

KANSAS

Birth Trends in Kansas, 1995-1998

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Research Summary

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April 2000

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The December 2, 1999 issue of National Vital Statistics Reports (Vol. 47, No. 27) notes several trends in the attendant, place, and timing of births, and in the use of obstetric interventions in the United States from 1989 to 1997. A comparison of Kansas' statistics over the same time frame is not practical, but data for 1995-1998 are readily available and give an idea of whether Kansas is following national trends.

Attendant at Birth

Nationally, from 1989 to 1997, the percent of births attended by physicians, either medical doctors (MDs) or doctors of osteopathy (DOs), dropped from 95.7 to 92.4. Meanwhile, the percent of births attended by midwives increased from 3.7 to 7.0. For 1995-1998 Kansas had a higher percent of births attended by physicians and a lower percent attended by midwives than was the national norm, but did show a shift toward midwives attending more births. In Kansas, from 1995 to 1998 there was a decrease from 99.0 to 97.8 percent of births attended by physicians, while the percent attended by midwives increased from 0.6 to 1.9 (Table 1).

For 1995-1998, DOs attended 7.6 percent of Kansas births (Table 1). While the percentage varied for other states, "the majority of states had between 1 and 4 percent of births attended by DOs"¹, with a nationwide trend toward an increase in that percentage. In Kansas, 99.9 percent of births attended by DOs occurred in hospitals, as did 99.8 percent of births attended by MDs (Table 2).

Nationally, "the majority of states had between 2 and 8 percent of births attended by midwives"². Kansas approached this range in 1998 when midwives attended 1.9 percent of births. In fact, the 626 births attended by certified nurse midwives (CNMs) in 1998 was a 281.7 percent increase from the 164 births attended by CNMs in 1995. The number of births attended by other midwives, including lay midwives and student CNMs not yet certified, increased 51.4 percent over the same time period (Figure 1 and Table 3).

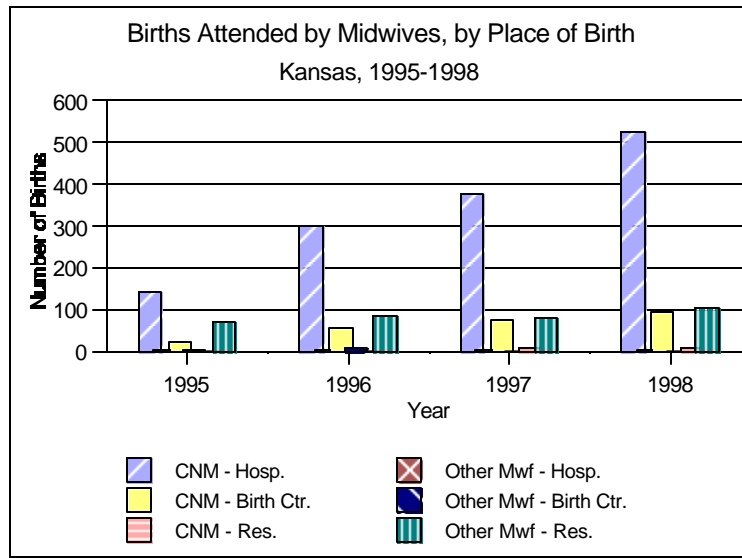
For 1995-1998, 83.7 percent of births attended by CNMs in Kansas occurred in hospitals, and 15.2 percent occurred in free-standing birth centers. Nationwide, most births attended by CNMs were in hospitals (96 percent in 1997). Meanwhile, births attended by other midwives occurred mostly in residences in Kansas (91.4 percent, 1995-1998), while nationally that rate increased from 53 to 60 percent for 1989-1997³ (Figure 1 and Table 2).

¹National Vital Statistics Reports; vol. 47 no. 27. Dec. 2, 1999. p 2.

² Ibid.

³ Ibid.

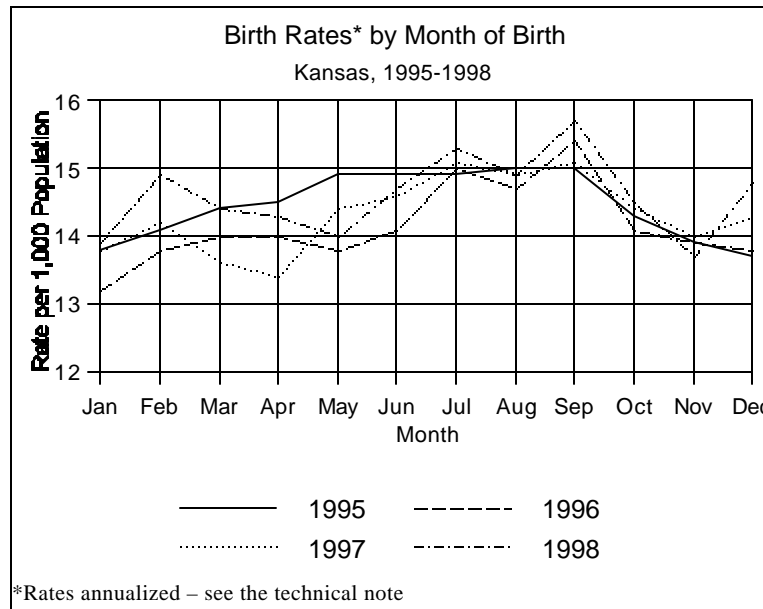
Figure 1.



Month of Birth

Nationally, birth rates were highest in July, August, and September, and lowest in January, November, and December (rates were annualized to correct for differences in number of days per month – see the technical note). Birth rates in Kansas 1995-1998 showed a similar pattern, ranging from a low of 13.2 births per 1,000 population in January, 1996 to a high of 15.7 in September, 1998 (Figure 2 and Table 4). Nationally, monthly birth rates (1989-1997) fell in a slightly higher range, from 14.0 in January, 1997 to 17.6 in August, 1990⁴.

Figure 2.



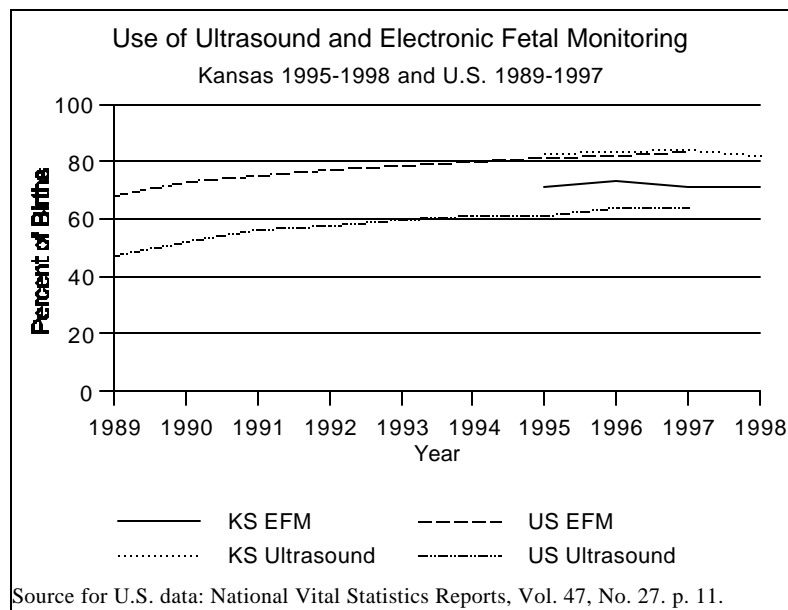
⁴ Ibid. p. 11.

Method of Delivery and Use of Obstetric Interventions

From 1995 to 1998 the percent of births delivered by cesarean section in Kansas decreased from 17.9 to 16.5 percent, with most of the decrease in primary, rather than repeat, cesarean sections (Table 5). By comparison, births by cesarean section nationwide declined from 22.8 percent of births in 1989 to 20.8 percent in 1997⁵. Of the births to women who had previously delivered by cesarean section, slightly more than three-fourths (75.2 percent) had repeat cesareans in Kansas, 1995-1998. Vaginal births after cesarean accounted for 24.8 percent of such births (Table 6). Nationally, VBAC increased from 18.9 percent to 28.3 percent of births to mothers with previous cesareans from 1989-1997⁶.

In general, use of electronic fetal monitoring in Kansas has been below the national average, and use of ultrasound has been above the national average, and both have remained fairly constant (Figure 3 and Table 5). Kansas has been below the national average in the use of induction and stimulation of labor. While the nationwide trend has been upward, use of induction increased only slightly, from 14.5 to 15.5 percent of births in Kansas for 1995 and 1998, respectively, and use of stimulation of labor has fallen over the same period from 12.9 to 11.2 percent of births (Figure 4 and Table 5). Changes in the use of forceps and vacuum extraction in Kansas have mirrored the nationwide trends toward lower use of the former and higher use of the latter. However, Kansas remains somewhat higher in the use of forceps and lower in the use of vacuum extraction than the national averages (Figure 5 and Table 5).

Figure 3.



⁵ Ibid. p.4.

⁶ Ibid. p. 5.

Figure 4.

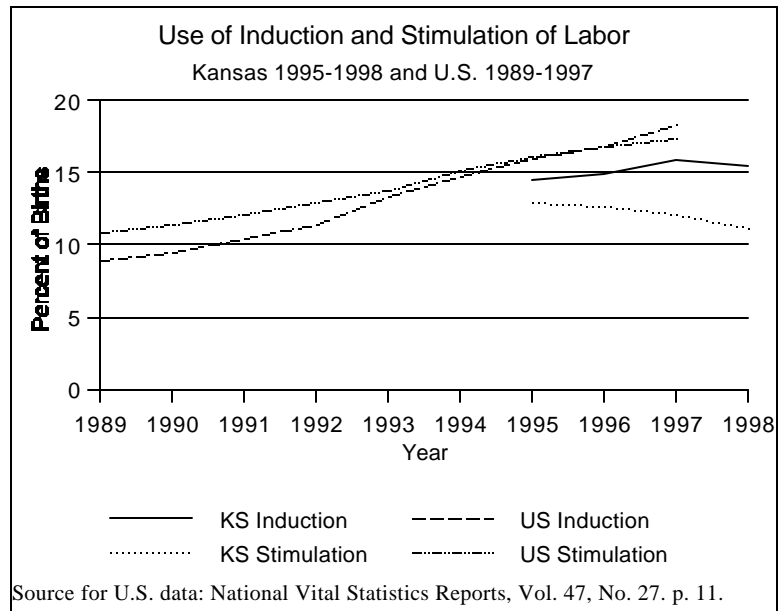
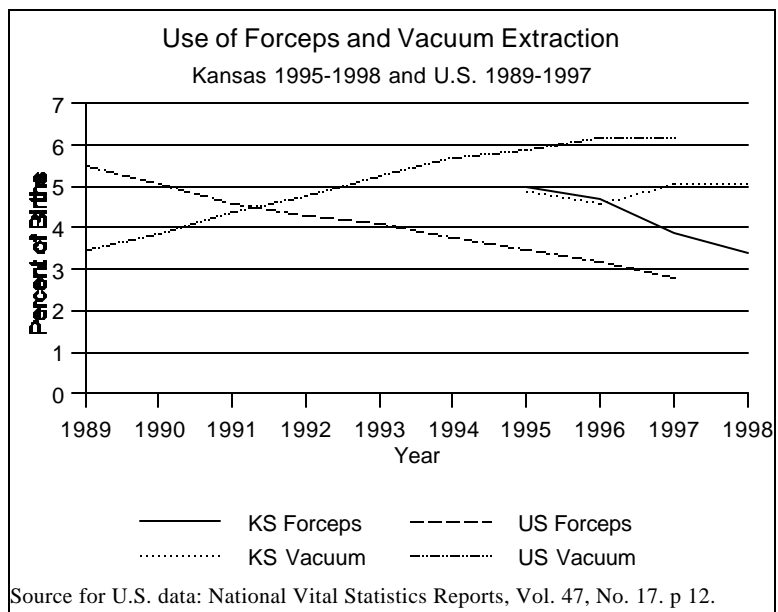


Figure 5.



Summary of Kansas Data

For 1995-1998, 99.2 percent of Kansas births occurred in hospitals and 98.4 percent were attended by physicians (90.8 percent by MDs and 7.6 percent by DOs). The percent of births attended by midwives increased each year, from 0.6 percent in 1995 to 1.9 percent in 1998 (Table 1). Birth rates were highest in July, August, and September, and lowest in January, November, and December. Primary cesarean sections decreased from 10.4 percent of births in 1995 to 9.3 percent in 1998, while the percent of repeat cesareans remained steady at about 7.4 percent and VBAC remained at about 2.4 percent of births. Of women who had previous cesarean deliveries, 24.8 percent had a subsequent vaginal birth (VBAC) (Table 5).

Over the four years, 1995-1998, electronic fetal monitoring was used for 71.7 percent and ultrasound for 83.0 percent of births. Use of induction of labor increased from 14.5 to 15.5 percent of Kansas births, while use of stimulation of labor decreased from 12.9 to 11.2 percent of births. Use of forceps fell from 5.0 percent of births in 1995 to 3.4 percent in 1998, while use of vacuum extraction increased slightly, from 4.9 to 5.1 percent (Table 5).

Technical Note

Birth rates in Table 4 are annualized to adjust for the fact that there are different numbers of days in different months, according to the following formula:

Let N = Number of births in a month,
 D = Number of days in that month,
and P = Population of Kansas in that year.

Then $\text{Rate} = (N \cdot (365/D) / P) \cdot 1,000$

National rates, to which rates in this report were compared were calculated in a similar manner, but using the U.S. population month by month⁷.

⁷ Ibid. p. 6.

Table 1. Number and Percent of Births by Place of Delivery and by Attendant: Kansas, 1995-1998

	1995		1996		1997		1998		1995-1998	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total Births	37,087	100.0	36,524	100.0	37,191	100.0	38,372	100.0	149,174	100.0
Place of Delivery										
Hospital	36,808	*99.3	36,237	99.2	36,894	99.2	38,038	99.1	147,977	99.2
Birth Center	85	0.2	91	*0.3	85	0.2	95	*0.3	356	*0.3
Residence	181	0.5	185	0.5	191	0.5	222	0.6	779	0.5
Other	13	0.0	11	0.0	21	0.1	16	0.0	61	0.0
N.S.	0	0.0	0	0.0	0	0.0	1	0.0	1	0.0
Attendant										
MD	33,864	91.3	33,243	91.0	33,691	90.6	34,583	90.1	135,381	90.8
DO	2,846	7.7	2,761	**7.5	2,857	7.7	2,947	7.7	11,411	7.6
CNM	164	0.4	353	1.0	456	1.2	626	1.6	1,599	1.1
Other Midwife	74	0.2	97	0.3	87	0.2	112	0.3	370	0.2
Other	103	0.3	65	0.2	80	0.2	96	0.3	344	0.2
N.S.	36	0.1	5	0.0	20	0.1	8	0.0	69	*0.1

* rounded up to add to 100.0 percent

** rounded down to add to 100.0 percent

Table 2. Number and Percent of Births by Attendant by Place of Delivery: Kansas, 1995-1998

	MD		DO		CNM		Other Midwife	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total Births	135,381	100.0	11,411	100.0	1,599	100.0	370	100.0
Place of Delivery								
Hospital	135,077	99.8	11,402	99.9	1,338	83.7	6	1.6
Birth Center	102	0.1	0	0.0	243	15.2	9	2.4
Residence	184	0.1	5	*0.1	17	**1.0	338	91.4
Other & Unknown ..	18	0.0	4	0.0	1	0.1	17	4.6

* rounded up to add to 100.0 percent

** rounded down to add to 100.0 percent

Table 3. Births Attended by Midwives, by Year by Place of Delivery: Kansas 1995-1998

Place of Delivery	CNM			
	1995	1996	1997	1998
Hospital	141	298	375	524
Birth Center	22	55	74	92
Residence	0	0	7	10
Other & Unknown	1	0	0	0
Total	164	353	456	626
Place of Delivery	Other Midwife			
	1995	1996	1997	1998
Hospital	1	3	1	1
Birth Center	1	8	0	0
Residence	69	84	81	104
Other & Unknown	3	2	5	7
Total	74	97	87	112

Table 4. Number of Births and Birth Rates* by Month of Occurrence: Kansas, 1994-1998

	1995		1996		1997		1998	
	Number	Rate	Number	Rate	Number	Rate	Number	Rate
Total Births	37,087	14.5	36,524	14.2	37,191	14.3	38,372	14.6
January	3,009	13.8	2,882	13.2	3,048	13.8	3,106	13.9
February	2,780	14.1	2,828	13.8	2,835	14.2	3,006	14.9
March	3,140	14.4	3,062	14.0	3,007	13.6	3,209	14.4
April	3,064	14.5	2,953	14.0	2,866	13.4	3,092	14.3
May	3,257	14.9	3,025	13.8	3,172	14.4	3,136	14.0
June	3,149	14.9	2,977	14.1	3,124	14.6	3,185	14.7
July	3,241	14.9	3,286	15.0	3,332	15.1	3,425	15.3
August	3,261	15.0	3,203	14.7	3,280	14.9	3,318	14.9
September	3,157	15.0	3,265	15.4	3,219	15.1	3,397	15.7
October	3,108	14.3	3,084	14.1	3,181	14.4	3,241	14.5
November	2,941	13.9	2,937	13.9	2,976	14.0	2,953	13.7
December	2,980	13.7	3,022	13.8	3,151	14.3	3,304	14.8

* Rates on an annual basis per 1,000 population for specified month (see technical note).

Table 5. Number and Percent of Births by Method of Delivery and by Obstetric Interventions: Kansas, 1995-1998

	1995		1996		1997		1998		1995-1998	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Total Births	37,087*	...	36,524*	...	37,191*	...	38,372*	...	149,174*	...
Method of Delivery										
Forceps	1,835	4.9	1,704	4.7	1,436	3.9	1,305	3.4	6,280	4.2
Vacuum Extraction	1,827	4.9	1,687	4.6	1,914	5.1	1,974	5.1	7,402	5.0
Vaginal Birth after										
Cesarean (VBAC)	892	2.4	873	2.4	998	2.7	875	2.3	3,638	2.4
Cesarean Section	6,619	17.8	6,366	17.4	6,252	16.8	6,351	16.6	25,588	17.2
Primary C-Section ...	3,844	10.4	3,653	10.0	3,498	9.4	3,557	9.3	14,552	9.8
Repeat C-Section	2,775	7.5	2,713	7.4	2,754	7.4	2,794	7.3	11,036	7.4
Obstetric Interventions										
Electronic Fetal										
Monitoring (EFM)	26,305	70.9	26,720	73.2	26,533	71.3	27,325	71.2	106,883	71.6
Ultrasound	30,687	82.7	30,407	83.3	31,241	84.0	31,488	82.1	123,823	83.0
Induction of Labor	5,362	14.5	5,443	14.9	5,927	15.9	5,950	15.5	22,682	15.2
Stimulation of Labor ...	4,765	12.8	4,639	12.7	4,506	12.1	4,289	11.2	18,199	12.2

... Category not applicable

* Totals may exceed column total, since more than one item could have been indicated on each certificate.

Table 6. Number and Percent of Births after Previous Cesarean Delivery, by Method of Delivery: Kansas, 1995-1998

	1995		1996		1997		1998		1995-1998	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Births after Previous										
Cesarean	3,667	100.0	3,586	100.0	3,752	100.0	3,669	100.0	14,674	100.0
Vaginal Birth after										
Cesarean (VBAC)	892	24.3	873	24.3	998	26.6	875	23.8	3,638	24.8
Repeat Cesarean.....	2,775	75.7	2,713	75.7	2,754	73.4	2,794	76.2	11,036	75.2

References

Curtin SC, Park MM. Trends in the Attendant, Place, and Timing of Births, and in the use of Obstetric Interventions: United States, 1989-1997. National Vital Statistics Reports; vol. 47 no. 27. Hyattsville, MD: National Center for Health Statistics. 1999.