

Is there geographic variation in the mortality and morbidity due to prescription opioids?

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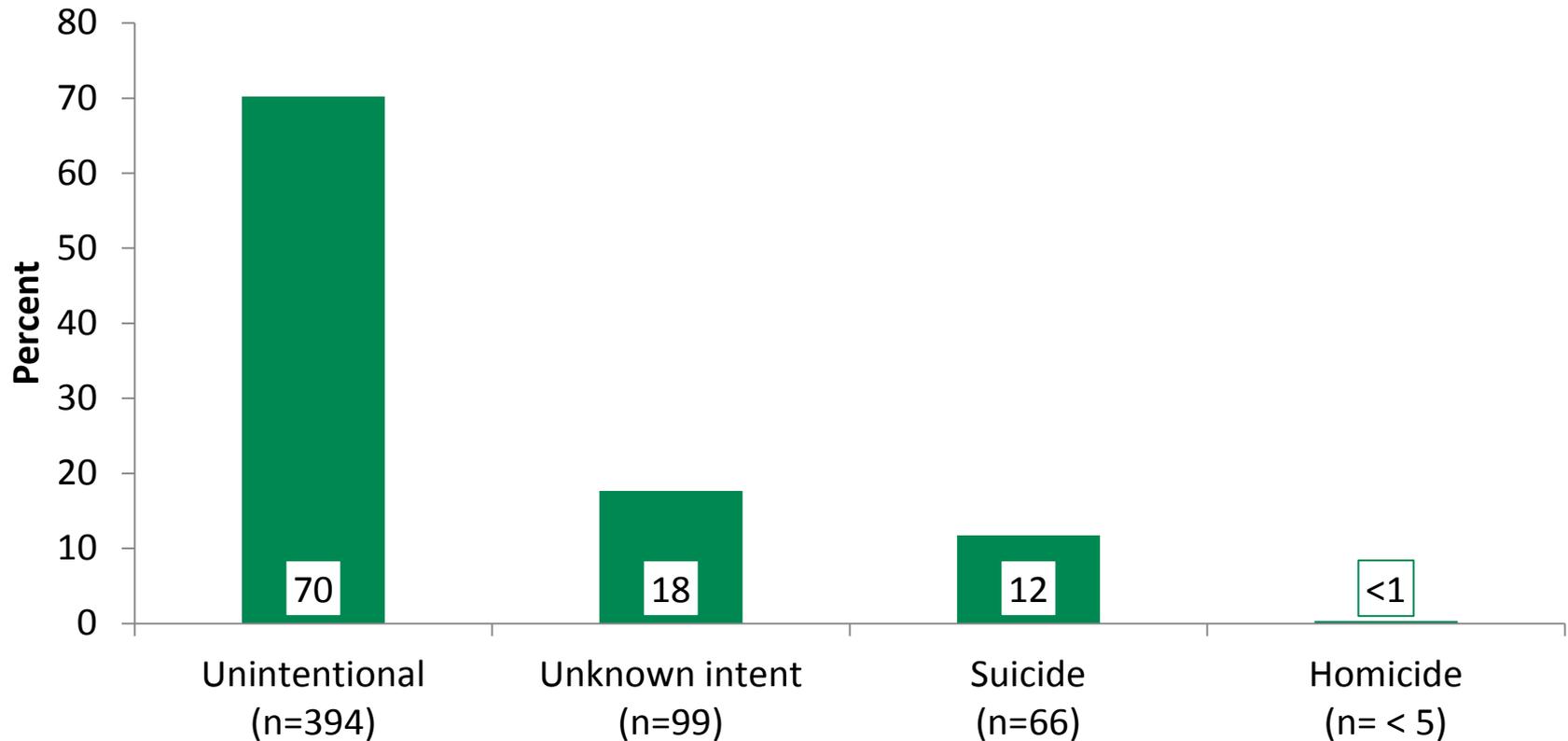


Chronic Disease Prevention
& Health Promotion Bureau

Data Sources and Methods

- Data Sources:
 - Death records (2000-2012)
 - Hospital discharge and Emergency Discharge data (2010-2012)
- Methods:
 - Utilized standardized case definitions (appendix) to identify deaths, hospitalizations and emergency department visits associated with prescription opioid poisoning
 - Calculated age adjusted mortality, hospitalization and emergency department visit rates per, 100,000 population by health planning regions and by county

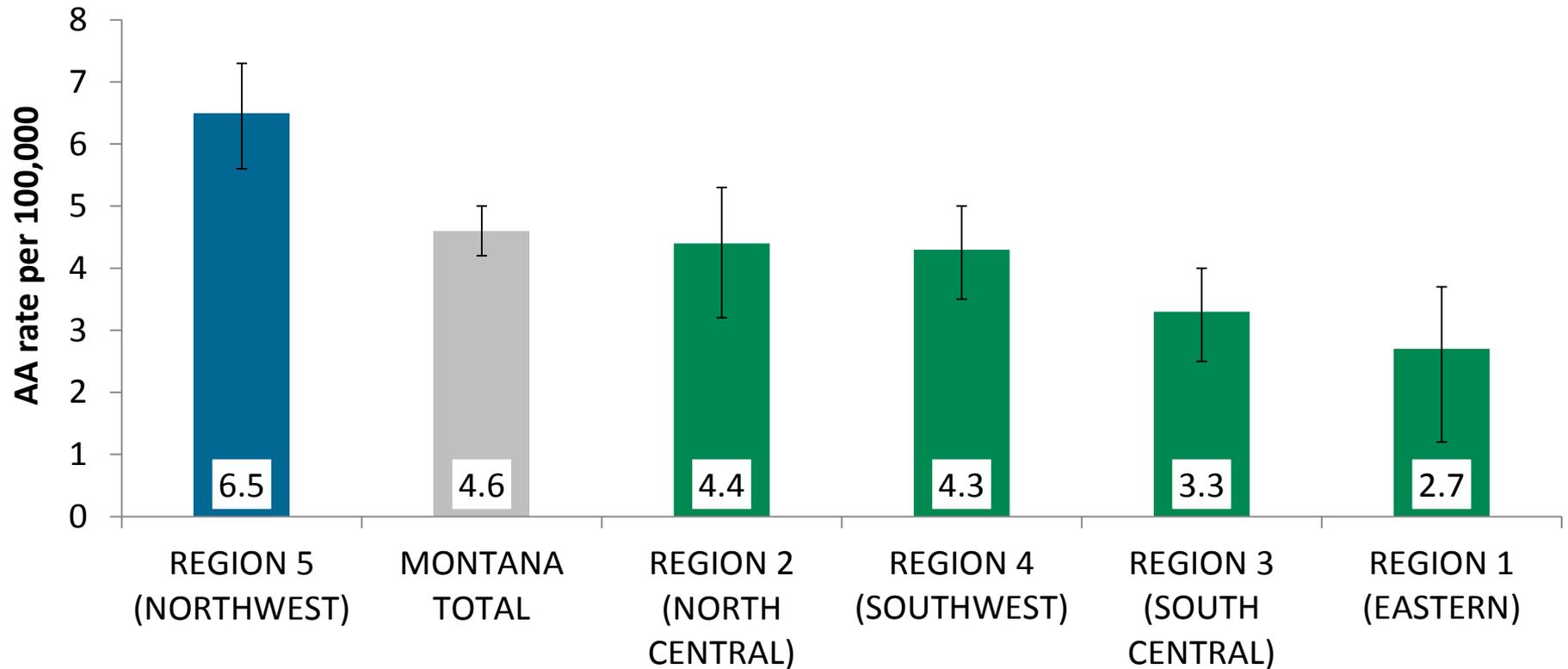
Intent of prescription opioid-related poisonings deaths



Data source: Montana Office of Vital Statistics,
2000-2012

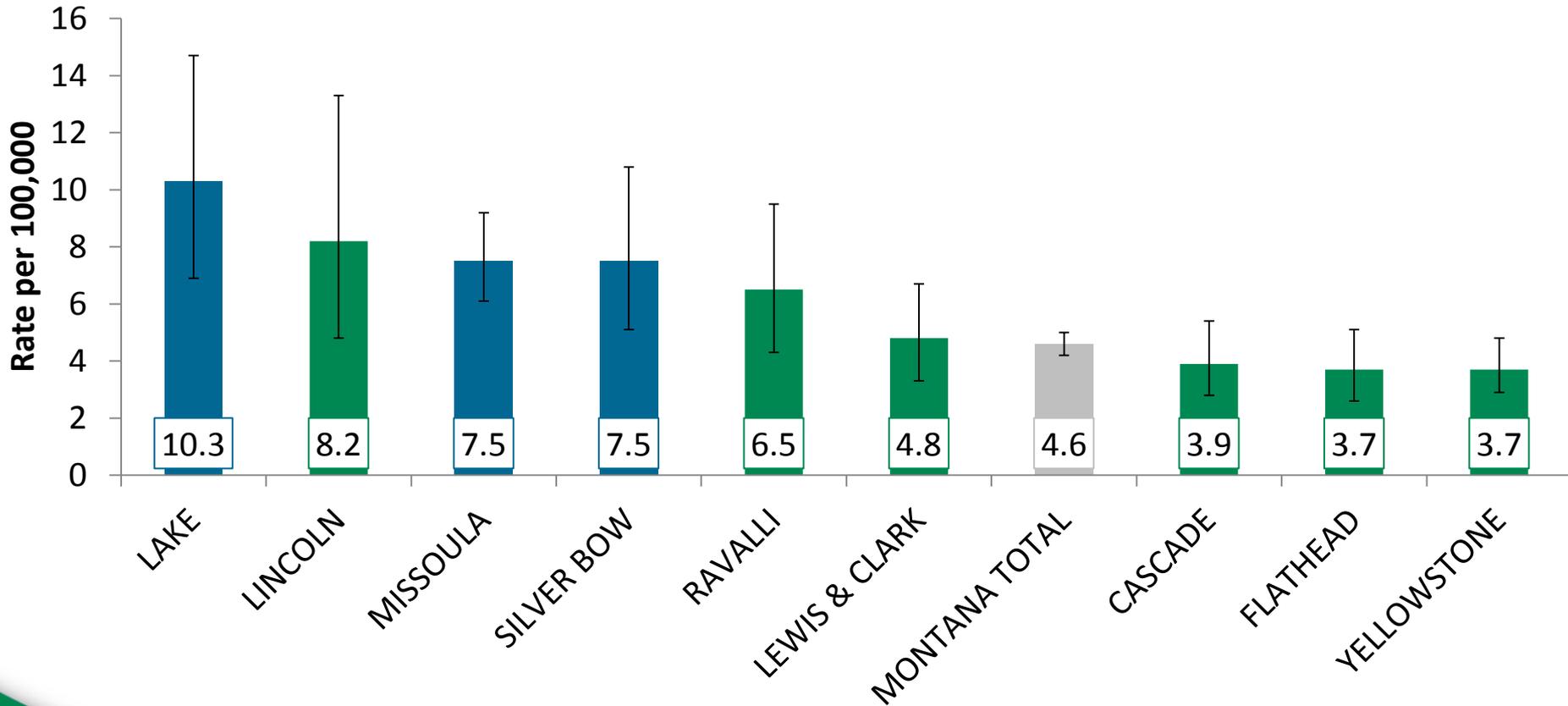
N=561

The rate of all prescription opioid-related deaths varies among geographic regions



Data source: All intents, age-adjusted rates, Montana Office of Vital Statistics, 2000-2012
N=561

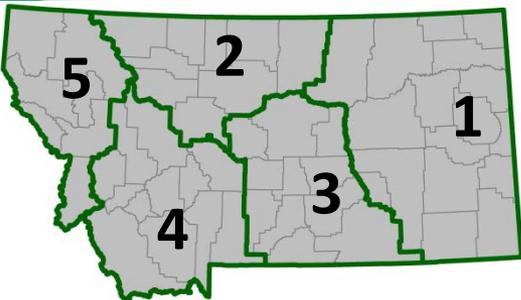
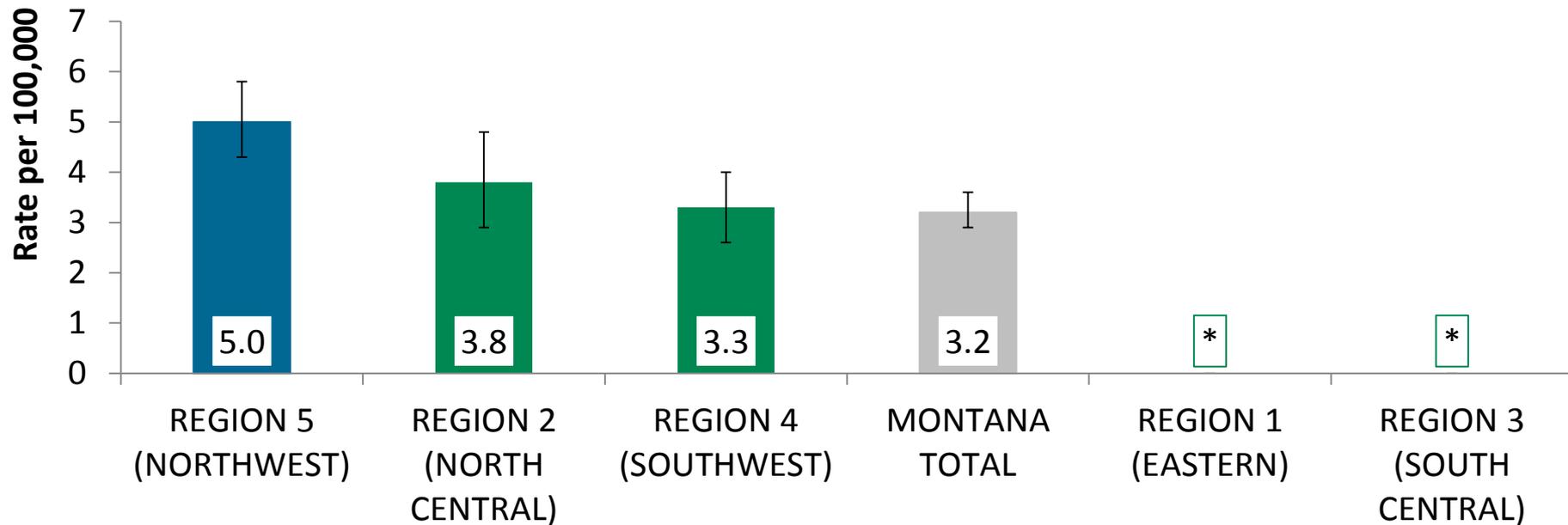
The rate of prescription opioid-related deaths varies among counties



Data source: All intents, age-adjusted rates, Montana Office of Vital Statistics, 2000-2012

N=561

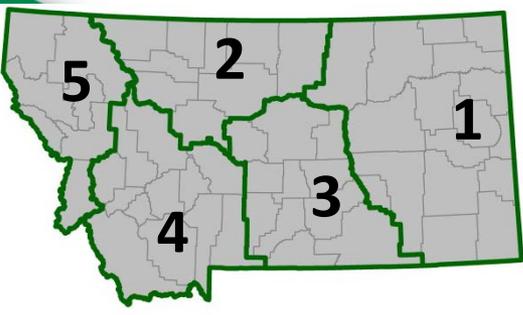
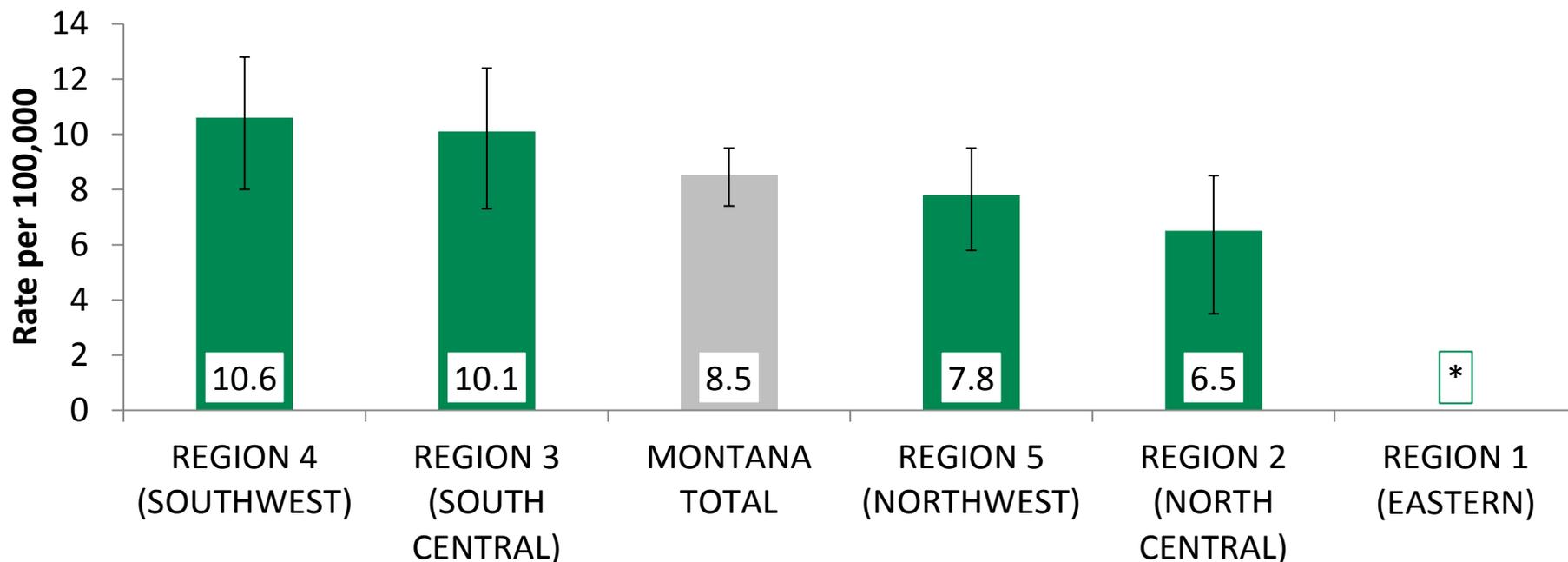
The rate of unintentional prescription opioid-related deaths varies among geographic regions



Data source: Age-adjusted, Montana Office of Vital Statistics, 2000-2012

*Too few events to calculate a stable rate
N=394

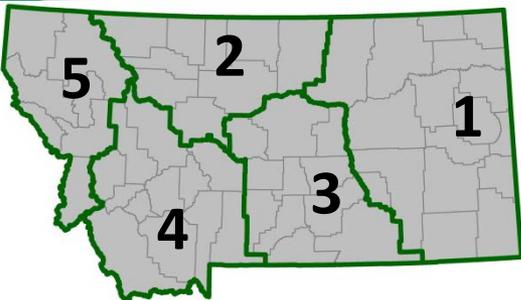
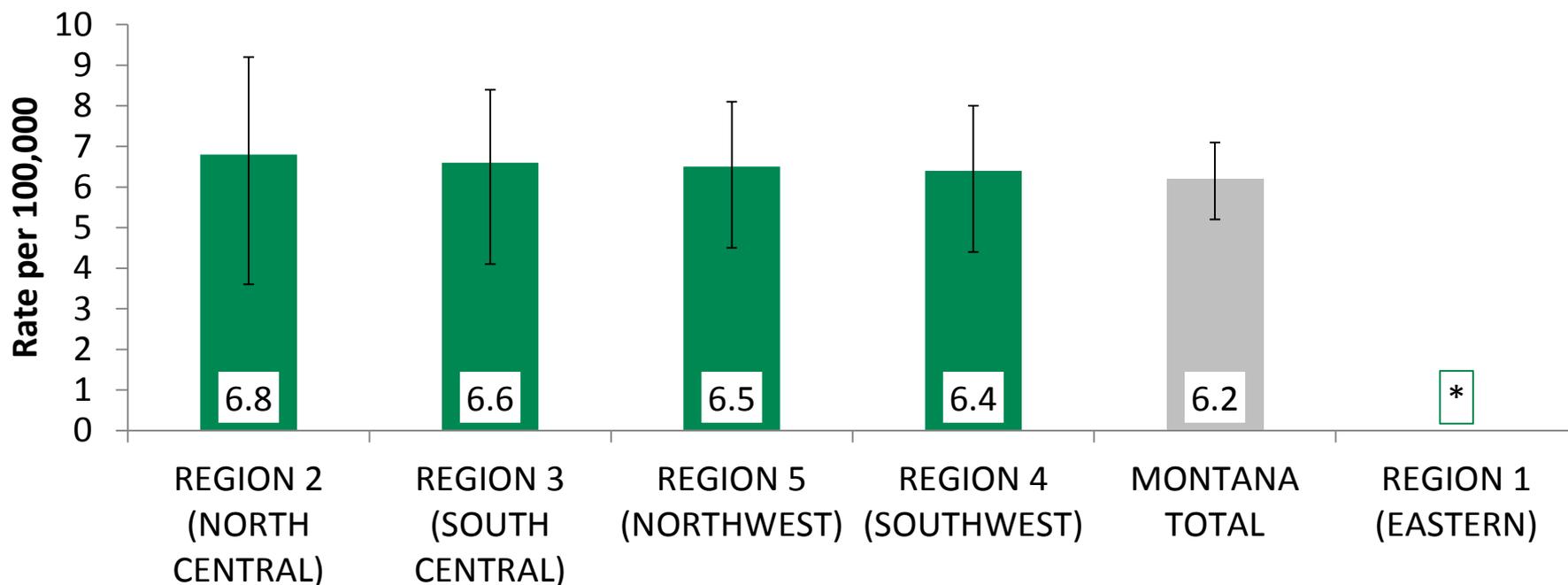
There is no difference in hospitalization rates for unintentional opioid-related poisoning among geographic regions



Data source: Age-adjusted, Montana Hospital Discharge Data, 2010-2012

*Too few events to calculate a stable rate
N=281

There is no difference in emergency department rates for unintentional opioid-related poisoning among geographic regions



Data source: Age-adjusted, Montana Emergency Discharge Data, 2010-2012

*Too few events to calculate a stable rate
N=191

Limitations

- Toxicology screens after death are not done routinely
 - May lead to an underestimate
- Can be difficult to determine intent after death
- Too few events to calculate stable rates for many counties
- Coding schemes are different for death and hospitalization/emergency department
 - Leads to different definitions

Conclusions

- Available data suggest mortality rates are higher in Western part of state
 - Counties with highest rates compared to the state rate include Lake, Missoula, and Silver Bow
- No apparent geographic pattern for hospitalization or ED rates

Conclusions

- Possible reasons for issues
 - Over prescribing
 - Linear relationship between sales and drug poisoning mortality (Paulozzi, 2006)
 - Improper use of medication
 - Use when not prescribed or diversion
 - Use with other medications or alcohol
 - Not following proper dosing schedule
 - Addictive nature of medications
 - Larger doses needed to achieve effect over time

Appendix

- Case definitions
- Injury as a leading cause of death in Montana, 2012.
- Trends in prescription opioid-related deaths in Montana and the U.S., 2000-2012.

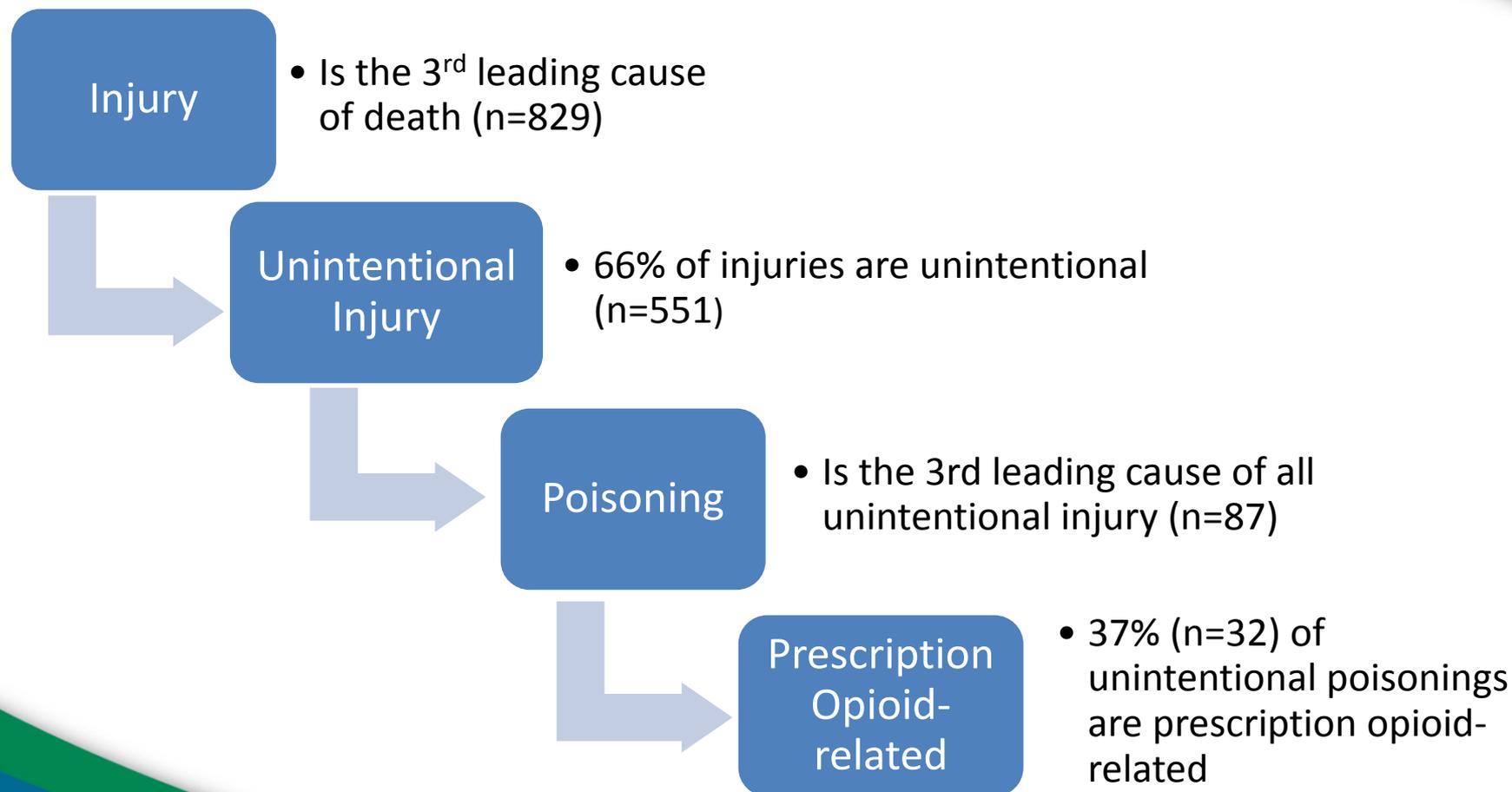
Methods-Death Certificates

- Includes only residents of Montana and report on county of residence at time of death
- Prescription opioid-related death defined as (ICD 10):
 - Cause of death due to prescription drug use
 - X40-X44, X60-X64, X85, Y10-Y14 (all intents)
 - and*
 - At least 1 of 20 contributing causes list opioid use
 - T40.2-T40.4
- Unintentional opioid-related poisoning
 - X40-X44 and T40.2-T40.4

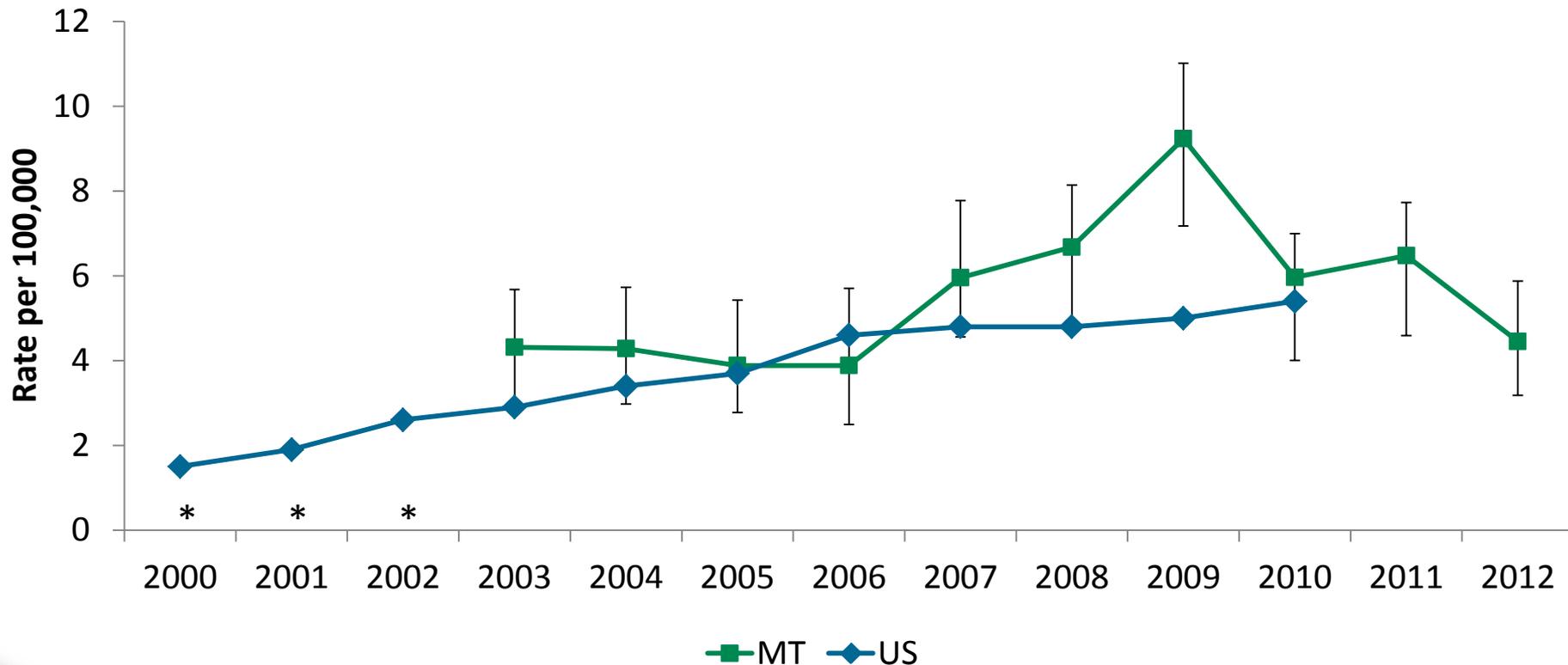
Methods-HDD and EDD

- ICD-9 used to classify hospitalization and emergency department discharges
- Includes only residents of Montana and report on county of residence at time of encounter
- Encounters, not individual patients
- Unintentional opioid-related poisoning defined as:
 - Unintentional poisoning external cause (E-code)
 - E850.0-E869.9
 - and*
 - Primary or secondary diagnosis of opioid overdose
 - 950.00, 950.02, 950.09

Leading Causes of Death in Montana, 2012



Age-adjusted rate for all prescription opioid-related deaths, US & Montana



Data source: CDC Wonder, Montana Office of Vital Statistics, 2000-2012
*Too few events to calculate a stable rate in MT
N=561