

Primary care

Impact on contraceptive practice of making emergency hormonal contraception available over the counter in Great Britain: repeated cross sectional surveys

Cicely Marston, Howard Meltzer, Azeem Majeed

Abstract

Objective To examine the impact on contraceptive practice of making emergency hormonal contraception available over the counter.

Design Analysis of data on contraceptive practice for women aged 16-49 years in the period 2000-2 from the Omnibus Survey, a multipurpose survey in which around 7600 adults living in private households are interviewed each year.

Setting Private households in Great Britain.

Main outcome measures Use of different types of contraception and rates of unprotected sex.

Results After emergency hormonal contraception was made available over the counter, levels of use of different types of contraception by women aged 16-49 remained similar. No significant change occurred in the proportion of women using emergency hormonal contraception (8.4% in 2000, 7.9% in 2001, 7.2% in 2002) or having unprotected sex. A change did, however, occur in where women obtained emergency hormonal contraception; a smaller proportion of women obtained emergency hormonal contraception from physicians and a greater proportion bought it over the counter. No significant change occurred in the proportion of women using more reliable methods of contraception, such as the oral contraceptive pill, or in the proportion of women using emergency hormonal contraception more than once during a year.

Conclusions Making emergency hormonal contraception available over the counter does not seem to have led to an increase in its use, to an increase in unprotected sex, or to a decrease in the use of more reliable methods of contraception.

Introduction

In May 2004, the US Food and Drug Administration (FDA) went against the advice of its own scientific experts and blocked an application for non-prescription sales of emergency hormonal contraception (EHC).¹ The decision was controversial: the FDA was accused of making its decision on political rather than scientific grounds.²⁻³ In the United States and elsewhere, debate about making EHC available over the counter has centred not on the safety of the drug itself—its safety is well documented⁴⁻⁵—but on the harmful effects some people claim it will have on women's behaviour. In particular, opponents say that over the counter availability will encourage unprotected sex, increase "abuse" of EHC ("abuse" seeming to mean multiple uses over a limited time period),⁶ undermine the use of more reliable methods of contra-

ception,⁷ and lead to increased promiscuity and pregnancy among teenagers.⁸ On the other hand, people in favour of making EHC available over the counter argue that easier access to it will help to reduce unwanted pregnancies.⁹

This debate, although heated, has been based largely on speculation. Small studies have strongly suggested that easier availability does not lead to "abuse" of EHC.¹⁰⁻¹³ The wider population effects are not known, however, because no large studies have compared patterns of use of EHC before and after the ban on over the counter sales has been lifted. We do not therefore know whether relaxing controls on over the counter EHC leads to an increase in its use.

An overall increase in use could support either argument. It could indicate that more people were having unsafe sex, or more frequent unsafe sex, knowing they would be able to obtain EHC easily afterwards. Ease of access might also encourage women using other forms of contraception to switch to EHC. An increase in use could also indicate that EHC was being used more often after episodes of unprotected sex that would have occurred anyway. This could happen simply because EHC became easier to obtain for women who might have been unwilling to go to a physician. Such an increase might therefore lead to fewer unwanted pregnancies.

Since January 2001 EHC has been available without prescription across Britain to women aged 16 or over at a cost of £20-25 (\$36-46; €30-38).⁹⁻¹⁴ There was considerable opposition to the change, including an unsuccessful post hoc challenge to the legality of over the counter provision.¹⁵ EHC remains available on prescription at no cost from various sources, including general practitioners, family planning clinics, and hospitals.

Three surveys of contraceptive use in a representative sample of the British population were carried out between 2000 and 2002: the year before introduction of over the counter provision of EHC and the two subsequent years. We used these survey data to examine use of EHC among British women aged 16 to 49 years to assess the impact of making EHC available over the counter.

Methods

Data were collected in the Omnibus Survey, a multipurpose survey carried out by the UK Office for National Statistics. Approximately 1900 adults (aged 16 or over) living in private households in Great Britain are recruited each month for four non-consecutive months each year. People are sampled once each, leading to an annual total of around 7600. This paper reports results from the contraception module of the Omnibus Survey,

carried out each year between June and the following March. For simplicity, dates given in this paper are truncated; for example, 2000 refers to the period June 2000 to March 2001. Over the counter EHC became widely available in February 2001. The end of the 2000 survey therefore overlapped slightly with its introduction.

In 2000, 2001, and 2002 the contraceptive module comprised interviews with 6747, 7211, and 7638 adults. The Omnibus Survey uses the postcode address file of “small users” as its sampling frame. All private household addresses in Great Britain are included in this frame. A new sample of 100 postal sectors is selected each month and is stratified by region, the proportion of households renting from local authorities, and the proportion in which the head of household is a professional, an employer, or a manager. Around 9900 postal sectors exist in the United Kingdom, corresponding to all but the last part of the postcode; in the postcode PO16 7DZ, for instance, the postal sector would be indicated by PO16 7. Sectors are selected with probability proportionate to size, and 30 addresses are selected randomly from within each sector. If an address contains more than one household, the interviewer uses a standard ONS procedure to select one household at random. In households with more than one adult member, one person aged 16 or over is selected through the use of random number tables. The interviewers try to interview that person: proxy interviews are not taken.

Weighting factors are applied to Omnibus data to correct for unequal probability of selection caused by interviewing only one eligible adult per household. The weighting does not attempt to correct for any non-response bias. Further information is available in the survey reports.¹⁶⁻¹⁸ The proportion of eligible women answering relevant questions for this study was 97% in 2000 (n = 1864 unweighted, n = 1978 weighted), 96% in 2001 (n = 1999 unweighted, n = 2078 weighted), and 96% in 2002 (n = 2121 unweighted, n = 2202 weighted).

The survey asked women questions about their contraceptive use and included specific questions about EHC. Demographic details were also collected; for this analysis we used age, education level, de facto marital status, and income. We divided income into three categories as near as possible to the 33rd and the 67th centiles and assigned women to “high,” “middle,” and “low” income groups in similar numbers. We examined two binary outcome variables: use or non-use of EHC in the previous year and, for the subsample of EHC users, whether or not EHC was bought over the counter. Univariate analyses used χ^2 tests, and multivariate analysis used logistic regression models. We first did the multivariate analyses for each year separately. We then combined the data from each survey year and added survey year as a dummy variable to test for differences between years. Because we found no significant difference between the years, and results from the combined dataset were similar to those obtained from each survey separately, we present the results for the combined datasets here.

Results

The level of use of different contraceptives by British women aged 16-49 remained very similar before and after EHC was made available over the counter (table 1). No significant changes occurred in the proportions of women reporting current use of any of the methods over time. The proportion of women who said they used condoms “whenever I have sexual intercourse” was similar in 2000 and 2002 but dipped in 2001 (2000 = 59%, 2001 = 52%, 2002 = 60%; P = 0.04). When these women were

Table 1 Current use of contraception reported by women aged 16-49 in Great Britain, by year

Contraception	Proportion (%) of women reporting current use		
	2000	2001	2002
Current method:			
Oral contraceptive, intrauterine device, injections, implants	31.8	33.7	31.9
Condom, cap, diaphragm	21.0	20.5	20.0
Withdrawal/rhythm method	3.9	4.7	3.7
Other method	1.2	1.0	0.8
Woman or partner sterilised	24.8	24.7	24.3
No method:			
No heterosexual relationship	12.4	12.0	14.0
Other reasons (including abstinence)	10.6	8.6	8.0
Base (unweighted)*	1931	2084	2221

*Percentages add up to more than 100 because women could give more than one answer.

grouped together with those who said that they “usually” used condoms, the proportion using condoms did not change significantly (2000 = 75%, 2001 = 73%, 2002 = 73%; P = 0.70).

One striking development was the change in where women obtained EHC (table 2). The proportion of women reporting that they obtained it from pharmacies increased to a third, and the proportion who said they obtained it from other sources fell. Yet overall use of EHC remained the same, and no significant change occurred in the very small proportion of women reporting two or more uses of EHC in a year (table 3).

Tables 4 and 5 show the characteristics of the women who said they had used EHC and the subgroup of women who said they had bought it over the counter. Table 4 shows that in the univariate analysis age, marital status, and education were significantly associated with use of EHC. Younger, single women were most likely to report having used it, with highest use among 20-24 year olds in 2000 and 2002 and among 16-19 year olds in

Table 2 Sources of emergency hormonal contraception reported by women aged 16-49 in Great Britain, by year

Source	Proportion (%) of women obtaining EHC from source*		
	2000	2001	2002
General practitioner	62.0	51.2	48.8
Family planning clinic	33.0	31.1	18.2
Hospital emergency department	3.2	2.0	4.6
Pharmacy†	NA	19.7	32.6
Walk in/minor injuries unit†	NA	1.2	0.4
Elsewhere	5.2	1.6	3.7
Base (unweighted)	130	129	135

NA=not applicable.

*Percentages add up to more than 100 because women could report more than one source if they had used emergency hormonal contraception more than once.

†Not included in 2000 survey.

Table 3 Number of times emergency hormonal contraception used per year reported by British women aged 16-49

Emergency hormonal contraception	Proportion (%) of women reporting use		
	2000	2001	2002
No. of times used in year:			
Once	6.5	6.3	5.6
Twice or more	2.0	1.5	1.7
Not used	91.6	92.2	92.8
Total	100.0	100.0	100.0
Base (unweighted)*	1503	1659	1747

*Excludes women sterilised at least two years ago. Women not answering “yes” to question “have you heard of the pill method of emergency contraception after intercourse” also excluded (n=129 in 2000, n=115 in 2001, n=113 in 2002; no significant change over time).

Table 4 Proportion of British women aged 16-49 who used emergency hormonal contraception (EHC), 2000-2, and proportion who bought EHC over the counter in 2001 and 2002: by age group, marital status, education, and annual income

	Proportion (%) of women reporting use of EHC			Proportion (%) of women using EHC obtaining EHC without prescription	
	2000	2001	2002	2001	2002
Age group (years):					
16-19	15.3	21.5*	8.9†	5.2	16.7
20-24	17.3	12.0	19.7	18.4	21.1
25-29	10.0	9.5	12.7	27.3	34.5
30-34	8.2	7.0	7.0	47.6	25.6
≥35	3.8	3.0	2.1	11.9	62.5
χ^2 (column)	48.8	77.4	91.3	17.4	10.0
P value	0.0000	0.0000	0.0000	0.0129	0.0800
De facto marital status:					
Married	3.2	2.3	3.4	29.4	44.4
Cohabiting	8.9	8.3	9.3	21.1	28.6
Single	15.7	14.4	12.3	14.1	27.6
Other‡	10.3	11.2	7.7	33.3	39.1
χ^2 (column)	57.2	65.0	40.0	4.5	3.1
P value	0.0000	0.0000	0.0000	0.2680	0.3918
Education level:					
Degree or other higher qualification	6.5	5.6	7.7	19.2	40.0
Secondary/none/other qualifications	9.3	8.8	7.0	19.8	29.3
Missing cases	3	1	2	0	0
χ^2 (column)	3.2	4.8	0.2	0.0	1.5
P value	0.0949	0.0376	0.6563	0.9448	0.2834
Annual income (£):					
<6240	10.5	9.0	8.7	11.7	15.3
6240-15 599	6.5	8.1	6.5	17.2	31.1
≥15 600	6.6	6.1	6.9	44.0	56.1
Missing cases	104	104	85	4	2
χ^2 (column)	7.2	2.8	2.3	11.3	17.0
P value	0.0420	0.3131	0.3576	0.0207	0.0014
Base (unweighted)§	1701	1859	1984	129	135

*Non-significant rise from 2000 ($\chi^2=1.54$, $P=0.24$).

†Significant drop from 2001 ($\chi^2=7.11$, $P=0.01$).

‡Widowed, divorced, separated, same sex cohabiting.

§Excludes women sterilised at least two years before.

2001. In 2001, but not in the other years, fewer women with a degree or other higher education qualification reported using EHC, compared with other women. Little change in use occurred over time, although among 16-19 year olds a small, non-significant rise in use in 2000-1 was followed by a significant drop between 2001 ($\chi^2=1.54$, $P=0.24$) and 2002 ($\chi^2=7.11$, $P=0.01$).

The multivariate analysis (table 5) shows that the factors explaining EHC use did not change significantly over time. The only significant predictors of EHC use were marital status and age. Single women were nearly three times as likely to report EHC use as married women. Younger women were more likely to report EHC use: women aged 20-24 were nearly three times as likely to report use of EHC compared with women aged over 30, and teenage women were just over twice as likely to report use of EHC as women over 30. However, in terms of absolute numbers, more than half of users of EHC were over 25 (53% over the three year period). Neither income nor education was significantly related to likelihood of using EHC.

Most of the subgroup who said they bought EHC over the counter were over 25 years old. The univariate analysis (table 4) showed that those who bought EHC were also significantly more likely to come from the higher income groups and, in 2001, from higher age groups. Between 2001 and 2002 no significant change occurred in any subgroup in proportions of women buying EHC over the counter (not shown).

Table 5 shows the adjusted odds ratios for buying EHC over the counter once this option became available (2001-2). Obtaining EHC without prescription was not associated with age or marital status. After adjustment for the other variables, however, income remained highly significant: higher income women were more than five times as likely to report obtaining EHC without prescription as lower income women. Once income was taken into account, the other variables had no significant effect on whether or not EHC was bought over the counter.

Discussion

Allowing emergency hormonal contraception to be sold over the counter in the United Kingdom has not increased its use or changed patterns of use. Not only has use remained stable, but predictors of use—age and marital status—have remained constant and are entirely different from the sole predictor of whether or not EHC is obtained over the counter—income. This suggests that use of EHC is not affected by its being made available over the counter.

Opponents of lifting the ban on over the counter sales say that easier access will lead to “abuse” of EHC and will encourage unsafe sex, particularly among teenagers. Our study provides no evidence to support this argument, although the sample of teenage women is relatively small. The proportion of women using

Table 5 Adjusted odds ratios* (95% confidence intervals) of reporting use of emergency hormonal contraception in previous year, and of reporting having obtained the method at least once without prescription by year, marital status, age, education level, and annual income in British women aged 16-49†

	Used EHC 2000-2	Obtained EHC without prescription 2001-2
Age		
16-19	2.3 (1.4 to 3.6)	0.3 (0.1 to 1.5)
20-24	2.9 (2.0 to 4.1)	1.1 (0.4 to 2.7)
25-29	2.2 (1.6 to 3.0)	1.0 (0.5 to 2.3)
≥30	1	1
De facto marital status		
Married	1	1
Cohabiting	2.1 (1.4 to 3.2)	0.7 (0.2 to 1.8)
Single	2.9 (2.0 to 4.2)	0.7 (0.3 to 1.7)
Other‡	3.7 (2.5 to 5.6)	1.0 (0.3 to 3.2)
Annual income (£)		
<£240	1	1
£240-15 599	0.8 (0.6 to 1.1)	1.8 (0.7 to 4.9)
≥15 600	0.9 (0.7 to 1.4)	5.4 (2.1 to 14.0)
Education level§		
Higher	1	1
Lower	1.1 (0.8 to 1.5)	1.4 (0.7 to 2.9)
Year		
2000	1	NA
2001	0.9 (0.7 to 1.2)	1
2002	0.9 (0.7 to 1.2)	1.8 (0.9 to 3.5)

EHC=emergency hormonal contraception; NA=not applicable.

*Logistic regression analysis

†Excluding women sterilised at least two years ago.

‡Widowed, divorced, separated, same sex cohabiting

§Higher=degree or other higher education; lower=secondary/none or other qualification.

EHC remained stable after the ban was lifted, and no changes occurred in the characteristics of women using it.

However, this study also offers little support to those who argue that easier access to EHC may help to prevent unwanted pregnancies.¹⁹ Women did not report more use of the method once it was made available over the counter: they seem simply to have changed where they obtained it. This finding is supported by a small British study of two hospital emergency departments, which showed that requests for EHC fell after it was made available over the counter.²⁰ Over the counter availability is therefore unlikely to have affected unwanted pregnancies.

The sharp rise in the proportion of women buying EHC over the counter indicates that many women prefer this way of obtaining it. Easier access may also have meant that women obtained it faster, and hence were able to take it within the recommended 72 hours after unprotected sex.²¹ The survey did not measure this, however, and this is an area for further research.

This study is the first national survey of EHC use from any country that examines the impact of lifting the ban on over the counter sales. It has some weaknesses, however. Firstly, because there were relatively few respondents from non-white ethnic groups, we could not break down EHC use by ethnicity. Secondly, relatively few women used EHC, or bought it over the counter, which limits the power of the study to detect small changes. Thirdly, no women under 16 years old were included, although at present they are not permitted to buy EHC from pharmacies. Fourthly, factors not examined in this study could have been responsible for keeping use of EHC steady when it became available over the counter. For instance, people might have become more likely to use EHC after any given sexual encounter but the total number of sexual encounters might have

What is already known on this topic

The provision of over the counter emergency contraception is controversial

Over the counter emergency contraception was legalised in the United Kingdom in 2001

What this study adds

The provision of over the counter emergency contraception in the UK did not lead to an increase in episodes of unprotected sex

No decrease occurred in the use of more regular methods of contraception

Overall rates of use did not change, but fewer women obtained emergency contraception from general practitioners and NHS clinics

fallen—that is, sexual activity in the population decreased—although on current evidence this seems unlikely.²²⁻²³

Our study has important policy implications. The main lessons from Great Britain in making EHC available over the counter are that, firstly, many women seem to prefer obtaining EHC this way rather than from a physician: uptake has been high, with corresponding savings in time and resources for the health service. Secondly, cost seems to be an important barrier to buying EHC over the counter—lowering the cost might increase uptake from this source, particularly in lower income groups. Thirdly, lifting the ban in the UK did not lead to any increase in the proportion of women using EHC, nor did it raise the proportion of women using EHC more than once during a year. Finally, no fall occurred in the use of more reliable methods of contraception.

Although the lack of any increase in use of EHC suggests that the predicted rise in unsafe sex has been overstated, so too have been the predicted effects on unwanted pregnancy. However, given the apparent absence of negative consequences, and the fact that many women clearly prefer to buy EHC over the counter, our study supports the case for lifting the ban on over the counter sales of EHC in the United States and other countries.

We thank Tania Misra for her help in obtaining the data and Emma Slaymaker for statistical advice.

Contributors: CM was responsible for analysing the data, doing the literature review, and writing the paper. She is the guarantor. HM was responsible for overseeing the management of the survey under the auspices of the UK Office for National Statistics, helped in the extraction of the data, and provided advice on the analysis. AM developed the idea for the study, helped with the review of the literature, advised on the analysis, and helped in the drafting of the paper.

Funding: The Omnibus Survey is funded by the UK Office for National Statistics.

Conflict of interest: None declared

Ethical approval: Not needed.

- 1 Nelson R. Emergency contraception kept as prescription only in USA. *Lancet* 2004;363:1707.
- 2 Vastag B. Plan B for “plan B”? FDA denies OTC sales of emergency contraceptive. *JAMA* 2004;291:2805-6.
- 3 Drazen JM, Greene MF, Wood AJ. The FDA, politics, and plan B. *N Engl J Med* 2004;350:1561-2.
- 4 Westhoff C. Clinical practice: emergency contraception. *N Engl J Med* 2003;349:1830-5.
- 5 Fenichel RR. Which drugs should be available over the counter? *BMJ* 2004;329:182-3.
- 6 Rothschild TJ. Switching emergency contraception to over the counter status (letter). *N Engl J Med* 2003;348:82.
- 7 Williams C. New Zealand doctors resist emergency contraception. *BMJ* 1996;312:463.

- 8 American Life League. ALL President Judie Brown testifies against 'Plan B' going OTC. www.all.org/news/031216.htm (accessed 1 July 2005).
- 9 Harrison-Woolrych M, Duncan A, Howe J, Smith C. Improving access to emergency contraception. *BMJ* 2001;322:186-7.
- 10 Gold MA, Wolford JE, Smith KA, Parker AM. The effects of advance provision of emergency contraception on adolescent women's sexual and contraceptive behaviors. *J Pediatr Adolesc Gynecol* 2004;17:87-96.
- 11 Jackson RA, Bimla Schwarz E, Freedman L, Darney P. Advance supply of emergency contraception: effect on use and usual contraception—a randomized trial. *Obstet Gynecol* 2003;102:8-16.
- 12 Raine T, Harper C, Leon K, Darney P. Emergency contraception: advance provision in a young, high-risk clinic population. *Obstet Gynecol* 2000;96:1-7.
- 13 Glasier A, Baird D. The effects of self-administering emergency contraception. *N Engl J Med* 1998; 339:1-4.
- 14 Bissell P, Anderson C. Supplying emergency contraception via community pharmacies in the UK: reflections on the experiences of users and providers. *Soc Sci Med* 2003;57:2367-78.
- 15 Mayor S. Court rules that emergency contraception is lawful. *BMJ* 2002;324:995.
- 16 Dawe F, Meltzer H. *Contraception and sexual health, 2002: a report on research using the ONS Omnibus Survey produced by the Social Survey Division of the Office for National Statistics on behalf of the Department of Health*. London: Office for National Statistics, 2003.
- 17 Dawe F, Meltzer H. *Contraception and sexual health, 2000: a report on research using the ONS Omnibus Survey produced by the Social Survey Division of the Office for National Statistics on behalf of the Department of Health*. London: Office for National Statistics, 2002.
- 18 Dawe F, Meltzer H. *Contraception and sexual health, 2001: a report on research using the ONS Omnibus Survey produced by the Social Survey Division of the Office for National Statistics on behalf of the Department of Health*. London: Office for National Statistics, 2003.
- 19 Grimes DA. Emergency contraception and fire extinguishers: a prevention paradox. *Am J Obstet Gynecol* 2002;187:1536-8.
- 20 Kerins M, Maguire E, Fahey DK, Glucksman E. Emergency contraception: has over the counter availability reduced attendances at emergency departments? *Emerg Med J* 2004;21:67-8.
- 21 Von Hertzen H, Piaggio G, Ding J, Chen J, Song S, Bartfai G, et al. Low dose mifepristone and two regimens of levonorgestrel for emergency contraception: a WHO multicentre randomised trial. *Lancet* 2002;360:1803-10.
- 22 Johnson AM, Mercer CH, Erens B, Copas AJ, McManus S, Wellings K, et al. Sexual behaviour in Britain: partnerships, practices, and HIV risk behaviours. *Lancet* 2001;358:1835-42.
- 23 Wellings K, Nanchahal K, Macdowall W, McManus S, Erens B, Mercer CH, et al. Sexual behaviour in Britain: early heterosexual experience. *Lancet* 2001;358:1843-50. (Accepted 8 June 2005)

doi 10.1136/bmj.38519.440266.8F

Department of Primary Care and Social Medicine, Imperial College Faculty of Medicine, London W6 8RP

Cicely Marston *lecturer in social science and public health*
Azeem Majeed *professor of primary care*

Office for National Statistics, London SW1V 2QQ

Howard Meltzer *senior scientist*

Correspondence to: C Marston c.marston@imperial.ac.uk (from 1 October: cicely.marston@lshtm.ac.uk)