Advanced Practice Clinicians' Interest in Providing Medical Abortion: Results of a California Survey

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CONTEXT: *California's Reproductive Health Privacy Act, which became law in January 2003, clarified that advanced practice clinicians could legally provide medical abortion. Little is known about the characteristics associated with nonphysician clinicians' interest in receiving medical abortion training or their perceptions of barriers to medical abortion provision.*

METHODS: *In early 2003, a total of 1,176 licensed advanced practice clinicians in California—nurse practitioners, physician assistants and certified nurse-midwives—completed a mail-in survey assessing their personal characteristics, beliefs and clinical practices. Weighted univariate and bivariate analyses were conducted to describe the respondents, their interest in receiving medical abortion training and their perceptions of barriers to providing such care.*

RESULTS: *One-quarter of respondents desired training in medical abortion. A higher proportion of nurse-midwives than of nurse practitioners or physician assistants desired training (42% vs. 24% and 23%, respectively). The proportion of respondents desiring training also was elevated among clinicians who have prochoice attitudes, those who are familiar with medical abortion and those who spend at least one-third of their time providing care to women of reproductive age. Lack of training opportunities, legal uncertainties and clinical facility constraints were the most frequently reported perceived barriers to provision of medical abortion.*

CONCLUSIONS: *Considerable proportions of advanced practice clinicians—especially of nurse-midwives—may be interested in receiving medical abortion training. Perceived barriers to providing medical abortion are amenable to change. Policies and programs are needed to ensure that interested, committed clinicians can overcome barriers to providing medical abortion for their patients.*

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Medical and technological advances in abortion care, including the introduction of mifepristone and the refinement of uterine aspiration techniques, have enabled earlier and simpler termination of unwanted pregnancy. These technologies are well suited for use by a wide range of health care providers in various settings. Expanding the number of providers offering early abortion care is particularly important in rural and underserved areas in the United States, where the number of abortion providers has been declining dramatically. From 1996 to 2000, the number of recognized abortion providers in California decreased by 19%; currently only 400 providers serve 7.5 million women of reproductive age in the state.[1]

In the United States, nonphysician clinicians, including advanced practice clinicians, are playing increasingly important roles as providers of health care. From 1987 to 1997, the proportion of patients who saw a nonphysician clinician increased from 31% to 36%.[2] Advanced practice clinicians—including nurse practitioners, physician assistants and certified nurse-midwives—have been shown to competently perform complex medical procedures and provide high-quality care.[3] Several advocacy and professional organizations have recognized advanced practice clinicians as technically qualified and appropriate providers of abortion care.[4] During their clinical training, advanced practice clinicians specializing in women's health learn several related and equally complex skills, including how to date pregnancies by measuring uterine size and using ultrasonography, insert IUDs, perform intrauterine biopsies, suture simple lacerations and repair episiotomies. Although some states have laws that limit abortion care to physicians, advanced practice clinicians may assist physicians by providing counseling, taking medical histories, performing physical examinations (including to confirm and date a pregnancy) and managing side effects.

Abortion laws enacted before the expansion of advanced practice clinicians' roles and the development of simplified abortion technologies have created a confusing situation for advanced practice clinicians wishing to offer abortion care. In part to clarify this issue, the California legislature passed the Reproductive Health Privacy Act (California SB1301), which took effect in January 2003. In addition to codifying the protections of *Roe v. Wade* into state law, the act clarifies that advanced practice clinicians may provide nonsurgical abortions by administering medications such as mifepristone.

We surveyed advanced practice clinicians in California about their interest in receiving medical abortion training

and their perceptions regarding potential barriers to providing such care. Our aim was to assess the potential for advanced practice clinicians' provision of medical abortion in early 2003, in the wake of publicity surrounding this new law, when such clinicians may have been particularly likely to be thinking about their own beliefs regarding medical abortion provision.

METHODS

Data Collection

A selected sample of 2,400 California advanced practice clinicians was randomly drawn from mailing lists obtained in December 2002 from the California Board of Registered Nursing (for nurse practitioners and nurse-midwives) and the Medical Board of California (for physician assistants). These lists include the names and addresses of all advanced practice clinicians licensed in the state. Advanced practice clinicians with an out-of-state address were removed from the list before the sample was drawn. The sample was designed to represent 14% of the 16,720 advanced practice clinicians registered in the state (13% of nurse practitioners and physician assistants, and 40% of nurse-midwives). Power calculations were conducted to estimate a sampling scheme that would ensure 80% power to detect a 20% difference between advanced practice clinician categories by using a range of assumed response proportions. The final sample had approximately 80% power to detect the difference in desire for medical training between physician assistants and the other two advanced practice clinician categories. Nurse-midwives were oversampled because they represent the smallest proportion of the total advanced practice clinician population (6%) but are a subgroup of particular interest because of their specialization in women's health care.

In January 2003 we mailed questionnaires, along with self-addressed postage-paid envelopes in which to return the surveys, and cover letters explaining the study's purpose and assuring participants that their responses would remain confidential. No incentive was offered for participation. Two follow-up mailings were sent, in February and April. A total of 1,176 surveys were returned, for a response rate of 49%.

The questionnaire was modeled on ones used in previous surveys;[5] informed by feedback from experts in abortion practice, policy and research; and pilot-tested among six advanced practice clinicians. Survey items were framed as neutrally as possible. The final questionnaire had 22 questions.

The University of California, Berkeley, Committee for the Protection of Human Subjects approved the study. The University of California, San Francisco, Institutional Review Board granted an exempt approval.

Measures

The questionnaire defined medical abortion as "an abortion performed using a pharmaceutical agent such as mifepristone (RU 486), methotrexate or misoprostol." The primary outcome was agreement or disagreement with the statement "I would like to be trained to provide medical abortions." A five-point response scale was collapsed into two categories: agree or strongly agree versus neutral, disagree or strongly disagree. Forty-one respondents wrote in "N/A" or "not applicable," and their data were coded as missing.

Independent variables of interest included provider and practice characteristics and abortion-related attitudes. Respondents were asked to provide their age, gender, educational degrees, years of clinical practice and type of licensing (nurse practitioner, nurse-midwife or physician assistant). Respondents were also asked to identify their specialty area. Clinical specialty areas were grouped into women's health (which includes obstetrics and gynecology, and family planning), adult or family primary care, and other.

Practice location was categorized as rural or urban on the basis of self-reported data, and as metropolitan or nonmetropolitan on the basis of the county of the respondents' zip code. Because fewer than 5% of respondents were in rural or nonmetropolitan areas, these measures were not used in the analyses.

Practice characteristics included the proportion of clinical time spent providing care to women aged 13–45 (0–33%, 33–66%, 66–100%), whether the respondent sees women with unintended pregnancies as part of his or her practice and, if so, whether the respondent provides abortion counseling. Respondents were also asked whether they had ever referred patients for abortion.

The survey included three questions assessing attitudes on abortion. The first of these items asked whether the respondent believed abortion should be "legal under any circumstances," "legal only under certain circumstances" or "illegal in all circumstances." The second question asked whether respondents considered themselves prochoice, prolife or neither. Twelve respondents chose both prochoice and prolife, and they were grouped with the participants responding neither. The third question asked the participant to respond yes or no to the statement "I would support my colleagues in providing abortions." Respondents may have interpreted this question to refer specifically to other advanced practice clinicians or to all colleagues, and to refer to both direct aid to colleagues and support of the idea of colleagues' providing abortion.

Respondents were asked whether they had ever heard of medical abortion and, if so, how familiar they were with it (not very, somewhat, very familiar). Seventy-nine respondents reported having heard of medical abortion but did not answer the question about familiarity; we grouped those respondents with persons who reported being somewhat or very familiar, differentiating them from respondents who had never heard of medical abortion or were not very familiar with it.

We asked respondents how many times in the past six months they had assisted a physician in providing a medical abortion and how many times in the past six months they had treated abortion-related complications (never, fewer than 10 times, 10 times or more).

To understand perceived barriers to abortion provision,

TABLE 1. Percentage distribution of California advanced practice clinicians participating in a 2003 survey, by selected characteristics, according to clinician type

Characteristic	All	Nurse practitioner	Physician assistant	Nurse-midwife
Gender	(N=1,158)	(N=762)	(N=324)	(N=72)
Female	86.1	93.7	65.4	98.6
Male	13.9	6.3	34.6†	1.4
Graduate degree	(N=1,138)	(N=757)	(N=310)	(N=71)
Yes	66.6	79.7	33.2	73.2‡
No	33.4	20.3	66.8	26.8
Area of specialization* **	(N=1,176)	(N=779)	(N=325)	(N=72)
Women's health	22.0	20.8	9.8	90.3
Adult/family primary care	45.7	48.8	47.7	2.8
Pediatrics/geriatrics/other	32.3	30.4	42.5	6.9
% of time spent providing care to women aged 13–45	(N=1,146)	(N=752)	(N=323)	(N=71)
≥33	60.8	56.0	64.4	95.8‡
<33	39.2	44.0	35.6	4.2
Abortion stance	(N=1,143)	(N=751)	(N=322)	(N=70)
Prochoice	72.5	73.1	69.3	81.4§
Prolife/neither	27.5	26.9	30.7	18.6
Position on legal status of abortion*	(N=1,137)	(N=748)	(N=319)	(N=70)
Legal under any circumstances	52.2	52.9	47.3	67.1
Legal only under certain circumstances	42.4	41.7	46.7	30.0
Illegal under all circumstances	5.4	5.3	6.0	2.9
Would support colleagues in providing abortion	(N=1,109)	(N=730)	(N=312)	(N=67)
Yes	77.3	77.8	74.4	85.1§
No	22.7	22.2	25.6	14.9
Sees patients with unintended pregnancy	(N=1,047)	(N=668)	(N=309)	(N=70)
Yes	72.1	70.8	69.9	94.3§
No	27.9	29.2	30.1	5.7
Includes abortion in counseling	(N=757)	(N=473)	(N=219)	(N=65)
Yes	82.3	85.2	75.3§	84.6
No	17.7	14.8	24.7	15.4
Ever referred patient for abortion	(N=1,048)	(N=667)	(N=311)	(N=70)
Yes	65.4	65.7	59.2	90.0§
No	34.6	34.3	40.8	10.0
Familiarity with medical abortion	(N=1,071)	(N=687)	(N=315)	(N=69)
Somewhat/very familiar	76.4	76.4	73.7	88.4§
Never heard of/not very familiar	23.6	23.6	26.3	11.6
Assisted with medical abortion in past six mos.	(N=1,064)	(N=680)	(N=314)	(N=70)
Yes	6.7	6.2	7.0	10.0
No	93.3	93.8	93.0	90.0
Treated abortion complication in past six mos.	(N=1,056)	(N=672)	(N=314)	(N=70)
Yes	18.6	18.0	18.8	22.9
No	81.4	82.0	81.2	77.1
Wants medical abortion training	(N=1,074)	(N=702)	(N=305)	(N=67)
Yes	24.7	23.6	23.3	41.8§
No	75.3	76.4	76.7	58.2
Total	100.0	100.0	100.0	100.0

*p<.05 for overall chi-square test. ***p<.001 for overall chi-square test. †Differs significantly from nurse practitioners at p<.05. (The cell size for nurse-midwife was too small to test for significance.) ‡The three clinician types differ significantly from one another at p<.05. §Differs significantly from other clinician types at p<.05. *Note:* All Ns are weighted.

the survey asked respondents who "would consider providing medical abortion" to identify "reasons for not providing or assisting with medical abortions even though you are willing." Respondents were instructed to mark all applicable choices from a list of nine responses, and they were given the opportunity to write in additional reasons.

Analysis

Sample weights were applied to the data to account for the oversampling of nurse-midwives. Poststratification weights were applied to reflect the distribution of advanced practice clinicians in California at the time of the survey.

Weighted frequencies are reported for the full sample and by type of advanced practice clinician. For continuous variables, differences between advanced practice clinician types were tested by using one-way analysis of variance and the Bonferroni test for multiple comparisons. For dichotomous variables, differences by advanced practice clinician type were tested in unadjusted logistic regression models. Chi-square statistical tests of independence were used to assess differences by advanced practice clinician type for multiple-category variables and to assess characteristics associated with wanting medical abortion training.

RESULTS

Provider and Practice Characteristics

In the unweighted survey sample, 59% of the respondents were nurse practitioners, 17% were physician assistants and 24% were nurse-midwives. Some respondents selected more than one licensing category. We grouped the 24 nurse practitioners–physician assistants with nurse practitioners, and the 69 nurse practitioners–nurse-midwives with nurse-midwives. Categorizing the respondents with dual credentialing as nurse practitioners or nurse-midwives does not change the overall demographic and practice characteristics of the larger groups. With weights applied, the proportions of nurse practitioners, physician assistants and nurse-midwives in the sample were 66%, 28% and 6%, respectively.

The mean age of respondents was 46.3 years; 86% of respondents were female, and two-thirds reported having a graduate degree (Table 1). On average, respondents had been in practice for 12.7 years (not shown). The 47 respondents who reported being retired or not currently practicing were coded as having missing data for this measure.

Compared with nurse practitioners and nurse-midwives, physician assistants were younger (mean age, 41.9 years vs. 47.9 and 47.6 years). The proportion of respondents with a graduate degree was lowest among physician assistants, and the proportion who were male was highest in this group (Table 1). These results are similar to those of a 1998 survey of advanced practice clinicians in California.[6] In our study, physician assistants reported fewer years in practice (10.5) than nurse practitioners (13.5) and nurse-midwives (14.7) did (not shown).

About one-fifth of advanced practice clinicians reported specialization in women's health care (Table 1). Roughly half reported specialization in adult or family primary care. Ninety percent of nurse-midwives identified themselves as women's health specialists. Sixty-one percent of all respondents reported spending at least one-third of their clin-

ical time seeing women of reproductive age.

Most of the sample identified themselves as prochoice (73%). Five percent of respondents believed that abortion should be illegal in all circumstances, 52% thought abortion should be legal under any circumstances and the remaining 42% thought it should be legal under certain circumstances only. The proportion of clinicians who asserted that abortion should be legal under any circumstances was highest among nurse-midwives (67%). Seventy-seven percent of respondents reported that they would support their colleagues in providing abortions.

Most respondents cared for patients with unintended pregnancy in their practice (72%) and had ever referred a patient for abortion (65%). The proportion answering yes to each of these items was highest among nurse-midwives.

The survey was administered shortly after the new law clarifying advanced practice clinicians' ability to prescribe mifepristone for abortion went into effect. Seventy-six percent of respondents described themselves as somewhat or very familiar with medical abortion. Fewer than 10% had assisted with medical abortion in the previous six months. Nineteen percent of respondents had treated women with abortion-related complications; for this item, there were no significant differences across clinician types.

One-quarter of respondents expressed an interest in receiving training in medical abortion provision; the proportion was highest among nurse-midwives (42%, compared with 24% of nurse practitioners and 23% of physician assistants).

TABLE 2. Percentage of advanced practice clinicians interested in receiving training in medical abortion provision, by selected characteristics

Characteristic	%
Gender	
Female	24.7
Male	24.2
Graduate degree	
Yes	24.8
No	25.4
Area of specialization* **	
Women's health	38.7
Adult/family primary care	24.6
Pediatrics/geriatrics/other	15.6
% of time spent providing care to women aged 13–45* **	
≥33%	31.4
<33%	14.3
Abortion stance* **	
Prochoice	32.7
Prolife/neither	6.1
Position on legal status of abortion* **	
Legal under all circumstances	39.1
Legal only under certain circumstances	11.6
Illegal under all circumstances	0.0
Would support colleagues in providing abortion* **	
Yes	33.3
No	1.6
Sees patients with unintended pregnancy* **	
Yes	31.0
No	13.9
Includes abortion in counseling* **	
Yes	36.4
No	6.1
Ever referred patient for abortion* **	
Yes	34.8
No	10.5
Familiarity with medical abortion* **	
Somewhat/very familiar	29.0
Never heard of/not very familiar	16.5
Assisted with medical abortion in past six mos.* **	
Yes	65.1
No	24.0
Treated abortion complication in past six mos.* **	
Yes	41.5
No	22.6

***p<.001 for overall chi-square test. *Note:* Interest was defined as agreement or strong agreement with the statement "I would like to be trained to provide medical abortions."

Characteristics of Respondents Wanting Training

The proportion of respondents desiring training did not differ significantly by mean age or mean years in clinical practice (not shown), or by gender or graduate education (Table 2). The proportion desiring training was higher among respondents who had specialty training in women's health and those who spend at least one-third of their clinical time working with women of reproductive age than among other respondents.

Thirty-three percent of prochoice respondents wanted training, compared with 6% of those who identified as prolife or as neither prolife nor prochoice. Thirty-nine percent of respondents who believed that abortion should be legal in all circumstances wanted medical abortion training, compared with 12% of those who thought it should be legal under certain circumstances only and none who thought it should be illegal under all circumstances. Expressing support for colleagues who provide abortion was positively associated with wanting medical abortion training.

The proportion wanting medical abortion training was higher among respondents who saw patients with unintended pregnancy in their practice than among those who did not, and higher among respondents who had ever referred patients for abortion than among those who had not.

Twenty-nine percent of respondents who were somewhat or very familiar with medical abortion wanted training, compared with 17% of those who had never heard of medical abortion or were not very familiar with it. Only 72 respondents reported assisting with medical abortion in the past six months; of this small group, 65% expressed a desire to receive training. Among the 196 advanced practice clinicians who had treated abortion complications in the past six months, 42% wanted to receive training.

Perceived Barriers to Providing Care

Among those who would consider providing medical abortion, 411 respondents (35%) identified at least one reason for not providing or assisting with medical abortions

TABLE 3. Of advanced practice clinicians who would be willing to perform medical abortions, percentage who perceive selected barriers to performing or assisting another provider in performing medical abortion, by clinician type

Barrier	Total (N=411)	Nurse practitioner (N=270)	Physician assistant (N=109)	Nurse-midwife (N=32)
Lack of training opportunities	66.9	67.7	66.1	62.5
Unsure about legal restrictions	58.4	59.6	56.0	56.3
Clinical facility does not permit	45.7	45.6	45.9	46.9
Malpractice insurance cost would increase*	41.6	41.9	46.8	21.9†
No physician backup	24.3	24.8	24.8	18.8
Fear of antiabortion harassment	20.4	21.9	16.5	21.9
Lack of support from colleagues*	10.0	11.9	2.8†	18.8
Lack of support from friends/family/community	9.0	10.4	5.5	9.4

*p<.05 for overall chi-square test or Fisher exact test (for cell counts less than five). †Differs from other clinician types at p<.05.

(Table 3). The most frequently cited reasons were having no training opportunities (67%), being unsure of legal restrictions (58%), working at a facility that does not permit provision of such care (46%) and believing that malpractice insurance costs would increase (42%). Approximately one-quarter of clinicians perceived a lack of physician backup as a barrier, and one-fifth of respondents feared antiabortion harassment. A smaller proportion of nurse-midwives (22%) than of nurse practitioners (42%) or physician assistants (47%) identified an increase in malpractice insurance premiums as a barrier to provision. Only a small proportion of respondents identified lack of support from colleagues, community, family or friends as a barrier.

DISCUSSION

Twenty-five percent of our sample of California advanced practice clinicians expressed a desire to receive medical abortion training. Previous studies have examined abortion-related attitudes of nurse-midwives before the introduction of medical abortion,[7] and of allopathic medical, nurse practitioner and physician assistant students.[8] Our study provides information specific to medical abortion, information about each type of advanced practice clinician and information focused on licensed clinicians.

Although our survey's response rate of 49% was lower than desired, we believe it is not an unreasonable rate, given that we used a mailed questionnaire on a sensitive and controversial topic and considering the lack of incentive offered for participation. At the same time, with this low response rate, there may have been a response bias, whereby individuals with strong opinions about the issue in question might have been more likely than others to participate. We are reassured, however, by the similarity between our sample's characteristics and those from a 1998 California workforce study of advanced practice clinicians.[9] However, if nonparticipants were less interested than participants were in providing abortion care, our results may reflect a higher level of interest than would be found among California's total population of advanced practice clinicians.

Approximately 10% of data are missing for many of the questions. This is not entirely unexpected, given the sensitivity of the abortion issue. Respondents may have been reluctant to provide personal information, or may have answered only those questions about which they felt most strongly. Only 35% of respondents answered the question about barriers to providing medical abortion care. It is unclear whether those who did not answer that question were unwilling to provide, perceived no barriers or were already providing or assisting, did not understand the question or skipped the question for some other reason.

Our sample includes few advanced practice clinicians from rural areas, and our survey uses only limited geographic measures. Other studies have found that many of California's advanced practice clinicians care for medically underserved populations. One found that 26% of nurse practitioners, 35% of physician assistants and 35% of nurse-midwives in California worked in an area with a shortage of health professionals.[10] Medically underserved populations would likely benefit most from having abortion services situated within primary health care. Targeted research is needed to help identify the beliefs of providers in medically underserved areas regarding barriers to providing medical abortion.

With the limitations of our study in mind, we can make a guarded estimate about the potential of advanced practice clinicians as providers of medical abortion: Because one-quarter of our sample were interested in receiving abortion training and California has 16,720 advanced practice clinicians, there could be as many as 4,000 new potential providers, or 10 times the current number. We can also make a more conservative estimate, taking into account nonresponse bias, by assuming that all who did not complete and return the survey (1,224 of the 2,400 persons contacted by mail) did not want to receive abortion training. By using this assumption, 11% of advanced practice clinicians (265 of 2,400) want training, or roughly 2,000 in the state, which would still markedly increase the number of potential new abortion providers. Although not all clinicians who receive training will go on to provide medical abortions, training is an important first step toward increasing the pool of potential providers.

The results of our bivariate analyses suggest that advanced practice clinicians whose characteristics include having prochoice attitudes, seeing women with unintended pregnancies in their practices, specializing in women's health care or being familiar with medical abortion are more likely than others to want medical abortion training. Providers fitting this profile may feel more qualified and comfortable in providing reproductive health care than other providers do. They may already use many of the skills involved in providing medical abortion. In addition, they may see more patients who need abortion care. Interestingly, although age or years in clinical practice might be expected to be associated with desire for abortion training (because older clinicians might be more willing than younger clinicians to desire training as a result of witnessing the lack of abortion access in the country before 1973), neither of these characteristics, nor gender or educational level, were positively associated with our main outcome.

Although 73% of respondents considered themselves pro-

choice and 52% thought abortion should be legal under all circumstances, only 33% and 39% of these respondents, respectively, desired medical abortion training. The perceived barriers to provision cited by the respondents help identify some of the possible reasons why support for legal abortion would not necessarily translate to desire for training.

Our results suggest that establishing training opportunities is important, but such efforts would unlikely be sufficient for expanding access to medical abortion. Clarifying legal regulations about medical abortion provision and ensuring affordable malpractice coverage will also be important for advancing the role of advanced practice clinicians as providers of medical abortion care. Perhaps surprisingly, only one-quarter of respondents identified a lack of physician backup as a barrier to abortion provision. U.S. Food and Drug Administration regulations require that mifepristone be prescribed by or under the supervision of a physician who has the ability to provide surgical intervention in case of incomplete abortion or severe bleeding, or has made plans to provide such care through others. It is unclear whether survey respondents felt confident in their ability to manage medical abortion failures and complications, whether they perceived little difficulty in obtaining the necessary backup or whether they did not select this response for some other reason.

Women have the legal right to abortion, but a legal right means little unless safe abortion care is available and accessible. For decades, advanced practice clinicians have demonstrated a commitment to improving health care access for vulnerable and medically underserved populations. As highly trained health care professionals, they have the competence and skills to provide a wide range of women's health care, including medical abortion. The information from this study can help identify the clinicians most likely to provide medical abortion and can help ensure that interested, committed clinicians can overcome barriers to providing medical abortion care to their patients.

REFERENCES

1. Finer LB and Henshaw SK, Abortion incidence and services in the United States in 2000, *Perspectives on Sexual and Reproductive Health*, 2003, 35(1):6–15.

2. Druss BG et al., Trends in care by nonphysician clinicians in the United States, *New England Journal of Medicine*, 2003, 348(2):130–137.

3. Brown SA and Grimes DE, A meta-analysis of nurse practitioners and nurse midwives in primary care, *Nursing Research*, 1995, 44(6):332–339; Donaldson MS et al., eds., *Primary Care: America's Health in a New Era,* Washington, DC: National Academy Press, 1996; and Office of Technology Assessment, *Nurse Practitioners, Physician Assistants and Certified Nurse Midwives: A Policy Analysis,* Washington, DC: Office of Technology Assessment, 1986.

4. American Public Health Association, Advocating for nurse practitioners, nurse-midwives and physician assistants as abortion providers, in: *Policy Statements Adopted by the Governing Council of the American Public Health Association, November 10, 1999*, p. 31, <http://www.apha.org/legislative/policy/policypdf1.pdf>, accessed Apr. 13, 2005; and National Abortion Federation, *Strategies for Expanding Abortion Access: The Role of Physician Assistants, Nurse Practitioners and Nurse-Midwives in Providing Abortions,* Washington, DC: National Abortion Federation, 1997.

5. McKee K and Adams E, Nurse midwives' attitudes toward abortion performance and related procedures, *Journal of Nurse-Midwifery*, 1994, 39(5):300–311; and Miller S, Billings D and Clifford B, Midwives and post-abortion care: an international survey, *Journal of Midwifery and Women's Health*, 2002, 47(4):247–255.

6. Center for Workforce Studies, University of California, San Francisco, *Nurse Practitioners, Physician Assistants and Certified Nurse Midwives in California*, Sacramento, CA: Office of Statewide Planning and Development, 2000.

7. McKee K and Adams E, 1994, op. cit. (see reference 5).

8. Shotorbani S et al., Attitudes and intentions of future health care providers toward abortion provision, *Perspectives on Sexual and Reproductive Health*, 2004, 36(2):58–63.

9. Center for Workforce Studies, 2000, op. cit. (see reference 6).

10. Grumbach K et al., Who is caring for the underserved? a comparison of primary care physicians and nonphysician clinicians in California and Washington, *Annals of Family Medicine*, 2003, 1(2):97–104.

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