

# The Transformation of American Midwifery: 1975 to 1988

## ABSTRACT

**Background.** The use of midwives is a natural solution to the problem of improving access to skilled perinatal services while lowering costs. The number of midwife-attended births has grown from 0.9% of all births in 1975 to 3.4% of all births in 1988. The purpose of the study was to determine how mothers served by midwives and the settings in which they are served have changed in that period.

**Methods.** The analysis is based on birth certificate data from 1975 to 1988 from the Natality, Marriage and Divorce Statistics Branch of the National Center for Health Statistics, Centers for Disease Control.

**Results.** Almost all of the growth (93.2%) in midwife-attended births from 1975 to 1988 was in hospitals; 87.3% of all births attended by midwives occurred in hospitals. Pronounced differences exist between mothers served by midwives in and outside of hospitals, and there are strong regional patterns in midwife attendance at birth.

**Conclusions.** Given the positive outcomes associated with midwifery practice, further research into the content of midwifery care is recommended. (*Am J Public Health.* 1992; 82:680-684)

Eugene R. Declercq, PhD

## Introduction

The practice of midwifery in the United States underwent certain changes between 1975 and 1988. (1975 is the first year for which data permit a detailed examination of midwife-attended births.) Midwives seem a natural solution to the problems of escalating costs and limited access in the US health care system.<sup>1-3</sup> Despite a heavy reliance on midwifery in many European countries with positive perinatal outcomes,<sup>4-6</sup> the use of midwives in the United States has been limited for a variety of reasons,<sup>7</sup> although there has been a significant recent growth in the number of nurse-midwives.<sup>8</sup> The last major national study to examine comparable data<sup>9</sup> was based on findings from 1978 and 1979, and several notable changes have been documented since that study. In this paper I examine the characteristics of mothers served by midwives, the settings in which midwives attend births (in or outside of hospitals), and regional variations in these factors.

## Methods

All results presented are based on birth certificate data provided by the Natality, Marriage and Divorce Statistics Branch of the National Center for Health Statistics, Centers for Disease Control. With the exceptions of mother's education (73%) and Apgar scores (77%), the variables studied were reported in at least 99% of the cases. The basic comparisons will distinguish midwife-attended births, both in and outside of hospitals, from all births in the United States.

## Results

### Contemporary Midwifery Practice

Figure 1 illustrates the substantial growth in midwife attendance at births over the years from 1975 to 1988. Virtually all (93.2%) of the increase occurred in hospital births.<sup>10</sup> Overall, the proportion of all births that were attended by midwives increased from 0.9% in 1975 to 3.4% in 1988<sup>10</sup>; the number of midwife-attended births outside of hospitals decreased from 33.1% of all midwife-assisted births in 1975 to 12.7% in 1988. Because the birth certificate category of "midwife" as attendant includes both nurse-midwives and lay midwives, and the latter virtually never have hospital privileges,<sup>11</sup> the concentration of midwife practice in hospitals points to the growing dominance of nurse-midwives. These distinctions should become clearer with 1989 birth certificate data, which will, for the first time, distinguish between lay midwives and nurse-midwives.

Past research has found distinctions between the populations served by midwives in and outside of hospitals<sup>9</sup>; therefore, in the results shown in Table 1, both attendant and place of delivery have been controlled for. Midwives in hospitals serve mothers who are distinctly younger than average (48.3% are younger than 25 years, compared with 39.8% of all mothers), whereas midwives outside of hospitals at-

---

The author is with the Merrimack College Political Science Department, North Andover, Mass.

Requests for reprints should be sent to Eugene R. Declercq, PhD, Merrimack College, Department of Political Science, North Andover, MA 01845.

This paper was submitted to the *Journal* April 2, 1991, and accepted with revisions November 27, 1991.

tend mothers who are older than average (40.2% are older than 30 years, compared with 28.5% of all mothers). Midwife-attended births in hospitals differ somewhat from the norm in terms of proportion non-white. Mothers attended by midwives out of hospital are much more likely (94.6%) to be White. Midwives as a whole are also much more likely to serve foreign-born mothers (13.5% of all births are to foreign born mothers compared to 22.8% of midwife-attended births); a significant proportion of those attended by midwives are Mexican-born mothers in Texas. Texas alone accounts for one third of all midwife-attended out-of-hospital births in the United States.

The findings on parity mirror those concerning age. Midwives attend mothers of much higher parity out of hospital (47.4% are parity 3+) than in hospital (29.4% are parity 3+) or all births (26.5%). Four states (California, Texas, Washington, and New York [outside of New York City]) do not report data on the education of mothers; therefore, the analysis of maternal education must be limited. However, the trends noted elsewhere are reaffirmed: mothers who are attended by midwives in hospitals are less well educated than average, and mothers who are attended by midwives outside of hospitals are generally better educated. The distinctions between hospital and out-of-hospital practice are even clearer with regard to marital status: 35.4% of midwife-attended hospital births are to unmarried mothers, and only 9.7% of out-of-hospital births attended by midwives are to unmarried mothers. This is a partial reflection of the difference in proportion of black mothers served in each setting.

Midwife-attended mothers typically begin prenatal care later than average, particularly in the case of out-of-hospital births. What is unknown, and clearly needs further study, is both the provider and the content of prenatal care delivered in these various settings. Mothers attended by midwives, both in and outside of hospitals, have low-birthweight babies (< 2500 g) at less than half the general rate. This is particularly true for babies born outside of hospitals, which is not surprising, given the characteristics of mothers who give birth outside of hospitals and past studies on birthweight and Apgar scores in out-of-hospital births.<sup>12</sup> There is little variance in low Apgar scores (< 7) among any of the comparison groups. Of the babies born out of hospital to mothers attended by midwives, 58.5% have a 1-minute Apgar score of 9 or 10. Of all

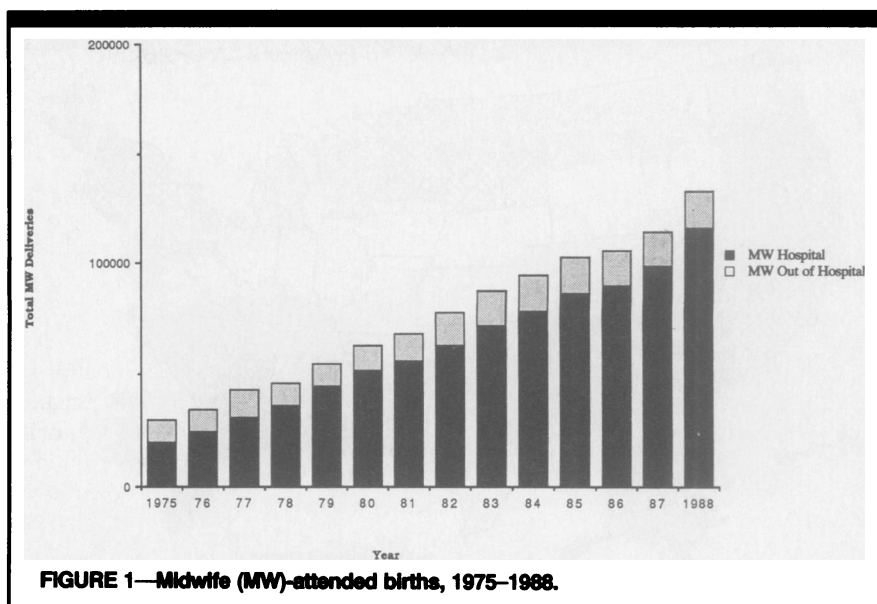


FIGURE 1—Midwife (MW)-attended births, 1975–1988.

TABLE 1—Percentage Distribution of All Births and Midwife-Attended Births by Selected Characteristics, 1988

	All Births	Midwife in Hospital	Midwife Out of Hospital
Mother's age			
<19	12.5	17.8	6.3
20–24	27.3	30.4	22.3
25–29	31.7	27.5	31.4
30–34	20.6	17.3	26.7
35–39	6.9	6.0	11.6
40+	1.0	0.8	1.9
Parity			
1	41.0	39.8	25.5
2	32.7	31.9	30.5
3	16.2	16.9	22.7
4+	10.0	12.5	24.7
Mother's education, y			
0–11	20.5	30.9	21.4
12	41.1	37.7	28.3
13–15	20.8	17.1	24.7
16+	17.6	14.3	25.6
Month prenatal care began			
1–2	54.9	39.3	29.7
3	21.1	23.4	25.9
4–6	18.0	27.3	31.5
7–9 & no care	6.1	10.1	12.9
Birthweight, g			
<2500	6.9	3.4	2.0
2500–2999	16.0	15.8	10.0
3000–3499	36.6	39.6	32.3
3500–3999	29.4	30.8	35.8
4000+	11.1	10.4	19.9
1-Minute Apgar score			
<7	8.9	7.4	7.3
7–8	49.0	47.6	34.2
9–10	42.1	45.0	58.5

births, 42.1% of babies achieve such a score; for midwife-attended hospital births, the figure is 45%. These findings are at least in part a function of careful risk assessment by midwives and referral of higher risk cases to doctors. The extent to

which the nature of midwifery care plays a role in these results remains unclear.

#### State Analysis

Because the laws regulating midwives vary widely across states,<sup>11,13</sup> I an-

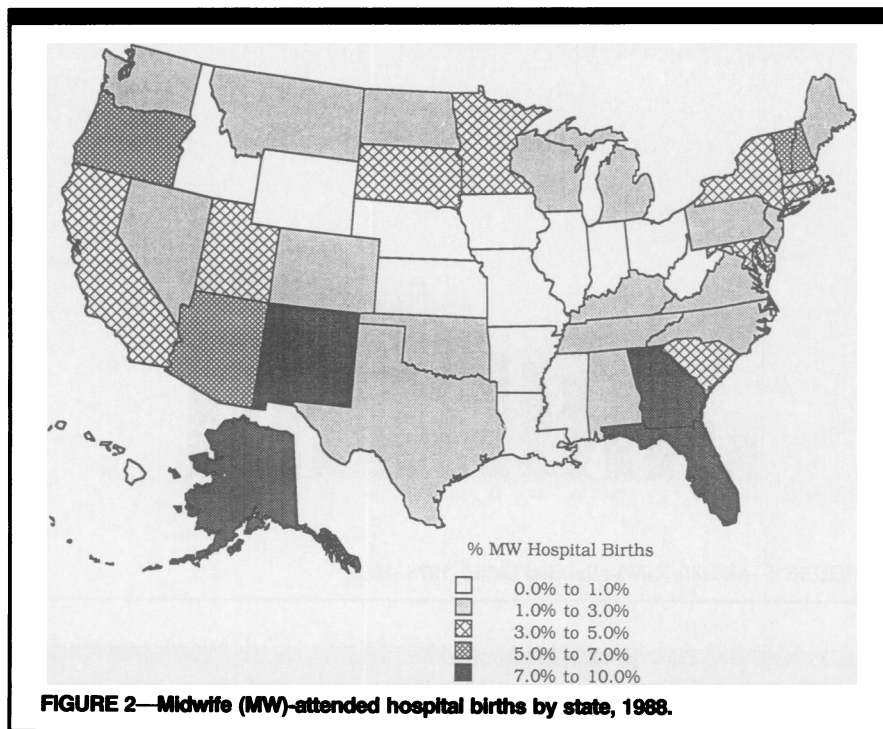


FIGURE 2—Midwife (MW)-attended hospital births by state, 1988.

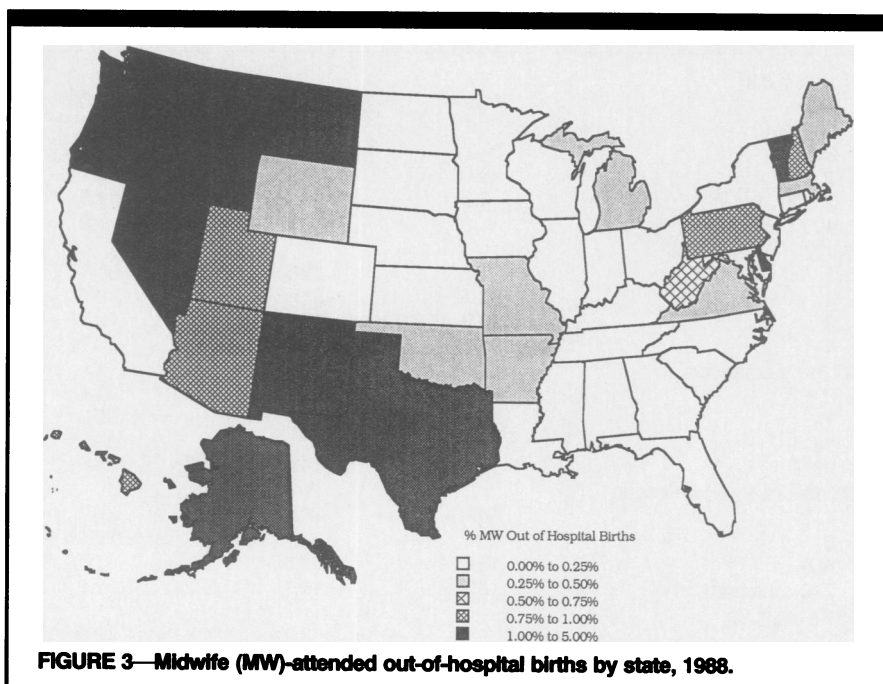


FIGURE 3—Midwife (MW)-attended out-of-hospital births by state, 1988.

alyzed interstate differences. Figure 2 illustrates regional variations in midwife-attended hospital births in 1988. Midwife attendance at hospital births was concentrated along the coasts and in the upper Midwest. Figure 3 also shows a strong regional pattern in the prevalence of midwife-attended out-of-hospital births: it is largely a Western phenomenon. Eight of the nine states where midwife-attended out-of-hospital births account for more than 1% of all births are located west of the

Mississippi. In only four Eastern states are more than 0.5% of all births out-of-hospital births attended by a midwife. In this case there appears to be a potential inverse relationship with urbanization.

The greatest change in midwife-attended births over the years from 1975 to 1988 was concentrated, not surprisingly, in those states where hospital-based midwife activity was dominant (Figure 4). The 15 states that experienced at least a 4-percentage-point increase are located at the

four corners of the continental United States; some (Florida, Connecticut, Minnesota, Alaska, and California) clearly show a change based on the increase in midwife-attended hospital births, whereas others (Vermont, Oregon) have a more mixed pattern. Four of the five states that experienced a decrease were in the South, and the decline was concentrated among Black mothers.

The analysis suggested a number of variables that might influence the frequency of midwife-attended deliveries in a state (e.g., population density, wealth, race) and there are several variables of interest (e.g., neonatal and infant mortality rates) that might in turn be related to midwife activity. An analysis of the Pearson product-moment correlations between a range of relevant variables and midwife-attended births in the states uncovered few statistically significant relationships. Of interest is the lack of a stronger relationship between midwife activity in 1975 and in 1988, with a correlation of only .32 between the proportions of all births in a state attended by midwives. Therefore, not only was there growth in the number of midwife-attended births, but there was a changing pattern in terms of the states where midwifery was popular.

#### *Changes in Midwifery Practice, 1975–1988*

Perhaps the most noteworthy change in midwifery practice in the period studied was in the racial composition of the mothers served by midwives in 1988. Although births to non-White mothers as a proportion of all births increased from 1975 to 1988, the proportion of non-White mothers served by midwives decreased dramatically, particularly in the out-of-hospital population (Figure 5). The pattern among those non-white mothers who are Black is the same, but with an even more precipitous decline.

Differences can also be seen between Taffel's<sup>9</sup> analysis of data for 1978 and 1979 and the 1988 data on some of the demographic variables discussed above. Maternal characteristics, such as parity, marital status, and prenatal care, show little change over the decade. Age differences between the populations served by midwives and mothers in general were more pronounced in 1988 than in 1978–1979. Although the proportion of mothers giving birth after the age of 30 rose in general over the decade (from 19% to 29%), the growth was even greater among midwife-attended mothers giving birth outside of

hospitals (from 23% to 40%). The reverse occurred in the case of nativity. An increase in the proportion of foreign-born mothers in general (from 10% to 14%) and a decrease in the proportion of midwife-attended mothers delivering out of hospital who were foreign-born (from 29% to 25%) resulted in differences in nativity being considerably lessened. Although the overall incidence of low birthweight did not change over the decade, the proportion of low-birthweight infants born to mothers who were attended by midwives in hospitals decreased from 4.9% in 1978–1979 to 3.4% in 1988; for mothers attended by midwives outside of hospitals, the proportion decreased from 3.8% in 1978–1979 to 2.0% in 1988. This decrease in low-birthweight babies born to mothers attended by midwives is partly the result of the decrease in the number of Black mothers served by midwives. Overall, the changes in midwifery practice between 1978–1979 and 1988 appear to have further distinguished out-of-hospital births from those in hospitals: out-of-hospital midwife-attended births seem concentrated among older White mothers.

## Discussion

How can contemporary midwifery practice be summarized? Midwifery practice in the United States is currently hospital based: 87.3% of all midwife-attended births occurred in a hospital in 1988. Midwives who practice in hospitals serve mothers who are younger; who are more likely to be unmarried, more likely to be foreign-born, and more likely to be minorities; and who receive less prenatal care than the average mother in the United States. Midwives who attend mothers outside of hospitals support a clientele that is older, has higher parity, and is much more likely to be White; is more likely to be foreign-born and married; and receives less prenatal care than mothers as a whole. Judged by the only two measures of outcome available on birth certificates, birthweight and Apgar score, mothers and babies have distinctly better than average outcomes when births are attended by midwives, either in or out of hospitals. Despite the obvious limitations of birthweight and Apgar scores as measures of outcome, when one considers that midwives, particularly in hospitals, are serving a population apparently at risk, something about the system of care developed in these cases (careful screening of risk with referral of high risk cases to doctors,

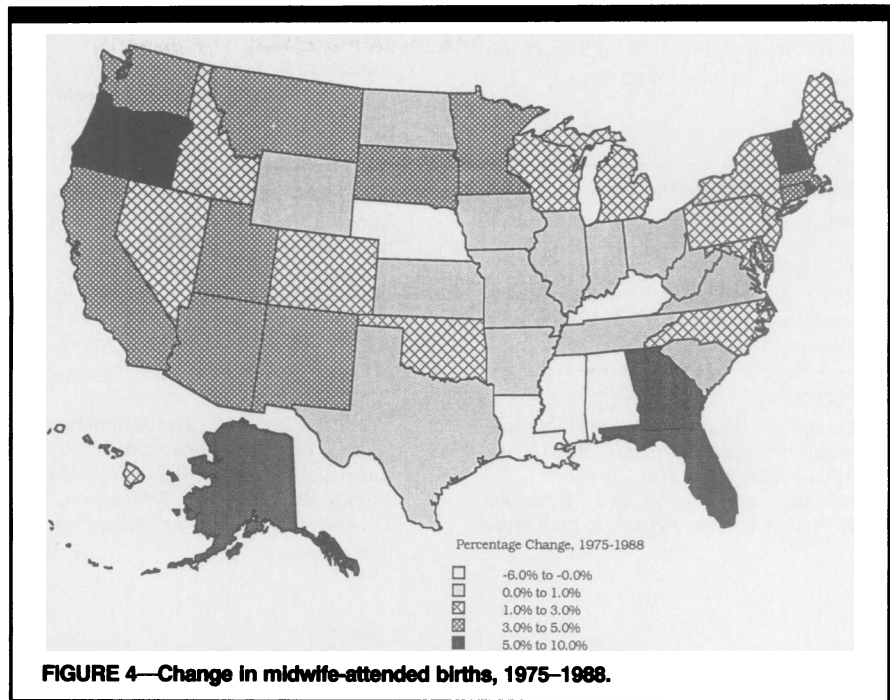


FIGURE 4—Change in midwife-attended births, 1975–1988.

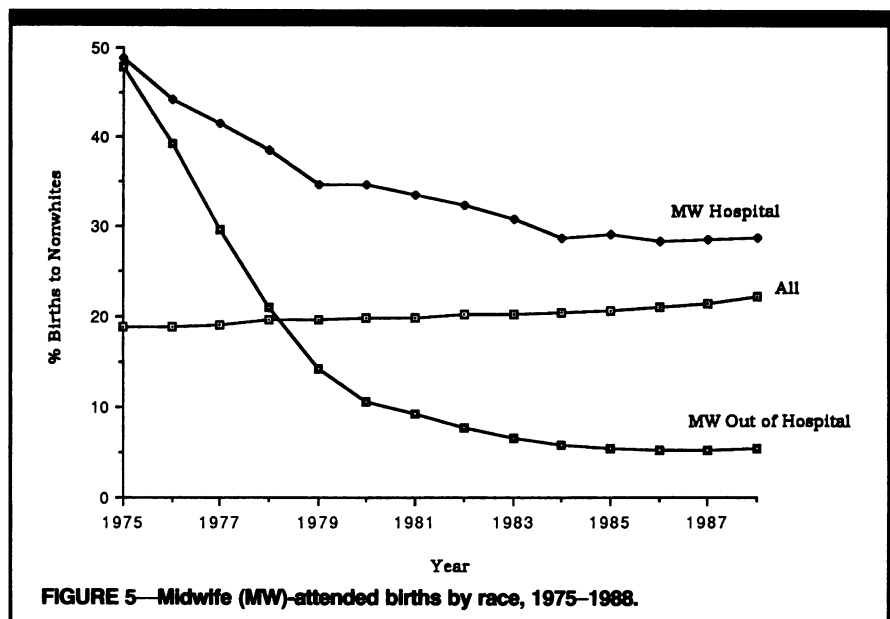


FIGURE 5—Midwife (MW)-attended births by race, 1975–1988.

more attention to prenatal care, less intervention at birth?) is working.

The findings of positive outcomes to midwifery care are hardly unique to this study, and recent research on birth centers<sup>14</sup> provides more support for the increased use of midwives and suggests the need for systematic studies of the cost savings associated with midwifery care. The degree to which some of the different patterns noted above are a result of funding mechanisms (e.g., Medicaid reimbursement rules) also deserves further inquiry. Midwives can help relieve problems of access for poor and minority mothers, and

midwifery care in hospitals is increasingly serving these populations. Pressures to concentrate midwifery care in these settings will likely grow and result in a clear split in midwifery practices between midwives serving the poorest mothers in hospitals and those serving upper-middle-class mothers outside of hospitals.

I found a strong regional pattern of midwife attendance at birth, and distinct interstate differences both at present and in developments over time. Because midwifery is regulated at the state level, differences are likely to persist, permitting the systematic study of the impact of both ex-

isting policies and innovative approaches to the further integration of midwifery into perinatal care in the United States. □

**Acknowledgments**

An earlier version of this paper was presented at the 118th Annual Meeting of the American Public Health Association, New York, NY, October 1990. This research was supported by a grant from the Merrimack College Faculty Development Committee.

**References**

1. Levit K, Freeland M, Waldo D. National health care spending trends: 1988. *Health Affairs*. 1990;9:171-184.
2. Nesbitt T, Connell F, Hart L, Rosenblatt R. Access to obstetric care in rural areas:

effect on birth outcomes. *Am J Public Health*. 1990;80:814-818.

3. Rosenblatt R. The perinatal paradox: doing more and accomplishing less. *Health Affairs*. 1989;8:158-168.
4. Kitzinger S. *The Midwife Challenge*. London: Pandora; 1988.
5. Miller CA. *Maternal Health and Infant Survival*. Washington, DC: National Center for Clinical Infant Programs; 1987.
6. Wagner M. Infant mortality in Europe: implications for the United States. *J Public Health Policy*. 1988;9:473-484.
7. Litoff J. *American Midwives: 1860 to the Present*. Westport, Conn: Greenwood Press; 1978.
8. Lehrman E, Paine L. Trends in nurse-midwifery. *J Nurse Midwifery*. 1990;35:192-203.
9. Taffel S. *Midwife and Out-of-Hospital Deliveries, United States*. Washington, DC: US Government Printing Office; 1984. *US*

*Dept of Health and Human Services* publication PHS 84-1918.

10. National Center for Health Statistics. *Advance Report of Final Natality Statistics, 1988*. Hyattsville, Md: US Public Health Service; 1990. Monthly Vital Statistics Report 39(Suppl).
11. Butter I, Kay B. State laws and the practice of midwifery. *Am J Public Health*. 1988; 78:1161-1169.
12. Declercq E. Birthweight and Apgar scores as measures of outcomes in out of hospital births in the U.S. *Public Health Rep*. 1984;99:63-73.
13. Mullinax K. Supplemental report on nurse-midwifery legislation. *J Nurse Midwifery*. 1987;32:156-159.
14. Rooks J, Weatherby N, Ernst E, Stapleton S, Rosen D, Rosenfield A. Outcomes of care in birth centers. *N Engl J Med*. 1989; 321:1804-1811.

**Errata**

*In:* Rigotti NA, Bourne D, Rosen A, Locke JA, Schelling TC. Workplace compliance with a no-smoking law: a randomized community intervention trial. *Am J Public Health*. 1992;82:229-235.

This study should be attributed to the Institute for the Study of Smoking Behavior and Policy, John F. Kennedy School of Government, Harvard University.

*In:* Cohen D, Scribner R, Clark J, Cory D. The potential role of custody facilities in controlling sexually transmitted diseases. *Am J Public Health*. 1992;82:552-556.

The authors' professional associations at the time of the study were as follows: For nearly the entire project, Deborah Cohen was with the University of Southern California, acting as a consultant for the Los Angeles County Department of Health Services; Richard Scribner and David Cory were with the Los Angeles County Department of Health Services. The authors' current associations are as follows: Deborah Cohen and Richard Scribner are with the University of Southern California, and David Cory is an independent consultant. (John Clark's affiliation with the Los Angeles County Sheriff's Department is unchanged.)

The following disclaimer should have been included: "The views expressed in the article are those of the authors and may not represent the views of the Los Angeles County Department of Health Services."

*In:* Jemmott JB III, Jemmott LS, Fong GT. Reduction in

HIV risk-associated sexual behaviors among black male adolescents: effects of an AIDS prevention intervention. *Am J Public Health*. 1992;82:372-377.

In Table 2, the 95% Confidence Intervals of Difference for Attitudes and Intentions were misaligned. The corrected table is printed here:

**TABLE 2—Adjusted<sup>a</sup> 3-Month Follow-up Means by Experimental Condition**

Variable	AIDS			
	Prevention Condition	Control Condition	Difference	95% CI of Difference
Knowledge	47.20 (83)	44.40 (67)	.28	.72, 4.88
Attitudes	3.13 (82)	3.38 (67)	-.25	-.54, .04
Intentions	2.87 (82)	3.30 (67)	-.43	-.74, -.12
Risky behavior	-.12 (76)	.24 (62)	-.36	-.64, -.08

*Note.* Numbers of respondents are shown in parentheses. CI = confidence interval. Higher numbers indicate greater AIDS knowledge, more positive attitudes toward behaviors that increase risk of sexually transmitted HIV infection, stronger intentions to engage in such risky behaviors, and more reports of risky sexual behavior.

<sup>a</sup>For each variable, the preintervention measure is partialled out of the 3-month follow-up measure.