



# Infant Mortality in Georgia

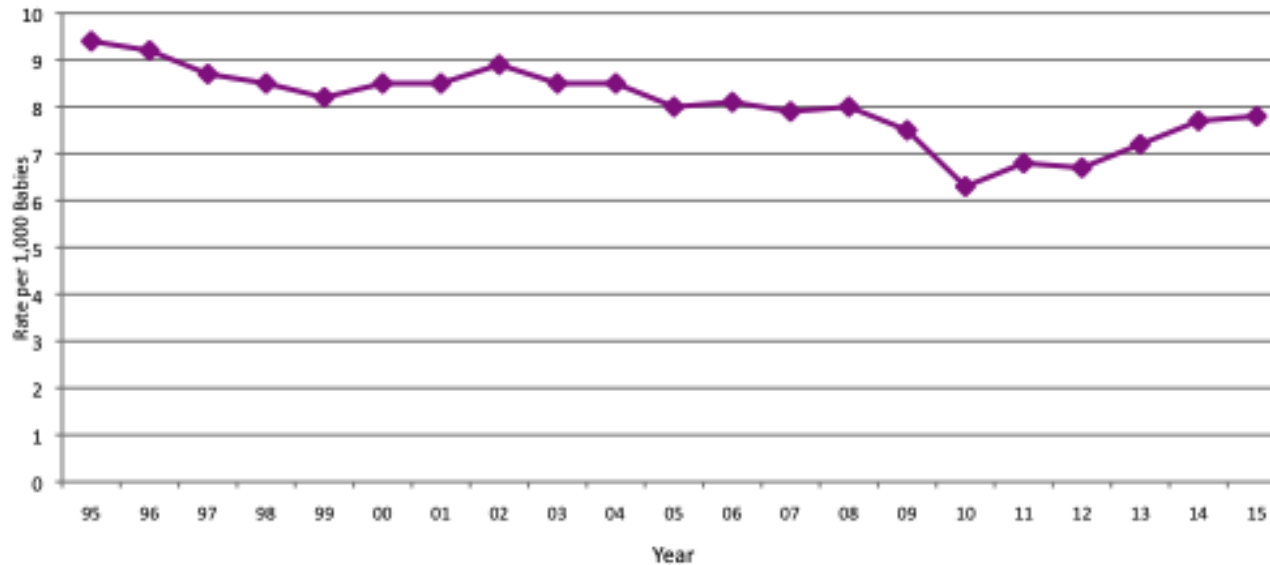
Data Gathered for 2017

Strategic Planning  
for the Atlanta Perinatal Region



# Georgia Infant Mortality

## Infant Mortality: Georgia (1995-2015)

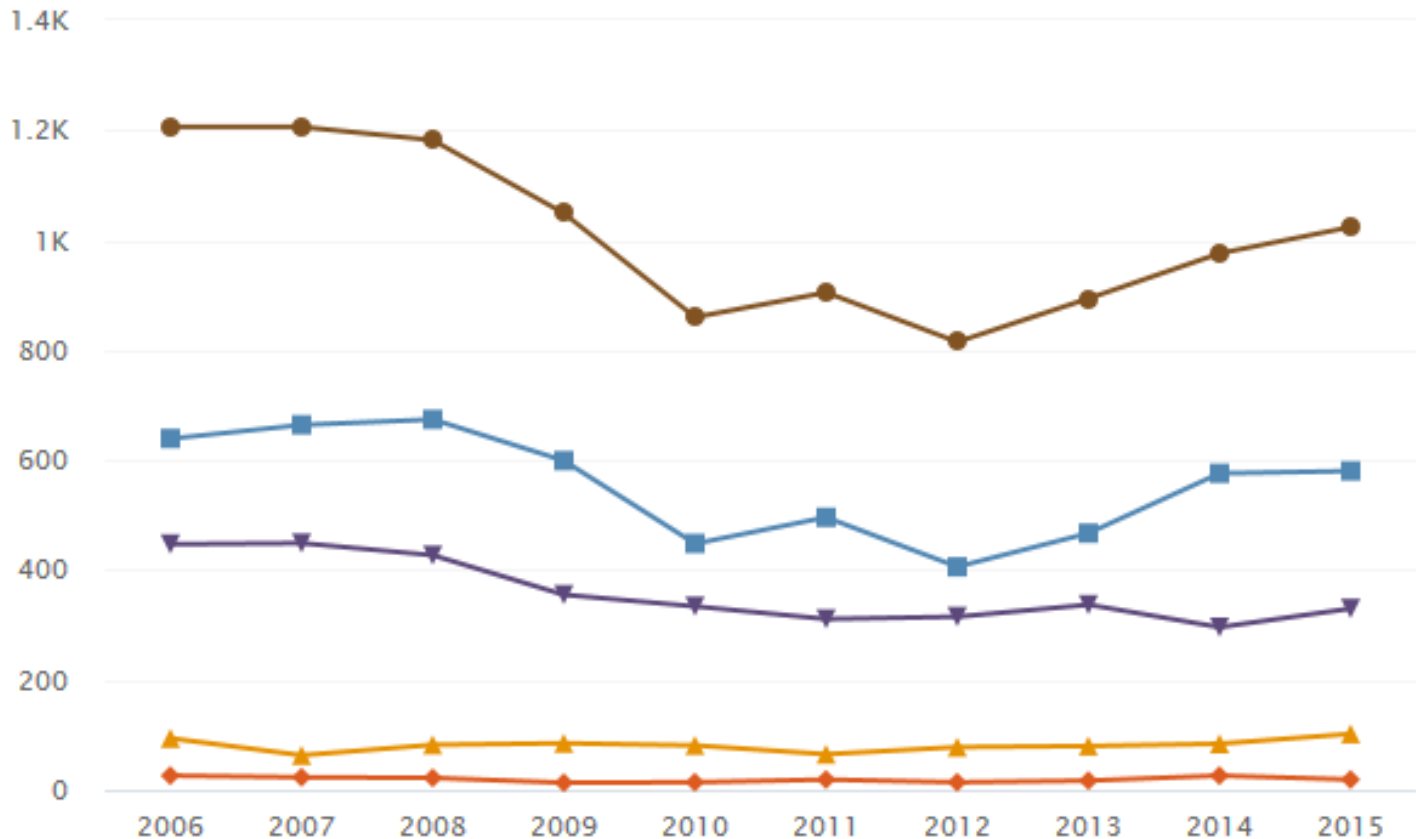


Georgia Family Connection Partnership

KIDS COUNT Data Center, [datacenter.kidscount.org](http://datacenter.kidscount.org)

A project of the Annie E. Casey Foundation

# Georgia Infant Mortality by Race



## INFANT MORTALITY BY RACE: ALL (NUMBER)

National KIDS COUNT  
 KIDS COUNT Data Center, [datacenter.kidscount.org](http://datacenter.kidscount.org)  
 A project of the Annie E. Casey Foundation

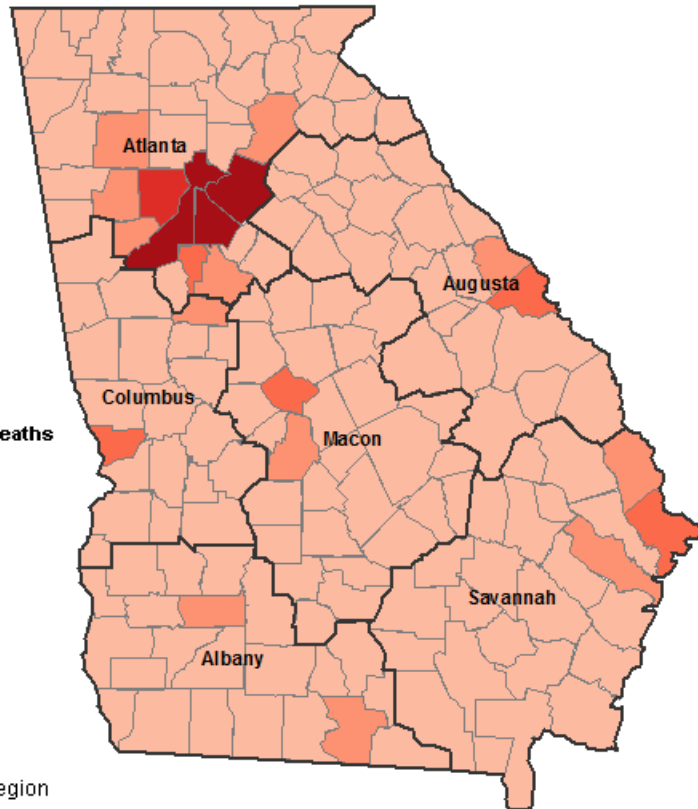
- ◆ AMERICAN INDIAN (NO DATA)
 ◆ ASIAN AND PACIFIC ISLANDER
- BLACK OR AFRICAN AMERICAN
 ▲ HISPANIC OR LATINO
- ▼ NON-HISPANIC WHITE
 ● TOTAL

# Georgia Infant Mortality 2015

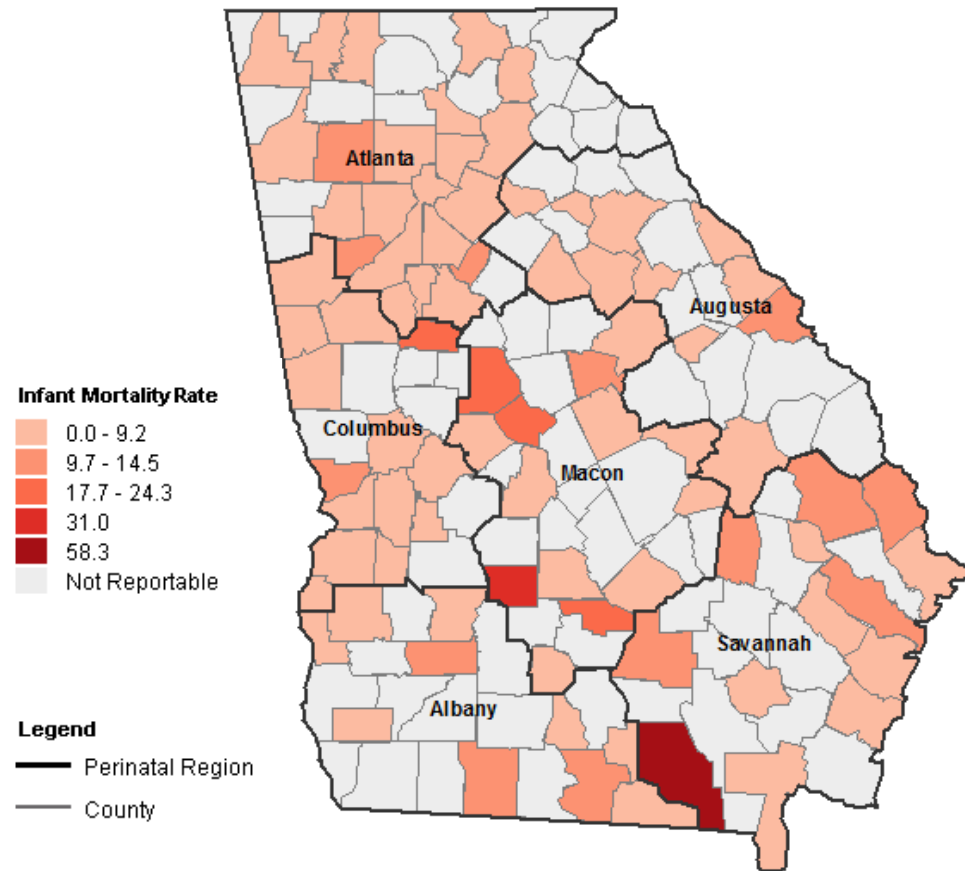


131,333 live births and 1,023 infant deaths (IMR=7.8)

### Number of Infants Deaths



### Infant Mortality Rate

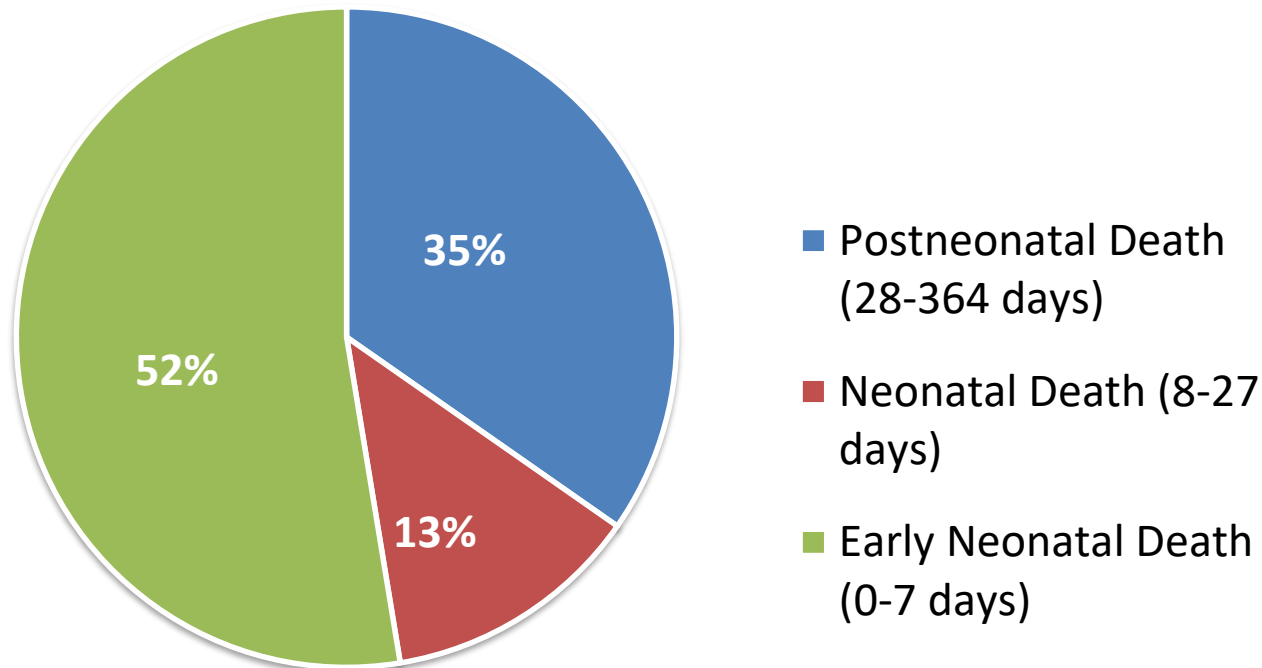


Source: Online Analytical Statistical Information System (OASIS), Infant Mortality Web Query, Georgia Department of Public Health, Office of Health Indicators for Planning (OHIP). Data from 2015. Retrieved on May 12, 2017 from <http://oasis.state.ga.us/>



# Timing of Infant Deaths

**Percent of early neonatal, neonatal and postneonatal deaths, Georgia, 2015**



Source: Online Analytical Statistical Information System (OASIS), Infant Mortality Web Query, Georgia Department of Public Health, Office of Health Indicators for Planning (OHIP). Data from 2015. Accessed on: June 05, 2017 <http://oasis.state.ga.us/>

# Infant Deaths 2015



Cause of Death	
Fetal and Infant Conditions	504 (49%)
Birth Defects	191 (19%)
SIDS*	105 (10%)
External Causes	59 (06%)
Other	164 (16%)

Source: Online Analytical Statistical Information System (OASIS), Infant Mortality Web Query, Georgia Department of Public Health, Office of Health Indicators for Planning (OHIP). Data from 2015. Retrieved on June 02, 2017 from <http://oasis.state.ga.us/> \* This number does not include the sleep related suffocations.

# Infant Deaths by Gestational Age, 2014 Birth Cohort



Cohort of 2014 births who then subsequently died before their 1<sup>st</sup> birthday

Total deaths captured: 932

653 (70.1% ) infant deaths were infants who were born < 36 weeks gestation

GESTATION	MALES	FEMALES	TOTALS	RATE
20-23 weeks	138	111	249	795.5
24-27 weeks	89	76	165	212.9
28-31 weeks	58	28	86	59.9
32-33 weeks	28	24	52	30.6
34-36 weeks	65	36	101	10.3
37-38 weeks	57	62	119	3.5
39-40 weeks	89	59	148	1.9
41 weeks	8	3	11	1.8
42+ weeks	0	1	01	*
Total#	532	400	932	7.1

# Total may not equal grand total due to missing values.  
Rates based on 1-4 events are not shown and indicated by an \*

# Low Birth Weight Infant Deaths, 2014 Birth Cohort



In 2014, 971 Georgia residents were born who died before their first birthday.

- 538 of the 971 (55%) were VLBW (<1500 gms)
- 686 of the 971 (71%) were LBW (<2500 gms)

In 2010-2014, 4,314 Georgia residents were born who died before their first birthday

- 2,358 of the 4,314 (55%) were VLBW (<1500 gms)
- 2,993 of the 4,314 (69%) were LBW (<2500 gms)

VLBW babies are only 1.8% of all GA births, but 55% of deaths  
LBW babies are only 9.5% of all GA births, but 70% of deaths



# Infant Deaths by Mothers' Age 2014 Birth Cohort



Cohort of 2014 births who then subsequently died before their 1<sup>st</sup> birthday

- Infant mortality rates were higher among younger mothers aged 15-17 (IMR=11.8), aged 18-19 (IMR=9.0), aged 20-24 years old (IMR=8.6)
- Mothers 25-29 years old had an IMR of 6.4

AGE	ALL RACES NUMBER	RATE
10-14 years	2	*
15-17 years	30	11.8
18-19 years	64	9.0
20-24 years	279	8.6
25-29 years	239	6.4
30-34 years	211	6.5
35-39 years	115	7.4
40-44 years	29	8.2
45-55 years	2	*
Total#	971	7.4

# Georgia Sleep Related Infant Deaths 2015



In 2015, a total of 170 infant deaths were sleep related (16.6% of total 1,023 infant deaths)

- 98 were SUID
- 3 were SIDS
- 61 were suffocation
- 8 were medical condition

# Sleep Related Infant Deaths & LBW 2015



Of the 170 infant sleep related deaths, 17% were born low birthweight (LBW)

- 98 were SUID (13 LBW)
- 3 were SIDS (2 LBW)
- 61 were suffocation (10 LBW)
- 8 were medical condition (4 LBW)

LBW babies are only 9.5% of GA's total births, but are 17% of total sleep related deaths.

# Singleton Sleep Related Deaths by Birthweight, 2010-2014



Data from linked death birth file, a total of 656 sleep related infant deaths between 2010-2014:

- Risk of infant death while sleeping was higher among infants born with an extremely LBW (<500 gms) (n=8; IMR= 7.48).
- 31 (5%; IMR= 3.79) sleep related infant deaths were VLBW (500-1499 gms) babies.
- 111 (17%; IMR=2.83) sleep related infant deaths were LBW (1500-2499 gms) babies.
- 506 (77%; IMR=0.87) sleep related infant deaths were normal birthweight (2500+ gms) babies.

# Singleton Sleep Related Deaths by Gestational Age, 2010-2014



Data from linked death birth file, 2010-2014, includes 656 sleep related deaths:

- Risk of infant death while sleeping was higher among infants born very preterm (20-31 weeks) (n=38; IMR=3.87) and among infants born preterm (32-33 weeks) (n=31; IMR=4.92)
- 91 infants born late preterm (34-36 weeks) had an IMR of 2.20
- 196 infants born early term (37-38 weeks) had an IMR of 1.14
- 298 infants born at term (39+ weeks) had an IMR of 0.74

# Sleep Related Death Swaddling Data 2015



Sleep related deaths wherein the infant was wrapped or “swaddled” at the time of death.

40 (23.5%) unknown/missing data

Of the Known Data:

- 23 (17.7%) reported “yes”
- 107 (82.3%) reported “no”

# Sleep Related Deaths with Maternal Tobacco Exposure in 2015



10 (5.9%) unknown/missing data

Of the known data:

- 60 (**37.5%**) mothers reported smoking at any time during pregnancy
  - 49 of those 60 reported smoking during pregnancy and reported that the infant was exposed to second-hand smoke
- 100 reported no maternal smoking
- Only 5.7%\* of all GA infants born in 2015 had prenatal maternal tobacco exposure reported on their birth certificate, yet they are 37.5% of the sleep related infant deaths

Data Source: Georgia Bureau of Investigation. (Data from 2015). Unpublished Data.

\* Data from: Online Analytical Statistical Information System (OASIS), Infant Mortality Web Query, Georgia Department of Public Health, Office of Health Indicators for Planning (OHIP). Data from 2015.

# Sleep Related Deaths with Second Hand Smoke Exposure in 2015



Of the 170 sleep related infant deaths in 2015:

- 74 (43.53%) reported “yes” to exposure to second-hand smoke
- 51 (30%) reported “no” to exposure to second hand smoke
- 45 (26.47%) unknown/missing

Of those who reported exposure, 48 of the 74 (64.9%) reported frequent exposure

- 24 of the 74 (32.4%) unknown/missing



# Last Meal Before Sleep Related Death in 2015



17 (10%) provided no data

## Of the Data Provided:

- 115 (75.2%) formula exclusively as the last meal
- 19 (12.4%) breastfeeding exclusively as the last meal
- 3 (2.0%) breastfeeding and formula as the last meal before death

# Singleton Sleep Related Deaths < 5 Prenatal Care Visits, 2010-2014



Data from linked death birth file, **2010-2014**:

- 656 total infant deaths
- 134 (20%) missing data

Of the Known Data:

- Risk of infant death while sleeping was higher among those with less than 5 prenatal care visits (IMR=2.5) than the risk to those who had more than 5 prenatal care visits (IMR= 0.9)

# 2015 Infant Mortality Data



Region	Live Infant Births	Infant Deaths	Infant Mortality Rate (per 1,000 live births)
Atlanta Perinatal Region Summary <sub>1</sub>	78,456	540	6.9
Georgia <sub>1</sub>	131,333	1,023	7.8
National <sub>2</sub>	3,978,497	23,215	5.82*

1. Online Analytical Statistical Information System (OASIS), Infant Mortality Web Query, Georgia Department of Public Health, Office of Health Indicators for Planning (OHIP). Accessed on: May 12, 2017 <http://oasis.state.ga.us/>
2. National Vital Statistics Reports. Volume 65, Number 5. June 30, 2016. Deaths: Leading Causes for 2014 by Melonie Heron, Ph.D., Division of Vital Statistics

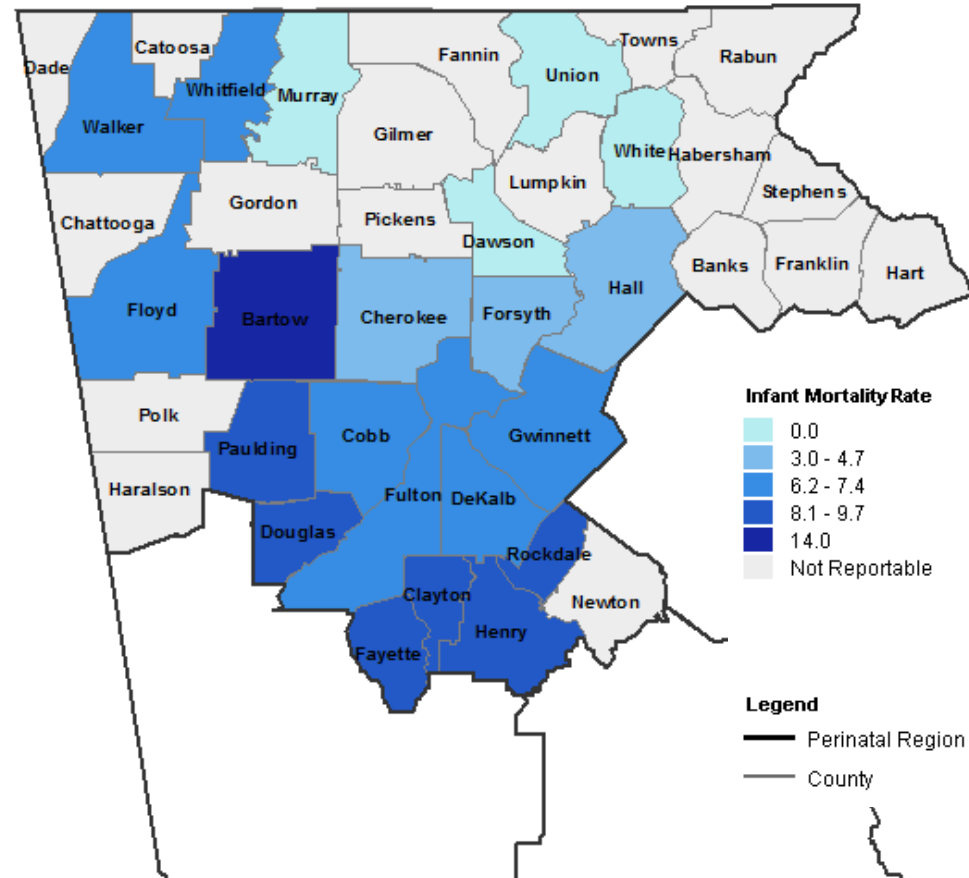
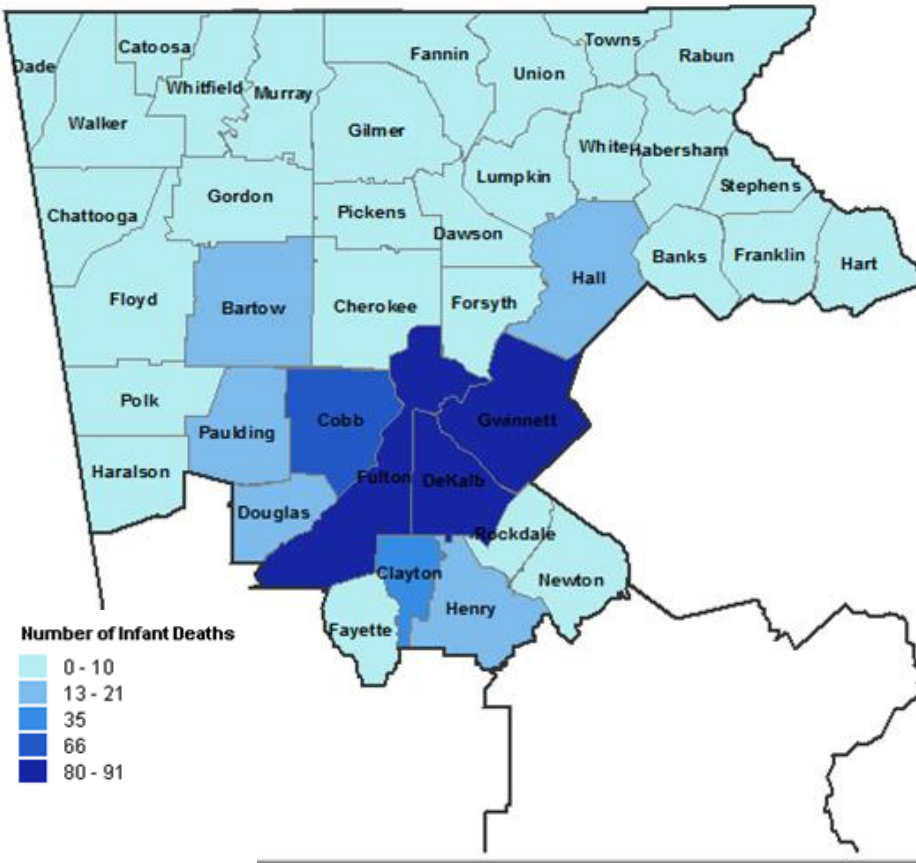
\* Data based on 2014 data records

# Atlanta Perinatal Region



## Infant Deaths

## Infant Mortality Rate



**Legend**  
 — Perinatal Region  
 — County

**Legend**  
 — Perinatal Region  
 — County

Source: Online Analytical Statistical Information System (OASIS), Infant Mortality Web Query, Georgia Department of Public Health, Office of Health Indicators for Planning (OHIP). Data from 2015. Retrieved on May 12, 2017 from: <http://oasis.state.ga.us/>

# Atlanta Perinatal Region LBW Infants 2014 Birth Cohort



- 278 (55%) infant deaths were to VLBW infants (<1500 gms)
- 353 (69%) infant deaths were to LBW infants (<2500 gms)

YEAR	BIRTHWEIGHT	TOTAL MALES	TOTAL FEMALES	TOTAL#	RATE
2014	200-499 grams	58	64	122	853.1
2014	500-749 grams	45	44	89	373.9
2014	750-999 grams	22	8	30	115.8
2014	1,000-1,249 grams	11	13	24	74.5
2014	1,250-1,499 grams	6	7	13	38.1
2014	1,500-1,749 grams	13	3	16	29.9
2014	1,750-1,999 grams	11	8	19	21.9
2014	2,000-2,249 grams	10	8	18	12.74
2014	2,250-2,499 grams	9	13	22	7.8
2014	2,500-3,999 grams	92	52	144	2.2
2014	4,000+ grams	8	5	13	2.4
2014	Total#	285	225	510	6.6

Data Source: Online Analytical Statistical Information System (OASIS), Infant Mortality Web Query, Georgia Department of Public Health, Office of Health Indicators for Planning (OHIP).  
Jun 05, 2017 <http://oasis.state.ga.us/>

# VLBW Deliveries in Georgia



In 2010, the State estimated Georgia's performance for delivery of VLBW infants in facilities for high-risk neonates as 72.9% (national goal is 83.7%) and reported in the low- to mid-70s range for the last several years.

Year	Indicator
CY 2006	74.9
CY 2007	73.1
CY 2008	74.6
Est. CY 2009	73.4
Est. CY 2010	72.9
<b>2010 National Goal</b>	<b>90.0</b>

Source: Georgia Department of Community Health, Maternal and Child Health Services. Title V Block Grant State Narrative for Georgia -Application for 2012 and Annual Report for 2010.

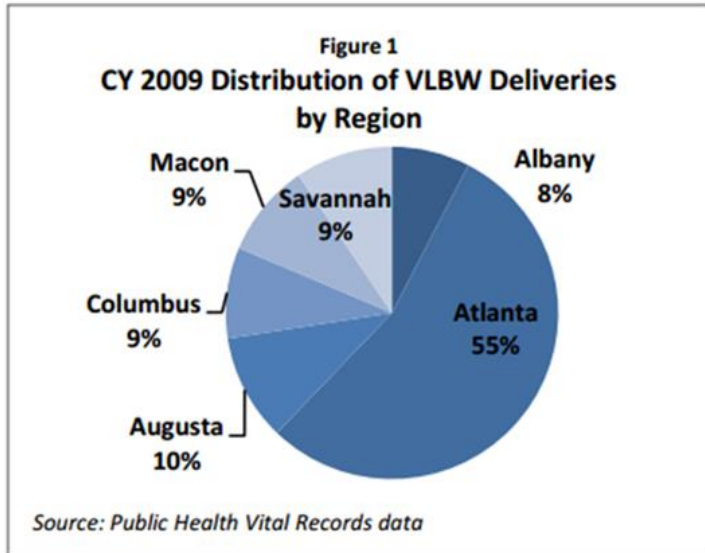
Annual Objective and Performance Data	2006	2007	2008	Est. 2009	Est. 2010*
Annual Objective*	76.5	77.0	77.5	70.0	73.4
<b>Annual Indicator**</b>	<b>74.9</b>	<b>73.1</b>	<b>74.6</b>	<b>73.4</b>	<b>72.9</b>
Numerator	1,920	1,931	2,013	2,025	2,062
Denominator	2,563	2,641	2,697	2,757	2,827
Data Source***			Vital Records		
Note: It is not clear if Georgia measure includes births to Georgia residents delivering out of state.					
*Explanation for the 2009 objective set at 70 is not available.					
**Data were unavailable for 2009 and 2010; provisional estimates were developed using a linear projection with data from 2000 through 2008.					
***2006 and 2007 date source not shown in the Georgia report.					
Source: Georgia Department of Community Health, Maternal and Child Health Services. Title V Block Grant State Narrative for Georgia -Application for 2012 and Annual Report for 2010. Published July 2011.					

# VLBW Deliveries by Facility Type



Using the approach to measurement recommended by HMA, the all-payor statewide average for delivery of VLBW infants in facilities for high-risk neonates was 75% for CY 2009.

- o Georgia Medicaid’s performance was 84%.
- o Performance for all other payers was 67%



**Table 4**  
**CY 2009 In-State VLBW Deliveries by Facility Designation – Public Health Vital Records Data (excludes cases where designation is unknown)**

	Number	Percent
Level I Perinatal Facility	94	4%
Level II Perinatal Facility	480	20%
Level III Perinatal Facility	1,077	45%
Level IV Perinatal Facility	714	30%
Not born in a Perinatal Facility	19	1%
<b>Total</b>	<b>2,384</b>	<b>100%</b>
<b>NPM #17 Indicator (Levels III &amp; IV)</b>	<b>1,791</b>	<b>75%</b>

# Complete Picture of VLBW in Georgia



**Table 11**  
**CY 2008 VLBW Births in Georgia**

	#	%
Statewide Total VLBW infants	2,531	100%
Born at RPCs	921	36%
VLBW infants transferred to RPCs	263	10%
<b>Total VLBW infants born and/or treated at RPCs</b>	<b>1,184</b>	<b>47%</b>
<b>VLBW infants not born or treated at RPCs</b>	<b>1,347</b>	<b>53%</b>
Source: Data submitted by GA RPCs to National Perinatal Information Center		

Data Source: Improving Infant Health: Addressing Low Birthweight in Georgia. (2009). Georgia Family Connection Partnership. Retrieved from: <http://gafcp.org/wp-content/uploads/2016/08/LBWcompendium.pdf>



# Distribution of VLBW Deliveries



**Table 5**  
**CY 2009 In-State VLBW Deliveries by Facility Designation**  
**Public Health Vital Records Data**

**(excludes cases where designation is unknown and does not account for transfers between regions)**

<b>Perinatal Facility Level</b>	<b>Albany</b>	<b>Atlanta</b>	<b>Augusta</b>	<b>Columbus</b>	<b>Macon</b>	<b>Savannah</b>
<b>Level I</b>	3%	2%	5%	1%	7%	13%
<b>Level II</b>	20%	18%	28%	21%	26%	17%
<b>Level III</b>	0%	72%	45%	13%	2%	0%
<b>Level IV</b>	77%	7%	21%	63%	65%	68%
<b>Not in a Perinatal Facility</b>	0%	1%	0%	2%	0%	1%
<b>Total</b>	100%	100%	100%	100%	100%	100%
<b>NPM # 17 (Levels III &amp; IV)</b>	<b>77%</b>	<b>79%</b>	<b>66%</b>	<b>76%</b>	<b>67%</b>	<b>69%</b>

\*Vital Records differentiates Regional Perinatal Centers as Level IV

# Challenges



- In more than half (53%) of Georgia's VLBW births, the birth occurs outside of the RPS and the neonate is not transferred to an RPC.
- Georgia hospitals self-designate level of perinatal care, and there is evidence pointing to potential inaccuracies in these designations, which would influence delivery of VLBW infants in facilities for high-risk neonates.
- Except for the RPCs, the state does not require hospitals to operate equivalent levels of OB and NICU services, which may increase transport of VLBW infants.

# Pay Source



- Between CY 2006 and CY 2009, Medicaid paid for 57% of all Georgia births
- On average for 2008-2010, 65% of all Medicaid deliveries were through CMOs, 35% were covered through fee-for-service Medicaid

# Births Covered by Medicaid



Table 6 CY 2009 Georgia Births and Medicaid Beneficiary In-State Birth Information (adjusted for missing facility designation)			
<b>Total Births</b>	141,332	<b>Total GA VLBW Births</b>	2,596
<b>Total Births - Medicaid</b>	81,737	<b>Total GA VLBW Medicaid</b>	1,166
<b>% Medicaid</b>	57.8%	<b>VLBW % Medicaid</b>	44.9%
Source: Total Births and Total VLBW Births: GA Department of Public Health OASIS Data System Query. Note - OASIS shows only deliveries in GA, it does not show deliveries by GA residents in out of state hospitals.			
Source Medicaid: GA Department of Community Health, Decision Support System Medicaid Delivery Report.			

In 2009, Medicaid covered nearly 58% of births in the state and 45% of VLBW births.

# Medicaid and Other Payors



**Table 9**  
**VLBW Births in Georgia: Medicaid and Other Payors by Facility of Birth**  
(excludes cases where designation is unknown)

	Statewide Average		Vital Records Non-Medicaid Payors <sup>15</sup>		Medicaid	
	Number	% of Payor Total	Number	% of Payor Total	Number	% of Payor Total
Level I	94	4%	87	7%	7	1%
Level II	480	20%	312	26%	168	15%
Level III	1077	45%	626	51%	451	39%
Level IV	714	30%	188	15%	526	46%
Non Perinatal Facility	19	1%	9	1%	0	0%
Total <sup>16</sup>	2384	100%	1222	100%	1152	100%
<b>NPM #17 Indicator (Levels III &amp; IV)</b>	<b>1791</b>	<b>75%</b>	<b>814</b>	<b>67%</b>	<b>977</b>	<b>85%</b>

**Table 10**  
**VLBW Deliveries to State Health Benefit Plan Members - In-State**

	In-State VLBW Delivery		Include Out of State VLBW Delivery	
	Number	%	Number	%
Level I	2	5%	2	4%
Level II	11	28%	11	24%
Level III	22	55%	22	49%
Level IV	5	13%	10	22%
Total	40	100%	45	100%
<b>NPM #17 Indicator (Levels III &amp; IV)</b>	<b>27</b>	<b>60%</b>	<b>32</b>	<b>71%</b>

Data Source: Improving Infant Health: Addressing Low Birthweight in Georgia. (2009). Georgia Family Connection Partnership. Retrieved from: <http://gafcp.org/wp-content/uploads/2016/08/LBWcompendium.pdf>

# Remaining Questions



1. Of the 263 VLBW infants transferred to RPCs, how many of them could/should have been born at the RPC but instead were born at another hospital and transferred later?
2. Of the 1,347 VLBW babies not born at or transferred to an RPC (53%), what were the outcomes of their birth location and/or transfers?

Data Source: Improving Infant Health: Addressing Low Birthweight in Georgia. (2009). Georgia Family Connection Partnership. Retrieved from: <http://gafcp.org/wp-content/uploads/2016/08/LBWcompendium.pdf>