for Health Statistics reporting rules, the following rates were suppressed (based on fewer than 10 deaths): the New York City overdose death rate associated only with "other and unspecified drugs" and the Kansas and Oklahoma overdose death rates associated with "other and unspecified narcotics". The North Carolina overdose death rate associated with "other and unspecified narcotics" was unreliable (based on fewer than 20 deaths). Both the suppressed and unreliable rates were omitted from the figure.

^bSource: Centers for Disease Control and Prevention (US). CDC WONDER: multiple cause of death data [cited 2015 Jan 16]. Available from: URL: <http://wonder.cdc.gov/mcd.html>



CSTE Overdose Subcommittee



Fentanyl Overdose Deaths, 2012- 2015: Preliminary Results of Joint Study



CSTE Overdose Subcommittee



Reasons for the study

- Record high age-adjusted drug overdose fatality rate in U.S. in 2014¹
- U.S. rate of overdose deaths involving synthetic opioids (other than methadone) increased 80%¹
- Difficulty comparing synthetic opioid increases by states due to differences among states in:
 - Testing
 - Reporting



Study goals

- Compile timely results on fentanyl and other synthetic opioid-related deaths
- Collect information on the post-mortem toxicology testing for synthetic opioids and fentanyl
- Promote common definitions, methods, peer mentoring



Methods

1. Survey sent to participating jurisdictions
2. Mortality data collected from jurisdictions
 - Using levels of available information
 - Jurisdictions reported counts and age-adjusted rates per 100,000 population
 - Data limited to residents only



14 Jurisdictions in the study

Arizona (Jennifer Dudek)

Iowa (Toby Yak)

Kentucky (Svetla Slavova, Sarah LaMantia, Huong Luu, Terry Bunn)

Massachusetts (Malena Hood)

Minnesota (Nate Wright)

New York City (Ellenie Tuazon, Denise Paone, Michelle Nolan)

North Carolina (Mary Beth Cox, Scott Proescholdbell)

New Mexico (Jim Davis)

Oklahoma (Claire Nguyen)

Utah (Anna Fondario, Elizabeth Brutsch)

Washington (Jennifer Sabel)

Maricopa County, AZ (Kyle Garner) – survey results only

Marin County, CA (Haylea Hannah, Karina Arambula)

Saint Louis County, MO (Lara Dalidowitz, Jennifer Kret)



Contributors to the analysis and slides

- Svetla Slavova, UKY
- Huong T. Luu, UKY
- Ellenie Tuazon, NYC
- Michelle Nolan, NYC
- Denise Paone, NYC
- Barbara Gabella, CO
- Megan Toe, CSTE



Survey questions

- **What type of Death Investigation System does your office have?**
- **Does your state/jurisdiction have a centralized toxicology laboratory?**
- **Is fentanyl included in the basic screening panel in your jurisdiction?**
 - If “Yes”: Which of the following years was fentanyl included in the basic screening panel for the entire year
 - If “No”: If fentanyl is not included in the basic screening panel, is it available as an “add on” test or in an ‘add on’ panel?
 - If the initial basic screen is fentanyl positive, is confirmatory testing routinely performed?
 - If yes: Which of the following years was confirmatory testing for fentanyl routinely performed for the entire year
 - If yes to routine confirmatory testing: What is currently included in confirmatory panel?
- **Which level capacity is your state/jurisdiction for reporting fentanyl involved overdose deaths?**



Survey domains

- Type of Death Investigation System
- Toxicology laboratory centralized or local variation?
- Standardization of fentanyl screening
 - Is it included in initial basic screening?
 - Is confirmatory testing performed?
- Which level capacity is your state/jurisdiction for reporting fentanyl involved overdose deaths?



Survey results

Variety in the type of death investigation system:

- 4 out of 14 are county-level ME (AZ, Maricopa county – AZ, MN, and Saint Louis county – MO)
- 1 out of 14 are regional-level ME (NYC)
- 5 out of 14 are state-wide ME (IA, NC, NM, OK and UT)
- 2 out of 14 are ME/Coroner hybrid (KY, and WA)
- 1 out of 14 is County-level coroner (Marin county – CA)
- In MA, ME is not under the DPH or under the Executive Office of Health and Human Services → collaborate with the ME office to get the data

11 of 14 jurisdictions have centralized toxicology lab

~~Low, Marin County, and Minnesota do not~~

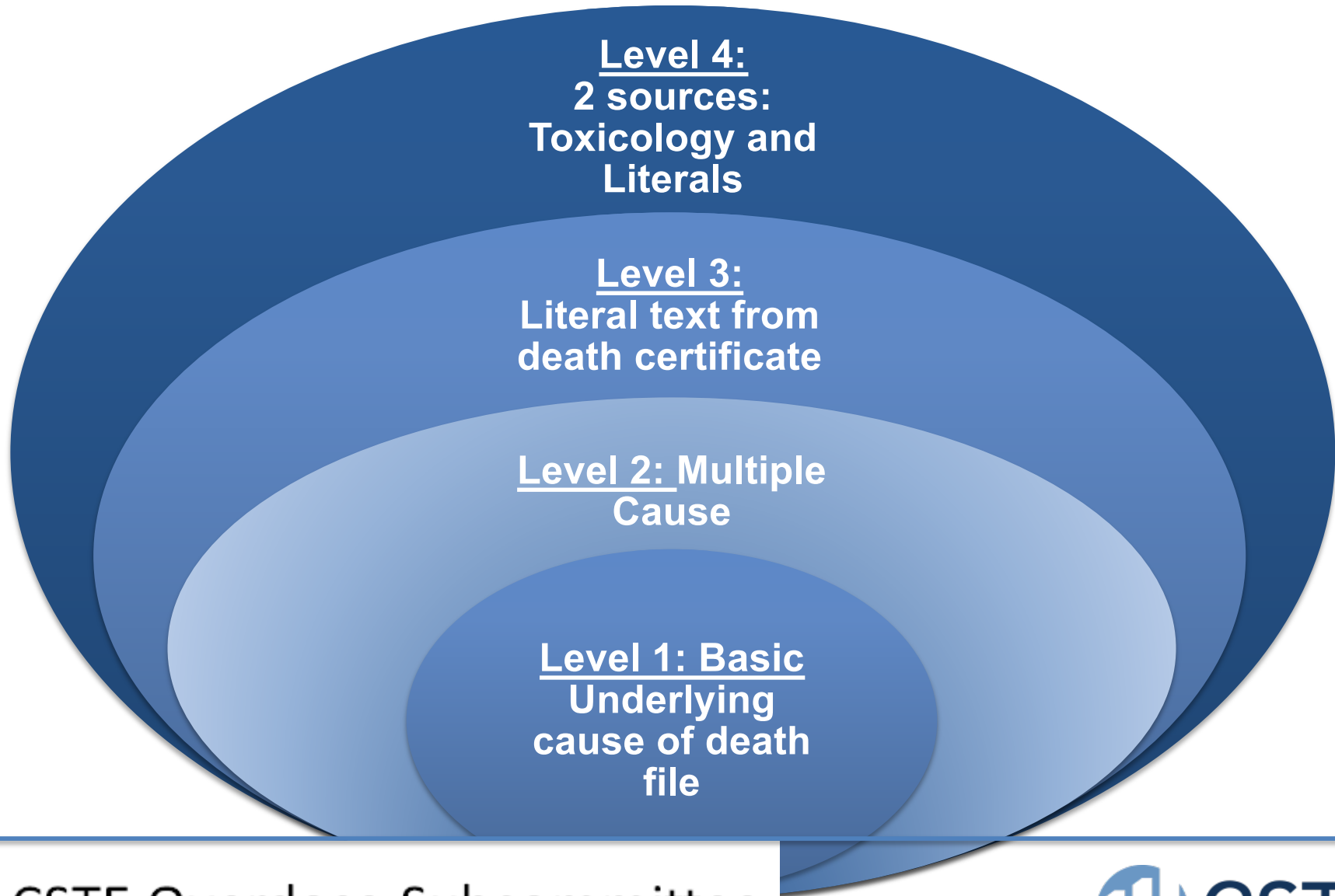


Survey results

- 9 out of 14 jurisdictions fentanyl included in basic screening panel
 - IA, NC, NM and NYC, fentanyl is not included, but available as an add-on test/ panel
 - Varies from ME to ME in Minnesota
- Nearly all jurisdictions routinely perform confirmatory testing



Levels of information used

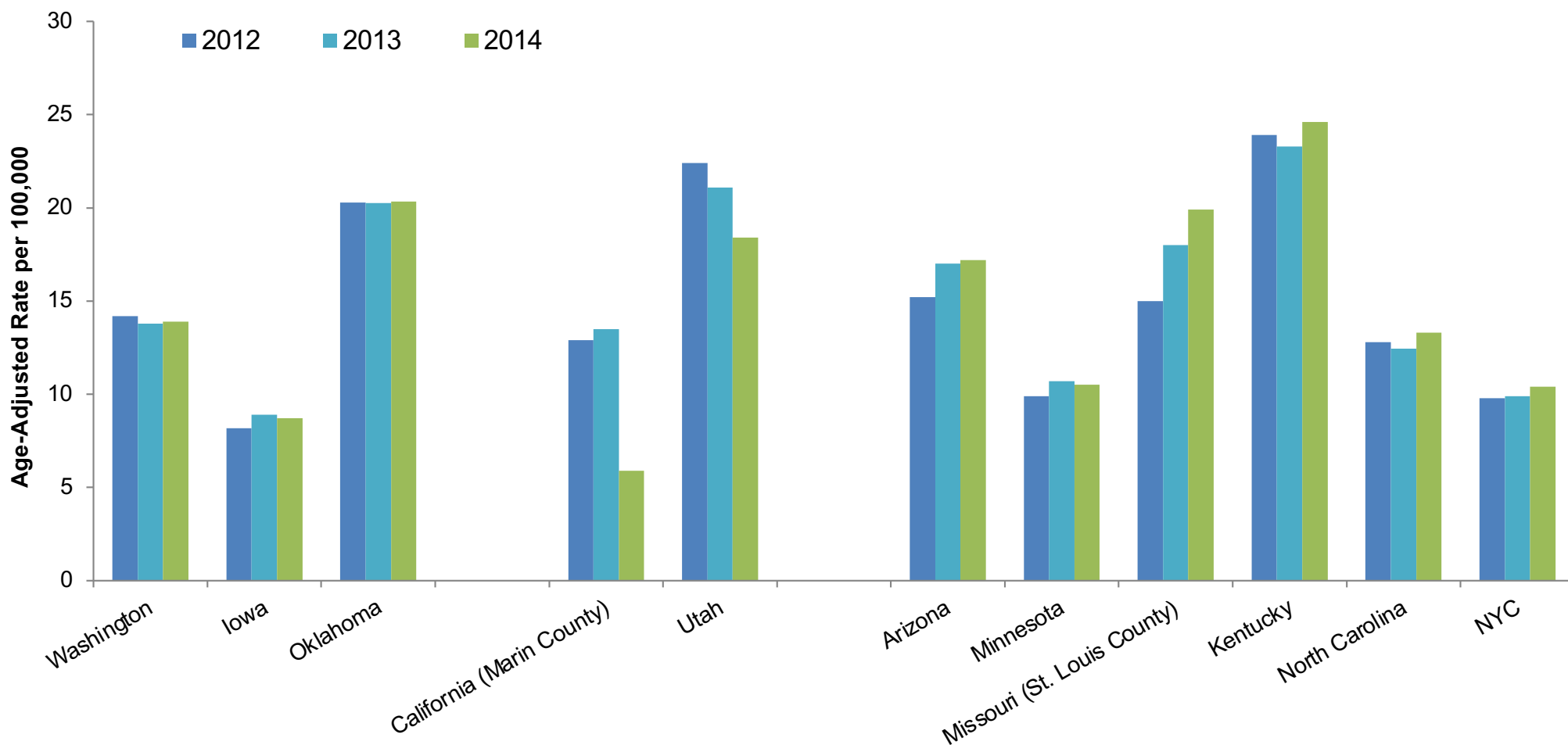


Data included in study

- Overview of years of data provided
 - 12 out of 13 jurisdictions provided 2012
 - 13 out of 13 provided 2013
 - 13 out of 13 provided 2014
 - 9 out of 13 provided 2015
- Levels of information used
 - Level 1 – 13 provided data on underlying cause
 - Level 2 – 13 provided data on multiple causes
 - Level 3 – 8 provided data based on literal text
 - Level 4 – 3 to 6 jurisdictions provided some data using literal text and toxicology, medical examiner, or coroner data



Overall rates of overdose and changes from 2012-2014: stable, decreased, increased



CSTE Overdose Subcommittee

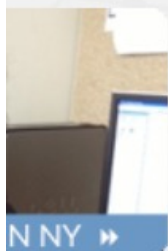
Increased



COUNCIL OF STATE AND TERRITORIAL EPIDEMIOLOGISTS

Using the power of epidemiology to improve the public's health

[MEMBERS ONLY](#) ▾ [WORKFORCE DEVELOPMENT](#) ▾ [FELLOWSHIPS](#) ▾ [ACTIVITIES](#) ▾ [ABOUT US](#) ▾



**NEW RECOMMENDATIONS
TO IMPROVE REPORTING OF
DRUG OVERDOSE DEATHS
ON DEATH CERTIFICATES**

FELLOWSHIPS

ACTIVITIES



CSTE Overdose Subcommittee

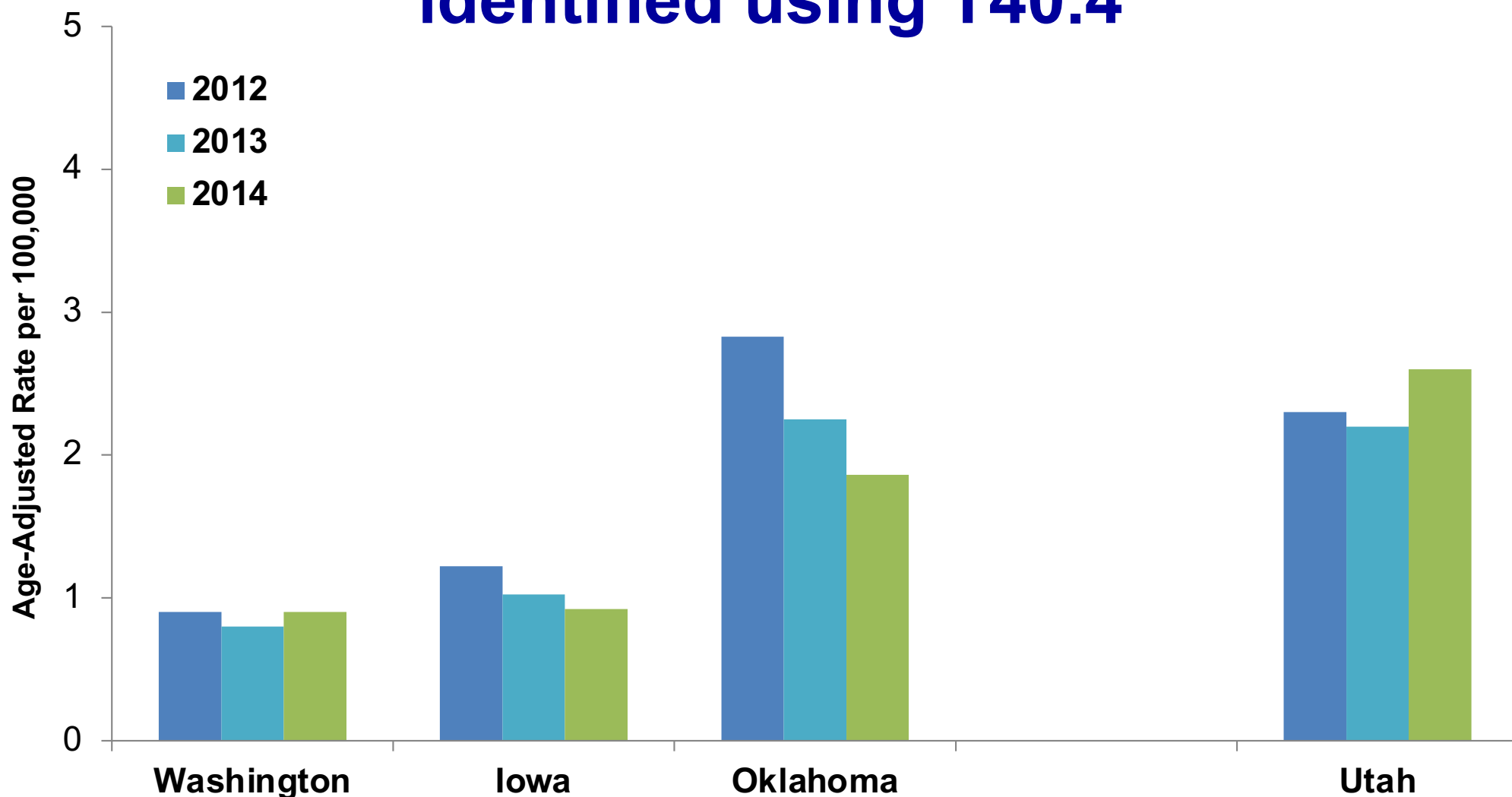


Method to assess impact of fentanyl on overdose rates

- Assigned jurisdictions to one of three categories: stable, decreased, or increased rates.
 - Compare level 2 results: T40.4
 - Compare level 2 results and level 3: T40.4 and mentions of fentanyl
- Note: T40.4 in ICD-10 is “Other synthetic narcotics”
 - Used T40.4 to identify likely fentanyl-involved overdoses; however, code not specific to fentanyl
 - Propoxyphene and meperidine also included
 - Labeled figures with “fentanyl involved-overdoses identified using T40.4”
 - Methadone is coded T40.3. so not included



Rates of fentanyl involved-overdoses identified using T40.4



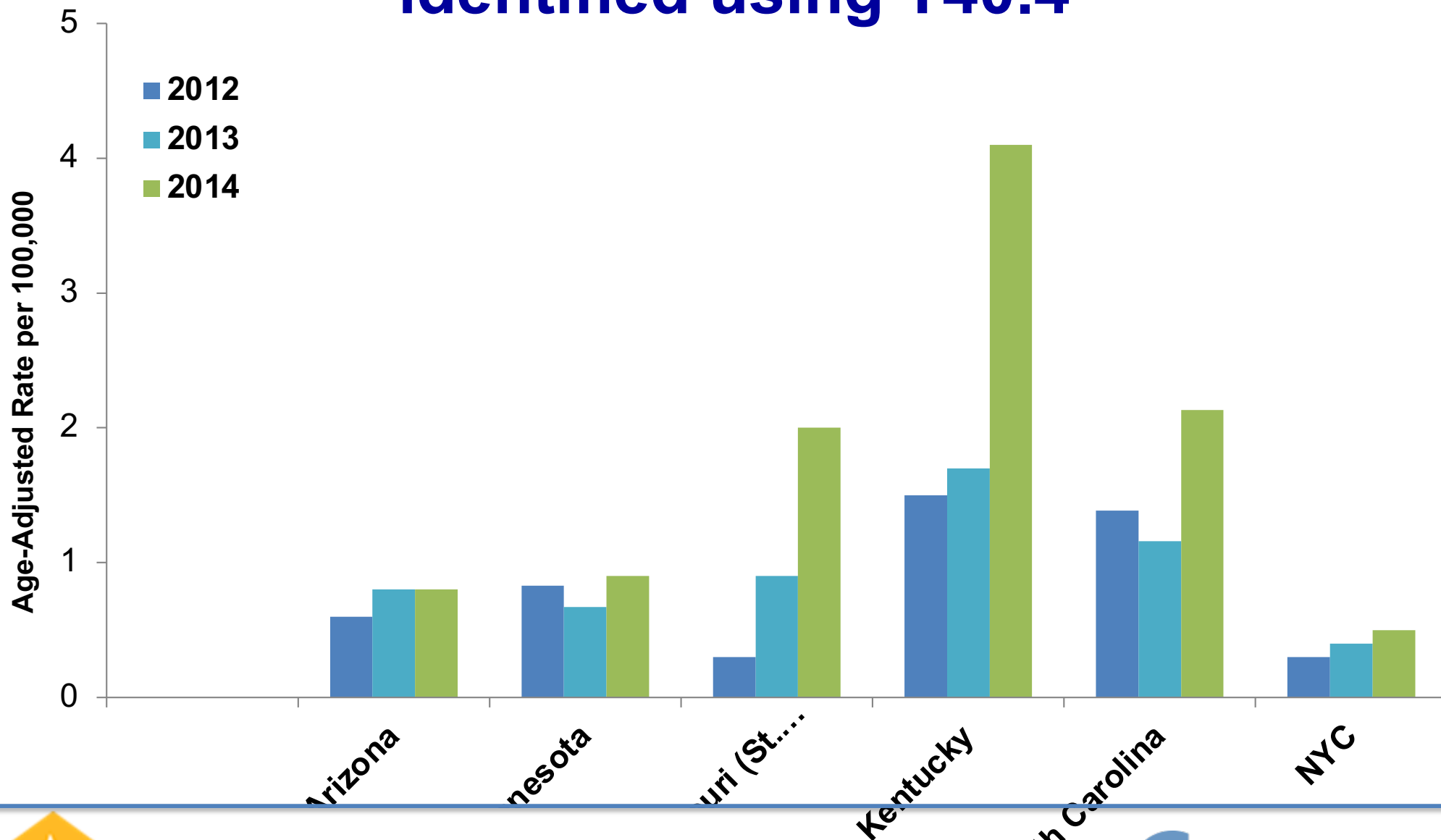
OVERALL OVERDOSE RATES



CSTE Overdose Subcommittee



Rates of fentanyl involved-overdoses identified using T40.4



Summary

- Six of the seven jurisdictions with increased overall overdose rates also had increased presence of fentanyl
- None of the three states with decreased overall overdose rates reported an increased presence of fentanyl

WHAT ABOUT 2015?



CSTE Overdose Subcommittee



Rates of overdose and changes from 2014 to 2015*

	Overall overdose rate		Fentanyl – involved overdose rate	
	2014	2015	2014	2015
Decreased rates				
Oklahoma	20.3	18.3	1.9	2.3 ↑
Utah	18.4	17.6	2.6	2.0
Increased rates				
Arizona	17.2	18.0	0.8	1.0 ↑
Minnesota	10.5	11.7	0.9	1.1 ↑
Kentucky	24.6	28.4	4.1	7.3 ↑



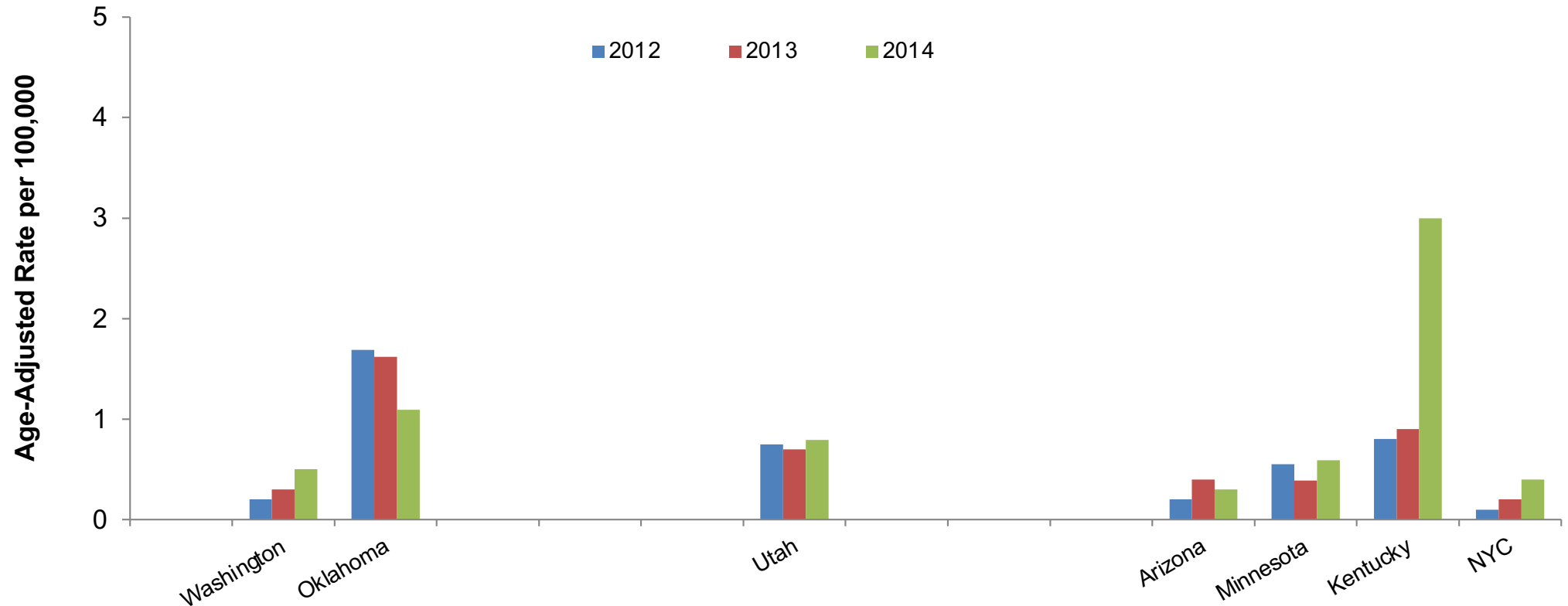
LEVEL 3: MULTIPLE CAUSES AND LITERAL TEXT



CSTE Overdose Subcommittee



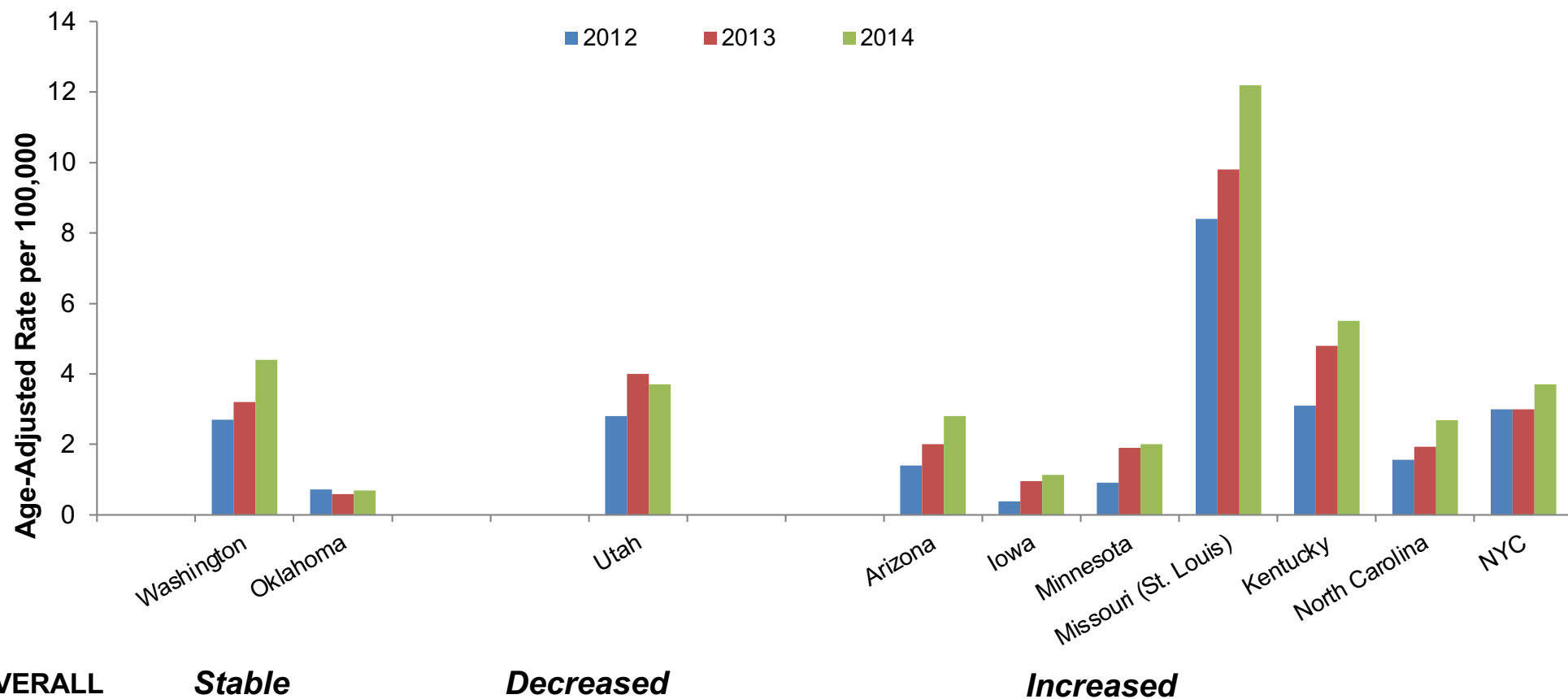
Rates of overdoses identified using T40.4 and Level 3: Literal mentions of fentanyl



OVERALL RATES:	<i>Stable</i>	<i>Decreased</i>	<i>Increased</i>
RATES T40.4 + Literals:	<i>Increased and</i>	<i>Increased</i>	<i>Decreased and increased</i>



Rates of heroin-involved overdose and changes from 2012-2014



RATES



CSTE Overdose Subcommittee

Increased



Next steps

- Finish analysis
 - Re-confirm analyzed results with jurisdictions
 - Add information from any additional jurisdictions
- Write and submit a collaborative journal article



Future projects?

Next Joint analysis?

Improve surveillance methods and indicators?

- Identify pros and cons of methods for linking overdose deaths to PDMP (with CSTE PMP subcommittee)?
- Measure prevalence of chronic pain?
- Measure opioid use or misuse?
- Measure overdose reversals via naloxone administration?

Learning and resources?

- Fentanyl testing webinar by expert toxicologist?
- Add resources to CSTE web page?



Share your ideas!

- Roundtable

Improving Drug Overdose Surveillance

– Wed., 6/22, 1:00 PM Egan, Summit Hall 11&12

- Survey on future projects

- Monthly calls

– 2nd Thursdays of the month at 1 pm Eastern, next 7/14

- Contact

Megan Toe, MSW

Megan.Toe@cste.org

Barbara Gabella, MSPH

barbara.gabella@state.co.us

Svetla Slavova, PhD

ssslav2@email.uky.edu

<http://www.cste.org/group/OverdoseWorkgroup>



CSTE Overdose Subcommittee

