



Adequacy of Prenatal Care
Utilization Index
Kansas, 2010

Research
Summary

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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 Index (APNCU), enables public health to identify inequities in the provision of care. Using birth certificate information, KDHE calculates APNCU using methods developed by Dr. Milton Kotelchuck. In 2010 prenatal care described as inadequate decreased by 4.7 percent compared to 2009. Adequate care increased by 3.1 percent. While Kansas’ level of adequate care (79.8%) is better than the Healthy People 2020 target of 77.6 percent, inequities by population group and pay source continue.

Introduction

Maintaining and improving family health is an essential component of the public health mission of the Kansas Department of Health and Environment. 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.

Prenatal care is a flexible package of services for pregnant women up to the delivery of an infant. It includes physician or midwife monitoring the progress of the pregnancy, examinations for common complications of pregnancy such as edema and preeclampsia, and basic dietary and lifestyle advice. [1]

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 discovered and treated before delivery or even prevented altogether. [2]

Inadequate prenatal care has been associated with pre-term delivery low birth weight and small for gestation infants. [3] [4] It has also been linked with a higher overall net cost per pregnancy for mother and newborn care combined. [5]

Adequate prenatal care is one of the national goals laid out 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 will receive early and adequate prenatal care by the year 2020. [6]

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 – reporting 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 2010 births. The analytical file is considered 99.99 percent complete.

All birth records undergo a two-step quality improvement process. Office of Vital Statistics staff manually review paper certificates 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 for the *2010 Kansas Annual Summary of Vital Statistics* for more information. [7]

Statistical tabulations were created using SAS version 9.2 software. One of the tables contained in this report was also included in the *Kansas Annual Summary of Vital Statistics*. The repetition is done to enhance 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. [8] 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).

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.

Adequacy of prenatal care utilization was calculated on 38,823 Kansas resident live births in 2010, compared to 38,930 in 2009 (Figure 1). This represents 96.0 percent of the 40,439 resident births reported in 2010. While births decreased by 2.3 percent from 2009, reporting on variables needed to calculate prenatal care utilization index increased by 2.1 percent in 2010.

Of the 38,823 Kansas resident births for which prenatal care utilization could be calculated in 2010, 79.8 percent received adequate or better prenatal care, including 30.6 percent with adequate-plus care. This level of adequate or better prenatal care meets the target established by Healthy People 2020 (77.6%). Approximately twenty percent (20.2%) received less than adequate prenatal care, 14.2 percent inadequate care and 6.0 percent intermediate care. (Table 1).

In 2010 reported inadequate prenatal care utilization decreased by 4.7 percent compared to 2009. The percentage of adequate care increased by 3.1 percent and adequate-plus care utilizations decreased by 2.2 percent (Table 1).

Among mothers whose prenatal care utilization was classified as inadequate (5,521), the vast majority (5,269) were due to late initiation of care. Only a minority of women (252) who initiated their care within the first four months of pregnancy received inadequate care (Figure 1).

Among mothers of infants with low birth weight, 81.1 percent received adequate or better care, while 16.2 percent experienced inadequate care (Table 2).

The proportion of mothers who received adequate or better prenatal care was highest among White non-Hispanics (84.4%), followed by Asian/Pacific Islander non-Hispanics (80.4%) and Other non-Hispanics (77.1%). The population group with the lowest percent was Hispanic (63.8%) (Table 3).

The proportion of mothers reporting inadequate care was highest among Native American non-Hispanics (19.6%), Black non-Hispanics (24.2%), and Hispanics (27.4%). These rates are almost or more than twice that of White non-Hispanic women, who experienced inadequate care at a rate of 10.4 percent (Table 3).

The payer with the highest proportion of mothers who received adequate or adequate plus prenatal care was private insurance (90.2%) followed by Champus/TRICARE (77.8%). The payer with the highest proportion of mothers with inadequate prenatal care was self pay (33.3%) (Table 4).

Among first births, the percent of mothers with adequate or adequate plus prenatal care (82.4%) was 5.4 percent greater than among second or higher live births (78.2%) (Table 5).

Among first births, the percent of mothers with inadequate prenatal care (12.2%) was 20.8 percent less than among second or higher live births (15.4%) (Table 5).

In all age groups, the proportion of mothers with inadequate prenatal care among second and higher order live births was significantly greater than among mothers of first births (Table 5).

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Appendix

- 1 Certificate of Live Birth

Figure 1. Number of Live Births by Adequacy of Prenatal Care Utilization Index Kansas Residents*, 2010

		Adequacy of Received Services				Total
		Under 50%	50 – 79%	80 – 109%	110+%	
Adequacy of Care Initiation	7 – 9 Month	443	152	354	975	1,924
	5 – 6 Month	53	298	782	2,212	3,345
	3 – 4 Month	160	1,263	10,741	7,817	19,981
	1 – 2 Month	92	1,055	8,359	4,067	13,573
Total		748	2,768	20,236	15,071	38,823

Summary Index	
	Inadequate
	Intermediate
	Adequate
	Adequate Plus

* Includes only the 38,823 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.

Table 1. Adequacy of Prenatal Care Utilization (APNCU) Index
by County of Residence
Kansas, 2010

County of Residence	Live Births*	APNCU Category†								Not Stated§
		Adequate Plus		Adequate		Intermediate		Inadequate		
		Number	Percent	Number	Percent	Number	Percent	Number	Percent	
Kansas.....	40,439	11,884	30.6	19,100	49.2	2,318	6.0	5,521	14.2	1,616
Allen.....	137	46	34.8	57	43.2	12	9.1	17	12.9	5
Anderson.....	106	40	38.1	51	48.6	6	5.7	8	7.6	1
Atchison.....	225	67	30.9	112	51.6	8	3.7	30	13.8	8
Barber.....	74	19	26.0	40	54.8	3	4.1	11	15.1	1
Barton.....	355	149	42.7	146	41.8	17	4.9	37	10.6	6
Bourbon.....	220	107	49.5	76	35.2	6	2.8	27	12.5	4
Brown.....	127	26	20.8	62	49.6	16	12.8	21	16.8	2
Butler.....	805	179	22.7	502	63.5	24	3.0	85	10.8	15
Chase.....	23	8	34.8	10	43.5	2	8.7	3	13.0	0
Chautauqua.....	25	10	40.0	6	24.0	0	0.0	9	36.0	0
Cherokee.....	237	51	22.2	98	42.6	30	13.0	51	22.2	7
Cheyenne.....	25	5	20.0	15	60.0	1	4.0	4	16.0	0
Clark.....	27	6	23.1	15	57.7	3	11.5	2	7.7	1
Clay.....	107	36	34.6	56	53.8	4	3.8	8	7.7	3
Cloud.....	130	20	15.6	76	59.4	10	7.8	22	17.2	2
Coffey.....	106	37	37.4	52	52.5	1	1.0	9	9.1	7
Comanche.....	20	4	20.0	11	55.0	3	15.0	2	10.0	0
Cowley.....	487	207	43.2	168	35.1	14	2.9	90	18.8	8
Crawford.....	478	123	26.0	221	46.7	58	12.3	71	15.0	5
Decatur.....	26	2	8.3	14	58.3	3	12.5	5	20.8	2
Dickinson.....	284	76	27.7	145	52.9	20	7.3	33	12.0	10
Doniphan.....	99	35	37.6	42	45.2	5	5.4	11	11.8	6
Douglas.....	1,263	599	48.1	484	38.9	19	1.5	143	11.5	18
Edwards.....	40	12	31.6	17	44.7	2	5.3	7	18.4	2
Elk.....	35	11	31.4	21	60.0	1	2.9	2	5.7	0
Ellis.....	375	93	24.9	201	53.7	48	12.8	32	8.6	1
Ellsworth.....	56	11	20.0	35	63.6	7	12.7	2	3.6	1
Finney.....	765	168	22.1	192	25.3	114	15.0	286	37.6	5
Ford.....	677	154	24.8	221	35.6	84	13.5	162	26.1	56
Franklin.....	337	116	34.8	152	45.6	25	7.5	40	12.0	4
Geary.....	1,051	205	19.8	480	46.3	153	14.8	198	19.1	15
Gove.....	29	4	13.8	14	48.3	6	20.7	5	17.2	0
Graham.....	31	5	17.2	17	58.6	4	13.8	3	10.3	2
Grant.....	128	34	28.6	47	39.5	13	10.9	25	21.0	9
Gray.....	94	23	26.1	38	43.2	14	15.9	13	14.8	6
Greeley.....	12	6	50.0	3	25.0	0	0.0	3	25.0	0
Greenwood.....	58	18	31.6	21	36.8	3	5.3	15	26.3	1
Hamilton.....	57	15	26.3	19	33.3	6	10.5	17	29.8	0
Harper.....	72	18	26.1	36	52.2	2	2.9	13	18.8	3
Harvey.....	463	214	46.7	170	37.1	8	1.7	66	14.4	5
Haskell.....	61	15	25.0	23	38.3	6	10.0	16	26.7	1
Hodgeman.....	22	5	22.7	10	45.5	5	22.7	2	9.1	0
Jackson.....	165	58	37.7	62	40.3	15	9.7	19	12.3	11
Jefferson.....	199	89	46.4	73	38.0	5	2.6	25	13.0	7
Jewell.....	25	5	20.0	15	60.0	1	4.0	4	16.0	0
Johnson.....	7,390	2,731	38.8	3,501	49.7	353	5.0	457	6.5	348
Kearny.....	65	20	30.8	21	32.3	9	13.8	15	23.1	0
Kingman.....	79	12	15.4	43	55.1	9	11.5	14	17.9	1
Kiowa.....	28	9	32.1	17	60.7	1	3.6	1	3.6	0
Labette.....	277	99	38.8	89	34.9	16	6.3	51	20.0	22
Lane.....	16	10	62.5	1	6.3	3	18.8	2	12.5	0
Leavenworth.....	946	330	36.5	451	49.8	45	5.0	79	8.7	41
Lincoln.....	35	2	5.9	24	70.6	2	5.9	6	17.6	1
Linn.....	92	36	40.0	41	45.6	4	4.4	9	10.0	2
Logan.....	36	6	16.7	19	52.8	5	13.9	6	16.7	0

Table 1. Adequacy of Prenatal Care Utilization (APNCU) Index
by County of Residence
Kansas, 2010

County of Residence	Live Births*	APNCU Category†								Not Stated‡
		Adequate Plus		Adequate		Intermediate		Inadequate		
		Number	Percent	Number	Percent	Number	Percent	Number	Percent	
Lyon.....	426	192	49.5	123	31.7	15	3.9	58	14.9	38
McPherson.....	300	108	36.1	155	51.8	12	4.0	24	8.0	1
Marion.....	126	51	41.1	58	46.8	1	0.8	14	11.3	2
Marshall.....	111	33	29.7	57	51.4	11	9.9	10	9.0	0
Meade.....	52	10	19.2	25	48.1	5	9.6	12	23.1	0
Miami.....	384	154	40.4	191	50.1	10	2.6	26	6.8	3
Mitchell.....	66	23	35.4	36	55.4	1	1.5	5	7.7	1
Montgomery.....	426	221	53.4	122	29.5	19	4.6	52	12.6	12
Morris.....	54	13	25.5	31	60.8	3	5.9	4	7.8	3
Morton.....	34	7	21.2	19	57.6	2	6.1	5	15.2	1
Nemaha.....	131	37	29.4	76	60.3	5	4.0	8	6.3	5
Neosho.....	226	84	38.2	88	40.0	12	5.5	36	16.4	6
Ness.....	39	10	25.6	16	41.0	5	12.8	8	20.5	0
Norton.....	47	13	27.7	20	42.6	8	17.0	6	12.8	0
Osage.....	185	79	46.5	65	38.2	7	4.1	19	11.2	15
Osborne.....	47	14	31.8	25	56.8	1	2.3	4	9.1	3
Ottawa.....	80	22	27.5	45	56.3	7	8.8	6	7.5	0
Pawnee.....	77	19	25.3	32	42.7	7	9.3	17	22.7	2
Phillips.....	57	14	24.6	23	40.4	13	22.8	7	12.3	0
Pottawatomie.....	382	111	29.4	210	55.7	19	5.0	37	9.8	5
Pratt.....	113	30	27.8	59	54.6	4	3.7	15	13.9	5
Rawlins.....	23	10	50.0	7	35.0	2	10.0	1	5.0	3
Reno.....	762	305	41.2	272	36.8	37	5.0	126	17.0	22
Republic.....	35	10	28.6	21	60.0	3	8.6	1	2.9	0
Rice.....	129	45	36.0	52	41.6	13	10.4	15	12.0	4
Riley.....	1,118	262	23.7	602	54.4	90	8.1	152	13.7	12
Rooks.....	66	11	17.5	33	52.4	8	12.7	11	17.5	3
Rush.....	30	2	6.9	21	72.4	1	3.4	5	17.2	1
Russell.....	93	28	30.4	39	42.4	10	10.9	15	16.3	1
Saline.....	805	152	19.0	515	64.4	44	5.5	89	11.1	5
Scott.....	43	15	34.9	15	34.9	1	2.3	12	27.9	0
Sedgwick.....	8,058	1,303	16.7	5,009	64.3	228	2.9	1,244	16.0	274
Seward.....	468	89	19.8	174	38.8	47	10.5	139	31.0	19
Shawnee.....	2,496	1,054	45.1	833	35.7	146	6.3	302	12.9	161
Sheridan.....	20	7	35.0	8	40.0	3	15.0	2	10.0	0
Sherman.....	83	28	33.7	39	47.0	10	12.0	6	7.2	0
Smith.....	31	12	38.7	13	41.9	3	9.7	3	9.7	0
Stafford.....	41	8	19.5	22	53.7	0	0.0	11	26.8	0
Stanton.....	30	3	10.7	12	42.9	1	3.6	12	42.9	2
Stevens.....	83	7	9.1	35	45.5	6	7.8	29	37.7	6
Sumner.....	312	74	24.2	183	59.8	6	2.0	43	14.1	6
Thomas.....	115	40	35.4	39	34.5	14	12.4	20	17.7	2
Trego.....	27	7	25.9	17	63.0	1	3.7	2	7.4	0
Wabaunsee.....	77	32	42.7	30	40.0	2	2.7	11	14.7	2
Wallace.....	12	5	41.7	4	33.3	0	0.0	3	25.0	0
Washington.....	57	20	35.7	28	50.0	4	7.1	4	7.1	1
Wichita.....	35	8	22.9	14	40.0	3	8.6	10	28.6	0
Wilson.....	128	56	44.4	50	39.7	5	4.0	15	11.9	2
Woodson.....	43	11	25.6	22	51.2	4	9.3	6	14.0	0
Wyandotte.....	2,754	649	26.8	982	40.6	225	9.3	565	23.3	333

*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.

†See Technical Notes

‡Number of live births with insufficient information (Not Stated) to calculate APNCU. Residence data.

Table 2. Number and Percent of Live Births by Birth Weight by Adequacy of Prenatal Care Utilization (APNCU) Index Kansas, 2010

Birth Weight (Grams)	Live Births*	APNCU Category								Not Stated†
		Adequate Plus		Adequate		Intermediate		Inadequate		
		Number	Percent	Number	Percent	Number	Percent	Number	Percent	
Total.....	38,823	11,884	30.6	19,100	49.2	2,318	6.0	5,521	14.2	1,616
Under 2,500 (Low).....	2,589	1,508	58.2	591	22.8	71	2.7	419	16.2	278
2,500-4,499 (Normal).....	35,828	10,279	28.7	18,288	51.0	2,218	6.2	5,043	14.1	1,327
4,500 and Over (High).....	396	96	24.2	216	54.5	28	7.1	56	14.1	11
Not Stated.....	10	1	n/a	5	n/a	1	n/a	3	n/a	0

n/a Not applicable

*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.

† Number of live births with insufficient information (Not Stated) to calculate APNCU. Residence data.

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

**Figure 2. Adequacy of Prenatal Care Utilization Index by Birth Weight
Kansas Residents, 2010**

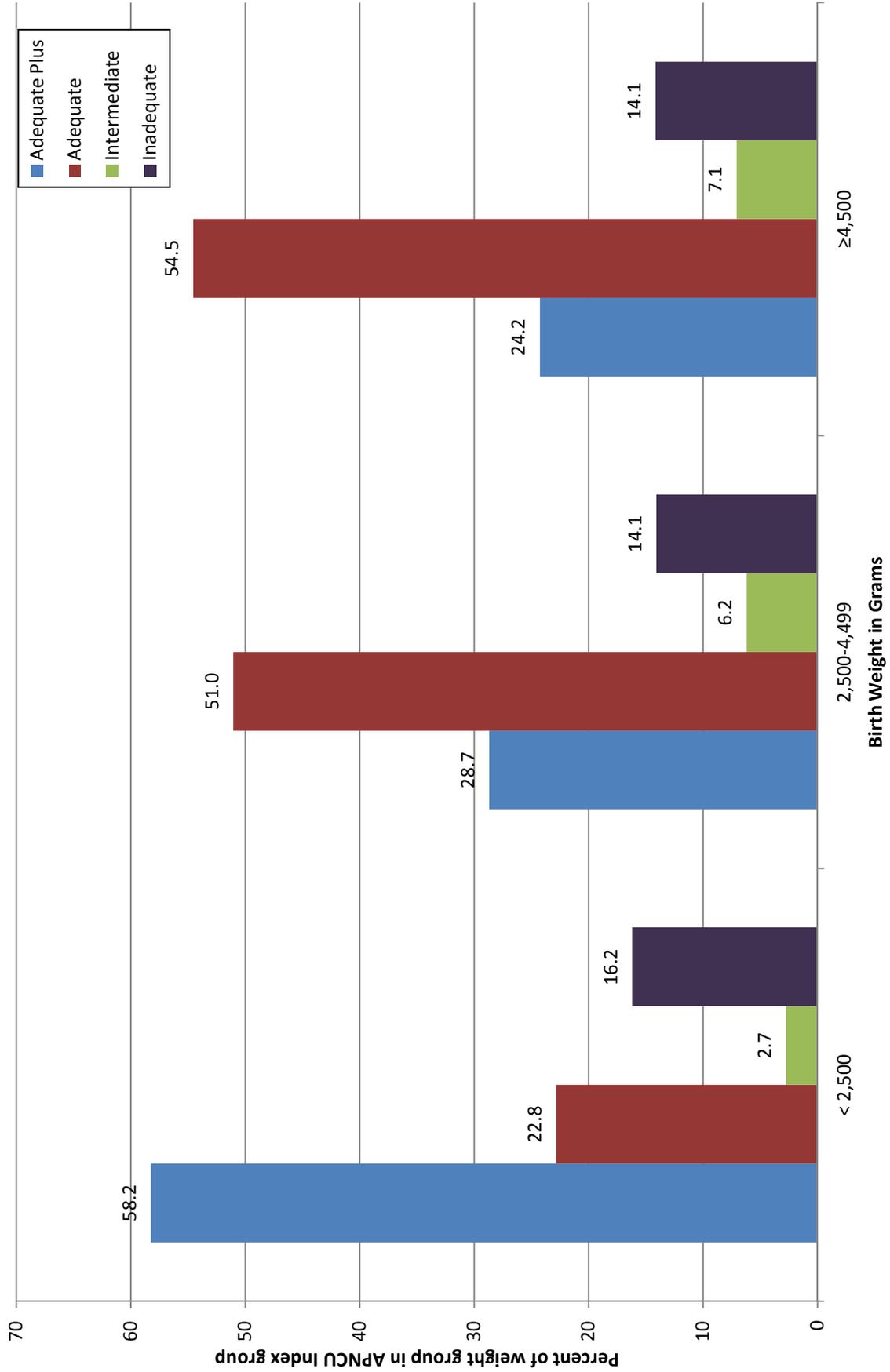


Table 3. Number and Percent of Live Births by Population Groups by Adequacy of Prenatal Care Utilization (APNCU) Index Kansas, 2010

Population Groups	Live Births*	APNCU Category												Not Stated§
		Adequate Plus		Adequate		Intermediate		Inadequate				Number	Percent	
		Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent			
Total.....	38,823	11,884	30.6	19,100	49.2	2,318	6.0	5,521	14.2					1,616
White Non-Hispanic.....	28,207	9,259	32.8	14,561	51.6	1,447	5.1	2,940	10.4					793
Black Non-Hispanic.....	2,538	657	25.9	1,051	41.4	216	8.5	614	24.2					242
Native American	194	64	33.0	70	36.1	22	11.3	38	19.6					8
Non-Hispanic.....	1,108	322	29.1	569	51.4	62	5.6	155	14.0					39
Asian/Pacific Islander														
Non-Hispanic.....	800	248	31.0	369	46.1	44	5.5	139	17.4					64
Other Non-Hispanic†.....	5,938	1,323	22.3	2,465	41.5	523	8.8	1,627	27.4					469
Hispanic Any Race.....	38	11	n/a	15	n/a	4	n/a	8	n/a					1
Not Stated.....														

n/a Not applicable

*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.

†Includes multiple races

§Number of live births with insufficient information (Not Stated) to calculate APNCU. Residence data.

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

**Figure 3. APNCU Index by Population Group
Kansas Residents, 2010**

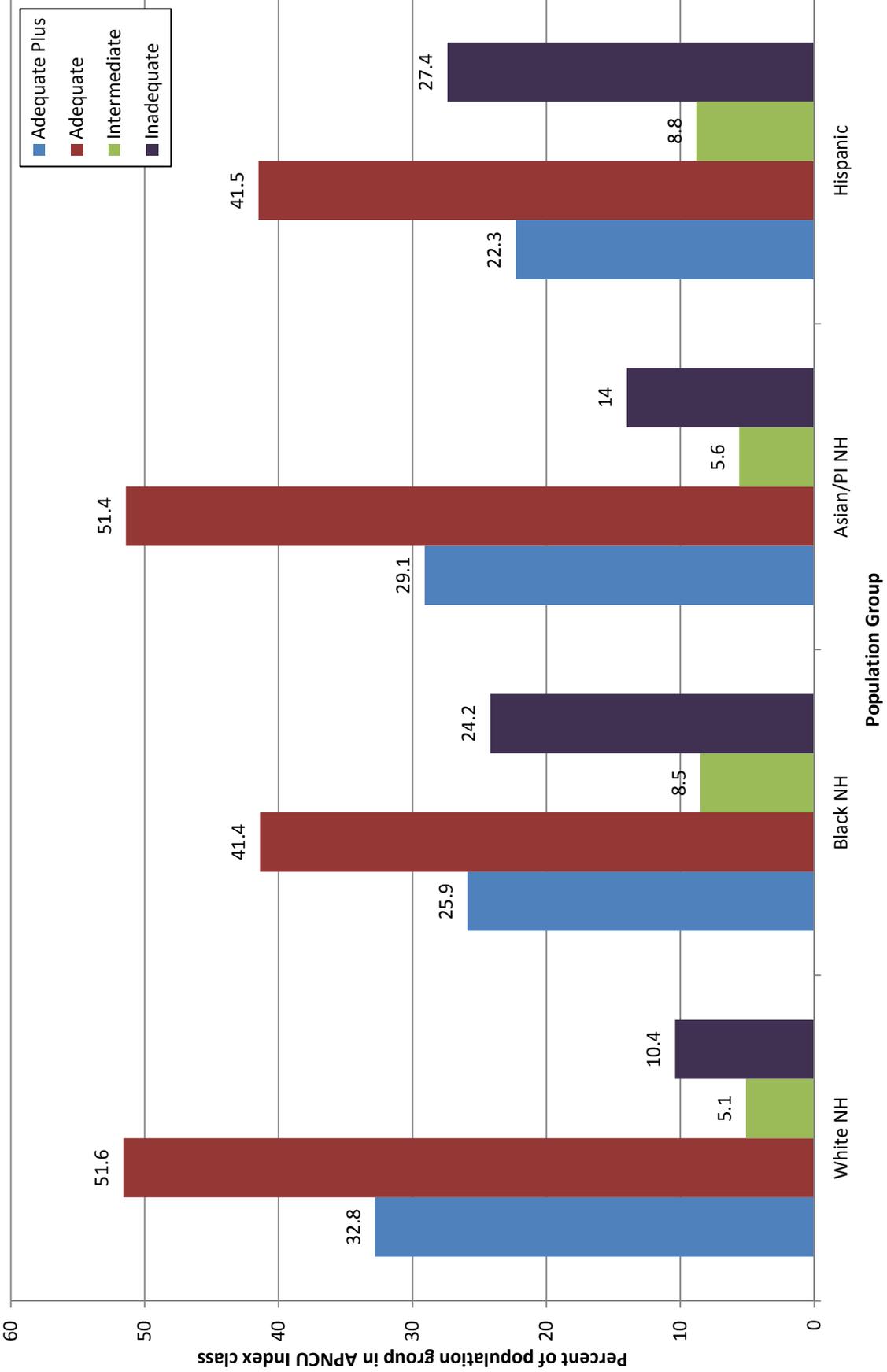


Table 4. Number and Percent of Live Births by Payer by Adequacy of Prenatal Care Utilization (APNCU) Index Kansas, 2010.

Pay Source	Live Births*	APNCU Category										Not Stated†
		Adequate Plus		Adequate		Intermediate		Inadequate		Number	Percent	
		Number	Percent	Number	Percent	Number	Percent	Number	Percent			
Total	38,823	11,884	30.6	19,100	49.2	2,318	6.0	5,521	14.2			1,616
Medicaid	12,559	3,620	28.8	5,219	41.6	802	6.4	2,918	23.2			600
Private Insurance	19,984	7,035	35.2	10,992	55.0	877	4.4	1,080	5.4			369
Self Pay	2,741	441	16.1	1,127	41.1	261	9.5	912	33.3			277
Champus/Tricare	2,188	488	22.3	1,214	55.5	242	11.1	244	11.2			33
Other Government	505	135	26.7	213	42.2	33	6.5	124	24.6			43
Other/Unknown	846	165	19.5	335	39.6	103	12.2	243	28.7			294

*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.

† Number of live births with insufficient information (Not Stated) to calculate APNCU. Residence data.

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

**Figure 4. APNCU Index by Delivery Payor
Kansas Residents, 2010**

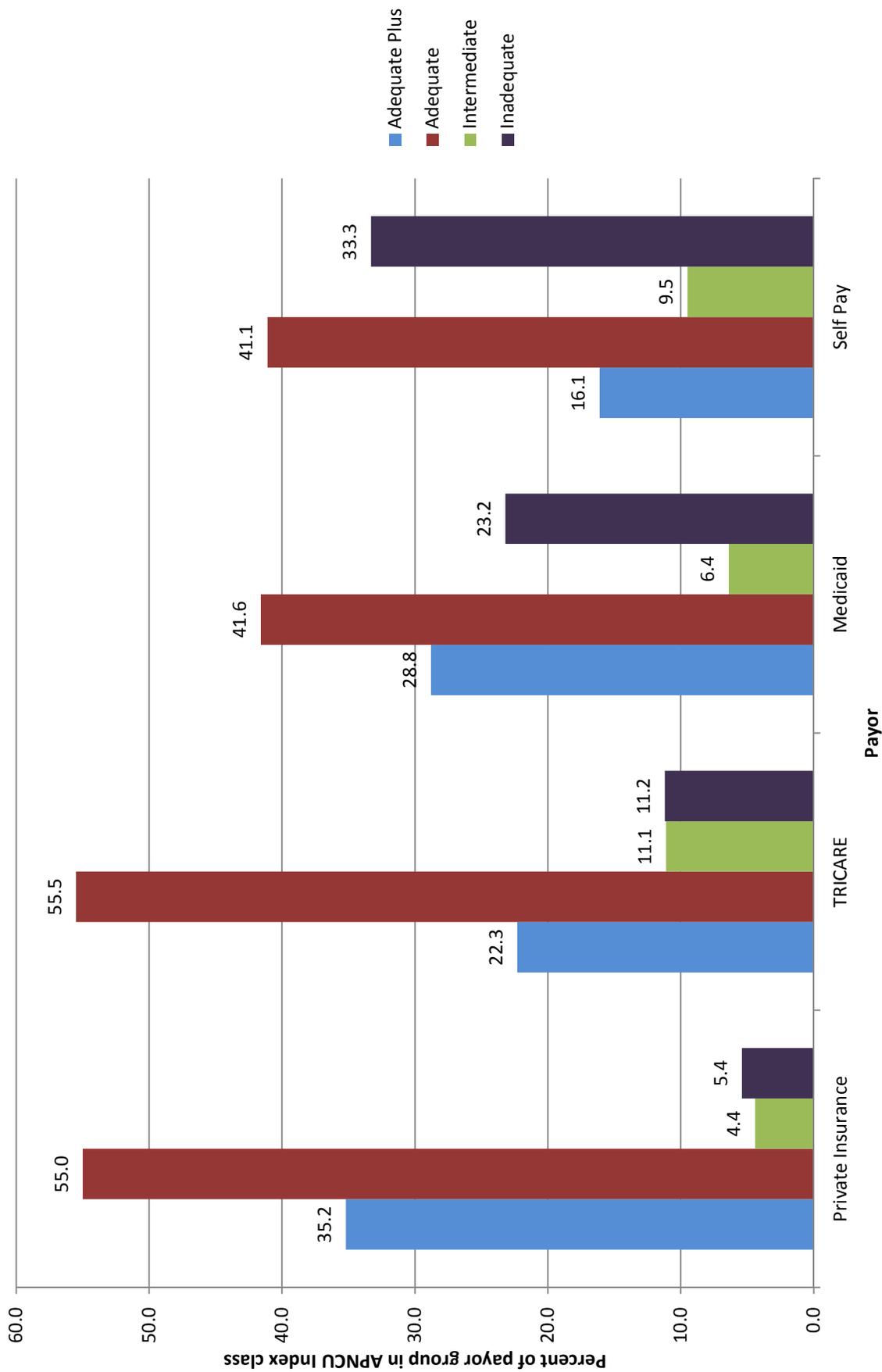


Table 5. Number and Percent of Live Births by Birth Order by Age Group of the Mother by Adequacy of Prenatal Care Utilization (APNCU) Index Kansas, 2010

Birth Order	Live Births*	APNCU Category												Not Stated**	
		Adequate Plus			Adequate			Intermediate			Inadequate				
		Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent				
First Live Births															
Total	14,839	4,700	31.7	7,528	50.7	795	5.4	1,816	12.2	525					
Age Groups															
10-14	33	5	n/a	15	n/a	2	n/a	11	n/a	3					
15-19	2,962	770	26.0	1,291	43.6	196	6.6	705	23.8	152					
20-24	4,971	1,484	29.9	2,500	50.3	298	6.0	689	13.9	171					
25-29	4,303	1,495	34.7	2,338	54.3	198	4.6	272	6.3	120					
30-34	1,877	650	34.6	1,052	56.0	78	4.2	97	5.2	59					
35 and Over	693	296	42.7	332	47.9	23	n/a	42	6.1	20					
Second and Higher Order Live Births															
Total	23,984	7,184	30.0	11,572	48.2	1,523	6.4	3,705	15.4	1,091					
Age Groups															
10-14	0	0	0.0	0	0.0	0	0.0	0	0.0	0					
15-19	679	153	22.5	239	35.2	48	7.1	239	35.2	50					
20-24	5,375	1,445	26.9	2,243	41.7	403	7.5	1,284	23.9	261					
25-29	7,760	2,310	29.8	3,850	49.6	487	6.3	1,113	14.3	346					
30-34	6,648	2,102	31.6	3,498	52.6	380	5.7	668	10.0	273					
35 and Over	3,522	1,174	33.3	1,742	49.5	205	5.8	401	11.4	161					

n/a The number is too small to calculate percent (<20).

*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.

**Number of live births with insufficient information (Not Stated) to calculate APNCU. Residence data.

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, 2010

Age Group	Live Births*	APNCU Category										Not Stated†
		Adequate Plus		Adequate		Intermediate		Inadequate		Number	Percent	
		Number	Percent	Number	Percent	Number	Percent	Number	Percent			
Total	38,823	11,884	30.6	19,100	49.2	2,318	6.0	5,521	14.2			1,616
Age Groups												
10-14	33	5	n/a	15	n/a	2	n/a	11	n/a			3
15-19	3,641	923	25.4	1,530	42.0	244	6.7	944	25.9			202
20-24	10,346	2,929	28.3	4,743	45.8	701	6.8	1,973	19.1			432
25-29	12,063	3,805	31.5	6,188	51.3	685	5.7	1,385	11.5			466
30-34	8,525	2,752	32.3	4,550	53.4	458	5.4	765	9.0			332
35 and Over	4,215	1,470	34.9	2,074	49.2	228	n/a	443	10.5			181

n/a The number is too small to calculate percent (<20).

*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.

†Number of live births with insufficient information (Not Stated) to calculate APNCU. Residence data.

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

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.

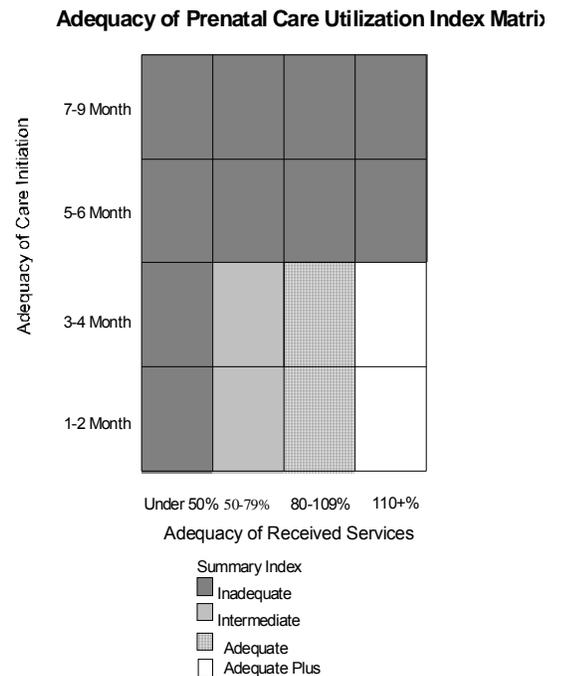
Criteria for the Kansas Adequacy of Prenatal Care Utilization (APNCU) Index

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%



- 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.