Repeat Fertility and Contraceptive Implant Use Among Medicaid Recipients in Colorado

By Sue Austin Ricketts

Late in 1991, Colorado's Medicaid program approved coverage for the hormonal contraceptive implant among Medicaid recipients. Subsequently, the Colorado Department of Public Health and Environment undertook an analysis of data supplied by the state's Medicaid program of the probability of repeat births among Medicaid recipients. According to life-table analysis of two cohorts of women in the database who had their first Medicaid-eligible birth in 1991 and 1992, the rate of repeat delivery within 24 months of the preceding birth fell from 14.1% among 11,554 women who first delivered in 1991 to 10.6% among 13,624 women who first delivered in 1992. The 25% decline in the rate of repeat births between the two cohorts was statistically significant. These rates were higher among Medicaid-eligible mothers who first gave birth as teenagers—22.3% in the 1991 cohort and 15.9% in the 1992 cohort. Among the 2,739 Medicaid-eligible women who delivered in 1992 and chose to use the implant within six months of delivery, the repeat delivery rate was just 2.5% within 24 months; this proportion was virtually the same among implant users in the 1992 cohort who first gave birth as teenagers (2.3%).

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The rate at which low-income women receiving government benefits conceive and bear additional children is a subject of intense political discussion. A literature search yielded few studies on the topic, however. One study, published in 1994, indicated a repeat pregnancy rate of nearly 66% among welfare-dependent teenagers within an average follow-up period of 29 months.[1] Another, published in that same year but based on the general population rather than on the public-assistance population, indicated that about one-quarter of teenage mothers bore a second child within 24 months of their first;[2] for older women, this proportion approached one-fifth. The article noted, however, that studies on teenage childbearing tend to focus on first births.

The U. S. Bureau of the Census has documented that women who received public assistance in 1993 had an average of 2.6 children.[3] The pace of subsequent childbearing among such women is a relatively unexplored subject, however. The recent discussion in Washington on welfare reform proposing a "family cap" on welfare benefits[4] assumes that women are motivated to conceive and bear another child by the increased level of benefits available for additional children. Prior to the August 1996 welfare reform, 19 states had received federal waivers to put family caps in place. However, the newly passed block-grant cash assistance program, Temporary Aid to Needy Families, specifies that states no longer need a federal waiver to enact a family-cap provision.

Determining the level of repeat fertility among low-income women is critical to any assessment of the validity of family-cap legislation. The argument linking childbearing to increased subsequent benefits ignores the fact that the overwhelming majority of pregnancies among low-income women are unintended and result from the absence of effective contraception.[5] Although providing these women with effective contraceptives could help prevent unwanted fertility, continued funding for family planning services for low-income women remains uncertain as budget-cutting pressure grows.

One new method that holds promise for reducing unwanted childbearing is the contraceptive implant, which was approved by the U. S. Food and Drug Administration in December 1990 and has a failure rate of 0.09% in the first year of use.[6] Colorado's Medicaid program approved the implant as a program method in November 1991, after which implant insertions and removals were paid for by Medicaid. This research note looks at repeat delivery rates and implant use in a population of Medicaid-eligible women in Colorado.

Sue Austin Ricketts is a demographer with the Colorado Department of Public Health and Environment, Denver, Colo. The author acknowledges with gratitude the database provided for this analysis by the Medicaid program in the Colorado Department of Health Care Policy and Financing.

Methodology

In 1991, Medicaid paid for the prenatal care and delivery of 16,034 births in the state of Colorado; in 1993, that number had grown to 18,588, or one-third of the 54,013 births occurring in the state in that year.[7] In 1994, the total number of Medicaid births in Colorado dropped by 4% from the number recorded the previous year, although eligibility requirements remained essentially unchanged. Medicaid-financed births fell by another 3% between 1994 and 1995, even though the annual number of births among all Colorado women remained virtually the same over this period—at about 54,000.

The data used in this research note refer to births subsequent to Medicaid-eligible births that occurred in 1991 and 1992. These data come from the Colorado Medicaid Program, which collects information on each woman whose prenatal care and delivery are covered by the program; women eligible for Medicaid through Aid to Families with Dependent Children (AFDC) and those eligible for Medicaid only (through its expanded coverage for pregnant and postpartum women) are included in the database. However, while Medicaid-only clients are covered for contraceptive care for 60 days postpartum only, those receiving AFDC payments (an estimated one-third of the total based on other data sources) are covered for contraception for as long as they qualify for AFDC. The Medicaid data include the patient's number, county of residence, age at delivery, delivery date, and contraceptive and financial information.

This article examines births occurring between January 1, 1991, and April 30, 1994, and implant insertions and removals from November 1991 through April 1994. In 1995, when the data were made available to the Colorado Department of Public Health and Environment for analysis, the Medicaid database included 44,264 births and 9,759 implant insertions. Roughly 75% of women whose delivery was covered by Medicaid over the peri-

od were in the database; among those excluded were women whose records were inaccessible because of incompatible billing methods and women enrolled in health maintenance organizations.

The characteristics of women in the database were representative of those of all Colorado Medicaid-eligible women. Their mean age was 24 years, their median age was 22 and their modal age was 20. The age distribution was weighted toward young women in their late teens and early 20s. One limitation of the data set was its inability to distinguish between AFDC clients and Medicaid-only clients; there were also no data on race or marital status.

Each record in the database included the age of the woman and the date of the baseline Medicaid-eligible birth and any subsequent births over the study period. For purposes of analysis, birth order pertains only to the information in the database, not necessarily to the woman's true birth experience. A woman's "first" birth, for example, is her first birth that was entered into the Medicaid database. However, since an estimated 85% of all births in the Medicaid database are first births, the birth-order designations for the most part accurately reflect birth order. Although we could not predict the probability of a repeat birth not covered by Medicaid, that likelihood is probably small, since a young woman is unlikely to be able to cover the cost of a second delivery.

The dates that a woman elected to have the implant inserted (and subsequently removed) or to have a contraceptive injection (available after January 1993) were also in the database. (We did not analyze the impact of the contraceptive injection on fertility, however.) The basic criterion for inclusion was Medicaid coverage, so any repeat pregnancies or deliveries not paid for by Medicaid, or any contraceptive methods obtained outside the Medicaid program, are not reflected in the data.

Life tables were constructed for the 11,544 women in the database whose first Medicaid-eligible birth occurred between January 1, 1991, and December 31, 1991; these women made up the 1991 cohort. The 13,624 women who first delivered between January 1, 1992, and December 31, 1992, comprised the 1992 cohort. Each annual cohort was also separated by age into subsets of women who first gave birth as teenagers (N=2,815 in the 1991 cohort and N=3,561 in the 1992 cohort) and all women.

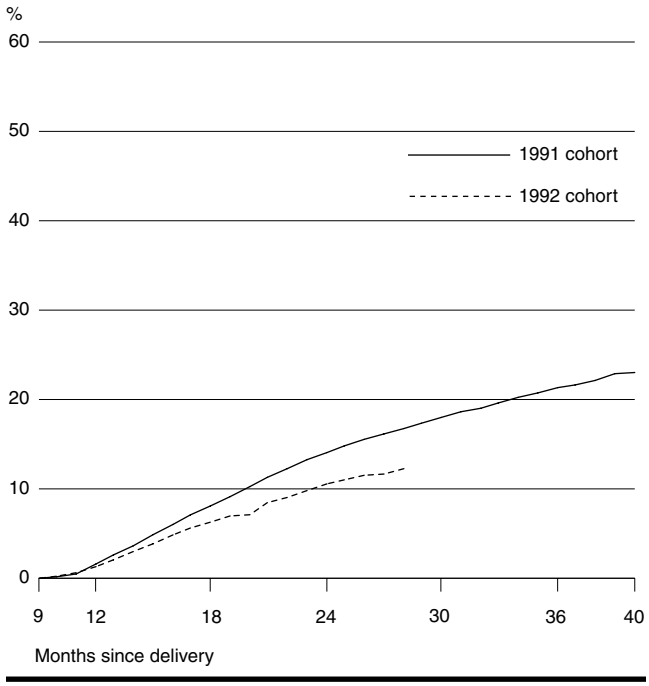
Life-table analysis was used to determine the probability of a subsequent Medicaid-eligible birth by April 30, 1994—a maximum period of 40 months for the women whose first Medicaid-eligible birth occurred in January of 1991. Each woman's experience was followed for as long as there were relevant data available for her; if she had not had a second delivery by the end of the study period, she was considered lost to follow-up at that time.

Results

Subsequent Fertility

According to life-table analysis, 1.6% of the women whose first delivery was paid for by Medicaid in 1991 had another birth within 12 months, 8.1% gave birth again within 18 months, 14.1% delivered again within 24 months and 21.3% did so within 36 months (see Figure 1). By the end of the maximum interval of 40 months, 23.0% had had a subsequent Medicaid-eligible delivery.

Figure 1. Cumulative percentage of Medicaid-eligible women first delivering in 1991–1992 who had a second Medicaid-eligible birth, by number of months since first delivery, Colorado, 1991–1994



Among women whose first Medicaid-eligible delivery took place in 1992, 1.3% had a second Medicaid-eligible birth within 12 months, 6.3% had one within 18 months and 10.6% within 24 months. This 24-month repeat fertility rate for the 1992 cohort is 25% lower than that calculated for the 1991 cohort, and the difference is statistically significant ($p<.001$). The repeat delivery rate among women in the 1992 cohort reached 12.3% at 28 months, the maximum length of time in which this cohort could be followed.

When we examined the adolescent mothers in each cohort, the proportions who went on to have a second Medicaid-financed birth were consistently higher (see Figure 2, page 280). For example, 2.9% of women in the 1991 cohort who were 19 or younger at their first Medicaid birth had delivered again within 12 months, 13.1% had done so within 18 months, 22.3% within 24 months and 34.1% within 36 months.

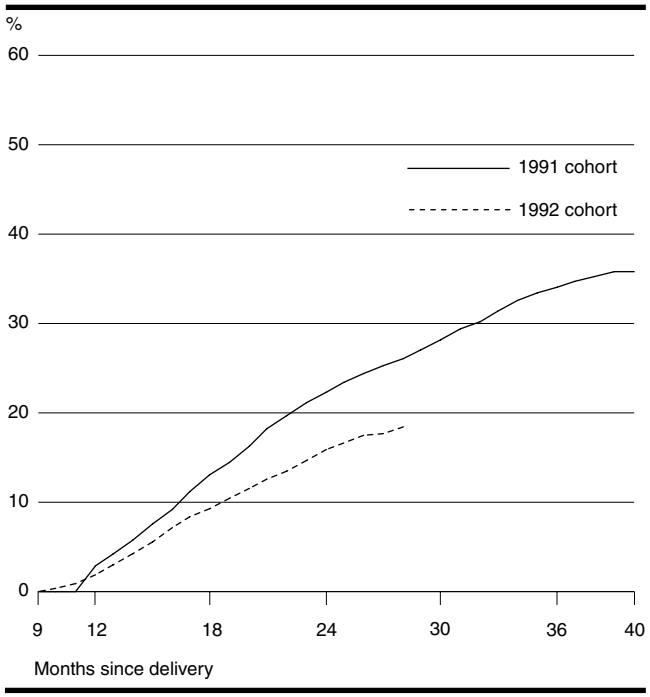
For the 1992 cohort, the rate of repeat births among women who were teenagers at their first Medicaid-eligible birth was 1.9% within 12 months, 9.3% within 18 months and 15.9% within 24 months. The 29% decrease in the 24-month repeat delivery rate between cohorts of teenage mothers—22.3% in the 1991 cohort vs. 15.9% in the 1992 cohort—was statistically significant ($p<.001$).

Impact of the Implant

Among the women who first delivered in 1992, 20% chose to have a Medicaid-financed implant insertion within six months of delivery and a total of 23% eventually got an implant; we do not know, however, what proportion of the remaining women chose another effective method or were using no method. At least 7% of the 2,739 women who had an implant insertion after a 1992 delivery had the implant removed within 12 months, and 14% had their implant removed within 24 months. These data reflect only known removals paid for by Medicaid; women who were not entitled to coverage beyond the 60-day postpartum period would have had to turn to other sources, such as family planning clinics, for removal. Thus, these incomplete removal rates probably understate the level of implant discontinuation in this population.

As expected, the probability of an early repeat birth among Medicaid-eligible women using the implant was very low: Just 2.5% of these women went on to have a Medicaid-financed delivery within two years (see Table 1, page 280). Among those in the 1992 first-birth cohort who did not choose an implant within six months of delivery, 12.6% went on to have another Medicaid-financed birth within 24 months, a rate five times higher than that among implant users in the same cohort. The repeat delivery rate at 24 months for mem-

Figure 2. Cumulative percentage of Medicaid-eligible adolescents first delivering in 1991–1992 who had a second Medicaid-eligible birth, by number of months since first delivery



bers of the 1992 cohort who did not use the implant is nearly 10% lower than that for the total 1991 cohort (14.1%), who largely had no access to the contraceptive implant. The difference between the rates among women not using the implant in the 1992 cohort and all women in the 1991 cohort is statistically significant ($p<.001$).

The adolescent mothers' experience with the implant paralleled that of all women. Nearly 30% of the women who first delivered as teenagers in 1992 chose the implant. Among these women, just 2.3% had a second delivery within two years (see Table 1), compared with 22.1% of comparable young women in the 1992 cohort who did not choose the implant—a rate nearly 10 times higher.

Discussion

The level of repeat fertility for both the 1991 and 1992 cohorts was relatively low. One in seven women who had had a Medicaid-financed delivery in 1991 had another birth within 24 months of the first. One in nine women who had had a Medicaid-eligible delivery in 1992 had another child within the same time period.

In addition, the decline in the 24-month repeat-birth rate from the 1991 to the 1992 cohort appears to have been largely due to the availability of the implant and to the method's high level of effectiveness. Although our study followed implant use for a maximum period of only 28 months, its impact over that time among Medicaid recipients in Colorado was substantial.

Furthermore, between 1991 and 1994, the rate of second and higher order births to all Colorado 15–19-year-olds fell by 20%.[8] Among women aged 20–24, the rate of second and higher order births fell by 13% over the same period. The fertility rate among 15–19-year-olds reached a high of 58 births per 1,000 in 1991, and declined by 5%, to 55 births per 1,000 15–19-year-olds, by 1994. Similarly, fertility among young women aged 20–24 was highest in 1990 at 113 per 1,000, remained elevated at 112 per 1,000 in 1991 and 1992, and fell by 8% between 1992 and 1994 (to 103 per 1,000 in 1994). Fertility fell by 5% in the same period (1991–1994) for women aged 25–29, while among older women, rates were either stable or increased over the period.

It is not possible to conclude that these general declines in adolescent and young adult fertility in Colorado are related to implant use among young women covered by Medicaid. Nevertheless, it is noteworthy that Medicaid covers the large majority of births to women under age 25 in the state: In 1992, Medicaid covered an estimated 73% of all births to Colorado teenagers and 54% of all births to women aged 20–24. Among women aged 25 and older, however, only 18% of births were covered by Medicaid.

Moreover, a sizable proportion of Medicaid women who gave birth in 1992 chose the implant as their contraceptive method, once the program had approved it for coverage; as a result, the probability of a repeat birth among these women dropped dramatically. Consequently, repeat fertility dropped significantly among all women on Medicaid.

The reduction in repeat fertility rates and the relatively low levels of implant removals seem to suggest that the implant was a viable and effective contraceptive option for many women in this population. Among these implant users, repeat fertility was reduced to near zero (2.5%) within a two-year period. However, the popularity of the method appears to have waned. While the implant gained in acceptance throughout the first nine months of 1992 (judging by the number of insertions paid for by Colorado Medicaid), the proportions of women selecting the method declined throughout 1993. (For example, in August 1992, at the peak of the implant's acceptance, more than 500 women in the Medicaid database obtained the implant, but by the end of 1993, the monthly number of women having an implant inserted had declined to just 150.) Moreover, the proportion of Medicaid-eligible women selecting the implant (through April 1994) fell from 23% in 1992 to 13% among those delivering in 1993, and to just 2% among those delivering within the first four months of 1994.

The reasons for the slide in implant use since 1992 may have included the highly publicized news accounts of women who had severe removal problems, as well as reports of the method's negative side effects, such as irregular bleeding and excessive weight gain. In addition, malpractice issues may have reduced physicians' likelihood of prescribing the method.

The data presented here suggest, nonetheless, that unintended pregnancy was drastically reduced among a large group of low-income implant users, and implant use appears to have played an important role in the overall decline in repeat childbearing observed among Medicaid-eligible women in Colorado. The relatively low cumulative rates of repeat fertility

(continued on page 284)

Table 1. Among all women and among adolescent women whose first Medicaid-financed birth occurred in 1992, proportion who had a repeat Medicaid-eligible birth, by months since delivery, according to implant use (N=13,624)

Mos. since birth	All		≤19 years old*	
	Used implant	Did not use impant	Used implant	Did not use implant
10	0.04	0.27	0.00	0.53
11	0.11	0.75	0.00	1.26
12	0.15	1.59	0.09	2.64
13	0.18	2.53	0.27	4.18
14	0.18	3.70	0.27	6.00
15	0.22	4.78	0.37	7.87
16	0.40	5.97	0.55	10.10
17	0.55	6.90	0.64	11.82
18	0.63	7.69	0.74	13.07
19	0.85	8.52	0.74	14.77
20	1.14	9.45	0.86	16.33
21	1.25	10.29	1.27	17.66
22	1.44	10.96	1.42	18.91
23	2.15	11.75	1.80	20.48
24	2.53	12.59	2.27	22.05
25	2.79	13.08	2.57	22.97
26	3.15	13.62	3.80	23.66
27	3.44	13.73	4.52	23.66
28	4.07	14.32	4.52	24.64

*At time of first Medicaid birth.

Repeat Fertility and Implant Use

(continued from page 280)

found in this sample, both before and after the implant became available, do not fit the public's perception that women on Medicaid give birth again within a very brief time.

References

1. R. Maynard and A. Rangarajan, "Contraceptive Use and Repeat Pregnancies Among Welfare-Dependent Teenage Mothers," *Family Planning Perspectives*, **26:**198–205, 1994.

2. D. S. Kalmuss and P. B. Namerow, "Subsequent Childbearing Among Teenage Mothers: The Determinants of a Closely Spaced Second Birth," *Family Planning Perspectives*, **26:**149–153 & 159, 1994.

3. U. S. Bureau of the Census, "Mothers Who Receive AFDC Payments," *Statistical Brief*, Mar. 1995, p. 2.

4. P. Donovan, "The 'Family Cap': A Popular but Unproven Method of Welfare Reform," *Family Planning Perspectives*, **27:**166–171, 1995.

5. K. Kost and J. D. Forrest, "Intention Status of U. S. Births in 1988: Differences by Mothers' Socioeconomic and Demographic Characteristics," *Family Planning Perspectives*, **27:**11–17, 1995.

6. R. H. Hatcher et al, *Contraceptive Technology*, 16th rev. edition, Irvington Publishers, N. Y., 1994. p. 289.

7. Internal reports, Medicaid Program, Colorado Department of Health Care Policy and Financing, Denver, Colo., 1991–1995; and *Colorado Vital Statistics, 1993*, Health Statistics Section, Health Statistics and Vital Records Division, Colorado Department of Public Health and Environment, Denver, Colo., 1995.

8. Unpublished 1990–1995 data, Health Statistics Section, Health Statistics and Vital Records Division, Colorado Department of Public Health and Environment, Denver, Colo. (forthcoming).