

Emergency Contraception: Knowledge and Attitudes of Family Medicine Providers

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Background and Objectives: Emergency contraception (EC) is an underutilized method of preventing unplanned pregnancy. This study assessed family physicians' and nurse providers' knowledge, attitudes, and beliefs about EC. **Methods:** A cross-sectional survey was distributed to faculty, residents, and clinic nurses in a Midwestern department of family medicine. Data were analyzed using Statistical Package for the Social Sciences. Statistical significance was tested by chi-square test, Student's t test, and Mann-Whitney U test where appropriate. **Results:** Seventy-eight providers participated (response rate 81%). Seventy-four percent of physicians have prescribed EC in the past, with an average of 3.2 (range 0–10) times in the last year. The majority of providers reported that they were familiar with indications (96%) and protocols (78%) for prescribing EC, yet knowledge inaccuracies were identified. Overall attitudes regarding EC were positive. **Conclusions:** Although the majority of participating providers were willing to prescribe EC and had generally favorable attitudes toward it, rates of providing this therapy were low. There was a discrepancy between providers' perceived and actual knowledge about EC. Interventions targeting misunderstandings might help reduce missed opportunities to provide EC.

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Nearly half of all pregnancies in the United States are unintended, and half of these pregnancies end in elective termination (1.43 million/year).¹ It is estimated that about 43% of women will have had a first abortion by age 45.¹

The socioeconomic burden of unintended pregnancy is significant but also largely preventable.² Emergency contraception (EC), defined as any method used to prevent pregnancy after unprotected intercourse, has been shown to be safe and effective.³ Jones et al estimate that the use of EC prevented more than 50,000 abortions in the year 2000 and accounted for 43% of the total decrease in the abortion rate between 1994–2000.⁴

Popular methods of EC include the administration of two doses of a combination estrogen and progestin pill (the Yuzpe method) or two doses of progestin alone taken 12 hours apart within 72 hours of unprotected intercourse, with estimated efficacies of 75% and 85%, respectively.⁵ In the late 1990s, the FDA approved two dedicated EC products, a combination of ethinyl estro-

diol and levonorgestrel (Preven[®]) and levonorgestrel alone (Plan B[®]). Recent results from a multi-center World Health Organization trial also found good efficacy with a single dose of levonorgestrel initiated up to 120 hours after intercourse.⁶ Despite proven efficacy and recent FDA approval, however, EC remains underutilized in the United States.⁷

Previous studies have identified patient barriers to use of EC, most notably lack of awareness.⁸ Other research has examined knowledge, attitudes, and practice patterns of obstetrician-gynecologists, pediatricians, and family planning specialists with respect to EC. Family physicians have also been studied as part of a larger group of health care providers in an HMO setting.⁹ These studies revealed generally favorable attitudes about EC but low rates of provision, knowledge limitations, and multiple barriers including fears about patient safety and liability.⁹⁻¹² Similarly, family physicians in training have been studied alongside other residents.^{13,14}

To our knowledge, however, no study has specifically examined family medicine faculty and residents as an individual group in an academic setting where educational and training issues are particularly pertinent. The purpose of this study was to survey faculty,

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residents, and nurses at a family medicine residency program with regard to their knowledge and attitudes toward EC, as well as to identify barriers to its use.

Methods

Design and Participants

We conducted a cross-sectional survey between January and February 2003 of all faculty, residents, and clinic nurses in a Midwestern department of family medicine. Participants provided care at five affiliated clinics serving two rural areas, two suburban areas, and one urban area. No department protocols or clinical pathways for EC provision exist.

Survey Instrument

The survey was developed by the investigators. Survey items included (1) the participant's self-reported practice patterns and familiarity with EC, (2) multiple-choice and true/false questions to assess knowledge, (3) 4-point Likert scale items regarding attitudes and beliefs about EC, (4) perceived barriers to EC use, (5) four open-ended questions to allow individualized responses, and (6) questions about subjects' demographics.

Procedure

Each participant received, via campus mail, a survey packet containing a 44-question survey and a pre-addressed campus mail return envelope. A cover letter gave instructions on how to complete the survey, described measures used to ensure confidentiality, and provided an option to not participate. Cover letters were numbered to identify respondents but were removed immediately upon receipt by the study investigators to ensure participants' confidentiality. Two reminder e-mails sent 2 weeks apart and one announcement at the department's grand rounds were made to encourage participation. A final reminder that included a second copy of the survey was distributed to nonrespondents 1 month after the original mailing.

Statistical Methods

Frequency and summary statistics were calculated for all variables. Comparisons were made between faculty and residents, physicians and nurses, and physician prescribers (who would prescribe EC under certain circumstances) versus physician nonprescribers (who would not prescribe EC under any circumstances) about their knowledge and attitudes about EC. These comparisons used *t* tests, chi-square tests, and Mann-Whitney U tests where appropriate, and differences were considered significant when *P* values were less than .05. Statistical Package for the Social Sciences was used for all analyses. This investigation was approved by the University of Michigan Institutional Review Board.

Results

Response Rate and Demographics

A total of 78 of 96 surveys (faculty 57%, residents 26%, nurses 17%) were collected, resulting in an 81% response rate (Table 1). This distribution of respondents was fairly representative of the department, except for a slightly lower than expected response rate for senior-level residents. Collectively, respondents reported that 34% of their visits with women of childbearing age involved reproductive health issues.

Self-reported Prescription Patterns and Familiarity With EC

Seventy-four percent of respondents have provided EC in the past. Seven respondents (9%) would not consider prescribing EC under any circumstances. The mean number of prescriptions written per physician in the past year, including those who had never prescribed EC, was 3.3 (range 0–10). Fifty-nine percent of respondents reported that they would restrict the number of times they dispensed EC to an individual, most commonly citing fears that repeated use of EC would discourage regular contraception. A majority of participants reported that they were familiar with indications (96%) and protocols (78%) for providing EC.

Table 1
Demographic Information

Item (n=78)*	n	%
Position		
Attending	43	57
Resident	20	26
RN	13	17
Gender		
Female	48	63
Male	28	37
Age		
20–30	20	26
31–40	26	34
41–50	20	26
51–60	10	13
Year in training (residents only)		
PGY-I	9	45
PGY-II	6	30
PGY-III	5	25
Patient Characteristics	%	Range
Percent of appointments with:		
Female patients	65	15–95
Female patients of childbearing age	57	5–99
Female patients of childbearing age that involve reproductive health issues	34	0–100

* Two respondents did not complete the demographics section

Knowledge

Knowledge scores are shown in Table 2. Sixty-three percent of respondents correctly answered that EC needs to be initiated within 72 hours after unprotected intercourse, but 25% incorrectly answered 48 hours or less. Just over half of all participants knew the approximate rate of efficacy of EC (75%). Overall, the mean number of correct answers for the six knowledge questions was 3.7 (standard deviation [SD]=1.7).

In the comparison of knowledge scores between various subgroups, there was no significant difference in knowledge scores between faculty (4.2) and residents (3.6). Mean knowledge score for nurses (2.7), however, was significantly lower than for physicians (4.0). The knowledge score for nonprescribers (2.0) was significantly lower than for prescribers (4.0) ($P<.001$).

Attitudes and Beliefs

Attitudes and beliefs about EC are shown in Table 3. Overall, 90% of subjects felt that EC was an appropriate topic to discuss at women's health maintenance exams and that the benefits of using EC outweigh any perceived risks. A minority of respondents felt EC would discourage regular contraceptive use (14%), would promote promiscuity (7%), or were uncomfortable with EC for religious or ethical reasons (16%).

A comparison of attitudes and beliefs between prescribing and nonprescribing physicians is presented in Table 4. Significantly more nonprescribers felt that EC would promote promiscuity and disagreed that the benefits of EC outweigh the risks. Two thirds of nonprescribers felt that EC was appropriate to discuss at women's health maintenance exams. There were no statistically significant differences in attitudes and beliefs when faculty members were compared to residents or physicians to nurses.

Perceived Barriers

In response to questions about potential barriers to EC provision (Table 5), most disagreed that liability, side effects, or teratogenicity were significant concerns. More than 80% of respondents felt that both patients' lack of awareness and discomfort initiating discussion of EC were barriers to increased use of EC. Although 84% reported that they would remember to consider EC if a woman presented after unprotected intercourse, 76% reported that routine discussion of

Table 2
Knowledge of Emergency Contraception

Item (n=78)*	Correct %	Incorrect %	Unsure %
Does an FDA-approved regimen for EC exist? (Yes)	86.0	1.3	13.0
What is the most common side effect of EC? (Nausea)	72.0	22.0	5.3
What is the correct time interval for initiation of EC? (Up to 72 hours)	63.0	28.0	9.3
What is the rate of efficacy of EC? (75%)	60.0	19.0	21.0
Does research show EC acts as an abortifacient? (No)	56.0	19.0	25.0
Is there a commonly prescribed adjunctive medication? (Yes, antiemetic)	47.0	14.0	39.0

* Correct answer indicated in parentheses. Valid percent was used for subgroup comparisons.

EC—emergency contraception

EC at a health maintenance exam does not occur to them.

Discussion

The majority of family medicine providers surveyed in this study were willing to discuss and prescribe EC. As in prior US studies, our participants' average rate of prescription did not exceed a handful of times per year

Table 3
Attitudes and Beliefs about Emergency Contraception

Item (n=78)*	Strongly Agree %	Agree %	Disagree %	Strongly Disagree %
I feel the benefits of EC outweigh the risks.	47.0	44.0	5.3	4.0
EC is appropriate for discussion at women's HMEs.	35.0	55.0	7.0	2.8
EC will discourage regular contraceptive use.	2.8	11.0	62.0	24.0
EC use will promote promiscuity.	0.0	7.1	46.0	47.0
I feel uncomfortable prescribing EC for religious/ethical reasons.	5.7	10.0	26.0	59.0

* Valid percent was used for subgroup comparisons.

HME—health maintenance exam
EC—emergency contraception

(3.3).^{7,9} A determination of the optimal number of times EC should be prescribed was beyond the scope of this study and to our knowledge has not been estimated in other studies. However, it seems likely that prescription rates are lower than optimal, and opportunities to discuss EC are underutilized given that our participants' report 30% of their visits with female patients of childbearing age involve reproductive health issues.

In contrast to US prescribing rates, a national study of British health authorities revealed much higher rates of EC prescribing, with the majority of physicians prescribing a few times a week.¹⁶ The results of our study provide one indicator that low rates of prescribing in the United States are continuing, despite the availability of FDA-approved products.

Knowledge

Although most respondents reported considerable familiarity with published EC protocols, objective assessment revealed knowledge limitations similar to those found in prior studies.^{9,11} Most importantly, one third

of respondents were unaware of the correct time interval for initiating EC, with one quarter answering 48 hours or less. Providers need to know that EC has been shown to be effective for up to 72 hours, since turning away a potential candidate who presented at less than 72 hours after intercourse would be unfortunate. Although most participants correctly chose nausea as the most common side effect, few considered prescribing an antiemetic. Only 56% of respondents answered that EC is not an abortifacient, even though previous research indicates that the primary mode of action of EC is via preimplantation mechanisms.^{17,18}

To our knowledge, no previous research has investigated differences between prescribing and nonprescribing physicians. While the number of nonprescribers was low, we still found statistically significant differences in knowledge between these two subgroups. Arguably, even nonprescribing physicians need a working knowledge of EC, especially regarding the time interval for initiation, since physicians

Table 4

Attitudes and Beliefs About Emergency Contraception: Prescribing Versus Nonprescribing Physicians

Item	Prescribers Who Agree n=71	Nonprescribers Who Agree n=7	P Value
I feel the benefits of EC outweigh the risks	94%	50%	.001
EC is appropriate for discussion at women's HMEs	94%	67%	.03
EC will discourage regular contraceptive use	11%	33%	.13
EC use will promote promiscuity	5%	40%	.004
I feel uncomfortable prescribing EC for religious/ethical reasons	8%	100%	.000

* Valid percent was used for subgroup comparisons.

EC—emergency contraception
HME—health maintenance exam

Table 5

Perceived Barriers to Emergency Contraception Use

Item (n=78)*	Strongly Agree %	Agree %	Disagree %	Strongly Disagree %
I am concerned about liability.	3.9	18	50	27
I am concerned about side effects.	4.1	6.8	60	30
I am concerned about birth defects.	3.9	11	59	26
Not enough time in my clinic schedule.	1.4	25	53	21
Lack of adequate clerical/clinical resources to safely and efficiently dispense EC.	4.3	23	51	21
Women are aware of the availability of EC.	2.6	12	71	15
Women who are aware of EC are willing to ask for it.	1.3	19	64	16
It does not occur to me to discuss EC at women's HMEs (RN answers omitted).	19.5	49	14	5.6
It does not occur to me to discuss EC after unprotected intercourse (RN answers omitted).	2.8	10	31	43.6

* Valid percent was used for subgroup comparisons.

EC—emergency contraception
HME—health maintenance exam

who are uncomfortable prescribing EC can still refer patients to another provider.¹⁹ Nurses also had significantly lower knowledge scores, and this may affect EC provision since they are involved in triage, and incomplete knowledge could delay timely scheduling or administration. As in prior research, attitudes and beliefs toward EC were generally favorable among family medicine faculty, residents, and nurses^{8,9} and do not seem to contribute to low use. In this study, 59% of the physician prescribers would restrict the number of times they provide EC to an individual, fearing it would increase promiscuity and discourage regular contraceptive use. These concerns have not been supported by prior studies.²⁰⁻²²

Barriers

Barriers to EC use identified by physicians in previous research include concerns about patient safety and liability.^{9,10} The majority of our respondents reported EC is safe and effective and that they were not concerned with liability. This study's participants had increased awareness of FDA-approved EC products, perhaps making these barriers less concerning.

As noted, our study specifically identified a subset of physicians who would not prescribe under any circumstance. This was a small group of physicians, 100% of whom reported feeling uncomfortable with EC secondary to religious/ethical beliefs. It may be most important to develop interventions that increase routine discussion and EC prescription among those who are already willing to prescribe.

One of the most significant barriers identified was not remembering to discuss EC during routine visits. This may reflect the "competing demands" of primary care.²³ Respondents also felt that female patients were unaware of EC or were too uncomfortable to initiate discussion. Routine discussion of EC during reproductive health visits could inform women of the existence of EC and perhaps lower inhibitions about requesting it. Potential interventions to enhance discussion include physician reminders on the patient's chart or health maintenance exam form. Posters and pamphlets could be placed in the clinic to invite women to discuss EC.

Limitations

There were several limitations in this study. First, these results were generated in one residency program and may not be generalizable to other programs or to nonacademic settings. Research in community settings in particular would provide a broader understanding of family physicians with a more exclusive focus on clinical care.

Second, the data on prescribing practices are based on self-report and are thus subject to recall bias. A chart review might have verified actual practices, although this was not performed for this study.

Third, some items on the survey referred to "prescribing." Since many of the nurses surveyed do not directly prescribe medications, this may have influenced their interpretation of certain questions. Reanalysis of relevant items without the nurses' responses revealed no significant differences, however, so we do not think this concern influenced the overall results.

Finally, administrative and support staff, such as receptionists, were not surveyed. Given that these individuals are often the first point of contact for patients and can influence timely access to EC, it may be of value to survey this group in further studies.

Conclusions

Recent national trends are moving toward increasing women's access to EC. Currently, five states allow pharmacists to dispense EC directly, and other states are considering similar legislation.²⁴ The makers of Plan B have petitioned the FDA for over-the-counter status,²⁵ and if approved, these changes could mean a new role for providers, who would no longer act as gatekeepers for access to EC but would be advising patients who are considering or have taken EC.

This study's key findings, that a sample of academic clinicians have incomplete knowledge of EC and are not using effective mechanisms to provide it, may have broader implications about family medicine education in reproductive health. Future research should be directed at implementing interventions to enhance routine discussion and prescription of EC followed by measuring any change in physicians' rates of discussion and/or prescription of EC.

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