

Kansas



Adequacy of Prenatal Care Utilization Index Kansas, 2009

Research Summary

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January 2011

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Our Vision – Healthy Kansans Living in Safe and Sustainable Environments

Our Mission – To Protect the Health and Environment of Kansans by Promoting Responsible Choices

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Introduction

Prenatal care is defined as pregnancy-related health care services provided to a woman between conception and delivery. It is important to track because there is a strong association between prenatal care and pregnancy outcome. Pregnant women who receive inadequate care are at increased risk of bearing infants who have low birth weight, are stillborn, or die within the first year of life.¹ This data can be analyzed to suggest population groups and geographic areas in need of intervention, therefore protecting the health of these future Kansans.

Accurate measurement of prenatal care depends on the accuracy of the index used. Beginning with 1998 data, the Kansas Department of Health and Environment (KDHE) transitioned from a modified Kessner Index to the Adequacy of Prenatal Care Utilization (APNCU) Index (often referred to as the Kotelchuck Index).² This index attempts to characterize prenatal care (PNC) utilization on two independent and distinctive dimensions: adequacy of initiation of PNC and adequacy 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 categorizes care as inadequate, intermediate, adequate or adequate plus. The index does not assess quality of the prenatal care that is delivered, only its utilization.

This summary is an enhancement of information contained in the 2009 *Annual Summary of Vital Statistics*. Both products can be found at <http://www.kdheks.gov/bephi/>.

¹ C. Arden Mills, Amy Fine, and Sharon Adams-Taylor. *Monitoring Children's Health: Key Indicators* (2nd edition), American Public Health Association, 1989.

² 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.

Highlights

Beginning in 2005, the collection process for prenatal care data changed. Please see the Technical Notes.

Adequacy of prenatal care utilization could be calculated on 38,930 Kansas resident live births in 2009, compared to 39,508 in 2008 (Figure 1). This represented 94.1 percent of the 41,388 resident births reported. While births decreased by 1.0 percent from 2008, reporting on variables needed to calculate prenatal care utilization declined by 0.3 percent.

Of the 38,930 Kansas resident births for which prenatal care utilization could be calculated in 2009, 79.0 percent received adequate or better prenatal care, including 31.3 percent with adequate-plus care; 21.0 percent received less than adequate prenatal care, including 14.9 percent inadequate care (Table 1).

In 2009, reported inadequate prenatal care utilization decreased by 7.0 percent compared to 2008. The percentage of adequate care and adequate-plus care utilizations were virtually unchanged.

Among mothers whose prenatal care utilization was classified as inadequate (5,799), the vast majority (5,548) were due to late initiation of care. Only a minority of women (251) who initiated their care within the first four months of care received inadequate care (Figure 1).

Ottawa County had the highest percentage of mothers with adequate or better prenatal care (96.7) followed by Rush (92.6) and Lincoln Counties (92.2). Wallace County had the lowest percentage of adequate or better prenatal care (45.5), followed by Cherokee (47.7) and Finney (51.8) Counties (Table 1).

The county with the highest percentage of mothers with inadequate care was Cherokee (43.1), followed by Seward (36.5) and Wallace (36.4). Rush County had the lowest percentage of inadequate care (0.0), followed by Ottawa County (1.6) and Lincoln County (2.6) (Table 1).

Among mothers of low birth weight infants, 79.3 percent received adequate or better care, while 17.5 percent experienced inadequate care (Table 2).

The proportion of mothers who received adequate or better prenatal care was highest among White non-Hispanic (83.9 percent), followed by Asian/Pacific Islander non-Hispanic (80.8 percent) and Native American non-Hispanic (74.8 percent). The population group with the lowest percent was Hispanic (62.6) (Table 3).

The proportion of mothers reporting inadequate care were Other non-Hispanic (21.6 percent), Black non-Hispanic (24.8 percent) and Hispanic (27.3 percent). These rates are almost or more than twice that of White non-Hispanic women who experienced inadequate care at a rate of 10.9 percent (Table 3).

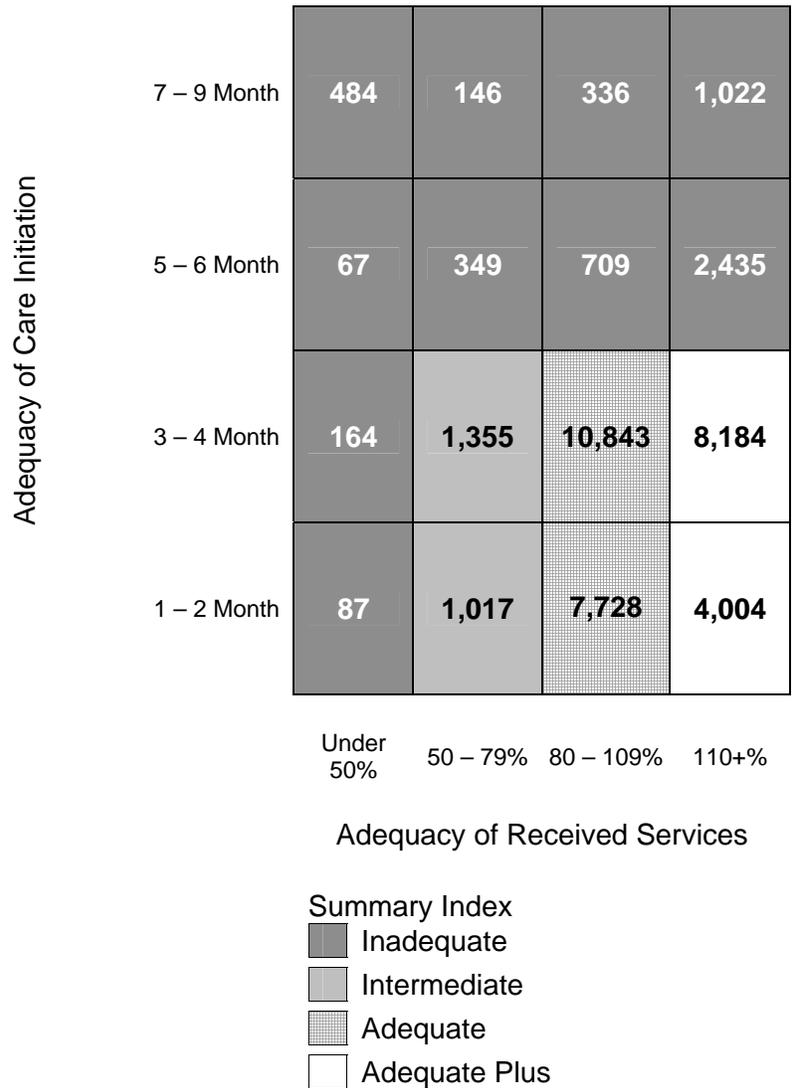
The payer with the highest proportion of mothers who received adequate or adequate plus prenatal care was private insurance (89.6%) followed by Champus/Tricare (80.3%). The payer with the highest proportion of mothers with inadequate prenatal care was self pay (33.2%) (Table 4).

Among first births, the percent of mothers with adequate or adequate plus prenatal care (81.6) was 5.6 percent greater than among second or higher live births (77.3) (Table 5).

Among first births, the percent of mothers with inadequate prenatal care (12.7) was 22.1 percent less than among second or higher live births (16.3) (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).

Figure 1. Adequacy of Prenatal Care Utilization Index
 Kansas Residents*, 2009



* Includes only the 38,930 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, 2009

County of Residence	Live Births*	APNCU Category**								Not Stated***
		Adequate Plus		Adequate		Intermediate		Inadequate		
		Number	Percent	Number	Percent	Number	Percent	Number	Percent	
Kansas.....	41,388	12,188	31.3	18,571	47.7	2,372	6.1	5,799	14.9	2,458
Allen.....	166	72	46.5	50	32.3	15	9.7	18	11.6	11
Anderson.....	105	27	26.7	51	50.5	6	5.9	17	16.8	4
Atchison.....	224	64	33.7	83	43.7	10	5.3	33	17.4	34
Barber.....	61	16	27.6	31	53.4	1	1.7	10	17.2	3
Barton.....	366	132	37.3	148	41.8	24	6.8	50	14.1	12
Bourbon.....	216	89	42.6	90	43.1	6	2.9	24	11.5	7
Brown.....	145	40	30.5	68	51.9	11	8.4	12	9.2	14
Butler.....	799	192	24.6	473	60.6	20	2.6	95	12.2	19
Chase.....	24	6	25.0	12	50.0	2	8.3	4	16.7	0
Chautauqua.....	37	14	40.0	11	31.4	4	11.4	6	17.1	2
Cherokee.....	257	16	24.6	15	23.1	6	9.2	28	43.1	192
Cheyenne.....	35	12	36.4	12	36.4	4	12.1	5	15.2	2
Clark.....	23	3	14.3	10	47.6	6	28.6	2	9.5	2
Clay.....	113	53	46.9	46	40.7	3	2.7	11	9.7	0
Cloud.....	136	43	31.9	70	51.9	6	4.4	16	11.9	1
Coffey.....	74	26	35.6	31	42.5	8	11.0	8	11.0	1
Comanche.....	27	8	29.6	11	40.7	1	3.7	7	25.9	0
Cowley.....	489	206	43.2	179	37.5	12	2.5	80	16.8	12
Crawford.....	563	120	24.0	197	39.5	81	16.2	101	20.2	64
Decatur.....	26	8	36.4	10	45.5	1	4.5	3	13.6	4
Dickinson.....	240	70	29.9	119	50.9	9	3.8	36	15.4	6
Doniphan.....	72	5	26.3	9	47.4	1	5.3	4	21.1	53
Douglas.....	1,232	553	45.8	482	39.9	25	2.1	147	12.2	25
Edwards.....	40	12	30.0	14	35.0	4	10.0	10	25.0	0
Elk.....	40	17	47.2	12	33.3	3	8.3	4	11.1	4
Ellis.....	406	107	26.5	204	50.5	44	10.9	49	12.1	2
Ellsworth.....	75	18	24.3	44	59.5	3	4.1	9	12.2	1
Finney.....	776	165	21.8	227	30.0	119	15.7	245	32.4	20
Ford.....	698	151	23.3	223	34.4	92	14.2	182	28.1	50
Franklin.....	352	141	41.3	144	42.2	14	4.1	42	12.3	11
Geary.....	890	203	23.4	408	47.0	91	10.5	167	19.2	21
Gove.....	36	10	27.8	16	44.4	6	16.7	4	11.1	0
Graham.....	22	6	28.6	7	33.3	5	23.8	3	14.3	1
Grant.....	147	32	23.7	52	38.5	25	18.5	26	19.3	12
Gray.....	95	20	22.0	40	44.0	13	14.3	18	19.8	4
Greeley.....	23	8	34.8	11	47.8	1	4.3	3	13.0	0
Greenwood.....	66	18	28.1	30	46.9	3	4.7	13	20.3	2
Hamilton.....	56	11	20.0	26	47.3	4	7.3	14	25.5	1
Harper.....	84	18	22.5	41	51.3	4	5.0	17	21.3	4
Harvey.....	458	220	49.2	152	34.0	5	1.1	70	15.7	11
Haskell.....	83	19	23.8	27	33.8	12	15.0	22	27.5	3
Hodgeman.....	21	7	35.0	10	50.0	2	10.0	1	5.0	1
Jackson.....	169	53	31.7	76	45.5	14	8.4	24	14.4	2
Jefferson.....	204	76	39.4	83	43.0	8	4.1	26	13.5	11
Jewell.....	29	3	11.1	18	66.7	3	11.1	3	11.1	2
Johnson.....	7,565	2,731	39.5	3,296	47.6	371	5.4	521	7.5	646
Kearny.....	58	12	21.4	26	46.4	4	7.1	14	25.0	2
Kingman.....	96	19	20.7	58	63.0	1	1.1	14	15.2	4
Kiowa.....	29	10	34.5	14	48.3	2	6.9	3	10.3	0
Labette.....	297	74	29.6	106	42.4	18	7.2	52	20.8	47
Lane.....	22	7	38.9	5	27.8	2	11.1	4	22.2	4
Leavenworth.....	963	357	40.4	384	43.4	49	5.5	94	10.6	79
Lincoln.....	38	8	21.1	27	71.1	2	5.3	1	2.6	0
Linn.....	101	35	35.7	49	50.0	4	4.1	10	10.2	3
Logan.....	23	6	26.1	11	47.8	0	0.0	6	26.1	0

Table 1. Adequacy of Prenatal Care Utilization (APNCU) Index
by County of Residence
Kansas, 2009

County of Residence	Live Births*	APNCU Category**								Not Stated***
		Adequate Plus		Adequate		Intermediate		Inadequate		
		Number	Percent	Number	Percent	Number	Percent	Number	Percent	
Lyon.....	474	167	36.3	159	34.6	33	7.2	101	22.0	14
Marion.....	109	51	47.2	43	39.8	2	1.9	12	11.1	1
Marshall.....	110	26	24.1	67	62.0	7	6.5	8	7.4	2
McPherson.....	364	145	40.8	161	45.4	8	2.3	41	11.5	9
Meade.....	55	14	28.6	20	40.8	6	12.2	9	18.4	6
Miami.....	411	161	40.6	182	45.8	22	5.5	32	8.1	14
Mitchell.....	85	20	23.8	50	59.5	6	7.1	8	9.5	1
Montgomery.....	485	224	47.6	156	33.1	23	4.9	68	14.4	14
Morris.....	58	8	14.0	38	66.7	3	5.3	8	14.0	1
Morton.....	51	11	23.9	19	41.3	4	8.7	12	26.1	5
Nemaha.....	138	38	28.4	76	56.7	14	10.4	6	4.5	4
Neosho.....	203	73	37.8	86	44.6	7	3.6	27	14.0	10
Ness.....	19	4	21.1	10	52.6	3	15.8	2	10.5	0
Norton.....	56	14	26.4	25	47.2	7	13.2	7	13.2	3
Osage.....	177	77	46.4	56	33.7	16	9.6	17	10.2	11
Osborne.....	33	12	36.4	14	42.4	4	12.1	3	9.1	0
Ottawa.....	61	12	19.7	47	77.0	1	1.6	1	1.6	0
Pawnee.....	82	35	42.7	28	34.1	4	4.9	15	18.3	0
Phillips.....	53	12	24.5	19	38.8	14	28.6	4	8.2	4
Pottawatomie.....	350	108	31.4	190	55.2	12	3.5	34	9.9	6
Pratt.....	122	48	39.3	54	44.3	4	3.3	16	13.1	0
Rawlins.....	27	5	18.5	13	48.1	4	14.8	5	18.5	0
Reno.....	847	324	39.0	341	41.1	26	3.1	139	16.7	17
Republic.....	56	16	31.4	28	54.9	4	7.8	3	5.9	5
Rice.....	116	42	37.8	43	38.7	9	8.1	17	15.3	5
Riley.....	1,064	315	29.9	529	50.3	78	7.4	130	12.4	12
Rooks.....	74	17	23.0	40	54.1	9	12.2	8	10.8	0
Rush.....	27	6	22.2	19	70.4	2	7.4	0	0.0	0
Russell.....	81	19	23.8	38	47.5	10	12.5	13	16.3	1
Saline.....	861	162	19.0	550	64.6	62	7.3	78	9.2	9
Scott.....	87	20	24.4	31	37.8	8	9.8	23	28.0	5
Sedgwick.....	8,293	1,551	19.4	4,893	61.1	185	2.3	1,377	17.2	287
Seward.....	571	96	19.0	180	35.7	44	8.7	184	36.5	67
Shawnee.....	2,460	988	42.3	843	36.1	168	7.2	334	14.3	127
Sheridan.....	29	10	34.5	13	44.8	2	6.9	4	13.8	0
Sherman.....	63	22	35.5	23	37.1	9	14.5	8	12.9	1
Smith.....	38	12	35.3	19	55.9	1	2.9	2	5.9	4
Stafford.....	49	20	40.8	20	40.8	3	6.1	6	12.2	0
Stanton.....	32	5	19.2	11	42.3	3	11.5	7	26.9	6
Stevens.....	85	15	20.0	28	37.3	5	6.7	27	36.0	10
Sumner.....	283	82	29.8	148	53.8	5	1.8	40	14.5	8
Thomas.....	108	41	39.4	40	38.5	15	14.4	8	7.7	4
Trego.....	31	5	16.7	17	56.7	3	10.0	5	16.7	1
Wabaunsee.....	89	38	43.2	33	37.5	4	4.5	13	14.8	1
Wallace.....	11	1	9.1	4	36.4	2	18.2	4	36.4	0
Washington.....	69	31	45.6	24	35.3	7	10.3	6	8.8	1
Wichita.....	30	8	28.6	8	28.6	4	14.3	8	28.6	2
Wilson.....	116	50	45.5	41	37.3	6	5.5	13	11.8	6
Woodson.....	44	19	44.2	17	39.5	4	9.3	3	7.0	1
Wyandotte.....	2,859	659	26.3	1,028	41.1	300	12.0	515	20.6	357

*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, 2009

Birth Weight (Grams)	Live Births*	APNCU Category								Not Stated**
		Adequate Plus		Adequate		Intermediate		Inadequate		
		Number	Percent	Number	Percent	Number	Percent	Number	Percent	
Total.....	38,930	12,188	31.3	18,571	47.7	2,372	6.1	5,799	14.9	2,458
Under 2,500 (Low).....	2,654	1,571	59.2	534	20.1	84	3.2	465	17.5	367
2,500-4,499 (Normal).....	35,861	10,500	29.3	17,833	49.7	2,256	6.3	5,272	14.7	2,073
4,500 and Over (High).....	406	116	28.6	203	50.0	31	7.6	56	13.8	17
Not Stated.....	9	1	n/a	1	n/a	1	n/a	6	n/a	1

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

Table 3. Number and Percent of Live Births by Population Groups by Adequacy of Prenatal Care Utilization (APNCU) Index Kansas, 2009

Population Groups	Live Births*	APNCU Category												Not Stated***
		Adequate Plus		Adequate		Intermediate		Inadequate				Percent		
		Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent			
Total.....	38,930	12,188	31.3	18,571	47.7	2,372	6.1	5,799	14.9					2,458
White Non-Hispanic.....	27,877	9,466	34.0	13,924	49.9	1,442	5.2	3,045	10.9					1,594
Black Non-Hispanic.....	2,590	698	26.9	1,070	41.3	180	6.9	642	24.8					240
Native American	218	76	34.9	87	39.9	9	4.1	46	21.1					15
Non-Hispanic.....														
Asian/Pacific Islander	1,134	346	30.5	570	50.3	55	4.9	163	14.4					61
Non-Hispanic.....														
Other Non-Hispanic**	781	229	29.3	334	42.8	49	6.3	169	21.6					55
Hispanic Any Race.....	6,300	1,370	21.7	2,576	40.9	632	10.0	1,722	27.3					490
Not Stated.....	30	3	n/a	10	n/a	5	n/a	12	n/a					3

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

Table 4. Number and Percent of Live Births by Payer by Adequacy of Prenatal Care Utilization (APNCU) Index Kansas, 2009.

Birth Place	Live Births*	APNCU Category										Not Stated**
		Adequate Plus		Adequate		Intermediate		Inadequate		Number	Percent	
		Number	Percent	Number	Percent	Number	Percent	Number	Percent			
Total	38,930	12,188	31.3	18,571	47.7	2,372	6.1	5,799	14.9	2,458		
Medicaid	10,774	3,318	30.8	4,024	37.3	801	7.4	2,631	24.4	451		
Private Insurance	20,156	7,240	35.9	10,832	53.7	891	4.4	1,193	5.9	372		
Self Pay	3,117	523	16.8	1,246	40.0	312	10.0	1,036	33.2	325		
Champus/Tricare	1,836	502	27.3	973	53.0	163	8.9	198	10.8	33		
Other Government	2,065	415	20.1	1,121	54.3	62	3.0	467	22.6	111		
Other/Unknown	982	190	19.3	375	38.2	143	14.6	274	27.9	1,166		

*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 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, 2009

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	14,901	4,874	32.7	7,290	48.9	844	5.7	1,893	12.7			930
Age Groups												
10-14	33	8	n/a	9	n/a	2	n/a	14	n/a			2
15-19	3,269	883	27.0	1,383	42.3	232	7.1	771	23.6			169
20-24	4,993	1,572	31.5	2,413	48.3	303	6.1	705	14.1			260
25-29	4,114	1,447	35.2	2,192	53.3	202	4.9	273	6.6			265
30-34	1,846	702	38.0	964	52.2	89	4.8	91	4.9			152
35 and Over	646	262	40.6	329	50.9	16	n/a	39	6.0			82
Second and Higher Order Live Births												
Total	24,029	7,314	30.4	11,281	46.9	1,528	6.4	3,906	16.3			1,528
Age Groups												
10-14	1	0	0.0	1	n/a	0	0.0	0	0.0			0
15-19	737	187	25.4	242	32.8	64	8.7	244	33.1			54
20-24	5,627	1,500	26.7	2,378	42.3	375	6.7	1,374	24.4			344
25-29	7,958	2,444	30.7	3,814	47.9	512	6.4	1,188	14.9			484
30-34	6,420	2,034	31.7	3,292	51.3	391	6.1	703	11.0			394
35 and Over	3,286	1,149	35.0	1,554	47.3	186	5.7	397	12.1			252

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 fields on the birth certificate and a 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, from birth certificate – NPREV (Item 49)
- Month prenatal care visits began – Calculated from DOFP and LMP, from birth certificate (Items 47 & 50)
- Sex of infant, from birth certificate – SEX (Item 4)
- Gestational age, from birth certificate – OWGEST (Item 51)
- Birth weight in grams, from birth certificate – 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.

Prenatal care visits In previous years, the mother or prenatal care provider reported the month of pregnancy in which the mother began prenatal care. As of 2005, this item was replaced by the exact dates of first and last prenatal visit. Therefore, the month prenatal care began is now calculated from the last normal menses date and the date of first prenatal care visit. Unfortunately, because exact dates are harder to get, the month prenatal care began now has high numbers of missing data. The missing data 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 73.1 percent based on the 2008 data derived from the revised birth certificate. The APNCU showed an increase in the proportion of women receiving less than adequate care between 2004 (18.7 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

Technical Notes (cont.)

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

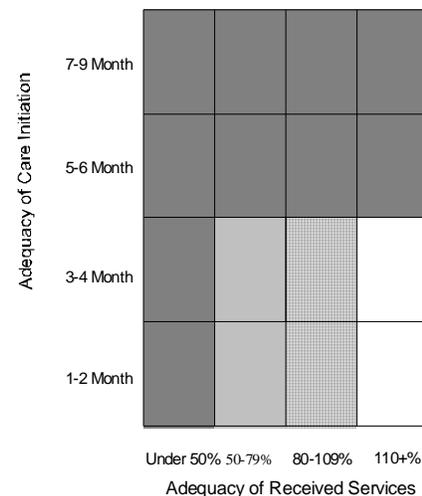
Adequate: Prenatal care begun by the 4th month and 80% - 109% of recommended visits received

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.

Adequacy of Prenatal Care Utilization Index Matrix



Summary Index
 Inadequate
 Intermediate
 Adequate
 Adequate Plus

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.

Kansas Department of Health and Environment
Office of Vital Statistics

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)		

Note: Shaded boxes used for Kotelchuck calculation

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.)		40. PARENT'S RACE (Check one or more races to indicate what you consider yourself to be.)			
39a. MOTHER <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		39b. FATHER <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		40a. MOTHER <input type="checkbox"/> White <input type="checkbox"/> Native Hawaiian <input type="checkbox"/> Black or African American <input type="checkbox"/> Guamanian or Chamorro <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"/> Other (Specify) _____ <input type="checkbox"/> Unknown	
		40b. FATHER <input type="checkbox"/> White <input type="checkbox"/> Native Hawaiian <input type="checkbox"/> Black or African American <input type="checkbox"/> Guamanian or Chamorro <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 checked="" type="checkbox"/> Vietnamese <input type="checkbox"/> Other Asian (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)		42c. MOTHER	
41b. FATHER		42b. FATHER (Usual)		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		<input type="checkbox"/> 8 th 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 th - 12 th 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)	
43b. FATHER'S EDUCATION		<input type="checkbox"/> 8 th 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 th - 12 th 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)	
44. PREVIOUS LIVE BIRTHS (Do not include this child.)		45. NUMBER OF OTHER OUTCOMES (Spontaneous or induced losses or ectopic or stillbirth pregnancies)		46. PRENATAL CARE? <input type="checkbox"/> Yes <input type="checkbox"/> No	47. DATE OF FIRST PRENATAL CARE VISIT (Month, Day, Year)
44a. Now living Number _____ <input type="checkbox"/> None	44b. Now dead Number _____ <input type="checkbox"/> None	45a. Before 20 weeks Number _____ <input type="checkbox"/> None	45b. 20 weeks & over Number _____ <input type="checkbox"/> None	48. DATE OF LAST PRENATAL CARE VISIT (Month, Day, Year)	49. PRENATAL VISITS-Total Number (If none, enter "0")
44c. DATE OF LAST LIVE BIRTH (Month, Year)		45c. DATE OF LAST OTHER PREGNANCY OUTCOME (Month, Year)		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. If none, enter "0". Average number of cigarettes or packs of cigarettes smoked per day: 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) 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 _____

Test required by K.S.A. 65-153f 153G Serological Test Made: _____ 1 st _____ 2 nd _____ 3 rd (Trimester) _____ At Delivery _____ Not Performed If no test made, state reason:		Test required by K.S.A. 65-180 Infant Neonatal Screening specimen taken: _____ Yes _____ No If no test made, state reason:		Test required by K.S.A. 65-1157A Newborn Hearing Screening Accomplished: _____ Yes _____ No			
Infant's patient number:							
Infant's Primary Care Physician							
First		Middle		Last		Title (MD, DO, etc.)	
If screening accomplished, Date hearing screened _____ / _____ / _____ Month Day Year			The results of the hearing screening ✓:				
			Right ear: _____ Pass		_____ Refer for further testing		
			Left ear: _____ Pass		_____ Refer for further testing		
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					