PQCNC SIVB Phase II
Webinar
August 28, 2012

Birth Certificate Data

"the good, the bad, and the ugly"

- NC Vital Statistical Brief: Trends in Cesarean Delivery Rates for NC Live Births (July 2012)
- Birth Certificate Data from Ohio and NC
- Birth Certificate Questions

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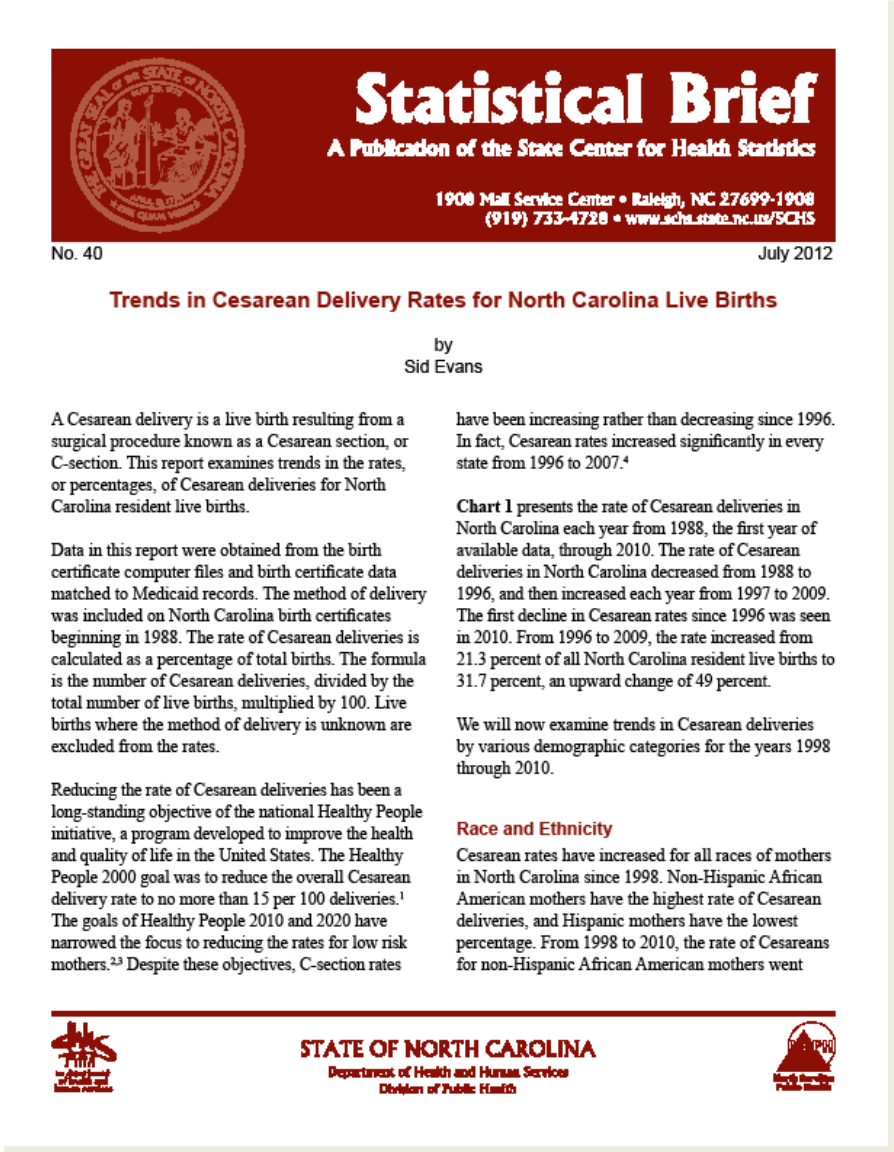

Statistical Brief

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No. 40 July 2012

Trends in Cesarean Delivery Rates for North Carolina Live Births

by
Sid Evans

A Cesarean delivery is a live birth resulting from a surgical procedure known as a Cesarean section, or C-section. This report examines trends in the rates, or percentages, of Cesarean deliveries for North Carolina resident live births.

Data in this report were obtained from the birth certificate computer files and birth certificate data matched to Medicaid records. The method of delivery was included on North Carolina birth certificates beginning in 1988. The rate of Cesarean deliveries is calculated as a percentage of total births. The formula is the number of Cesarean deliveries, divided by the total number of live births, multiplied by 100. Live births where the method of delivery is unknown are excluded from the rates.

Reducing the rate of Cesarean deliveries has been a long-standing objective of the national Healthy People initiative, a program developed to improve the health and quality of life in the United States. The Healthy People 2000 goal was to reduce the overall Cesarean delivery rate to no more than 15 per 100 deliveries.[1] The goals of Healthy People 2010 and 2020 have narrowed the focus to reducing the rates for low risk mothers.[2,3] Despite these objectives, C-section rates have been increasing rather than decreasing since 1996. In fact, Cesarean rates increased significantly in every state from 1996 to 2007.[4]

Chart 1 presents the rate of Cesarean deliveries in North Carolina each year from 1988, the first year of available data, through 2010. The rate of Cesarean deliveries in North Carolina decreased from 1988 to 1996, and then increased each year from 1997 to 2009. The first decline in Cesarean rates since 1996 was seen in 2010. From 1996 to 2009, the rate increased from 21.3 percent of all North Carolina resident live births to 31.7 percent, an upward change of 49 percent.

We will now examine trends in Cesarean deliveries by various demographic categories for the years 1998 through 2010.

Race and Ethnicity

Cesarean rates have increased for all races of mothers in North Carolina since 1998. Non-Hispanic African American mothers have the highest rate of Cesarean deliveries, and Hispanic mothers have the lowest percentage. From 1998 to 2010, the rate of Cesareans for non-Hispanic African American mothers went

STATE OF NORTH CAROLINA
Department of Health and Human Services
Division of Public Health

- Report that examined the trends in the rates of c-sections in NC live births from 1988 to 2010
- Data collected from NC Birth Certificate computer files
- Data was evaluated by ethnicity, age, Medicaid status, risk, first time deliveries, and county of residence

pqcnc.org/documents/sivbIIdoc/ PQCNCStatBriefCS.pdf

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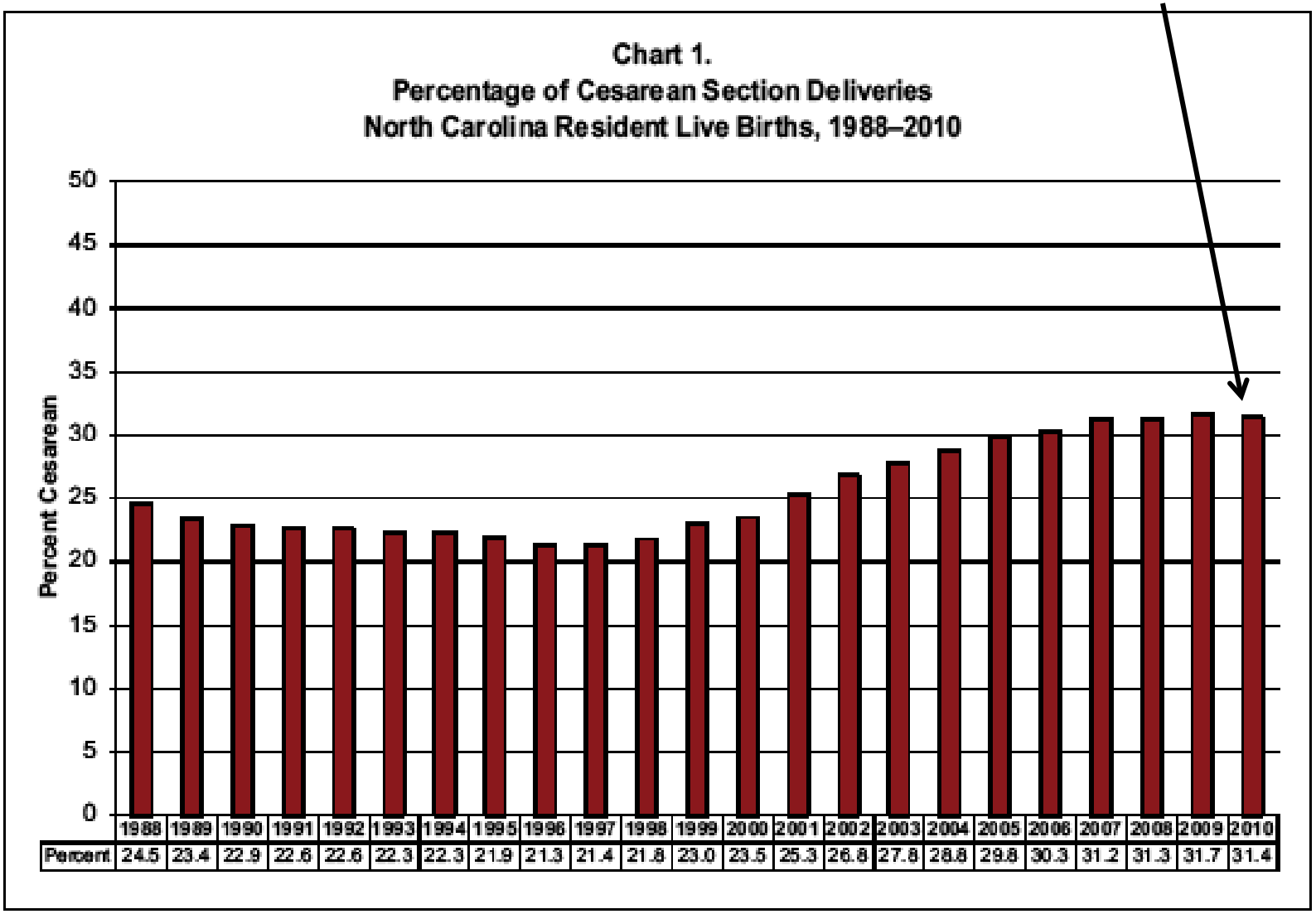
2010 showed the first decline in C-section rate since 1996



	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Percent	24.5	23.4	22.9	22.6	22.6	22.3	22.3	21.9	21.3	21.4	21.8	23.0	23.5	25.3	26.8	27.8	28.8	29.8	30.3	31.2	31.3	31.7	31.4

1997 = 21.4% -- 2010 = 31.4% *(49% increase!)*

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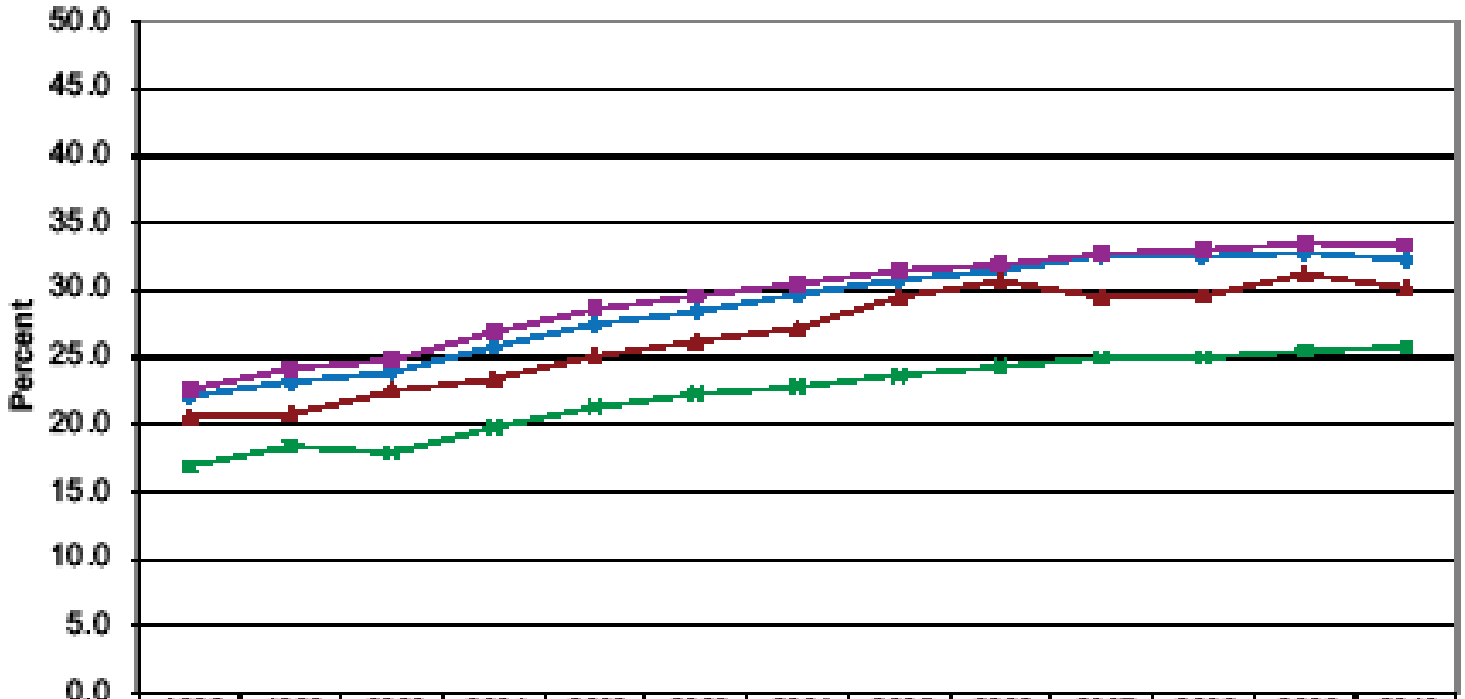
Chart 2.
Cesarean Rates by Race and Ethnicity of Mother, 1998–2010



	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
White Non-Hispanic	22.1	23.2	23.9	25.8	27.5	28.4	29.7	30.8	31.5	32.6	32.5	32.8	32.3
African American Non-Hispanic	22.6	24.2	24.8	26.9	28.6	29.6	30.5	31.5	31.9	32.7	33.0	33.5	33.4
Other Non-Hispanic	20.6	20.8	22.5	23.4	25.1	26.2	27.2	29.5	30.7	29.5	29.6	31.2	30.2
Hispanic	16.9	18.4	17.9	19.8	21.3	22.3	22.8	23.7	24.3	25.0	25.0	25.5	25.8

All ethnicities increased

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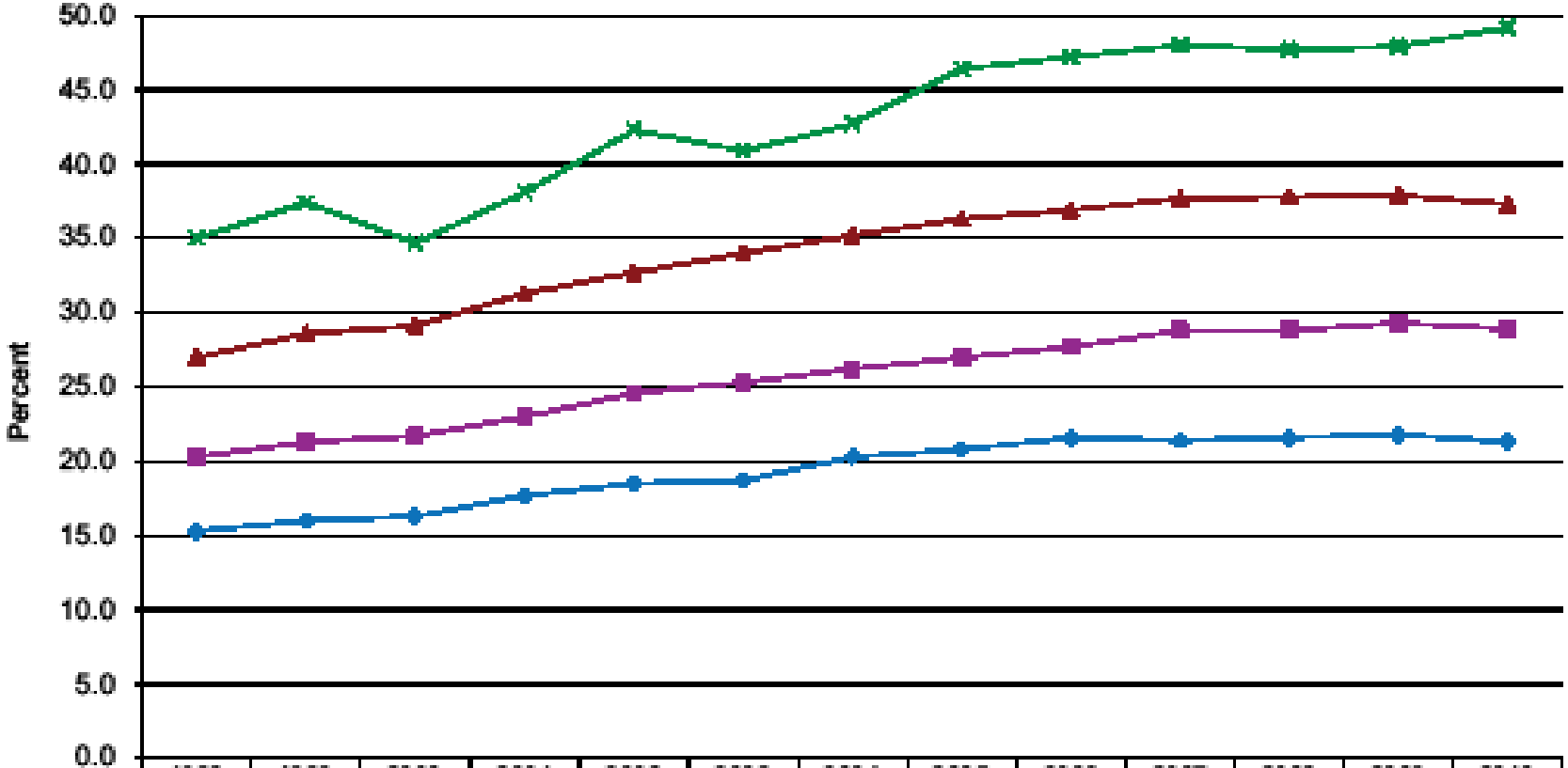
Chart 3.
Cesarean Rates by Age of Mother, 1998–2010



	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
19 & under	15.3	16.0	16.3	17.7	18.5	18.7	20.3	20.8	21.6	21.4	21.6	21.8	21.3
20–29	20.3	21.3	21.7	23.0	24.6	25.3	26.2	27.0	27.7	28.8	28.8	29.3	28.9
30–39	27.0	28.6	29.1	31.3	32.7	34.0	35.2	36.3	36.9	37.7	37.8	37.9	37.3
40 & over	35.0	37.4	34.7	38.1	42.3	40.9	42.7	46.4	47.2	48.0	47.7	47.9	49.2

All maternal age groups increased

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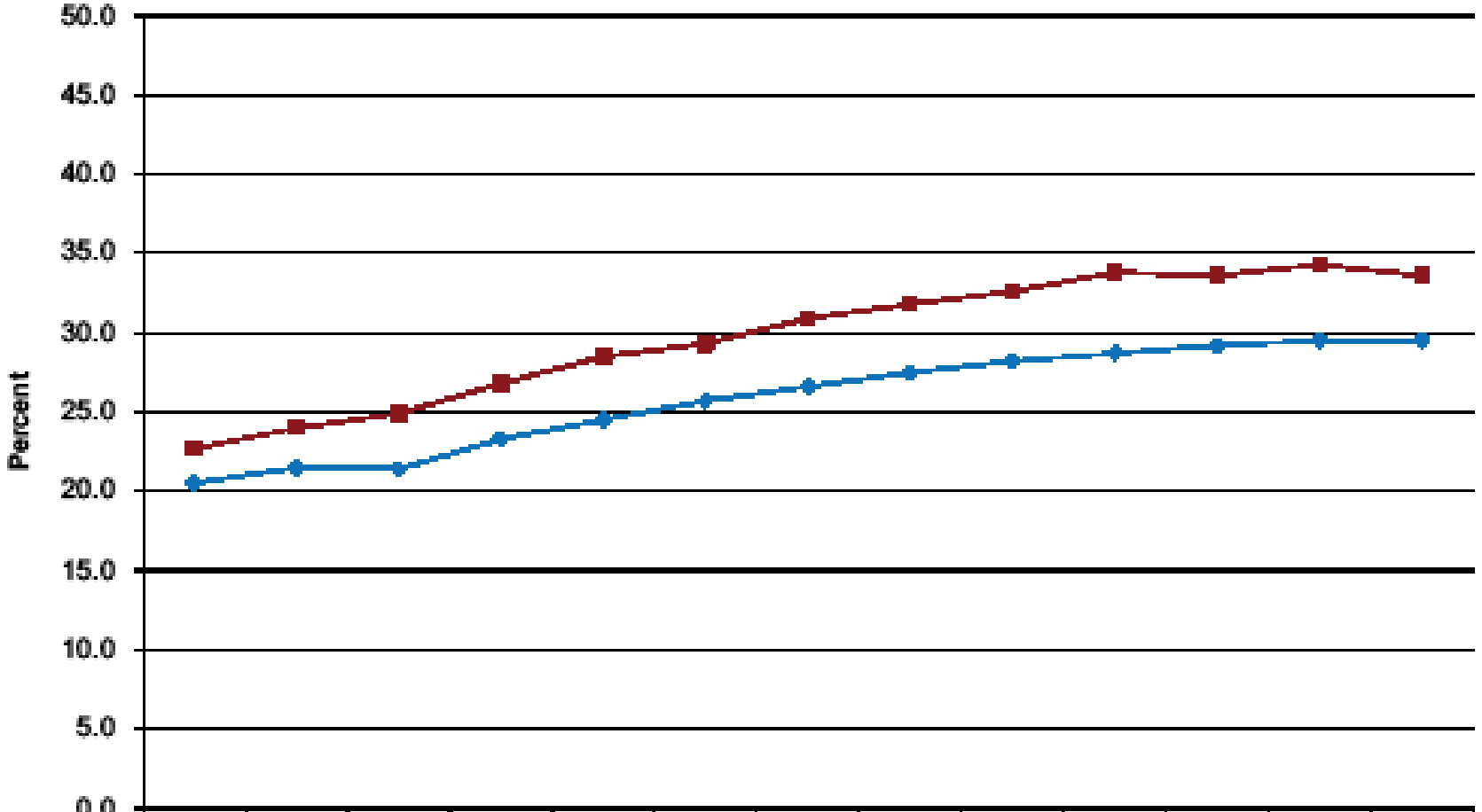
Chart 4.
Cesarean Rates by Medicaid Status, 1998–2010



	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Medicaid	20.5	21.5	21.4	23.3	24.5	25.7	26.6	27.5	28.2	28.7	29.2	29.5	29.5
Non-Medicaid	22.7	24.0	24.9	26.8	28.5	29.3	30.9	31.8	32.6	33.8	33.6	34.3	33.6

Both Medicaid and non-Medicaid payers increased

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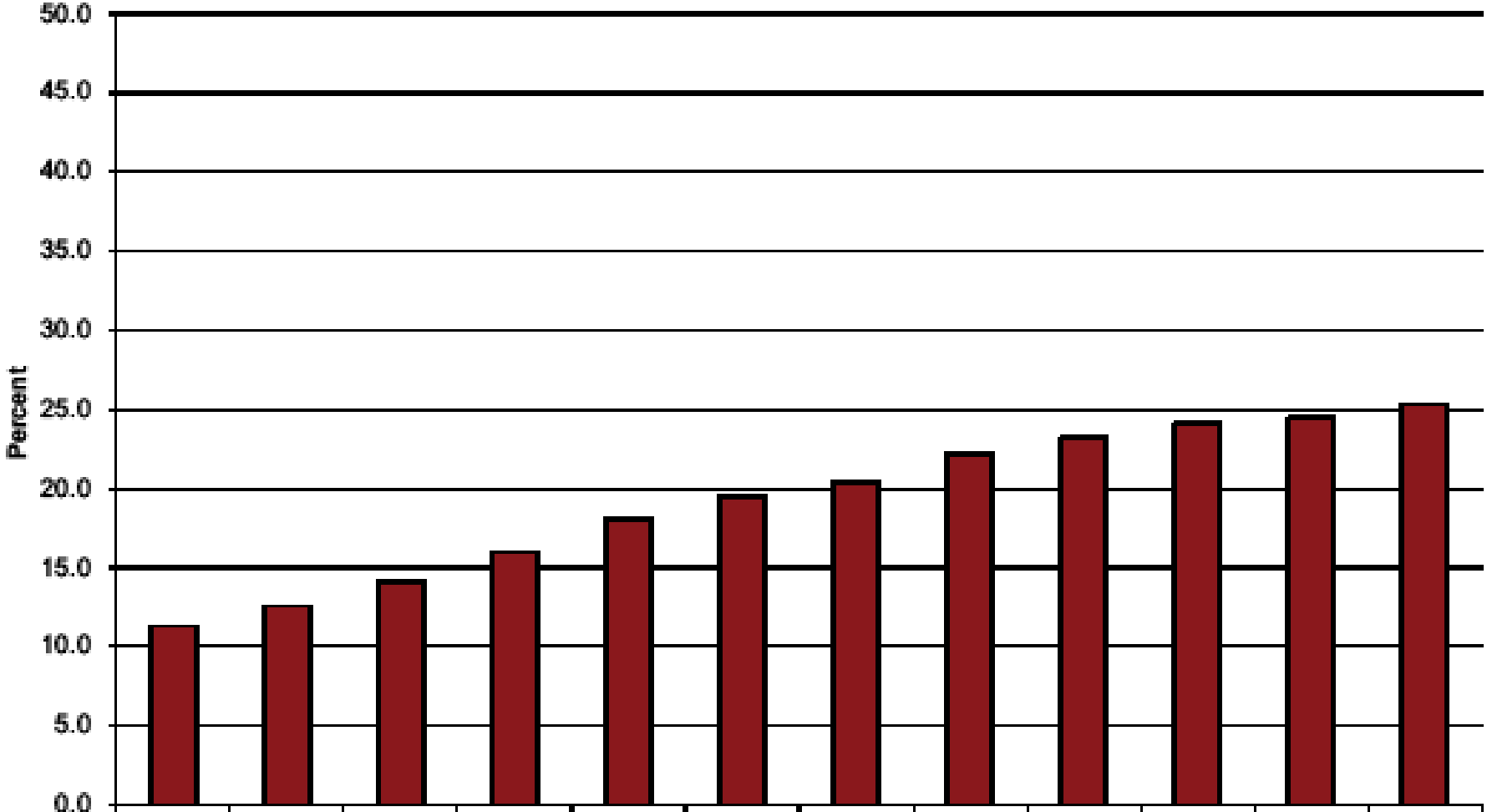
Chart 5.
Cesarean Rates for Low Risk Mothers, 1998–2009



	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
Percent	11.3	12.6	14.1	16.0	18.1	19.5	20.4	22.2	23.2	24.1	24.5	25.3

Low Risk Mothers increased from 11.3% to 25.3%

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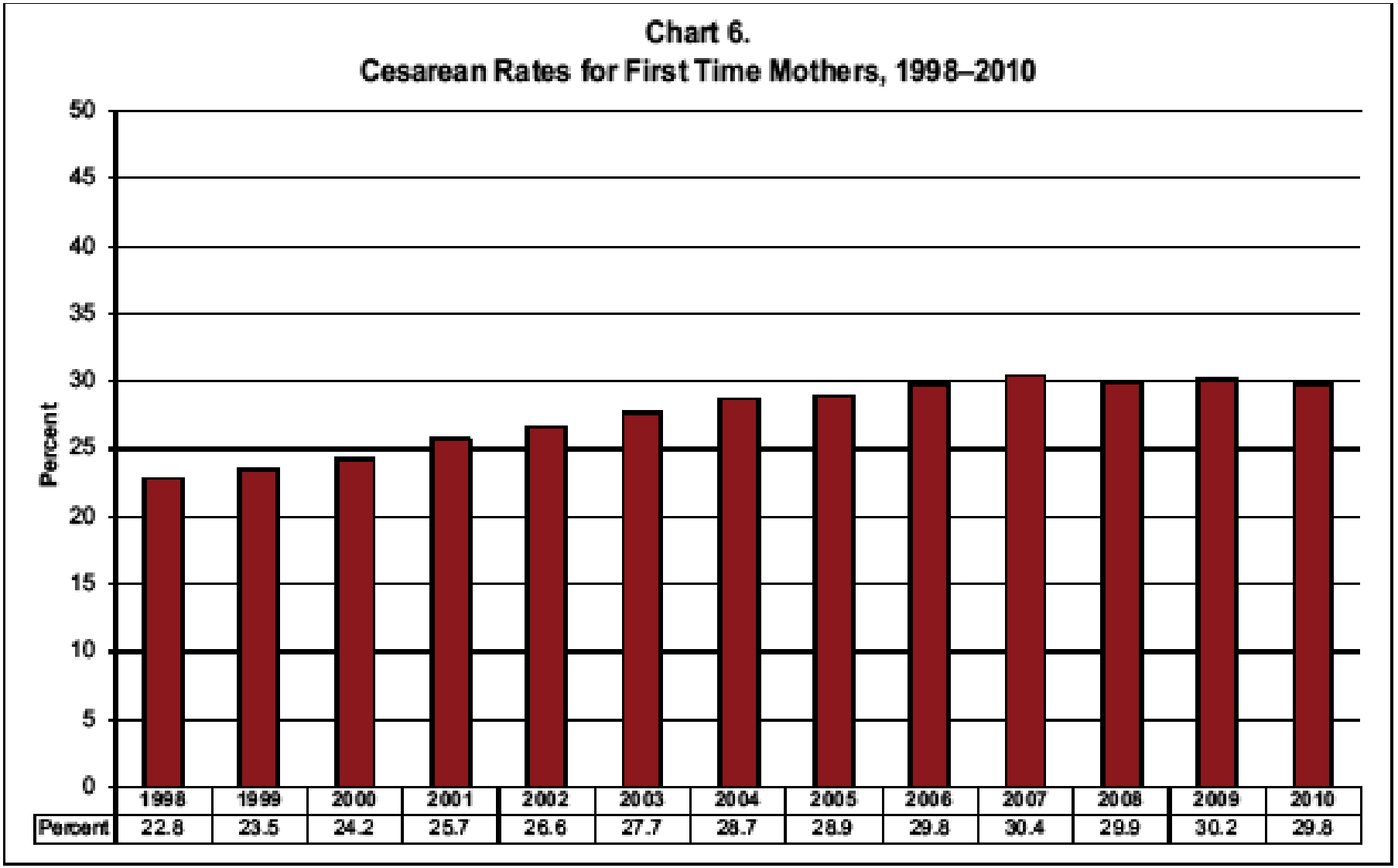

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Percent	22.8	23.5	24.2	25.7	26.6	27.7	28.7	28.9	29.8	30.4	29.9	30.2	29.8

First Time mothers demonstrated a 30% increase

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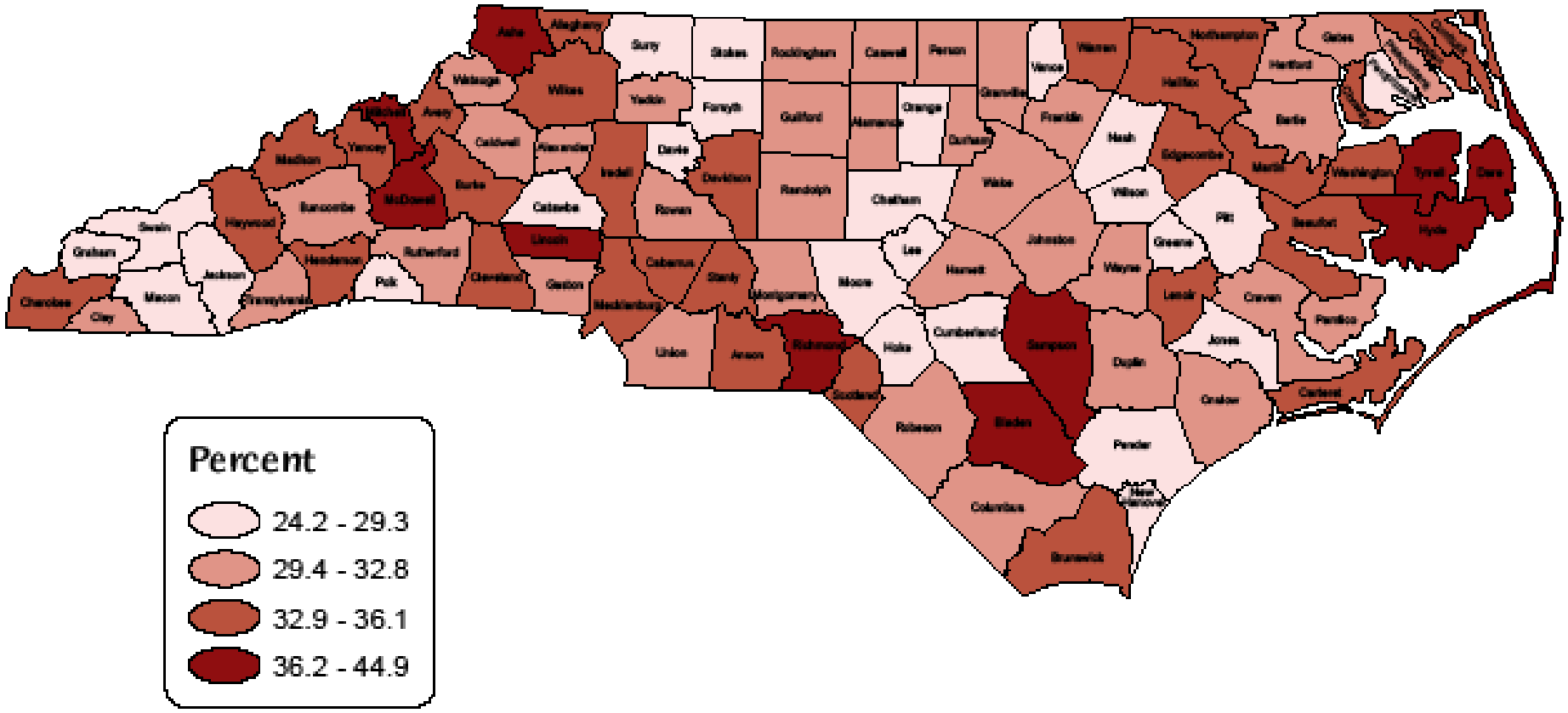
North Carolina
Percent Cesarean Delivery Births
2008-2010



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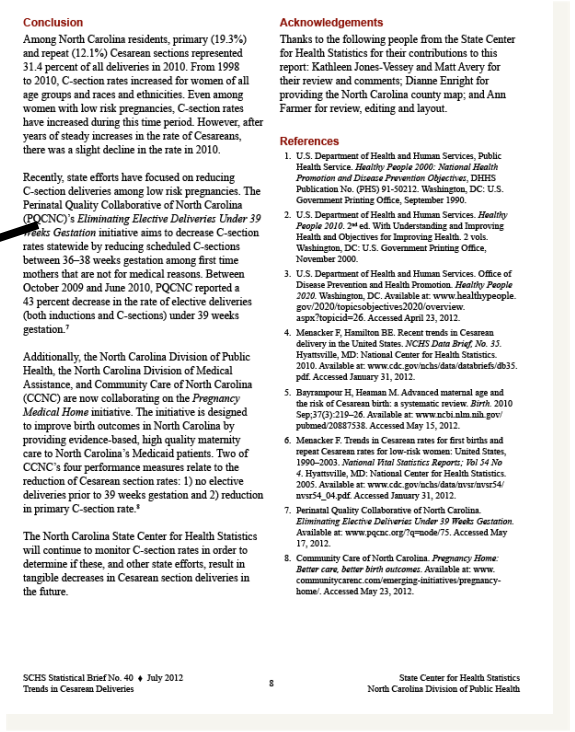
Recently, state efforts have focused on reducing C-section deliveries among low risk pregnancies. ***The Perinatal Quality Collaborative of North Carolina (PQCNC)'s Eliminating Elective Deliveries Under 39 Weeks Gestation initiative aims to decrease C-section rates statewide by reducing scheduled C-sections between 36–38 weeks gestation among first time mothers that are not for medical reasons.*** Between October 2009 and June 2010, PQCNC reported a 43 percent decrease in the rate of elective deliveries (both inductions and C-sections) under 39 weeks gestation.



Conclusion

Among North Carolina residents, primary (19.3%) and repeat (12.1%) Cesarean sections represented 31.4 percent of all deliveries in 2010. From 1998 to 2010, C-section rates increased for women of all age groups and races and ethnicities. Even among women with low risk pregnancies, C-section rates have increased during this time period. However, after years of steady increases in the rate of Cesareans, there was a slight decline in the rate in 2010.

Recently, state efforts have focused on reducing C-section deliveries among low risk pregnancies. The Perinatal Quality Collaborative of North Carolina (PQCNC)'s *Eliminating Elective Deliveries Under 39 Weeks Gestation* initiative aims to decrease C-section rates statewide by reducing scheduled C-sections between 36–38 weeks gestation among first time mothers that are not for medical reasons. Between October 2009 and June 2010, PQCNC reported a 43 percent decrease in the rate of elective deliveries (both inductions and C-sections) under 39 weeks gestation.[7]

Additionally, the North Carolina Division of Public Health, the North Carolina Division of Medical Assistance, and Community Care of North Carolina (CCNC) are now collaborating on the *Pregnancy Medical Home* initiative. The initiative is designed to improve birth outcomes in North Carolina by providing evidence-based, high quality maternity care to North Carolina's Medicaid patients. Two of CCNC's four performance measures relate to the reduction of Cesarean section rates: 1) no elective deliveries prior to 39 weeks gestation and 2) reduction in primary C-section rate.[8]

The North Carolina State Center for Health Statistics will continue to monitor C-section rates in order to determine if these, and other state efforts, result in tangible decreases in Cesarean section deliveries in the future.

Acknowledgements

Thanks to the following people from the State Center for Health Statistics for their contributions to this report: Kathleen Jones-Vessey and Matt Avery for their review and comments; Dianne Enright for providing the North Carolina county map; and Ann Farmer for review, editing and layout.

References

1. U.S. Department of Health and Human Services, Public Health Service. *Healthy People 2000: National Health Promotion and Disease Prevention Objectives*, DHHS Publication No. (PHS) 91-50212. Washington, DC: U.S. Government Printing Office, September 1990.
2. U.S. Department of Health and Human Services. *Healthy People 2010*. 2nd ed. With Understanding and Improving Health and Objectives for Improving Health. 2 vols. Washington, DC: U.S. Government Printing Office, November 2000.
3. U.S. Department of Health and Human Services. Office of Disease Prevention and Health Promotion. *Healthy People 2020*. Washington, DC. Available at: www.healthypeople.gov/2020/topicsobjectives2020/overview.aspx?topicid=26. Accessed April 23, 2012.
4. Menacker F, Hamilton BE. Recent trends in Cesarean delivery in the United States. *NCHS Data Brief, No. 35*. Hyattsville, MD: National Center for Health Statistics. 2010. Available at: www.cdc.gov/nchs/data/databriefs/db35.pdf. Accessed January 31, 2012.
5. Bayrampour H, Heaman M. Advanced maternal age and the risk of Cesarean birth: a systematic review. *Birth*. 2010 Sep;37(3):219–26. Available at: www.ncbi.nlm.nih.gov/pubmed/20887538. Accessed May 15, 2012.
6. Menacker F. Trends in Cesarean rates for first births and repeat Cesarean rates for low-risk women: United States, 1990–2003. *National Vital Statistics Reports; Vol 54 No 4*. Hyattsville, MD: National Center for Health Statistics. 2005. Available at: www.cdc.gov/nchs/data/nvsr/nvsr54/nvsr54_04.pdf. Accessed January 31, 2012.
7. Perinatal Quality Collaborative of North Carolina. *Eliminating Elective Deliveries Under 39 Weeks Gestation*. Available at: www.pqcnc.org/?q=node/75. Accessed May 17, 2012.
8. Community Care of North Carolina. *Pregnancy Home: Better care, better birth outcomes*. Available at: www.communitycarenc.com/emerging-initiatives/pregnancy-home/. Accessed May 23, 2012.

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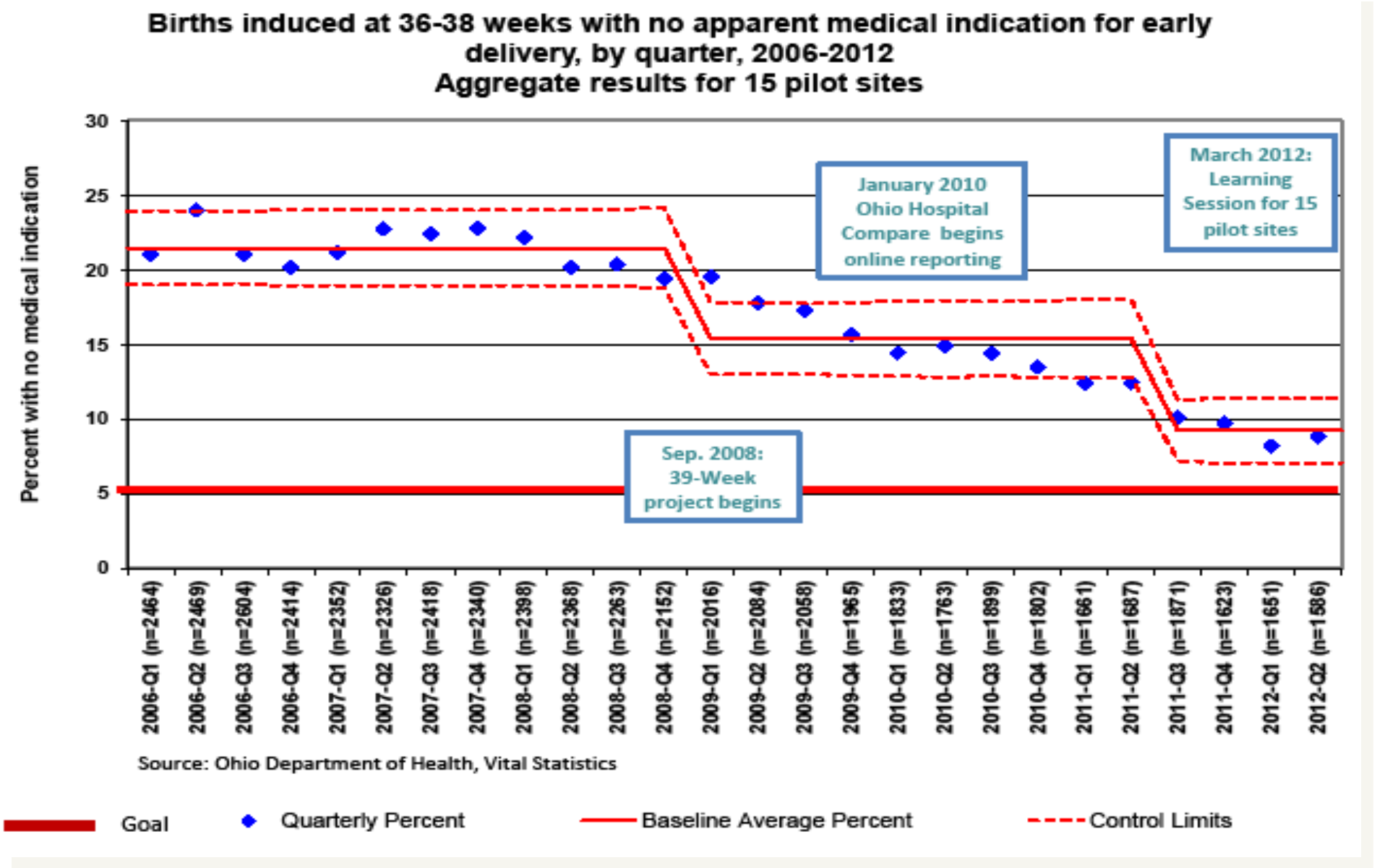

Ohio Birth Certificate Data, Ohio Vital Statistics
Asking the Question: 36-38 week deliveries with “no apparent” medical indication for early delivery

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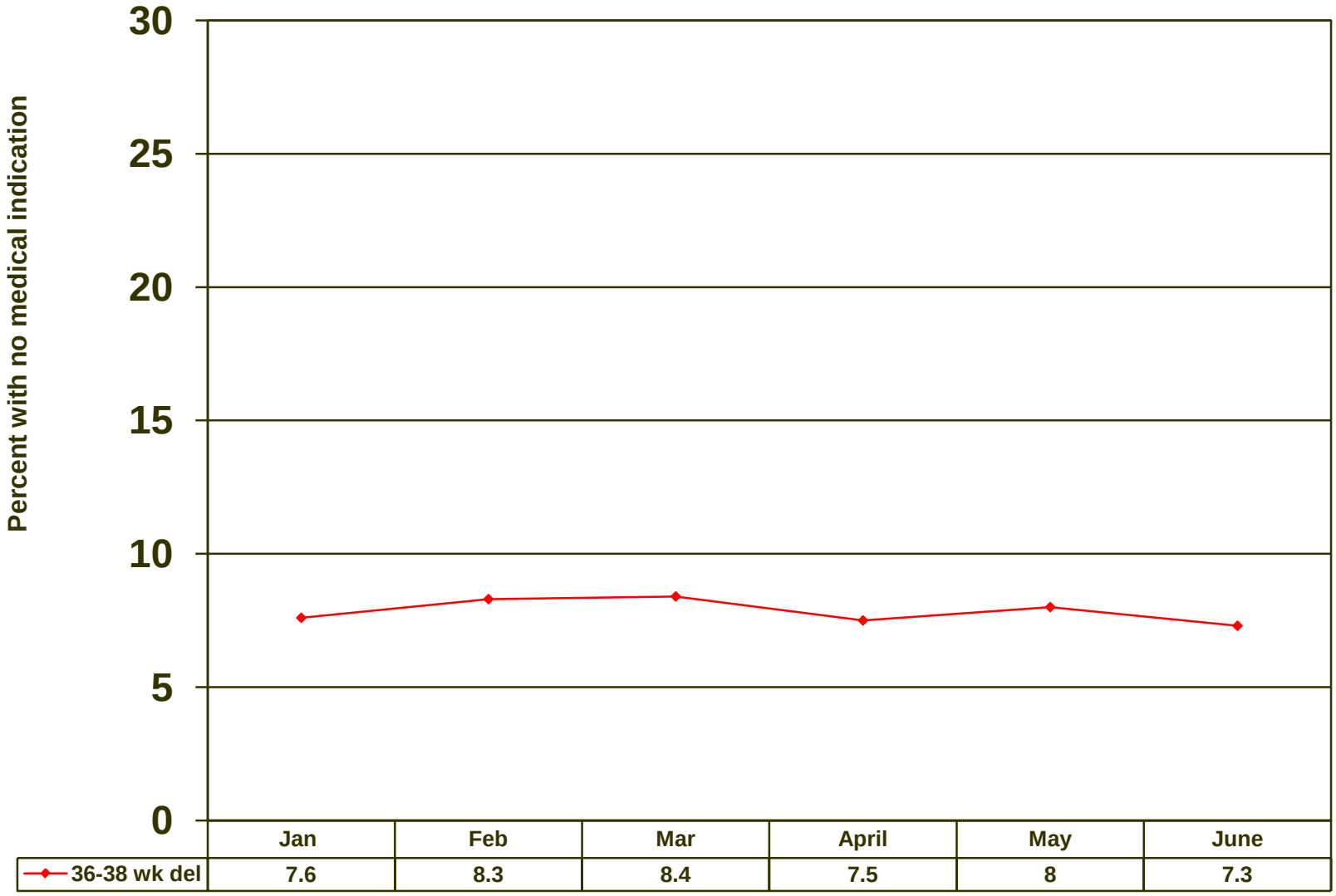

NC Birth Certificate Data, NC Vital Statistics
Asking the Question: 36-38 week deliveries with “no apparent” medical indication for early delivery

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New Certificate

PDIAB - Pre-pregnancy diabetes
GDIAB - Gestational diabetes
PHYPE - Pre-pregnancy hypertension
GHYPE - Gestational hypertension
EHYPE - Hypertension eclampsia
PPO - Poor pregnancy outcomes
PROM - Premature rupture of membranes
AUGL - Augmentation of labor
CHOR - Chorioamnionitis
ANEN - Anencephaly
MNSB - Meningomyelocele/Spina Bifida
CCHD - Cyonotic congenital heart disease
CDH - Congenital diaphragmatic hernia
OMPH - Omphalocele
GAST - Gastroschisis
LIMB - Limb reduction defect
CL - Cleft lip with or without cleft palate
CP - Cleft palate alone
DOWT - Down syndrome
CDIT - Suspected chromosomal disorder
HYPO - Hypospadias

NC Birth Certificate Data, NC Vital Statistics
Asking the Question: 36-38 week deliveries with “no apparent” medical indication for early delivery

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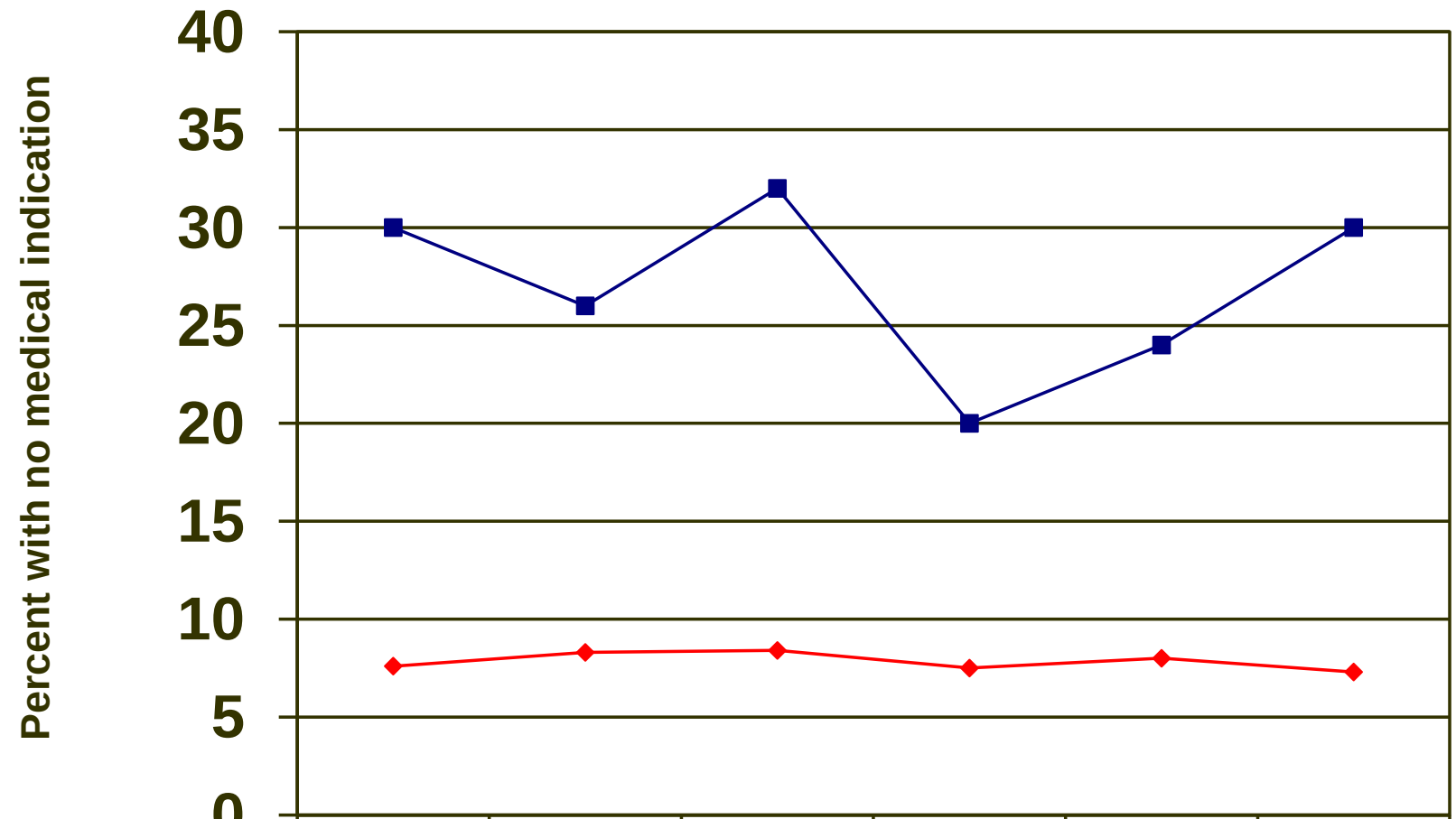

	Jan	Feb	Mar	April	May	June
State Wide	7.6	8.3	8.4	7.5	8	7.3
Institution "X"	30	26	32	20	24	30

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(July 2012)

Bottom Line

1. Birth Certificate Data is a Powerful Tool
2. Caution needs to be headed when using it
3. Garbage in --- Garbage out!
4. We have made a difference!

www.pqcnc.org

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