

Maternal Characteristics and Birth Outcomes among SoonerCare

2016 SoonerCare – Birth Data Linkage Report



**Maternal and Child Health Assessment
Oklahoma State Department of Health**



Oklahoma Health Care Authority



Objectives

The objective of this report is to describe and compare select characteristics and birth outcomes of mothers with live births paid by SoonerCare, Oklahoma's Medicaid program, and mothers with live births not paid by SoonerCare during 2016.

Data and Methods

The data used in this report was from the SoonerCare – Birth Certificate Linkage Project for 2016. This project is supported by an inter-departmental agreement between the Oklahoma Health Care Authority and the Oklahoma State Department of Health. SoonerCare data was extracted from the Oklahoma Medicaid Management Information Systems of the Oklahoma Health Care Authority. The delivery dates table, from OKMMIS, includes deliveries paid for by SoonerCare; mother and infant data were pre-linked. SoonerCare eligibility files for mothers and the matching infants were extracted based on this table. Oklahoma birth data was obtained from the Center for Health Statistics division of OSDH. Probabilistic and deterministic data linkages between the SoonerCare eligibility data and birth certificate data were conducted using SAS (version 9.4) and Link King (version 9.0). SoonerCare paid live births were identified from the data matching process using SoonerCare eligibility data and birth certificate data. Non-SoonerCare live births were those without SoonerCare eligibility data. Select maternal characteristics and birth outcomes were assessed using variables from the birth file.

Data Qualification

The quality of SoonerCare and birth linked data was determined by the efficacy of the SoonerCare and birth certificate data linkage process, as well as the completeness of the SoonerCare delivery dates table. Data exclusions are as follows:

- Oklahoma births to out-of-state residents and out-of-state births to Oklahoma residents.
- Mothers without a matched infant from SoonerCare delivery dates table when SoonerCare paid for the mother's delivery claim, without paying for the infant's newborn claim.
- Infants with SoonerCare-paid newborn claims when the deliveries of the mothers are not paid for by SoonerCare.
- Infants without SoonerCare-paid newborn claims (e.g. infants enrolled in SoonerCare after birth).

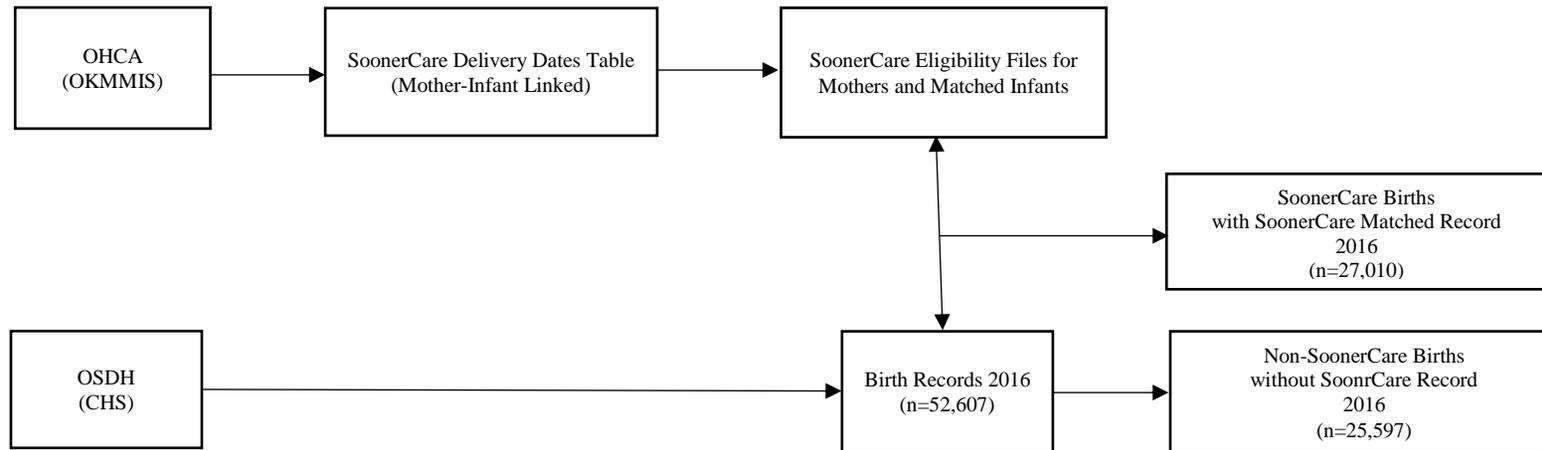
SoonerCare partial paid claims, such as third-party liability and Medicare, are included in the data set. Due to frequent updates of data in OKMMIS, SoonerCare data are point-in-time, and a representation of the data as of the extract date.

Population

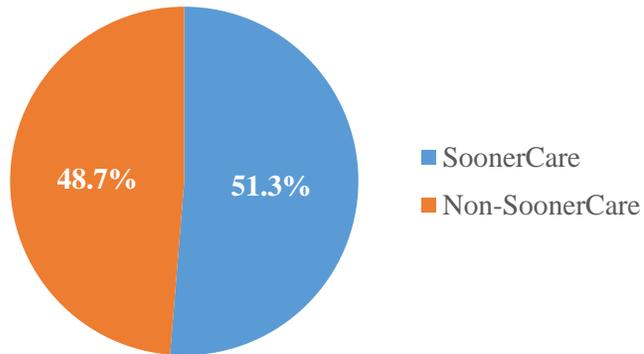
The population in the final SoonerCare and birth certificate linked data includes Oklahoma residents who gave birth in an Oklahoma facility in 2016, and SoonerCare paid for the mother's delivery claim and her infant's newborn claim. The infants were enrolled in SoonerCare at the time of birth.

SoonerCare – Birth Data Linkage 2016

General Steps of SoonerCare and Birth Data Linkage Process



SoonerCare and Non-SoonerCare Births, 2016



* Percent of SoonerCare births may be underestimated due to the infants excluded from the SoonerCare delivery dates table and the SoonerCare – birth data linkage process.

* SoonerCare births include in state live births to Oklahoma residents.

* Non-SoonerCare births include in state and out of state live births to Oklahoma residents.

Figure 1. Distribution of SoonerCare and Non-SoonerCare Births by Mother’s Race and Hispanic Origin, 2016

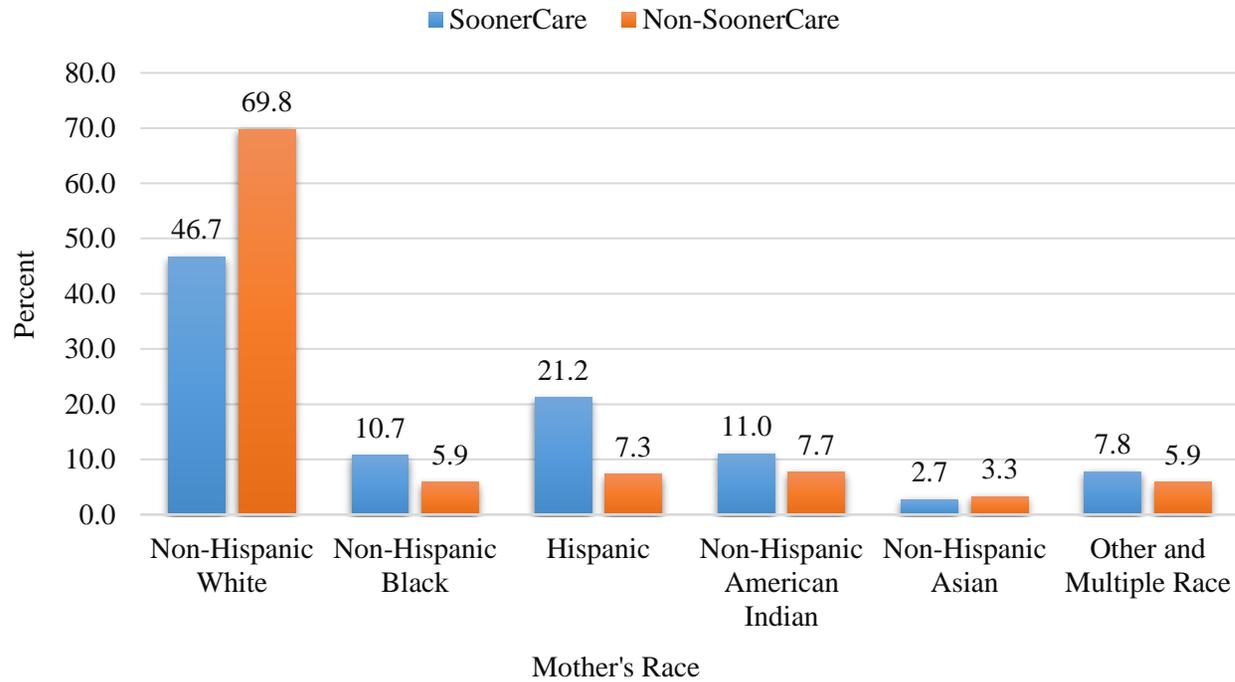


Table 1. Distribution of SoonerCare and Non-SoonerCare Births by Mother’s Race and Hispanic Origin, 2016

	Non-Hispanic White		Non-Hispanic Black		Hispanic		Non-Hispanic American Indian		Non-Hispanic Asian		Other and Multiple Race		Missing	Total
	n	%	n	%	n	%	n	%	n	%	n	%	n	n
SoonerCare	12,605	46.7	2,883	10.7	5,715	21.2	2,960	11.0	734	2.7	2,105	7.8	-	27,010
Non-SoonerCare	17,867	69.8	1,507	5.9	1,879	7.3	1,979	7.7	847	3.3	1,507	5.9	11	25,597

* Numbers in table may have been suppressed due to small cell size (less than 10 live births).

* Missing values were subtracted from total when calculating percent.

* Mother’s race in the birth data was derived using the bridged racial categories assigned by National Center for Health Statistics.

Figure 2. Distribution of SoonerCare and Non-SoonerCare Births by Mother's Age, 2016

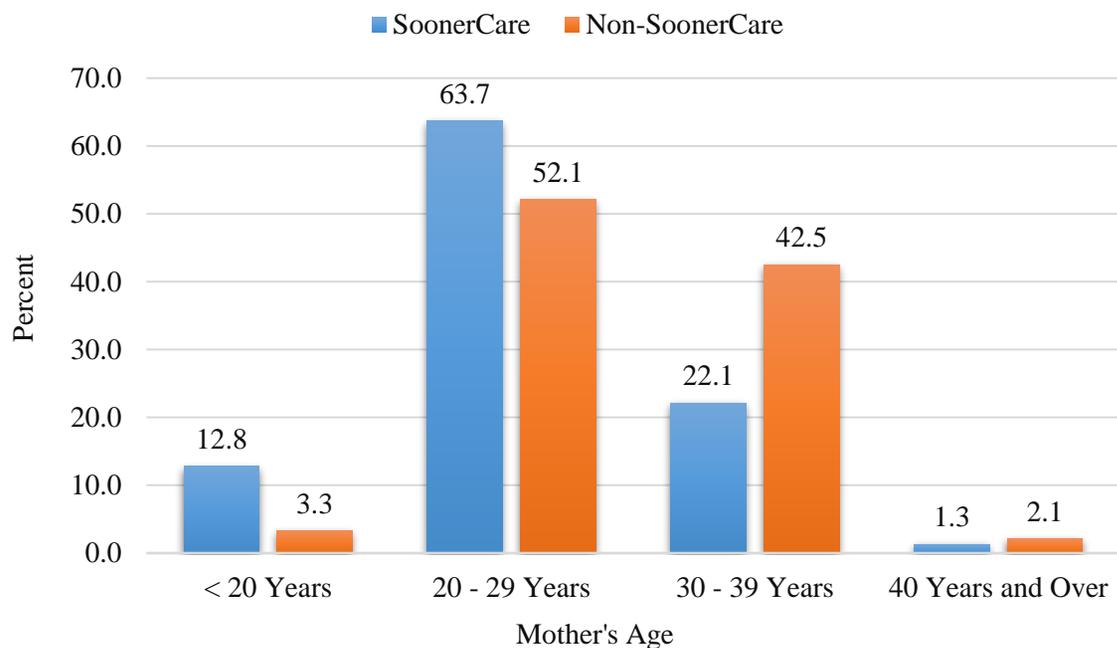


Table 2. Distribution of SoonerCare and Non-SoonerCare Births by Mother's Age, 2016

	< 20 Years		20 – 29 Years		30 – 39 Years		40 Years and Over		Missing	Total
	n	%	n	%	n	%	n	%	n	n
SoonerCare	3,460	12.8	17,213	63.7	5,978	22.1	357	1.3	-	27,010
Non-SoonerCare	835	3.3	13,332	52.1	10,870	42.5	547	2.1	13	25,597

* Numbers in table may have been suppressed due to small cell size (less than 10 live births).

* Missing values were subtracted from total when calculating percent.

* Mother's age is the age of a mother at child's birth, it was calculated from mother's date of birth and child's date of birth in birth certificate.

Figure 3. Distribution of SoonerCare and Non-SoonerCare Births by Mother’s Education, 2016

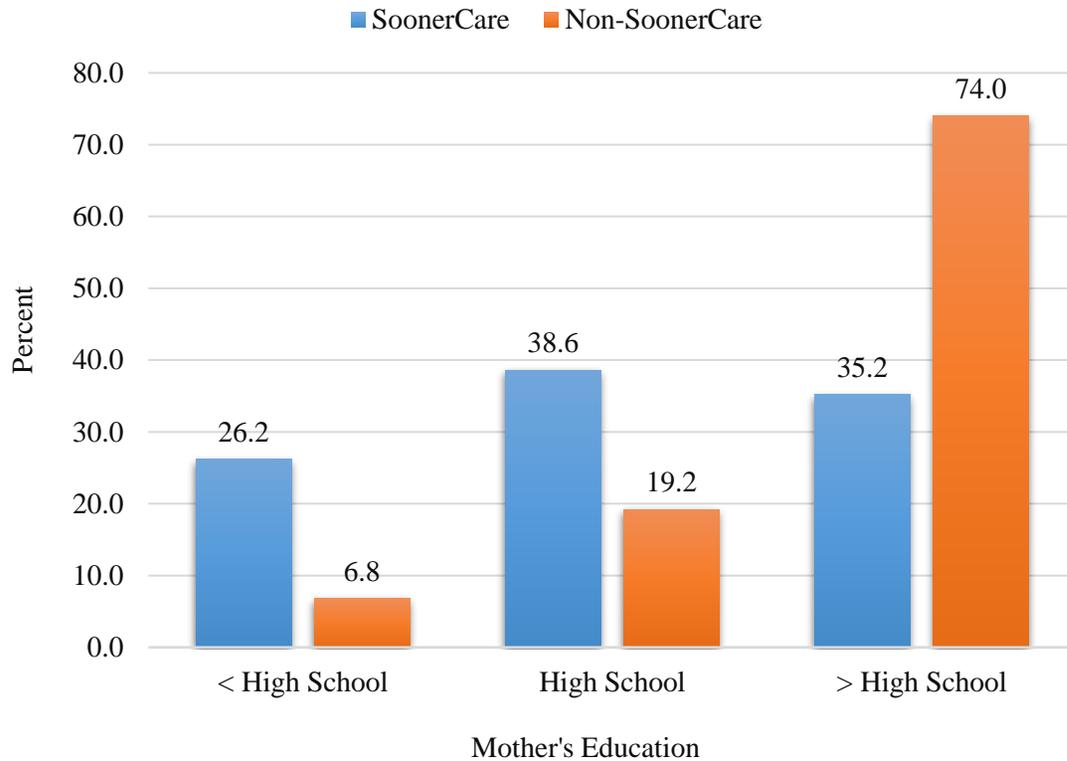


Table 3. Distribution of SoonerCare and Non-SoonerCare Births by Mother’s Education, 2016

	< High School		High School		> High School		Missing	Total
	n	%	n	%	n	%	n	n
SoonerCare	7,058	26.2	10,415	38.6	9,481	35.2	56	27,010
Non-SoonerCare	1,739	6.8	4,906	19.2	18,873	74.0	79	25,597

*Missing values were subtracted from total when calculating percent.

Figure 4. Distribution of SoonerCare and Non-SoonerCare Births by Mother’s Marital Status, 2016

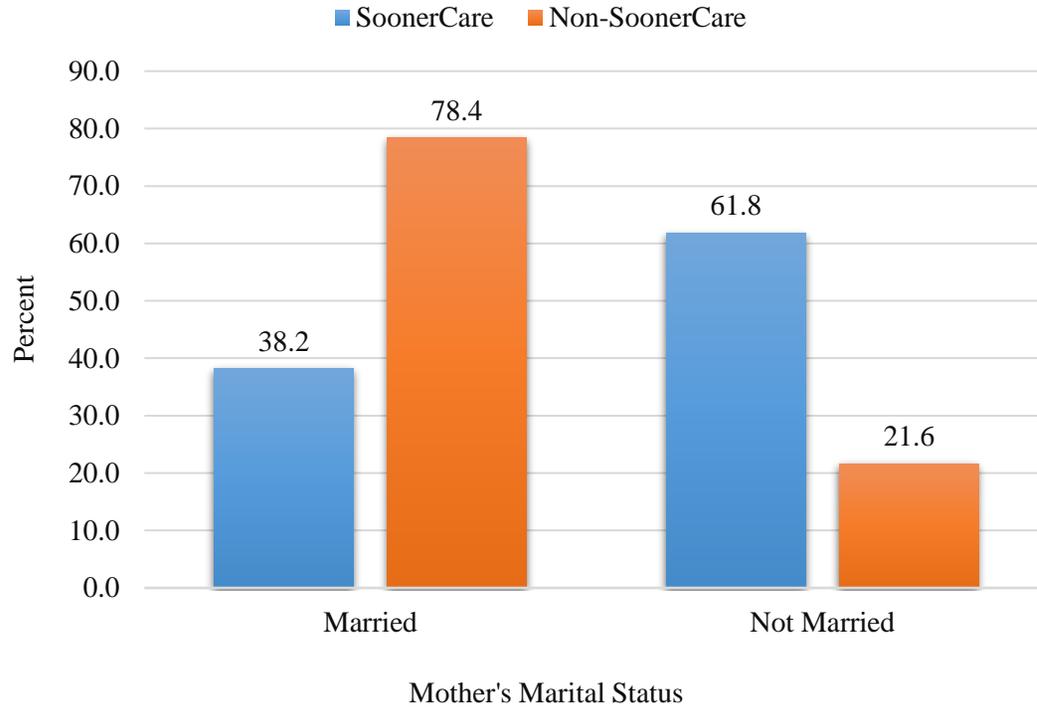


Table 4. Distribution of SoonerCare and Non-SoonerCare Births by Mother’s Marital Status, 2016

	Married		Not Married		Missing	Total
	n	%	n	%		
SoonerCare	10,317	38.2	16,693	61.8	-	27,010
Non-SoonerCare	20,055	78.4	5,534	21.6	-	25,597

* Numbers in table may have been suppressed due to small cell size (less than 10 live births).

* Missing values were subtracted from total when calculating percent.

Figure 5. Distribution of SoonerCare and Non-SoonerCare Births by Previous Live Births, 2016

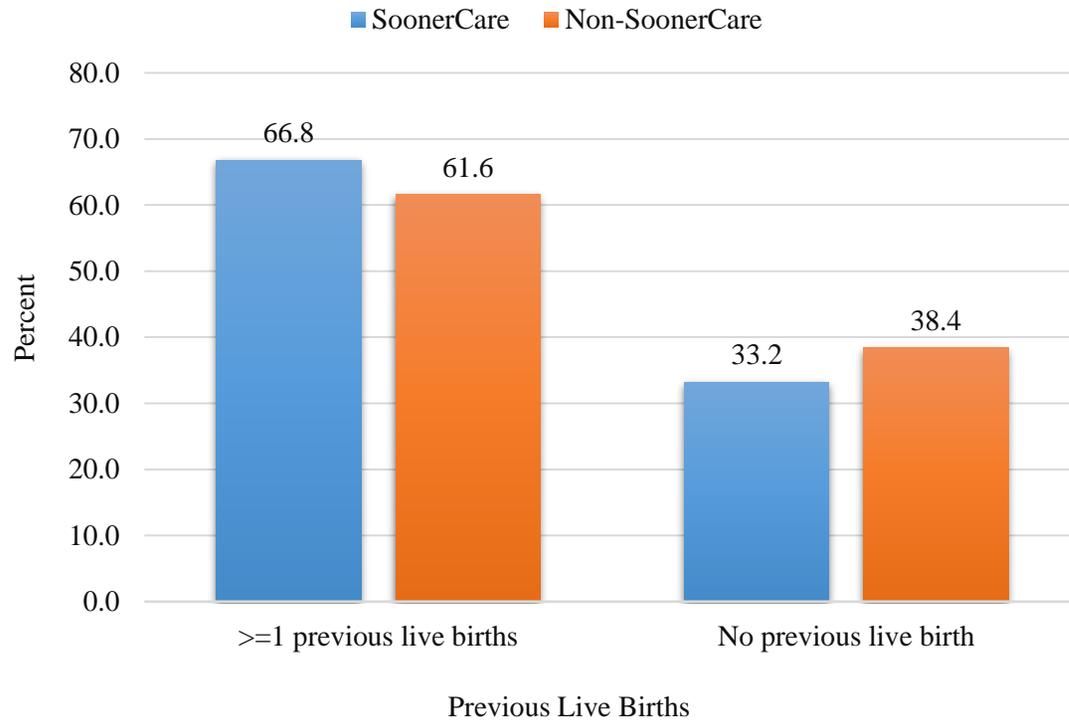


Table 5. Distribution of SoonerCare and Non-SoonerCare Births by Previous Live Births, 2016

	>=1 previous live birth		No previous live birth		Missing	Total
	n	%	n	%	n	n
SoonerCare	18,029	66.8	8,958	33.2	23	27,010
Non-SoonerCare	15,727	61.6	9,820	38.4	50	25,597

* Missing values were subtracted from total when calculating percent.

Figure 6. Distribution of SoonerCare and Non-SoonerCare Births by Trimester Prenatal Care Began, 2016

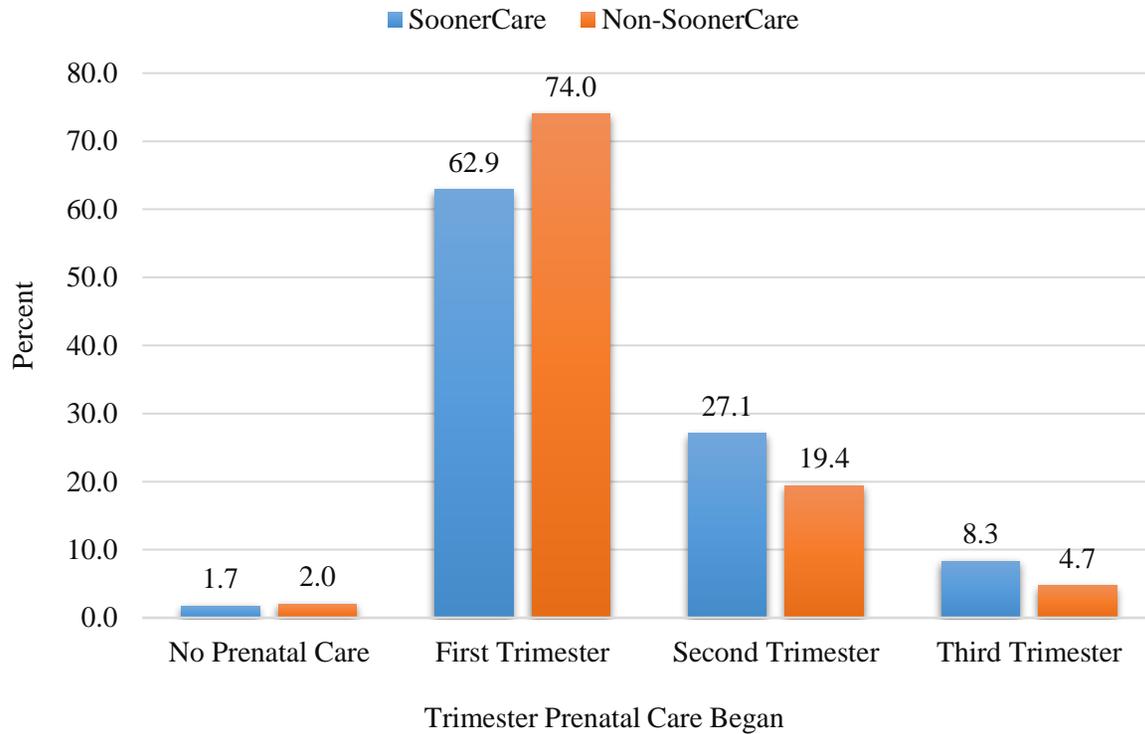


Table 6. Distribution of SoonerCare and Non-SoonerCare Births by Trimester Prenatal Care Began, 2016

	No Prenatal Care		First Trimester		Second Trimester		Third Trimester		Missing	Total
	n	%	n	%	n	%	n	%	n	n
SoonerCare	454	1.7	16,593	62.9	7,147	27.1	2,194	8.3	622	27,010
Non-SoonerCare	492	2.0	18,512	74.0	4,844	19.4	1,186	4.7	563	25,597

* Missing values were subtracted from total when calculating percent.

Figure 7. Distribution of SoonerCare and Non-SoonerCare Births by Pre-pregnancy Body Mass Index, 2016

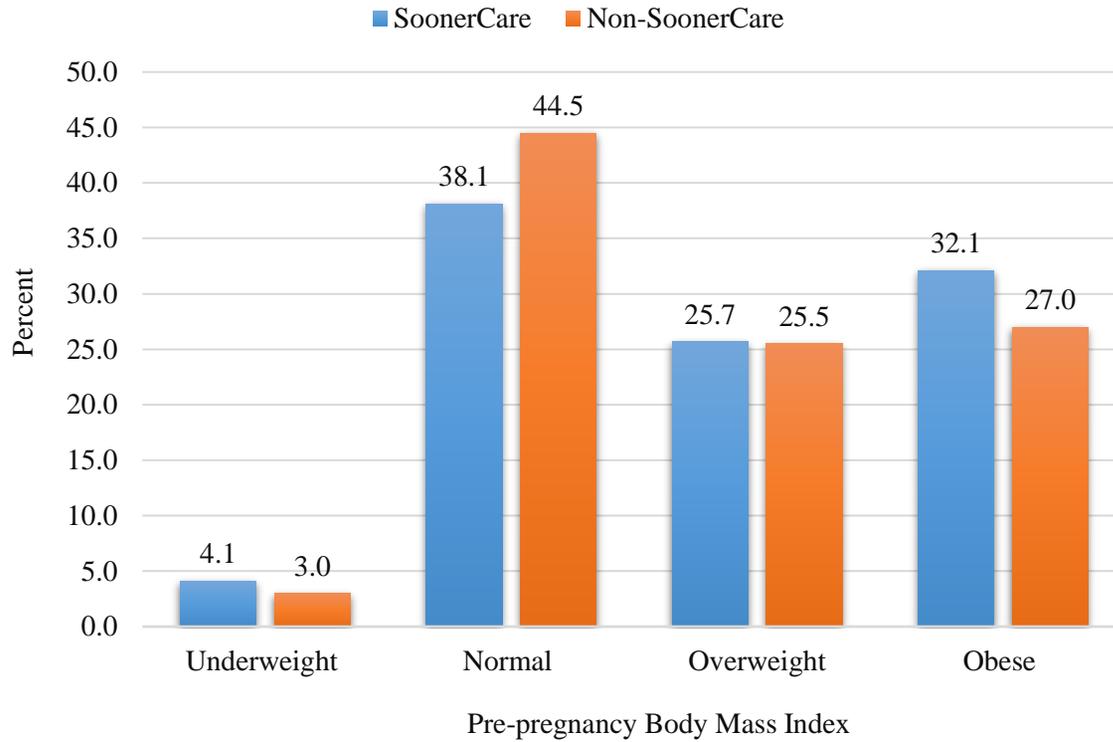


Table 7. Distribution of SoonerCare and Non-SoonerCare Births by Pre-pregnancy Body Mass Index, 2016

	Underweight		Normal		Overweight		Obese		Missing	Total
	n	%	n	%	n	%	n	%	n	n
SoonerCare	1,096	4.1	10,102	38.1	6,806	25.7	8,512	32.1	494	27,010
Non-SoonerCare	743	3.0	11,169	44.5	6,401	25.5	6,774	27.0	510	25,597

* Missing values were subtracted from total when calculating percent.

* Pre-pregnancy BMI was derived using the mother’s reported height and pre-pregnancy weight recorded as part of the birth certificate.

Figure 8. Distribution of SoonerCare and Non-SoonerCare Births by Infant’s Birth Weight, 2016

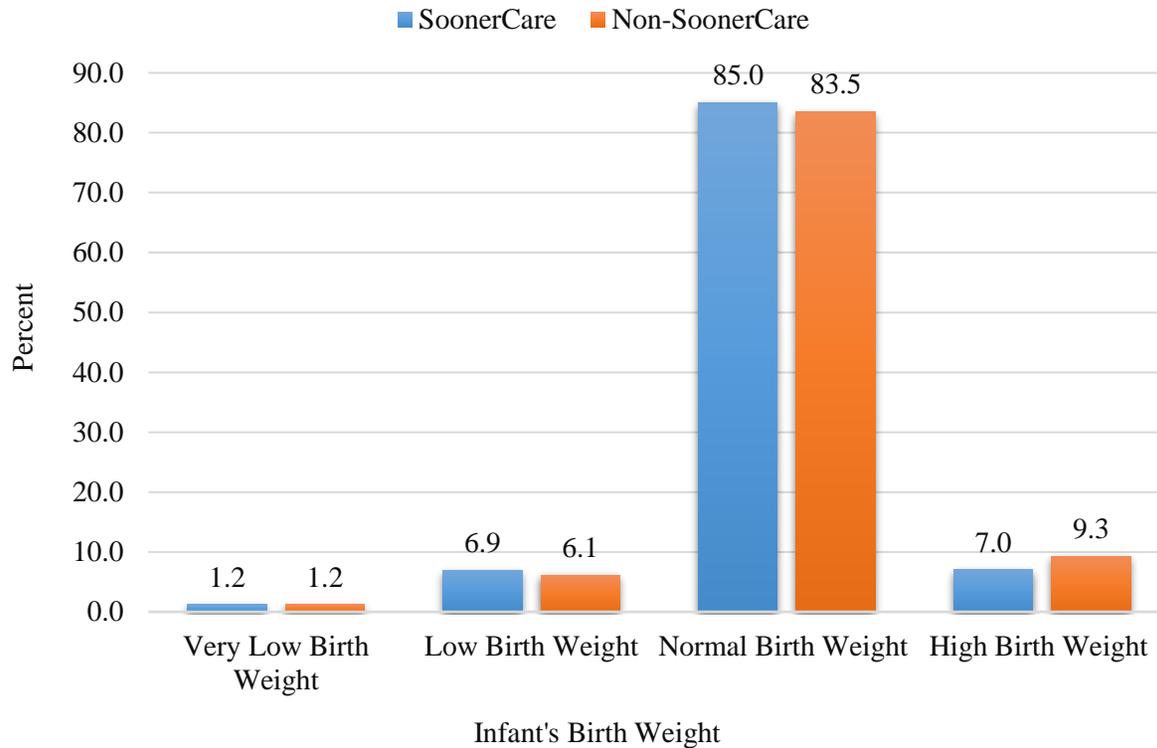


Table 8. Distribution of SoonerCare and Non-SoonerCare Births by Infant’s Birth Weight, 2016

	Very low birth weight		Low birth weight		Normal birth weight		High birth weight		Missing	Total
	n	%	n	%	n	%	n	%	n	n
SoonerCare	311	1.2	1,854	6.9	22,906	85.0	1,884	7.0	55	27,010
Non-SoonerCare	306	1.2	1,555	6.1	21,297	83.5	2,360	9.3	79	25,597

* Missing values were subtracted from total when calculating percent.

Figure 9. Distribution of SoonerCare and Non-SoonerCare Births by Gestational Age, 2016

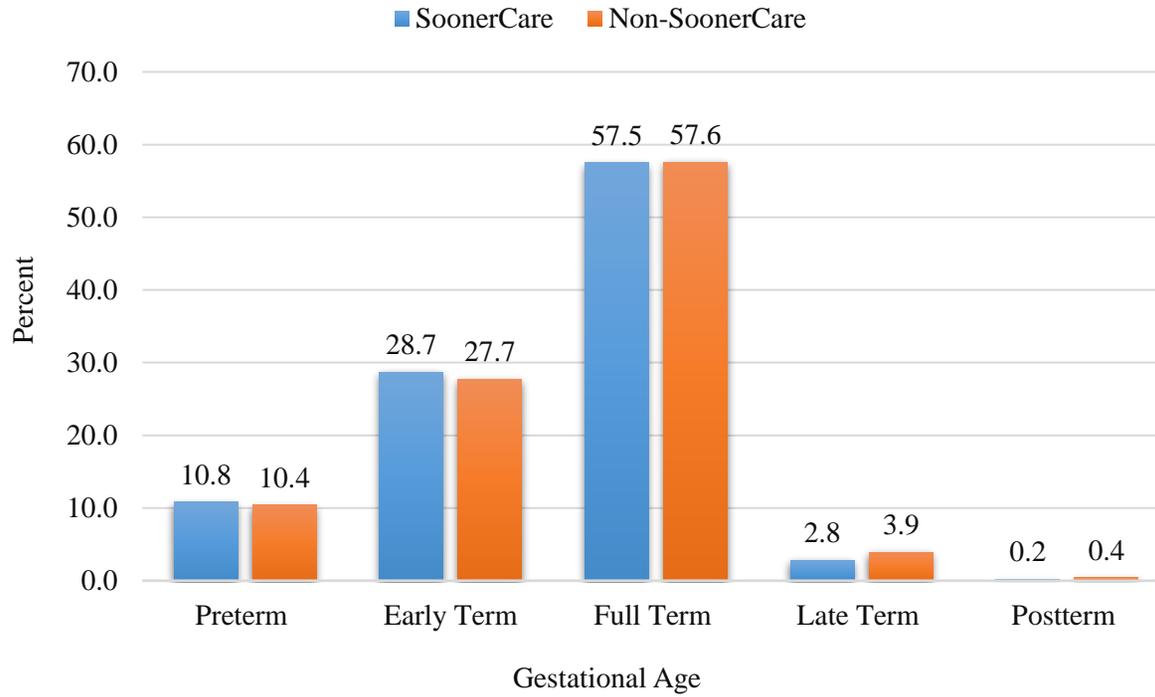


Table 9. Distribution of SoonerCare and Non-SoonerCare Births by Gestational Age, 2016

	Preterm		Early Term		Full Term		Late Term		Postterm		Missing	Total
	n	%	n	%	n	%	n	%	n	%	n	n
SoonerCare	2,913	10.8	7,742	28.7	15,510	57.5	759	2.8	45	0.2	41	27,010
Non-SoonerCare	2,659	10.4	7,081	27.7	14,709	57.6	1,003	3.9	99	0.4	46	25,597

* Missing values were subtracted from total when calculating percent.

Figure 10. Distribution of SoonerCare and Non-SoonerCare Births by Method of Delivery, 2016

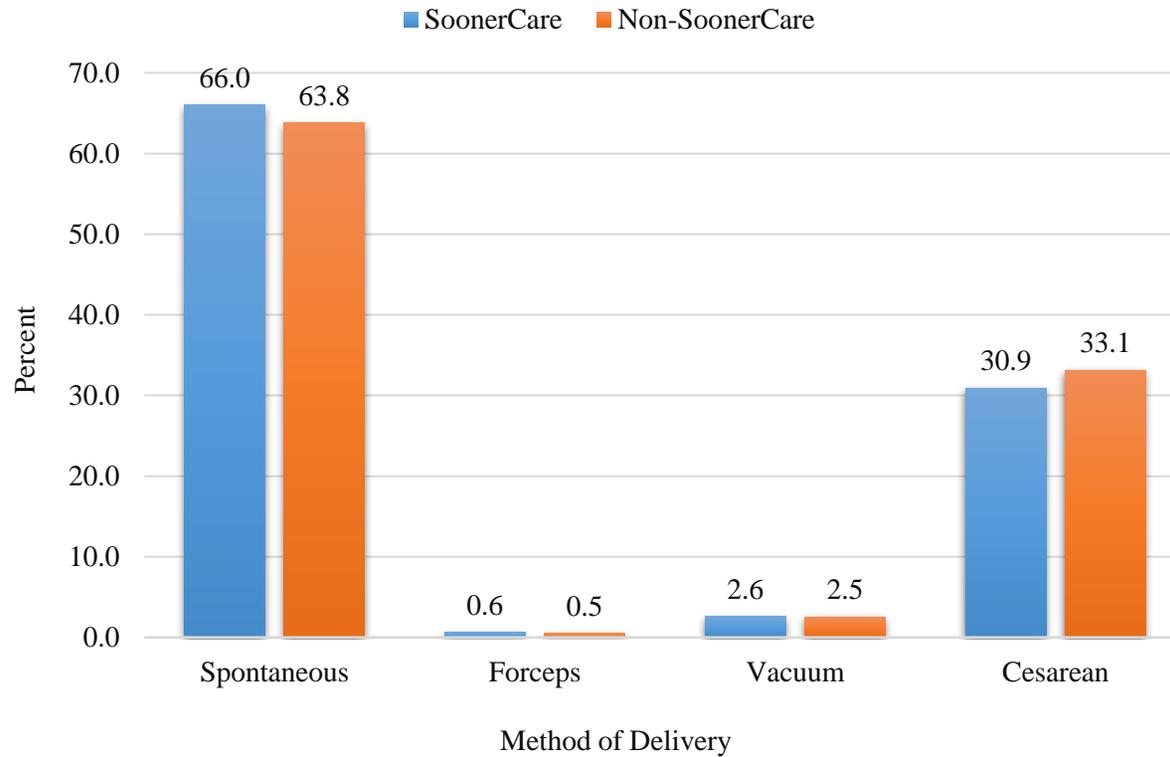


Table 10. Distribution of SoonerCare and Non-SoonerCare Births by Method of Delivery, 2016

	Spontaneous		Forceps		Vacuum		Cesarean		Missing	Total
	n	%	n	%	n	%	n	%	n	n
SoonerCare	17,821	66.0	161	0.6	690	2.6	8,338	30.9	-	27,010
Non-SoonerCare	16,324	63.8	138	0.5	650	2.5	8,484	33.1	-	25,597

* Numbers in table may have been suppressed due to small cell size (less than 10 live births).

* Missing values were subtracted from total when calculating percent.

Figure 11. Percent of SoonerCare and Non-SoonerCare Births by Mother’s Area of Residence, 2016



Table 11. Percent of SoonerCare and Non-SoonerCare Births by Mother’s Area of Residence, 2016

	SoonerCare		Non-SoonerCare		Total
	n	%	n	%	n
Urban	15,395	49.9	15,434	50.1	30,829
Rural	11,604	58.2	8,345	41.8	19,949

* Missing values were subtracted from total when calculating percent.

* Mother’s area of residence, urban and rural was derived from mother’s residence zip code

Table 12. SoonerCare Births by Mother's County of Residence, 2016

County	SoonerCare Births (n)	Total Births (n)	Percent
Adair	152	343	44.3
Alfalfa	23	59	39.0
Atoka	107	162	66.0
Beaver	-	59	-
Beckham	172	314	54.8
Blaine	86	146	58.9
Bryan	364	601	60.6
Caddo	252	431	58.5
Canadian	611	1,780	34.3
Carter	397	665	59.7
Cherokee	326	567	57.5
Choctaw	100	210	47.6
Cimarron	13	28	46.4
Cleveland	1,253	3,016	41.5
Coal	37	76	48.7
Comanche	788	1,756	44.9
Cotton	35	63	55.6
Craig	97	158	61.4
Creek	510	874	58.4
Custer	235	427	55.0
Delaware	210	426	49.3
Dewey	23	60	38.3
Ellis	16	46	34.8
Garfield	510	937	54.4
Garvin	227	359	63.2
Grady	302	609	49.6
Grant	24	51	47.1
Greer	30	49	61.2
Harmon	14	24	58.3
Harper	31	45	68.9

County	SoonerCare Births (n)	Total Births (n)	Percent
Haskell	75	142	52.8
Hughes	97	163	59.5
Jackson	207	441	46.9
Jefferson	45	64	70.3
Johnston	81	129	62.8
Kay	401	620	64.7
Kingfisher	92	188	48.9
Kiowa	64	102	62.7
Latimer	85	131	64.9
Le Flore	212	650	32.6
Lincoln	207	380	54.5
Logan	224	533	42.0
Love	86	137	62.8
McClain	185	444	41.7
McCurtain	277	468	59.2
McIntosh	148	225	65.8
Major	53	95	55.8
Marshall	132	195	67.7
Mayes	284	482	58.9
Murray	96	152	63.2
Muskogee	518	868	59.7
Noble	54	132	40.9
Nowata	66	120	55.0
Okfuskee	81	126	64.3
Oklahoma	6,425	12,136	52.9
Okmulgee	290	456	63.6
Osage	236	417	56.6
Ottawa	210	393	53.4
Pawnee	113	193	58.5
Payne	441	874	50.5

County	SoonerCare Births (n)	Total Births (n)	Percent
Pittsburg	291	506	57.5
Pontotoc	310	566	54.8
Pottawatomie	508	897	56.6
Pushmataha	64	115	55.7
Roger Mills	20	42	47.6
Rogers	437	985	44.4
Seminole	223	344	64.8
Sequoyah	115	535	21.5
Stephens	323	531	60.8

County	SoonerCare Births (n)	Total Births (n)	Percent
Texas	175	380	46.1
Tillman	51	80	63.8
Tulsa	5,042	9,633	52.3
Wagoner	389	901	43.2
Washington	311	642	48.4
Washita	102	162	63.0
Woods	41	105	39.0
Woodward	142	282	50.4
Not Classifiable	30	104	28.9

* Number and percent in table may have been suppressed due to small cell size (less than 10 live births).

* Top five counties are highlighted.

Technical Notes

1. The analyses were based on the data fields included in the birth file that was cleaned and standardized by the maternal and child health assessment division at Oklahoma State Department of Health.

2. Distribution of SoonerCare and non-SoonerCare births (figure 1-10)

$$\text{SoonerCare} = \frac{\text{SoonerCare Births of the Category}}{\text{Total SoonerCare Births}} \times 100 \quad \text{Non-SoonerCare} = \frac{\text{Non-SoonerCare Births of the Category}}{\text{Total Non-SoonerCare Births}} \times 100$$

3. Percent of SoonerCare and non-SoonerCare births (figure 11 and 12)

$$\text{SoonerCare} = \frac{\text{SoonerCare Births}}{\text{Total Births}} \times 100 \quad \text{Non-SoonerCare} = \frac{\text{Non-SoonerCare Births}}{\text{Total Births}} \times 100$$

4. Body mass index: weight (kg) / [height (m)]²

a. Underweight: < 18.5

b. Normal: 18.5-24.9

c. Overweight: 25-29.9

d. Obese: >30

5. Trimester of prenatal care

a. First trimester: 1-3 months

b. Second trimester: 4-6 months

c. Third trimester: 7-9 months

6. Gestational age – obstetric estimate of gestational age

a. Preterm: 20-36 weeks

b. Early term: 37-38 weeks

c. Full term: 39-40 weeks

d. Late term: 41 weeks

e. Post term: >=42 weeks

7. Birth weight

a. Very low birth weight: <1,500 grams

b. Low birth weight: 1,500-2,499 grams

c. Normal birth weight: 2,500-3,999

d. High birth weight: >4,000 grams

Acknowledgements

We would like to acknowledge the maternal and child health assessment division at Oklahoma State Department of Health and the office of data governance and analytics at Oklahoma Health Care Authority for the contributions and support to this data report.

Additional Information

This publication was issued by the Oklahoma State Department of Health (OSDH), an equal opportunity employer and provider. A digital file has been deposited with the Publications Clearinghouse of the Oklahoma Department of Libraries in compliance with section 3-114 of Title 65 of the Oklahoma Statutes and is available for download at documents.ok.gov. | Issued December 2019.

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