

NAS

NEONATAL ABSTINENCE SYNDROME

Annual Surveillance Report 2016

Georgia Department of Public Health
Division of Health Promotion

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CONTENTS

Introduction / Overview.....	2
Statewide Data Summary.....	8
Substance Data.....	13
NAS Regional Data.....	18
Conclusion/Next Step.....	20
Acknowledgements.....	20
Citations/References.....	21

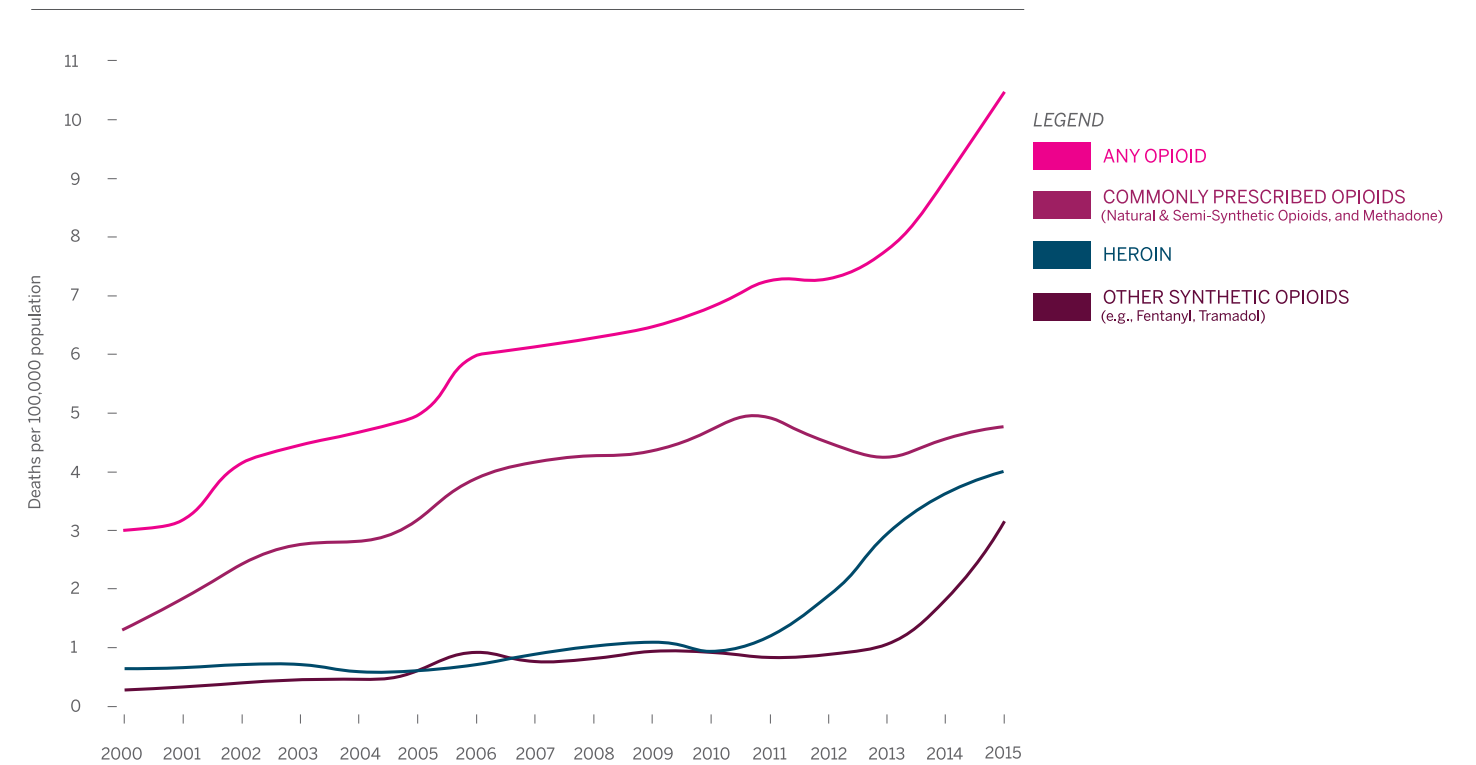
Note: This report contains data obtained through a hospital surveillance system. Other available sources of data not included in this report include hospital discharge data, birth record data, and payment data. All findings should be interpreted with caution. The case counts in this sample are small and may be statistically unreliable.

INTRODUCTION

Neonatal abstinence syndrome (NAS) is a drug withdrawal syndrome that results from the abrupt discontinuation of chronic fetal exposure to substances that were used or abused by the mother during pregnancy. It has primarily been studied in opioid-exposed infants; however, a similar syndrome has been described in infants exposed to other kinds of substances, both prescription and illicit.

In the last decade, rates of opioid use have increased rapidly in the United States, including among women of childbearing age. Correspondingly, rates of NAS have also increased (Kocherlakota 2014).

OVERDOSE DEATHS INVOLVING OPIOIDS, UNITED STATES, 2000-2015

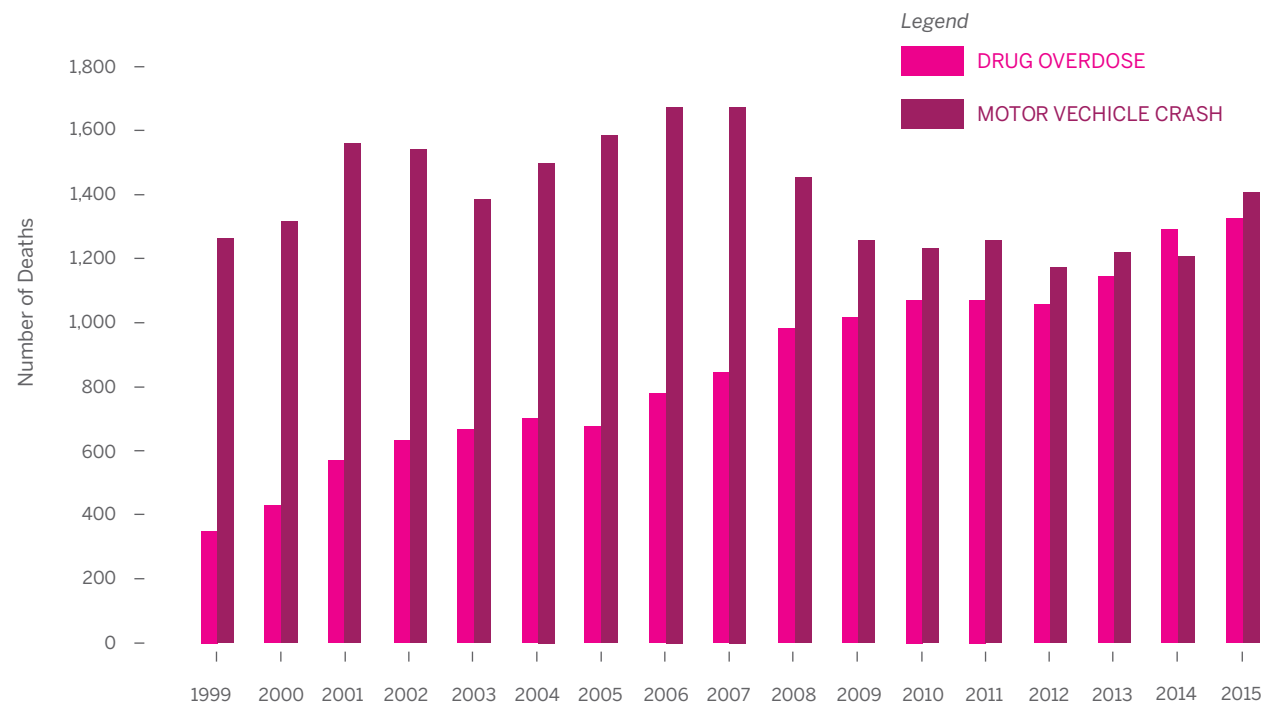


SOURCE: CDC/NCHS, National Vital Statistics System, Mortality, CDC WONDER, Atlanta, GA: US Department of Health and Human Services, CDC; 2016. <https://wonder.cdc.gov/>.

OVERVIEW

Opioid use and misuse (abuse) have contributed to the rise of overdose deaths in Georgia. Historically, motor vehicle crashes (MVC) have been a leading cause of death, especially among Georgians aged 1-44. In 2014, drug overdose deaths (n=1223) eclipsed MVC fatalities (n=1104) as a leading cause of death in Georgia, following the national trend.

DEATHS FROM DRUG OVERDOSES & MOTOR VEHICLE CRASHES, GEORGIA RESIDENTS, 1999-2015



Drug Overdose uses underlying cause ICD-10 Codes X40-X44, X60-X64, Y10-Y14, X85, F11-F16, F18 and F19;t
 Motor Vehicle Crashes uses V02-V04, V09.0, V09.2, V12-V14, V19.0-V19.2, V19.4-V19.6, V20-V79.
 SOURCE: Georgia Department of Public Health, Office of Health Indicators for Planning (OHIP). OASIS <https://oasis.state.ga.us>

The Office of Health Indicators for Planning (OHIP) at the Georgia Department of Public Health conducted retrospective analysis of hospital discharge data and noted increasing rates of NAS between 2010 and 2015. Codes used for surveillance were for ICD-9: 779.5 (drug withdrawal syndrome in a newborn) and 760.72 (noxious influences affecting fetus or newborn via placenta or breastmilk, narcotics), and for ICD-10: P96.1 (drug withdrawal, infant of dependent mother) and P04.4 (newborn affected by maternal use of drugs of addiction).

OVERVIEW (con't)

The numerator is total number of unique codes in a given year, and the denominator is total number of GA hospital births in a given year.

Event Year	2010	2011	2012	2013	2014	2015
Rate/1000 births	2.21	2.53	3.13	4.08	4.77	6.10

In an effort to more closely monitor NAS within the state, Georgia Department of Public Health made NAS a reportable condition as of January 1, 2016. Reports are currently received electronically through the web-based **State Electronic Notifiable Disease Surveillance System (SENDSS <https://sendss.state.ga.us/>)**.

The data submitted provides opportunities to:

- 1) Assess the current incidence of NAS in Georgia and trends over time
- 2) Identify opportunities for timely intervention and education
- 3) Better characterize risk factors for NAS in Georgia
- 4) Assess capacity to address maternal addiction and provide multidisciplinary care/support for the family/child affected by substance abuse.

Criteria for a confirmed case of NAS are one or more of the following:

- 1) Presence of one or more clinical symptoms of NAS and/or
- 2) A positive infant substance test result. Providers are required to report within 7 days of diagnosis.

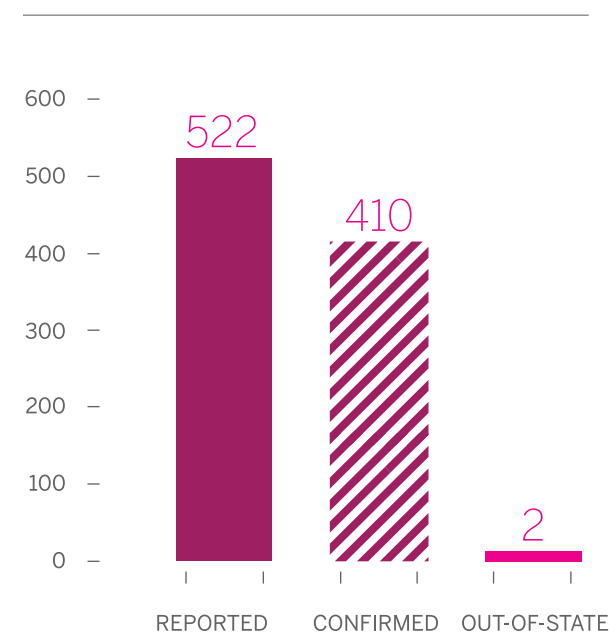
The data in this report reflects NAS reports received by SendSS during CY2016.

STATEWIDE DATA SUMMARY

TOTAL NUMBER OF CASES REPORTED FOR CY 2016, *aggregate*

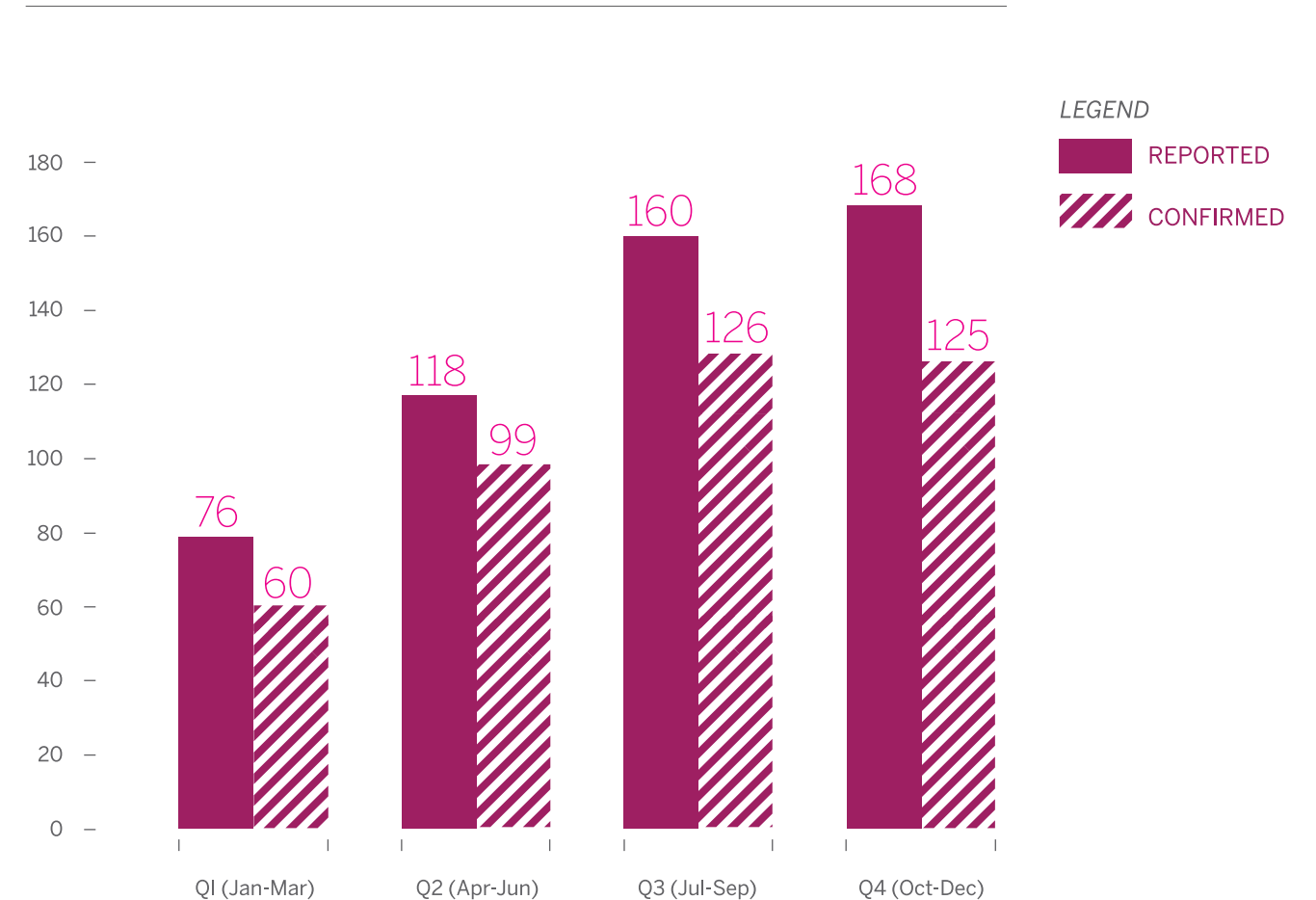
During CY2016, there were a total of 522 cases reported within the state of Georgia, received from 47 of the 74 (64%) birthing facilities. Of those reports, 410 met case criteria for a confirmed case. Typically cases that are not confirmed do not meet case criteria, but are still reported to SendSS due to evidence or history of maternal substance use. Two reported cases were out-of-state residents who gave birth within a Georgia hospital, and were excluded from analysis. Of all the neighboring states, only Tennessee and Florida have formalized reporting/surveillance systems to monitor NAS. Because of obstetrician provider shortages in the rural areas of Georgia, including areas that border other states, some Georgia women give birth outside the state. It is unknown at this time how many Georgia NAS cases go unreported in neighboring states.

TOTAL NAS REPORTS, GEORGIA, 2016



STATEWIDE DATA SUMMARY

NAS REPORTS BY QUARTER, GEORGIA, 2016



NUMBER OF REPORTED V.S. CONFIRMED CASES PREVIOUS 12 MONTHS, *quarterly*

Since the beginning of CY2016, the overall number of cases reported (n=522) and confirmed (n=410) per quarter increased. This increase is likely due in part to improved provider awareness of the mandatory reporting requirements. By the end of 2016, only 64% of Georgia hospitals have participated in reporting NAS via SendSS; the number of reported cases will likely increase as providers become more aware of NAS reporting requirements. The Georgia Department of Public Health is working with partners throughout the state to conduct ongoing provider outreach and education efforts. For example, clinical educators at the Regional Perinatal Centers have developed a comprehensive curriculum to educate frontline healthcare personnel on NAS and maternal substance use.

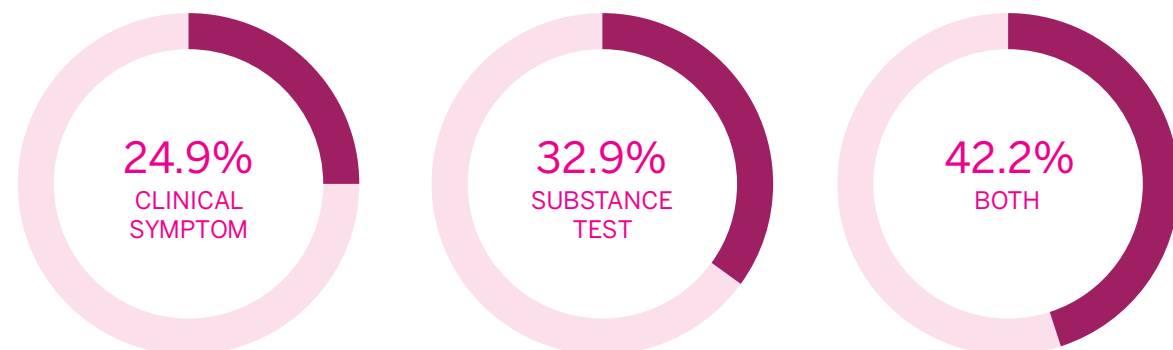
STATEWIDE DATA SUMMARY (con't)

METHOD OF CASE CONFIRMATION

Forty-two percent of cases were identified by the presence of both clinical symptoms and a positive substance test. The remainder were confirmed by presence of clinical symptoms only (24.9%) or by positive substance test only (32.9%).

Specimens that may be used for substance testing include urine, meconium, cord blood and hair. While data on specimen type is not currently collected, urine and meconium specimens are likely the most common specimens tested due to ease of collection and relatively low cost. Data on specimen type will be collected in CY2017.

CONFIRMED CASES BY CONFIRMATION METHOD, GEORGIA, 2016

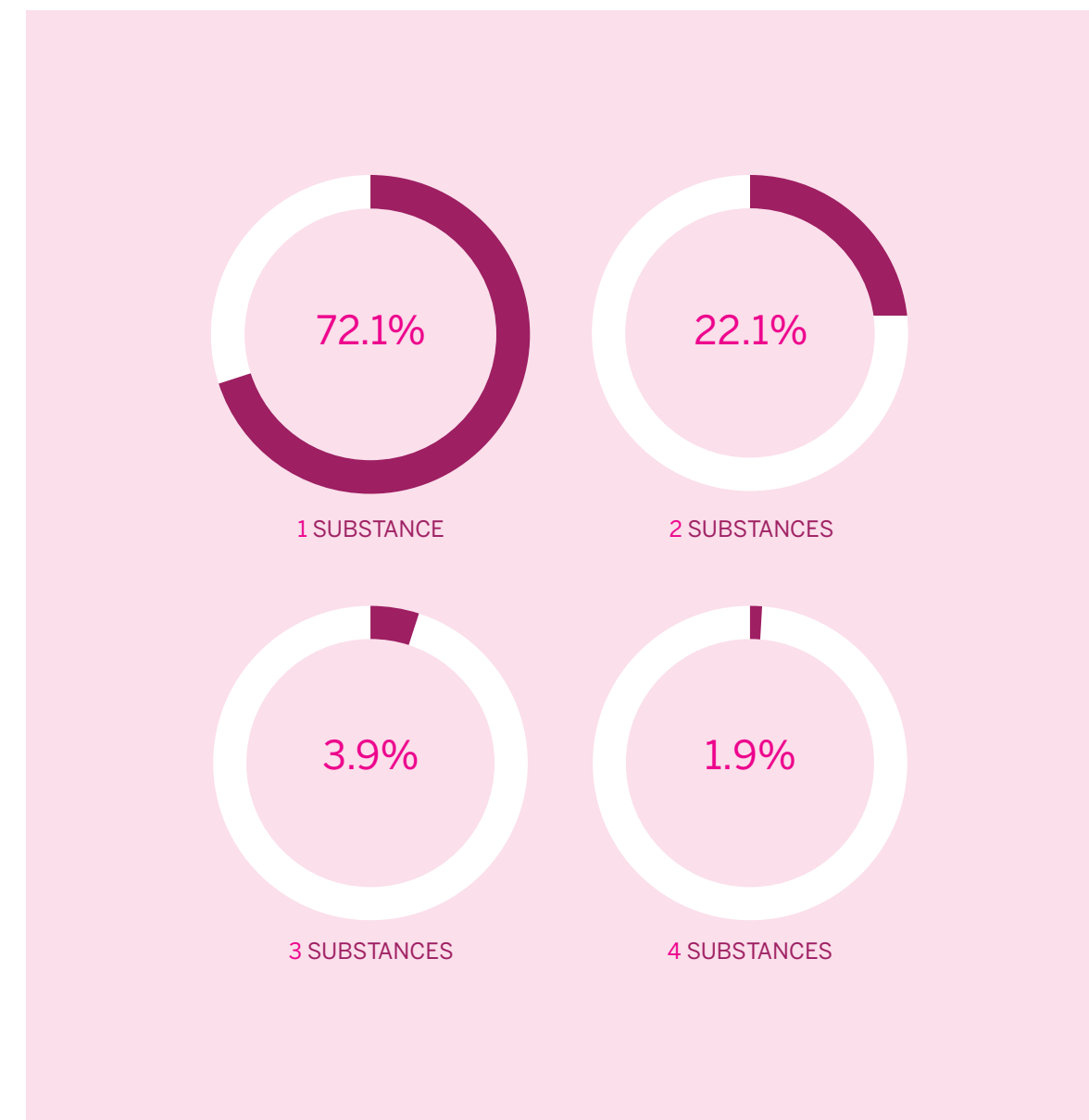


OCCURRENCE OF POLYSUBSTANCE EXPOSURE AMONG CONFIRMED CASES

The majority of infants with a positive substance test had known exposure to only one substance (72.1%); the remaining infants were exposed to two or more substances (28%). However, this data must be interpreted with caution. Laboratory testing may fail to detect substances that the fetus was exposed to for many reasons (e.g. duration of exposure, amount of time since exposure, specimen type, specimen quality, collection/storage technique, lab limitations). Urine specimens have a much shorter detection window (up to a few days prior to collection) than that of correctly collected meconium specimens or umbilical cord specimens (Kocherlakota, 2014). Additionally, false negatives may occur as some substances of potential abuse are not detectable by current testing methods available to hospitals.

STATEWIDE DATA SUMMARY

CONFIRMED CASES & NUMBER OF SUBSTANCES IDENTIFIED, GEORGIA, 2016



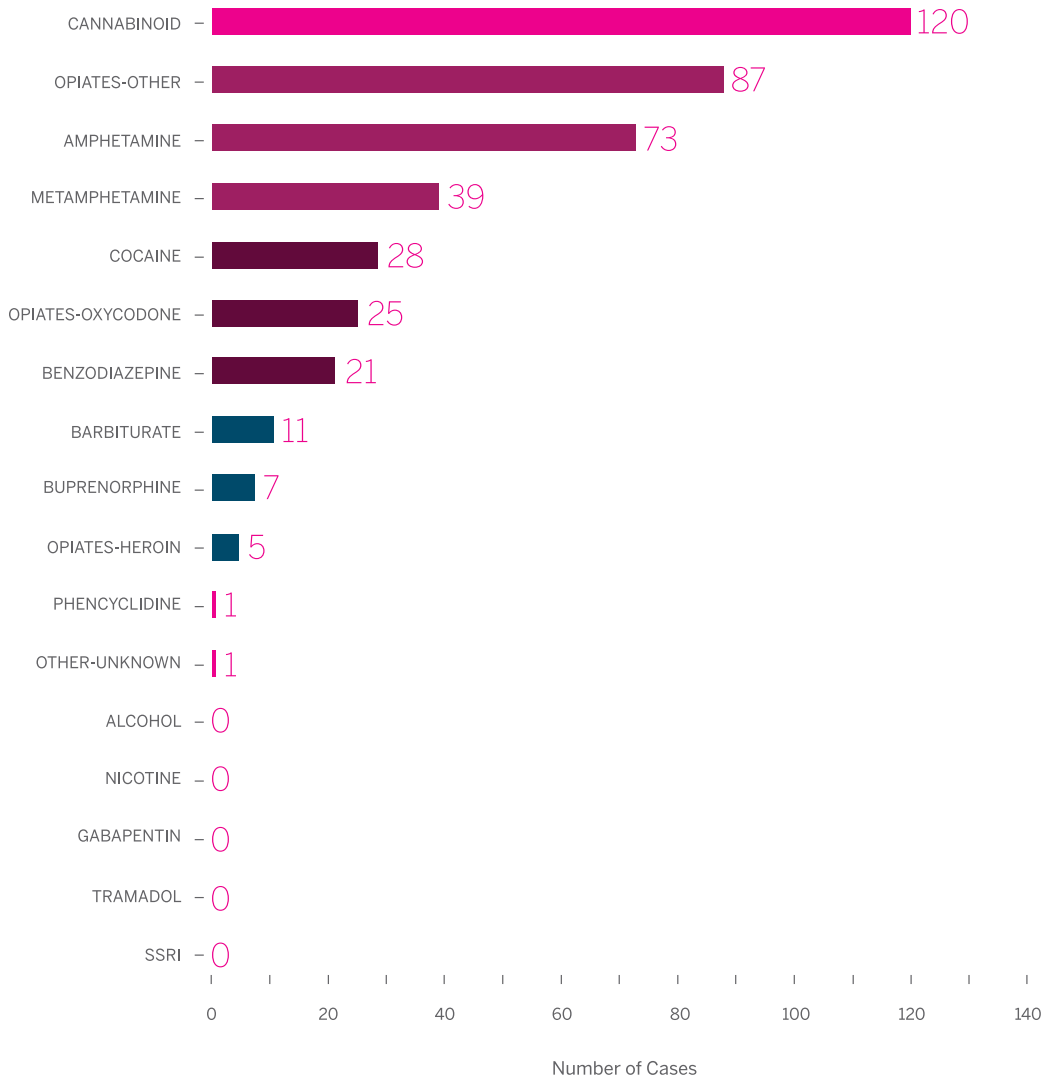


SUBSTANCE DATA

SUBSTANCES IDENTIFIED IN CONFIRMED CASES, BY NUMBER OF SUBSTANCES

This graph displays the individual substances identified by positive substance test among the confirmed cases. As infants may have positive results for multiple substances, the total number of substances identified does not equal total number of confirmed cases. Cannabinoids were by far the most commonly identified substance (n= 120), followed by Opioids-Other* (n=87), and Amphetamines (n=73). Limitations to laboratory substance identification can be due to the type of drug panel that was ordered by the provider (e.g. 5 drug panel vs. 10 drug panel) or by substance used; not all panels have the capability to differentiate between specific substances and not all substances can be detected by typical laboratory methods.

SUBSTANCES IDENTIFIED, GEORGIA, 2016

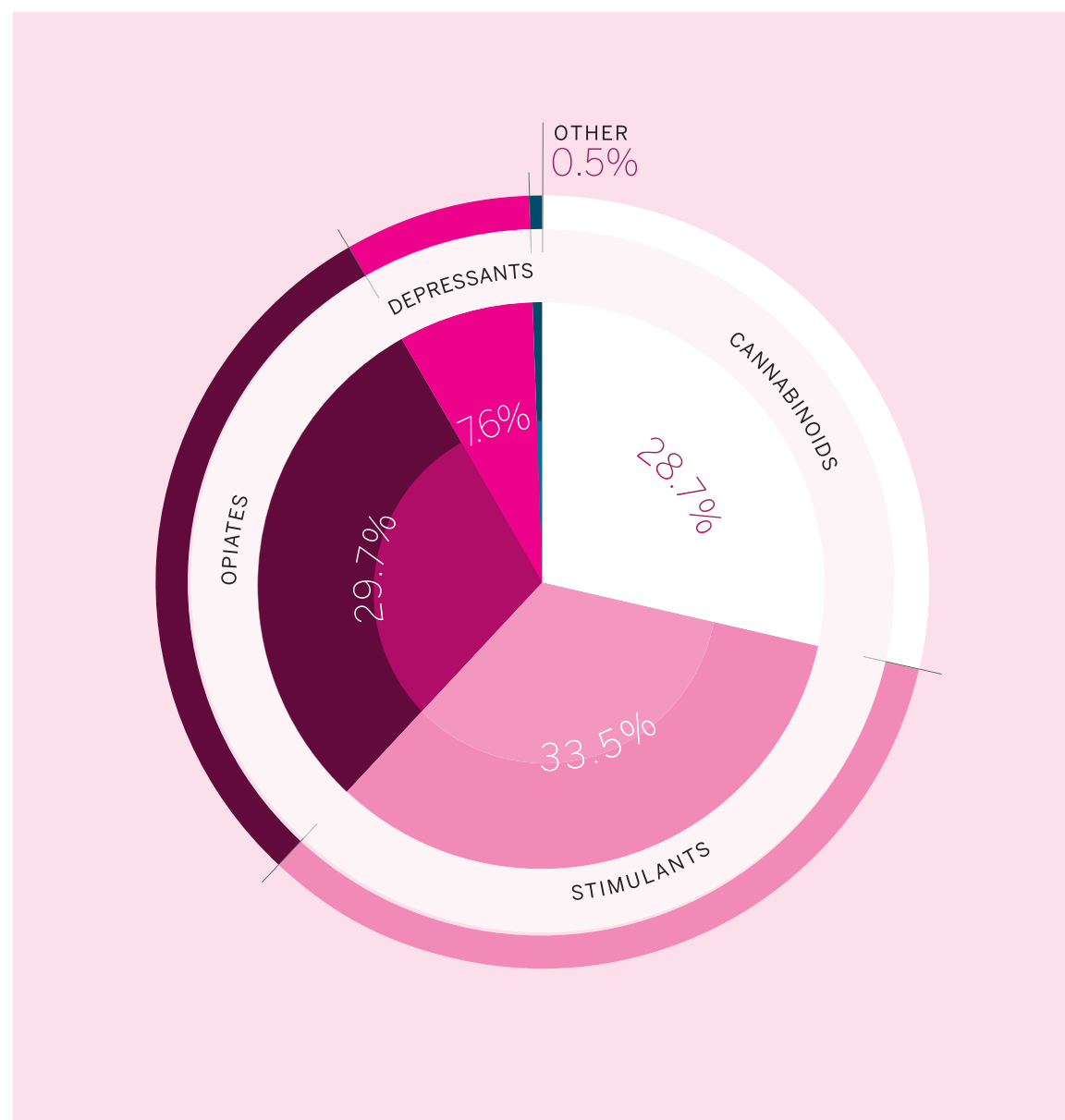


SUBSTANCE DATA

METHOD OF CASE CONFIRMATION

This graph displays the substance categories identified among the confirmed cases by positive substance test. "Stimulants" were identified most often (33.5%), followed by "Opioids" (29.7%), and "Cannabinoids" (28.7%).

SUBSTANCES IDENTIFIED BY CATEGORY, GEORGIA, 2016



SUBSTANCE DATA

COMBINED CATEGORIES:

CANNABINOIDS	Marijuana, THC products
DEPRESSANTS	Barbiturates, benzodiazepines
STIMULANTS	Amphetamines, methamphetamines, cocaine
OPIATES	Heroin, oxycodone, tramadol, buprenorphine, other opiates
OTHER	SSRI, gabapentin, phencyclidine, alcohol, nicotine/tobacco, other/unknown

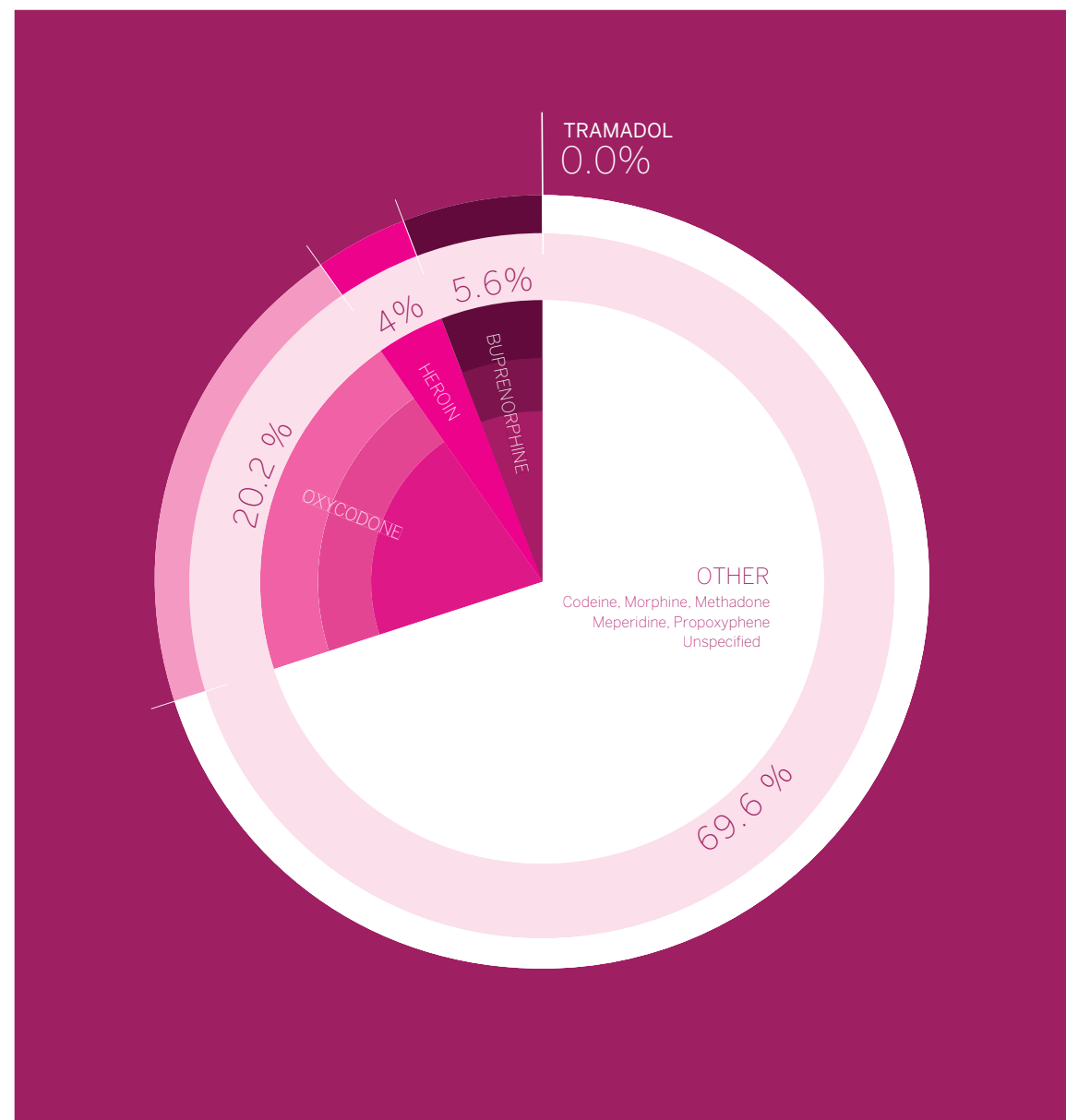
OPIOIDS IDENTIFIED BY TYPE IN CONFIRMED CASES

Among opioids, the "Opioids-Other" category was most common (69.6%). The next most common was Oxycodone (20.8%) and Buprenorphine (5.6%). Heroin makes up 4% of the opioids identified. These results indicate that prescription pain relievers contributed to the majority of the opiate-related NAS cases. Again, due to the lab capability or type of drug panel, the specific opiate may not always be identified.

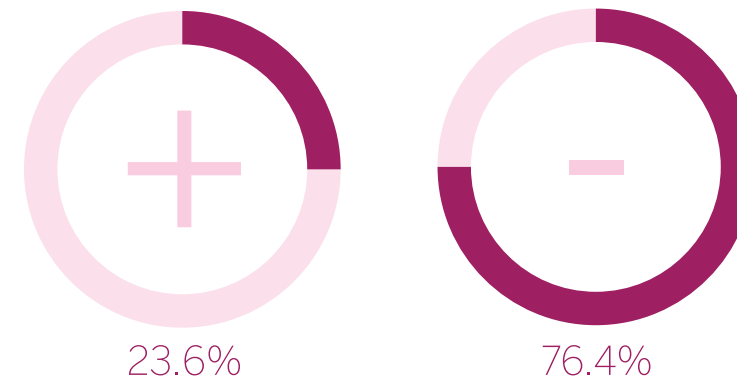
(See chart on next page).

SUBSTANCE DATA (con't)

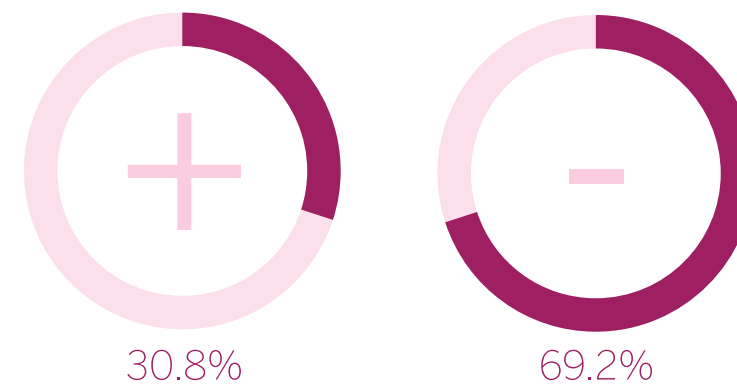
OPIOIDS BY TYPE, GEORGIA, 2016



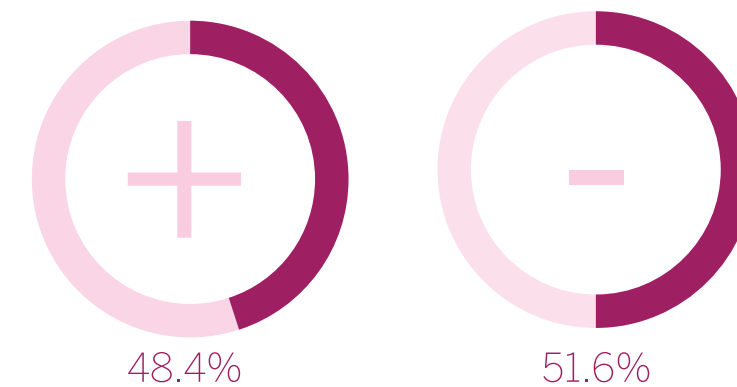
SYMPTOMS IN MONOSUBSTANCE MARIJUANA, POSITIVE CASES, GEORGIA, 2016



SYMPTOMS IN ALL MARIJUANA, POSITIVE CASES, GEORGIA, 2016



SYMPTOMS IN POLYSUBSTANCE MARIJUANA, POSITIVE CASES, GEORGIA, 2016

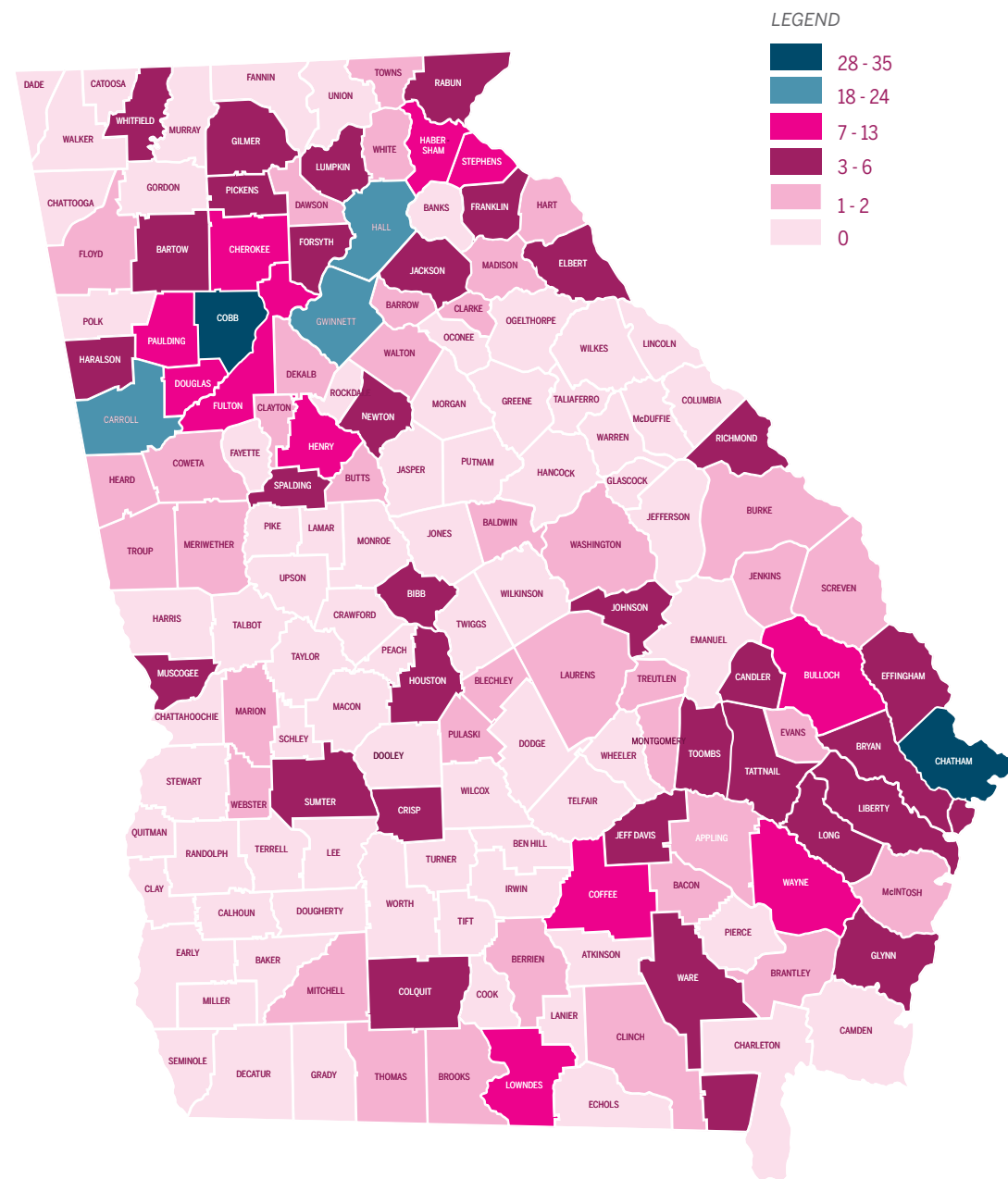


PRESENCE OF SYMPTOMS IN INFANTS IDENTIFIED TO BE POSITIVE FOR MARIJUANA

Of all infants identified to be positive for the presence of marijuana, 69.2% were asymptomatic. Among infants with only marijuana detected by laboratory testing, 23.6% presented with clinical symptoms of withdrawal.

NAS DISTRIBUTION IN GEORGIA

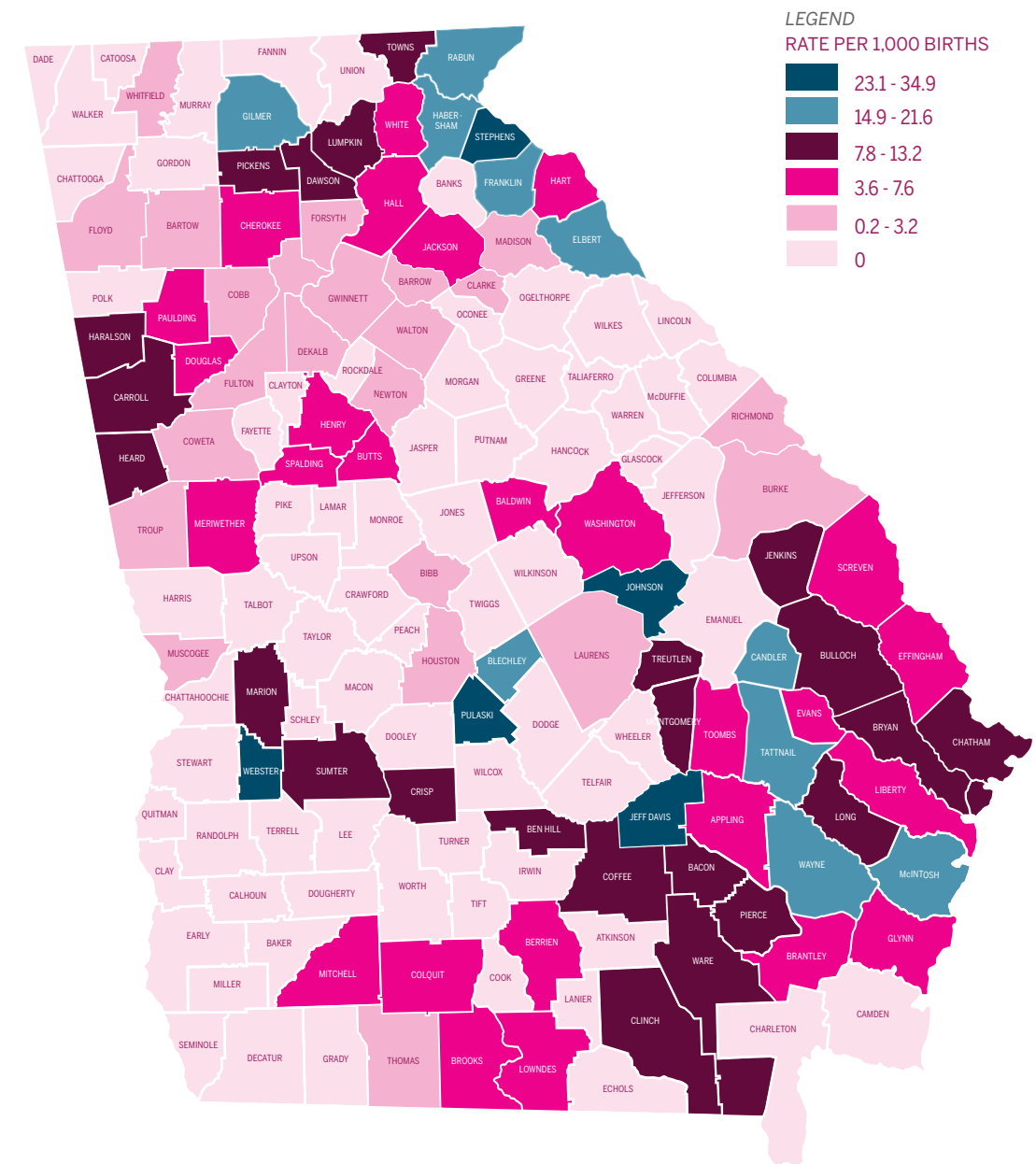
NAS CONFIRMED CASES BY COUNTY, GEORGIA, 2016



The highest numbers of confirmed NAS case reports are from Cobb and Chatham Counties.

NAS DISTRIBUTION IN GEORGIA

NAS RATES BY COUNTY, GEORGIA, 2016



However, the highest rates of NAS are from more rural counties in Georgia (numerator – confirmed cases of NAS within the county, denominator – number of births within the county).

CONCLUSION

CONCLUSION & NEXT STEPS

Hospital discharge data for the years 2010-2015 suggest that the rates of NAS within Georgia have been increasing. Since NAS became a reportable condition in January 2016, 410 cases have been confirmed, providing additional evidence of the increasing public health importance of NAS and the opioid epidemic.

ACKNOWLEDGEMENTS

The Georgia Department of Public Health would like to acknowledge the reporting hospitals and providers within the state of Georgia, the Regional Perinatal Center Outreach Coordinators, and the Georgia ObGyn Society.

CITATIONS

Centers for Disease Control. Overdose Deaths Involving Opioids, by Type of Opioid, United States, 2000-2015 [Internet]. Centers for Disease Control Drug Overdose, 2017 Feb 9; [cited 2017 Jun 1]. Available from: <https://www.cdc.gov/drugoverdose/data/analysis.html>

Kocherlakota, P. Neonatal Abstinence Syndrome [Internet]. Pediatrics, 2014 Aug; 134(2) [cited 2017 Jun 1]. Available from: <http://pediatrics.aappublications.org/content/134/2/e547>



Information and contacts regarding NAS
and other reportable diseases/conditions
can be found at:

dph.georgia.gov/NAS or
dph.georgia.gov/disease-reporting