

# Abortion Services in Rural Washington State, 1983–1984 to 1993–1994: Availability and Outcomes

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**Context:** Fewer rural health providers offer abortion services than a decade ago. It is unknown how the reduction in service availability has affected women's pregnancy outcomes, the extent to which they must travel to obtain an abortion or whether abortions are delayed as a result.

**Methods:** Population, birth and fetal death data, as well as pregnancy termination reports, obtained from Washington State were used to calculate abortion rates and ratios and birthrates for Washington residents in 1983–1984 and in 1993–1994. Residence of abortion patients was classified by county only, and location of providers was recorded as large urban county, small urban county, large rural county or small rural county. Distances that women traveled to obtain an abortion were calculated. Chi-square tests were used to compare urban and rural rates and ratios within time periods, and to compare changes that occurred between time periods.

**Results:** Birthrates and abortion rates decreased for both rural and urban Washington women between 1983–1984 and 1993–1994, but the magnitude of the decrease was greater for rural women. The rural abortion rate fell 27%, from 14.9 abortions per 1,000 women to 10.9 per 1,000, while the urban rate dropped 17%, from 21.8 to 18.2 per 1,000. The decline in the abortion rate was larger for adolescents than it was for other age-groups. In rural areas, the abortion rate decreased from 16.5 per 1,000 adolescents aged 10–19 in 1983–1984 to 10.8 per 1,000 in 1993–1994, while it declined from 23.3 per 1,000 to 16.9 per 1,000 in urban areas. From the earlier to the later time period, rural women traveled on average 12 miles farther each way to obtain an abortion, and the proportion who obtained the procedure in a rural county decreased from 25% to 3%. In the earlier time period, 62% of rural women traveled 50 miles or more to obtain an abortion, compared with 73% in 1993–1994. From 1983–1984 to 1993–1994, the proportion of rural women who traveled out of state for an abortion increased from 8% to 14%. The proportion of rural women terminating their pregnancy after the first trimester increased from 8% in 1983–1984 to 15% in 1993–1994.

**Conclusion:** Rural Washington women are traveling farther and more often to urban and out-of-state locations for abortion services, and are obtaining their abortions at a later gestational age, which is associated with a decade-long decline in the number of abortion providers.

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The availability of abortion services in rural America has declined steadily during the last 20 years. Nationally, the number of nonmetropolitan abortion providers declined 51% from its peak in 1977 to 1988. By 1996, 95% of nonmetropolitan counties had no provider of abortion.<sup>1</sup> This is in sharp contrast to the increased availability of other reproductive health technologies in rural areas.<sup>2</sup> Rural women face considerable barriers when they decide to terminate a pregnancy, including long distances to a provider, harassment, monetary costs and gestational limits.<sup>3</sup> Providers estimate that 8% of women travel more than 100 miles for an abortion,<sup>4</sup> but it is not known whether the distance that women travel has an impact on such issues as when in pregnancy the abortion occurs, the type of procedure performed and the number of abortions that occur.

Seventy-one percent of Washington

State's 66,511 square miles is rural. In 1994, there were 1.6 million women aged 10–49 in the state, and 17% of them lived in rural areas.<sup>5</sup> The state has a long history of legal access to abortion, but the number of providers in rural Washington State has always been limited and has declined further in recent years. In 1983, only 10 of the state's 28 rural counties had a provider; there were 19 facilities in these 10 rural counties, staffed by 32 providers. By 1994, the total number of facilities providing abortions throughout Washington State had declined from 88 to 65. The majority of this decline was in rural counties, where only four facilities and six providers still reported providing abortions during the period 1993–1994.<sup>6</sup>

We hypothesize that rural Washington State residents were more likely to have terminated a pregnancy at a later gestational age and were more likely to have traveled farther in 1993–1994 than in

1983–1984. We also hypothesize that there will be higher complication rates (such as bleeding and infections) among rural women, compared with urban residents. Additionally, we explore whether the decline in local access was accompanied by a change in abortion rates, comparing abortion data in Washington State from the period 1983–1984 with those from 1993–1994.

## Methods

We used data from several secondary sources. The Washington State Office of Financial Management provided population data for women by age and by county of residence, obtained from intercensal estimates of county population.<sup>7</sup> We obtained birth, fetal death and pregnancy termination data for the years 1983, 1984, 1993 and 1994 from the vital statistics data compiled by the state of Washington.<sup>8</sup>

Data on pregnancy terminations are generated from occurrence reports filed with the State of Washington Department of Health. Through interstate agreements between Washington and most states, occurrence reports are filed for Washington State residents who terminate a pregnancy in these other states. Through an agreement with the State of Washington Department of Health Statistics, data were made available on the individual level. Several variables were eliminated, masked or altered for each occurrence to ensure the anonymity of abortion providers and of women who had elective terminations.

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**Table 1. Annualized abortion rates, abortion ratios and birthrates, by residence and time period, according to age-group**

Age	Total		Rural		Urban	
	1983–1984	1993–1994	1983–1984	1993–1994	1983–1984	1993–1994
<b>Total</b>						
Population	1,293,312	1,573,010	231,421	267,028	1,061,891	1,305,982
Abortion rate*	20.6	16.9†	14.9‡	10.9†,‡	21.8	18.2†
Abortion ratio	386.4	341.4†	263.2‡	220.7†,‡	415.4	366.0†
Birthrate*	53.3	49.6†	56.7‡	49.6†	52.5	49.6†
<b>10–19</b>						
Population	316,847	353,550	62,378	68,501	254,469	285,049
Abortion rate	22.0	15.8†	16.5‡	10.8†,‡	23.3	16.9†
Abortion ratio	957.3	641.4†	616.9‡	384.9†,‡	1,058.4	714.4†
Birthrate	23.0	24.6†	26.7‡	28.1‡	22.1	23.7†
<b>20–39</b>						
Population	749,852	830,570	127,673	133,501	622,179	697,069
Abortion rate*	25.8	24.5†	18.7‡	15.8†,‡	27.2	26.2†
Abortion ratio	315.6	300.3†	209.4‡	189.5†,‡	339.9	322.0†
Birthrate*	81.6	81.6	89.1‡	83.2‡	80.0	81.3†
<b>40–49</b>						
Population	226,614	388,890	41,370	65,026	185,244	323,864
Abortion rate	1.6	1.8	1.0§	1.2‡	1.7	1.9
Abortion ratio	762.9	459.7†	528.0	373.8	810.7	472.2†
Birthrate	2.1	3.9†	2.0	3.1†,‡	2.1	4.1†

\*Rural-urban difference in the change in the rate is significant at p<.01 (by the chi-square test). †Interdecade difference is significant at p<.01 (by the chi-square test). ‡Rural-urban difference is significant at p<.01 (by the chi-square test). §Significant with an assumption of 1 abortion per woman per year, but loses significance under the stricter criterion of 1.5 abortions per woman per year and 1.1 births per woman per year. Notes: All rates and ratios are calculated using the mean of population, birth, fetal death and abortion data for each two-year time period. Reports missing age or county of residence are excluded from the analysis. Totals may vary due to rounding.

Address and township of residence were not reported, but county of residence for each occurrence was included. The age of women was entered in five-year aggregates (e.g., 30–34 years of age).

Many rural Washington State counties have few minority women. We protected the anonymity of those who terminated a pregnancy by combining racial and ethnic groups and by masking racial and ethnic identity in counties with few minority women.<sup>9\*</sup> We excluded race and ethnicity from our analysis, however, for two reasons. First, a number of the larger abortion providers in the state decline to report race and ethnicity; this information is missing for 24% of cases. Second, although Hispanic ethnicity was reported separately from race in 1993–1994, it was not in 1983–1984, resulting in noncorresponding categories.

We use the terms rural residents and rural providers to refer to those with addresses in counties categorized as non-metropolitan by the federal Office of Management and Budget. Urban residents and providers are those with addresses classified by the Office of Management and Budget as metropolitan.<sup>10</sup> We masked provider locations, except for the general designation of large urban county, small urban county, large rural county and small rural county. We defined large rural coun-

ties as those having a hospital with more than 100 beds; we defined small rural counties as those with no hospital having more than 100 beds.<sup>11</sup> Seven of the 11 metropolitan counties were designated as large urban. With one exception, each was part of a Consolidated Metropolitan Statistical Area (CMSA), which is an area containing one million people or more. Spokane County, while not part of a CMSA, was designated as a large urban county because it has a population of nearly 400,000 and has two large tertiary care hospitals. The remaining four urban counties were classified as small urban because they are not part of a CMSA, have a smaller population than Spokane and do not have a tertiary care hospital.<sup>12</sup>

For each rural resident’s report, we constructed a variable for distance traveled to obtain an abortion. The state provided us with a list of location pairs, which included every provider-resident location pair found in the four years of abortion reports. For each, we calculated the distance in miles between the two points.<sup>13</sup> For county locations not in a named township, we used the population centroid for the county.<sup>14</sup> The calculated distances were returned to the state and were then entered as five-mile aggregate distances on each occurrence report. Distance traveled was neither calculated nor entered for rural respondents who obtained an out-of-state abortion or for urban cases.

Birth and fetal death reports were masked for the name of the woman only. These data were used to calculate age-specific pregnancy rates, birthrates and abortion rates and ratios, as well as fertility rates. We constructed annualized values by averaging the number of occurrences for each of the two years per decade; we then compared 1983–1984 rates with those of 1993–1994. Denominators for rates and ratios are means from the intercensal data from 1983, 1984, 1993 and 1994.<sup>15</sup> These are population data, not strictly requiring inferential statistics. Nevertheless, we provide inferential statistics as a descriptive device to highlight potentially interesting differences. While we have not made formal adjustments for multiple comparisons, using p<.01 as the cutoff rather than p<.05 in effect provides some adjustment.

Chi-square tests require that events (births and abortions, in this case) be independent. We cannot ascertain how many women (denominator) had more than one birth or abortion (numerator) for our rates. We adjusted our calculations in the following manner: We assumed a maximum of 1.1 births per year or 1.5 abortions per year per woman, which is an overly conservative estimate, when we performed the chi-square analyses. Had we assumed that each woman had had only one abortion per year, the statistical calculations would gain significance in only one instance, and this is noted in Table 1.

We used chi-square tests to compare urban and rural rates, ratios and outcomes within the same time period, and to compare changes over time between rural residents and between urban residents. Tests on gestational age, type of procedure, location and distance traveled were one-tailed, driven by the directional hypothesis. All others were two-tailed.

## Results

### Population Characteristics

By 1993–1994, 17% of Washington State’s women were rural residents, compared with 18% in 1983–1984. While the absolute number of rural women in the state increased 16%, from 231,000 to 267,000, during the time period, the urban female population increased 23%, from 1.06 million to 1.31 million (Table 1). Statewide, the female population aged between 1983–1984 and 1993–1994, although this aging was of greater magnitude in urban areas. The number of rural women aged 40–49 increased 57%, while the number of urban women in this age-group increased 75%. At the same time, the rural female population aged 20–29 decreased 9%, while the

\*Information on this process is available from the authors.

urban female population aged 20–29 decreased 6% (not shown).

### Birthrates and Abortion Rates and Ratios

Birthrates and abortion rates fell throughout the state from 1983–1984 to 1993–1994, with the abortion rate falling more than the birthrate (Table 1). The magnitude of the drop in abortion rates was significantly greater for rural women than for urban women ( $p < .01$ ). The rural abortion rate fell 27% during the decade (from 14.9 abortions per 1,000 women to 10.9 per 1,000), compared with a 17% drop in the urban rate (from 21.8 to 18.2 per 1,000). As a result, the rural abortion rate was only 60% of the urban rate by 1993–1994. The decrease in abortion rates was greater for teenagers than it was for other age-groups: From 1983–1984 to 1993–1994, the abortion rate for adolescents aged 10–19 dropped 35% in rural areas (from 16.5 to 10.8 per 1,000) and 28% (from 23.3 to 16.9 per 1,000) in urban areas. The difference in the change between urban and rural teenagers was not statistically significant, however.

Overall, abortion ratios declined significantly between time periods within most age-groups, with the exception of rural women aged 40–49. For example, among adolescents, the overall abortion ratio fell from 957 to 641 abortions per 1,000 live births, a decline reflected among both rural and urban teenagers. Statewide, the decline in the abortion ratio also was sizable for the oldest (40–49) age-group.

### Gestational Age and Type of Procedure

In both time periods, rural women were significantly more likely to have been parous and not to have had a prior abortion, compared with urban women (Table 2). During 1983–1984, 92% of rural women had their abortions at earlier than 12 weeks of gestation, a proportion equal to that among their urban counterparts. This proportion dropped to 85% in 1993–1994, compared with 89% among urban women. Meanwhile, the proportion of rural women having their abortions at later than 18 weeks more than doubled during the decade, growing from 2% to 5% ( $p < .01$ ); the proportion for 1993–1994 is significantly higher than that among their urban counterparts ( $p < .01$ ).

Additionally, from the earlier to the later time period, the proportion of sharp curettage or dilatation and extraction procedures increased from 4% to 9% among rural women ( $p < .01$ ). In 1983–1984, there was not a significant difference between the proportion of rural women and urban women undergoing these procedures. By

**Table 2. Percentage distribution of women who obtained an abortion, by measure of obstetric history, gestational age and type of abortion procedure, according to residence and time period**

Measure	Total		Rural		Urban	
	1983–1984 (N=53,287)†	1993–1994 (N=53,662)†	1983–1984 (N=6,913)‡	1993–1994 (N=5,913)‡	1983–1984 (N=46,374)‡	1993–1994 (N=47,681)‡
<b>Prior live birth</b>						
0	59.1	48.7	54.7*	46.6*	59.7	48.9
1–2	34.4	41.7	36.9*	41.5	34.0	41.7
≥3	6.5	9.6	8.4*	11.9*	6.2	9.3
<b>Prior abortion</b>						
0	57.5	52.1	62.8*	59.4*	56.7	51.2
1–2	37.4	39.8	33.7*	35.1*	37.9	40.4
≥3	5.1	8.1	3.5*	5.5*	5.4	8.4
<b>Gestational age</b>						
≤12 weeks	92.3	88.5	91.9	85.3*	92.4	88.9
13–17 weeks	5.8	7.9	6.0	10.1*	5.8	7.7
≥18 weeks	1.9	3.6	2.1	4.7*	1.8	3.5
<b>Procedure</b>						
Suction	94.0	91.9	94.3	90.2*	93.9	92.2
Dilation and extraction/ sharp curettage	4.6	7.8	4.2	9.4*	4.7	7.6
Other	1.4	0.2	1.5	0.4	1.4	0.2
Total	100.0	100.0	100.0	100.0	100.0	100.0

\*Rural-urban difference is significant at  $p < .01$  (by chi-square test). †Includes cases with missing age and county. ‡Includes cases with missing age; does not include cases with missing county. Notes: All interdecade differences are significant at  $p < .01$  (by chi-square test), except for the percentage of rural women who had had 1–2 prior abortions. Women aged 50–59 are excluded from the analysis. Percentages may not add to 100% due to rounding.

1993–1994, however, this difference had become statistically significant ( $p < .01$ ). While this may be associated with prenatal diagnosis, women having a prenatal diagnostic procedure revealing a fetal anomaly accounted for less than 1% of all terminations in 1993–1994; this information was not available for 1983–1984. Reported complications were low for both rural and urban women in each time period, with fewer than 1% of women reporting complications in any time period. Differences between rural and urban women and between time periods were not significant.

### Location of Services

Table 3 shows that the proportion of rural women having abortions in rural Washington locations decreased significantly, from 25% in 1983–1984 to 3% in 1993–1994 ( $p < .01$ ). Further, the proportion of rural women who went out of state for an abortion increased significantly, from 8% to 14% ( $p < .01$ ). The majority of out-of-state abortions were obtained in Oregon. (Data on women traveling to British Columbia are not available.)

The mean one-way distance that rural women traveled to obtain an abortion increased by 12 miles from 1983–1984 to

**Table 3. Percentage distribution of women who obtained an abortion, by location of provider, according to residence and time period**

Provider location	Total		Rural		Urban	
	1983–1984 (N=53,287*)	1993–1994 (N=53,662*)	1983–1984 (N=6,913)†	1993–1994 (N=5,913)†	1983–1984 (N=46,374)†	1993–1994 (N=47,681)†
<b>Urban</b>	<b>93.6</b>	<b>94.5</b>	<b>66.9</b>	<b>83.2</b>	<b>97.5</b>	<b>95.9</b>
Large urban	83.0	84.7	48.4	58.2	88.1	88.0
Small urban	10.6	9.8	18.5	25.0	9.4	7.9
<b>Rural</b>	<b>3.5</b>	<b>0.3</b>	<b>24.8</b>	<b>2.7</b>	<b>0.3</b>	<b>0.0</b>
Large rural	1.7	0.0	12.1	0.1	0.1	0.0
Small rural	1.8	0.3	12.7	2.6	0.2	0.0‡
<b>Out of state</b>	<b>2.9</b>	<b>5.2</b>	<b>8.3</b>	<b>14.2</b>	<b>2.1</b>	<b>4.0</b>
Idaho	0.3	0.1	2.2	0.5	0.0‡	0.0‡
Oregon	2.6	5.1	6.1	13.6	2.1	4.0
Other	0.0‡	0.0‡	0.0‡	0.1	0.0‡	0.0‡
Total	100.0	100.0	100.0	100.0	100.0	100.0

\*Includes cases with missing age and county. †Includes cases with missing age; does not include cases with missing county. ‡Less than 0.05%. Notes: All rural-urban differences are statistically significant at  $p < .01$  (by the chi-square test), except the differences in the "other" category. All interdecade differences are significant at  $p < .01$  (by chi-square test), except for the "other" category and for urban residents obtaining abortions in large urban counties. Women aged 50–59 are excluded. Percentages may not add to 100 due to rounding.

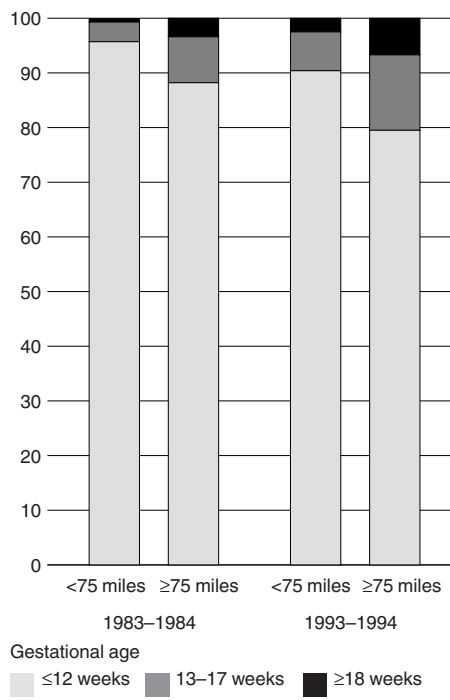
**Table 4. Selected measures of travel distance among rural women who had an abortion, according to time period**

Measure	1983–1984	1993–1994
<b>% distribution by miles traveled one way†</b>		
<30	24.0	8.0*
30–49	14.2	18.9*
50–99	34.5	42.1*
≥100	27.4	30.9*
<b>Mean distance traveled (miles)</b>		
Age 10–19	72.6	83.0*
Age 20–39	70.1	83.0*
Age 40–49	67.0	87.7*
<b>% traveled &gt;50 miles one way</b>		
Age 10–19	61.8	67.2*
Age 20–39	57.3	68.4*
Age 40–49	54.7	72.3*

\*Interdecade difference is significant at  $p < .01$  (by the chi-square test). †Information on distance traveled out of state not available.

1993–1994 (95% confidence interval, 10.1–14.2; Table 4). Whereas 24% of rural women traveled less than 30 miles to obtain an abortion in 1983–1984, only 8% did so in 1993–1994. In contrast, 62% traveled 50 miles or more to obtain an abortion in 1983–1984, compared with 73% in 1993–1994. The distance that women traveled ranged from less than five miles to 405 miles each way in 1983–1984, and from less than five miles to 425 miles in 1993–1994 (not shown). During the decade, the proportion of women traveling fewer than 10 miles decreased from 16% to 5%.

**Figure 1. Percentage distribution of abortions, by gestational age, according to distance traveled to obtain an abortion and time period**



In both time periods, the proportion of rural women who terminated their pregnancy at later than 12 weeks was larger among those who traveled more than 75 miles than among those who traveled less than 75 miles (Figure 1). In 1983–1984, 4% of rural women who traveled less than 75 miles obtained an abortion at later than 12 weeks, compared with 12% of those who traveled 75 miles or more. By comparison, in 1993–1994, 10% of women who traveled less than 75 miles terminated their pregnancy at later than 12 weeks, compared with 21% of those who traveled 75 miles or more.

**Age-Specific Differences**

Rural women younger than 20 were less likely than older women to have had a prior live birth or an abortion (Table 5). The proportion of rural teenagers who had a prior live birth did not increase significantly during the decade, while the increase was significant for urban adolescents. The proportion of teenagers who had a prior abortion decreased from 16% to 13% in rural areas and remained stable in urban areas, at 21–22%. Among all rural women, the increase in the proportion of abortions terminated after 18 weeks gestational age between time periods was greatest among those younger than 20 (3% vs. 7%).

On average, rural women traveled farther to obtain an abortion in 1993–1994 than they had in the earlier period, but the increase was greatest for women 20 or older (Table 4). In 1983–1984, 55–57% of rural women 20 or older traveled more than 50 miles to terminate a pregnancy, compared with 68–72% in 1993–1994.

**Discussion**

During the decade studied, pregnancy rates, birthrates, and abortion rates and ratios declined in Washington State. While this occurred among both rural and urban women, the decreases were greater for rural women than for urban women. An aging of the population over the time period accounts for some of the decrease in birthrates and abortion rates for all women. These age shifts, however, are similar in direction and magnitude for both rural and urban women. Therefore, the greater decreases in rural birthrates and abortion rates, compared with urban rates, cannot be attributed solely to changes in population composition.

Overall, health services are readily available throughout Washington State; in particular, prenatal and intrapartum technologies are increasingly available, even in the smallest rural hospitals.<sup>16</sup> This

**Table 5. Percentage of women who had an abortion, by measure of obstetric history, gestational age and percentage having procedure in a rural location, all by age-group and by residence, according to time period**

Measure and age-group	1983–1984	1993–1994
<b>TOTAL</b>		
<b>Prior live birth</b>		
10–19	11.9	17.0†
20–39	50.4	59.6†
40–49	88.3	82.6†
<b>Prior abortion</b>		
10–19	21.3	20.1
20–39	50.2	55.3†
40–49	36.9	53.8†
<b>Gestational age &gt;18 weeks</b>		
10–19	2.9	5.1†
20–39	1.5	3.2†
40–49	2.7	2.7
<b>Rural location</b>		
10–19	3.6	0.3†
20–39	3.5	0.3†
40–49	3.7	0.4†
<b>RURAL RESIDENCE</b>		
<b>Prior live birth</b>		
10–19	12.6	14.3*
20–39	58.4*	66.1*,†
40–49	91.4	82.7
<b>Prior abortion</b>		
10–19	16.4*	13.3*
20–39	46.1*	49.8*,†
40–49	34.2	53.3†
<b>Gestational age &gt;18 weeks</b>		
10–19	2.9	6.9*,†
20–39	1.7	4.0*,†
40–49	7.1	3.4
<b>Rural location</b>		
10–19	21.9*	2.1*,†
20–39	25.9*	2.7*,†
40–49	29.4*	4.0*,†
<b>URBAN RESIDENCE</b>		
<b>Prior live birth</b>		
10–19	11.8	17.4†
20–39	49.3	58.9†
40–49	87.9	82.7†
<b>Prior abortion</b>		
10–19	22.1	21.2
20–39	50.8	55.9†
40–49	37.2	53.9†
<b>Gestational age &gt;18 weeks</b>		
10–19	2.9	4.8†
20–39	1.4	3.1†
40–49	2.1	2.6
<b>Rural location</b>		
10–19	0.4	0.0†
20–39	0.3	0.0†,‡
40–49	0.2	0.0

\*Rural-urban difference is significant at  $p < .01$  (by chi-square test). †Interdecade difference is significant at  $p < .01$  (by chi-square test). ‡Less than 0.05%. Notes: Cases with missing age are not included in the analysis. Percentages may not add to 100 due to rounding.

is in sharp contrast to the marked decline in local availability of abortion services. In this study, we found that rural Washington women who terminated a pregnancy in 1993–1994 were almost univer-

sally unable to obtain the procedure in their home county. As a result, they traveled greater distances and were more likely to obtain an abortion at a later gestational age than rural women in 1983–1984.

Factors such as confidentiality and comfort may affect the travel decisions of rural women more than urban women. Anonymity is more difficult to achieve locally for a rural woman. For teenagers, this may be even more important; even if the procedure were locally available, they might be more likely to travel than their older counterparts. Notably, the smallest increase in distance traveled during the decade was among women under age 20.

The study reported here has several shortcomings. First, it is based on reports of terminations made by providers, and not all providers file reports. The Alan Guttmacher Institute estimates that over the period 1980–1992, an average of 12% more abortions occurred per year in Washington State than are reported to the state.<sup>17</sup> Furthermore, underreporting from neighboring Oregon and Idaho may have resulted in an overly conservative estimate of the number of women seeking out-of-state abortions. While we know that each year approximately 100 non-Canadian women seek abortions in British Columbia, we do not know these women's country of residence and whether the count is accurate.<sup>18</sup> Thus, rates and ratios may be somewhat higher, while the effect on other variables is not known.

Second, we were unable to analyze the data by race and ethnicity. Women of unknown race and ethnicity had the highest proportion of abortions at a gestational age later than 12 weeks (17% for rural women and 24% for urban women), and 92% of rural women of unknown race and ethnicity traveled more than 50 miles each way to obtain an abortion. Third, these data are from one state, and the degree to which they are generalizable may be limited.

Clearly, the decision-making process for pregnant women considering terminations is multifaceted. The changing patterns we describe may be influenced by a

number of variables, including personal beliefs, community attitudes, economics or even increased comfort with the safety of later terminations. The data do not allow us to examine these factors.

These analyses of abortion ratios do show, however, that pregnant rural women in Washington State in the 1990s are more likely to have their babies than to terminate their pregnancy, compared both with urban women and with rural women in the 1980s. More work is needed to understand the relationships among provider availability, other factors influencing decision-making and pregnancy outcomes. Nonetheless, if rural women seek abortions, they are unlikely to find a local provider; they must travel farther and their care is delayed.

## References

1. Henshaw SK and Van Vort J, Abortion services in the United States, 1987 and 1988, *Family Planning Perspectives*, 1990, 22(3):102–108 & 142; Henshaw SK, Abortion incidence in the United States, 1995–1996, *Family Planning Perspectives*, 1998, 30(6):263–270 & 287; and Grimes DA, Clinicians who provide abortion: the thinning ranks, *Obstetrics and Gynecology*, 1992, 80(4):719–723.
2. Rosenblatt RA et al., The diffusion of obstetric technology into rural U.S. hospitals, *International Journal of Technology Assessment in Health Care*, 1994, 10(3):479–489; and Rosenblatt RA et al., A comparison of the investment in hospital-based obstetrical ultrasound in Wales and Washington State, *International Journal of Technology Assessment*, 1995, 11(3):571–584.
3. Henshaw SK and Van Vort J, Abortion services in the United States, 1991 and 1992, *Family Planning Perspectives*, 1994, 26(3):100–107; Grimes DA, 1992, op. cit. (see reference 1); Henshaw SK, Factors hindering access to abortion services, *Family Planning Perspectives*, 1995, 27(2):54–59 & 87; Meier KJ and McFarlane DR, State family planning and abortion expenditures: their effect on public health, *American Journal of Public Health*, 1994, 84(9):1468–1472; Kolbert K and Miller A, Government in the examining room: restrictions on the provision of abortion, *Journal of the American Medical Women's Association*, 1994, 49(5):153–155 & 166; and Benshoof J, Planned Parenthood v. Casey: the impact of the new undue burden standard on reproductive health care, *Journal of the American Medical Association*, 1993, 269(17):2249–2257.
4. Henshaw SK, 1995, op. cit. (see reference 3).
5. Washington State Office of Financial Management, Forecasting Division, *Intercensal and Postcensal Estimates of County Population by Age and Sex: 1980–1996*, Olympia, WA: Washington State Office of Financial Management, 1996.
6. Washington State Department of Health (DOH), Center for Health Statistics, Physicians, facilities and abortions by place of occurrence, Washington State, unpublished report of induced terminations of pregnancy, Olympia, WA: Washington State DOH, 1983, 1984, 1993 and 1994.
7. Washington State Office of Financial Management, 1996, op. cit. (see reference 5).
8. Washington State DOH, Center for Health Statistics, Occurrence reports for induced terminations of pregnancy, Olympia, WA: Washington State DOH, 1983, 1984, 1993 and 1994; Washington State DOH, Center for Health Statistics, Occurrence reports for live births, Olympia, WA: Washington State DOH, 1983, 1984, 1993 and 1994; Washington State DOH, Center for Health Statistics, Occurrence reports for fetal deaths, Olympia, WA: Washington State DOH, 1993 and 1994; and Washington State Department of Social and Health Services, *Induced Terminations of Pregnancy in Washington State: 1983–1984*, Olympia, WA: Washington State Department of Social and Health Services, 1986.
9. U.S. Bureau of the Census, *United States Census, 1990*, Washington, DC: U.S. Government Printing Office, STF3A.
10. U.S. Office of Management and Budget (OMB), *Revised Statistical Definitions of Metropolitan Area (MAs) and Guidance on Uses of MA Definitions*, OMB Bulletin Number 95–04, Washington, DC: U.S. OMB, 1995.
11. American Hospital Association (AHA), *Guide to the Health Care Field*, Chicago: AHA, 1994.
12. Washington State Office of Financial Management, Forecasting Division, *Washington State 1993 Data Book*, Olympia, WA: Washington State Office of Financial Management, 1993; and U.S. Bureau of the Census, *Statistical Abstract of the United States: 1995*, 115th ed., Washington, DC: U.S. Government Printing Office, 1995.
13. Washington State Office of Financial Management, 1993, op. cit. (see reference 12); DeLorme Mapping Company, *Washington Atlas and Gazetteer*, Freeport, MN: DeLorme Mapping Company, 1995; and Washington State Department of Transportation (DOT), *Washington: Official State Highway Map*, Olympia, WA: Washington State DOT, 1994.
14. Washington State Office of Financial Management, 1993, op. cit. (see reference 12).
15. Washington State DOH, Center for Health Statistics, *Washington State Pregnancy and Induced Abortion Statistics: 1991–1994*, Olympia, WA: Washington State DOH, 1996.
16. Rosenblatt RA et al., 1994, op. cit. (see reference 2); and Rosenblatt RA et al., 1995, op. cit. (see reference 2).
17. Henshaw SK and Van Vort J, 1994, op. cit. (see reference 1); and Alan Guttmacher Institute (AGI), *Abortion Factbook*, New York: AGI, 1992.
18. Statistics Canada, *Therapeutic Abortions*, Ottawa, Canada: Canadian Center for Health Information, 1983, 1984, 1993 and 1994, selected tables.