



Adequacy of Prenatal Care  
Utilization Index  
Kansas, 2013

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 (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 2013, prenatal care defined as inadequate decreased by 2.6 percent compared to 2012, while adequate care stayed the same. Currently, Kansas’ level of adequate care (81.9%) 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.

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 birth weight 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 2013 births. The analytical file is considered 99.99 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 *2013 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. 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 percentage rates in Table 7. Values with a relative standard error of 30 percent or less are considered reliable. Values with a relative standard error greater than 30 percent but less than 50 percent are considered unreliable, and rates with RSE greater than 50 percent have been suppressed [10]. Table 1 of this report was also included in the *Kansas Annual Summary of Vital Statistics, 2013*. 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 [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 38,488 out of 38,805 or 99.2 percent of Kansas resident live births in 2013 (Figure 1). The number of births that contained the variables necessary to calculate the prenatal care utilization index increased by 1.0 percent from 2012 (39,559 out of 40,304 or 98.2 percent of live births).

Of the 38,488 Kansas resident births for which prenatal care utilization could be calculated in 2013, 81.9 percent received adequate or better prenatal care, including 30.5 percent with adequate-plus care. This level of adequate or better prenatal care meets the target established by Healthy People 2020 (77.6%). However, 18.1 percent received less than adequate prenatal care, with 11.4 percent having inadequate care and 6.7 percent intermediate care (Table 1).

In 2013, the number of women reporting inadequate prenatal care (4,383) decreased 5.3 percent compared to 2012 (4,626). The percentage of adequate care utilization decreased by 1.2 percent, (i.e., 20,009 in 2012 and 19,778 in 2013). Adequate-plus prenatal care utilization (12,384 in 2012 and 11,746 in 2013) decreased by 5.2 percent (Table 1).

Among mothers whose prenatal care utilization was classified as inadequate, the vast majority (4,141 or 94.5%) were due to late initiation of care. A minority of women (242 or 5.5%) 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 2013, among mothers of infants with low birth weight, 81.4 percent received adequate or better care, while 12.1 percent experienced inadequate care (Table 2).

The percentage of adequate or better prenatal care was highest among White non-Hispanics (85.9%), followed by Asian/Pacific Islander non-Hispanics (81.4%), Other non-Hispanics (72.6%) and Black non-Hispanics (72.0%). Hispanics had the lowest percentage (69.7%) receiving adequate or better prenatal care (Table 3).

Mothers reporting inadequate prenatal care among the population groups, 19.8 percent were Native American non-Hispanics (19.8%), Hispanics (19.3%) and Black non-Hispanics (18.1%). These rates were more than twice that of White non-Hispanic women, who experienced inadequate care at a rate of 8.8 percent (Table 3, Figure 3).

The highest percentage of adequate or better prenatal care was paid by private insurance (90.6%), followed by Champus/Tricare (81.5%). The highest percentage of mothers who received inadequate care was paid by Other government (28.5%), followed by self-pay at 25.4 percent (Table 4). The percentage of mothers who self paid increased 0.8 percent from 2012 (25.2%) to 2013 (25.4%).

However, among the 4,383 mothers who received inadequate prenatal care, 51.9 percent of those were paid by Medicaid, followed private insurance (22.2%) and Self Pay (17.2%) (Figure 4).

Among first births, the percent of mothers with adequate or adequate plus prenatal care (84.5%) was 4.1 percentage points higher than second or higher live births (80.4%) who received adequate or better prenatal care (Table 5). Similarly, among first births inadequate prenatal care (9.5%) was less than 12.5 percent among second or higher births.

Among first births, the percentage of mothers in each age group except aged 10-14 years had lower percentages receiving inadequate care than among those mothers with second or higher live births (Table 5).

Inadequate care was higher in younger mothers (14-24 years of age) than older mothers, i.e., 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 2013 with APC = -3.5,  $p < .05$  (Figure 5).

County percentages of mothers who received less than adequate prenatal care in 2013 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 15 counties than the state percentage, and percentages for seven counties were significantly lower than the state percentage. Percentages for 40 counties were not statistically significantly different from the state percentage, while 43 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 2012 to 2013 in Table 7. There was a very small percentage increase in less than adequate care for the state of Kansas (0.9%) from 2012 to 2013 and no change in adequate and better prenatal care (0.0%).

The percentage of birth mothers receiving less than adequate prenatal care increased in 32 counties from 2012 to 2013. Osage county had the largest increase in less than adequate prenatal care, i.e., 88.4 percent increase from 2012 to 2013, followed by Marshall (76.6% increase) and Jefferson (56.4% increase) counties.

The percentage of birth mothers receiving less than adequate care decreased in 22 counties from 2012 to 2013. Kearney (44.1%), Gray (42.4%) and Thomas (33.1%) counties had the largest decreases in less than adequate prenatal care. In 37 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 2012 to 2013 the percentage of birth mothers receiving adequate and better prenatal care increased in 45 counties, while 48 counties experienced decreases. Norton County had the largest decrease in adequate and better prenatal care (32.1%) from 2012 to 2013. In 12 counties the percentage of change in adequate and better prenatal care were not reliable measures.

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### ***Tables***

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### ***Technical Notes***

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1. Certificate of Live Birth

Table 1. County of Kansas Resident Live Births by Adequacy of Prenatal Care Utilization (APNCU) Index Kansas, 2013

County of Residence	Live Births*	APNCU Category †								n.s. ‡
		Adequate Plus		Adequate		Intermediate		Inadequate		
		Number	Percent	Number	Percent	Number	Percent	Number	Percent	
Kansas	38,805	11,746	30.5	19,778	51.4	2,580	6.7	4,383	11.4	317
Allen	143	39	27.5	74	52.1	9	6.3	20	14.1	1
Anderson	94	35	37.2	44	46.8	4	4.3	11	11.7	0
Atchison	191	43	22.8	100	52.9	22	11.6	24	12.7	2
Barber	60	14	23.3	36	60.0	0	0.0	10	16.7	0
Barton	350	132	37.8	146	41.8	16	4.6	55	15.8	1
Bourbon	218	110	50.9	58	26.9	7	3.2	41	19.0	2
Brown	139	26	19.0	67	48.9	21	15.3	23	16.8	2
Butler	751	196	26.3	467	62.8	20	2.7	61	8.2	7
Chase	26	10	40.0	12	48.0	0	0.0	3	12.0	1
Chautauqua	34	11	32.4	17	50.0	2	5.9	4	11.8	0
Cherokee	219	62	28.6	89	41.0	21	9.7	45	20.7	2
Cheyenne	27	3	13.6	11	50.0	3	13.6	5	22.7	5
Clark	20	9	45.0	7	35.0	1	5.0	3	15.0	0
Clay	113	43	38.1	61	54.0	2	1.8	7	6.2	0
Cloud	103	27	26.2	55	53.4	13	12.6	8	7.8	0
Coffey	94	26	28.0	56	60.2	7	7.5	4	4.3	1
Comanche	21	6	28.6	12	57.1	0	0.0	3	14.3	0
Cowley	456	186	41.3	172	38.2	8	1.8	84	18.7	6
Crawford	489	125	25.8	198	40.9	86	17.8	75	15.5	5
Decatur	33	8	24.2	21	63.6	3	9.1	1	3.0	0
Dickinson	218	86	39.4	90	41.3	13	6.0	29	13.3	0
Doniphan	81	27	33.8	33	41.3	6	7.5	14	17.5	1
Douglas	1,219	501	41.1	544	44.6	50	4.1	124	10.2	0
Edwards	32	8	25.0	19	59.4	1	3.1	4	12.5	0
Elk	27	5	18.5	16	59.3	1	3.7	5	18.5	0
Ellis	360	85	23.6	219	60.8	33	9.2	23	6.4	0
Ellsworth	52	10	19.2	33	63.5	7	13.5	2	3.8	0
Finney	656	193	29.5	231	35.3	65	9.9	166	25.3	1
Ford	681	196	29.0	263	38.8	94	13.9	124	18.3	4
Franklin	332	91	27.4	187	56.3	15	4.5	39	11.7	0
Geary	1,029	266	26.0	517	50.4	88	8.6	154	15.0	4
Gove	30	8	26.7	14	46.7	5	16.7	3	10.0	0
Graham	24	6	25.0	12	50.0	4	16.7	2	8.3	0
Grant	123	26	21.5	47	38.8	14	11.6	34	28.1	2
Gray	103	35	34.7	51	50.5	8	7.9	7	6.9	2
Greeley	25	5	20.0	8	32.0	5	20.0	7	28.0	0
Greenwood	62	16	27.1	27	45.8	3	5.1	13	22.0	3
Hamilton	37	9	24.3	17	45.9	2	5.4	9	24.3	0
Harper	83	13	16.3	58	72.5	4	5.0	5	6.3	3
Harvey	445	219	49.4	168	37.9	5	1.1	51	11.5	2
Haskell	52	10	19.2	24	46.2	3	5.8	15	28.8	0
Hodgeman	21	3	14.3	12	57.1	4	19.0	2	9.5	0
Jackson	156	49	31.6	68	43.9	12	7.7	26	16.8	1
Jefferson	195	86	44.1	81	41.5	4	2.1	24	12.3	0
Jewell	27	4	14.8	18	66.7	3	11.1	2	7.4	0
Johnson	7,320	2,439	33.7	3,909	54.0	535	7.4	351	4.9	86
Kearny	63	23	36.5	24	38.1	4	6.3	12	19.0	0
Kingman	90	14	15.6	59	65.6	3	3.3	14	15.6	0
Kiowa	39	7	17.9	28	71.8	2	5.1	2	5.1	0
Labette	270	112	41.8	90	33.6	22	8.2	44	16.4	2
Lane	23	6	28.6	9	42.9	1	4.8	5	23.8	2
Leavenworth	955	251	26.5	534	56.4	76	8.0	86	9.1	8
Lincoln	25	5	20.0	18	72.0	1	4.0	1	4.0	0
Linn	91	36	39.6	47	51.6	2	2.2	6	6.6	0
Logan	33	10	30.3	17	51.5	4	12.1	2	6.1	0

Table 1. County of Kansas Resident Live Births by Adequacy of Prenatal Care Utilization (APNCU) Index Kansas, 2013

County of Residence	Live Births*	APNCU Category †								n.s. ‡
		Adequate Plus		Adequate		Intermediate		Inadequate		
		Number	Percent	Number	Percent	Number	Percent	Number	Percent	
Lyon	419	198	48.1	135	32.8	25	6.1	54	13.1	7
McPherson	320	150	47.0	137	42.9	12	3.8	20	6.3	1
Marion	109	54	49.5	44	40.4	3	2.8	8	7.3	0
Marshall	125	34	27.4	58	46.8	15	12.1	17	13.7	1
Meade	69	15	21.7	34	49.3	7	10.1	13	18.8	0
Miami	297	82	27.7	184	62.2	15	5.1	15	5.1	1
Mitchell	72	18	25.0	40	55.6	7	9.7	7	9.7	0
Montgomery	427	181	42.7	150	35.4	23	5.4	70	16.5	3
Morris	59	18	30.5	32	54.2	3	5.1	6	10.2	0
Morton	37	11	30.6	22	61.1	2	5.6	1	2.8	1
Nemaha	154	38	24.7	96	62.3	6	3.9	14	9.1	0
Neosho	204	65	32.2	84	41.6	10	5.0	43	21.3	2
Ness	33	9	27.3	19	57.6	0	0.0	5	15.2	0
Norton	51	5	10.0	20	40.0	13	26.0	12	24.0	1
Osage	150	61	41.5	59	40.1	12	8.2	15	10.2	3
Osborne	50	14	28.0	30	60.0	3	6.0	3	6.0	0
Ottawa	58	12	20.7	35	60.3	7	12.1	4	6.9	0
Pawnee	63	22	34.9	19	30.2	9	14.3	13	20.6	0
Phillips	65	13	20.0	26	40.0	14	21.5	12	18.5	0
Pottawatomie	353	107	30.4	187	53.1	16	4.5	42	11.9	1
Pratt	122	27	22.1	71	58.2	3	2.5	21	17.2	0
Rawlins	22	7	31.8	11	50.0	3	13.6	1	4.5	0
Reno	743	293	39.6	323	43.6	42	5.7	82	11.1	3
Republic	49	17	36.2	22	46.8	5	10.6	3	6.4	2
Rice	128	42	33.1	59	46.5	5	3.9	21	16.5	1
Riley	999	269	27.0	548	55.0	61	6.1	118	11.8	3
Rooks	60	14	23.3	29	48.3	8	13.3	9	15.0	0
Rush	30	6	20.0	14	46.7	3	10.0	7	23.3	0
Russell	94	16	17.0	63	67.0	5	5.3	10	10.6	0
Saline	772	200	26.0	426	55.3	62	8.1	82	10.6	2
Scott	61	31	50.8	17	27.9	5	8.2	8	13.1	0
Sedgwick	7,487	1611	21.7	4,776	64.4	196	2.6	833	11.2	71
Seward	441	122	27.7	172	39.1	35	8.0	111	25.2	1
Shawnee	2,352	1053	45.1	908	38.9	84	3.6	292	12.5	15
Sheridan	31	4	12.9	17	54.8	6	19.4	4	12.9	0
Sherman	80	24	30.0	41	51.3	11	13.8	4	5.0	0
Smith	28	10	35.7	13	46.4	2	7.1	3	10.7	0
Stafford	49	11	22.4	31	63.3	0	0.0	7	14.3	0
Stanton	38	13	34.2	15	39.5	6	15.8	4	10.5	0
Stevens	99	22	22.2	54	54.5	8	8.1	15	15.2	0
Sumner	272	57	21.1	165	61.1	16	5.9	32	11.9	2
Thomas	98	33	33.7	50	51.0	7	7.1	8	8.2	0
Trego	33	9	27.3	21	63.6	1	3.0	2	6.1	0
Wabaunsee	98	36	37.1	44	45.4	5	5.2	12	12.4	1
Wallace	23	6	26.1	11	47.8	2	8.7	4	17.4	0
Washington	79	31	39.2	36	45.6	9	11.4	3	3.8	0
Wichita	25	6	25.0	7	29.2	4	16.7	7	29.2	1
Wilson	109	34	31.5	54	50.0	8	7.4	12	11.1	1
Woodson	29	9	31.0	14	48.3	1	3.4	5	17.2	0
Wyandotte	2,678	655	24.8	1,160	43.9	431	16.3	395	15.0	37

\* Total number of live births in 2013.

† 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, 2013

Birth Weight (Grams)	Live Births*	APNCU Category †								n.s.‡
		Adequate Plus		Adequate		Intermediate		Inadequate		
		Number	Percent	Number	Percent	Number	Percent	Number	Percent	
Total	38,805	11,747	30.5	19,778	51.4	2,580	6.7	4,383	11.4	317
Under 2,500 (Low)	2,728	1,560	58.8	660	24.9	112	4.2	321	12.1	75
2,500-4,499 (Normal)	32,713	9,411	29.0	17,114	52.7	2,238	6.9	3,729	11.5	221
4,500 and Over (High)	3,358	775	23.2	2,004	60.0	230	6.9	331	9.9	18
n.s.	5	1	n/a	0	n/a	0	n/a	1	n/a	3

\* Total number of live births in 2013.

† 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, 2013

Population Groups	Live Births*	APNCU Category †								n.s.‡
		Adequate Plus		Adequate		Intermediate		Inadequate		
		Number	Percent	Number	Percent	Number	Percent	Number	Percent	
Total	38,805	11,747	30.5	19,778	51.4	2,580	6.7	4,383	11.4	317
White Non-Hispanic	27,821	8,913	32.3	14,797	53.6	1,465	5.3	2,422	8.8	224
Black Non-Hispanic	2,549	694	27.5	1,121	44.4	251	10.0	456	18.1	27
Native American										
Non-Hispanic	183	47	25.8	81	44.5	18	9.9	36	19.8	1
Asian/Pacific Islander										
Non-Hispanic	1,175	320	27.4	631	54.0	78	6.7	140	12.0	6
Other Non-Hispanic§	921	254	27.8	409	44.8	99	10.8	151	16.5	8
Hispanic Any Race	6,139	1,514	24.9	2,733	44.9	668	11.0	1,175	19.3	49
n.s.	17	5	n/a	6	n/a	1	n/a	3	n/a	2

\* Total number of live births in 2013.

† 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, 2013.

Pay Source	Live Births*	APNCU Category †										n.s. ‡
		Adequate Plus		Adequate		Intermediate		Inadequate		Number	Percent	
		Number	Percent	Number	Percent	Number	Percent	Number	Percent			
Total	38,805	11,747	30.5	19,778	51.4	2,580	6.7	4,383	11.4	317		
Medicaid	12,542	3,701	29.7	5,543	44.6	923	7.4	2,274	18.3	101		
Private Insurance	20,500	6,967	34.2	11,473	56.4	928	4.6	974	4.8	158		
Self Pay	2,998	461	15.5	1,232	41.5	523	17.6	753	25.4	29		
Indian Health Service	18	4	22.2	9	50.0	0	0.0	5	27.8	0		
Champus/Tricare	2,195	508	23.2	1,275	58.3	159	7.3	245	11.2	8		
Other Government	236	46	19.5	114	48.3	15	6.4	61	25.8	0		
Other/Unknown	316	60	20.3	132	44.7	32	10.8	71	24.1	21		

\* Total number of live births in 2013.

† 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, 2013

Age Group	Live Births*	APNCU Category †									
		Adequate Plus		Adequate		Intermediate		Inadequate		n.s. ‡	
		Number	Percent	Number	Percent	Number	Percent	Number	Percent		
Total	38,805	11,747	30.5	19,778	51.4	2,580	6.7	4,383	11.4	317	
Age Groups											
10-14	30	5	n/a	12	n/a	2	n/a	11	n/a	0	
15-19	2,867	766	27.0	1,291	45.5	238	8.4	544	19.2	28	
20-24	9,576	2,708	28.5	4,624	48.7	646	6.8	1,520	16.0	78	
25-29	12,220	3,753	30.9	6,469	53.3	767	6.3	1,138	9.4	93	
30-34	9,641	3,046	31.8	5,140	53.7	628	6.6	750	7.8	77	
35 and Over	4,470	1,469	33.2	2,242	50.6	299	n/a	419	9.5	41	
n.s.	1	0	n/a	0	n/a	0	n/a	1	n/a	0	

\* Total number of live births in 2013.

† 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 the percentage reliably and is suppressed.

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

Table 7. County of Kansas Resident Live Births by Percentages of Adequate and Better and Less Than Adequate\* Prenatal Care with Percentage Changes in Each Category 2012-2013

County of Residence	Adequate and Better†			Less than Adequate†		
	2012	2013	2012-2013	2012	2013	2012-2013
	Percent	Percent	% Change	Percent	Percent	% Change
Kansas	81.9	81.9	0.0	17.8	17.9	0.9
Allen	82.2	79.6	-3.2	17.5	20.3	15.7
Anderson	85.9	84.0	-2.1	14.1 ‡	16.0	13.0 ‡
Atchison	72.1	75.7	4.9	27.5	24.1	-12.3
Barber	81.8	83.3	1.9	18.2 ‡	16.7 ‡	-8.3 ‡
Barton	80.4	79.7	-0.9	18.7	20.3	8.5
Bourbon	81.5	77.8	-4.6	18.2	22.0	20.8
Brown	69.3	67.9	-2.0	28.7	31.7	10.4
Butler	86.7	89.1	2.7	13.1	10.8	-17.7
Chase	73.1 ‡	88.0	20.4 ‡	26.9 ‡	n/a	n/a
Chautauqua	67.5	82.4	22.0	32.5 ‡	17.6	-45.7 ‡
Cherokee	67.1	69.6	3.7	32.6	30.1	-7.6
Cheyenne	88.5	63.6 ‡	-28.1 ‡	n/a	29.6 ‡	n/a
Clark	79.3	80.0 ‡	0.9 ‡	20.0 ‡	n/a	n/a
Clay	82.5	92.0	11.6	17.5	8.0 ‡	-54.6 ‡
Cloud	86.7	79.6	-8.1	13.3	20.4	52.9
Coffey	83.3	88.2	5.8	15.9	11.7 ‡	-26.2 ‡
Comanche	65.2 ‡	85.7 ‡	31.4 ‡	34.8 ‡	n/a	n/a
Cowley	80.3	79.6	-0.9	19.3	20.2	4.5
Crawford	68.9	66.7	-3.2	30.8	32.9	6.8
Decatur	75.7	87.9	16.1	24.3 ‡	n/a	n/a
Dickinson	83.7	80.7	-3.5	16.1	19.3	19.7
Doniphan	78.8	75.0	-4.9	21.2	24.7	16.6
Douglas	85.6	85.7	0.2	14.3	14.3	-0.5
Edwards	73.0	84.4	15.6	25.6 ‡	15.6 ‡	-39.1 ‡
Elk	85.2	77.8	-8.7	n/a	22.2 ‡	n/a
Ellis	83.3	84.4	1.3	16.5	15.6	-5.7
Ellsworth	83.3	82.7	-0.8	16.4 ‡	17.3 ‡	5.4 ‡
Finney	48.8	64.7	32.7	50.8	35.2	-30.7
Ford	72.1	67.8	-6.0	27.2	32.0	17.7
Franklin	84.9	83.7	-1.4	14.8	16.3	9.8
Geary	75.4	76.4	1.4	24.4	23.5	-3.7
Gove	70.0	73.3	4.8	30.0 ‡	26.7 ‡	-11.1 ‡
Graham	79.3	75.0 ‡	-5.4 ‡	20.7 ‡	25.0 ‡	20.8 ‡
Grant	64.0	60.3	-5.7	35.7	39.0	9.3
Gray	74.7	85.1	14.0	25.3	14.6	-42.4
Greeley	33.3 ‡	52.0 ‡	56.0 ‡	63.2 ‡	48.0 ‡	-24.0 ‡
Greenwood	82.8	72.9	-11.9	16.9 ‡	25.8	52.3 ‡
Hamilton	50.0	70.3	40.5	48.8	29.7 ‡	-39.1 ‡
Harper	84.6	88.8	4.9	15.2 ‡	10.8 ‡	-28.4 ‡
Harvey	88.3	87.4	-1.1	11.7	12.6	7.9
Haskell	59.6	65.4	9.6	39.7	34.6	-12.7
Hodgeman	100.0	71.4 ‡	-28.6 ‡	n/a	28.6 ‡	n/a
Jackson	80.2	75.5	-5.9	19.3	24.4	26.1
Jefferson	90.7	85.6	-5.6	9.2	14.4	56.4
Jewell	77.4	81.5	5.2	22.6 ‡	18.5 ‡	-18.0 ‡
Johnson	88.5	87.8	-0.8	11.3	12.1	7.0
Kearny	54.5	74.6	36.8	45.5	25.4	-44.1
Kingman	91.0	81.1	-10.9	8.8 ‡	18.9	115.9 ‡
Kiowa	86.7	89.7	3.6	n/a	n/a	n/a
Labette	82.1	75.4	-8.2	17.5	24.4	39.6
Lane	81.8 ‡	71.4 ‡	-12.7 ‡	n/a	26.1 ‡	n/a
Leavenworth	81.6	82.9	1.6	18.3	17.0	-7.4
Lincoln	93.9	92.0	-2.1	n/a	n/a	n/a
Linn	88.5	91.2	3.0	11.3 ‡	8.8 ‡	-22.5 ‡
Logan	70.0	81.8	16.9	30.0 ‡	18.2 ‡	-39.4 ‡

Table 7. County of Kansas Resident Live Births by Percentages of Adequate and Better and Less Than Adequate\* Prenatal Care with Percentage Changes in Each Category 2012-2013

County of Residence	Adequate and Better†			Less than Adequate‡		
	2012	2013	2012-2013	2012	2013	2012-2013
	Percent	Percent	% Change	Percent	Percent	% Change
Lyon	77.8	80.8	3.8	20.4	18.9	-7.7
McPherson	89.3	90.0	0.7	10.7	10.0	-6.5
Marion	88.4	89.9	1.7	11.6	10.1 ‡	-13.0 ‡
Marshall	85.5	74.2	-13.2	14.5	25.6	76.6
Meade	70.5	71.0	0.8	28.9 ‡	29.0	0.3 ‡
Miami	90.1	89.9	-0.2	9.9	10.1	2.1
Mitchell	82.4	80.6	-2.3	17.6 ‡	19.4	10.7 ‡
Montgomery	78.4	78.1	-0.4	21.3	21.8	2.2
Morris	90.4	84.7	-6.3	9.6 ‡	15.3 ‡	59.1 ‡
Morton	80.4	91.7	14.0	19.2 ‡	n/a	n/a
Nemaha	88.5	87.0	-1.7	11.1	13.0	16.9
Neosho	79.5	73.8	-7.2	20.4	26.0	27.1
Ness	70.7	84.8	20.0	29.3 ‡	15.2 ‡	-48.2 ‡
Norton	73.6	50.0	-32.1	26.4 ‡	49.0	85.6 ‡
Osage	90.0	81.6	-9.3	9.6	18.0	88.4
Osborne	83.8	88.0	5.0	16.2 ‡	12.0 ‡	-26.0 ‡
Ottawa	85.3	81.0	-5.0	14.7 ‡	19.0 ‡	29.0 ‡
Pawnee	82.4	65.1	-21.0	17.6 ‡	34.9	97.9 ‡
Phillips	69.4	60.0	-13.6	29.7	40.0	34.5
Pottawatomie	87.2	83.5	-4.2	12.7	16.4	29.3
Pratt	77.9	80.3	3.2	22.1	19.7	-11.2
Rawlins	90.9	81.8 ‡	-10.0 ‡	n/a	n/a	n/a
Reno	81.1	83.2	2.7	18.7	16.7	-10.9
Republic	89.4	83.0	-7.1	10.4 ‡	16.3 ‡	56.7 ‡
Rice	83.8	79.5	-5.1	16.0	20.3	27.2
Riley	81.8	82.0	0.3	18.1	17.9	-1.0
Rooks	83.9	71.7	-14.6	16.1 ‡	28.3	75.7 ‡
Rush	85.7	66.7	-22.2	n/a	33.3 ‡	n/a
Russell	84.7	84.0	-0.8	15.3	16.0	4.3
Saline	81.0	81.3	0.3	18.8	18.7	-0.8
Scott	71.0	78.7	10.9	29.0	21.3 ‡	-26.6 ‡
Sedgwick	86.5	86.1	-0.4	13.3	13.7	3.3
Seward	67.0	66.8	-0.2	32.9	33.1	0.6
Shawnee	83.5	83.9	0.4	15.5	16.0	3.1
Sheridan	76.9	67.7	-11.9	23.1 ‡	32.3 ‡	39.8 ‡
Sherman	80.2	81.3	1.3	19.5	18.8	-3.9
Smith	75.0	82.1	9.5	25.0 ‡	17.9 ‡	-28.6 ‡
Stafford	82.5	85.7	3.9	17.5 ‡	14.3 ‡	-18.4 ‡
Stanton	67.9	73.7	8.6	31.0 ‡	26.3 ‡	-15.2 ‡
Stevens	72.4	76.8	6.0	27.0	23.2	-13.8
Sumner	84.5	82.2	-2.7	15.1	17.6	17.2
Thomas	77.1	84.7	9.8	22.9	15.3	-33.1
Trego	66.7 ‡	90.9	36.4 ‡	33.3 ‡	n/a	n/a
Wabaunsee	80.6	82.5	2.3	18.7	17.3	-7.2
Wallace	55.0 ‡	73.9 ‡	34.4 ‡	45.0 ‡	26.1 ‡	-42.0 ‡
Washington	85.3	84.8	-0.6	14.7 ‡	15.2	3.3 ‡
Wichita	61.3	54.2 ‡	-11.6 ‡	38.7 ‡	44.0 ‡	13.7 ‡
Wilson	84.7	81.5	-3.9	14.6	18.3	25.4
Woodson	82.1	79.3	-3.4	17.9 ‡	20.7 ‡	15.9 ‡
Wyandotte	67.2	68.7	2.2	31.9	30.8	-3.2

\* 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\*, 2013

		Adequacy of Received Services				Total
		Under 50%	50 – 79%	80 – 109%	110+%	
Adequacy of Care Initiation	7 – 9 Month	341	102	233	790	1,466
	5 – 6 Month	58	277	625	1,715	2,675
	3 – 4 Month	160	1,301	10,339	7,890	19,690
	1 – 2 Month	82	1,279	9,439	3,857	14,657
Total		641	2,959	20,636	14,252	38,488

Summary Index

- Inadequate
- Intermediate
- Adequate
- Adequate Plus

\* Includes 99.2 percent (38,488) of 38,805 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.

Figure 2. Percent of Adequacy of Prenatal Care Utilization (APNCU) by Birth Weight, Kansas, 2013

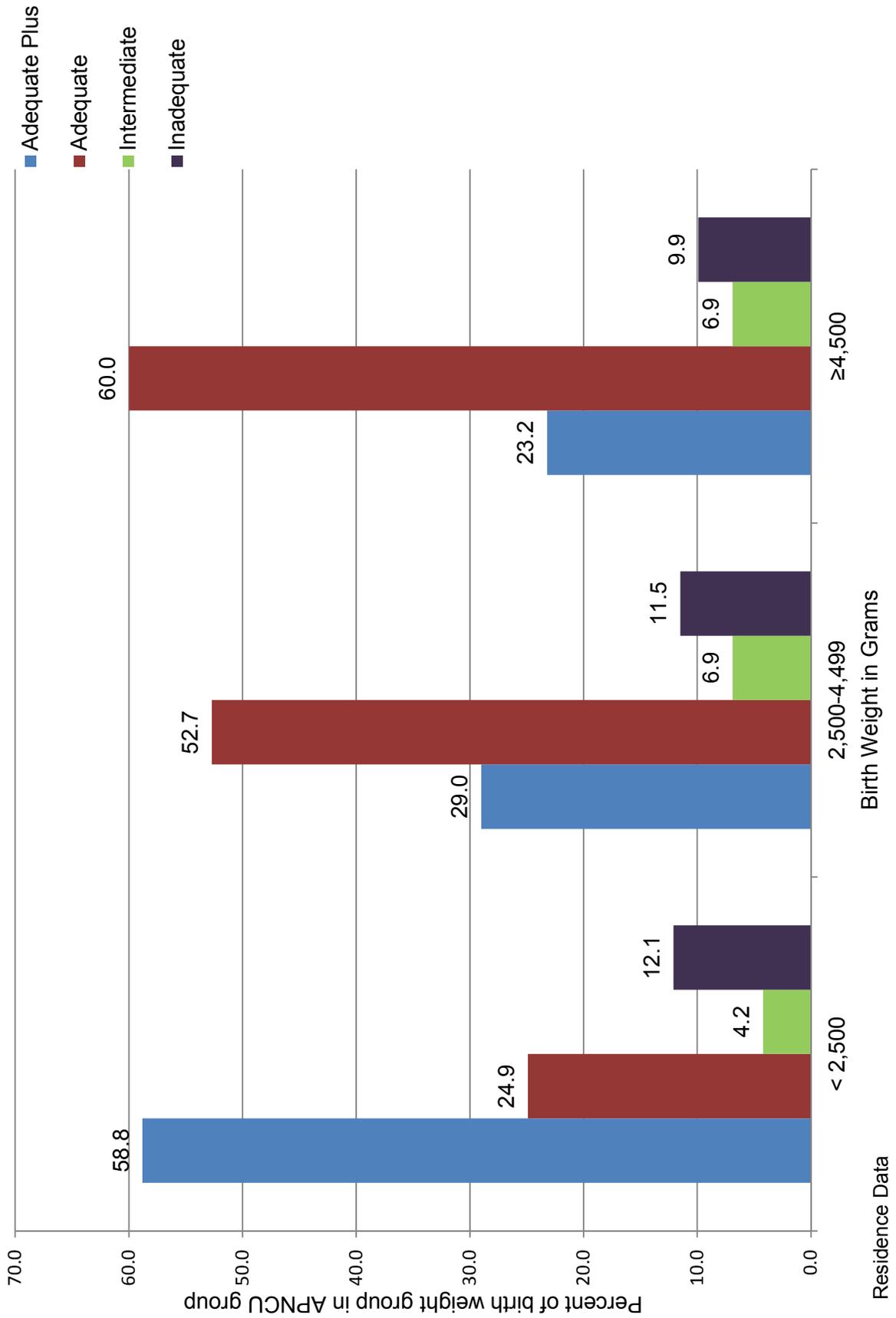


Figure 3. Percent of Adequacy of Prenatal Care Utilization (APNCU) by Population Group, Kansas, 2013

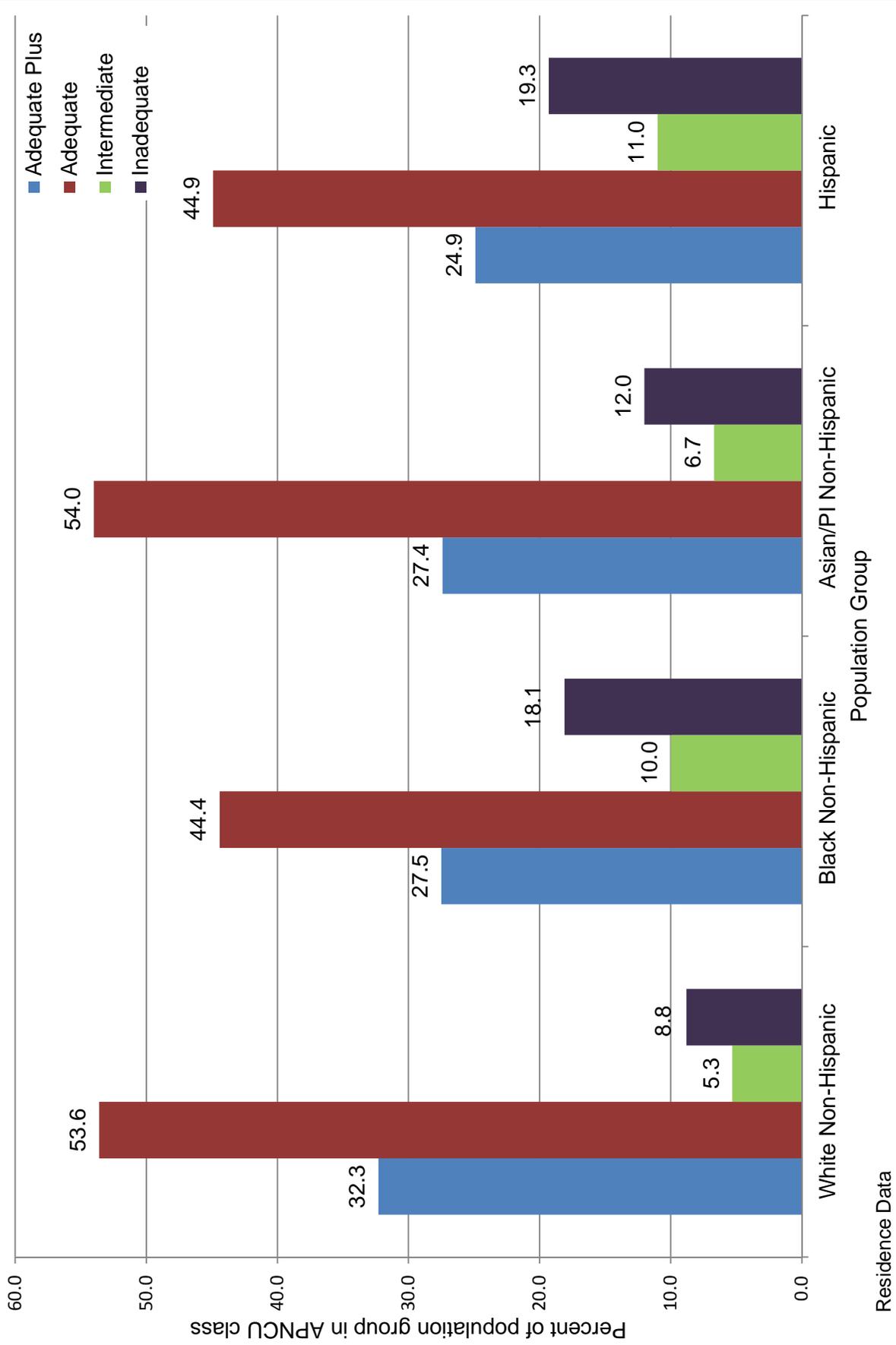


Figure 4. Percent of Adequacy of Prenatal Care Utilization (APNCU) by Selected Delivery Payor Groups, Kansas, 2013

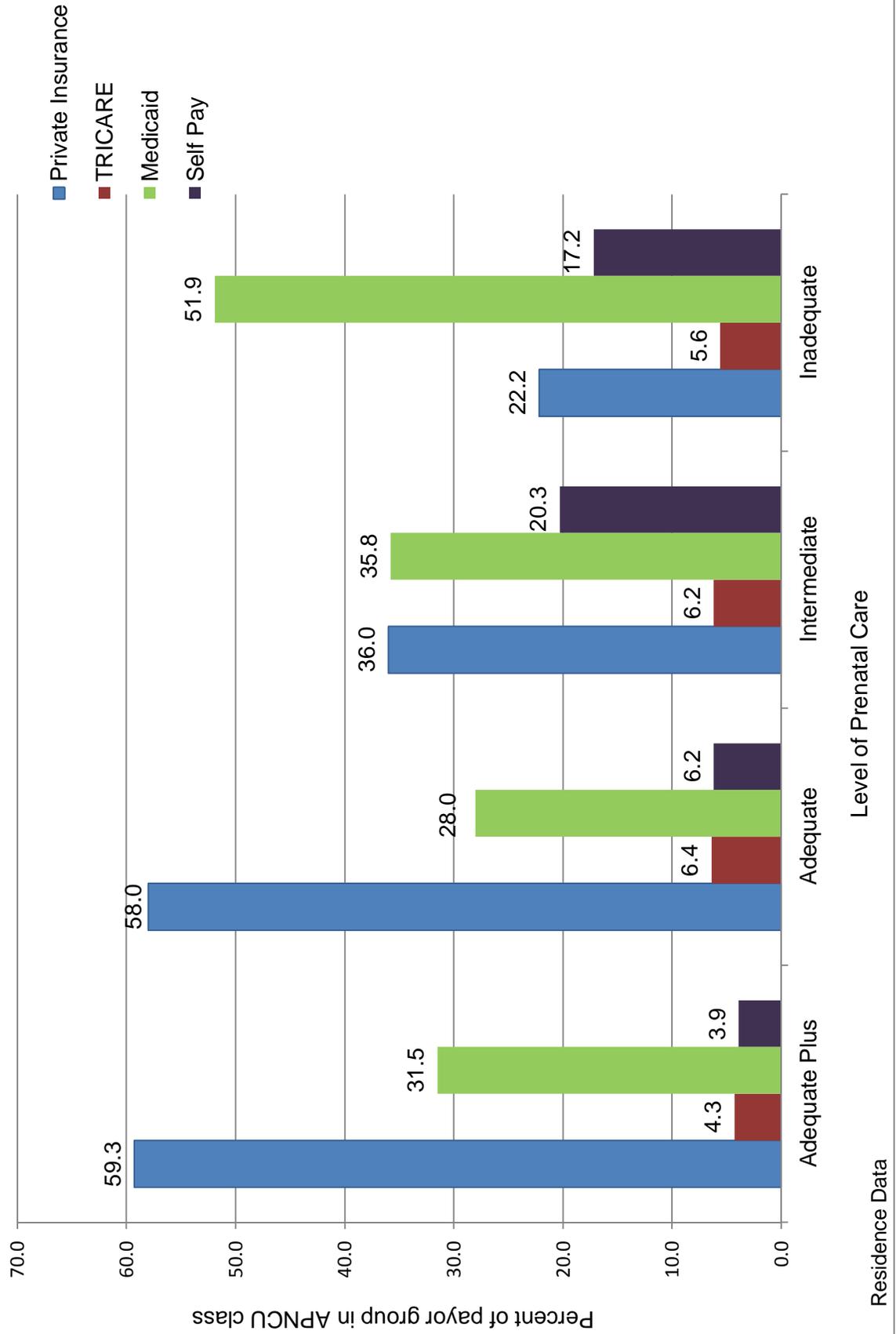
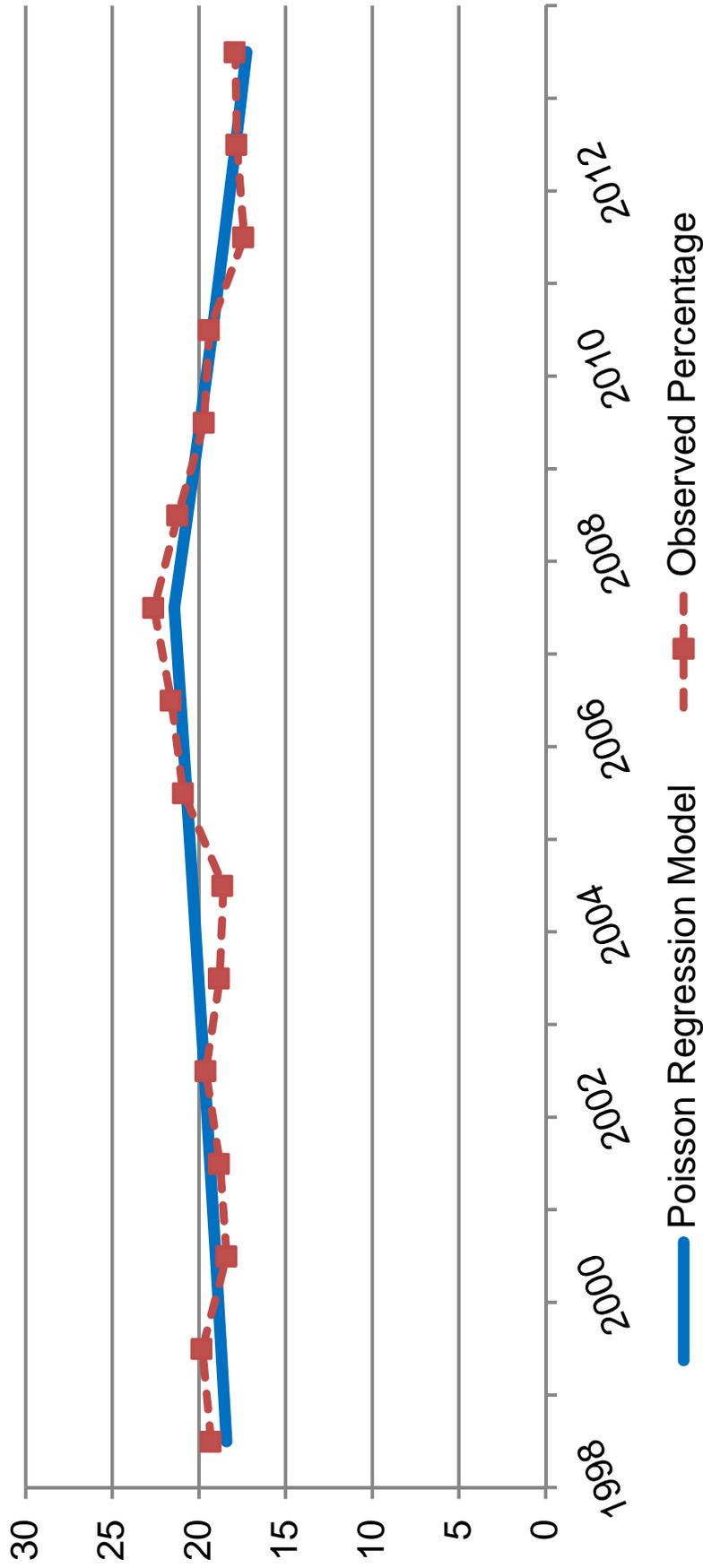


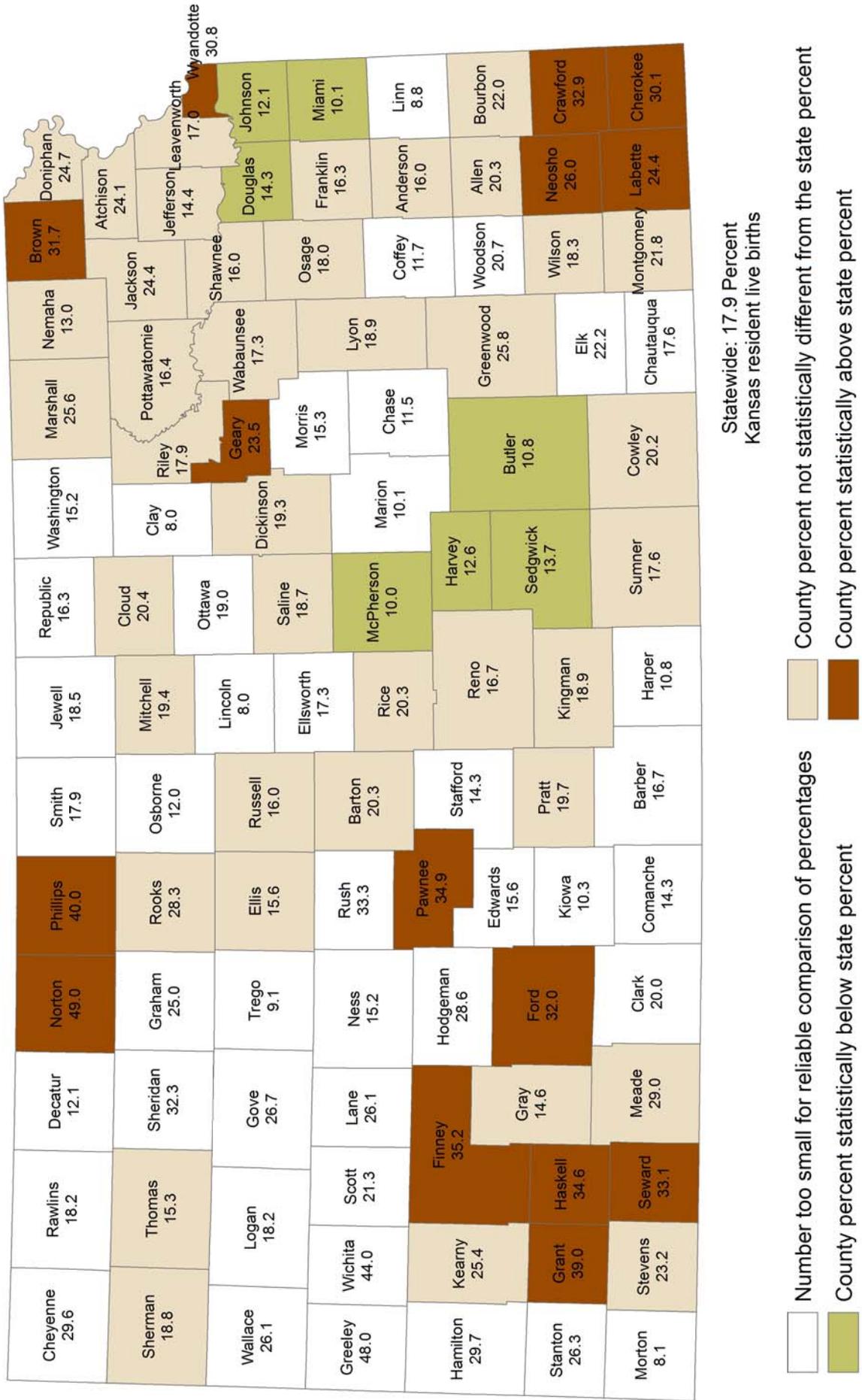
Figure 5. Trends in Prenatal Care Where Care Was Less Than Adequate\*, Kansas, 1998-2013



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

APC = Average Percentage Change  
 APC = 1.7 (1998-2007)  
 APC = -3.5 (2007-2013)

# Figure 6. Percentage of Live Births having Less Than Adequate Prenatal Care by County, Kansas, 2013



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%

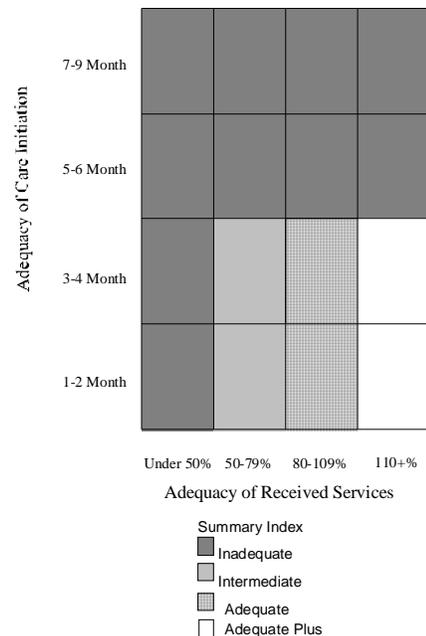
#### III. Summary Adequacy of Prenatal Care

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.

Adequacy of Prenatal Care Utilization Index Matrix



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)
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	49. PRENATAL VISITS-Total Number (If none, enter "0")
47. DATE OF FIRST PRENATAL CARE VISIT (Month, Day, Year)	50. DATE LAST NORMAL MENSES BEGAN (Month, Day, Year)
48. DATE OF LAST PRENATAL CARE VISIT (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	58. PRINCIPAL SOURCE OF PAYMENT FOR THIS DELIVERY
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	<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
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) FACILITY TRANSFERRED FROM:	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