ELSEVIER

Women's Health Issues 15 (2005) 39–44

WOMEN'S HEALTH ISSUES

WILLING AND ABLE? PROVISION OF MEDICATION FOR ABORTION BY FUTURE INTERNISTS

Eleanor Bimla Schwarz, MD, MS[a]*, Anne Luetkemeyer, MD[b], Diana Greene Foster, PhD[c], Tracy A. Weitz, MPA[c], Deborah Lindes, MD[d], and Felicia H. Stewart, MD[c]

[a]*Department of Medicine, General Internal Medicine Section, University of California, San Francisco, California*
[b]*Department of Medicine, Division of Infectious Disease, University of California, San Francisco, California*
[c]*Department of Obstetrics, Gynecology, and Reproductive Sciences, University of California, San Francisco, California*
[d]*Department of Medicine, Division of General Internal Medicine, University of California, San Francisco, California*

Received 14 July 2004; received in revised form 20 August 2004; accepted 31 August 2004

Introduction and Background: **The development of medications such as mifepristone (RU486) has created the opportunity to introduce medication abortion as a component of office practice.**

Methods: **Two hundred twelve residents training in internal medicine, family practice, and gynecology at 11 residency programs completed anonymous surveys assessing willingness to provide medication for abortion and perceived barriers to future provision of mifepristone.**

Results: **Residents training in internal medicine knew less about mifepristone and preabortion screening than other primary care trainees. Forty-two percent of internists, 84% of family practitioners, and 83% of gynecologists were willing to prescribe mifepristone ($p < .001$). Many internists were concerned about lacking adequate "backup" access to vacuum aspiration services (84% of internists, 74% of family practitioners, 35% of gynecologists; $p < .001$). In multivariable analysis, the training-related factors most predictive of whether an internist was willing to provide medication for abortion were feeling that mifepristone is very safe, abortion services are needed by the patients served, knowing to check an ultrasound before inducing abortion, and having no concern of how to manage bleeding or of lacking adequate backup should vacuum aspiration be needed.**

Conclusions and Discussion: **Many (42%) future internists are willing to provide mifepristone, but most lack adequate knowledge of mifepristone and preabortion screening. As access to abortion services is limited in many U.S. counties, internists who are willing to provide mifepristone should be offered the necessary training to do so safely.**

Introduction

Unwanted pregnancy remains a significant burden for the United States, where the abortion rate is among the highest known in a developed nation (Henshaw, Singh, & Hass, 1999). Abortion is one of the most common surgical procedures performed in the United States; in 2000, approximately 1.3 million abortions were performed (Finer & Henshaw, 2003). Despite the need for services, over 87% of U.S. counties lack an aspiration abortion provider (Henshaw & Finer, 2003). Research has documented that one-quarter of women who seek abortions travel 50 miles or further for services (Henshaw & Finer, 2003). International experience (Ahman & Shah, 2002) and our own pre–*Roe v. Wade* history (Polgar & Fried, 1976) demonstrate that limited access to abortion services does not decrease the number of abortions performed, but rather increases the number of women who are injured by unsafe abortions or attempts to self-abort. In the United States, when induced abortion was legalized, abortion-related mortality dropped sharply (Cates, Grimes, & Schulz, 2003).

The development of medications such as mifepristone, which has been shown to safely and effectively terminate

* Address correspondence to: Eleanor Bimla Schwarz, MD, MS, Clinical Instructor and Research Fellow, University of California, San Francisco, General Internal Medicine Section (111a1), VA Medical Center, 4150 Clement St, San Francisco, CA 94121.
E-mail: Schwarz@medicine.ucsf.edu

Copyright © 2005 by the Jacobs Institute of Women's Health.
Published by Elsevier Inc.

1049-3867/05 $-See front matter.
doi:10.1016/j.whi.2004.08.011

pregnancies prior to 9 weeks of gestation, has created the opportunity to introduce early abortion services in the setting of traditional primary care office practice (Breitbart, Rogers, & Vanderhei 2000; Creinin, 2000).

Provision of mifepristone by primary care providers has the potential to markedly increase the number of locations where women may access abortion services, decrease the visibility of abortion providers, and possibly reduce the risk of violence directed toward providers and their patients. Given the continuing decline in numbers of abortion providers (Finer & Henshaw, 2003), it is also important to note that the time and resources required to train a health-care provider to dispense mifepristone are significantly less than to train an aspiration abortion provider (Breitbart, 2000).

Prior studies of provision of medication abortion have focused on the intentions of those generally trained to provide aspiration abortions, namely gynecologists and family practitioners. However, medication abortion has the potential to be provided by a much larger group of physicians. Every year in the United States, we train over twice as many internists as gynecologists and family practitioners combined (National Residency Matching Program, 2003). To our knowledge, there has been no organized effort to train general internists to provide mifepristone, and internists have not been studied with regard to their interest in and intention to provide medication abortion services.

This study was designed to assess what internal medicine residents know about mifepristone and whether they intend to incorporate medication abortion into their clinical practices. For the sake of comparison with prior studies, we also surveyed a number of residents training in family practice and gynecology. Our hypothesis was that some internists are interested in providing medication abortion services, but that current curricula leave internists less knowledgeable about how to provide medication for abortion than residents training in family practice or gynecology.

Methods

Setting and participants

We identified 12 postgraduate training programs (seven internal medicine, two family practice, and three gynecology) in the San Francisco Bay Area. These programs included three academic training programs, four Kaiser Permanente programs, three county facilities, a Catholic health center, and a private medical center. However, one academic program does not allow contact with residents for research purposes. In addition, we excluded from our sample 12 "transitional" interns training at these sites who had already committed to further training in a specialty such as neurology or anesthesiology. We therefore distributed surveys to 468 residents training in internal medicine, family practice, and gynecology at 11 training programs (six internal medicine, two family practice, and three gynecology) in the San Francisco Bay Area (Fig. 1).

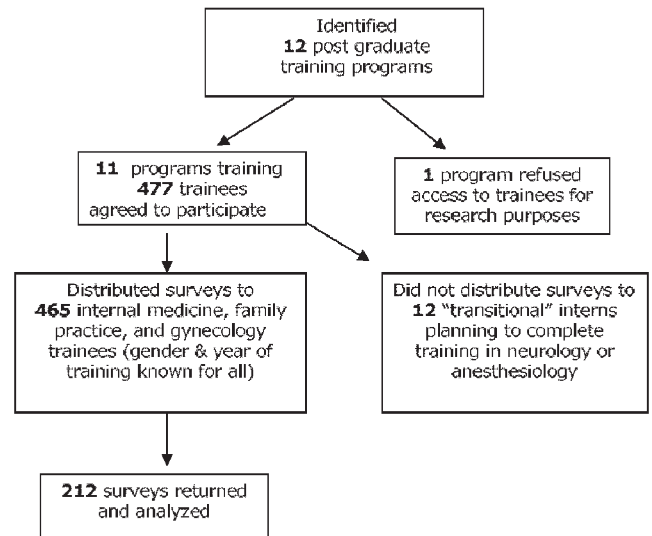

Figure 1. Flow diagram of subject recruitment and participation.

Consent was obtained from residency program directors at all sites where residents were contacted. As the study involved anonymous questionnaires, an informational sheet was provided and completion and return of the survey was taken as consent for participation. The Committee for Human Research at the University of California, San Francisco approved this project.

Procedures

We contacted each resident by mail and asked them to fill out an anonymous survey about their knowledge of and attitudes toward the provision of early medical abortion. All responses were anonymous, but surveys were coded to identify a respondent's site and type of training. A chocolate bar was attached to all surveys as an incentive, and a reminder notice was distributed 1 week after the initial distribution. Surveys were distributed in August and September 2002.

The response rate to the survey was 45% and did not differ significantly by medical specialty (n = 158 internists [46%], 31 family practicioners [46%], and 23 gynecologists [38%]) or year of training. The majority of responses (52%) were from residents training in internal medicine at an academic center. Women were slightly more likely than men to return completed surveys. Residents training at Kaiser Permanente facilities were less likely to return completed surveys than other residents (RR = 0.30, $p < .001$).

Survey content

The survey consisted of 40 questions. The first 15 questions detailed knowledge of and attitudes toward mifepristone and abortion. When possible, questions were

adapted from prior work by the Kaiser Family Foundation (Kaiser Family Foundation, 2001). In addition, we assessed variables that our clinical experience and the existing literature predicted might be of relevance. Willingness to provide medical abortion services was assessed with the question, "Would you be willing to prescribe mifepristone (RU-486) for a patient who requested it?" Residents were then asked to address 16 potential barriers to future provision of early medical abortion services. For each, residents specified whether a given barrier "strongly prevents," "somewhat prevents," or was "not likely to prevent" future provision of medical abortion. Eight questions provided information about residents' demographics, training, and career plans. Residents were asked to specify whether they considered themselves "very religious," "moderately religious," or "not at all religious."

Definition of predictors and outcome measures

A dichotomous variable of "willing" to prescribe mifepristone was created by grouping all residents who stated they were "unsure" with those who stated they were "not willing" to provide mifepristone. Accurate knowledge of required screening before providing medication abortion was defined as knowing to perform an Rh test and a pelvic ultrasound (Paul, Schaff, & Nichols, 2000). Residents who reported being "somewhat" or "very comfortable" with pregnancy options counseling were classifed as being comfortable with pregnancy options counseling and compared to residents who reported being "not at all comfortable." Residents who reported that they were "somewhat" or "strongly" concerned about a potential barrier were classified as having identified a barrier to providing medical abortion. Residents who stated that they were "very" or "moderately religious" were categorized as religious. Similarly, residents who stated that a personal opposition to abortion was "somewhat" or "very" likely to prevent them from providing mifepristone were categorized as having a personal opposition to abortion. Residents planning to provide primary care were identified as any who marked the box for "generalist/primary care" when provided with a list of practice possibilities that included "specialist," "hospitalist," "research," and "other." Residents planning to practice in a rural community were identified as any who marked the box for "rural" when provided with a list of options that included "urban" and "suburban."

Data analysis

To account for clustering introduced by respondents from a given program having received similar training, all analyses were conducted with random-effects logistic regression with a site-specific group variable uniquely defined by type of specialty training and location of training program. Due to the small number of responses received from two Kaiser Permanente gynecology training programs (n = 3 from Kaiser San Francisco, and n = 4 from Kaiser Oakland), these two sites were merged into a single cluster.

We examined descriptive statistics using cross-tabulations and bivariate random-effects logistic regression models to evaluate demographic differences between the three specialty training groups while accounting for the effects of clustering. Similarly, we examined trends by year of training in comfort with pregnancy options counseling and willingness to provide mifepristone using bivariate random-effects logistic regression models.

Barriers that were identified by residents as potential obstacles to their future provision of medication for abortion were characterized as those that could be affected by residency training and those (such as age, ethnicity, religiosity, and a personal opposition to abortion) that remain independent of residency training curricula. All variables found to be significant at the .20 level when entered into bivariate models with willingness to provide mifepristone as the outcome were entered into a multivariable model created to predict which internists reported willingness to provide mifepristone. However, we limited the predictors entered into this multivariable model to those which could potentially be modified by a training curriculum. As such, our initial multivariable model contained 12 variables associated with willingness to provide medication abortion. Our final multivariable model of willingness to provide mifepristone was generated by using a backward elimination method of model generation. Those variables that were eliminated from the final model, in the order they were eliminated, were concern about managing pain, comfort with pregnancy options counseling, lack of time, fear of violence, staff opposition, concern demand for services would overwhelm practice, and need to dispense pills directly from clinic. Variation between clusters was no greater than what would be expected by chance (p = 1.00), and correlation within clusters was very low (correlation coefficient < 0.001) in our final multivariable model. Similarly, we used multivariable models to examine variables associated with comfort providing pregnancy options counseling. All analyses were conducted using Stata (version 8; Stata Corp., College Station, TX).

Results

The demographic characteristics of responding internists are described in Table 1. Internists were similar to other trainees with regards to year of training, age, gender, ethnicity, and religiosity. Responding internists were only slightly more likely than family practitioners to report a personal opposition to abortion (19% versus 16%, $p = .366$) but were more likely than gynecologists to report a personal opposition to abortion ($p < .001$).

About half (53%) of residents training in primary care

Table 1. Demographic characteristics of respondents

	Internists (n = 158)	Family Practitioners (n = 30)	Gynecologists (n = 23)	p value*
Age, mean ± SD (range in years)	31 ± 4 (27–59)	32 ± 4 (27–43)	31 ± 2 (28–35)	.935
Year of training (mean)	2.3	2.0	2.4	.151
Female	61%	74%	83%	.081
White	53%	77%	74%	.100
Religious†	39%	42%	39%	.868
Personal objection to abortion‡	19%	16%	0%	<.001
Planning a primary care career	47%	97%	48%	.003
Planning to work in a rural community	3%	13%	4%	.095

*p values from an analysis of variance (ANOVA) statistic produced after bivariate random-effects logistic regression models accounting for clustering by training site.
†Percent who reported they were moderately or very religious.
‡Percent who reported a personal opposition that would somewhat or strongly limit the provision of medication for abortion.

specialties reported they would be willing to prescribe mifepristone. Internists were less willing than family practitioners and gynecologists to prescribe mifepristone (42% of internists, 84% of family practicioners, and 83% of gynecologists; $p < .001$; Table 2). Compared to other primary care providers, medicine residents had less accurate knowledge of mifepristone's safety and efficacy and were less knowledgeable about the need for appropriate preabortion screening tests. For instance, most (72%) internists did not know to check an Rh test and a pelvic ultrasound before inducing an abortion.

In addition to reporting they were less familiar with mifepristone than other primary care residents, medicine residents also reported feeling significantly less comfortable counseling women about pregnancy options. One-quarter of internal medicine residents felt "not at all comfortable" counseling patients regarding their pregnancy options compared to 4% of gynecologists and 0% of family practitioners ($p = .001$). Among internists, comfort with pregnancy options counseling increased only trivially with each additional year of residency training ($p = .768$). In multivariable modeling, comfort providing pregnancy options counseling was independent of resident age, race, religiosity, personal opposition to abortion, plans to practice primary care, plans to practice in a rural setting, and type of training program.

The strongest predictor of willingness to provide medication for abortion was a personal opposition to abortion (OR = 0.02, $p < .001$). However, only 19% of internists reported such opposition. Internists were not significantly more likely to report a personal opposition to abortion than family practitioners ($p = .366$) but were more likely to report a personal opposition than gynecologists ($p < .001$). The majority of religious residents (57% of very religious and 79% of moderately religious residents) reported their religious beliefs would not prevent them from providing medical abortion services.

Barriers residents identified as likely to prevent their future provision of medication for abortion are described in Table 3.

In multivariable analysis, the training-related factors most predictive of whether an internist was willing to provide medication for abortion were feeling that mifepristone is very safe, that abortion services are needed by the patients served, knowing to check an ultrasound before inducing an abortion, and having no concern of how to manage bleeding or lacking adequate backup should aspiration completion be necessary (Table 4). Plans to provide primary care ($p = .694$) or practice in a rural community ($p = .725$) were not significant predictors of willingness to provide medication for abortion.

Willingness to provide mifepristone increased minimally with each additional year of residency training ($p = .175$).

Table 2. Bivariate comparison of knowledge and attitudes of residents by specialty

Knowledge of Mifepristone	Internists (n = 158) (%)	Family Practitioners (n = 30) (%)	Gynecologists (n = 23) (%)	p value*
Report mifepristone is very safe	59	90	96	.004
Report mifepristone is very effective	73	84	91	.224
Know to check an Rh test before inducing an abortion	56	65	100	<.001
Know to check a pelvic ultrasound before inducing an abortion	41	52	91	.001
Know less than 5% of medication abortions need aspiration completion	39	42	17	.392
Feel "not at all" comfortable doing pregnancy options counseling	25	0	4	.164
Willing to provide mifepristone	42	84	83	<.001

*p values for analysis of variance (ANOVA) statistics after bivariate random-effects logistic regression models accounting for clustering by training site.

Table 3. Barriers to future provision of mifepristone by specialty: proportion of residents who reported being "somewhat" or "strongly" concerned about a given issue

Potential Barrier	Internal Medicine (%)	Family Practice (%)	Gynecology (%)	*p* value*
Concerned about lack of adequate backup	84	74	35	<.001
Concerned about lack of ultrasound	75	71	57	.175
Concerned about managing bleeding	71	58	17	<.001
Inadequate ability to date a pregnancy	66	61	30	.008
Malpractice	63	48	30	.086
Inadequate ability to counsel patients	60	52	17	.003
Not needed by patients served	65	19	17	<.001
Need to dispense pills from clinic	44	32	39	.447
Lack of time	34	29	26	.718
Concern about managing pain	39	10	4	.002
Fear of violence	29	26	26	.491
Staff opposition	26	23	17	.511
Fear need for services would overwhelm practice	20	19	9	.359
Lack of compensation	19	16	0	.695
Believe surgery is better	21	0	9	.240

**p* values from analysis of variance (ANOVA) statistics after bivariate random-effects logistic regression models accounting for clustering by training program.

Discussion

Our findings suggest that many (42%) internal medicine residents are interested in providing mifepristone for early abortion despite the fact that historically internists have rarely performed aspiration abortion procedures. Although the internists we surveyed were less willing to prescribe mifepristone than family practice and gynecology residents, their willingness to provide mifepristone was similar to that reported by a much larger group of gynecologists and family practitioners previously surveyed by the Kaiser Family Foundation (Kaiser Family Foundation, 2001). In contrast, the family practice and gynecology residents who responded to our survey were almost twice as willing to prescribe mifepristone as those surveyed by the Kaiser Family Foundation. This may reflect different attitudes toward abortion among residents who are currently training or perhaps an increased acceptance of abortion in the San Francisco Bay Area.

People who chose to be trained as internists do not appear to be inherently different from those who choose to be trained as family practitioners and gynecologists with regards to abortion. Rather, differences in willingness to provide medication for abortion appear to be the result of different residency training curricula, as internists differed from other residents in terms of the barriers they identified as likely to prevent them from providing medication for abortion.

An important component of internists' decreased willingness to prescribe mifepristone appears to be concern of lacking adequate vacuum aspiration "backup." How-

Table 4. Training-related factors predictive of willingness to provide medication for abortion among future internists

	Univariate Odds Ratio	Adjusted Odds Ratio*	95% Confidence Interval*
Safety			
Report medication abortion is very safe	2.76	2.31	1.03–5.15
Do not report medication abortion is very safe	Reference	Reference	
Knowledge			
Know to check a pelvic ultrasound before inducing abortion	1.79	2.33	1.08–5.01
Do not know to check a pelvic ultrasound before inducing abortion	Reference	Reference	
Concern of Bleeding			
No concern about managing postabortion bleeding	3.85	2.86	1.20–6.81
Concern may prevent provision	Reference	Reference	
Concern of Backup			
No concern about adequate backup	4.45	4.37	1.61–11.84
Concerned about lacking adequate backup	Reference	Reference	
Need			
Feel abortion services are needed by patients served	1.78	2.95	1.34–6.50
Feel abortion services are not needed by patients served	Reference	Reference	

*Adjusted odds ratios and 95% confidence intervals from multivariate random-effects logistic regression model accounting for clustering by training site with all variables in table used as predictors and willingness to provide mifepristone as outcome.

ever, most internists overestimated the need for vacuum aspiration completion after use of mifepristone. Although the actual rate of incomplete abortion seen using evidence-based regimens is 1–3% (Ashok et al., 2002; Schaff, Fielding, & Westhoff, 2001), 60% of medicine residents estimated that over 5% of medication abortions require aspiration completion. Improved education about medication abortion, and especially about the uncommon need for aspiration completion, may result in a larger number of physicians who are willing to prescribe mifepristone.

Our results are limited by our relatively small sample size (n = 212) and by the fact that we have little information beyond gender and type of training about how respondents differed from those residents who did not return completed surveys. Further, the residents surveyed all received training in the San Francisco Bay Area and may not be representative of internal medicine trainees elsewhere in the United States.

However, to our knowledge, this is the first study to assess the willingness of internists to include medication abortion as part of their practice. Given the large number of American women served by general internists, consideration should be given to including education about medication abortion as part of the internal medicine residency curriculum. As few faculty members currently have experience with mifepristone, faculty development programs on medication abortion will need to precede curricular changes for trainees.

Internists pride themselves on their ability to provide comprehensive care. Given the feasibility of including medication abortion services in traditional office settings, residents who are willing to provide women with medication for abortion should be given the education necessary to enable them to provide their patients with medication abortion services and truly comprehensive care.

Acknowledgments

The David and Lucille Packard Foundation, the Open Society Institute, and the Health Resources Service Administration training grant #1D22HP00349-01 funded this work. We would like to thank Eric Vittinghoff, PhD, and Deborah Grady, MD, MPH, for their help with this work.

References

Ahman, E., & Shah, I. (2002). Unsafe abortion: worldwide estimates for 2000. *Reproductive Health Matters*, 10(19), 13–17.

Ashok, P. W., Templeton, A., Wagaarachchi, P. T., & Flett, G. M. (2002). Factors affecting the outcome of early medical abortion: a review of 4132 consecutive cases. *British Journal of Obstetrics Gynecology*, 109(11), 1281–1289.

Breitbart, V. (2000). Counseling for medical abortion. *American Journal of Obstetrics and Gynecology*, 183(2 Suppl.), S26–S33.

Breitbart, V., Rogers, M. K., & Vanderhei, D. (2000). Medical abortion service delivery. *American Journal of Obstetrics and Gynecology*, 183(2 Suppl.), S16–S25.

Cates, W., Jr., Grimes, D. A., & Schulz, K. F. (2003). The public health impact of legal abortion: 30 years later. *Perspectives on Sexual and Reproductive Health*, 35(1), 25–28.

Creinin, M. D. (2000). Medical abortion regimens: historical context and overview. *American Journal of Obstetrics and Gynecology*, 183(2 Suppl.), S3–S9.

Finer, L. B., & Henshaw, S. K. (2003). Abortion incidence and services in the United States in 2000. *Perspectives on Sexual and Reproductive Health*, 35(1), 6–15.

Henshaw, S. K., & Finer, L. B. (2003). The accessibility of abortion services in the United States, 2001. *Perspectives on Sexual and Reproductive Health*, 35(1), 16–24.

Henshaw S. K., Singh, S., & Haas, T. (1999). The incidence of abortion worldwide. *International Family Planning Perspectives*, 25(Suppl.), S30–S38.

Kaiser Family Foundation. (2001). National Survey of Women's Health Care Providers.

Paul, M., Schaff, E., & Nichols, M. (2000). The roles of clinical assessment, human chorionic gonadotropin assays, and ultrasonography in medical abortion practice. *American Journal of Obstetrics and Gynecology*, 183(2 Suppl.), S34–S43.

Polgar, S., & Fried, E. S. (1976). The bad old days: clandestine abortions among the poor in New York City before liberalization of the abortion law. *Family Planning Perspectives*, 8(3), 125–127.

National Residency Matching Program. (2003). Positions Offered in the Matching Program. Available: http://www.nrmp.org/res_match/tables/table1_04.pdf. Accessed June 11, 2004.

Schaff, E. A., Fielding, S. L., & Westhoff, C. (2001). Randomized trial of oral versus vaginal misoprostol at one day after mifepristone for early medical abortion. *Contraception*, 64(2), 81–85.

Author Descriptions

Dr. Eleanor Bimla Schwarz is a general internist and clinical research fellow at the University of California, San Francisco (USCF). Her interests include comprehensive primary care, reproductive health services, and birth defect prevention.

Dr. Annie Luetkemeyer is an infectious disease fellow at UCSF focusing on HIV and tuberculosis coinfection. She has an active interest in women's health, including issues of maternal-child transmission of HIV, contraception, and medical abortion.

Dr. Diana Greene Foster is a demographer who works on the evaluation of quality and access to care and the effectiveness of reproductive health programs.

Ms. Tracy Weitz is a doctoral student in medical sociology with an interest in abortion provision and comprehensive women's health.

Dr. Deborah Lindes is an assistant clinical professor of Medicine at the University of California, San Francisco, and a clinican-educator at California Pacific Medical Center and. Her major areas of interest are in primary care, women's health, and resident education.

Dr. Felicia H. Stewart, a gynecologist, is director of the Advancing New Standards in Reproductive Health (ANSIRH) program of the Center for Reproductive Health Research and Policy at the University of California, San Francisco, who is interested in abortion and contraceptive technology.