PFS Rx Semi-Annual Meeting

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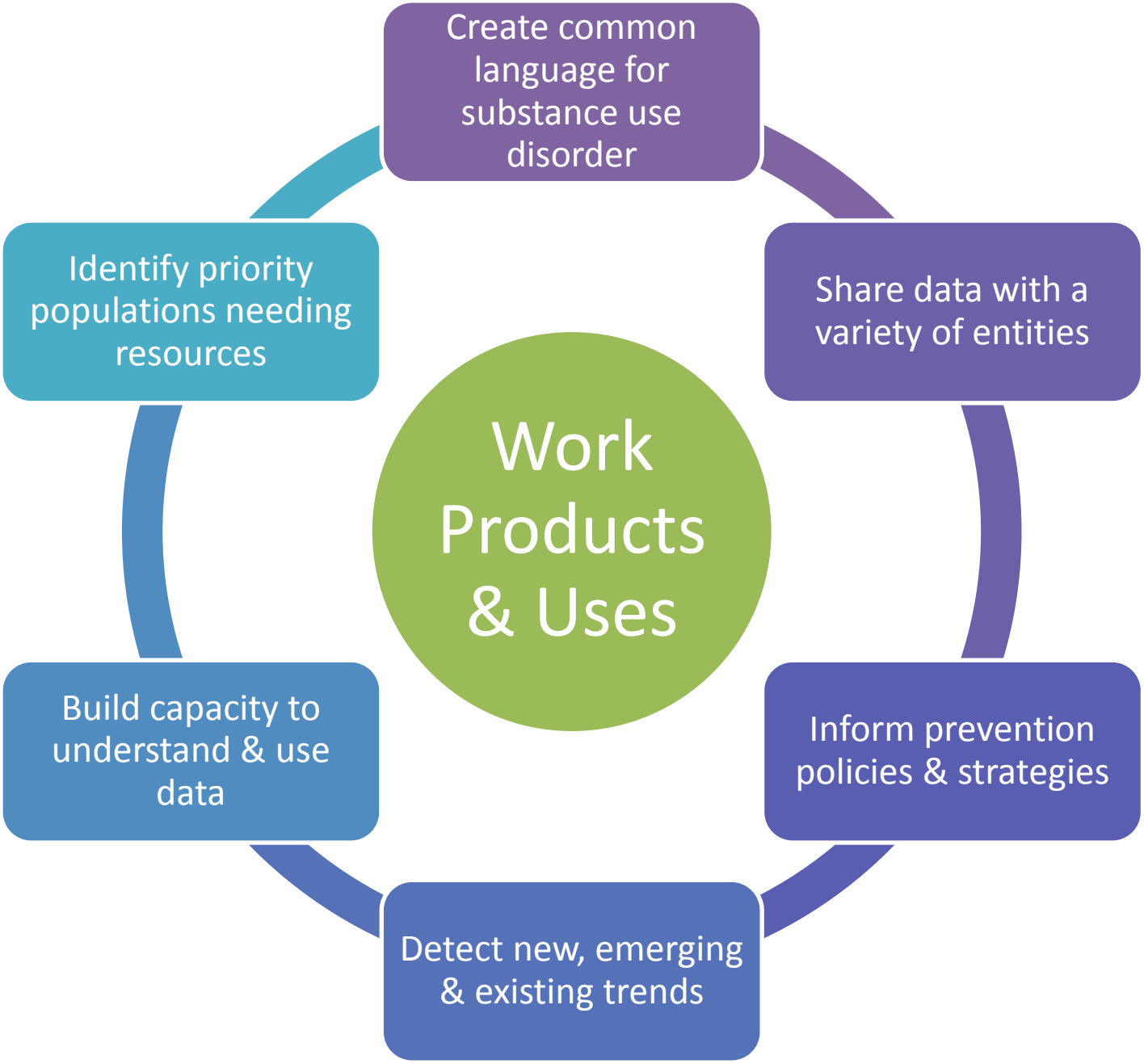
State Epidemiological Outcomes Workgroup (SEOW) Update

Standardize and share data

Identify and monitor data trends

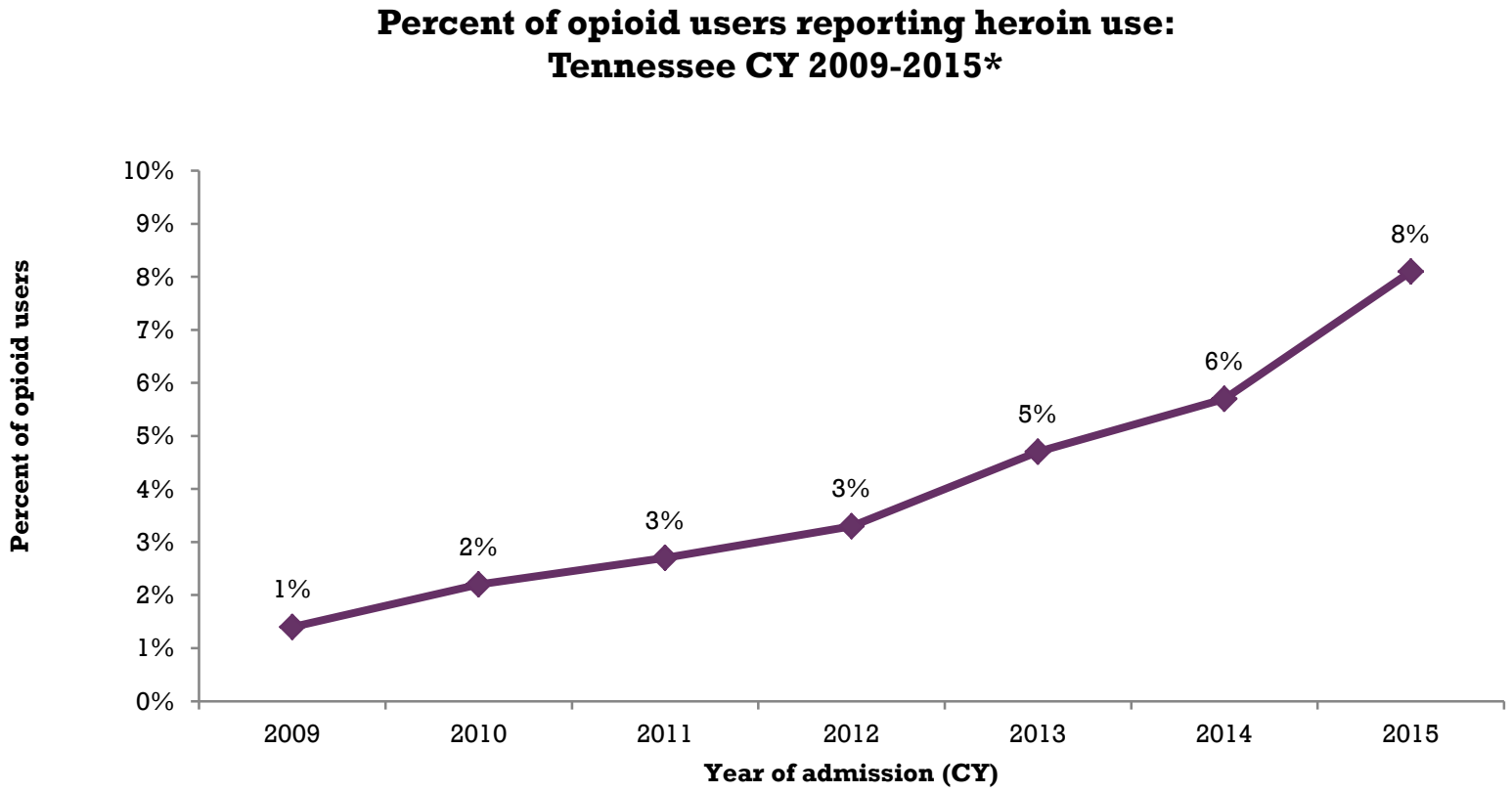
Provide data for decision-making


Create common language for substance use disorder
Share data with a variety of entities
Inform prevention policies & strategies
Detect new, emerging & existing trends
Build capacity to understand & use data
Identify priority populations needing resources
Work Products & Uses

Meeting Update

- Meetings of the SEOW were held in April & June - next meeting in August
- Meeting 1: SEOW charter, group goals, county indicator report
- Meeting 2: Pattern of treatment admissions over time by substance of abuse and age cohort: 1992 to 2012
  - Discussion on growing issue of heroin abuse
  - First in-depth focus of SEOW will be on the growing use of heroin and intravenous drug use in TN, especially among people using prescription opioids non-medically.

A growing percentage of Tennesseans seeking treatment for non-medical use of opioids are using heroin



Note: 2015 data based on admissions between January and June.
Data sources: TEDS-A, SAMHSA (2009-2011); TN-WITS, TDMHSAS (2012-2015)

Workshop

Topics you are most interested in

Generate further research questions based on data (80%)

Research Questions

Understand which indicators are available and appropriate to address specific research questions (80%)

Data Indicators

Interpret county data, especially when there are small numbers (80%)

Small Samples

Good Research Questions

Specific

Measurable

Meaningful

Specific

- Which indicators do you have access to?
- What is the population?
- What kind of relationship are you interested in?

Good Research Questions

Measurable

- If the data already exists:

  Can your question be answered with the data?

- If you will be collecting data:

  Have you asked the questions in a way to gather information that will be used to answer the question?

Good Research Questions

Meaningful

- Who do you want to see your findings?
- What do you want them to do with the results and conclusions?

Good Research Questions

Research Questions: Building from existing data

- **Add one factor at a time**
- **Be skeptical**
  - What information might "disprove" the findings?
  - Think about potential bias of the source of the data
- **What would make the findings more believable or helpful?**
- **What are other explanations for the findings?**
  - Effects of pop culture/social media
  - Age
  - Under or over-reporting of data

+ Available data indicators

TDMHSAS treatment data

Available Treatment Data Indicators

Time and geography	Demographics	Substance use
Year	Gender	Injection drug user
Planning region	Age	Age of first use
County	Ethnicity	Substance of abuse

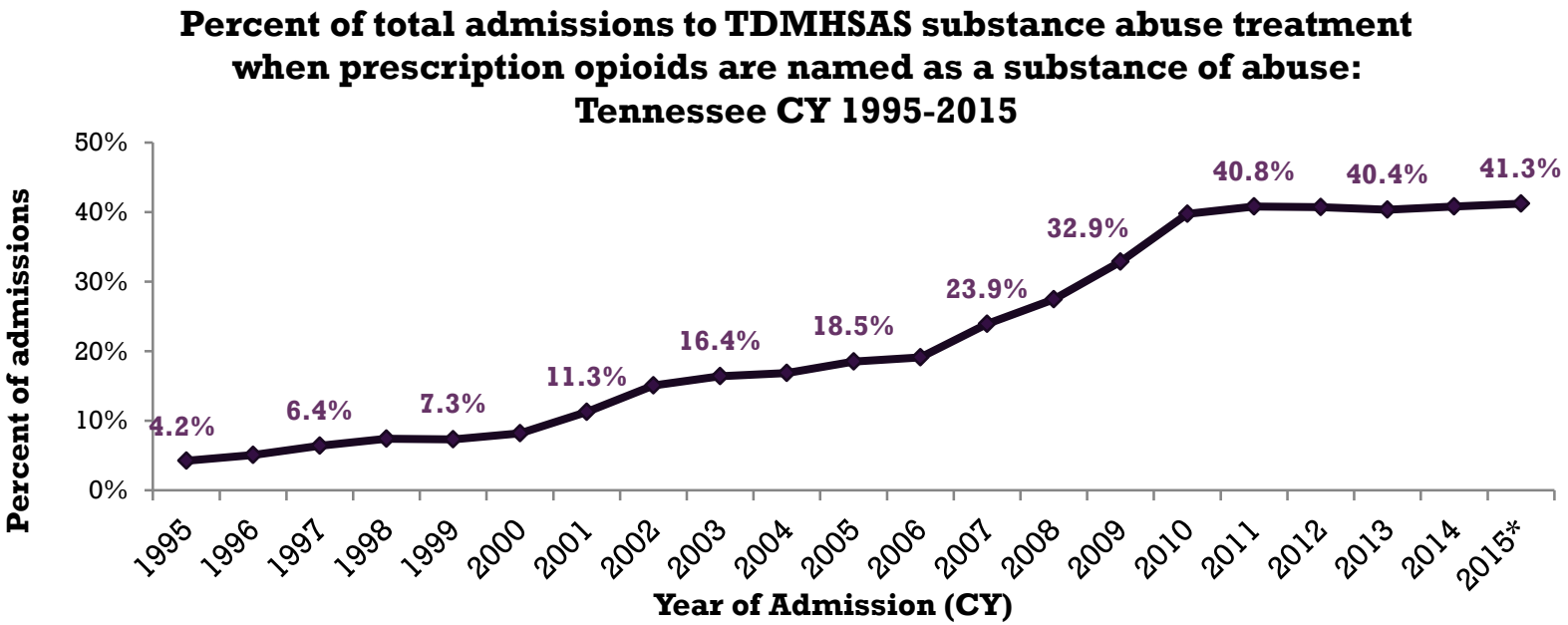
Data Descriptions & Limitations

- **Population**
  - Admissions to TDMHSAS funded treatment
- **Time-frame**
  - Calendar Year 2011-2015 (2015: Jan-June)
- **Admission** = treatment episode during year of admission
  - Admission includes moving through levels of care (i.e., detox to residential) during one treatment episode.
  - Admission is only counted in the year of admission; and, is not counted in each year if admission spans 2 years.

Lets develop some research questions that can be answered with available data

- How can treatment data inform prevention?
  - The research question needs to refer to the population for which we have data
- Can include one or more indicators
- Specific enough to test

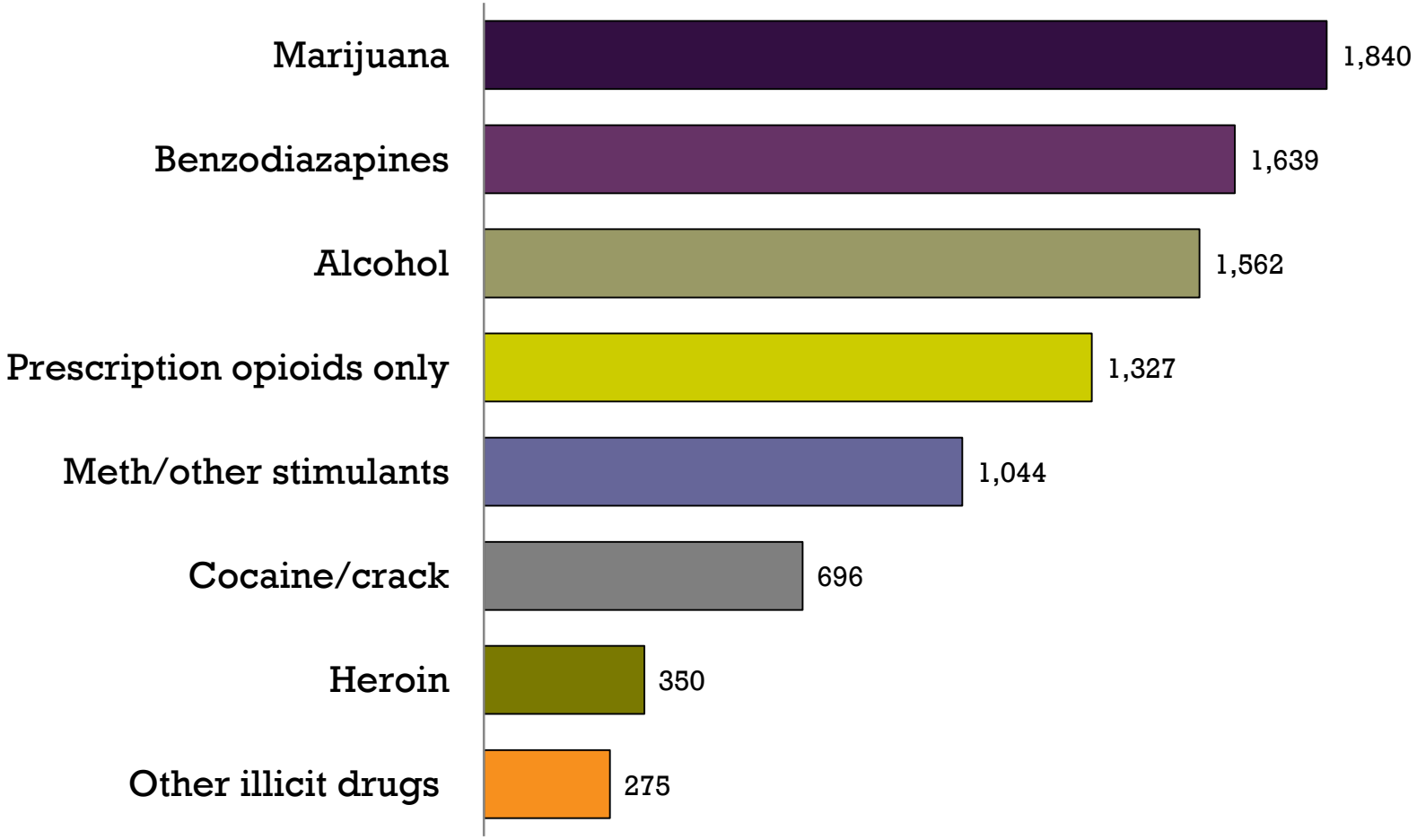
Some data to build on



Admissions to TDMHSAS substance abuse treatment when prescription opioids are named as a substance of abuse: Tennessee CY 1995-2015											
Rx opioid admissions (CY)	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
No. of admissions	401	436	734	988	528	628	1,106	1,472	1,807	1,832	2,173
Percent of total admissions	**4.2%**	**5.1%**	**6.4%**	**7.4%**	**7.3%**	**8.2%**	**11.3%**	**15.1%**	**16.4%**	**16.9%**	**18.5%**
Rx opioid admissions (CY)	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	
No. of admissions	2,137	2,462	2,719	3,364	4,671	5,598	5,871	6,111	6,174	2,751*	
Percent of total admissions	**19.1%**	**23.9%**	**27.4%**	**32.9%**	**39.7%**	**40.8%**	**40.7%**	**40.4%**	**40.8%**	**41.3%**	

Note: 2015 data based on admissions between January and June.
Data sources: TEDS-A, SAMHSA (2009-2012); TN-WITS, TDMHSAS (2012-2015)

Number of TDMHSAS admissions naming other drugs when prescription opioids are a substance of abuse: CY 2014



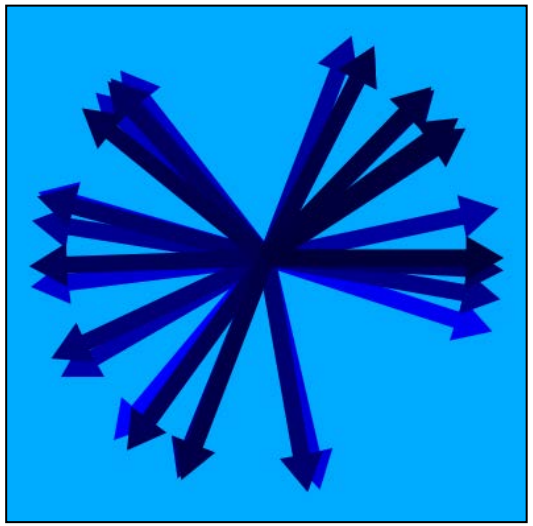
Sample size: 6,176 prescription opioid admissions in CY 2014

Data source: TN-WITS, TDMHSAS

- Small numbers
  - Interpretation
  - Potentially identifying information

Interpreting Small Numbers

- Small numbers can result in extreme findings
- Myth: a small number of observations will closely reflect the general population
- Sampling error:
  - random noise
  - chance fluctuations
  - happenstance



Definition: Potentially Identifiable Information

- Protected health information examples
  - name
  - date of birth
  - address

- Potentially identifiable information examples
  - combination of gender, age, drug of choice
  - combination of small geographic areas, date of service

Confidentiality and Small Numbers

- Breach of confidentiality
  - allows an individual to be identified
  - reveals confidential information about that person

Population size matters

- Small populations
  - geographic areas (county vs. state)
  - low incidence events (suicides, overdoses)

- Large populations
  - few individuals with some special characteristic in larger populations
  - example: frequently hospitalized child in a community with one case of pediatric HIV-AIDS

Dealing with small numbers

Technique	Before	After
Combining multiple years of data	2010, 2011, 2012	2010 to 2012
Collapsing data categories	K, 1, 2, 3	K-3
Expanding the geographic area under consideration	County	Region
Cell suppression	1, 2, 3, 4	<5
Omit certain indicators from analysis entirely	All indicators	Some indicators

Case Study

Break into groups

Evaluate scenario

Short Statistical Lesson

Confidence Intervals (67%)

Confidence Intervals

How "good" is an estimate?

- Account for the uncertainty that arises from the natural variation inherent in the world around us
- Reminder of the limitations of the estimate
- Means of assessing and reporting the precision of a data point

Confidence Intervals

Does not…

- Account for other sources of uncertainty in point estimates, including:
  - missing or incomplete data
  - other data errors
  - bias resulting from non-response or poor data collection

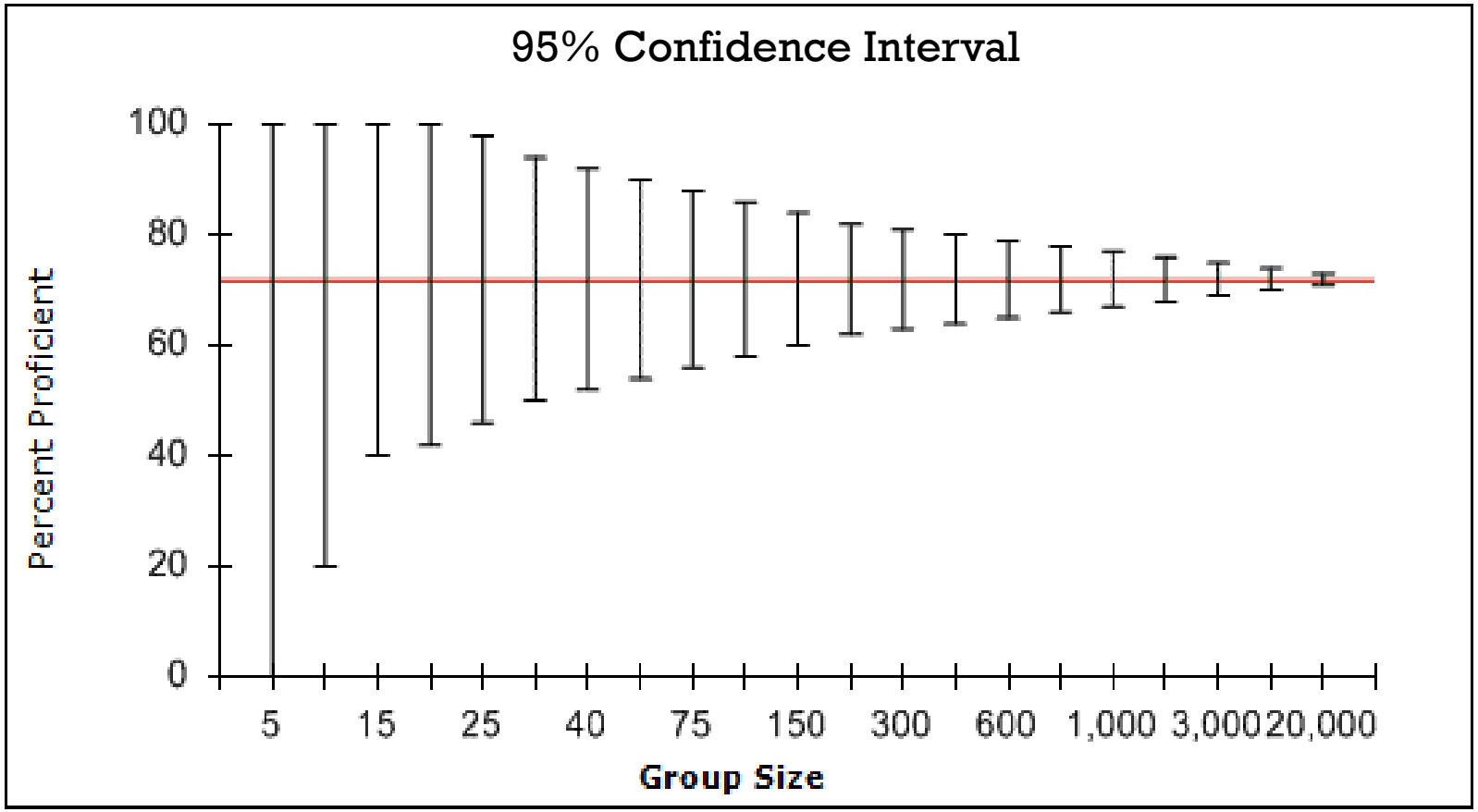
Confidence Intervals

Samples versus populations

Scientists do not agree:

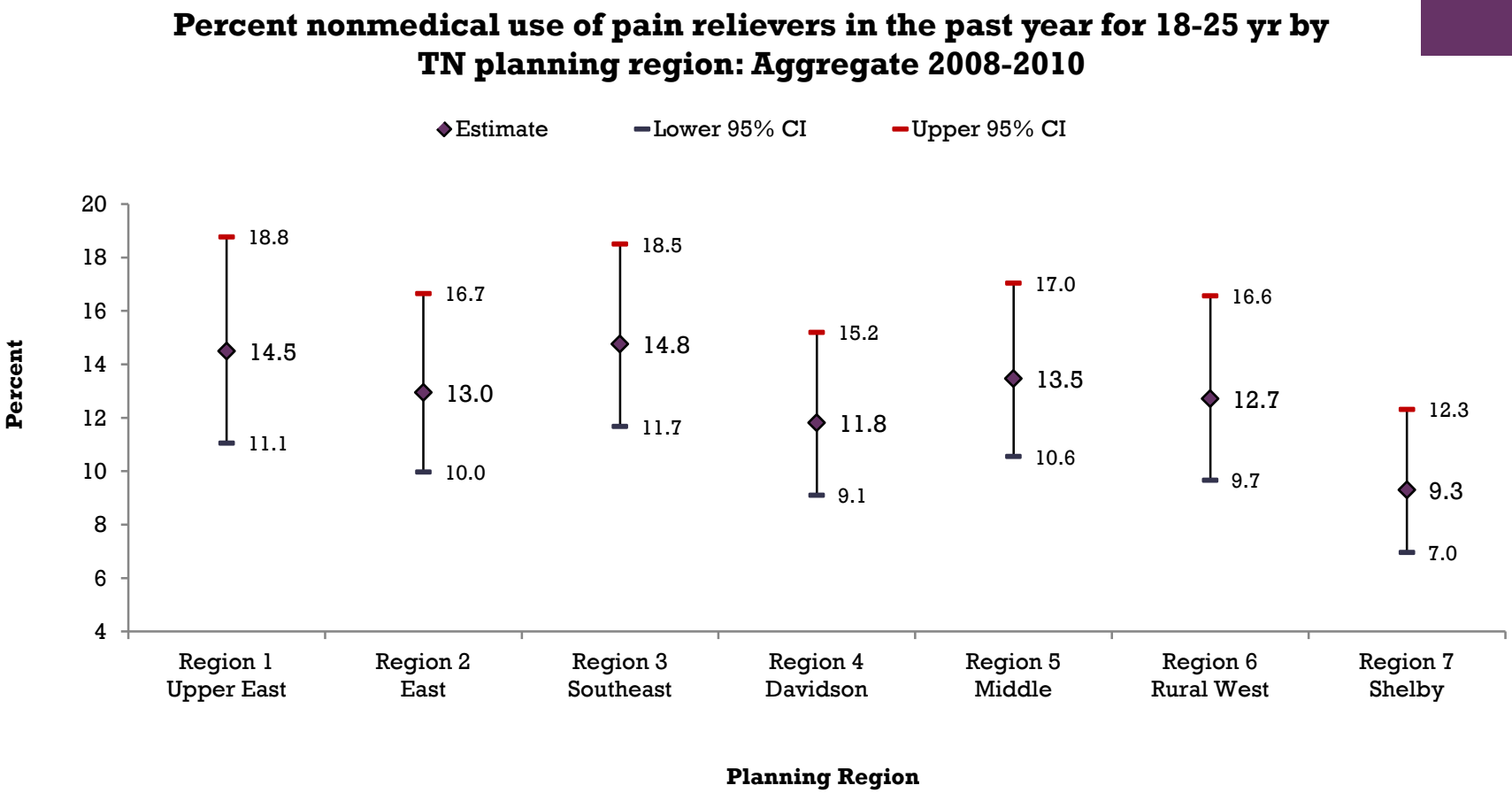
- Some researchers believe that confidence intervals should not be used for population estimates because they believe there is no statistical uncertainty in such estimates.
  - example: death rate in a given population
- Many researchers believe that biological and random processes governing the occurrence of events such as deaths and illnesses justify the use of confidence intervals (Brillinger, 1986)

Confidence Intervals



The confidence interval gets narrower with increased observations. In other words, the estimate is more precise.

Confidence Intervals



Source: NSDUH 2008-2010