

Trends in Hospital Utilization for Opioid Overuse and Drug-Dependent Newborns in Missouri

Implications for Prescription Drug Monitoring Interventions



Hospital Utilization for Opioid Overuse in Missouri

2006-2015



Analgesic Opioid Addiction

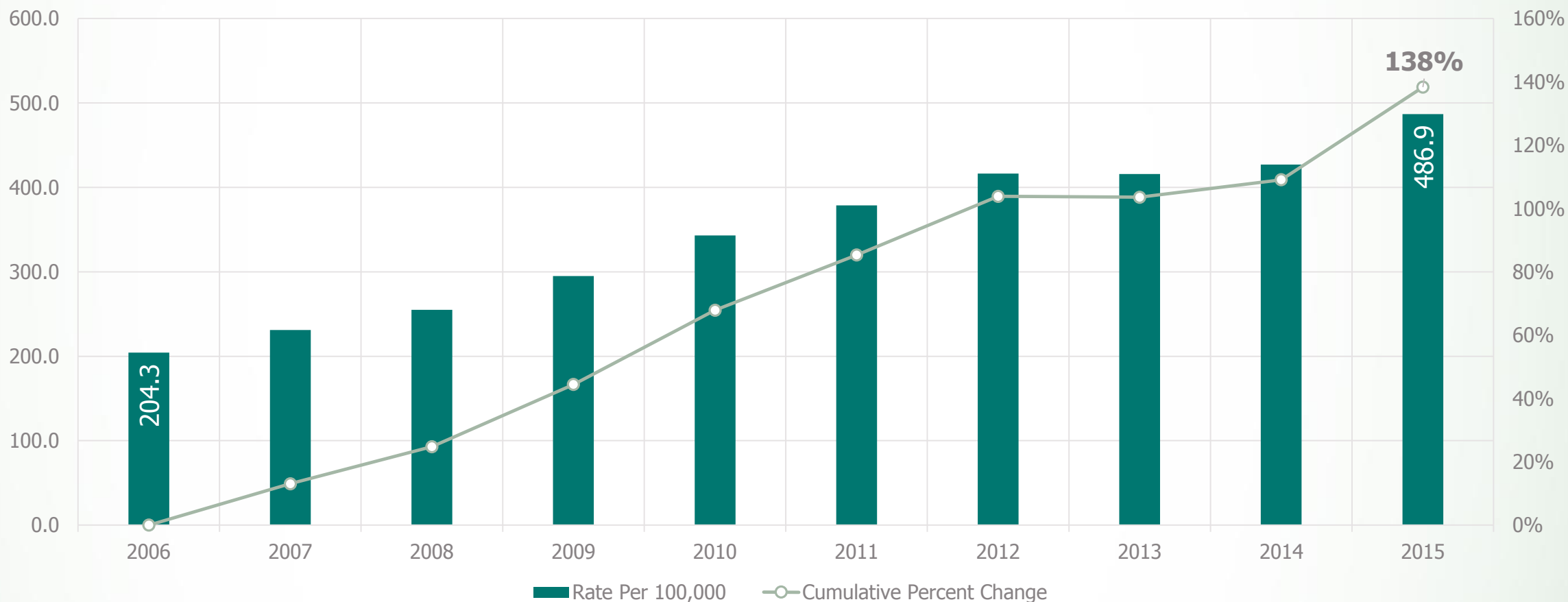
- Analgesic (prescription) opioids include commonly-prescribed painkillers
 - Oxycodone, hydrocodone, codeine, morphine, Vicodin, Percocet, etc.
 - Highly addictive, narcotic, stimulate pleasure centers in brain
 - Chemical composition of analgesic opioids very similar to heroin
 - Growing evidence links analgesic opioid dependence to eventual heroin use
 - 2.1 million people in the U.S. misuse opiates and half a million are addicted to heroin
 - Hospitalization for opioid overuse rising dramatically across the U.S.
 - Fastest growth in the Midwest
 - Among females and the elderly

Reidhead, M. (2015, October). Alarming Trends in Hospital Utilization for Opioid Overuse in Missouri. HIDI HealthStats.



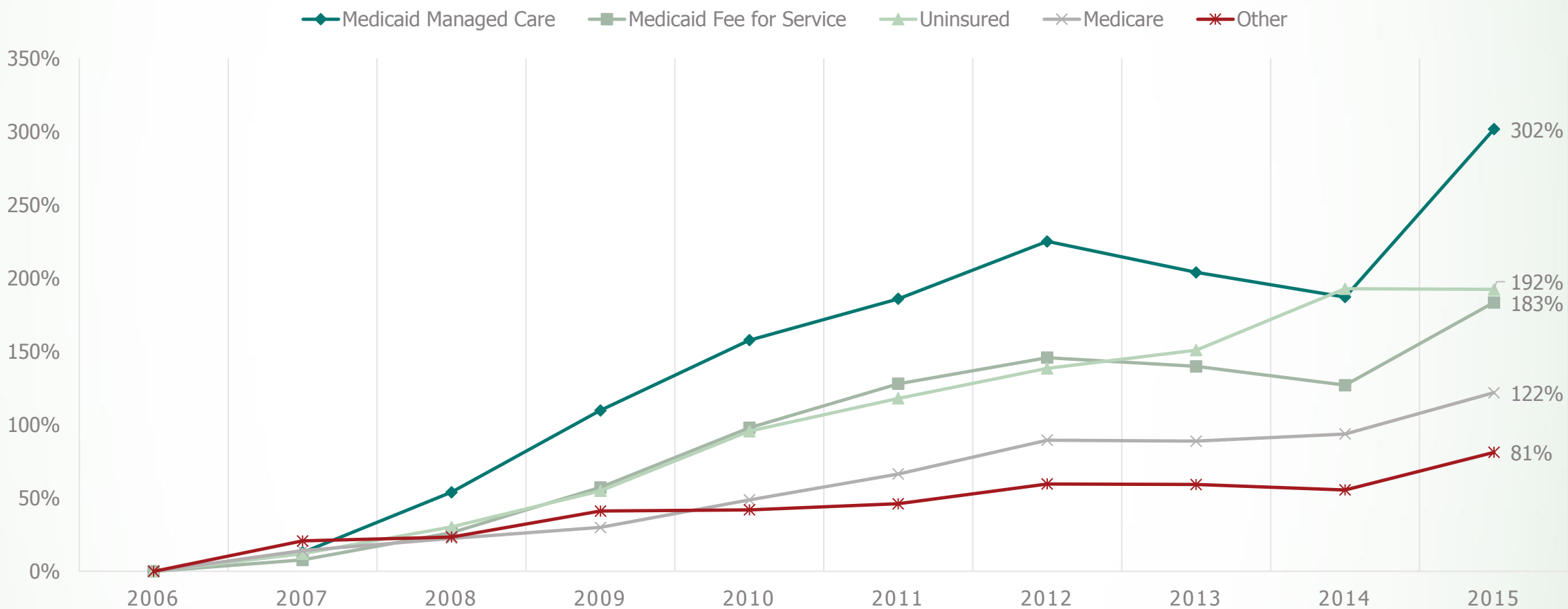
Rate of Hospital Utilization for Analgesic Opioid Overuse in Missouri and Percent Change from 2006

RATE OF HOSPITAL INPATIENT AND EMERGENCY DEPARTMENT VISITS FOR ANALGESIC OPIOID OVERUSE AND CUMULATIVE PERCENT CHANGE IN MISSOURI, 2006-2015

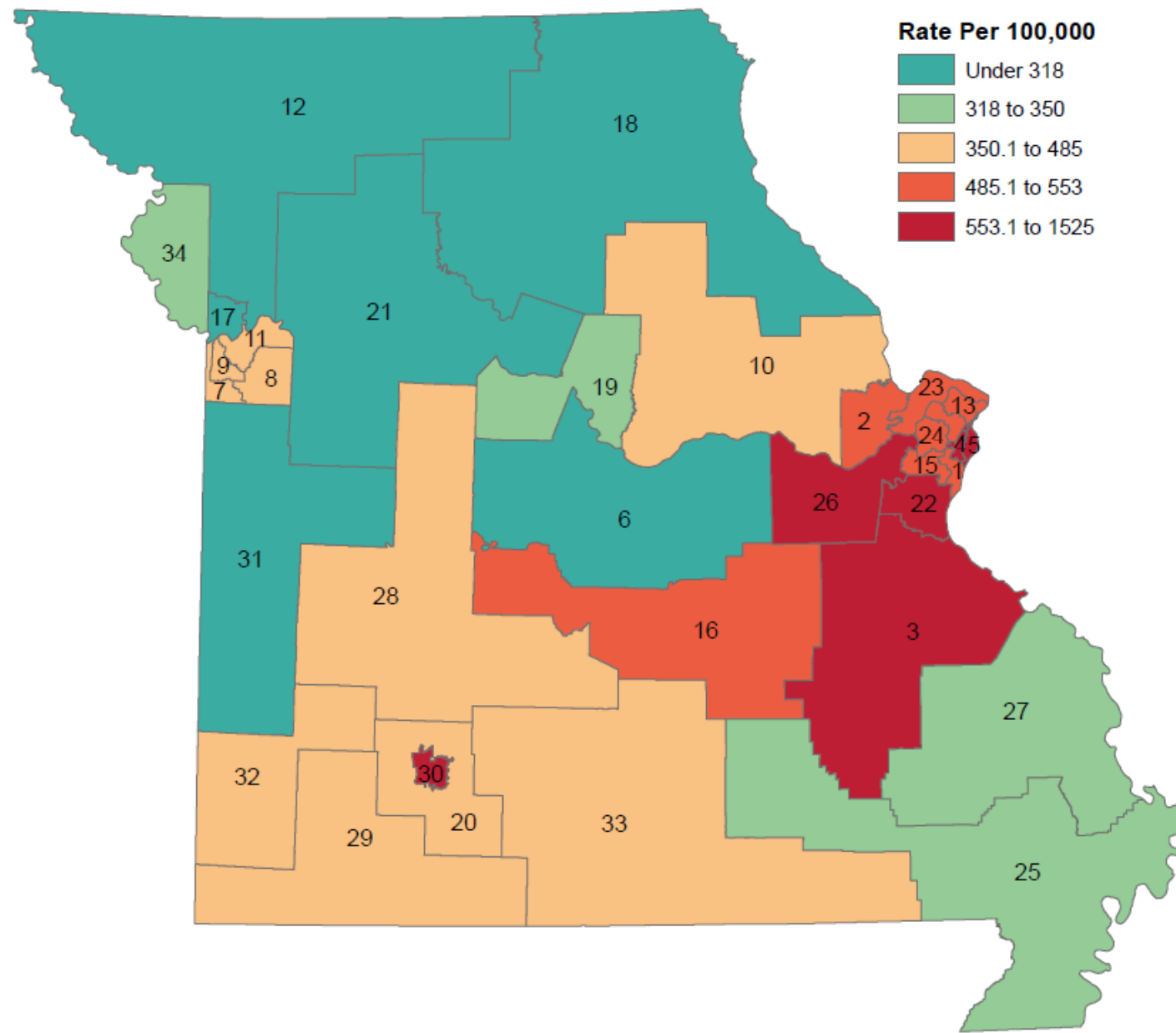


Hospital Utilization for Analgesic Opioid Overuse by Payer

RATE OF HOSPITAL INPATIENT AND EMERGENCY DEPARTMENT VISITS FOR ANALGESIC OPIOID OVERUSE IN MISSOURI, CUMULATIVE PERCENT CHANGE BY PAYER, 2006-2015



Rate of Hospital Inpatient and Emergency Department Visits for Analgesic Opioid Overuse in Missouri by Senate District, FY2015



Missouri Infants Born with Drug Withdrawal: Neonatal Abstinence Syndrome

2006 - 2016



Neonatal Abstinence Syndrome (NAS)

- Postnatal drug withdrawal syndrome most prevalent in opioid-exposed infants shortly after birth
 - Manifests in central nervous irritability, GI tract dysfunction and overactive autonomic response
 - Limited evidence on long-term effects
 - National rates of NAS increased by 300% between 1999 and 2013
 - 1.5 per 1,000 births in 1999
 - 6.0 per 1,000 births in 2013

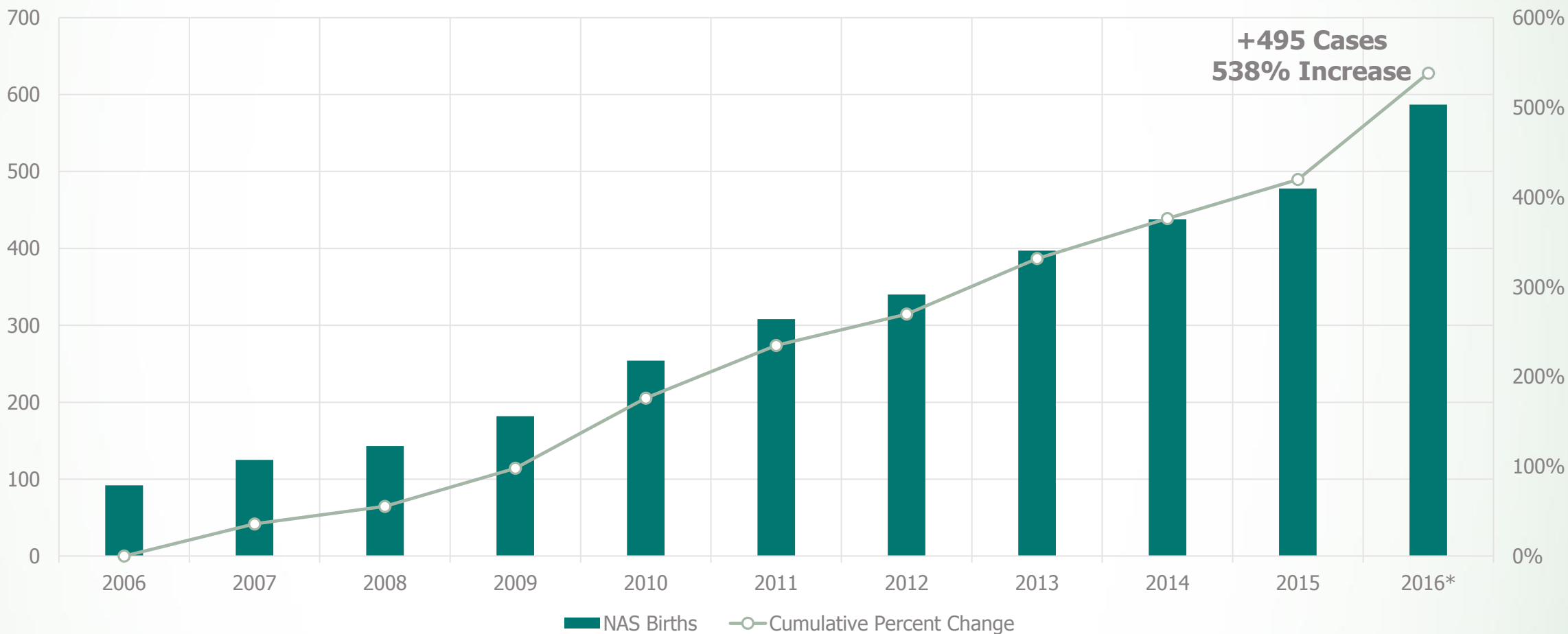
Ko JY, Patrick SW, et al. (2016, August). Incidence of Neonatal Abstinence Syndrome—28 States, 1999-2013. MMWR 16(31)

- Missouri NAS cases identified with ICD-9 and ICD-10 CM diagnosis codes:
 - FY 2006-2015: ICD-9 CM code 7795 (newborn drug withdrawal syndrome)
 - FY 2016: ICD-10 CM code P961 (neonatal withdrawal symptoms from maternal use of drugs)
 - Source: Hospital Industry Data Institute, 2006-2016 Hospital Inpatient Discharge Databases



Number of Infants Born with NAS and Percent Increase from 2006

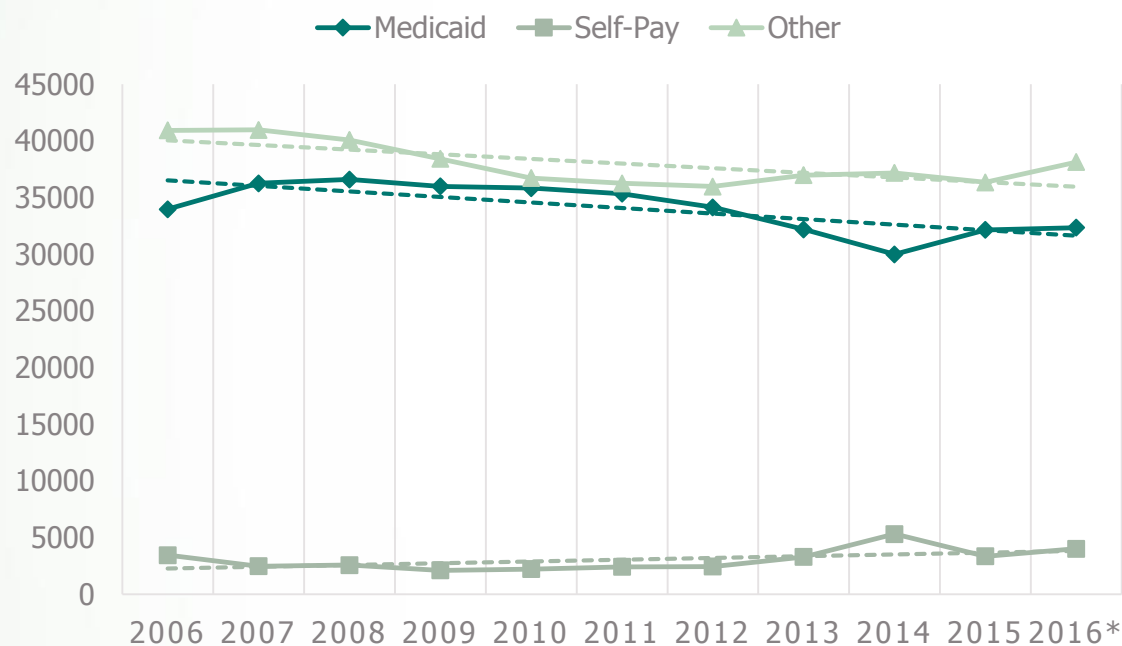
MISSOURI INFANTS BORN WITH NAS AND CUMULATIVE PERCENT CHANGE, 2006-2016



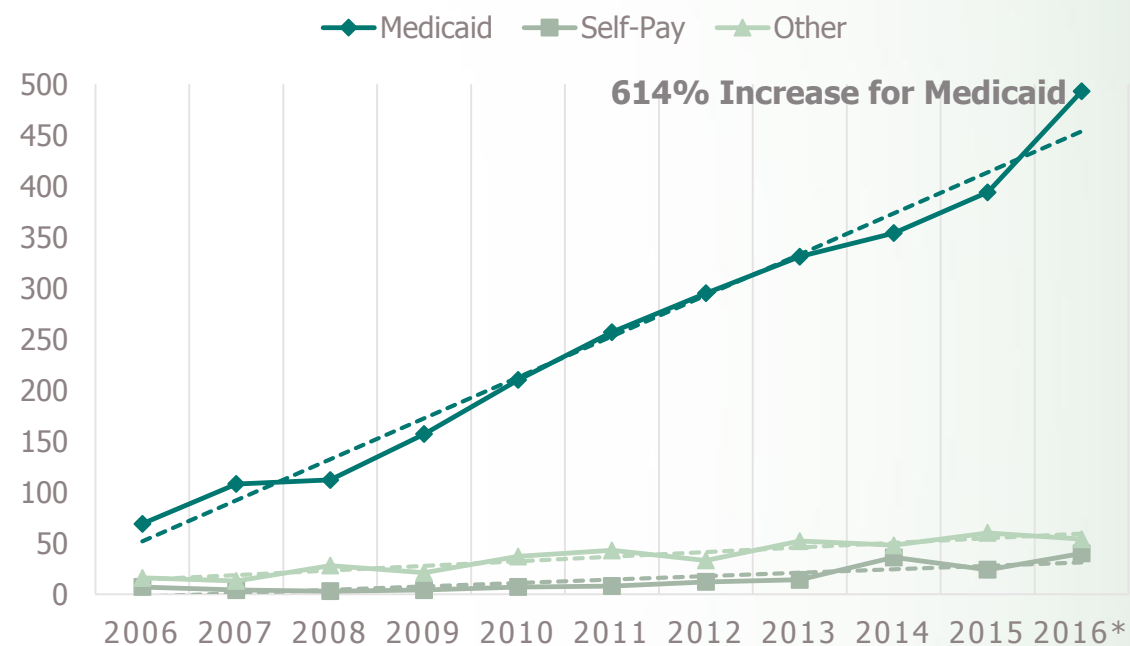
Source: Hospital Industry Data Institute. *NAS births in 2016 identified with ICD-10 CM codes P961 and P962. NAS births in 2006-2015 identified with ICD-9 CM code 7795.

Total Number of Births and NAS Births by Payer

TOTAL MISSOURI BIRTHS BY PAYER, 2006-2016



MISSOURI INFANTS BORN WITH NAS BY PAYER, 2006-2016



- Moderate decrease in total births in Missouri between 2006 and 2016
- Moderate increase in NAS for non-Medicaid births
- Dramatic increase in NAS for Medicaid births; 424 additional cases accounting for 86% of the total statewide increase between 2006 and 2016

Rate of NAS Births per 1,000 by Payer

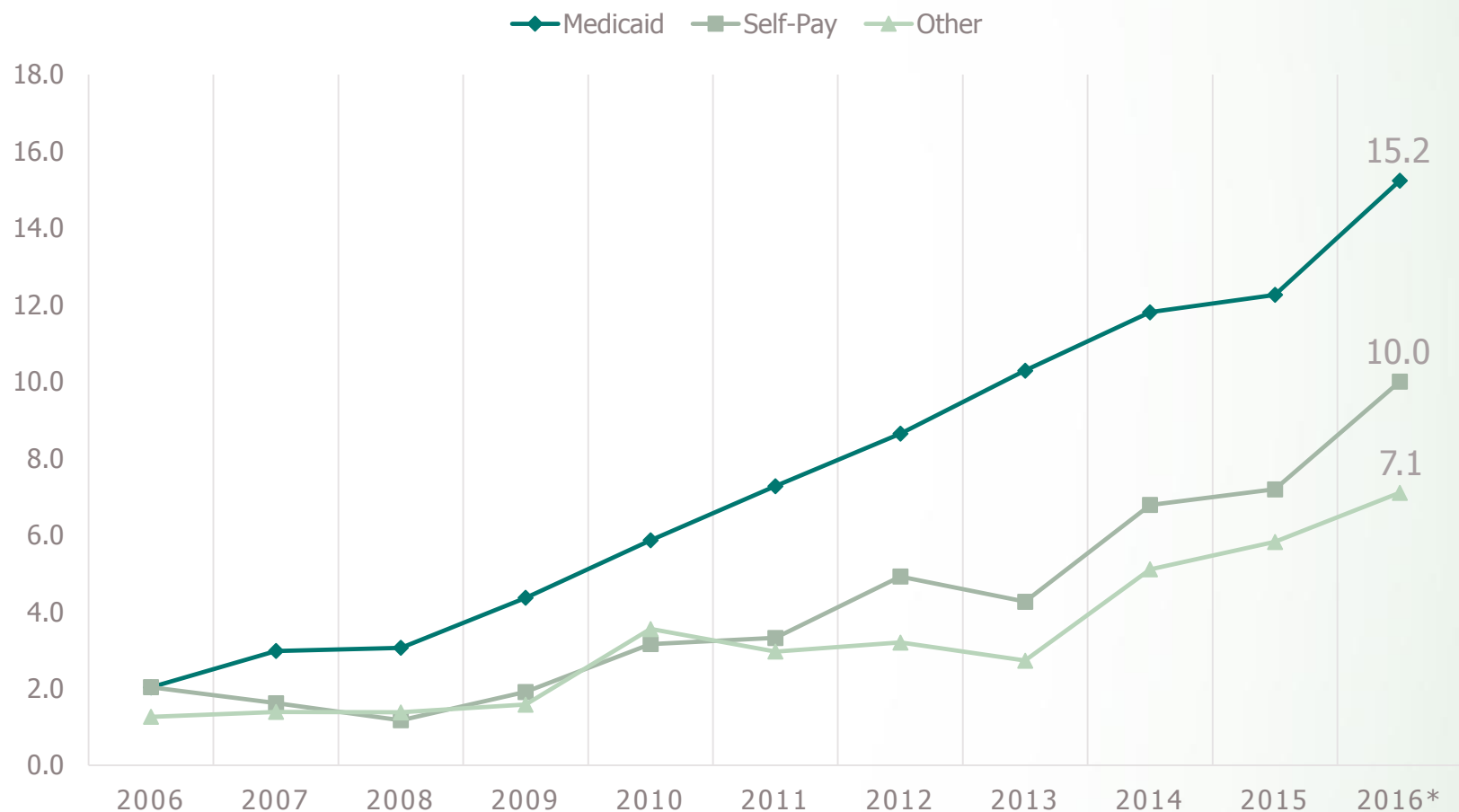
Statewide, the NAS rate was 1.2 per 1,000 births in 2006 & 7.9 in 2016.

The NAS rate for Medicaid newborns was more than double the statewide rate in 2016.

Average charges for a Medicaid NAS birth are \$63,000 vs. \$14,500 for other births.

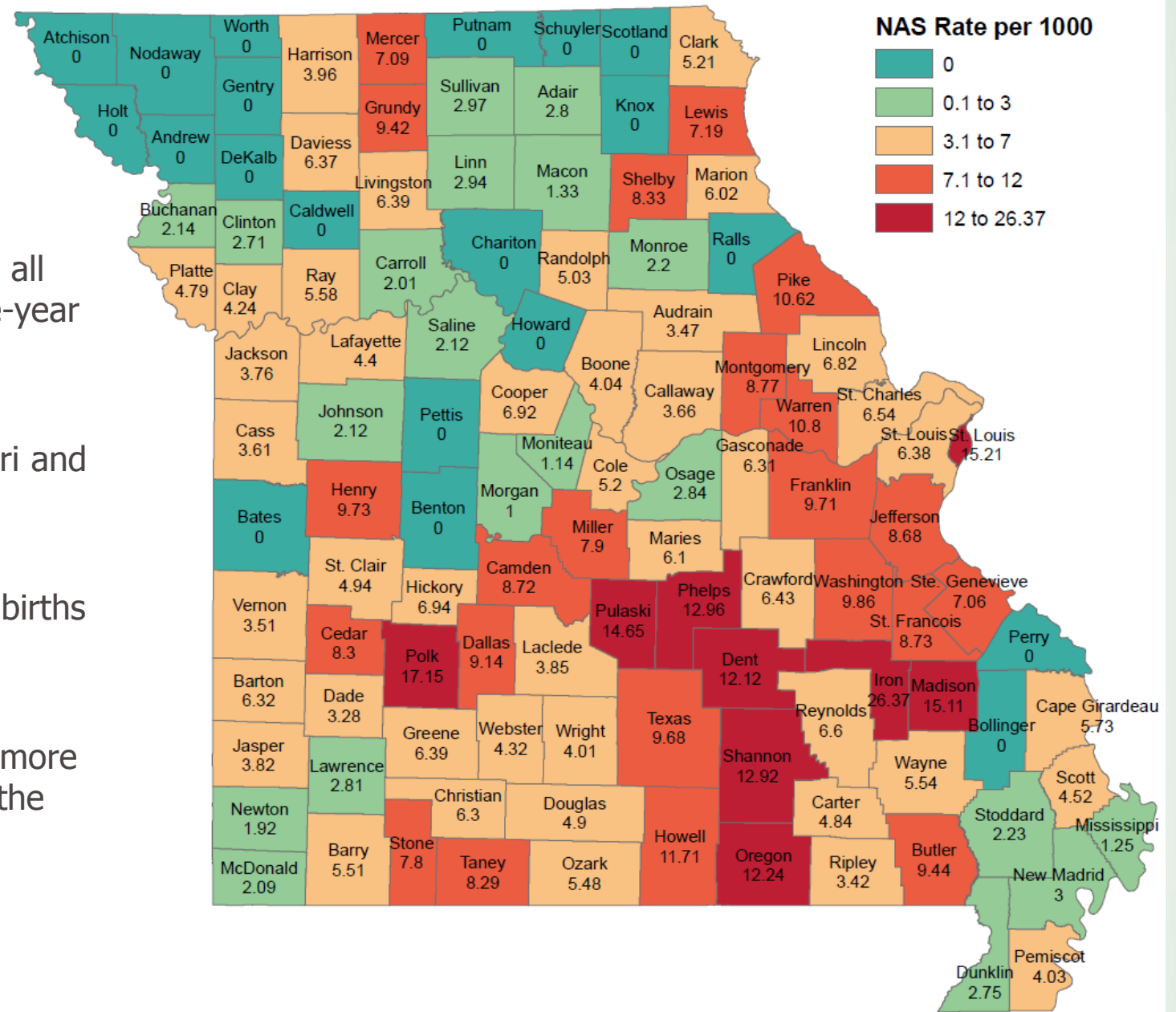
This implies \$23,800,000 in additional hospital charges for 493 Medicaid NAS births in FY2016, at a cost to Medicaid of nearly \$10 million.

MISSOURI INFANTS BORN WITH NAS: RATE PER 1,000 BIRTHS BY PAYER, 2006-2016

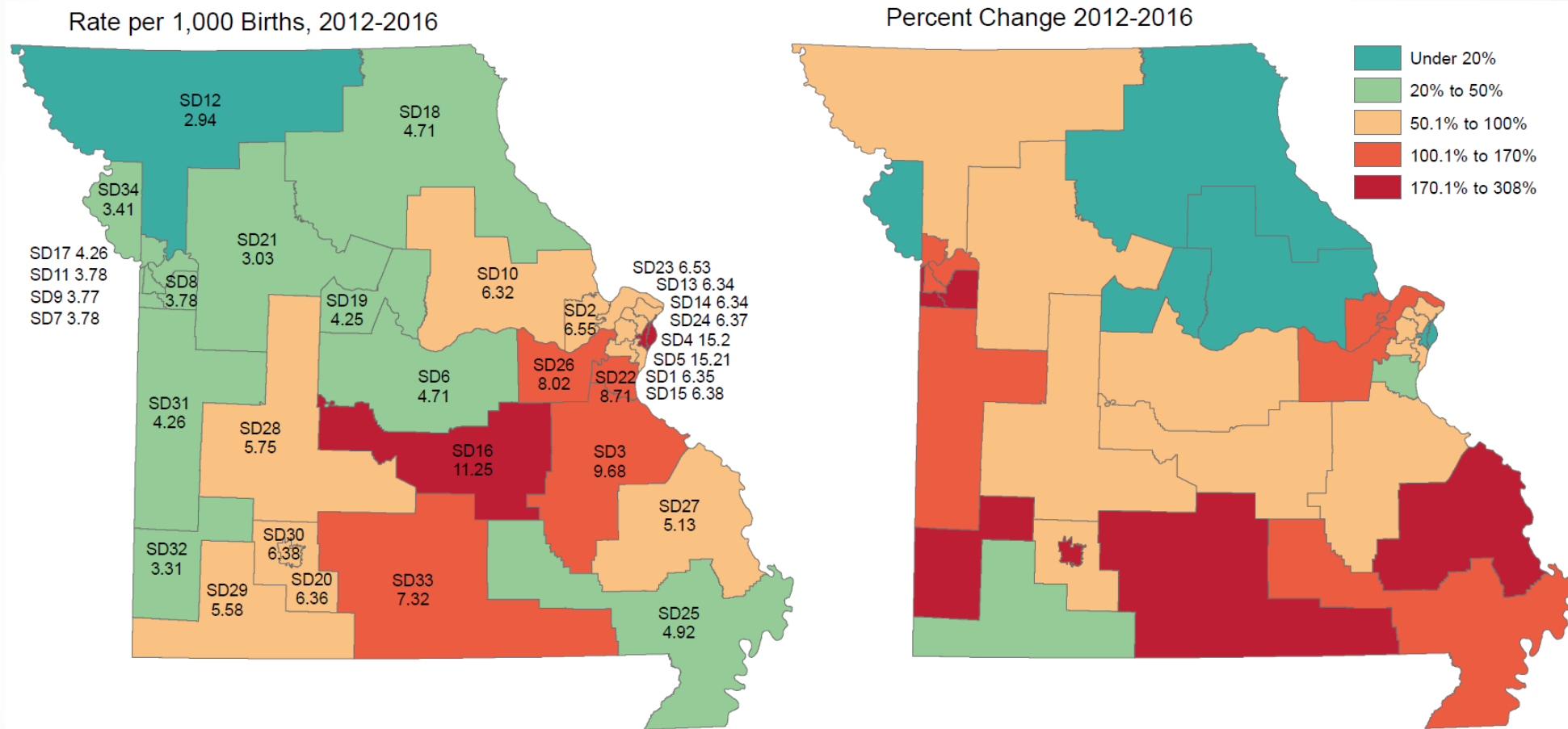


Missouri Infants Born with NAS: Rate per 1,000 Births by County, 2012-2016

- NAS rates calculated at the county-level for all births occurring during the most recent five-year period to increase reliability.
- Rates highest in rural, south-central Missouri and St. Louis city.
- The five-year statewide rate was 6.16 NAS births per 1,000.
- At 26.37 NAS births per 1,000 Iron County more than quadrupled the statewide rate during the same period.



Missouri Infants Born with NAS: Rate per 1,000 Births and Percent Change by Senate District, 2012-2016



- Senate Districts 4, 5 and 16 had the highest NAS rates between 2012 and 2016.
- Senate Districts 7, 8, 27, 30, 32 and 33 had the highest rates of growth in NAS with each experiencing an increase over 170%