



Contraception before and after termination of pregnancy: can we do it better?

Felicity Goodyear-Smith and Bruce Arroll

Abstract

Aim To compare contraceptive use pre- and post-therapeutic abortion in 1995, 1999 and 2002 in a New Zealand clinic.

Methods Retrospective, consecutive case review of women presenting for therapeutic abortion. Anonymous data included demographic details, contraception used at conception, and post-termination contraception.

Results Pre-conception contraceptive use is significantly declining, with post-termination condom choice increasing. This is predominantly due to increasing numbers of Asian women presenting for abortion. In 2002, 97% of Asian women used no contraception or only condoms pre-conception, and 62% chose condoms or abstinence post-termination. Oral contraceptives are used significantly less by Asian than European women both pre-termination ($p = 0.0002$) and post-termination ($p = 0.00001$). Other ethnic groups showed little change in contraceptive use over the study periods.

Conclusions It is speculated that ethnic Chinese women lack adequate contraceptive education, demonstrate distrust of non-barrier methods, believe men should provide the prophylactic, and mistakenly believe contraception unnecessary for the first week following menstruation. Abortion may be used for family planning rather than as back up for contraceptive failure. Young Chinese arriving in New Zealand require immediate sexual health education including accurate contraceptive information. Liaison between primary healthcare sectors and policy makers of immigration and other services assisting overseas students is recommended to provide culturally appropriate education.

The general abortion rate (per 1000 estimated mean number of women aged 15 to 44 years) has been rising steadily in New Zealand, from 14 in 1990 to 16.2 in 1995, and 19.4 in 2001.¹ This is a significantly higher rate than found in a number of other countries in the Western world; for example, in 1999 the Netherlands recorded a rate of 7.4 and Germany 7.7; in 2000 Finland recorded 10.7. On the other hand, some Western countries have even higher rates: in 1996 in Australia and 1997 in the United States, the rate was about 22. Sexual health education including accurate information on contraceptive methods and access to reliable contraception should reduce the need for termination of unwanted pregnancies resulting from either the failure of contraceptives or the lack of their use.

The grounds considered permissible for legal abortion under New Zealand law are that the mother's physical or mental health is endangered by the pregnancy. Abortion law reform came into place in 1977 whereby termination of pregnancies subsisting for no more than 12 weeks were legalised to be performed in licensed premises if two

certifying consultants authorised by the Abortion Supervisory Committee assessed the woman and determined that she had grounds for the procedure to occur.²

New Zealand law does not allow 'abortion on demand'. The Act stipulates that the decision of whether or not an abortion is performed cannot be a matter entirely 'for the woman and a doctor to decide', but rests solely on whether or not the woman meets the specified grounds. Generally, it is determined on the grounds of fears for her mental rather than physical health should the pregnancy continue. Women who have suffered the emotional distress of an unwanted pregnancy and who meet the grounds for termination are given comprehensive contraceptive advice to minimise the chance of subsequent unplanned conception.

Contraceptive information is freely available in New Zealand and is included in the secondary school curriculum.³ New Zealanders have access to contraception through general practitioners and family planning clinics throughout the country. Condoms are available over the counter (OTC) at pharmacies and supermarkets, as well as from vending machines in some locations. Recently, the emergency contraceptive pill (0.75 mg levonorgestrel) has also been available OTC.

Unwanted pregnancies result either from lack of contraceptive use, or failure of the chosen method. Relative use of contraceptive methods is influenced by a number of factors, including the availability, cost and perceived effectiveness and safety of each method. It is of interest to determine whether the use, or lack of use, of various contraceptive methods by women presenting for termination is changing over time.

The aim of this study was to compare contraceptive use prior to unplanned conception and following therapeutic abortion in the years 1995, 1999 and 2002 in women presenting to a New Zealand abortion clinic.

Methods

A retrospective review was conducted of 200 consecutive cases of women attending a New Zealand clinic for assessment for termination of pregnancy in mid-1995, 400 in mid-1999, and 400 in mid-2002. The initial audit (1995) was of 200 cases, but in 1999 it became apparent that 'panic-stopping' of the pill was contributing unwanted pregnancies, and the sample size was increased to 400 to more accurately evaluate the significance of this effect. The sample size of 400 was repeated in 2002 to improve the ability to compare samples.

Information collected included demographic details (age, ethnicity, parity, number of previous terminations); contraception used at the time of conception (if any); and post-termination contraception. Where pre-conception contraception was documented, the reason given for failure was recorded.

Methods of contraception include combined and progesterone-only pills, Depo-Provera injection, intrauterine contraceptive devices, sterilisation (tubal ligation and vasectomy), condoms, diaphragms, use of the emergency contraceptive pill and 'natural' family planning. Where natural family planning is combined with condom use, it is categorised as condom use; where no condom is used it is categorised as 'no contraception'.

Anonymous data were collected retrospectively from patient records by either a certifying consultant or a nurse counsellor who had access to these records in their normal work situation. Researchers worked from an aggregated data set containing no identifiable details of individual patients.

Results

The age of the women presenting at the clinic were of similar proportions in 1995, 1999 and 2002, with about 80% aged between 20 and 39 years, and two thirds between 20 and 34 years. Their marital status was also similar, with just over half

identifying as single. Similar percentages had had previous terminations in each of the three years, with just over two thirds (67–69%) having their first termination.

However, the women attending the clinic in 2002 differed from those attending in 1999 and 1995 in several regards. First, they were much less likely to already have children (65% were nulliparous, compared with 41% and 48% respectively). They were far more likely to be students (43% compared with 16% and 18%) and there were correspondingly far fewer primarily involved in home duties or child care (7% compared with 30% and 32%). The most significant change was the ethnicity of the presenting women (Table 1). In 1995, 62% of the women were New Zealand European, which dropped to 55% in 1999 and down to 33% in 2002. Numbers of Maori also significantly reduced, from 22% in 1995 and 26% in 1999 down to 8% in 2002. The majority of the women (55%) seen by the clinic in the 2002 sample were of Asian ethnicity, increased from 12% in 1995 and 13% in 1999. While ‘Asian’ includes a number of ethnicities, including Korean, Japanese, Indian and Thai, the overwhelming majority of these women were ethnic Chinese, mostly young, non-resident women in New Zealand as students, or recent immigrants.

Table 1. Ethnicity of women presenting to abortion clinic in 1995, 1999 and 2002

Ethnicity	1995		1999		2002	
	n	%	n	%	n	%
European	123	61.5	218	54.5	131	33.0
Maori	44	22.0	104	26.0	33	8.0
Pacific Island	6	3.0	17	4.0	12	3.0
Asian	24	12.0	53	13.0	221	55.0
Other	3	1.5	7	2.0	3	1.0
Missing data	0	0.0	1	0.5	0	0.0
Total	200		400		400	

The data show that women presenting to the clinic for termination of pregnancy were far less likely to have been using contraception at conception in 2002 (30.5%) than those in 1999 (51.5%) or 1995 (54.5%), see Table 2. Condom use declined from 35% in 1995, to 26.5% in 1999, down to 22% in 2002. Of particular interest is the changing use of oral contraceptives, with 16.5% using contraceptive pills prior to conception in 1995, rising to 23% in 1999, and dropping to 8% in 2002.

Throughout the study period, over 90% of the women left the clinic following the termination of pregnancy with some form of contraception (Table 3). The condom has become the most popular method, increasing from 10.5% in 1995, through 14.75% in 1999, to 38% in 2002. The oral contraceptive has become correspondingly less popular, with nearly half (48.5%) choosing this method in 1995, declining to 39.75% in 1999, and down to under one third (31%) in 2002. The contraceptive injection Depo-Provera shows a similar decline in popularity, from 21% in 1995 down to 6.75% in 2002.

Table 2. Contraceptive use at time of conception

Method of contraception	1995		1999		2002	
	n	%	n	%	n	%
None or NFP	89	44.5	193	48.0	278	69.5
Condom +/- ECP	71	35.5	105	26.0	89	22.0
Diaphragm	0	0.0	1	0.0	0	0.0
IUCD	5	2.5	2	0.5	1	0.5
Pill*	33	16.5	92	23.0	31	8.0
Depo-Provera	0	0.0	3	1.0	0	0.0
Vasectomy	2	1.0	3	1.0	1	0.5
TL	0	0.0	1	0.5	0	0.0
Total	200		400		400	

NFP = natural family planning; ECP = emergency contraceptive pill; IUCD = intrauterine contraceptive device; TL = tubal ligation

*includes second- and third-generation combined pills and progesterone-only pills

Table 3. Contraceptive use following termination of pregnancy (TOP)

Method of contraception	1995		1999		2002	
	n	%	n	%	n	%
None or NFP	19	9.5	33	8.0	27	7.0
Condom +/- ECP	21	10.5	59	15.0	152	38.0
Diaphragm	1	0.5	3	1.0	0	0.0
IUCD*	20	10.0	50	12.5	63	16.0
Pill [†]	97	48.5	159	40.0	124	31.0
Depo-Provera*	42	21.0	77	19.0	27	7.0
Vasectomy	0	0.0	11	3.0	7	2.0
TL	0	0.0	8	2.0	0	0.0
Total	200		400		400	

NFP = natural family planning; ECP = emergency contraceptive pill; IUCD = intrauterine contraceptive device; TL = tubal ligation

*IUCD insertion and Depo-Provera injection occur immediately post-TOP; [†]includes second- and third-generation combined pills and progesterone-only pills

We wished to explore factors contributing to the dramatic drop in pre-conception pill use (from 23% in 1999 to 8% in 2002). One of the possibilities was a general fear of the pill, resulting in the use of alternative methods or disillusionment with contraceptive use. In our 1999 sample, 23% of pregnancies were due to pill failure, and nearly half of combined-pill users claimed their pregnancy resulted from panic-stopping because of media-promoted fear of health risks, especially 'clots'.⁴ In 1995 and 1999, the majority of women attending the clinic were New Zealand European. In 2002 this group had dropped to one third. However, New Zealand Europeans were still the highest users of the pill, with a slightly increased use (31%) in 2002 compared with 1999 (28%).

In 1999, 74% of women had been using either no contraception (48%) or condoms (26%), which some women were using only intermittently. In 2002 this had increased to 91.5% (69.5% having used no contraception and 22% condoms only).

Asian women, particularly non-resident Chinese students, are now the predominant ethnic group attending the clinic. The Asian women are younger on average than the

European patients (average age 22 compared with 29.9 years for Europeans), more likely to be single (135/221, 61% compared with 59/131, 45%, $p = 0.003$) and much more likely to be nulliparous (174/221, 79% compared with 68/131, 52%, $p < 0.00001$).

One hundred and seventy seven (80%) of the 221 Asian women assessed in 2002 had been using no pre-conception contraception; a further 38 (17%) claimed to have been using condoms, and only six (2.7%) had been using more reliable methods (five pill users, one intrauterine contraceptive device). A much higher percentage left the clinic with reliable contraception (Table 4) – pills 52/221 (24%); intrauterine contraceptive device 20/221 (9%); Depo-Provera 10/221 (4.5%) – or planning to seek sterilisation 2/221 (0.9%), but 62% were still determined to rely on condoms only (123/221, 56%) or abstinence (14/221, 6.3%).

Table 4. Use of contraception by Asian women in 2002 pre- and post-termination of pregnancy (TOP)

Method of contraception	Pre-TOP		Post-TOP	
	n	%	n	%
None or NFP	177	80.0	14	6.5
Condom	38	17.0	123	55.5
Diaphragm	0	0.0	0	0.0
IUCD	1	0.5	20	9.0
Pill	5	2.0	52	23.5
Depo-Provera	0	0.0	10	4.5
Vasectomy	0	0.0	1	0.5
TL	0	0.0	1	0.5
Total	221		221	

NFP = natural family planning; IUCD = intrauterine contraceptive device; TL = tubal ligation

The use of oral contraceptive pills by European and Asian women is significantly different both pre-termination (25/131 compared with 5/221; Fisher's exact test $p = 0.0001$) and post-termination (61/131 compared with 52/221; chi-square test $p = 0.00001$) (Table 5).

Table 5. Use of oral contraceptive pills by ethnicity pre- and post-termination of pregnancy (TOP)

Ethnicity	1995		1999		2002	
	Pre-TOP n (%)	Post-TOP n (%)	Pre-TOP n (%)	Post-TOP n (%)	Pre-TOP n (%)	Post-TOP n (%)
European	20/123 (16)	32/123 (26)	61/218 (28)	92/218 (42)	25*/131 (19)	61 [†] /131 (31)
Maori	10/44 (23)	20/44 (45)	23/104 (22)	39/104 (37.5)		8/33 (24)
Pacific Island	0/6 (0)	4/6 (8)	3/17 (18)	5/17 (29)	4/33 (12)	3/12 (25)
Asian	2/24 (8)	14/24 (58)	5/53 (9)	13/53 (25)	0/12 (0)	52 [†] /221 (23)
Other	0/3 (0)	2/3 (67)	0/7 (0)	2/7 (29)	5*/221 (2) 0/3 (0)	0/3 (0)
All	33/200 (16)	97/200 (49)	92/400 (23)	159/400 (40)	31/400 (8)	124/400 (31)

*Fisher's exact test for European versus Asian women pre-termination $p = 0.00001$; [†]chi-square test for European versus Asian women post-termination $p = 0.00001$

Discussion

What do these data tell us? First, despite the panic-stopping of oral contraceptives in 1999, when a higher rate of venous thromboembolism was linked to third-generation pills,⁴ the use of this form of contraception does not appear to have significantly changed among New Zealand European women. The majority of combined pills prescribed in 2002, however, are second- and not third-generation formulations. Prescription data from the Pharmaceutical Management Agency of New Zealand (PHARMAC) indicate that in 1995 third-generation pills represented 76% (356 959/471 282) of all prescribed combined oral contraceptives, but in 2002 only 18% (68 864/383 954).⁵

In 1996, four studies indicated that third-generation oral contraceptive pill use correlated with an increased risk for venous thrombosis compared with second-generation pills (weak odds ratio ranging from 1.5 to 2.3).⁶⁻⁹ The publicity related to this research led to panic-stopping of the pill in Europe at that time, and a subsequent, similar reaction in New Zealand women in 1999.⁴ Clinic data analysis of the 1999 cohort in our study found that nearly 50% of women citing combined oral contraceptive use prior to conception had stopped their pill through media-generated fear of risks to their health in the form of clots.⁴ In contrast, none of the women in 2002 gave a history of panic-stopping the pill.

A potential weakness of this study is that the data rely on retrospective reporting of contraceptive methods used prior to unwanted pregnancies. It is clinic policy to record for all patients what pre-conception contraception was used, if any, and reasons for its failure. It is possible that women might claim contraceptive failure rather than admit to lack of use, through embarrassment or from fear that this admission might jeopardise their access to an abortion. However, given that a high percentage of women (up to 69% in 2002) freely acknowledged that they were using no contraception prior to this pregnancy, it seems likely that responses to questions regarding contraceptive use prior to conception were reasonably accurate and overestimate rather than underestimate use.

While it is encouraging that over 90% of women left the clinic after their abortion with their elected form of contraception, this may well reflect the encouragement given by the clinic staff (doctors and nurse counsellors) that the women avoid unprotected sexual intercourse in the future. There is no coercion to accept contraception but all women are provided with accurate information on, and access to, the full range of contraceptive methods available.

Unfortunately, while patients may select a form of birth control following a therapeutic abortion, this does not ensure that they will continue to use contraception in the future. One study of adolescent girls found that while 93% chose a reliable form of contraception following their termination, only 28% reported using contraception at a follow-up visit within the following year.¹⁰

A further issue raised by our data is that Asian women, who are now the predominant ethnic group attending the clinic, are not using reliable methods of contraception either before or after termination. The changing ethnicity of the clinic population reflects social and health provision changes within New Zealand. Many small-town or

rural Maori women used to attend the clinic because therapeutic abortion services were not available in their localities, and this deficiency has now been remedied. New Zealand has also seen a large influx of young Asians, especially Chinese, entering the country as students, and it is the presence of mostly nulliparous Chinese students that is demonstrated by the changed demographics of the women using the clinic services.

The lack of contraceptive use by Asian women presenting for termination of pregnancy, and their reliance on condoms post-termination, are matters of particular concern. These women are predominantly non-resident or recently immigrant Chinese, many of whom are students away from their families, lacking exposure to contraceptive education normally available to young New Zealanders. They demonstrate a profound reluctance to try any form of contraception other than the condom, and will seldom consider using oral contraceptives, which they believe will be harmful to them. This attitude is consistently reported by clinic staff, both nurse counsellors and doctors, including the two ethnic Chinese nurses employed by the clinic who meet with similar resistance from Asian patients to consideration of oral contraceptive use. A study of ethnic Chinese women presenting for abortion in Canada found a negative attitude toward oral contraceptives.¹¹ Although a formal assessment of reasons for contraceptive choice was not conducted, the subjective impressions of our clinic staff would support this view.

Condom use certainly will reduce the chance of unwanted pregnancy as well as offering protection against some sexually transmitted diseases. A case-control study found that consistent condom use reduced fecundity by 88.9%, compared with diaphragm use by 89.3%, the pill by 97.8%, IUCD use by 97.6%, vasectomy by 99.5%, and female sterilisation by 99.8%.¹² Our concern regarding condom choice relates more to failure of use rather than condom failure per se. Asian women attending the clinic frequently decline an offer of free samples, express the opinion that it is the man's role to provide the prophylactic, and hold a widespread, misinformed belief that the use of condoms is not necessary for the first week following menstruation. While overall evidence indicates that the benefits of contraceptive pills for women far outweigh the risks,¹³ these women hold the opinion that the pill is 'bad' for them.

While there are legal restrictions and ethical concerns about abortion in New Zealand, its use is actively promoted in the People's Republic of China, in line with its one-child policy to reduce population growth.¹⁴ It is also culturally unacceptable in China for unmarried women to bear and raise children. A study of unmarried abortion patients in Sichuan province, China, indicated that these women were relying on abortion as a family planning method rather than as a back-up method in case of contraceptive failure.¹⁵

The percentage of Asian women having termination of pregnancies nationwide has doubled from 6.5% in 1994¹⁶ to 13.2% in 2001.¹⁷ The last decade has seen an influx of young Chinese arriving in New Zealand. These include both immigrating families and large numbers of non-residents coming to New Zealand to attend secondary and tertiary educational institutions. The latter are often without family support, and may take advantage of the relative sexual freedom they experience in comparison with the situation in their home country. These young people require immediate sexual health education including accurate information on contraceptive options, and advice not to consider abortion as a contraceptive method.

We recommend that liaison should be established between the primary healthcare sector and policy makers of immigration and other services that assist overseas students to develop and provide culturally appropriate education for this population.

Author information: Felicity A Goodyear-Smith, Senior Lecturer; Bruce Arroll, Associate Professor, Department of General Practice and Primary Health Care, Faculty of Medical and Health Sciences, University of Auckland

Acknowledgements: Thanks to the clinic staff for their assistance with data collection.

Correspondence: Dr Felicity A Goodyear-Smith, Department of General Practice and Primary Health Care, Faculty of Medical and Health Sciences, University of Auckland, Private Bag 92019, Auckland. Fax: (09) 373 7006; email: f.goodyear-smith@auckland.ac.nz

References:

1. Abortion Advisory Committee. Report of the Abortion Advisory Committee for 2001. Wellington: Department of Courts; 2001.
2. Contraception, Sterilisation, and Abortion Act, 112; 1977.
3. Te Kete Ipurangi. National Certificate of Educational Achievement: Internal assessment resource reference number: Health/1/5 – B version 3 ‘A sexuality issues magazine’. Ministry of Education; 2002.
4. Goodyear-Smith F, Arroll B. Termination of pregnancy following panic-stopping of oral contraceptives. *Contraception* 2002;66:163–7.
5. PHARMAC. Data on prescription numbers and ex-manufacturer cost of 2nd and 3rd generation oral contraceptives for each June financial year since 1993. Wellington: PHARMAC; 2002.
6. Spitzer WO, Lewis MA, Heinemann LA, et al. Third generation oral contraceptives and risk of venous thromboembolic disorders: an international case-control study. Transnational Research Group on Oral Contraceptives and the Health of Young Women. *BMJ* 1996;312:83–8.
7. Bloemenkamp KW, Rosendaal FR, Helmerhorst FM, et al. Enhancement by factor V Leiden mutation of risk of deep-vein thrombosis associated with oral contraceptives containing a third-generation progestagen. *Lancet* 1995;346:1593–6.
8. World Health Organization Collaborative Study of Cardiovascular Disease & Steroid Hormone Contraception. Effect of different progestagens in low oestrogen oral contraceptives on venous thromboembolic disease. *Lancet* 1995;346:1582–8.
9. Jick H, Jick SS, Gurewich V, et al. Risk of idiopathic cardiovascular death and nonfatal venous thromboembolism in women using oral contraceptives with differing progestagen components. *Lancet* 1995;346:1589–93.
10. Hewell SW, Andrews JL. Contraceptive use among female adolescents. *Clin Nurs Res* 1996;5:356–63.
11. Wiebe ER, Sent L, Fong S, Chan J. Barriers to use of oral contraceptives in ethnic Chinese women presenting for abortion. *Contraception* 2002;65:159–63.
12. Skjeldestad FE. Using induced abortion to measure contraceptive efficacy. *Fam Plann Perspect* 1995;27:71–3, 96.
13. Spitzer WO. The 1995 pill scare revisited: anatomy of a non-epidemic. *Hum Reprod* 1997;12:2347–57.

14. Shain RN. Abortion practices and attitudes in cross-cultural perspective. *Am J Obstet Gynecol* 1982;142:245–51.
15. Luo L, Wu SZ, Chen XQ, et al. Induced abortion among unmarried women in Sichuan province, China. *Contraception* 1995;51:59–63.
16. Abortion Advisory Committee. Report of the Abortion Advisory Committee for 1997. Wellington: Department of Courts; 1997.
17. Abortion Advisory Committee. Report of the Abortion Advisory Committee for 2002. Wellington: Department of Courts; 2002.