

Letters to the Editor

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Editor, Letters to the Editor Section

Editor's Note: Send letters to the editor to **MillerKE@erlanger.org** or to my attention at *Family Medicine* Letters to the Editor Section, University of Tennessee, Chattanooga Unit, Department of Family Medicine, 1100 East Third Street, Chattanooga, TN 37402. 423-778-2957. Fax: 423-778-2959. Electronic submissions (e-mail or on disk) are preferred. We publish Letters to the Editor under three categories: "In Response" (letters in response to recently published articles), "New Research" (letters reporting original research), or "Comment" (comments from readers).

In Response

Does Pregnancy Begin at Fertilization?

To the Editor:

The study by Wallace et al provides insight into the knowledge and attitudes of family medicine providers of hormonal emergency contraception (EC).¹ However, there is an important issue about EC use that the authors did not discuss.

The authors state ". . . EC is not an abortifacient . . ." because ". . . research indicates the primary mode of action of EC is via preimplantation mechanisms." This belief has been supported by others who have pointed out ". . . EC cannot disrupt an established pregnancy . . ." and therefore can never have an "abortifacient effect" because ". . . implantation marks the beginning of pregnancy."²

Nevertheless, a postfertilization, preimplantation mechanism of action would be considered an abortifacient effect by providers or women who believe pregnancy begins at fertilization. The Zogby survey is just one of several recent national surveys revealing that almost half (49%) of women in America believe human life and pregnancy begins at fertilization.³ (In this letter we use the terms *fertilization* and *conception* synonymously.)

We have published a systematic review of the mechanisms of action

of EC that concluded that it relies, at least to some extent, on a postfertilization, preimplantation effect.⁴ Other researchers have published similar conclusions. Surprisingly, this effect can occur whether EC is taken before, during, or after ovulation. As is well known, this effect is more likely the longer the delay between intercourse and the administration of EC.⁴

We recognize that there are physicians, geneticists, ethicists, and medical organizations that have, within just the last 20 years, arbitrarily defined human life as beginning after implantation, thereby eschewing the possibility of an abortifacient effect by EC by definition. However, others recognize the traditional medical definition of pregnancy as "the gestational process, comprising the growth and development within a woman of a new individual from conception through embryonic and fetal period to birth," where conception is defined as "the beginning of pregnancy, usually taken to be the instant that a spermatozoon enters an ovum and forms a viable zygote."⁵

Wallace et al considered the "correct" answer to the question "Does the research show EC acts as an abortifacient?" to be "No." However, this answer can only be correct if they define pregnancy as beginning at implantation—and ignore or dismiss the beliefs of many others. For providers or patients

who believe pregnancy begins at fertilization, and who have followed the literature on the mechanisms of action of EC, the correct answer to this question would be "Yes."

The question as to whether EC sometimes acts after fertilization to prevent implantation should be of significant moral significance to most providers and patients. Even strong advocates of EC have expressed their support for informing patients about EC's potential for postfertilization effects.

Therefore, rather than implicitly declaring those who believe pregnancy begins at fertilization as scientifically "wrong" based on definitions they do not accept (and are a matter of scientific controversy), those who perform research in this important area would be better off to recognize and respect closely held beliefs and account for them in both their research and their provision of informed consent about EC.

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Authors' Response:

We acknowledge the concerns expressed by Drs Larimore, Stanford, and Kahlenborn regarding the definition of abortifacient and the mechanism of action of emergency contraception (EC). The American College of Obstetrics and Gynecology states that implantation is a necessary step in the establishment of a pregnancy and that abortifacient refers to the disruption of an implanted pregnancy.¹ According to this definition, which is shared by the Food and Drug Administration, the National Institutes of Health, and the majority of the gynecologic literature, EC is not an abortifacient. We acknowledge that some providers may have alternate definitions and therefore may contest the correct answer to one of our survey questions.

Regarding mechanism, the exact actions of EC on the fertilized oocyte are still being studied. Most current research suggests that the majority of the time, EC acts before fertilization.^{2,3} However, under certain circumstances, particularly when there is delay in initiating EC, a postfertilization but preimplantation mechanism may occur. The relevance of this possibility to our female patients who are considering use of EC is uncertain and could be a question worthy of future research.

What is certain is that we as family physicians need to go beyond medical terminology when discuss-

ing EC with our patients. We must have open and honest conversations in layman's terms regarding EC, its benefits, and its potential consequences and let the patient make her own decision. The first step in fostering these important discussions is to ensure residents have adequate knowledge and training regarding provision of EC.

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New Research

Family Physicians' Beliefs About Genetic Testing

To the Editor:

Since the inception of the Human Genome Project (HGP) in 1989, appropriate concern has arisen about how awareness of an increased genetic predisposition to a dreaded disease might impact such individuals' overall quality of life. The personal beliefs that clinicians hold about this important issue is likely to influence their enthusiasm for this emerging field, and exposure to the cutting-edge genetic discoveries in medical school is likely to catalyze the development of such beliefs. We examined whether the beliefs held by the cohort of family physicians who received formal medical school training since the

human genome era began differ from those who trained earlier. The direction of any effect might represent a trend that will have impact on the early uptake of genetics in family medicine.

In 2002, we completed a mailed survey of all 693 members of the Massachusetts Academy of Family Practice (MAFP) and attained a 43% response rate. The MAFP represents approximately 80% of the family physicians practicing in Massachusetts and demonstrates a diverse population as measured by age (range=30–86 years, mean/standard deviation [SD]=45.8/7.8) and sex (40% female).

We provided the physicians with the following scenario: "Consider your patients who have a family history of cancer. Assume that they underwent genetic testing and learned that they had a high risk of developing that cancer sometime in the future." We then asked them whether their patients "in general" would be more or less likely to "experience an improved quality of life." Response options included a 4-point scale containing "much more likely," "somewhat more likely," "somewhat less likely," and "much less likely." They were also given the option of "I can't guess" positioned separate from the other response options. For examination of optimistic bias, responses were dichotomized to "more likely" versus all else. Medical school training period was dichotomized at a graduation year of 1993 to allow for a medical school start year of 1989 to coincide with the HGP. We used standard chi-square to investigate crude difference in optimistic bias by training period. We stratified these results on sex and age to identify possible confounding or effect modification of our crude association. Ultimately, we used logistic regression analysis to adjust for the confounding effect of age by strata of sex on the association between training period and optimistic bias. We used SPSS Version 11.0[®] for all