



# **Adequacy of Prenatal Care Utilization Index Kansas, 2014**

A graphic consisting of several horizontal blue lines. Overlaid on these lines is the text "Research Summary" in a large, white, outlined, sans-serif font, slanted upwards from left to right.

## **Research Summary**

Kansas Department of Health and Environment  
Division of Public Health  
Bureau of Epidemiology and Public Health Informatics  
Curtis State Office Building – 1000 SW Jackson, Topeka, KS, 66612-1354  
<http://www.kdheks.gov/bephi/>  
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This Research Summary Was Prepared By:

Kansas Department of Health and Environment  
Susan Mosier, MD, Secretary

Bureau of Epidemiology and Public Health Informatics  
D. Charles Hunt, MPH, Director and State Epidemiologist  
Elizabeth W. Saadi, PhD, Deputy Director and State Registrar

Prepared by: Julia Soap, MPH  
Greg Crawford, BA  
David Oakley, MA

Reviewed by: Jamie Kim, MPH  
Kari Teigen, MPH

Data for this report were collected by:

Office of Vital Statistics  
Donna Calabrese, Director

Our Vision – Healthy Kansans living in safe and sustainable environments

Our Mission – To protect and improve the health and environment of all Kansans

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## Executive Summary

Improving family health is an essential role for public health agencies. Tracking the quantity of prenatal care pregnant women receive through the Adequacy of Prenatal Care Utilization (APNCU) Index enables public health agencies to identify inequities in the provision of care. Using birth certificate information, the Kansas Department of Health and Environment (KDHE) calculates the APNCU using methods developed by Dr. Milton Kotelchuck. In 2014, prenatal care defined as inadequate decreased by 2.6 percent compared to 2013, while adequate or better prenatal care increased by 1.3 percent. Currently, Kansas’ level of adequate or better prenatal care (83.0%) is better than the Healthy People 2020 target of 77.6 percent; however, inequities by population group and pay source continue.

## Introduction

Maintaining and improving family health is an essential component of the public health mission of KDHE. Facilitating healthy pregnancies and positive birth outcomes pays dividends to Kansas society in the form of reduced maternal and infant mortality and children capable of learning and growing into productive members of society. It is in this role the department, through the Division of Public Health’s Bureau of Epidemiology and Public Health Informatics (BEPHI), provides this report in order that progress in the provision of adequate prenatal care can be monitored.

Organized prenatal care began with attempts to prevent fetal abnormalities. Later it was recognized it might also reduce maternal, fetal, and neonatal deaths. Prenatal care is health care one receives when pregnant. It includes maternal checkups and prenatal testing in order to spot health problems early. Early treatment can cure many problems and prevent others. A typical prenatal visit may include any or all of the following elements: weight measurement, blood pressure measurement, measurement of the

uterus to check for proper growth of the fetus, physical examination of the mother to detect problems or discomforts, urine tests to detect diabetes, preeclampsia or edema, fetal heart rate measurement, and various screening tests, such as blood tests to check for anemia. Prenatal care is important because potential problems that endanger the mother or her infant can be identified and treated before delivery or even prevented altogether [1, 2, 3].

Inadequate prenatal care has been associated with pre-term delivery, low birthweight and small-for-gestation infants [4, 5]. It has also been linked with a higher overall net cost per pregnancy for mother and newborn care combined [6].

Adequate prenatal care is one of the national goals in the Healthy People 2020 program: “MICH-10: Increase the proportion of pregnant women who receive early and adequate prenatal care.” The target is that 77.6 percent of pregnant women receive early and adequate prenatal care by the year 2020 [7].

The purpose of this report is to inform policy makers, local health departments, program managers and the public of the extent to which adequate prenatal care is provided to pregnant women in Kansas, and to indicate disparities in the provision of that care. The BEPHI has published the adequacy of prenatal care utilization index report since 1998.

## Methods

KDHE, through the Office of Vital Statistics, receives reports of births that occur in Kansas. Reporting of Kansas vital events to KDHE is mandated by law (K.S.A. 65-102, K.S.A. 65-2422b, K.S.A. 65-445). The filing of birth and death records began in 1911. Births to Kansas residents that occurred in other states are received via Interstate Jurisdictional Exchange. All statistics reported are based on births to women who were Kansas residents.

KDHE collects birth certificate information consistent with the 2003 U.S. Standard Certificate. Data collected since 2005 is based on the standard certificate as modified for use in Kansas. BEPHI uses an 18 month reporting period when creating an analytical file. Thus, all births that occur in a given year – reported during that year or the first six months of the year following – are included in the analytical file. Data used in this report are for 2014 births. The analytical file is considered 99.9 percent complete.

All birth records undergo a two-step quality improvement process. In the Office of Vital Statistics, paper certificates are manually reviewed by staff for missing or illogical information. The Vital Statistics Data Analysis section performs computerized checks of the data on an ongoing basis and once prior to closing the analytical file. Corrections or imputation occurs to geographic information, sex of the child, and mother’s age. See the technical notes in the *2014 Kansas Annual Summary of Vital Statistics* for more information [8].

Statistical tabulations were created using SAS version 9.3 software. Poisson Joinpoint regression was used for trend analysis in Figure 5. ArcMap 10.2.1 was used for

mapping in Figure 6. Additionally, in accordance with the National Center for Health Statistics practice, the relative standard error (RSE) was used in this report to evaluate reliability of percentages in Table 7. Values with a RSE of 30 percent or less are considered reliable. Values with a RSE greater than 30 percent but less than 50 percent are considered unreliable, and values with RSE greater than 50 percent have been suppressed [9]. Table 1 of this report was also included in the *Kansas Annual Summary of Vital Statistics, 2014*. The repetition enhances the utility of this report to readers.

Accurate measurement of prenatal care depends upon the accuracy of the index used. Beginning with 1998 data, KDHE transitioned from a modified Kessner Index to the Adequacy of Prenatal Care Utilization (APNCU) Index, often referred to as the Kotelchuck Index [10]. This index characterizes prenatal care (PNC) utilization on two independent and distinctive dimensions: adequacy of initiation of PNC and adequacy of utilization of received services once PNC has begun. The index uses information readily available on the Kansas birth certificate (number of prenatal care visits, date of first prenatal visit, date of last menses, and gestational length of pregnancy). The APNCU index combines these data to characterize adequacy of pregnancy-related health services provided to a woman between conception and delivery. The APNCU Index categorizes care as inadequate, intermediate, adequate, or adequate plus (for more details see the Technical Notes, page 24).

The APNCU Index does not assess the quality of prenatal care that is delivered, only its utilization. Assessing the quality of the services provided would require more information than is provided on the Kansas standard birth certificate.

## Results & Discussion

Only selected findings are discussed in this section. Other tables and figures are provided to meet evaluation requirements by county or other characteristics.

APNCU Index was calculated on 38,678 out of 39,193 or 98.7 percent of Kansas resident live births in 2014 (Figure 1). The number of births that contained the variables necessary to calculate the prenatal care utilization index decreased by 0.5 percent from 2013 (38,488 out of 38,805 or 99.2 percent of live births).

Of the 38,678 Kansas resident births for which prenatal care utilization could be calculated in 2014, 83.0 percent received adequate or better prenatal care, including 30.9 percent with adequate-plus care. This level of adequate or better prenatal care meets the target established by Healthy People 2020 (77.6%). However, 17.0 percent received less than adequate prenatal care, with 11.1 percent having inadequate care and 5.9 percent intermediate care (Table 1).

In 2014, the number of women reporting inadequate prenatal care (4,304) decreased 1.8 percent compared to 2013 (4,383). The percentage of adequate care utilization increased by 1.8 percent (19,788 in 2013 and 20,137 in 2014). Adequate-plus prenatal care utilization (11,746 in 2013 and 11,949 in 2014) increased by 1.7 percent (Table 1).

Among mothers whose prenatal care utilization was classified as inadequate, the vast majority (4,101 or 95.3%) were due to late initiation of care. A minority of women (203 or 4.7%) who initiated their care early (within the first four months of pregnancy) received inadequate care due to an insufficient number of prenatal care visits to their providers (Figure 1).

In 2014, among mothers of infants with low birthweight, 83.0 percent received adequate or better care, while 12.2 percent experienced inadequate care (Table 2, Figure 2).

The percentage of adequate or better prenatal care was highest among White non-Hispanic mothers (87.0%), followed by Asian/Pacific Islander non-Hispanic mothers (81.8%), Black non-Hispanic mothers (72.4%), and Other non-Hispanic mothers (72.2%). Hispanic mothers had the lowest percentage (70.8%) receiving adequate or better prenatal care (Table 3).

Among the population groups, 19.0 percent of Hispanic mothers, 18.6 percent of Black non-Hispanic mothers, and 16.8 percent of Native American non-Hispanic mothers experienced inadequate prenatal care. These percentages were more than twice the 8.3 percent of White non-Hispanic mothers who experienced inadequate care (Table 3, Figure 3).

Private insurance paid the highest percentage to adequate or better prenatal care (91.1%) followed by Champus/Tricare (78.4%). The highest percentage of mothers who received inadequate care was paid by Self Pay at (26.3%), followed by Other Government at 20.0 percent (Table 4). The percentage of mothers who self-paid and experienced inadequate care increased 0.9 percent from 2013 (25.4%) to 2014 (26.3%).

However, among the 4,304 mothers who received inadequate prenatal care, 51.0 percent of those were paid by Medicaid, followed by private insurance (23.8%) and Self Pay (15.4%) (Figure 4).

Among mothers having their first live birth, those with adequate or adequate plus prenatal care (85.4%) was 4.3 percentage points higher than mothers having second or higher live births (81.1%) (Table 5). Similarly, first births with inadequate prenatal care (9.2%) were less than second or higher births with inadequate prenatal care (12.1%).

Inadequate prenatal care was lower across every age group among mothers with first births than among mothers with second or higher live births, except for the 10-14 age group which could not be determined (Table 5).

Inadequate prenatal care was higher among younger mothers (age groups 15-19 and 20-24) than older mothers aged 25 years and above (Table 6).

Trend analysis using Joinpoint regression showed a significant increasing trend in prenatal care that was less than adequate from 1998 to 2007 with an average percentage change (APC) of 1.7,  $p < .05$ . A significant decreasing trend in less than

adequate prenatal care was also shown from 2007 to 2014 with APC = -3.5,  $p < .05$  (Figure 5).

County percentages of mothers who received less than adequate prenatal care in 2014 were compared to the state percentage and tested for statistically significant differences. The percentage of mothers who received less than adequate prenatal care was significantly higher in 10 counties than the state percentage, and percentages for eight counties were significantly lower than the state percentage. Percentages for 41 counties were not statistically significantly different from the state percentage, while 46 counties could not be measured and compared reliably due to the small number of people who received less than adequate prenatal care (Figure 6).

The percentage changes in adequate and better prenatal care and less than adequate prenatal care are shown by individual Kansas counties from 2013 to 2014 in Table 7. There was a small percentage decrease in less than adequate care for the state of Kansas (5.0%) from 2013 to 2014. There was a very small increase in adequate and better prenatal care (1.3%).

The percentage of birth mothers receiving less than adequate prenatal care increased in 33 counties from 2013 to 2014. Gray county had the largest increase in less than adequate prenatal care (71.7% increase) from 2013 to 2014, followed by Stevens (47.8% increase) and Anderson (26.5% increase) counties.

The percentage of birth mothers receiving less than adequate care decreased in 58 counties from 2013 to 2014. Marshall (61.1%), Pratt (51.3%) and Osage (39.2%) counties had the largest decreases in less than adequate prenatal care. In 39 counties the percent changes in less than adequate prenatal care were not reliable (RSE>30), and in 14 counties the counts were too small to calculate change.

From 2013 to 2014 the percentage of birth mothers receiving adequate and better prenatal care increased in 65 counties, while 40 counties experienced decreases. Morton County had the largest decrease in adequate and better prenatal care (20.9%) from 2013 to 2014. In 12 counties the percentage of change in adequate and better prenatal care were not reliable measures.

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## **Detailed Tables, Figures, and Appendix**

### ***Tables***

1. County of Kansas Resident Live Births by Adequacy of Prenatal Care Utilization (APNCU) Index, Kansas, 2014.
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3. Number and Percent of Live Births by Populations Groups by Adequacy of Prenatal Care Utilization (APNCU) Index, Kansas, 2014.
4. Number and Percent of Live Births by Selected Payor Groups by Adequacy of Prenatal Care Utilization (APNCU) Index, Kansas, 2014.
5. Number and Percent of Live Births by Birth Order and Age Group of the Mother by Adequacy of Prenatal Care Utilization (APNCU) Index, Kansas, 2014.
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1. Number of Live Births by Adequacy of Prenatal Care Utilization (APCNU) among Kansas Residents, 2014.
2. Percent of Adequacy of Prenatal Care Utilization (APCNU) by Birth Weight, Kansas, 2014.
3. Percent of Adequacy of Prenatal Care Utilization (APCNU) by Population Group, Kansas, 2014.
4. Percent of Adequacy of Prenatal Care Utilization (APCNU) by Selected Delivery Payor Groups, Kansas, 2014.
5. Trends in Prenatal Care Where Care Was Less Than Adequate, Kansas, 1998-2014
6. Percentage of Live Births having Less Than Adequate Prenatal Care by County, Kansas, 2014.

### ***Technical Notes***

### ***Appendix***

1. Certificate of Live Birth

Table 1. County of Kansas Resident Live Births by Adequacy of Prenatal Care Utilization (APNCU) Index  
 Kansas, 2014

County of Residence	Live Births*	APNCU Category†								n.s.‡
		Adequate Plus		Adequate		Intermediate		Inadequate		
		Number	Percent	Number	Percent	Number	Percent	Number	Percent	
Kansas	39,193	11,949	30.9	20,137	52.1	2,288	5.9	4,304	11.1	515
Allen	157	42	26.9	82	52.6	16	10.3	16	10.3	1
Anderson	104	30	28.8	53	51.0	8	7.7	13	12.5	0
Atchison	205	29	14.1	130	63.4	19	9.3	27	13.2	0
Barber	63	15	24.2	35	56.5	1	1.6	11	17.7	1
Barton	340	141	41.8	149	44.2	14	4.2	33	9.8	3
Bourbon	228	116	51.1	70	30.8	6	2.6	35	15.4	1
Brown	119	32	27.4	53	45.3	14	12.0	18	15.4	2
Butler	749	176	24.1	491	67.2	15	2.1	49	6.7	18
Chase	30	13	43.3	14	46.7	2	6.7	1	3.3	0
Chautauqua	32	11	34.4	13	40.6	0	0.0	8	25.0	0
Cherokee	239	70	29.3	112	46.9	24	10.0	33	13.8	0
Cheyenne	30	5	16.7	13	43.3	5	16.7	7	23.3	0
Clark	18	4	22.2	9	50.0	2	11.1	3	16.7	0
Clay	108	38	35.5	47	43.9	5	4.7	17	15.9	1
Cloud	102	21	20.8	60	59.4	7	6.9	13	12.9	1
Coffey	87	21	24.4	51	59.3	3	3.5	11	12.8	1
Comanche	24	6	25.0	15	62.5	1	4.2	2	8.3	0
Cowley	459	213	47.1	158	35.0	15	3.3	66	14.6	7
Crawford	560	175	31.4	253	45.3	56	10.0	74	13.3	2
Decatur	36	7	20.0	18	51.4	8	22.9	2	5.7	1
Dickinson	222	70	31.7	115	52.0	16	7.2	20	9.0	1
Doniphan	63	20	33.3	30	50.0	5	8.3	5	8.3	3
Douglas	1,216	510	42.1	547	45.1	30	2.5	125	10.3	4
Edwards	39	15	38.5	17	43.6	2	5.1	5	12.8	0
Elk	33	12	37.5	13	40.6	1	3.1	6	18.8	1
Ellis	336	85	25.5	194	58.3	28	8.4	26	7.8	3
Ellsworth	55	14	25.5	30	54.5	8	14.5	3	5.5	0
Finney	690	205	29.8	277	40.3	50	7.3	156	22.7	2
Ford	663	160	24.4	277	42.2	86	13.1	133	20.3	7
Franklin	313	102	33.0	156	50.5	15	4.9	36	11.7	4
Geary	1,052	204	19.6	560	53.9	118	11.4	157	15.1	13
Gove	42	13	31.0	20	47.6	4	9.5	5	11.9	0
Graham	24	5	20.8	12	50.0	5	20.8	2	8.3	0
Grant	132	34	26.4	62	48.1	6	4.7	27	20.9	3
Gray	81	21	26.3	39	48.8	11	13.8	9	11.3	1
Greeley	19	6	31.6	4	21.1	3	15.8	6	31.6	0
Greenwood	66	20	30.8	35	53.8	0	0.0	10	15.4	1
Hamilton	43	18	41.9	15	34.9	4	9.3	6	14.0	0
Harper	86	11	13.1	59	70.2	3	3.6	11	13.1	2
Harvey	414	210	51.5	149	36.5	12	2.9	37	9.1	6
Haskell	49	14	28.6	23	46.9	4	8.2	8	16.3	0
Hodgeman	25	4	16.0	14	56.0	4	16.0	3	12.0	0
Jackson	171	44	25.7	86	50.3	10	5.8	31	18.1	0
Jefferson	177	79	44.6	87	49.2	2	1.1	9	5.1	0
Jewell	33	13	39.4	14	42.4	5	15.2	1	3.0	0
Johnson	7,394	2,673	36.5	3,918	53.5	374	5.1	357	4.9	72
Kearny	62	18	29.0	29	46.8	5	8.1	10	16.1	0
Kingman	73	20	27.4	42	57.5	2	2.7	9	12.3	0
Kiowa	28	4	14.3	18	64.3	2	7.1	4	14.3	0
Labette	264	92	35.2	118	45.2	7	2.7	44	16.9	3
Lane	19	3	15.8	11	57.9	4	21.1	1	5.3	0
Leavenworth	987	261	26.7	556	56.9	76	7.8	85	8.7	9
Lincoln	34	9	26.5	17	50.0	5	14.7	3	8.8	0
Linn	111	38	34.5	55	50.0	7	6.4	10	9.1	1
Logan	37	8	21.6	24	64.9	3	8.1	2	5.4	0

County of Residence	Live Births*	APNCU Category†								n.s.‡
		Adequate Plus		Adequate		Intermediate		Inadequate		
		Number	Percent	Number	Percent	Number	Percent	Number	Percent	
Lyon	406	219	54.6	113	28.2	21	5.2	48	12.0	5
McPherson	343	157	46.0	150	44.0	8	2.3	26	7.6	2
Marion	130	77	59.7	42	32.6	2	1.6	8	6.2	1
Marshall	123	37	30.3	69	56.6	9	7.4	7	5.7	1
Meade	56	10	17.9	34	60.7	5	8.9	7	12.5	0
Miami	410	134	32.8	235	57.5	19	4.6	21	5.1	1
Mitchell	92	24	26.1	52	56.5	7	7.6	9	9.8	0
Montgomery	453	188	41.9	166	37.0	23	5.1	72	16.0	4
Morris	62	18	29.5	34	55.7	2	3.3	7	11.5	1
Morton	40	7	17.5	22	55.0	2	5.0	9	22.5	0
Nemaha	157	45	28.7	88	56.1	9	5.7	15	9.6	0
Neosho	218	85	39.0	88	40.4	12	5.5	33	15.1	0
Ness	38	6	16.2	24	64.9	4	10.8	3	8.1	1
Norton	57	8	14.0	25	43.9	12	21.1	12	21.1	0
Osage	174	73	42.0	82	47.1	6	3.4	13	7.5	0
Osborne	46	14	30.4	24	52.2	4	8.7	4	8.7	0
Ottawa	50	12	24.5	29	59.2	3	6.1	5	10.2	1
Pawnee	64	17	26.6	28	43.8	6	9.4	13	20.3	0
Phillips	73	15	20.5	38	52.1	14	19.2	6	8.2	0
Pottawatomie	345	98	28.5	199	57.8	10	2.9	37	10.8	1
Pratt	147	53	36.3	79	54.1	2	1.4	12	8.2	1
Rawlins	34	9	26.5	19	55.9	2	5.9	4	11.8	0
Reno	737	290	39.9	309	42.5	36	5.0	92	12.7	10
Republic	52	13	25.0	32	61.5	3	5.8	4	7.7	0
Rice	125	38	31.7	56	46.7	7	5.8	19	15.8	5
Riley	1,073	253	23.7	583	54.6	88	8.2	144	13.5	5
Rooks	59	15	25.4	38	64.4	4	6.8	2	3.4	0
Rush	21	8	38.1	12	57.1	1	4.8	0	0.0	0
Russell	82	19	23.2	50	61.0	4	4.9	9	11.0	0
Saline	752	165	22.0	434	57.9	59	7.9	91	12.1	3
Scott	73	22	30.6	35	48.6	6	8.3	9	12.5	1
Sedgwick	7,358	1,484	20.8	4,740	66.4	202	2.8	717	10.0	215
Seward	444	100	22.9	182	41.7	30	6.9	124	28.4	8
Shawnee	2,340	989	42.7	914	39.5	105	4.5	307	13.3	25
Sheridan	24	4	16.7	13	54.2	3	12.5	4	16.7	0
Sherman	82	28	35.4	33	41.8	8	10.1	10	12.7	3
Smith	28	11	39.3	9	32.1	4	14.3	4	14.3	0
Stafford	54	15	28.3	29	54.7	3	5.7	6	11.3	1
Stanton	26	7	26.9	14	53.8	2	7.7	3	11.5	0
Stevens	67	12	17.9	32	47.8	5	7.5	18	26.9	0
Sumner	252	77	31.4	136	55.5	7	2.9	25	10.2	7
Thomas	138	50	36.2	63	45.7	12	8.7	13	9.4	0
Trego	36	7	19.4	22	61.1	4	11.1	3	8.3	0
Wabaunsee	70	20	28.6	38	54.3	6	8.6	6	8.6	0
Wallace	16	1	6.3	10	62.5	2	12.5	3	18.8	0
Washington	66	23	34.8	33	50.0	4	6.1	6	9.1	0
Wichita	28	6	21.4	14	50.0	2	7.1	6	21.4	0
Wilson	109	45	42.1	45	42.1	3	2.8	14	13.1	2
Woodson	35	8	22.9	19	54.3	2	5.7	6	17.1	0
Wyandotte	2,785	753	27.4	1,153	41.9	356	13.0	487	17.7	36

\* Total number of live births in 2014.

† Includes only Kansas resident live births for which number of prenatal visits, date of first prenatal visit and date of last menses were reported on the birth certificate.

‡ Not Stated. Number of live births with insufficient information to calculate APNCU. This number is subtracted from total live births for percent calculation.

Source: Bureau of Epidemiology and Public Health Informatics  
Kansas Department of Health and Environment

Table 2. Number and Percent of Live Births by Birth Weight by Adequacy of Prenatal Care Utilization (APNCU) Index Kansas, 2014

Birth Weight (Grams)	Live Births*	APNCU Category †								n.s.‡
		Adequate Plus		Adequate		Intermediate		Inadequate		
		Number	Percent	Number	Percent	Number	Percent	Number	Percent	
Total	39,193	11,949	30.9	20,137	52.1	2,288	5.9	4,304	11.1	515
Under 2,500 (Low)	2,797	1,459	54.0	780	28.9	132	4.9	329	12.2	97
2,500-4,499 (Normal)	35,933	10,365	29.2	19,096	53.8	2,130	6.0	3,927	11.1	415
4,500 and Over (High)	461	125	27.3	260	56.8	26	5.7	47	10.3	3
n.s.	2	0	n/a	1	n/a	0	n/a	1	n/a	0

\* Total number of live births in 2014.

† Includes only Kansas resident live births for which number of prenatal visits, date of first prenatal visit and date of last menses were reported on the birth certificate.

‡ Not Stated. Number of live births with insufficient information to calculate APNCU. This number is subtracted from total live births for percent calculation.

n/a: Not applicable; the number is too small to calculate percent reliably and is suppressed.

Source: Bureau of Epidemiology and Public Health Informatics  
Kansas Department of Health and Environment

Table 3. Number and Percent of Live Births by Population Groups  
by Adequacy of Prenatal Care Utilization (APNCU) Index  
Kansas, 2014

Population Groups	Live Births*	APNCU Category †								n.s.‡
		Adequate Plus		Adequate		Intermediate		Inadequate		
		Number	Percent	Number	Percent	Number	Percent	Number	Percent	
Total	39,193	11,949	30.9	20,137	52.1	2,288	5.9	4,304	11.1	515
White Non-Hispanic	28,009	9,067	32.7	15,044	54.3	1,268	4.6	2,310	8.3	320
Black Non-Hispanic	2,629	723	28.0	1,146	44.4	232	9.0	480	18.6	48
Native American Non-Hispanic	237	69	29.7	106	45.7	18	7.8	39	16.8	5
Asian/Pacific Islander Non-Hispanic	1,148	330	29.2	594	52.6	51	4.5	154	13.6	19
Other Non-Hispanic§	1,017	283	28.3	439	43.9	102	10.2	177	17.7	16
Hispanic Any Race	6,129	1,470	24.4	2,796	46.4	616	10.2	1,142	19.0	105
n.s.	24	7	n/a	12	n/a	1	n/a	2	n/a	2

\* Total number of live births in 2014.

† Includes only Kansas resident live births for which number of prenatal visits, date of first prenatal visit and date of last menses were reported on the birth certificate.

‡ Not Stated. Number of live births with insufficient information to calculate APNCU. This number is subtracted from total live births for percent calculation.

§ Includes multiple races

n/a: Not applicable; the number is too small to calculate percent reliably and is suppressed.

Source: Bureau of Epidemiology and Public Health Informatics

Kansas Department of Health and Environment

Table 4. Number and Percent of Live Births by Selected Payor Groups  
by Adequacy of Prenatal Care Utilization (APNCU) Index  
Kansas, 2014

Pay Source	Live Births*	APNCU Category †								n.s. ‡
		Adequate Plus		Adequate		Intermediate		Inadequate		
		Number	Percent	Number	Percent	Number	Percent	Number	Percent	
Total	39,193	11,949	30.9	20,137	52.1	2,288	5.9	4,304	11.1	515
Medicaid	12,775	3,781	30.0	5,818	46.2	811	6.4	2,196	17.4	169
Private Insurance	21,050	7,214	34.6	11,768	56.5	815	3.9	1,024	4.9	229
Self Pay	2,588	428	17.0	1,039	41.2	390	15.5	664	26.3	67
Indian Health Service	26	7	26.9	7	26.9	5	19.2	7	26.9	0
Champus/Tricare	2,096	390	18.8	1,237	59.6	202	9.7	245	11.8	22
Other Government	284	61	21.8	136	48.6	27	9.6	56	20.0	4
Other/Unknown	374	68	19.4	132	37.7	38	10.9	112	32.0	24

\* Total number of live births in 2014.

† Includes only Kansas resident live births for which number of prenatal visits, date of first prenatal visit and date of last menses were reported on the birth certificate.

‡ Not Stated. Number of live births with insufficient information to calculate APNCU. This number is subtracted from total live births for percent calculation.

n/a: Not applicable; the number is too small to calculate percent reliably and is suppressed.

Source: Bureau of Epidemiology and Public Health Informatics

Kansas Department of Health and Environment

Table 5. Number and Percent of Live Births by Birth Order and Age Group of the Mother by Adequacy of Prenatal Care Utilization (APNCU) Index Kansas, 2014

First Order Live Births	Live Births*	APNCU Category †								n.s. ‡
		Adequate Plus		Adequate		Intermediate		Inadequate		
		Number	Percent	Number	Percent	Number	Percent	Number	Percent	
Total	14,015	4,476	32.3	7,354	53.1	747	5.4	1,278	9.2	160
Age Groups										
10-14	23	5	21.7	5	21.7	4	17.4	9	39.1	0
15-19	2,199	617	28.5	1,037	47.9	141	6.5	369	17.1	35
20-24	4,524	1,357	30.3	2,300	51.4	290	6.5	525	11.7	52
25-29	4,194	1,377	33.2	2,347	56.5	202	4.9	225	5.4	43
30-34	2,363	879	37.5	1,274	54.3	85	3.6	107	4.6	18
35 and Over	711	241	34.5	391	55.9	25	3.6	42	6.0	12
Second and Higher Order Live Births	Live Births*	Adequate Plus		Adequate		Intermediate		Inadequate		n.s. ‡
		Number	Percent	Number	Percent	Number	Percent	Number	Percent	
Total	25,178	7,473	29.9	12,783	51.2	1,541	6.2	3,026	12.1	190
Age Groups										
10-14	1	0	n/a	0	n/a	0	n/a	0	n/a	1
15-19	473	106	22.8	204	43.9	37	8.0	118	25.4	8
20-24	4,819	1,291	27.0	2,198	46.0	366	7.7	890	18.6	39
25-29	8,108	2,302	28.6	4,242	52.7	522	6.5	929	11.5	52
30-34	7,928	2,502	31.8	4,257	54.1	373	4.7	696	8.8	56
35 and Over	3,849	1,272	33.4	1,882	49.3	243	6.4	393	10.3	35

\* Total number of live births in 2014.

† Includes only Kansas resident live births for which number of prenatal visits, date of first prenatal visit and date of last menses were reported on the birth certificate.

‡ Not Stated. Number of live births with insufficient information to calculate APNCU. This number is subtracted from total live births for percent calculation.

n/a: Not applicable; the number is too small to calculate percent reliably and is suppressed.

Source: Bureau of Epidemiology and Public Health Informatics

Kansas Department of Health and Environment

Table 6. Number and Percent of Live Births by Age Group of the Mother  
by Adequacy of Prenatal Care Utilization (APNCU) Index  
Kansas, 2014

Age Group	Live Births*	APNCU Category †								n.s. ‡
		Adequate Plus		Adequate		Intermediate		Inadequate		
		Number	Percent	Number	Percent	Number	Percent	Number	Percent	
Total	39,193	11,949	30.9	20,137	52.1	2,288	5.9	4,304	11.1	515
Age Groups										
10-14	24	5	21.7	5	21.7	4	17.4	9	39.1	1
15-19	2,672	723	27.5	1,241	47.2	178	6.8	487	18.5	43
20-24	9,343	2,648	28.7	4,498	48.8	656	7.1	1,415	15.4	126
25-29	12,302	3,679	30.3	6,589	54.2	724	6.0	1,154	9.5	156
30-34	10,291	3,381	33.2	5,531	54.4	458	4.5	803	7.9	118
35 and Over	4,560	1,513	33.7	2,273	50.6	268	6.0	435	9.7	71
n.s.	1	0	n/a	0	n/a	0	n/a	1	n/a	0

\* Total number of live births in 2014.

† Includes only Kansas resident live births for which number of prenatal visits, date of first prenatal visit and date of last menses were reported on the birth certificate.

‡ Not Stated. Number of live births with insufficient information to calculate APNCU. This number is subtracted from total

n/a: Not applicable; the number is too small to calculate the percentage reliably and is suppressed.

Source: Bureau of Epidemiology and Public Health Informatics

Kansas Department of Health and Environment

Table 7. Number and Percent of Live Births by Percentages of Adequate or Better and Less Than Adequate\* Prenatal Care by County of Resident, Kansas 2013-2014

County of Residence	Adequate or Better†			Less than Adequate†		
	2013	2014	2013-2014	2013	2014	2013-2014
	Percent	Percent	% Change	Percent	Percent	% Change
Kansas	81.9	83.0	1.3	17.9	17.0	-5.0
Allen	79.6	79.5	-0.1	20.3	20.5	1.1
Anderson	84.0	79.8	-5.0	16.0	20.2	26.5
Atchison	75.7	77.6	2.5	24.1	22.4	-6.8
Barber	83.3	80.6	-3.2	16.7 ‡	19.4 ‡	16.1 ‡
Barton	79.7	86.1	8.0	20.3	13.9	-31.2
Bourbon	77.8	81.9	5.3	22.0	18.1	-18.0
Brown	67.9	72.6	7.0	31.7	27.4	-13.6
Butler	89.1	91.2	2.4	10.8	8.8	-18.8
Chase	88.0	90.0	2.3	n/a	n/a	n/a
Chautauqua	82.4	75.0	-8.9	17.6	25.0 ‡	41.7 ‡
Cherokee	69.6	76.2	9.4	30.1	23.8	-20.9
Cheyenne	63.6 ‡	60.0	-5.7 ‡	29.6	40.0 ‡	35.0 ‡
Clark	80.0 ‡	72.2 ‡	-9.7 ‡	n/a	n/a	n/a
Clay	92.0	79.4	-13.7	8.0 ‡	20.6	158.2 ‡
Cloud	79.6	80.2	0.7	20.4	19.8	-2.9
Coffey	88.2	83.7	-5.0	11.7 ‡	16.3	39.1 ‡
Comanche	85.7 ‡	87.5	2.1 ‡	n/a	n/a	n/a
Cowley	79.6	82.1	3.2	20.2	17.9	-11.2
Crawford	66.7	76.8	15.1	32.9	23.2	-29.7
Decatur	87.9	71.4	-18.7	n/a	28.6 ‡	n/a
Dickinson	80.7	83.7	3.7	19.3	16.3	-15.4
Doniphan	75.0	83.3	11.1	24.7	16.7 ‡	-32.5 ‡
Douglas	85.7	87.2	1.7	14.3	12.8	-10.4
Edwards	84.4	82.1	-2.8	15.6 ‡	17.9 ‡	14.9 ‡
Elk	77.8	78.1	0.4	22.2 ‡	21.9 ‡	-1.6 ‡
Ellis	84.4	83.8	-0.8	15.6	16.2	4.2
Ellsworth	82.7	80.0	-3.3	17.3 ‡	20.0 ‡	15.6 ‡
Finney	64.7	70.1	8.2	35.2	29.9	-15.0
Ford	67.8	66.6	-1.7	32.0	33.4	4.3
Franklin	83.7	83.5	-0.3	16.3	16.5	1.5
Geary	76.4	73.5	-3.7	23.5	26.5	12.5
Gove	73.3	78.6	7.1	26.7 ‡	21.4 ‡	-19.6 ‡
Graham	75.0 ‡	70.8 ‡	-5.6 ‡	25.0 ‡	29.2 ‡	16.7 ‡
Grant	60.3	74.4	23.4	39.0	25.6	-34.4
Gray	85.1	75.0	-11.9	14.6	25.0	71.7
Greeley	52.0 ‡	52.6 ‡	1.2 ‡	48.0 ‡	47.4 ‡	-1.3 ‡
Greenwood	72.9	84.6	16.1	25.8	15.4 ‡	-40.4 ‡
Hamilton	70.3	76.7	9.2	29.7 ‡	23.3 ‡	-21.8 ‡
Harper	88.8	83.3	-6.1	10.8 ‡	16.7	53.7 ‡
Harvey	87.4	88.0	0.7	12.6	12.0	-4.6
Haskell	65.4	75.5	15.5	34.6	24.5 ‡	-29.3 ‡
Hodgeman	71.4 ‡	72.0 ‡	0.8 ‡	28.6 ‡	28.0 ‡	-2.0 ‡
Jackson	75.5	76.0	0.7	24.4	24.0	-1.6
Jefferson	85.6	93.8	9.5	14.4	6.2 ‡	-56.7 ‡
Jewell	81.5	81.8	0.4	18.5 ‡	18.2 ‡	-1.8 ‡
Johnson	87.8	90.0	2.6	12.1	10.0	-17.5
Kearny	74.6	75.8	1.6	25.4	24.2	-4.7
Kingman	81.1	84.9	4.7	18.9	15.1 ‡	-20.2 ‡
Kiowa	89.7	78.6	-12.4	n/a	21.4 ‡	n/a
Labette	75.4	80.5	6.7	24.4	19.5	-20.1
Lane	71.4 ‡	73.7 ‡	3.2 ‡	26.1 ‡	n/a	n/a
Leavenworth	82.9	83.5	0.8	17.0	16.5	-3.0
Lincoln	92.0	76.5	-16.9	n/a	23.5 ‡	n/a
Linn	91.2	84.5	-7.3	8.8 ‡	15.5	75.8 ‡
Logan	81.8	86.5	5.7	18.2 ‡	n/a	n/a

County of Residence	Adequate or Better†			Less than Adequate‡		
	2013	2014	2013-2014	2013	2014	2013-2014
	Percent	Percent	% Change	Percent	Percent	% Change
Lyon	80.8	82.8	2.4	18.9	17.2	-8.7
McPherson	90.0	92.2	2.5	10.0	7.8 ‡	-22.5 ‡
Marion	89.9	86.9	-3.4	10.1 ‡	13.1 ‡	30.0 ‡
Marshall	74.2	90.0	21.3	25.6	10.0	-61.1
Meade	71.0	78.6	10.6	29.0	21.4 ‡	-26.1 ‡
Miami	89.9	90.2	0.4	10.1	9.8	-3.2
Mitchell	80.6	82.6	2.5	19.4	17.4	-10.6
Montgomery	78.1	78.8	1.0	21.8	21.2	-2.9
Morris	84.7	85.2	0.6	15.3 ‡	14.8 ‡	-3.3 ‡
Morton	91.7	72.5	-20.9	n/a	27.5 ‡	n/a
Nemaha	87.0	84.7	-2.6	13.0	15.3	17.7
Neosho	73.8	79.4	7.6	26.0	20.6	-20.5
Ness	84.8	81.1	-4.4	15.2 ‡	18.9 ‡	24.9 ‡
Norton	50.0	57.9	15.8	49.0	42.1	-14.1
Osage	81.6	89.1	9.1	18.0	10.9	-39.3
Osborne	88.0	82.6	-6.1	12.0 ‡	17.4 ‡	44.9 ‡
Ottawa	81.0	83.7	3.3	19.0 ‡	16.3 ‡	-13.9 ‡
Pawnee	65.1	70.3	8.0	34.9	29.7	-15.0
Phillips	60.0	72.6	21.0	40.0	27.4	-31.5
Pottawatomie	83.5	86.3	3.4	16.4	13.7	-16.8
Pratt	80.3	90.4	12.6	19.7	9.6	-51.3
Rawlins	81.8 ‡	82.4	0.7 ‡	n/a	17.6 ‡	n/a
Reno	83.2	82.4	-1.0	16.7	17.6	5.5
Republic	83.0	86.5	4.3	16.3 ‡	13.5 ‡	-17.5 ‡
Rice	79.5	78.3	-1.5	20.3	21.7	6.7
Riley	82.0	78.3	-4.6	17.9	21.7	21.2
Rooks	71.7	89.8	25.3	28.3	10.2 ‡	-64.1 ‡
Rush	66.7	95.2 ‡	42.9 ‡	33.3 ‡	n/a	n/a
Russell	84.0	84.1	0.1	16.0	15.9	-0.7
Saline	81.3	80.0	-1.6	18.7	20.0	7.4
Scott	78.7	79.2	0.6	21.3 ‡	20.8	-2.2 ‡
Sedgwick	86.1	87.1	1.2	13.7	12.9	-6.4
Seward	66.8	64.7	-3.2	33.1	35.3	6.7
Shawnee	83.9	82.2	-2.0	16.0	17.8	11.3
Sheridan	67.7	70.8 ‡	4.6 ‡	32.3 ‡	29.2 ‡	-9.6 ‡
Sherman	81.3	77.2	-5.0	18.8	22.8	21.5
Smith	82.1	71.4	-13.0	17.9 ‡	28.6 ‡	60.0 ‡
Stafford	85.7	83.0	-3.1	14.3 ‡	17.0 ‡	18.9 ‡
Stanton	73.7	80.8	9.6	26.3 ‡	n/a	n/a
Stevens	76.8	65.7	-14.5	23.2	34.3	47.8
Sumner	82.2	86.9	5.7	17.6	13.1	-26.0
Thomas	84.7	81.9	-3.3	15.3	18.1	18.4
Trego	90.9	80.6	-11.4	n/a	19.4 ‡	n/a
Wabaunsee	82.5	82.9	0.5	17.3	17.1 ‡	-1.2 ‡
Wallace	73.9 ‡	68.8 ‡	-7.0 ‡	26.1 ‡	n/a	n/a ‡
Washington	84.8	84.8	0.0	15.2	15.2 ‡	-0.3 ‡
Wichita	54.2 ‡	71.4	31.9 ‡	44.0 ‡	28.6 ‡	-35.1 ‡
Wilson	81.5	84.1	3.2	18.3	15.9	-13.4
Woodson	79.3	77.1	-2.7	20.7 ‡	22.9 ‡	10.5 ‡
Wyandotte	68.7	69.3	0.9	30.8	30.7	-0.6

\* Adequate and Better = Adequate + Adequate Plus Care; Less than Adequate= Intermediate + Inadequate Care Categories

† Includes only Kansas resident live births for which number of prenatal visits, date of first prenatal visit and date of last menses were reported on the birth certificate

‡ A percentage in the calculation of the change in percentage has a relative standard error greater than 30, and should be used with caution since it does not meet the standard of reliability.

n/a: Not applicable; the number is too small to calculate the percentage reliably and is suppressed.

Source: Bureau of Epidemiology and Public Health Informatics  
Kansas Department of Health and Environment

Figure 1. Number of Live Births by Adequacy of Prenatal Care Utilization (APNCU) among Kansas Residents\*, 2014

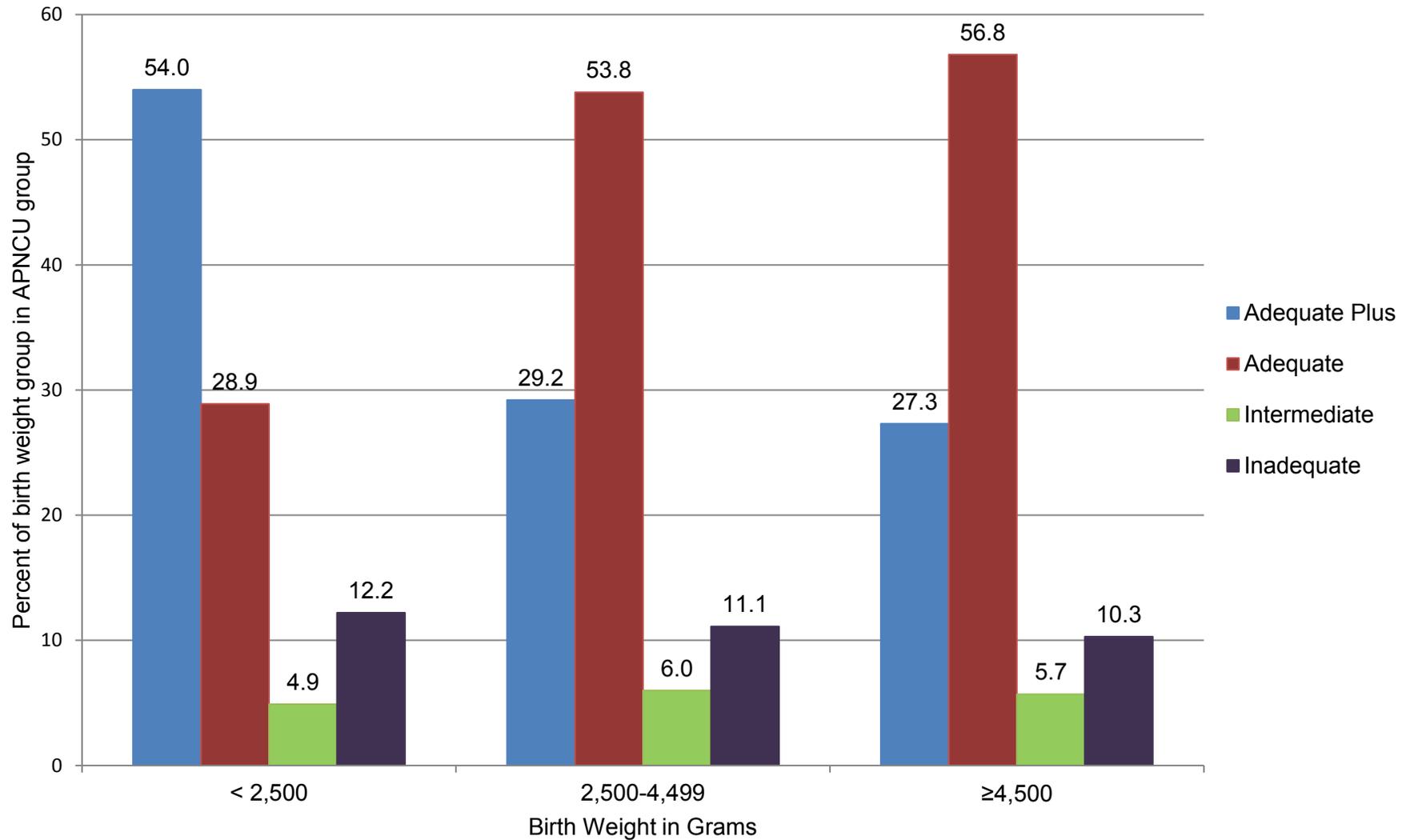
		Adequacy of Received Services				Total
		Under 50%	50 – 79%	80 – 109%	110+%	
Adequacy of Care Initiation	7 – 9 Month	368	92	256	799	1,515
	5 – 6 Month	58	291	609	1,628	2,586
	3 – 4 Month	121	1,263	9,752	8,094	19,230
	1 – 2 Month	82	1,025	10,385	3,855	15,347
Total		629	2,671	21,002	14,376	38,678

Summary Index  
 Inadequate  
 Intermediate  
 Adequate  
 Adequate Plus

\* Includes 98.7 percent (38,678) of 39,193 total Kansas resident births for which the number of prenatal visits, date of first prenatal visit, and the date of last menses were reported on the birth certificate.

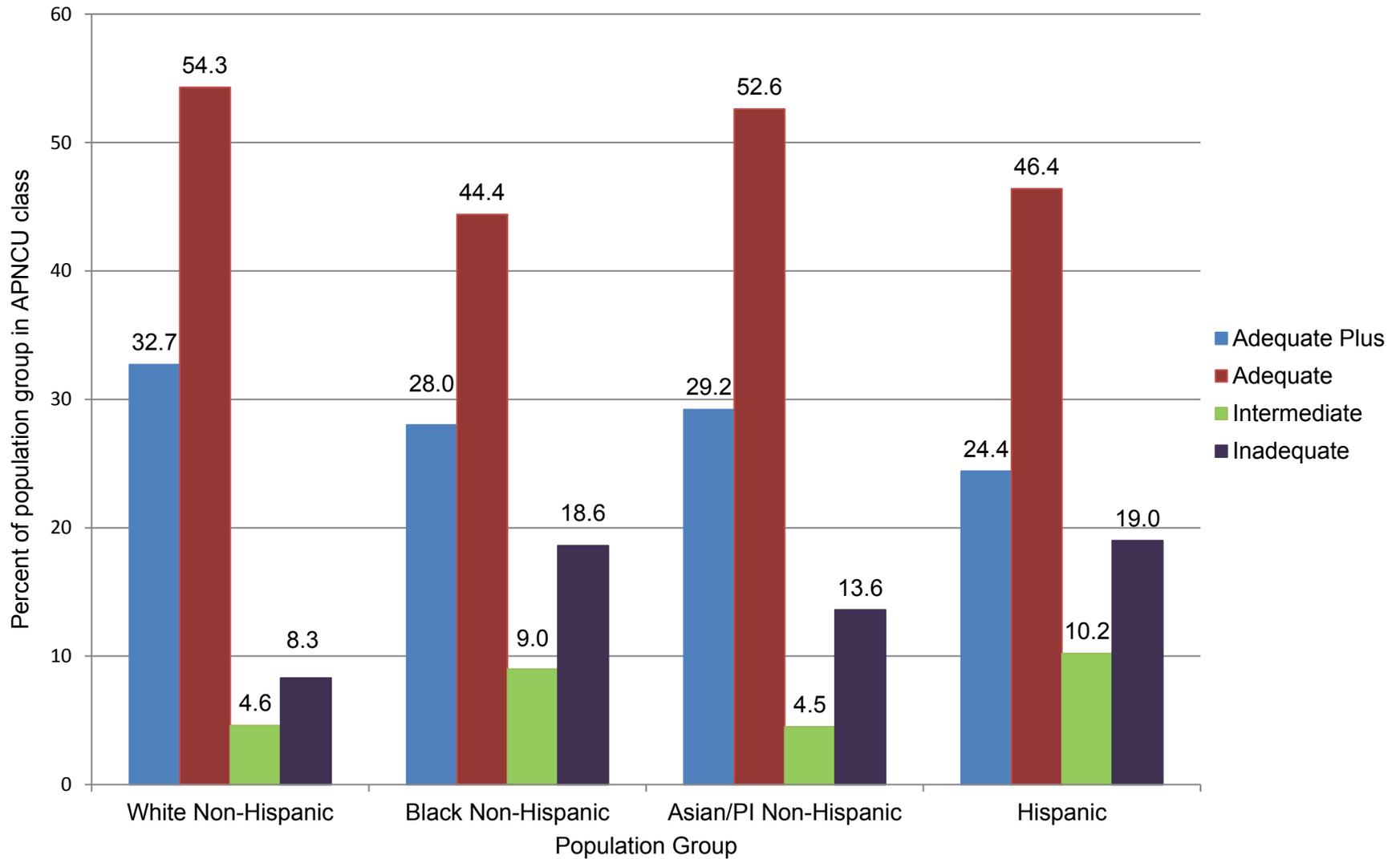
Source: Bureau of Epidemiology and Public Health Informatics, Kansas Department of Health and Environment

Figure 2. Percent of Adequacy of Prenatal Care Utilization (APNCU) by Birth Weight, Kansas, 2014



Residence Data  
 Source: Bureau of Epidemiology and Public Health Informatics  
 Kansas Department of Health and Environment

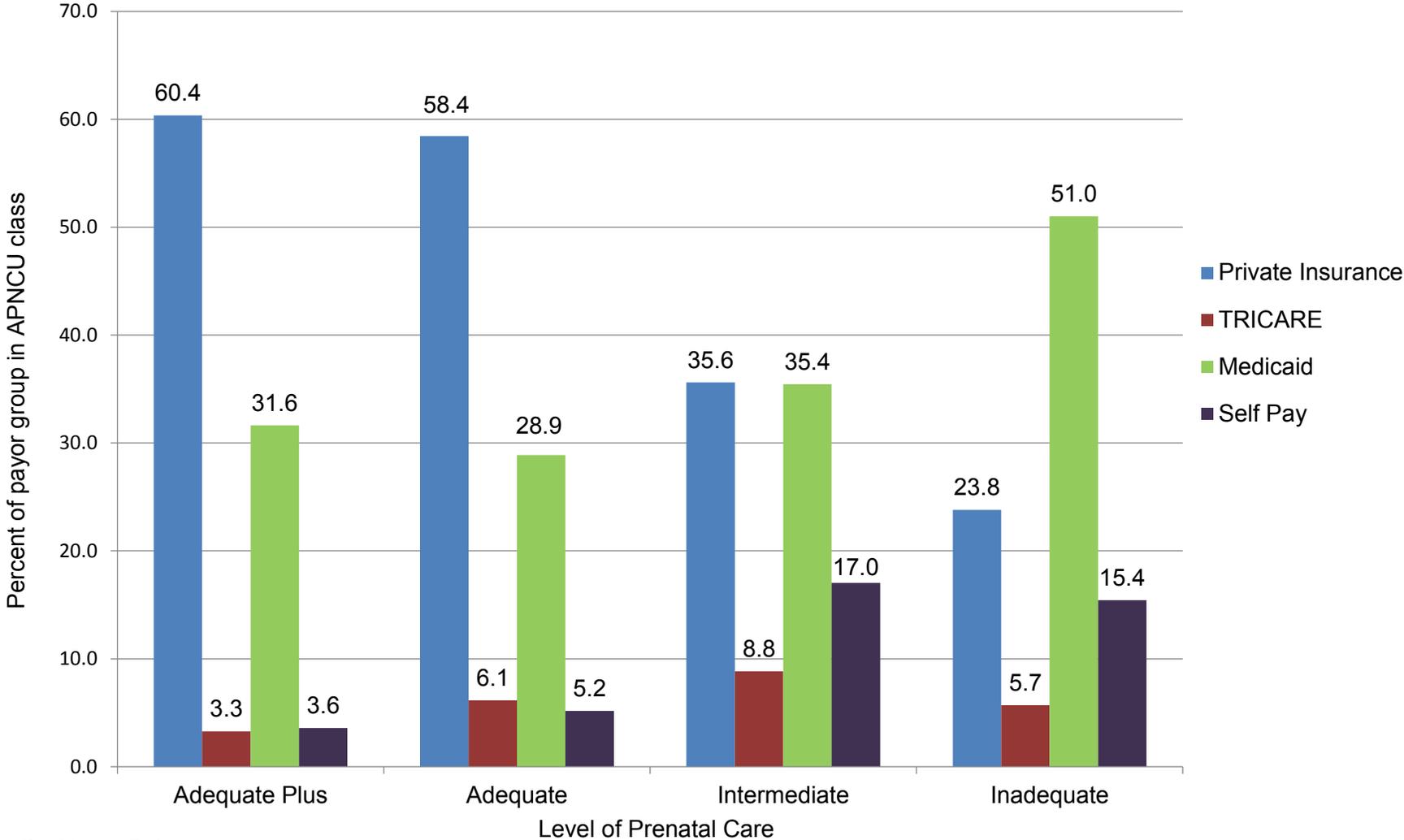
Figure 3. Percent of Adequacy of Prenatal Care Utilization (APNCU) by Population Group, Kansas, 2014



Residence Data

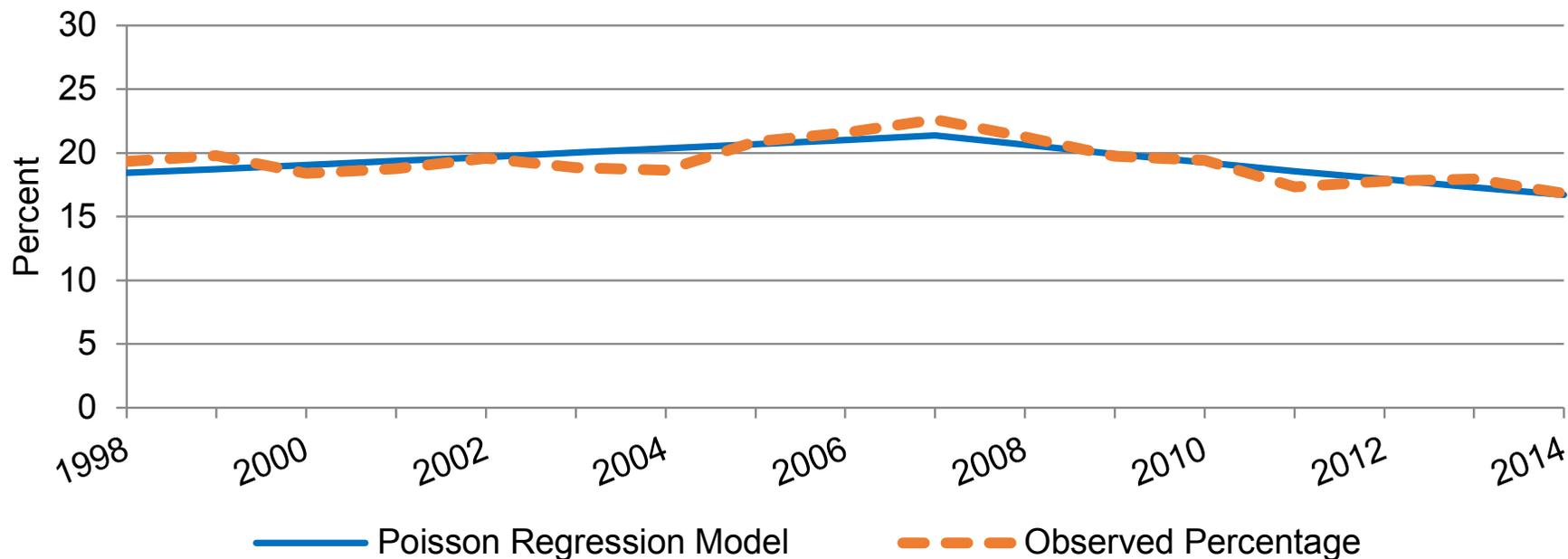
Source: Bureau of Epidemiology and Public Health Informatics  
 Kansas Department of Health and Environment

Figure 4. Percent of Adequacy of Prenatal Care Utilization (APNCU) by Selected Delivery Payor Groups, Kansas, 2014



Residence Data  
 Source: Bureau of Epidemiology and Public Health Informatics  
 Kansas Department of Health and Environment

Figure 5. Trends in Prenatal Care Where Care Was Less Than Adequate\*, Kansas, 1998-2014

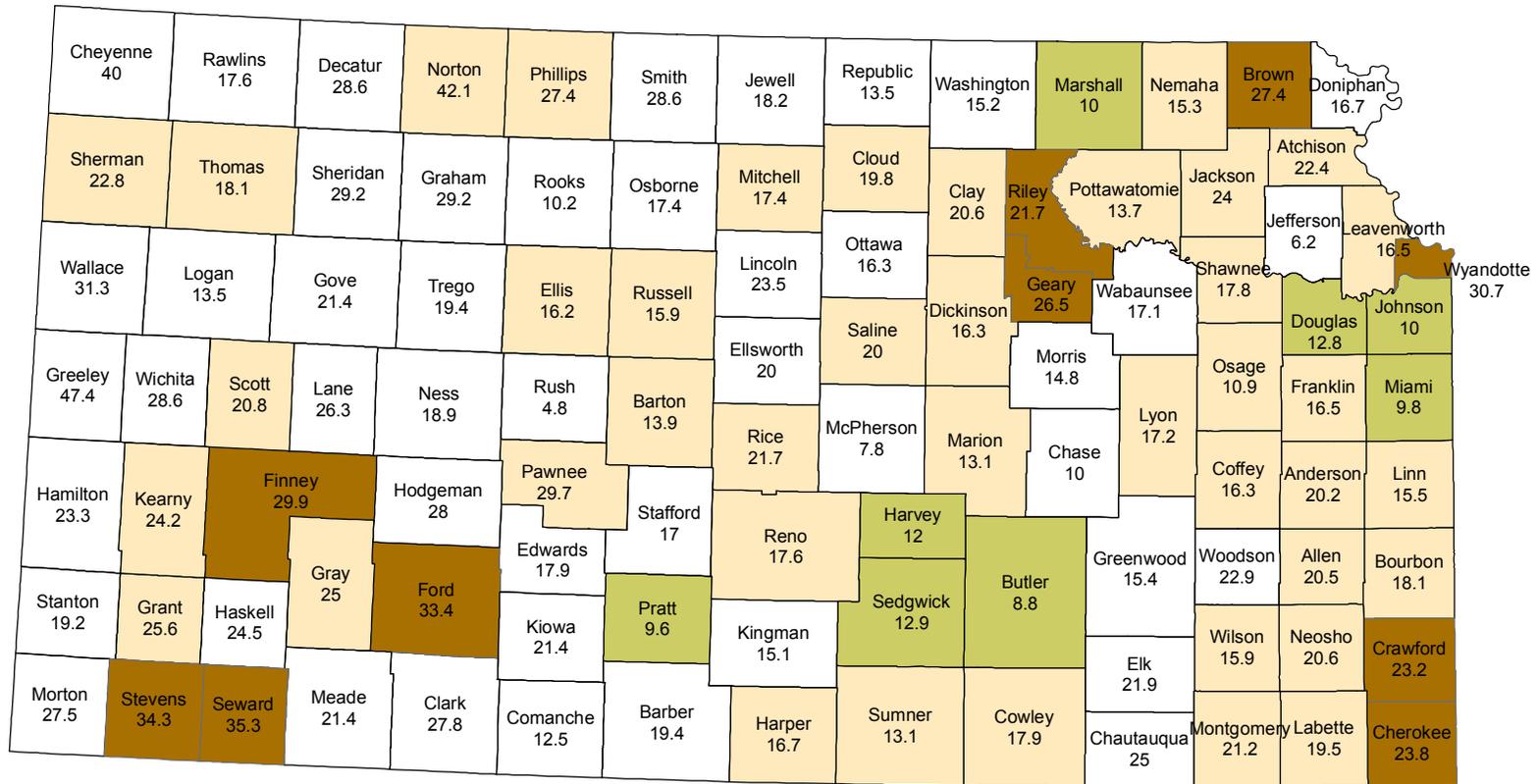


\* Less than adequate prenatal care is the combination of Inadequate and Intermediate prenatal care on the Adequacy of Prenatal Care (APNCU) Index.

APC = 1.7 (1998-2007)  
 APC = -3.5 (2007-2014)  
 The Annual Percent Change (APC) is significantly different from zero at alpha=0.05.

Source: Bureau of Epidemiology and Public Health Informatics  
 Kansas Department of Health and Environment

Figure 6. Percentage of Live Births having Less Than Adequate Prenatal Care by County, Kansas 2014



Statewide: 17.0 Percent  
Kansas resident live births

- Number too small for reliable comparison of percentages
- County percent not statistically different from the state percent
- County percent statistically above state percent
- County percent statistically below state percent

\*Less than adequate prenatal care is the combination of Inadequate and Intermediate prenatal care on the Adequacy of Prenatal Care (APNCU) Index

## Technical Notes

Preparation of the Adequacy of Prenatal Care Utilization Index requires the use of information from four items on the birth certificate and a calculated value for the month care began calculated from the difference of the date of first prenatal care visit and the date of last menses. If any of these values are unknown or can't be calculated, the Index value will be not stated. The data elements used for the calculation, database field names, and item numbers from the standard Kansas Birth Certificate are:

- Number of prenatal care visits– NPREV (Item 49)
- Month prenatal care visits began – Calculated from DOFP and DLMP (Items 47 & 50)
- Sex of infant – ISEX (Item 4)
- Gestational age – OWGEST (Item 51)
- Birth weight in grams – BWG (Item 5)

**2005 Revisions to Certificates.** Beginning with the reporting of 2005 data, Kansas implemented the latest revision of the U.S. standard live birth certificate.

Please note that not all states have implemented the use of the new certificate format. Therefore, items which were added or significantly revised will most likely not have information provided for Kansas residents who had births in another state. In such cases, the non-responses are shown as “not stated” (n.s.) in the tables and have been removed from totals when calculating percentages.

Certain data elements (see below) used in the Adequacy of Prenatal Care Utilization Index (APNCU) have changed considerably with the use of the revised birth certificate. These changes can affect comparability with previous years APNCU data.

**Month prenatal care began.** Prior to 2005, the mother or prenatal care provider reported the month of pregnancy when the mother began prenatal care. Beginning in 2005, this approach was replaced by one that subtracted the last normal menses date from the date of first prenatal care visit. Because exact dates are harder to get, month prenatal care began is missing more often. Records missing this information have been removed from totals when calculating percentages.

As a result of changes in reporting, levels of prenatal care utilization based on the new revised data are lower than those based on data from previous certificates. For example, 2004 data for Kansas indicates that 86.5 percent of residents began care in the first trimester compared to 74.1 percent based on the 2009 data derived from the revised birth certificate. The APNCU showed an increase in the proportion of women receiving less than adequate care between 2004 (18.6 percent) and 2009 (21.0 percent). Much of the difference between 2004 and 2009 is related to changes in reporting and not to changes in prenatal care utilization. Accordingly, prenatal care data in this report is not directly comparable to data collected from previous certificates.

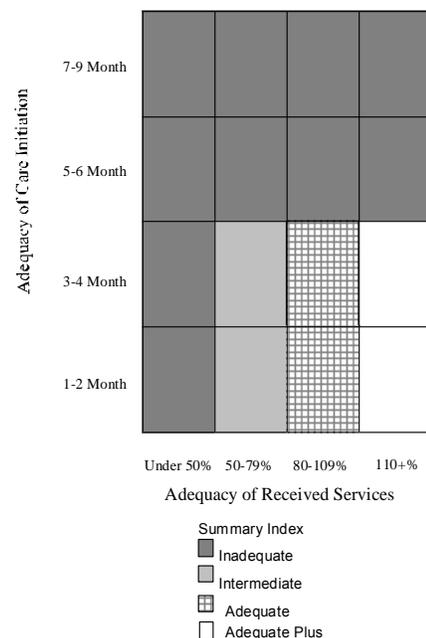
**Race-Ethnicity.** The revised certificate contains significant changes in the way self-reported race and ethnicity are collected. The race item was revised to allow the reporting of multiple races and can capture up to 15 categories and eight literal entries. In addition, Hispanic origin is now collected as a separate question from ancestry. These changes were implemented to provide a better picture of the nation's variation in race and Hispanic origin. The expanded racial and origin categories are compliant with the provisions of the Statistical Policy Directive No. 15, Race and Ethnic Standards for Federal Statistics and Administrative Reporting, issued by the Office of Management and Budget (OMB) in 1997.

For this report, race and Hispanic origin categories are combined and labeled as population groups. Self-reported single race data are utilized for White non-Hispanic, Black non-Hispanic, Native American non-Hispanic, Asian/Pacific Islander non-Hispanic, and Other non-Hispanic. If more than one racial category is checked, the person's race is classified as "Multiple" and is collapsed into the Other non-Hispanic category. Data shown for Hispanic persons include all persons of Hispanic origin of any race. These particular groupings are categories that reflect the cultural and ethnic identities of subgroups of the population commonly addressed in the public health field and on which health disparities can be measured.

### Criteria for the Kansas Adequacy of Prenatal Care Utilization (APNCU) Index

- I. Month prenatal care began  
(Adequacy of Initiation of Prenatal Care)
  - Adequate Plus: 1st or 2nd month
  - Adequate: 3rd or 4th month
  - Intermediate: 5th or 6th month
  - Inadequate: 7th month or later, or no prenatal care
  
- II. Proportion of the number of visits Recommended by the American College of Obstetricians and Gynecologists (ACOG) received from the time prenatal care began until delivery (Adequacy of Received Services)
  - Adequate Plus: 110% or more
  - Adequate: 80% - 109%
  - Intermediate: 50% - 79%
  - Inadequate: less than 50%

Adequacy of Prenatal Care Utilization Index Matrix



- III. Summary Adequacy of Prenatal Care Utilization Index:
  - Adequate Plus: Prenatal care begun by the 4th month and 110% or more of recommended visits received.
  - Adequate: Prenatal care begun by the 4th month and 80% - 109% of recommended visits received.

Intermediate: Prenatal care begun by the 4th month and 50% - 79% of recommended visits received.

Inadequate: Prenatal care begun after the 4th month or less than 50% of recommended visits received

**APNCU Reference:** Kotelchuck M. An evaluation of the Kessner Adequacy of Prenatal Care Index and a proposed Adequacy of Prenatal Care Utilization Index. *American Journal of Public Health*, 1994; 84:1414-1420.

## Definitions

**Adequacy of Prenatal Care Utilization (APNCU) Index:** An assessment of the adequacy of prenatal care measured by the APNCU Index (often referred to as the Kotelchuck Index), a composite measure based on gestational age of the newborn, the trimester prenatal care began, and the number of prenatal visits made.

**Adequacy of Received Services:** A measure of the adequacy of prenatal services received based on when care began in the pregnancy.

**Adequacy of Care Initiation:** A measure of the adequacy of prenatal care services based on the number of prenatal care visits during the pregnancy.

**Live Birth:** The complete expulsion or extraction of a product of human conception from its mother, irrespective of the duration of pregnancy, that, after such expulsion or extraction, shows any evidence of life such as breathing, heartbeat, pulsation of the umbilical cord, or voluntary muscle movement, whether or not the umbilical cord has been cut or the placenta attached.

**Low Birth Weight:** Weight of a fetus or infant at delivery which is less than 2,500 grams (less than five pounds, 8 ounces).

**Very Low Birth Weight:** Weight of a fetus or infant at delivery which is less than 1,500 grams (less than 3 pounds, 5 ounces).

**Population Group:** A reporting matrix of race and Hispanic origin (ethnicity) information comprised of distinct categories.

**CERTIFICATE OF LIVE BIRTH**

115-

State File Number

1. CHILD'S NAME (First, Middle, Last, Suffix)		2. DATE OF BIRTH (Month, Day, Year)		3. TIME OF BIRTH M	
4. SEX	5. BIRTH WEIGHT (Grams)	6. CITY, TOWN, OR LOCATION OF BIRTH		7. COUNTY OF BIRTH	
8. PLACE OF BIRTH <input type="checkbox"/> Hospital <input type="checkbox"/> Freestanding Birthing Center <input type="checkbox"/> Home Birth <input type="checkbox"/> Clinic/Doctor's Office <input type="checkbox"/> Other (Specify) _____			9. FACILITY NAME (If not institution, give street and number)		
10. I CERTIFY THAT THE STATED INFORMATION CONCERNING THIS CHILD IS TRUE TO THE BEST OF MY KNOWLEDGE AND BELIEF.  Certifier's Signature ➤ _____		11. DATE SIGNED (Month, Day, Year)	12. ATTENDANT'S NAME AND TITLE (Type) Name _____ <input type="checkbox"/> M.D. <input type="checkbox"/> D.O. <input type="checkbox"/> C.N.M. <input type="checkbox"/> Other Midwife <input type="checkbox"/> Other (Specify) _____		
13. Certifier's Name and Title (Type) Name _____ <input type="checkbox"/> M.D. <input type="checkbox"/> D.O. <input type="checkbox"/> Hosp Adm. <input type="checkbox"/> C.N.M. <input type="checkbox"/> Other Midwife <input type="checkbox"/> Other (Specify) _____		14. ATTENDANT'S MAILING ADDRESS (Street and Number or Rural Route, City, or Town, State, Zip Code)			
15. MOTHER'S CURRENT LEGAL NAME (First, Middle, Last, Suffix)			16. MOTHER'S LAST NAME PRIOR TO FIRST MARRIAGE		
17. DATE OF BIRTH (Month, Day, Year)		18. BIRTHPLACE (State, Territory, or Foreign Country)		19. PRESENT RESIDENCE-STATE	
20. COUNTY		21. CITY, TOWN, OR LOCATION		22. STREET AND NUMBER OF PRESENT RESIDENCE	
23. ZIP CODE	24. INSIDE CITY LIMITS? <input type="checkbox"/> YES <input type="checkbox"/> NO	25. MOTHER'S MAILING ADDRESS (If same as residence, leave blank)			
26. FATHER'S CURRENT LEGAL NAME (First, Middle, Last, Suffix)		27. DATE OF BIRTH (Month, Day, Year)		28. BIRTHPLACE (State, Territory, or Foreign Country)	
29. PARENTS REQUEST SOCIAL SECURITY NUMBER ISSUANCE? <input type="checkbox"/> YES <input type="checkbox"/> NO		30. IMMUNIZATION REGISTRY I wish to enroll my child in the Immunization Registry <input type="checkbox"/> YES <input type="checkbox"/> NO			
31. I CERTIFY THAT THE PERSONAL INFORMATION PROVIDED ON THE CERTIFICATE IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF.  Signature of Parent (or Other Informant) ➤ _____		32. DATE SIGNED (Month, Day, Year)		33. DATE FILED BY STATE REGISTRAR (Month, Day, Year) (Vital Statistics only)	

34. IF HOME BIRTH, WAS DELIVERY PLANNED AT HOME? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown	
35. MOTHER'S SOCIAL SECURITY NUMBER	36. FATHER'S SOCIAL SECURITY NUMBER
37a. WAS MOTHER EVER MARRIED? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown	
37b. MOTHER MARRIED? (At birth, conception or any time between) <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown	
37c. IF NO, HAS PATERNITY ACKNOWLEDGMENT BEEN SIGNED? <input type="checkbox"/> Yes <input type="checkbox"/> No	
37d. MOTHER REFUSES TO GIVE HUSBAND'S INFORMATION <input type="checkbox"/> Yes <input type="checkbox"/> No	
38. WHAT IS THE PRIMARY LANGUAGE SPOKEN IN THE HOME? <input type="checkbox"/> English <input type="checkbox"/> Spanish <input type="checkbox"/> Vietnamese <input type="checkbox"/> German <input type="checkbox"/> French <input type="checkbox"/> Russian <input type="checkbox"/> Ukrainian <input type="checkbox"/> Mandarin <input type="checkbox"/> Cantonese <input type="checkbox"/> Sign Language <input type="checkbox"/> Other (Specify) _____	
39. PARENT'S HISPANIC ORIGIN (Check the box or boxes that best describes whether the parent is Spanish, Hispanic, or Latino. Check the "No" box if the parent is not Spanish, Hispanic, or Latino.)	
39a. MOTHER	39b. FATHER
<input type="checkbox"/> No, not Spanish/Hispanic/Latina <input type="checkbox"/> Yes, Mexican/Mexican American/Chicana <input type="checkbox"/> Yes, Puerto Rican <input type="checkbox"/> Yes, Cuban <input type="checkbox"/> Yes, Central American <input type="checkbox"/> Yes, South American <input type="checkbox"/> Yes, other Spanish/Hispanic/Latina (Specify) _____ <input type="checkbox"/> Unknown	<input type="checkbox"/> No, not Spanish/Hispanic/Latino <input type="checkbox"/> Yes, Mexican/Mexican American/Chicano <input type="checkbox"/> Yes, Puerto Rican <input type="checkbox"/> Yes, Cuban <input type="checkbox"/> Yes, Central American <input type="checkbox"/> Yes, South American <input type="checkbox"/> Yes, other Spanish/Hispanic/Latino (Specify) _____ <input type="checkbox"/> Unknown
40. PARENT'S RACE (Check one or more races to indicate what you consider yourself to be.)	
40a. MOTHER	40b. FATHER
<input type="checkbox"/> White <input type="checkbox"/> Black or African American <input type="checkbox"/> American Indian or Alaska Native (Name of the enrolled or principal tribes) _____ <input type="checkbox"/> Asian Indian <input type="checkbox"/> Chinese <input type="checkbox"/> Filipino <input type="checkbox"/> Japanese <input type="checkbox"/> Korean <input type="checkbox"/> Vietnamese <input type="checkbox"/> Other Asian (Specify) _____	<input type="checkbox"/> Native Hawaiian <input type="checkbox"/> Guamanian or Chamorro <input type="checkbox"/> Samoan <input type="checkbox"/> Other Pacific Islander (Specify) _____ <input type="checkbox"/> Other (Specify) _____ <input type="checkbox"/> Unknown
41. ANCESTRY - What is the parents' ancestry or ethnic origin? - Italian, German, Dominican, Vietnamese, Hmong, French Canadian, etc. (Specify below)	
42. OCCUPATION AND BUSINESS/INDUSTRY	
Occupation	Business/Industry (Do not give name of company.)
41a. MOTHER	42a. MOTHER (Most recent)
41b. FATHER	42b. FATHER (Usual)
42c. MOTHER	42d. FATHER
43. EDUCATION (Check the box that best describes the highest degree or level of school completed at the time of delivery.)	
43a. MOTHER'S EDUCATION	43b. FATHER'S EDUCATION
<input type="checkbox"/> 8 <sup>th</sup> grade or less <input type="checkbox"/> Some College credit, but no degree <input type="checkbox"/> Unknown <input type="checkbox"/> Master's degree (e.g., MA, MS, MEng, MEd, MSW, MBA)	<input type="checkbox"/> 9 <sup>th</sup> - 12 <sup>th</sup> grade; no diploma <input type="checkbox"/> Associate degree (e.g., AA,AS) <input type="checkbox"/> Doctorate (e.g., PhD, EdD) or Professional degree (e.g., MD, DDS, DVM, LLB, JD) <input type="checkbox"/> High school graduate or GED <input type="checkbox"/> Bachelor's degree (e.g., BA, AB, BS)
44. PREVIOUS LIVE BIRTHS (Do not include this child.)	45. NUMBER OF OTHER OUTCOMES (Spontaneous or induced losses or ectopic or stillbirth pregnancies)
44a. Now living Number _____ <input type="checkbox"/> None	44b. Now dead Number _____ <input type="checkbox"/> None
44c. DATE OF LAST LIVE BIRTH (Month, Year)	44d. DATE OF LAST OTHER PREGNANCY OUTCOME (Month, Year)
45a. Before 20 weeks Number _____ <input type="checkbox"/> None	45b. 20 weeks & over Number _____ <input type="checkbox"/> None
46. PRENATAL CARE? <input type="checkbox"/> Yes <input type="checkbox"/> No	47. DATE OF FIRST PRENATAL CARE VISIT (Month, Day, Year)
48. DATE OF LAST PRENATAL CARE VISIT (Month, Day, Year)	49. PRENATAL VISITS-Total Number (If none, enter "0")
50. DATE LAST NORMAL MENSES BEGAN (Month, Day, Year)	51. OBSTETRIC ESTIMATE OF GESTATION (Completed Weeks)
52. PLURALITY-Single, Twin, Triplet, etc. (Specify)	53. IF NOT A SINGLE BIRTH - Born First, Second, Third, etc. (Specify)
54. TOTAL LIVE BIRTHS AT THIS DELIVERY	55. IS INFANT ALIVE AT THE TIME OF THIS REPORT? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown
56. IS INFANT BEING BREAST-FED AT DISCHARGE? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown	57. CIGARETTE SMOKING BEFORE & DURING PREGNANCY: Did mother smoke 3 mos. before or during pregnancy? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown For each time period, enter either the number of cigarettes or the number of packs of cigarettes smoked <b>per day</b> during each time period. If none, enter "0". Average number of cigarettes or packs of cigarettes <b>smoked per day</b> for each period: No. No. Three months before pregnancy: _____ cigarettes or _____ packs First three months of pregnancy: _____ cigarettes or _____ packs Second three months of pregnancy: _____ cigarettes or _____ packs Third Trimester of pregnancy: _____ cigarettes or _____ packs
58. PRINCIPAL SOURCE OF PAYMENT FOR THIS DELIVERY <input type="checkbox"/> Medicaid <input type="checkbox"/> Private/Employer Ins. <input type="checkbox"/> Self-pay <input type="checkbox"/> Indian Health Service <input type="checkbox"/> CHAMPUS/TRICARE <input type="checkbox"/> Other government <input type="checkbox"/> Other (Specify) _____ <input type="checkbox"/> Unknown	59. MOTHER'S MEDICAL RECORD NO.
60. NEWBORN'S MEDICAL RECORD NO.	61. MOTHER TRANSFERRED IN FOR DELIVERY DUE TO MATERNAL, MEDICAL, OR FETAL INDICATIONS? <input type="checkbox"/> Yes <input type="checkbox"/> No (If yes, enter facility name)
62. INFANT TRANSFERRED (Within 24 hours of delivery) <input type="checkbox"/> Yes <input type="checkbox"/> No (If yes, enter facility name)	FACILITY TRANSFERRED TO:

CHILD'S NAME \_\_\_\_\_

MOTHER'S NAME \_\_\_\_\_

PRENATAL (Birth)	LABOR-DELIVERY/NEWBORN				
<b>63. NUTRITION OF MOTHER</b> 1. Height _____ 2. Prepregnancy Weight _____ 3. Weight at delivery _____ 4. Did mother get WIC food for herself? Yes _____ No _____ Unknown _____	<b>66. OBSTETRICAL PROCEDURES</b> (Check all that apply.) 1. <input type="checkbox"/> Cervical cerclage 2. <input type="checkbox"/> Tocolysis 3. External cephalic version: <input type="checkbox"/> Successful <input type="checkbox"/> Failed 4. <input type="checkbox"/> None of the above	<b>70. INFECTIONS PRESENT AND/OR TREATED</b> (During this pregnancy, check all that apply.) 1. <input type="checkbox"/> Gonorrhea 2. <input type="checkbox"/> Syphilis 3. <input type="checkbox"/> Herpes Simplex Virus (HSV) 4. <input type="checkbox"/> Chlamydia 5. <input type="checkbox"/> Hepatitis B 6. <input type="checkbox"/> Hepatitis C 7. <input type="checkbox"/> AIDS or HIV antibody 8. <input type="checkbox"/> None of the above			
	<b>64. MEDICAL RISK FACTORS</b> (Check all that apply.) 1. <input type="checkbox"/> Diabetes, prepregnancy 2. <input type="checkbox"/> Diabetes, gestational 3. Hypertension <input type="checkbox"/> Prepregnancy (Chronic) <input type="checkbox"/> Gestational (PIH, preeclampsia) <input type="checkbox"/> Eclampsia 4. <input type="checkbox"/> Previous preterm birth 5. <input type="checkbox"/> Other previous poor pregnancy outcome (SGA, perinatal death, etc.) 6. <input type="checkbox"/> Vaginal bleeding during this pregnancy prior to labor 7. <input type="checkbox"/> Pregnancy resulted from infertility treatment (If yes, check all that apply.) <input type="checkbox"/> Fertility-enhancing drugs, Artificial insemination or Intrauterine insemination <input type="checkbox"/> Assisted reproductive technology (e.g. in vitro fertilization (IVF), gamete intrafallopian transfer (GIFT)) 8. <input type="checkbox"/> Mother had a previous cesarean delivery, if yes, how many? Number: _____ 9. <input type="checkbox"/> Alcohol use No. of drinks per week: _____ 10. <input type="checkbox"/> None of the above	<b>67. ONSET OF LABOR</b> (Check all that apply.) 1. <input type="checkbox"/> Premature Rupture of the Membranes (prolonged, $\geq 12$ hours) 2. <input type="checkbox"/> Precipitous Labor (< 3 hrs) 3. <input type="checkbox"/> Prolonged Labor ( $\geq 20$ hrs) 4. <input type="checkbox"/> None of the above	<b>71. ABNORMAL CONDITIONS OF NEWBORN</b> (Check all that apply) 1. <input type="checkbox"/> Assisted ventilation required immediately following delivery 2. <input type="checkbox"/> Assisted ventilation required for more than six hours 3. <input type="checkbox"/> NICU admission 4. <input type="checkbox"/> Newborn given surfactant replacement therapy 5. <input type="checkbox"/> Antibiotics received by the newborn for suspected neonatal sepsis 6. <input type="checkbox"/> Seizure or serious neurologic dysfunction 7. <input type="checkbox"/> Significant birth injury (skeletal fracture(s), peripheral nerve injury, and/or soft tissue/solid organ hemorrhage which requires intervention) 8. <input type="checkbox"/> None of the above		
<b>65. METHOD OF DELIVERY</b> 1. Forceps attempted? Yes _____ No _____ Successful Yes _____ No _____ 2. Vacuum extraction attempted? Yes _____ No _____ Successful Yes _____ No _____ 3. Fetal presentation at delivery <input type="checkbox"/> Cephalic <input type="checkbox"/> Breech <input type="checkbox"/> Other 4. Final route and method of delivery (check one) <input type="checkbox"/> Vaginal/spontaneous <input type="checkbox"/> Vaginal/forceps <input type="checkbox"/> Vaginal/vacuum <input type="checkbox"/> Cesarean, if cesarean was a trial of labor attempted? Yes _____ No _____	<b>68. CHARACTERISTICS OF LABOR AND DELIVERY</b> (Check all that apply.) 1. <input type="checkbox"/> Induction of labor 2. <input type="checkbox"/> Augmentation of labor 3. <input type="checkbox"/> Non-vertex presentation 4. <input type="checkbox"/> Steroids (glucocorticoids) for fetal lung maturation received by the mother prior to delivery 5. <input type="checkbox"/> Antibiotics received by the mother during labor 6. <input type="checkbox"/> Clinical chorioamnionitis diagnosed during labor or maternal temperature $\geq 38$ C (100.4 F) 7. <input type="checkbox"/> Moderate/heavy meconium staining of the amniotic fluid 8. <input type="checkbox"/> Fetal intolerance of labor: (examples: in-utero resuscitative measures, further fetal assessment, or operative delivery) 9. <input type="checkbox"/> Epidural or spinal anesthesia during labor 10. <input type="checkbox"/> None of the above	<b>72. VACCINES ADMINISTERED TO NEWBORN</b> 1. <input type="checkbox"/> Hepatitis B Date Given: _____ 2. <input type="checkbox"/> Other* Specify: _____ Date Given: _____			
	<b>69. MATERNAL MORBIDITY</b> (Check all that apply.) (These are complications associated with labor and delivery.) 1. <input type="checkbox"/> Maternal transfusion 2. <input type="checkbox"/> Third or fourth degree perineal laceration 3. <input type="checkbox"/> Ruptured uterus 4. <input type="checkbox"/> Unplanned hysterectomy 5. <input type="checkbox"/> Admission to intensive care unit 6. <input type="checkbox"/> Unplanned operating room procedure following delivery 7. <input type="checkbox"/> None of the above	<b>73. APGAR SCORE</b> <table border="1"> <tr> <td>1 min</td> <td>5 min</td> <td>10 min</td> </tr> </table>		1 min	5 min
1 min	5 min	10 min			
		<b>74. CONGENITAL ANOMALIES OF THE NEWBORN</b> (Check all that apply.) 1. <input type="checkbox"/> Anencephaly 2. <input type="checkbox"/> Meningomyelocele/Spina bifida 3. <input type="checkbox"/> Cyanotic congenital heart disease 4. <input type="checkbox"/> Congenital diaphragmatic hernia 5. <input type="checkbox"/> Omphalocele 6. <input type="checkbox"/> Gastroschisis 7. <input type="checkbox"/> Limb reduction defect (excluding congenital amputation and dwarfing syndromes) 8. <input type="checkbox"/> Cleft Lip with or without Cleft Palate 9. <input type="checkbox"/> Cleft Palate alone 10. <input type="checkbox"/> Down Syndrome <input type="checkbox"/> Karyotype confirmed <input type="checkbox"/> Karyotype pending 11. <input type="checkbox"/> Suspected chromosomal disorder <input type="checkbox"/> Karyotype confirmed <input type="checkbox"/> Karyotype pending 12. <input type="checkbox"/> Hypospadias 13. <input type="checkbox"/> Fetal alcohol syndrome 14. <input type="checkbox"/> Other congenital anomalies (Specify) _____ 15. <input type="checkbox"/> None of the above			

Parent's Telephone Number: \_\_\_\_\_

CHILD'S NAME \_\_\_\_\_

MOTHER'S NAME \_\_\_\_\_

<p>Test required by K.S.A. 65-153f 153G Serological Test Made:</p> <p>_____ 1<sup>st</sup> _____ 2<sup>nd</sup> _____ 3<sup>rd</sup> (Trimester) _____ At Delivery _____ Not Performed</p> <p>If no test made, state reason:</p>	<p>Test required by K.S.A. 65-180 Infant Neonatal Screening specimen taken:</p> <p>_____ Yes _____ No</p> <p>Kit Number _____</p> <p>If no test made, state reason:</p>	<p>Test required by K.S.A. 65-1157A Newborn Hearing Screening Accomplished:</p> <p>_____ Yes _____ No</p>
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Infant's patient number: \_\_\_\_\_

Infant's Primary Care Physician

First	Middle	Last	Title (MD, DO, etc.)
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<p>If screening accomplished, Date hearing screened _____</p> <p>Month / Day / Year</p>	<p>The results of the hearing screening ✓:</p> <p>Right ear: _____ Pass _____ Refer for further testing Left ear: _____ Pass _____ Refer for further testing</p>
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Physiologic equipment used ✓: \_\_\_\_\_ OAE \_\_\_\_\_ AABR \_\_\_\_\_ ABR

If screening not accomplished, ✓ one reason:

_____ b – missed appointment	_____ o – other
_____ c – could not test	_____ r – did not consent
_____ d – deceased	_____ s – scheduled but not completed
_____ i – Incomplete test	_____ t – transferred to another hospital
_____ m – Infant discharged before screening	_____ u – no information
_____ n – transferred to NICU	_____ x – invalid results