

19 Contraception, Induced Abortion and Fertility Services

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1 Summary

The issues and problems

Planned parenthood is an important and identifiable public health objective that benefits both individuals and the community. It provides individuals with the freedom to engage in a fulfilling and healthy sex life whilst delaying childbearing until such time as optimum conditions for childrearing exist.

For a variety of socio-economic reasons, the average number of years between the onset of sexual activity and childbearing is widening, leading to an increased demand for contraception to prevent unwanted pregnancy during the intervening years.^{1,2}

Young women from deprived backgrounds, who already carry a heavier burden of ill-health, are the group most at risk of unintended pregnancy. Although not all unplanned pregnancies result in personal difficulties, the poverty, social exclusion and subsequent ill-health suffered by many teenage mothers and their children serve to widen the health inequalities that often already exist.³

Provision of appropriate sex and relationship education and effective services empowers people and can help individuals to make a personal risk-benefit analysis, make informed choices from the contraceptive methods available and become motivated to use them.⁴

At a public health level, contraceptive services are among the most cost-effective, with an estimated cost-benefit ratio of 1:14.⁵⁻⁸ The cost-benefit ratio for contraception would be even higher if the economic benefits derived from health gains other than unintended pregnancy, such as the avoidance of sexually transmitted diseases, were included.⁸

Almost half of all conceptions in England are thought to be unplanned, and about one in five will be terminated. All contraceptives have a level of failure, and studies suggest that three out of four women seeking a termination were using some form of contraception at the time of conception.^{9,10} The demand for abortion services is increasing, but it would be incorrect to assume that this indicates a failure in contraceptive services, since the increase could be due to many other social and physical factors. Even when provision and uptake of contraceptive services are high, there will always be a need for adequate abortion services to cater for contraceptive failures and problems that emerge as pregnancy develops.

Increasing numbers of couples are seeking medical help with fertility problems. It is difficult to know whether this represents a real increase in infertility or an increased demand for services caused by changing expectations of medical interventions to help with fertility problems.¹¹⁻¹³ NHS service provision for infertility varies considerably across the UK. However, the National Institute for Clinical Excellence (NICE) is drawing up clinical guidelines that will have to be implemented in all parts of the NHS in England and Wales to provide an equal level of service across these countries.

Sub-categories

Unlike disease-oriented services, contraceptive, induced abortion and fertility service needs cannot be usefully categorised by aetiology or severity.

Predictors of service need are most usefully categorised by requirements for health services, and these have been described in the three main areas by factors such as age, marital status, social class, gender and special groups. Some or all of these factors determine choice of contraceptive method, as well as demand for abortion and fertility services. Sexually transmitted infections are an important cause of infertility, so sex and relationship education that can help to prevent these infections is considered in this section.

Prevalence and incidence

The greatest demand for contraception, induced abortion and fertility services comes from sexually active women of childbearing age, but an increasing number of men are also requesting contraceptive advice and supplies.

Changes in family structure and the desired number of children affect the level of demand for contraceptive services.

The last 10 years have seen a decline in overall conception rates, but an increase for women aged 35–39 years as more women delay childbearing until later in life.^{14,15} The proportion of women who report that they expect either by choice or infertility to remain childless is increasing.

In 1998, for the first time since records began, the proportion of conceptions outside marriage exceeded those within marriage.¹⁵ A considerable proportion of the births to women who were not married were registered by both parents living at the same address, signifying that the absence of marriage is an indicator neither of unplanned pregnancy nor of an unstable environment for the child.

To provide a truly comprehensive sexual health service, commissioners must ensure that the contraceptive, abortion and fertility needs of all sectors of the population, including the disabled, ethnic minorities, and young people in care and institutions, are properly assessed and catered for.

Abortion rates in the UK are comparatively high, and an examination of the situation in other European countries suggests that by improving contraceptive and sex education services, abortion rates could be reduced. Women at both ends of the age spectrum (over 40 and under 16 years) have low conception rates but a high proportion of pregnancies ending in induced abortion. Most abortions (71% in 2000) were carried out on women who were either single, separated, divorced or widowed.¹⁶

Since a woman's fertility decreases with age, trends towards delaying the age of childbearing are likely to result in the increased prevalence of infertility. This, together with an increase in the prevalence of sexually transmitted infections, particularly chlamydia, coupled with increased expectations of the availability of medical treatment, heralds an increase in demand for fertility services over the next few years.^{17,18}

Services available and costs

Contraception

Over half of all women between the ages of 16 and 49 use a non-surgical method of contraception and an estimated 12% have been sterilised.¹⁹ An assortment of providers catering for different sections or groups in the population delivers contraceptive services. Women who use general practitioner services are more likely to be older, married, have had one child and be using oral contraception to space their children. Family planning clinics, including those specialising in the provision of services for teenagers, young

women or other groups, provide a more comprehensive range of services and contraceptive methods. Since many unintended pregnancies occur in younger women, commissioners in some areas have allocated considerable funds to the development of services that are acceptable and accessible to teenage girls and boys. Young people report that they are more comfortable using clinics that are tailored to their needs.^{20,21}

High-quality sex and relationship education in schools can do much to ensure that young people know how to protect themselves from unintended pregnancy, know where to go for advice and supplies and have the confidence and social skills to negotiate contraceptive use with a partner.

There has been a general trend towards the increased use of condoms, particularly among women under 30. Oral contraceptive use has remained at a similar level overall since 1993, and remains the most popular method for women in their twenties and thirties, although between 1995 and 1998 there was a statistically significant decrease from 29% to 24% in the proportion of women aged 30–34 reporting the pill as their usual form of contraception.²²

Emergency contraception is a relatively new, but increasingly popular, safe and highly effective method of contraception that can be used after unprotected intercourse or contraceptive failure. In 1998, 10% of women of childbearing age who were not sterilised and were therefore at risk of pregnancy had used emergency contraception at least once in the previous two years.²²

The average cost to the NHS of first attendance at a family planning clinic is £36, and £29 for a follow-up visit.²³ Costs of services in the independent sector vary. In 1998 an initial visit for a prescription for the contraceptive pill cost from £35. Follow-up visits cost from £20. Female sterilisation cost between £395 and £475, while male sterilisation cost between £150 and £170 (local anaesthetic) and £230 (general anaesthetic). Fitting of an IUCD, including screening, fitting and follow-up visit, cost £110. Emergency contraception cost £20.^{24,25}

Induced abortion

Induced abortion accounts for approximately 23% of known conceptions in the general population.

Between 1992 and 1995 the proportion of conceptions terminated by induced abortion was steady. However, in 1996 the number and rate of conceptions and the number of induced abortions, particularly in women aged 20–24, increased. This change in direction appeared to be linked to warnings by the Committee on Safety of Medicines regarding certain new oral contraceptives. Since 1995, abortion rates in all age groups have continued to rise. Some young women in particular seem to have lost confidence in, and have stopped using, oral contraception.²⁶

Since 1975, the proportion of abortions carried out during the safest period – before nine weeks' gestation – has gradually increased.

Most abortions are the result of extramarital conceptions. Only about 7.5% of conceptions within marriage result in abortion.

Provision of NHS-funded abortions in England and Wales is variable, with significant differences between regions.

The average cost to the NHS of a termination of pregnancy carried out as a day case is £393 for a surgical and £278 for a medical procedure. Costs rise to £555 for surgical and £478 for medical abortions carried out as elective inpatient procedures, and £614 for surgical and £528 for medical abortions carried out as non-elective procedures.²³

Induced abortions are a major source of income for the independent sector, with an estimated market of £30 million in 1996. Specialist charitable organisations provide most non-NHS (privately funded) abortions in England and Wales and also provide abortions for the NHS (agency abortions).²⁷ Abortion costs in the private sector depend on gestational age, but are comparable to NHS costs.

Fertility

For about 70% of infertile couples, preliminary investigations carried out at the primary care level result in a broad diagnosis, and this knowledge makes decisions about treatment and referral more effective.

There is considerable debate surrounding the extent to which the NHS should fund infertility treatments. The ill-health caused by infertility is psychosocial rather than physical, and this means that it does not fit neatly into the medical model of health held by many in the NHS. Infertility as a condition competing for resources is therefore rarely given priority, though the Government accepts that infertility is a legitimate health need.

In the UK, only about 25% of *in-vitro* fertilisation (IVF) treatments are funded by the NHS, and 80% of all licensed treatments that take place, such as IVF, intracytoplasmic sperm injection (ICSI) or donor insemination (DI), take place in the private sector. Each health authority (now PCT) decides how much of its budget to allocate to fertility services, and 25% do not fund IVF at all.

Many clinics that operate under the NHS also offer private treatment to those who can pay. Each institution sets criteria for eligibility for private as well as NHS treatment, and many do not offer treatment to single women or unmarried couples as a matter of policy.

The availability and costs of infertility treatments vary considerably. Donor insemination costs around £150 and IVF upwards of about £2000 per treatment cycle.²⁸ The average number of treatment cycles per patient was 3 for donor insemination and 1.37 for IVF in 1996.

Effectiveness of services and interventions

Many young people lack the knowledge and social skills to use contraception effectively, which puts them at greater risk of unintended pregnancy. Effective sex and relationship education for young people has the power to increase individual control over fertility by ensuring that should they wish to do so, sexually mature individuals are able to obtain and use contraception. There is considerable debate about what should be taught and the ability of sexual health interventions to change behaviour. The inadequate design of many evaluations of sexual health interventions means that there is lack of clear evidence about what type of intervention can effectively change knowledge, attitudes and behaviour.

Contraceptive services are financially and socially beneficial to an extent that far outweighs their cost. It is cheaper to provide contraceptive services than to cover the costs of induced abortion or child maintenance. Contraceptive services are increasingly regarded by providers as just one part of the comprehensive sexual health service on offer. The wider benefits of contraception in the promotion of sexual health should be considered in future analyses of the cost-effectiveness of services.

Induced abortion is less traumatic psychologically and physically than an unwanted full-term pregnancy and there is low risk of serious complications, provided the referral is not delayed and the procedure is carried out during the early stages of gestation. Surgical abortion is more expensive than medical termination, but remains the most popular method, possibly because the procedure is quicker and only involves one visit to hospital. There is a need for a rigorous economic evaluation of medical abortions.

Fertility treatment services improve quality of life by removing the psychosocial ill-health caused by infertility, but many rely on a high level of technology, are not totally risk-free and are expensive. The effectiveness of services is difficult to quantify as the average success rate of, for example, IVF is 17% per cycle, which although low, appears better when compared to the average monthly chance of conceiving for a fertile couple having regular intercourse, which is only 20–25%. The relatively low level of success of many treatments suggests that adequate funds should therefore be directed towards infertility prevention as a more effective use of resources.

Models of care/recommendation

The ideal model:

- includes a range of complementary services designed to meet contraceptive, abortion, fertility and other sexual needs based on the requirements of the local community
- includes the development of programmes of professional training in sexual health for all service providers
- provides equity of access to services
- targets resources at groups or areas in greatest need within the community
- links into or commissions research into the causes or factors contributing to inequalities in health experienced by the population
- actively seeks feedback from service users and providers on quality and appropriateness of services provided (e.g. the views of pharmacists were sought after the introduction of emergency hormonal contraception under patient group direction by pharmacists in the Manchester, Salford and Trafford as well as Lambeth, Southwark and Lewisham health action zones)²⁹
- has input into partnerships delivering sex and relationship education in schools and other institutions
- is based on local data, where all providers agree to a minimum set of indicators.

The national strategy for HIV and sexual health suggests examination of the benefits of more integrated sexual health services, including pilots of one-stop clinics, primary care youth services and primary care teams with a special interest in sexual health.³⁰

Outcome measures, audit and targets

National targets, particularly with regard to the reduction in teenage pregnancy rates, have been described in Government documents and are being monitored closely. Routine data can be used to monitor uptake of contraceptive, abortion and fertility services. Service providers are being encouraged to develop local targets to meet the area's needs.

Information and research requirements

Much of the information required to establish need and to evaluate and monitor services is collected, analysed and made available by the Office for National Statistics (ONS). These data would be more useful to commissioners of services if they were available more promptly and were broken down by local area.

Methodologically sound evaluations of the effectiveness, including cost-effectiveness, of different approaches to sex and relationship education, contraceptive advice and specific young people's services are required.

There is a need to develop research methodologies to allow greater understanding of the contribution of both providers and service users to the effectiveness of contraception in normal use.

With the development of an expanded role for nurses in the primary care setting, the cost-effectiveness and quality of contraceptive and other sexual health services provided by trained family planning nurses based in primary care trusts compared to general practitioners and family planning clinics need to be established.

The long-term clinical effectiveness of the levonorgestrel intrauterine system as an alternative to hysterectomy and its cost-effectiveness and acceptability to women need to be established.

2 Introduction and statement of the problem

The foundations for a healthy life start well before birth. Increasing evidence suggests that preconceptual care for mothers, as well as conditions during fetal and the first years of life have consequences likely to affect health throughout childhood and adult life, and subsequently contribute to inequalities in health both nationally and internationally. Children experience the best start in life when the pregnancy that gives them life is both planned for and wanted.³

Services should facilitate choice about the number and timing of births and help to reduce the inequalities in health that result from the social, mental and physical problems linked to unintended pregnancy. The aim of commissioners of health services should be to empower people and enable them to enjoy their sexuality without detriment to their health or that of their partner.

Planned parenthood

Planned parenthood provides people with the opportunity to choose to have their children at a propitious time, when their economic, social and psychological environment is such that a child (or further child) will enhance their health and not present an undue burden. Children are an asset both to their parents and the community, and those born as the result of a planned pregnancy are more likely to experience favourable conditions for growth and development that will enable them to achieve their potential. Planned parenthood in a financially and emotionally stable family environment is therefore an important and identifiable public health objective in its own right and a component in any local and national strategy to reduce health inequalities. In his book on the role of medicine published in 1976 McKeown said that he considered the control of fertility to be of paramount importance in the analysis of factors contributing to the improved health enjoyed by people today compared to people of our grandparents' generation.³¹

In developing countries where extreme poverty, malnutrition and infectious diseases are major problems, planned parenthood is key to reducing infant and maternal mortality rates. The same does not hold in developed countries, where health threats tend to be more subtle, with complex social and psychological dimensions.^{32,33}

Unplanned pregnancy is more common among sexually active and inexperienced teenagers who lack the skills or the means to avoid the consequences. Teenage pregnancy, particularly in women aged less than 15, is linked to a variety of adverse physical, social, educational and economic circumstances. Teenagers are less likely to use contraception, and when they do use it are less likely to do so effectively. Teenagers who do have a baby are also at greater risk of social exclusion because they are less likely to complete their education and get a good job, and subsequently suffer more from poverty and ill-health throughout life.³ In Europe in the past and in many countries today, marriage, the onset of sexual relationships and pregnancy closely follow puberty. Amongst the physical and social changes that have affected adolescents between the late nineteenth and mid-twentieth centuries across many European countries, including the UK, is the earlier onset of sexual maturity indicated by a downward trend in the average age of menarche by a year or more and the deferral of childbearing until later in life. (The median menarcheal age appears to have stabilised at around 12 years 11 months.)¹ Due to the earlier onset of physical maturity and increasing participation in employment and higher education, the average young woman will be sexually mature for 15 years or more before contemplating marriage or having children.² Hence the increasing call for contraception during this period of women's lives.

Inequalities in health

Within the UK, under-age conception rates show a high degree of correlation with indices of deprivation.³⁴ There is a fourfold difference in under-16 conceptions between those health authorities (now PCTs) with the highest and lowest indices of deprivation.

The risk of teenage pregnancy increases with a number of factors, such as low educational attainment and poor housing. Particularly at risk are the daughters of teenage mothers, young people either in care or leaving care, school truants and excluded pupils, the homeless and young people who have run away from home.⁶ A teenager coming from a financially and emotionally secure background who sees a clear future through education and work has greater motivation to use contraception, and much to lose from an unintended teenage pregnancy and the prospect of a life on welfare benefits.

The risk of unintended pregnancy is higher among girls who engage in intercourse from an early age and there is a link between age at first intercourse, social class, ethnic background and low educational achievement.³ The risk of becoming a teenage mother is almost 10 times higher for a girl whose family is in social class V (unskilled manual) than for those in social class I (professional).³⁵ Those from higher social classes and with higher educational qualifications also report experiencing first intercourse at older ages. Table 1 shows that young black people are more likely to have first intercourse under the age of 16 than young white or Asian people.³⁶

Table 1: Proportion of young people in each group experiencing first intercourse under the age of 16 years.

	Men	Women
Black	26%	10%
White	19%	8%
Asian	11%	1%

The consequences of teenage pregnancy also reveal health inequalities, as it is associated with increased risk of poor social, economic and health outcomes for both mother and child.³⁷ The infant mortality rate for babies born to teenage mothers is more than 50% higher than the average (and 40% higher than for manual groups), accounting for almost 400 deaths in 2000 (12% of all infant deaths). The infant mortality rate for babies born to mothers under the age of 18 is more than double the average, and there is also an increased risk of maternal mortality for this group.³⁸

Variations in access to services also serve to increase inequalities in health and will be dealt with in discussions about respective services.

Contraception and abortion

At the beginning of the twentieth century the use of contraception was advocated as part of the strategy to reduce the high rates of infant and maternal mortality suffered particularly by the lower-paid working population. More recently the emphasis has been on empowerment and the benefits of providing women with greater choice and control over their fertility, as well as reducing the risk of unhappiness, social exclusion and ill-health that may be experienced as a consequence of unplanned parenthood, especially by young women and their children.³

Following campaigning by voluntary organisations and the legalisation of abortion in the 1960s, the early 1970s saw the introduction of free contraception through the NHS. This action was supported by research, which indicated that contraception was cheaper and more desirable than the social and medical costs of unintended pregnancy.

Increasing rates of abortion indicate that the aim for all pregnancies to be planned seems to be far from current social reality. However, even the best contraceptive practice will not eliminate the demand for abortion.

The promotion of sexual health

The promotion of sexual health, and in particular the sexual health of young people, is a key issue in the new public health agenda. Within a holistic framework, good sexual health is an important component of mental and social well-being and includes a capacity to enjoy and express sexuality without guilt or shame, coupled with freedom from disorders that interfere with health.

Most unintended pregnancies occur in the first six months of sexual activity with a new partner when contraception is either not being used or is being used inconsistently. It should therefore be possible to alter this behaviour with appropriate education and advice.³⁹

Young people report that they get most information and support from friends and young people's magazines, but that they would like to receive more of their sex education from their parents. Parents tend to have more fears in relation to their daughters' sexual health, e.g. the possibility of becoming pregnant. In practice it is usually only mothers who discuss sex with their children, and they tend to focus on information and advice on the prevention of pregnancy and the needs of girls.⁴⁰ Parental discomfort acts as an inhibitory factor during discussions concerning sexuality.⁴¹

The sexual health needs of boys are not being met adequately – demonstrated amongst other things by an increase in sexually transmitted diseases in young people. Boys appear to be less interested than girls in the biological aspects of sex education. The emphasis on reproduction may reinforce the message that sex education is nothing to do with boys, who may therefore need to be taught in a different way.⁴² The reason for focusing on boys' sexual health needs is to increase their confidence and ability to take responsibility for their sexual behaviour.

Wide differences of opinion exist about what constitutes correct or moral sexual behaviour, which makes it difficult to develop a sex and relationship educational programme that does not cause offence. The media, for example, carry sexually exploitative stories, yet decry misconduct and are reluctant to broadcast sexual health promotion messages. High rates of abortion are regarded with disapproval, while single women who choose to have children without the support of a partner are considered irresponsible.

Sex and relationship education in schools aims to promote sexual health by enabling young people to make informed choices about sexual behaviour. It can also help young people to develop the social skills needed to successfully negotiate contraceptive use, protect themselves and avoid premature sexual intercourse. School-based sex and relationship education is variable in quality and has been criticised for providing too little too late, and being too biological.⁴³ Although it is important to understand the biological side, young people do not engage in sexual intercourse because of a conscious desire to procreate, but rather to indulge their curiosity, assuage natural sexual urges or comply with peer pressure.^{3,44} Increased resources and prospects of a real improvement in the quality of sex and relationship education have accompanied Government guidance for schools issued in July 2000. All schools are now required to have a policy that describes what they will teach and against which they can be assessed during an (OFSTED) inspection, but it will take many years for the full benefits of these additional resources to be felt.

A national survey of young people of school age in 1996 found that even though sex and relationship education is the most commonly covered health topic in schools, more than half (54%) of the respondents would have liked more information covered about sexual health.⁴⁵ Up to 94% of parents are in favour of secondary schools providing more sex education.^{46,47} The high proportion of young people who are sexually active before the age of 16 years and the high rates of teenage pregnancy and induced abortion indicate that education about sex and relationships needs to be provided well before this age.

Infertility

In contrast to the problem of unintended pregnancy is that of infertility. For the purposes of this chapter infertility is defined as the inability to conceive after 12 months (or more) of intercourse without using contraception. However, this definition is arbitrary and the diagnosis of infertility must be based on the age of the woman and an accurate assessment of fertility in both partners.⁴⁸ Infertility is distinguished from impaired fecundity in that infertility relates solely to difficulty in conceiving, whereas impaired fecundity also takes into account difficulties in carrying to term. Infertility can be either primary or secondary. Secondary infertility refers to the inability to become pregnant by women who have previously been pregnant, regardless of outcome.

At the International Conference on Population and Development (ICPD) held in Cairo in 1994 it was asserted that 'Reproductive rights rest on the recognition of the basic right of all couples and individuals to decide freely and responsibly the number, spacing and timing of their children and to have the information and means to do so and the right to attain the highest standard of sexual and reproductive health.' Endorsement of this document by the UK means that the Government has a responsibility to tackle infertility. The Royal College of Obstetricians and Gynaecologists (RCOG) supports this view and has said that 'Infertility is considered to be a disease process worthy of investigation and treatment.'

Infertility affects one in seven couples in the UK, and an increasing number are asking for help with conception.^{12,13} Some evidence suggests that rather than demonstrating an increasing prevalence this reflects the higher proportion of couples with fertility problems who are seeking help.¹⁰²

Table 2: Most common fertility problems for which people seek treatment in a year.

Problem	Percentage
Ovulatory failure	27%
Tubal damage	14%
Endometriosis	5%
Male factors	19%
Unexplained	30%
Other	5%

Source: *Effective Health Care* Bulletin No.3, 1992;¹²⁹ Male Infertility (Review), *Lancet* 1997⁴⁹

Although significant technological advances in the treatment of infertility have been made in recent years, many treatments, such as *in-vitro* fertilisation (IVF), are expensive, and NHS-funded treatment is restricted. There will always be people who argue that such treatments should not be accorded priority when there are limited funds available for health services. However, this argument dismisses the mental health problems and lack of social well-being experienced by those suffering from infertility.

Approximately 80% of all IVF treatment in the UK is privately funded and there was considerable variation in the extent to which health authorities (now PCTs) funded treatment, with some health authorities not allocating any NHS resources to IVF or other highly technical fertility treatments. The clinical guideline on fertility published by the National Institute for Clinical Excellence covers the range of treatments for subfertility.⁵⁰ The clinical criteria to be met to qualify for NHS treatment, such as age of the woman and the number of cycles of IVF treatment to be offered, is also considered. The extent to which infertility treatments should be financed poses a dilemma for the NHS, but it would seem reasonable to limit NHS treatment to those patients likely to achieve a 50% birth rate within a set time limit or number of cycles.⁵¹

3 Sub-categories

Contraception

Contraceptive advice and prescription-dispensed contraceptive products are available free of charge through general practitioners. Family planning clinics, young people's sexual health services, voluntary organisations such as Brook Advisory Centres, a few hospital-based departments and genito-urinary medicine clinics supply a wide range of contraceptive services and products free of charge. Condoms can also be easily purchased from retail outlets. The most popular forms of contraception used in England and Wales are oral contraceptives, sterilisation and condoms. Men and women's contraceptive preferences change throughout their life cycle, so age and lifestyle are important categories. All methods of contraception have a failure rate, and each has characteristics that make it more or less suitable for different categories of the population.

Induced abortion

The number of notifications of legally induced abortions has increased annually since the implementation of the 1967 Abortion Act, but the proportion of conceptions that end in induced abortion varies by age and marital status. The total annual number of induced abortions has risen from 54 819 in 1969 to 175 542 in 2000.⁵² Providing a summary of the need for induced abortion is made difficult by the dynamic nature of the factors involved. An increase in the number of induced abortions over time does not necessarily imply less effective contraceptive use, but may come about as a result of more recent cohorts of teenagers being sexually active at younger ages or from women choosing an abortion rather than continuing the pregnancy when contraception has failed. The number of pregnancies depends on the number in the cohort, their level of sexual activity and their effective fertility, taking account of primary fertility and efficacy of contraception. Therefore age, marital status and social class are the most important sub-categories considered in this section.

Fertility

Fertility problems usually come to light only when people are trying to conceive their first child,⁵³ and consequently most clinic attendees (70%) suffer from primary infertility, although some women will experience both primary and secondary infertility. Chances of successful IVF treatment depend on maternal age and national trends towards a delay in childbearing increase the likelihood of couples

remaining unaware of their fertility problems until such time as treatment is less likely to be effective. Maternal age is therefore an important category in this section.

Studies suggest that the overall prevalence of primary infertility is 16.1% (95% confidence interval 14.6–17.6%), but only approximately half of the women who report infertility ask for medical help. Women from higher social classes are more likely to seek treatment.^{11–13} Approximately half of infertile women subsequently become mothers, but only a third of the deliveries are treatment related. Only 3% of women remain involuntarily childless.¹¹

4 Prevalence and incidence

Demand for services

The greatest demand for contraceptive, induced abortion and fertility services is from sexually active heterosexual women of childbearing age. However, with improved education, new technological breakthroughs such as the male contraceptive pill and an increased awareness of the risks associated with sexually transmitted infections, the demands upon services from men can be expected to increase. The female population seeking advice and using services will always be smaller than the population of women of childbearing age, particularly at either end of the spectrum. There will always be a proportion of women who are not sexually active, as well as those who are not in heterosexual relationships or are protected by earlier sterilisation, and the proportions in these categories will vary with social change over time.

Conception and contraception

Amongst other things, the demand for contraception will be determined by changes in family structure and the desired number of children, so in this section trends in conceptions will be considered before moving on to examine demand for contraceptive services in more detail.

Age

In England and Wales, there has been a decline in overall conception rates in recent years. Total fertility rate (TFR) in the UK went down from 2.41 in 1976 to 1.69 in 1999.¹⁴ Between 1990 and 1999 the average conception rate per 1000 women decreased from 79.2 to 71.9 in women aged 15–44. Although conception rates remain highest in the 25–29 years age group compared to women of other ages, rates decreased most in this age group (from 138.0 to 119.2) and increased most among women aged 35–39 (from 33.6 to 42.1).¹⁵

Increasing proportions of women do not have children at all, whether by choice or because of fertility problems. Between 1986 and 1991 the proportion of young women (under 23 years) expecting to remain childless doubled from 5% to 10%.

Older age at first intercourse is associated with higher educational achievement and higher social class.⁵⁴ Early age at first intercourse is associated with subsequent poor sexual health status.⁵⁵ Results from the National Survey of Sexual Attitudes and Lifestyles (Natsal) carried out between 1999 and 2001 show that the proportion of those aged 16–19 at the time of interview who reported first sexual intercourse at younger than 16 years was 30% for men and 26% for women, and the median age was 16 years. Following a steep decrease in age at first intercourse among women up to and including the 1970s, there is now

evidence of stabilisation, and the proportion of women reporting first intercourse before 16 years increased up to but not after the mid-1990s.

Marital status

Marriage is not as popular as it was, and between 1989 and 1999 the proportion of all conceptions taking place within marriage decreased from 57.7% to 48.3%. In 1998, for the first time since records began more conceptions took place outside (51.2%) rather than within marriage (48.8%).¹⁵

The following data refer to 1999.³⁴

The proportion of all conceptions in each age group that took place outside marriage was:

- 93.5% for teenagers
- 71.1% for women under 25 years old
- 43.5% for women aged 25–29 years
- 32.8% for women aged 30–34 years.

Of all the conceptions that took place outside marriage:

- 59.1% resulted in a birth outside marriage
- 5.5% resulted in a birth within marriage
- 35.4% were terminated by abortion.

Of all the conceptions that took place outside marriage:

- 47.6% resulted in a birth registered jointly by both parents
- 11.5% resulted in a birth registered by the mother alone.

Of all births outside marriage, 78% were jointly registered, and of these 74% were registered births to parents living at the same address. This compares to 1985, when 65% of births outside marriage were jointly registered, and of these 72% were registered to parents living at the same address.⁵³

Given the social changes indicating that it is now the norm for a single woman to have a baby, there is little to support the notion that an absence of marriage can be regarded as an indicator of either unplanned pregnancy or an unstable environment for a growing child.

Planned and unplanned conceptions

An unintended or unplanned pregnancy is not necessarily unwanted. The differences between an unintended conception that later becomes wanted, a conception that is unplanned and remains unwanted, and a planned conception that later becomes unwanted cannot easily be established, and this difficulty continues to affect research in this area. Almost half of all conceptions in England are reportedly unplanned.¹⁰ Being of Irish or Afro-Caribbean ethnic origin, or living in an area with a high deprivation score, is linked to an increased risk of reported unplanned pregnancy.⁵⁶

Special groups

The demand for contraceptive and sexual health services is influenced by culture, religion, race and personal circumstances. Members of ethnic minorities and people with severe physical disability, learning difficulties or suffering from social and family stress may require special provision. Muslim women, for example, may not be willing to see a male nurse or doctor. Unfortunately, there is little collated information on the nature of the specific wishes for these groups nationally, but commissioners should ensure that adequate assessment is carried out locally to identify requirements.

Induced abortion

In England and Wales, the annual number of notifications of legally induced abortions has changed little over the last 10 years, and the overall induced abortion rate for women resident in England and Wales in 2000 was 13.6 induced abortions per 1000 women aged 14–49 years.⁵⁷ The percentage of all conceptions that are terminated by abortion has increased slightly from 19.8% in 1989 to 22.6% in 1999.

Comparison of the rate of legal abortion per 1000 women aged 15–44 in The Netherlands and in England and Wales from 1975 to 1996 shows that The Netherlands rate of abortion has been consistently about half that for England and Wales. In 1996 the abortion rate in The Netherlands for women aged 15–44 was 6.5 per 1000 compared to a rate of 15.6 per 1000 in England and Wales. Analysis of the situation in The Netherlands and Scandinavia suggests that there is considerable scope for reducing the demand for induced abortion in England and Wales through the provision of effective sex education, planned parenthood programmes and related services at primary care trust level.⁵⁸

Age

The total number of known conceptions is calculated by adding together the total number of abortions and of births. Not included are conceptions that lead to spontaneous abortion or miscarriage. The abortion rate for each age group is calculated as a proportion (per 1000) of total women in that age group. Figures for England and Wales (based on population estimates for 2000) show that conception rates remain highest in the 25–29 years age group, but that this group has the second-lowest proportion of conceptions resulting in induced abortion (17.1%). The lowest proportion of conceptions resulting in induced abortions occurs in the 30–34 years age group (14.9%). Women over 40 and under 15 years of age have low conception rates but the highest proportion of pregnancies ending in induced abortion (see Table 3).

Table 3: Pregnancy outcome by age in 1999 in England and Wales.

Age (years)	Conception rates (1999) per 1,000 women	Conception rates (1999) per 1,000 women		Proportion (%) of conceptions ending in induced abortion
		Conceptions leading to maternities	Conceptions terminated by abortion	
All ages (15–44)	71.7	55.5	16.2	22.6
Under 16 (13–15)	8.3	3.9	3.8	52.6
Under 18 (15–17)	45.0	25.7	19.4	43.0
Under 20 (15–19)	62.9	38.6	24.3	38.62
0–24	104.9	74.9	29.9	28.5
25–29	119.2	98.3	20.9	17.5
30–34	94.9	80.9	14.0	14.7
35–39	42.1	33.2	8.9	21.2
40 or over (40–44)	9.1	5.7	3.4	37.0

Source: Office for National Statistics (ONS).^{15,26}

The epidemiology of induced abortion for different age groups varies, and factors that could affect abortion ratios and rates include:⁵⁹

- lack of confidence in or fear of side-effects of methods of oral contraception
- the effect of adverse economic circumstances such as unemployment on people's ability to cope financially with an unplanned pregnancy
- changes in social values and changes in the level of financial support for single parents
- pressures on service providers to reduce variations in the availability of induced abortion services
- changes in service provision caused by financial constraints in the health service.

Marital status and social class

In 2000, the majority (71%) of the total number of induced abortions in England and Wales were carried out on women who were either single, separated, divorced or widowed. The abortion rate in single women was 24.02 per 1000 women of all ages compared to a rate of 7.29 per 1000 women of all ages who were ever married.⁵² A relatively high proportion (33%) of conceptions to married women aged over 40 end in induced abortion, compared to 15% for married women aged 35–39 years and 8% for married women under 20 years of age.

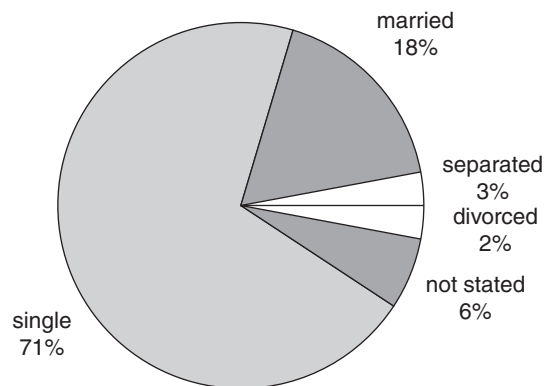


Figure 1: Marital status of women who had abortions in 2000. *Source:* ONS Abortion Statistics 2000.

A study in Liverpool found that high levels of induced abortion and unplanned conceptions among teenagers were associated with high levels of deprivation.⁶⁰ However, there are few statistical data available that relate induced abortion levels to social class.

Infertility

Age

The age at which people seek treatment for fertility problems is related to the age at which they first try to conceive. The mean age for childbearing has been steadily increasing. Between 1990 and 2000 the mean age for first birth rose from 25.5 to 27.1 years.¹⁷ Since the risk of infertility increases with age, it can be anticipated that if this trend continues there will be an increasing number of women coming forward

experiencing difficulties with conception. The median age at which women seek help with their first episode of infertility is 25.5 years, with 16.9% of women with infertility aged over 30, and 5.7% aged over 35.¹¹ Unfortunately, the success rate of many infertility treatments decreases with age.

Marital status and social class

The people most frequently referred to specialist centres for treatment of infertility are married or in long-term relationships. The Human Fertilisation and Embryology Act of 1990 states at section 13.(5) that 'A woman shall not be provided with treatment services unless account has been taken of the welfare of any child who may be born as a result of the treatment (including the need of that child for a father), and of any other child who may be affected by the birth.' Therefore the availability and accessibility of fertility services to single people remain limited.

Research suggests that people in lower socio-economic groups are less likely to seek treatment for infertility.^{11–13}

Exposure to sexually transmitted infections

Exposure to sexually transmitted infection, and in particular the occurrence of pelvic inflammatory disease in women, is associated with the development of future infertility caused by tubal problems.⁶¹

The Government's comprehensive national sexual health and HIV strategy proposes an integrated population-based approach to infertility that includes primary prevention through high-quality sex education and easily accessible contraceptive services as well as adequate prompt treatment of sexually transmitted infections at genito-urinary medicine (GUM) clinics and a programme of screening for chlamydia for targeted groups.³⁰

GUM clinics have a statutory obligation to make quarterly data returns to the medical officers of their respective jurisdictions and therefore provide the most comprehensive source of data on the epidemiology of sexually transmitted infections. Results from the National Surveys of Sexual Attitudes and Lifestyles reported in the *Lancet*⁶² suggest that of those people who had ever had a sexually transmitted infection, 75.6% of men (95% confidence interval 70.9–79.8) and 56.7% of women (95% confidence interval 53.1–60.4) had attended a GUM clinic. This indicates that GUM data provide good indicators of sexual infection in the population, particularly for men.

In the UK in recent years, the number of cases of sexually transmitted infections has increased, particularly among young people. Data show that between 1995 and 2000, uncomplicated gonorrhoea increased by 102% (29% since 1999), genital chlamydia increased by 107% (18% since 1999) and infectious syphilis increased by 145% (57% since 1999).¹⁸ The increases in gonorrhoea and syphilis infections most likely reflect a real increase in prevalence and transmission of the disease. Increases in recorded incidence of chlamydia may also be due to a real increase in prevalence and transmission, but may be due in part to increased awareness and testing as well as the improved sensitivity of tests that are now available. A paper based on results from the National Surveys of Sexual Attitudes and Lifestyles (1999–2001) shows that the prevalence of high-risk sexual behaviours has risen since 1990, so a rise in chlamydia and other sexually transmitted infections would be expected.⁶³

Chlamydia trachomatis is the cause of the most frequently transmitted sexual infection in the UK, and between 10% and 30% of women with chlamydia will develop pelvic inflammatory disease, a causal factor in 50% of cases of female infertility.^{64,65} Approximately 17% of women with pelvic inflammatory disease will become infertile, and of those women who do conceive 10% will have an ectopic pregnancy.⁶⁶

Three out of four women with tubal infertility are seropositive for chlamydia, compared with only one out of four fertile women.⁴⁸

Chlamydia is the dominant cause of pelvic inflammatory disease, and ectopic pregnancy (the leading cause of maternal death in industrialised countries), tubal factor infertility and chronic pelvic pain are important consequences. Resistance to the recommended antibiotics normally used to treat chlamydia has been recorded and is a potential future problem.

Outside London, the highest infection rates are seen in the North West and Trent (although this may simply reflect provision of diagnostic services). Infection is asymptomatic in up to 70% of women and 50% of men, so a large number of cases are never diagnosed.

The National Surveys of Sexual Attitudes and Lifestyles (1999–2001) confirmed that there is a significant burden of undiagnosed chlamydia in the population, and that prevalence is as high in men as in women. Although a high prevalence of chlamydia infection is seen in people belonging to groups considered to be at 'high risk' for all sexually transmitted infections, there are a considerable number of asymptomatic infections found in people who would not generally be perceived as being at risk.^{67–69} More must be done to develop programmes that include men, since chlamydia screening and treatment for men constitute an important infertility prevention strategy for women.⁶²

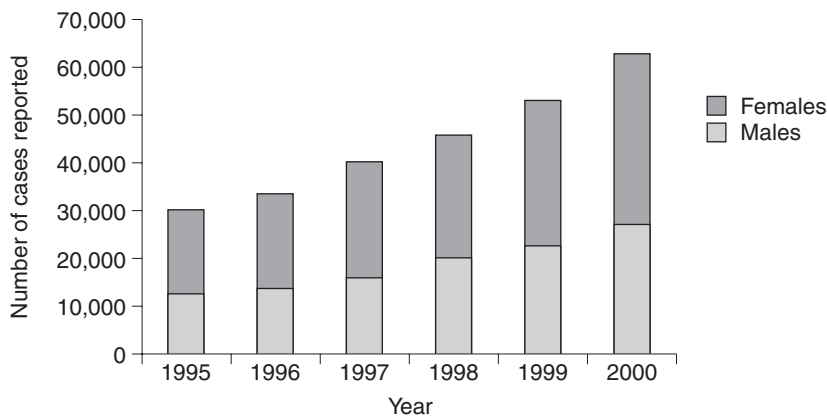


Figure 2: Number of chlamydia cases diagnosed at GUM clinics across England and Wales, 1995–2000.⁷⁰

5 Services available and costs

Contraceptive and related sexual health services

The level of uptake of services in any particular area can be obtained by combining information from Körner records KT31 (the number of women using family planning clinics), general practitioner records of the number of residents currently registered with a general practitioner for contraceptive advice, data from non-NHS providers of contraceptive services in the area, and a survey of clinic attendees to establish the proportion of the latter who are residents of the area.

Trends in the use of contraceptive methods by women aged 16–49 have been monitored since 1986, when questions about contraception were first addressed to all women between these ages through the General Household Survey. Between 1986 and 1998 the proportion of women using some form of contraception ranged from 69% to 73%. Although differences between individual years were statistically significant, overall changes were small and no very clear trends emerge from the data.¹⁹

Over half of women aged 16–49 years report using a non-surgical method of contraception and an estimated 12% have been sterilised.¹⁹ In 2000, about 1.2 million women and 84 000 men attended a family planning clinic in England.⁷¹

Family planning clinics, general practices and specific clinics for young people each provide a different range of services and are accessed by and acceptable to different client groups. Primary care trusts (PCTs) commission all contraceptive services at the primary care level. This freedom should encourage the commissioning of innovative, effective and efficient services based on local client need. In the past, several non-governmental organisations devised innovative service models that could be modified for current use by primary care trusts. The Family Planning Association developed a model for community contraceptive services, which recognised the special needs of ethnic minorities, people with physical and/or mental disabilities, younger women, older women and those experiencing fertility problems. The Brook Advisory Centres produced guidelines for the provision of services for young people, and have successfully developed the ‘enhanced role for nurses’ scheme, which provides training for nurses enabling them to administer oral contraceptives within agreed protocols and without the need for clients to see a doctor.

The level of knowledge of what is available and people’s perceptions of how they will be received if they make contact with the service are important determinants of service use. The sex and relationship education provided in schools is particularly important. A person who has received inadequate education will have greater difficulty learning about and accessing services compared to someone who has received a more comprehensive education.

Special groups

Children in care, those frequently absent or excluded from school and those who are homeless have been identified as priority groups for action to reduce unintended conceptions nationally.³ In 1994, local authorities were looking after 4.5 per 1000 children under 18 years of age. A disproportionate number of these children, many the result of teenage pregnancy, end up as teenage mothers themselves.¹⁷

General practitioner services

The average size of a general practice population in England and Wales is 5200 patients, with an average of 1888 patients per principal general practitioner, but there are large variations around this mean. About one-third of general practices are single-handed. The remainder are in partnerships of varying size and are more likely to be able to provide a wider range of facilities.⁷² Most general practitioners prescribe oral contraceptives, but only a minority provide services for the fitting of intrauterine contraceptive devices (IUCDs) or diaphragms. General practitioners do not generally supply condoms, but they may advise patients to obtain them from family planning clinics or to buy them.⁷³ The fee for service paid to general practitioners who provide contraceptive prescriptions coupled with the Government desire to develop a wide range of PCT-based services, including cytology screening and recall in general practice, has created incentives to shift provision of contraceptive services from clinics to general practice.^{74,75} Compared to clinics, general practitioners tend to offer a more limited variety of methods and be accessed by women who want oral contraceptives, have had at least one child and are spacing their families. In 2000, general practitioners issued about 7.1 million prescriptions for contraceptive pills and prescribed 62 000 IUCDs, 23 000 diaphragms, 874 000 injectable contraceptives, 51 000 spermicides, 5000 implants and 44 000 intra-uterine systems.⁷¹

Women seek contraceptive advice more often than men. Women who consult their general practitioner are more likely to be older and married or in a stable relationship, to have a child or to be spacing their

children, and will probably be prescribed oral contraceptives.⁷⁶ For these women, contraceptive advice can be seen as an extension of postnatal care.

General practitioners are not required to undertake specialist training prior to providing basic contraceptive services, and a survey by the Family Planning Association in 1992 found that one in four general practitioners had received no specific training in the provision of contraceptive services.⁷⁷ Information is lacking on how many doctors and other members of staff at the primary care level are trained to provide adequate contraceptive services or offer psychosexual counselling and what proportion are willing to refer clients for induced abortion.

In 1993, the Faculty of Family Planning and Reproductive Health Care of the Royal College of Obstetricians and Gynaecologists was set up to maintain and develop standards of care and training and ensure that a high quality of practice is maintained by all providers of family planning and reproductive health care. The College offers a range of training packages, many of which are available to and accessed by general practitioners, but none is compulsory for professional advancement.

Family planning clinics

In 1997, there were 1648 family planning clinics in England and 163 in Wales. On average, 9 out of every 100 women aged 14–49 years use these clinics every year.⁷⁸ Far fewer men than women access established contraceptive services, but their numbers are increasing. In 1989–90, there were 32 000 male first contacts with family planning services in England, but by 1999 this had increased to 84 000.^{71,79} Over 66 000 men obtained condoms via family planning clinics in 1999–2000, although many more men and women undoubtedly obtained condoms through retail outlets.

Between 1975 and 2000, the proportion of women of childbearing age using family planning clinics fell from 15.8% to 11.5%. However, this figure hides different patterns of service usage among women of different age groups. Young unmarried women are more likely to use specific sexual health clinics or sessions for young people for contraceptive services. In 1975 very few under-16-year-olds attended, but by 2000 it was estimated that over 8.3% of resident females aged 13–15 attended a family planning clinic. From 1975 to the mid-1980s approximately 15% of women aged 16–19 attended a family planning clinic in any one year, but by 2000 this had risen to 23%.⁷¹ Over the same time period, the proportion of women in the 20–34 years age group attending family planning clinics decreased from 21% to only 12%.

Younger teenagers report that they prefer to use clinics or sessions specifically designed for them because they provide improved confidentiality, a better source of advice, a broader choice of contraceptives and are able to provide more time per client than a family doctor. The location, opening times, atmosphere and image influence the acceptability of clinics to young people.^{20,21} Young single people also believe that 'family planning' services are targeted towards older people who want children. Therefore services calling themselves 'advisory' or 'sexual health' may be more attractive to young people.⁸⁰

There are 18 Brook Advisory Centres nationally, and in 1996 12% of Brook clients were aged under 16, compared to only 4% five years previously. This increase can be attributed to a commitment by Brook to research the needs and offer appropriate, accessible services to young people. Opening times after school, staff training and liaison with schools and youth projects are some of the reasons for Brook's success in this field of work.⁸¹

Older women who are experiencing difficulties finding a suitable contraceptive method or who have menopausal problems are more likely to use family planning or Well Woman clinics as a source of information and advice, rather than their family doctor.

Primary methods of contraception

The popularity of different contraceptive methods has varied over time, although the contraceptive pill, surgical sterilisation and the male condom have remained the three most widely used methods. Table 4 shows how usage of the more common contraceptives has varied between 1975 and 2000.

Table 4: Changes in popularity of primary method of contraception (percentage of attendees at family planning clinics) between 1975 and 2000.

	1975	2000
Oral contraceptive (the pill)	70	43
IUCD	20	7
Condom	6	36
Cap/diaphragm	6	2
Depot injection	N/A	6

Source: NHS Contraceptive Services England 1999–2000 (ONS).

No method of contraception can offer 100% protection from pregnancy. Approximately 86% of women of childbearing age would become pregnant within a year if no method of contraception was used. However, many women do not want to become pregnant but are not using contraceptives or are using methods with relatively high rates of failure. Table 5 shows the number of expected pregnancies per year per 100 users for each method of contraception.

Table 5: The number of expected pregnancies per year per 100 users of each method of contraception.

Method	Number of expected pregnancies per year per 100 users*
Oral	3.00
IUCD (copper)	0.40
IUCD (progesterone – T)	2.00
Diaphragm	18.00
Male condom	12.00
Vasectomy	0.04
Tubal ligation	0.17
Withdrawal	20.00
Implant	0.23
None	85.00

* Calculated on average rather than perfect use of the contraceptive method.

Source: *Bandolier* website.^{82,83}

There has been a general trend towards the increased use of condoms. Between 1986 and 1995, the proportion of women whose partners used the condom increased from 13% to 18%. There was no further change to this figure between 1995 and the General Household Survey carried out in 1998.²²

Although 75% of women identified the simultaneous need to protect themselves against sexually transmitted diseases and pregnancy, only 2% were simultaneously using oral contraceptives and condoms.⁸⁴

The reliance by women upon methods such as the IUCD or diaphragm has decreased. IUCDs were used by over 20% of family planning clinic attendees in the late 1970s, but by 2000 they were the primary method for only 7% of those attending. Overall use of the diaphragm rose from 6% in 1975 to 10% in the mid-1980s, but by 2001 had fallen to 1% of attenders.⁷¹

The relatively new progesterone-based implant 'Norplant' was withdrawn in the UK in 1999, and although another similar brand is available, this method remains unpopular.

Depo Provera and other progesterone-based injectable contraceptives have increased slightly in popularity and are used by about 6% of women attending family planning clinics.

Emergency contraception (also known as postcoital contraception) is a safe and highly effective method of preventing pregnancy after unprotected intercourse or a contraceptive failure such as condom breakage or slippage.^{85,86} The General Household Survey first included questions on emergency (postcoital) contraception in 1993. In 1998, 10% of women of childbearing age who were not sterilised and were therefore at risk of pregnancy had used emergency contraception at least once in the two years prior to interview, representing an increase of 3% since 1993. Emergency contraception was most likely to have been used in the past two years by women under 30 years of age, single women (who were twice as likely as other women to have used emergency contraception), women with no children (14%), women with higher levels of educational attainment (12% of those with GCE 'A' levels or above had used this method, compared with 6% of those with no educational qualifications), and women who said they definitely or probably would have (more) children (15%, compared with 6% of those who said they definitely or probably would not). There were no significant differences with regard to the use of emergency contraception between women in manual and non-manual socio-economic situations.

Approximately 800 000 prescriptions for emergency contraception were written in 2000–01. About two-thirds of these were prescribed by general practitioners and a third by family planning clinics. A small minority (about 2%) of women requiring emergency contraception obtained prescriptions from hospital Accident and Emergency departments.⁷¹ A pilot project was started in January 2000 in the Manchester area, and emergency contraception was dispensed free of charge by trained pharmacists following an agreed protocol (patient group direction). In April 2000, updated recommendations for clinical practice in emergency contraception were issued by the Faculty of Family Planning and Reproductive Health Care of the Royal College of Obstetricians and Gynaecologists.⁸⁷ In January 2001 the progestogen-only emergency contraceptive levonorgestrel was reclassified from a prescription-only medicine to a pharmacy medicine and made available for women aged 16 years or over to buy over the counter at a cost of approximately £20.

Age

The data in Table 6, based on women who attend family planning clinics, show the popularity of different contraceptive methods by age group.

The condom is the most popular method for teenage women, particularly those under the age of 16, whilst the pill is more popular among 20- to 30-year-old women.⁷¹

Women in younger age groups make less use of contraception and are less likely to use contraception in the initial part of a sexual relationship.⁸⁸ First intercourse has been characterised by more planning in recent years and contraception is more likely to be used by either partner when first intercourse is planned.

Between 1989 and 1993, the percentage of women using the pill increased from 22% to 25%, since when it has remained at roughly the same level. However, the proportion of young women using this method is increasing (*see* Figure 3).

Table 6: Use of different methods of contraception by age group according to first contact with women attending family planning clinics in England in 2000.

Age group (years)	Under 16	16–19	20–24	25–34	35 and over	All ages
Oral	39%	53%	53%	45%	31%	46%
IUCD	0%	1%	3%	10%	18%	7%
Male condom	50%	31%	26%	28%	33%	31%
Female condom	Less than 1% for all age groups					
Cap/diaphragm	0%	0%	0%	2%	4%	1%
Injection	3%	7%	9%	9%	7%	8%
Female sterilisation	Less than 1% for all age groups					
Other methods	7%	7%	6%	5%	4%	6%

Source: NHS contraceptive services in England, 1999–2000 (ONS).

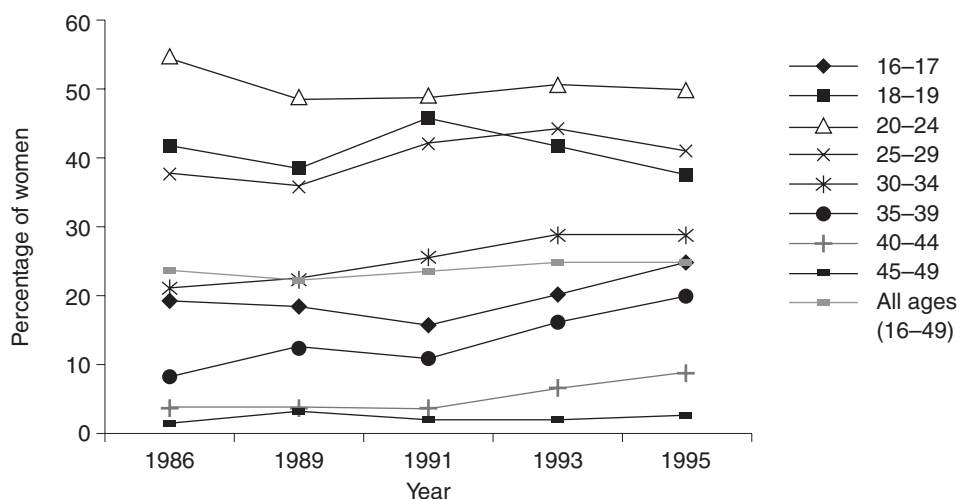


Figure 3: Trends in the proportion of women using the pill as a usual method of contraception by age group, 1986–98. Source: General Household Survey, 1998.

The percentage of women aged 35–39 using the pill increased between 1986 and 1995, but this trend was not continued in 1998. Between 1995 and 1998 there was a statistically significant decrease from 29% to 24% in the proportion of women aged 30–34 reporting use of the pill as their usual form of contraception. In other age groups none of the changes between 1995 and 1998 was statistically significant.²²

Between 1986 and 1998 there was a steady increase in the use of condoms among women under 30 years of age, and a decrease in use among women aged 45–49. In the General Household Survey, women were asked about their use of condoms over the two-year period prior to interview. Among current users of a contraceptive method, 16% reported that they had used condoms as their main method throughout the previous two years, 7% had changed to the condom and were currently using it, and 5% had switched from the condom to some other method. Women aged 25–39 were more likely than those in other age groups to have used the condom as their main method throughout the previous two years. Younger contraceptive users were much more likely than older women to have used the condom at some stage over the past two years.²²

Among all women aged 16–49, the prevalence of sterilisation as a method of contraception has changed little since 1986. The proportion of women between the ages of 16 and 49 who had been sterilised or relied on their partner's vasectomy to prevent pregnancy was 21% in 1998. However, this broadly stable picture conceals some important variation and opposing trends in different age groups. The use of sterilisation, of self or partner, has declined amongst women aged 30–44, particularly among women in their thirties, and increased among women in their late forties. There are 45% of women in their forties compared to 7% of women aged 25–29 years who are sterilised or reliant on their partner's vasectomy.^{22,89}

Marital status

There was no statistically significant difference between the proportion of single women and those who were married or cohabiting who had used condoms throughout the previous two years. Single women were approximately three times more likely than their married or cohabiting counterparts to have changed to the condom from some other method (16% compared with 6%), and they were also twice as likely to have switched from the condom to some other method during the same time period.²²

Cost of contraception services

The average cost to the NHS of first attendance at a family planning clinic is £36, and £29 for a follow-up visit.²³

There are no estimates available for the numbers of people choosing to use the independent sector for contraceptive advice and supplies. Costs of services in the independent sector vary widely. In 1998 an initial visit for a prescription for the contraceptive pill at a leading independent reproductive health care service cost from £35. Follow-up visits cost from £20. Female sterilisation cost between £395 and £475, while male sterilisation cost between £150–£170 (local anaesthetic) and £230 (general anaesthetic). Fitting of an IUCD, including screening, fitting and follow-up visit, cost £110. Emergency contraception cost £20.^{90,91}

Induced abortion services

Induced abortion in the general population accounts for approximately 20% of known conceptions. This percentage varies with age, marital status and geographical location.²⁶ Table 7 shows the geographical variation in the numbers and rates of induced abortions performed as well as the different numbers of abortions performed by the NHS, NHS agencies and the independent sector.

Induced abortion rates are at least twice the national average in inner-city areas, so for example, a six-doctor practice in a deprived inner-city area might have to make 50–75 referrals for induced abortion a year, while the number might be less than 20 in a practice of similar size in a prosperous small town.⁹³

Between 1992 and 1995 the numbers and rates of conceptions and the proportion of these terminated by induced abortions was steady. In 1996 there was an increase in both the number of conceptions and the rate of conceptions per 1000 women of childbearing age. The abortion rate per 1000 women of childbearing age also increased. This change has been attributed to the 'pill scare' of 1995, which followed a warning from the Committee on Safety of Medicines about certain types of new oral contraceptives which studies had shown might be linked to a slightly increased risk of thrombo-embolic disease.¹⁰ Between 1995 and 1996, the abortion rate among women aged 20–24 increased from 25.7 to 28.5 per 1000 women in this age group, and this was the largest single-year increase observed for any age group over the last 10 years. Abortion rates in all age groups have continued to increase slightly since 1996.²⁶ Some women and in particular young women seem to have lost confidence in, and have stopped using, oral contraception.

Table 7: Numbers of abortions provided by each sector in each region (England and Wales).

Region	Rates per 1,000 women aged 15–44 years*	NHS	NHS agency	Independent sector	Total
London	28.97	15,829	15,504	18,138	49,471
Northern and Yorkshire	12.84	12,834	1,170	2,399	16,403
Trent	12.97	10,283	1,271	1,820	13,374
North West	14.74	10,118	5,101	4,600	19,819
Eastern	13.18	9,128	2,054	3,255	14,437
South West	12.19	7,823	1,357	2,352	11,532
South East	14.05	7,543	10,080	7,209	24,832
Wales	13.15	4,128	2,202	1,071	7,401
West Midlands	16.32	2,587	10,880	3,942	17,409
Total	16.18	80,273	49,619	44,786	174,678

Source: *Health Statistics Quarterly*, Summer 2001, ONS.

*ONS Abortion Statistics 2000.

In 2000, 88% of terminations were undertaken before 13 weeks' gestation.⁹² The proportion of induced abortions carried out before 9 weeks' gestation increased from 34% in 1985 to 43% in 1999, and almost 90% of abortions are carried out within the first 12 weeks of pregnancy. Just 1.5% of all abortions take place after 20 weeks' gestation. In the private sector (non-NHS), most induced abortions (60%) take place before 9 weeks' gestation.

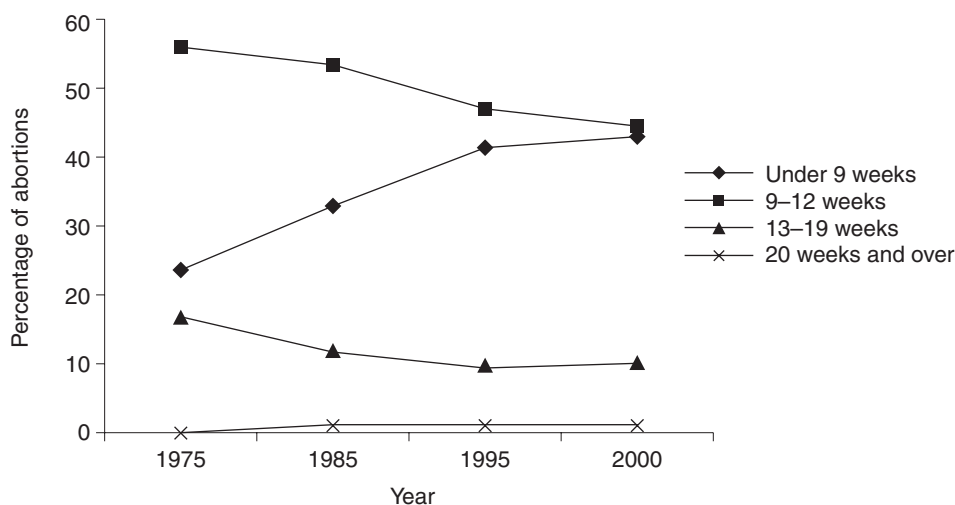


Figure 4: Trends in proportion to total induced abortions carried out according to gestation, 1975–2000. Source: ONS Abortion Statistics 1995–2000.

Serious complications of induced abortion are rare. Early termination of pregnancy (under 13 weeks' gestation) results in 2.12 complications per 1000 abortions, compared to 4.59 per 1000 abortions at 13–19 weeks and 9.78 per 1000 abortions if the gestation is over 20 weeks. There are marked differences in the relative risk of complications associated with methods used in the first compared to the second trimester.

Young women are more likely to experience later terminations and therefore suffer a disproportionate increase in the risk of complications.^{10,93}

Some of the possible reasons for late abortions include:

- inability to get a hospital appointment earlier in the pregnancy
- the woman may not have realised that she was pregnant (this is more common with young women and women approaching the menopause, both of whom may have infrequent periods)
- very young women may feel unable to cope and hide the pregnancy
- sometimes the pregnancy was originally wanted but the woman's circumstances changed (perhaps because she was abandoned by her partner or found that her parents were unwilling to provide her with a home or any other support)
- fetal abnormality, as many abnormalities cannot be diagnosed early in pregnancy.

The proportion of induced abortions performed before and after 13 weeks varies by region and seems to be related to the level of NHS or NHS agency provision, which ranges from over 85% of local demand in some areas to 63% in others.¹⁶

Induced abortion has been described as the only acute health service that is not automatically available through the NHS.⁹⁴ This is because although on average throughout England and Wales the NHS pays for approximately three-quarters (74.9%) of abortions, there are significant differences between regions. In some areas the NHS pays for more than 90% of abortions, while in others it pays for less than 50%.⁹⁵ A survey by the Abortion Law Reform Association in 1996 found factors such as the willingness of key consultants to carry out induced abortions, and that some general practitioners were applying informal means-testing procedures, and were effectively denying some women access to an NHS-funded induced abortion.⁹⁶

The two main methods of induced abortion are vacuum aspiration and medical abortion. Vacuum aspiration is the most popular surgical method, accounting for 85.0% of all terminations in 2000. Some women prefer a surgical method because it is quicker and only requires one visit to hospital, while others perceive medical methods to be more natural and less invasive.⁹⁷ Vacuum aspiration is most suitable for use between the eighth and twelfth weeks of pregnancy and can be carried out under a general or local anaesthetic. Medical abortion involves the use of abortifacient drugs. The most commonly used drug is the antiprogestone mifepristone, also known as Mifegyne or RU486, which can be used with or without a prostaglandin pessary. Mifegyne was used to terminate 11.1% of all abortions carried out in 2000.⁵²

A study to assess the impact of the introduction of new medical methods of therapeutic abortion in Scotland found that the numbers of women choosing medical abortion increased annually. Women who chose medical abortion had more years of full-time education and were less likely to smoke, suggesting that, as in France, women who choose medical abortion tend to be of a higher socio-economic status. They were also less likely to receive antibiotics for suspected endometritis than women who chose the surgical method.⁹⁷

Age

Women at both ends of the childbearing age spectrum have the highest proportion of conceptions that are terminated (*see* Table 3). Young women sometimes fail to access an induced abortion because they are not always aware of their pregnancy or are too frightened of the consequences to make their pregnancy known until it is too late.⁸⁸ In 1999, among teenagers aged 13–15 years, 52.6% of conceptions were terminated by abortion and for those aged 15–19, 38.6% of conceptions were terminated by abortion. Although the number of conceptions is less for older women, aged 40–44, induced abortion accounted for 37.0% of all conceptions in this age group.¹⁶ However, because of the lower fertility and increased contraceptive efficacy of older women, the actual number of induced abortions per year for women aged 40 and over is

small.^{10,56} In 2000, there were 5794 induced abortions for women aged 40–44 years and 459 for women aged 45 and over.²⁶

Marital status

The majority of induced abortions are the result of extramarital conceptions. About 7.5% of conceptions within marriage will result in an induced abortion, and this proportion is stable nationally.

Cost of induced abortion services

The average cost to the NHS of a termination of pregnancy carried out as a day case is £393 for a surgical procedure and £278 for a medical procedure. Costs rise to £555 for surgical and £478 for medical abortions carried out as elective inpatient procedures, and £614 for surgical and £528 for medical abortions carried out as non-elective procedures.²³

Induced abortions are a major source of income for the independent sector, with an estimated turnover of £30 million in 1996. The specialist charitable organisations British Pregnancy Advisory Services (BPAS) and Marie Stopes International provide most non-NHS (privately funded) abortions in England and Wales. These organisations also provide abortions for the NHS (agency abortions).⁹⁸

The total cost of an induced abortion at BPAS in 2002 (including assessment, counselling, medical examination, contraceptive advice and post-operative care) is between £315 and £725, depending mainly on gestation. The cost of an early medical abortion up to and including 14 weeks' gestation is £265. Abortions carried out from 15–19 weeks' gestation cost £425 and from 20–24 weeks cost £675. A pregnancy test costs £10. Induced abortions at London units are subject to a £50 supplement. At Marie Stopes International an initial consultation can be booked online and costs £55. An early (up to 9 weeks' gestation) induced medical abortion costs £375 and an early surgical abortion (up to 12 weeks' gestation) costs £345.

The use of private health care facilities is influenced not only by perceptions of the quality of service offered or reduced risk of a breach of confidentiality, but also by access to work-related medical insurance schemes, the ability to afford private medical insurance and personal disposable income. There is wide variation in the proportion of the population in each region covered by private medical insurance or that has access to a non-insured medical expenses scheme, ranging from 20% in the London Metropolitan area to a mere 4% of the population in the North of England in 1996.⁹⁸

A higher proportion of abortions is carried out in the private sector compared to other forms of elective surgery, and this may reflect the lack of a comprehensive, equitable abortion service provided by the NHS. In 1996 a total of 31 000 NHS-funded abortions (19% of total abortions for residents of England and Wales) were performed by the private sector. In stark contrast, an analysis of the distribution of elective surgery (excluding abortion) by funding source and place of treatment (private or NHS hospital) reveals that only 13.4% of all elective inpatient and day surgery nationally, excluding induced abortion, was privately funded (based on 1992–93 data). This difference cannot be accounted for by growth in private medical insurance, which is reported to have remained stagnant throughout the 1990s.⁹⁸

The Birth Control Trust developed a model of care which suggested that, to provide an equitable service, at least 75% of induced abortions in any area should be provided by the NHS, and this recommendation was reinforced in the NHS Plan.^{99,74} The ability to offer patients a realistic choice to opt for an NHS abortion should be a recognised objective of service commissioners.¹⁰⁰ In 1995 the Birth Control Trust published guidance for general practitioners outlining the kinds of services that are best able to meet the needs of women.¹⁰¹

Fertility services

Approximately 90% of infertile couples who seek help contact their general practitioner in the first instance. Preliminary investigations performed in the primary care setting result in a broad diagnosis in about 70% of patients.¹²⁹

The NHS Executive funded the Royal College of Obstetricians and Gynaecologists to develop guidelines on the investigation and management of infertile couples in primary, secondary and tertiary care. There is no requirement for clinicians to follow these guidelines. However, all parts of the NHS in England and Wales are expected to implement the National Institute for Clinical Excellence clinical guidelines on infertility in full.^{102–104}

As of 31 August 2000 there were 116 clinics licensed to carry out various activities as shown in Table 8.

Table 8: Number of Human Fertilisation and Embryology Authority Licensed Clinics.

IVF and donor insemination	75
IVF only	0
Donor insemination only	29
Storage of sperm only	9
Research licences only	3
Total	116

These centres require the services of expert staff, technology and high levels of staff training, and therefore it is probably a function that is best offered on a regional or cross-regional basis.

During the period 1998–99 there were 27 151 patients who received IVF treatment. A total of 35 363 cycles were started, including frozen embryo replacements, of which 30 520 reached embryo transfer. There were 7762 clinical pregnancies (21.9% of treatments started), which led to 6450 live birth events (18.2% of treatments started). The number of conventional IVF cycles (those not involving micromanipulation) has decreased for the second consecutive year and stands at 86.6% of its peak in 1996–97. Conversely, the number of cycles involving micromanipulation continues to increase, although at a much lower rate than previously (14.4% rise on the 1997–98 figure, compared to 59.8% rise on the 1996–97 figure). The increased use and success of micromanipulation have been behind the rise in the total IVF live birth rate seen since 1993–94, although this now appears to have levelled off. Success with micromanipulation seems to be higher than with IVF, although this may not be the case when corrected for individual female factors.¹⁰⁵

Approximately a quarter of all infertile couples will present to secondary care with sperm defects or disorders.⁹⁹ As more techniques to address male infertility, such as intracytoplasmic sperm injection (direct injection of a single sperm into the egg), percutaneous epididymal sperm aspiration (recovery of sperm from the epididymis) and testicular sperm aspiration, are developed the demand for donor sperm is likely to decrease. Advances in technology mean that intracytoplasmic sperm injection (ICSI) could benefit up to 13% of couples with male sperm problems,⁹⁹ but many couples cannot afford or do not want to accept ICSI.¹⁰⁶

Cost of fertility services

In the UK only about 25% of IVF treatments are funded by the NHS, and 80% of all licensed treatments that currently take place (IVF, ICSI or DI) take place in the private sector. In the past each health authority

(now PCT) decided what funding they would allocate to the treatment of infertility and the types of treatment they would offer, and 25% of health authorities did not fund IVF at all. Many clinics that operate under the NHS and offer treatment free of charge to patients who meet criteria relating to the likelihood of achieving pregnancy also offer private treatment for those who can pay. Criteria for eligibility for both private as well as NHS treatment vary, and many clinics do not offer treatment to single women or unmarried couples as a matter of policy.

The availability and cost of fertility treatment vary considerably. Donor insemination treatment costs around £150 and IVF from about £2000 per treatment cycle.¹⁰⁷ The average number of treatment cycles per patient was 3 for donor insemination and 1.37 for IVF in 1996.

6 Effectiveness of services and interventions

The procedures, approaches and recommendations suggested here have been evaluated using the following scoring system.

Size of effect

- | | |
|---|--|
| A | The procedure/service has a strong beneficial effect |
| B | The procedure/service has a moderate beneficial effect |
| C | The procedure/service has no measurable effect |
| D | The harms of the procedure/service outweigh its benefits |

Quality of evidence

- | | |
|------|--|
| I-1 | Evidence from several consistent or one large randomised controlled trial |
| I-2 | Evidence obtained from at least one properly designed randomised controlled trial |
| II-1 | Evidence obtained from well-designed controlled trials without randomisation, or well-designed cohort or case-control analytical studies |
| II-2 | Evidence obtained from multiple time series with or without the intervention. Dramatic results in uncontrolled experiments (e.g. the results of penicillin treatment in the 1940s) could also be regarded as this type of evidence |
| III | Opinions of respected authorities, based on clinical experience, descriptive studies, or reports of expert committees |
| IV | Evidence inadequate and conflicting |
-

Prevention of unintended pregnancy

Many young people lack the knowledge and social skills to use contraception effectively, which puts them at greater risk of unintended pregnancy. Effective sex and relationship education for young people has the power to increase individual control over fertility by ensuring that, should they wish to do so, all sexually mature individuals know how to obtain and use contraception. There is considerable debate about what should be taught and the effectiveness of sexual health interventions. The design of evaluations of sexual health interventions needs to be improved so that reliable evidence of the effectiveness of different approaches to promoting young people's sexual health may be generated. In a review of 270 papers reporting sexual health interventions in the developed world since 1982, 73 reports of evaluations of sexual health interventions examining the effectiveness of these interventions in changing knowledge, attitudes or behavioural outcomes were identified, of which 65 were separate outcome evaluations. Only 12 (18%) of

the 65 outcome evaluations were judged to be methodologically sound. Only two of the sound evaluations recorded interventions that were effective in showing an impact on young people's sexual behaviour, and one study actually found that abstinence education encouraged sexual experimentation¹⁰⁸ (level of evidence: A II-1). Despite this lack of positive evidence, there is no evidence that the provision of practical information and contraception leads to increased risk-taking behaviour.¹⁰⁹

The effectiveness of family planning advice given by general practitioners has not been established, and general practitioners and practice nurses in primary care are not required to have specialist training in the provision of contraceptive counselling or education. However, this is not necessarily a problem, since most women using general practitioner services are older and are more likely to have used contraception before and therefore have less need for explanations and advice.

Nurses working in young people's services have more time per consultation and are more likely to have specialist training in communicating with young people.

Cost-effectiveness of contraceptive services

It has been shown that contraceptive services are financially and socially beneficial to an extent which far outweighs their cost. It is cheaper to provide contraceptive services than induced abortion services and the maintenance of children resulting from unwanted pregnancy. It has been calculated that the total expenditure on contraceptive services represents approximately 0.5% of total public expenditure on health care in the UK and only 3% of total public expenditure on family health services. The cost-benefit ratio of contraception is estimated to be 1:14. Benefits are calculated on the assumption that if contraceptive services were not publicly provided, no method of contraception would be used. On this basis it was estimated that the total direct cost to the NHS averted through the use of contraception services amounted to over £2.5 billion in 1991.⁸

Costs of general practitioner services can only be calculated from data pertaining to an item-for-service fee and from prescription records, and these are incomplete because they do not include provision for consumables and building overheads. No estimates of the number of women who attend both family planning clinics and general practice each year have been made.⁸

As both general practitioners and family planning clinics increasingly regard contraceptive services as one part of their comprehensive sexual health service, the wider benefits of contraception in the promotion of sexual health need to be considered in future analyses of the cost-effectiveness of services.

Contraceptive methods

The effectiveness of contraceptive methods must be balanced against their side-effects and the potential costs that result from contraceptive failure, including costs of induced abortion and pregnancy. Contraceptive use prevents maternal death when compared to no method, and the use of oral contraceptives and barrier methods may avert future deaths by protecting against some cancers and infections (level of evidence: B III). When morbidity and side-effects requiring hospitalisation are considered, IUCDs, oral contraceptives and vasectomy offer health benefits that strongly outweigh the risks associated with their use (level of evidence: A II-1).¹¹⁰

A large number of epidemiological studies have investigated the risks to users of combined oral contraceptives. In 1995 the Committee on the Safety of Medicines issued a national warning, based on the findings from large case-controlled studies, that women who used third-generation oral contraceptives containing gestodene or desogestrel were at increased risk of venous thrombo-embolism compared with women who used contraceptives containing levonorgestrel^{111,112} (level of evidence: D I-1). A 1997 WHO

Scientific Group Meeting examined the evidence relating to the risks to women of myocardial infarction, ischaemic and haemorrhagic stroke, and venous thrombotic disease.¹¹³ It concluded that any cardiovascular disease incidence or mortality attributable to oral contraceptives is very small if the users do not smoke and do not have other cardiovascular risk factors. However, the already elevated risks of myocardial infarction and stroke among women who smoke or who have high blood pressure are further increased if such women use combined oral contraceptives and, under these circumstances, combined oral contraceptive preparations containing desogestrel and gestodene possibly carry a slightly increased risk of venous thrombo-embolism.

The Cancer and Steroid Hormone Study (CASH) reported that current or former use of oral contraceptives is associated with a slightly increased risk of breast cancer at a younger age – a time when the disease is relatively rare – but with a decrease in likelihood among older women in whom the disease is more common. The use of oral contraception reduces women's risks of ovarian and endometrial cancer. This benefit occurs soon after starting pill use, becomes stronger with duration of use, and persists for many years after use is discontinued.¹¹⁴ Barrier methods reduce the chance of developing cancer of the cervix associated with infection with human papilloma virus (HPV).¹¹⁵ Barrier, spermicidal and withdrawal methods are the least effective choices of contraception for women solely concerned with preventing pregnancy (level of evidence: B II-2).

Previous studies of IUCDs have suggested a possible link with tubal infertility. A new study compared women with primary infertility who had tubal occlusion, women with primary infertility who did not have tubal occlusion (infertile controls) and primigravid women (pregnant controls). Information was collected on the women's past use of contraceptives, including copper IUCDs, previous sexual relationships and history of genital tract infections. Compared with infertile women and primigravid women, the relative risk of prior use of the IUCD was similar (1.0 and 0.9, respectively). Tubal infertility was not associated with the duration of IUCD use, the reason for the removal of the IUCD, or the presence or absence of gynaecological problems related to its use. The presence of antibodies to chlamydia was associated with infertility¹¹⁶ (level of evidence: B II-1). Adequate screening and treatment of sexually transmitted infections, particularly for chlamydia, prior to IUCD insertion reduces the risk of tubal damage and subsequent infertility.

The levonorgestrel intrauterine device (marketed as Mirena) has been developed by Leiras Pharmaceuticals, Turku, Finland and has been available in the UK since May 1996. It is a systemic hormonal contraceptive that releases levonorgestrel 20 micrograms every 24 hours. The device provides fertility control, complete reversibility and convenience, and has a high level of tolerability (level of evidence: A III). It has been shown to reduce menstrual bleeding (level of evidence: A II-1) and therefore may be a particularly useful contraceptive method for women with excessive menstrual bleeding, and has been recommended as an alternative to hysterectomy for fertile women suffering from menorrhagia. An open randomised multi-centre study of women scheduled to undergo hysterectomy for the treatment of excessive menstrual bleeding found that 64% (95% confidence interval: 44–81) of women treated with the levonorgestrel intrauterine device decided to cancel their hysterectomy¹¹⁷ (level of evidence: A I-2). The cost of the device is currently around £100, which is a fraction of the cost of a hysterectomy, but is 10 times the cost of a copper IUCD. It is therefore a less cost-effective method of contraception compared to the copper IUCD for women without excessive menstrual bleeding.

Induced abortion

Induced abortion is generally less traumatic psychologically and physically than an unwanted full-term pregnancy. The risks of complications such as serious bleeding and infection are minimal if the procedure is performed during the earlier stages of gestation. Complications are related to the method used, which in

turn is dependent to some extent on the gestational age of the fetus¹¹⁸ (level of evidence: A III). An efficient prompt referral system from general practitioner to gynaecologist will help to ensure that women seeking an induced abortion have the lowest possible risk of complications.

Medical abortion

In July 1991, the antiprogestin mifepristone (RU 486) was granted a licence in the UK for the purpose of inducing a medical abortion in the first nine weeks of pregnancy. In combination with a suitable prostaglandin, it has been shown to be an effective and safe alternative to vacuum aspiration¹¹⁹ (level of evidence: A I). It is most suitable for the first nine weeks of amenorrhoea, but can also be used in the later stages of pregnancy to facilitate the abortion process, reducing both physical and emotional trauma.¹²⁰

Administration of 200 mg oral mifepristone is as effective as 600 mg when each is followed by prostaglandin. Sequential and single-dose regimens have comparable efficacy⁹⁹ (level of evidence: A I-2). Methotrexate in combination with misoprostol is more effective than misoprostol alone (level of evidence: A I-2). Misoprostol is more effective when given vaginally than when taken orally. Administration of 800 µg misoprostol 7 days after methotrexate is more effective than the same dose given 3 days after methotrexate (level of evidence: A I).

Complications and short-term psychiatric morbidity associated with medical abortion are similar to those observed in surgical abortion.¹²¹ Medical abortion transfers the workload from medical to nursing staff and, while technically simpler, is logistically more complex than surgical methods. It is a longer process with prolonged bleeding, occasional haemorrhage, higher failure rate, lack of immediate confirmation of success for some patients, and the inconvenience of several visits.⁹⁹ No rigorous economic evaluation of the use of medical abortions has taken place.

Fertility treatments

Many couples who experience infertility will eventually conceive without treatment, but despite technological improvements, the outcome for couples who experience infertility for more than three years remains poor. The relatively low level of success of many treatments suggests that attention to infertility prevention is therefore more effective. It has been estimated that the cost of diagnosing and managing genital chlamydia and its complications in the UK would be at least £50 million a year.⁶⁸ Yet the Chief Medical Officer's Expert Advisory Group on chlamydia concluded that this infection represents such a big threat to sexual health that there is sufficient evidence to indicate that its effective management would result in considerable health benefits.⁶⁶

Controlled trials have shown that some previously standard treatments for infertility, such as hormonal suppression of endometriosis and clomiphene treatment of women for unexplained infertility of short duration, are ineffective.¹²²⁻¹²⁴ The greatest success in terms of producing live babies has been achieved in the treatment of ovulatory disorders. Tubal problems, even with surgical intervention, continue to have a poor outcome.

The use of clinical guidelines for investigation of a couple presenting in general practice with infertility will produce a more uniform approach to the management of infertility and result in an increase in the proportion of referrals at an appropriate time for treatment¹²⁵ (level of evidence: B II-1). To ensure the most effective use of resources, accurate assessment and prompt referral for treatment are needed for women over 35 years of age who have been attempting conception for more than a year.

The Human Fertilisation and Embryology Authority (HFEA), set up in the UK in 1991, ensures that all UK treatment clinics offering *in-vitro* fertilisation (IVF) or donor insemination (DI), or that store eggs, sperm or embryos, conform to high medical and professional standards and are inspected regularly. The

HFEA produces a code of practice that provides clinics with guidelines about the proper conduct of licensed activities. The HFEA also keeps a formal register containing information about donors, treatments and children born from those treatments.

In-vitro fertilisation (IVF), as well as being costly financially, is associated with considerable emotional and some physical risk. IVF involves the collection of eggs and sperm that are mixed outside the body. The pregnancy success rate is improved if women take drugs to stimulate the ovaries to produce several eggs during one cycle. The main risk associated with this is ovarian hyperstimulation (which occurs in 2% of women). The majority of these women have a mild or moderate form of over-response to the drugs, and complain of pain and mild abdominal swelling. In some cases cysts may appear on the ovaries and fluid may collect in the abdominal cavity, causing discomfort. In about 1–2% of cases the ovarian hyperstimulation is severe and the ovaries are very swollen. These complications require urgent hospital admission to restore the fluid balance and monitor progress.

Returning several fertilised eggs to the uterus increases the chance of pregnancy, but increases the risk of multiple pregnancy that in turn increases the risks to the woman's health during pregnancy and may lead to increased risk of premature birth, low birth weight, disability and neonatal death for the babies. Multiple births are also associated with social and financial costs for parents.^{126–128} In August 2001 the Human Fertilisation and Embryology Authority announced its decision to reduce the number of embryos that may be transferred in a single IVF treatment cycle from three to two.

The average success rate for IVF is about 17% per treatment cycle, and slightly less (about 12%) for frozen embryo transfer. The chances of success depend on individual circumstances, but decrease with the woman's age. By comparison, the average monthly chance of conceiving for a fertile couple having regular intercourse is 20–25%.

When male-factor defects are the cause of infertility, artificial insemination can be recommended. At present, women under 30 achieve a live birth rate of 10–12% per donor insemination treatment cycle, but this begins to decrease after that age. Women aged 35–39 have a 9% chance of a live birth, and women over 40 have only a 3–4% chance of successful pregnancy for each donor insemination cycle. During the period 1998–99, 4338 patients received treatment involving donor insemination or gamete intrafallopian transport using donated gametes. A total of 11 035 cycles were started, which led to 1332 clinical pregnancies (12.1%) and 1087 live births (9.9%). The number of donor insemination cycles carried out annually has dropped by 57% since the 1992–93 reporting period (from 25 623 to 11 035).¹⁰⁵ Donor insemination is relatively simple and inexpensive, and when provided over 12 cycles can offer about a 50% chance of conception.⁹⁹ Therefore donor insemination should remain an integral part of the fertility services. There will also be a small demand for this service from couples where the male partner is HIV-positive and from women without male partners who wish to conceive.

Cost-effectiveness of services is very difficult to estimate, as prices charged do not provide an accurate picture of resource use. A national estimate attributed one-quarter of the costs of fertility services to diagnostic procedures and three-quarters to treatments. As yet there is no existing model of care on which to base exact costing. Cross-subsidisation of services, knock-on antenatal costs and the increased need for neonatal care would all need to be considered for a complete economic evaluation of the service.¹²⁹

7 Models of care/recommendations

The ideal model of service provision includes an adequate range of different but complementary services designed to meet the contraceptive, abortion, fertility and other sexual health needs of the local

population. Equity of access to a full range of services should be the central aim of local models of service provision. Resources should be targeted at those groups or areas within populations that are likely to have the greatest need. It is known that communities most at risk of ill-health still tend to experience the least satisfactory access to services – the so-called ‘inverse care law’.^{130,131} Reasons for differences in uptake of contraception, abortion and fertility services between socio-economic groups and areas of high deprivation should be identified and addressed. Research into the causes or factors contributing to inequalities should be commissioned to inform local Health Improvement Programmes (or equivalent).

The views of service users and providers should be continually sought to evaluate the quality and appropriateness of the current services or when a new or reformed service has been introduced.²⁹ For example, the Sandyford project in Glasgow is based on a more social model of care and was set up not only to modernise health services but also to tackle the wider determinants in health that affect quality of life. Users’ views were an integral part of this project review, and were used to recommend how the project should progress in the future.¹³²

Sex and relationship education

The promotion of an informed and positive approach to sexual and reproductive health requires a holistic approach to health and health care provision. Effective education for young people, both boys and girls, is a key component of strategies to increase the proportion of pregnancies that are planned, while reducing the rate of sexually transmitted infections, teenage pregnancies and the need for abortion. The development of partnerships between young people, parents, health and education professionals and other agencies is central to this model.¹³³

The promotion of sexual and reproductive health for young people must remain a key factor in all school and other settings, such as young offender institutions and children in care. Local co-operation and co-ordination between health and education professionals is essential to encourage mutual understanding and optimise the available experience, expertise and resources. A partnership approach that involves pupils, parents, teachers, headteachers, governors and relevant outside agencies in the planning, development and evaluation of school and other institutional sexual health policies is needed.

Given that many feel the provision of sex and relationship education is primarily a parental responsibility, education needs to be targeted at a wider audience, not just schools and colleges. Embarrassment and a lack of knowledge leave many parents unable to tackle the subject confidently.

It is recommended that:

- education programmes be developed to help parents provide sex education for their children, including programmes to make fathers more comfortable and able to discuss sexual matters with their sons
- staff who provide information and educational programmes about sexual and reproductive health receive relevant training, not only on issues such as safer sex and methods of contraception, but also on the importance of promoting self-esteem and other social skills (the teenage pregnancy strategy includes provision for an accredited sex and relationship teacher in each school)
- Government guidance about the timing and content of sex and relationship education be followed
- specialist counselling services be made available at a local level for people who have sexual difficulties that are of psychological or emotional origin.

Contraception services

Contraceptive requirements change during a woman's reproductive life cycle. Sexual health clinics that target particular groups, such as young people, should therefore continue to exist alongside general practitioner provision. A model of service provision should be adopted which ensures that services are available for men, young people of both sexes, older women and women who prefer to use their general practitioner. Outreach services should be available for those groups who are excluded, such as the homeless, travellers, those who misuse drugs and commercial sex workers.

The Department of Health's sexual health strategy (2001) suggests that genito-urinary medicine clinics should be developed as the cornerstone for tackling sexually transmitted infections.³⁰ Since many people from difficult-to-access groups use genito-urinary medicine services, it would be appropriate to use this contact with services as an opportunity to provide contraceptive advice and supplies at the same time. Although some do this already, the role of genito-urinary medicine clinics as providers of more generalised sexual health services such as screening and provision of contraceptive supplies should be encouraged.

As the nature of teenage sexual activity is often unplanned, family planning clinics, general practices and pharmacies need to ensure that staff at all levels are approachable and that they provide clients with accurate information and advice about emergency contraception, and that every effort is made to ensure that emergency contraception is accessible to young people. Targeted sex and relationship education to raise awareness and increase understanding of emergency contraception should be carried out using a range of approaches.

It is recommended that:

- the remit of GUM services be widened so that they develop into holistic sexual health services that are able to provide sexually transmitted infection screening, contraceptive advice and supplies, as well as sexually transmitted infection treatment
- general practitioners who provide a contraceptive service receive appropriate training, so that they are able to offer a wider range of contraceptive methods
- doctors who are unwilling to provide emergency contraceptive services for non-clinical reasons make this known to their patients. In this situation, leaflets and information stating where patients can access emergency contraception services should be made available
- areas with ethnic-minority populations ensure that contraceptive advice is available in the first language of all local people likely to use services
- female doctors be made available on request to all women using contraceptive services, and vice versa for men
- in urban areas with large populations, the development of a dedicated contraceptive and sexual health service for people with physical or learning disabilities be considered. This could be integrated into existing facilities, but providers would require specific training to enable them to develop appropriate expertise and sensitivity when meeting the needs of people who may have single or multiple problems. A domiciliary service may be of great value
- services for travellers be provided within the context of the travellers' culture. For example, it may be advisable for travellers to keep their own records, whether antenatal, contraception or general practice. An outreach service may be needed
- confidentiality assurances be made more explicit and training to raise awareness of the importance of this issue be provided for all, including receptionists and other administrative staff
- contraceptive supplies and advice remain free and be extended to include the provision of condoms by all general practitioner services and the dispensing of over-the-counter emergency contraception by pharmacists

- commissioners and providers of services encourage the extended role of nurses and pharmacists in contraception provision, by supporting increased training of nurses and pharmacists to enable them to dispense contraceptives safely following agreed protocols
- innovative ideas be explored to ensure that condoms are readily available to teenagers who want them¹³⁴
- programmes be developed to encourage boys to take their share of responsibility for contraception. This may include the development of dedicated clinics and educational programmes for boys and young men
- women with menorrhagia be offered the use of a levonorgestrel intrauterine device as an alternative to hysterectomy.

Induced abortion

Commissioners should ensure that a comprehensive and efficient service is provided. It may be appropriate in some areas to commission a large proportion of induced abortions from the private sector. The model adopted depends on the existing level and quality of service provision across the sector within the local area.

Both nationally and locally there is a need to address the wide-ranging differences in the proportion of abortions funded by the NHS. The current level of NHS funding ranges from 92% of abortions in some areas to less than 50% in others. Primary care trusts commissioning abortion services should monitor the age and area of residence of women using the services to identify and address inequalities in access. Whilst some women may decide to use private abortion services by choice, inequality of access, especially in deprived areas, is likely to have a negative impact on the overall physical, mental and social health of young women and their children.

The method of termination should be selected with due regard to clinical suitability and safety, the preferences of the individual woman, the range of services available locally and cost-effectiveness. Day care should be offered whenever this is clinically and socially feasible.

The need for a few late terminations will always exist, and these should be performed in a hospital setting. The service provided to women must be sensitive to their emotional needs and be provided by gynaecologists and nurses who understand and accept the need for this service. As far as possible, women admitted for terminations should be cared for separately from other gynaecological patients.

It is recommended that:

- at least 75% of induced abortions be provided or paid for by the NHS, and the majority take place before nine weeks' gestation. Women should ideally be provided with an appointment for assessment within five days of referral
- counselling be readily available for women who have experienced mental health problems in the past, and are therefore at greater risk of experiencing long-term post-abortion stress.

Fertility services

Infertility should be prevented as far as possible through an integrated and comprehensive sexual health strategy that includes high-quality sexual health education, sexually transmitted infection screening and treatment, and easy access to barrier methods of contraception. The importance and potential of primary prevention of infertility through the effective management of chlamydia infection was detailed in the Chief Medical Officer's Expert Advisory Group on Chlamydia Report. The report recommended opportunistic screening of all sexually active women aged under 25 years, all attendees (both sexes) at genito-urinary

medicine clinics, all women seeking terminations and women over 25 years of age with a new partner or who have had two or more partners in the previous 12 months. Pilot chlamydia screening programmes were carried out in the Wirral and in Portsmouth. The pilot programme in the Wirral ran from September 1999 to August 2000, and 6114 women aged 16–24 years were screened for chlamydia using a simple urine test. The pilot programmes showed that:

- selective screening does pick up significant numbers of cases
- very little medical input is required to undertake chlamydia screening using an easily administered urine test
- urine testing for chlamydia is generally acceptable to clients
- opportunistic screening reaches many young people who might otherwise be missed
- the concomitant publicity that the programme attracted served to improve the public profile and understanding of chlamydia as well as other sexual health issues.

Where infertility cannot be prevented, it should be treated. The resources and facilities available for infertility treatment in secondary and tertiary care vary considerably, and depend on local priorities, circumstances and the population served. Even where a dedicated fertility clinic exists, a full range of services may only be cost-effective in the tertiary care setting. The clinical guidelines developed by the National Institute for Clinical Excellence (NICE) for England and Wales include guidance on high-technology treatments such as IVF.

It is recommended that:

- the Royal College of Obstetricians and Gynaecologists guidelines be routinely followed, the appropriateness of referrals from primary to secondary care be monitored and evaluated at local level, and the training needs of local primary care practitioners be addressed
- all clients undergo basic investigations to establish the likely cause of their infertility and assess their prognosis initially in a primary care setting
- a basic minimum set of services be available and the couple always be managed in a dedicated fertility clinic in which there are appropriate facilities and access to trained staff, including doctors, nurses and counsellors. Where specific skills are not available locally, it may be appropriate for health commissioners to seek access to specialist services elsewhere
- commissioners monitor the access to and outcomes of treatment at a local level
- the simultaneous use of both barrier and oral contraceptive methods be monitored, as this would indicate greater awareness of the importance of protection against sexually transmitted infections likely to cause infertility
- a selective screening programme for chlamydia be extended nationally
- local protocols be developed for the testing, management and follow-up of positive chlamydia cases identified through screening, including provision for those people who do not wish to attend a genitourinary medicine clinic
- equity of access to fertility services be monitored and, where a full range of basic fertility services is not available within the local area, transport be considered to ensure equity of access.

8 Outcome measures, audit and targets

The first time that any health targets were set was in 1992, when sexual health was declared as one of the five key areas in the 'Health of the Nation', the strategy that guided health policy in the UK until 1997, when a new Government came into power.

When the new Government's health policy, *Saving Lives: Our Healthier Nation*, was published in 1999, the key priority areas for action had been reduced to four and sexual health was not included. However, the need to address sexual health was still a priority, and the Social Exclusion Unit's report on teenage pregnancy, published in 1999, set out a national strategy for England. Two key targets were to:

- halve the rate of conceptions among under-19s and set a firmly established downward trend in conception rates for under-16s by 2010
- increase the participation of teenage parents in education and work.

The NHS Plan published in 2000 stated that by 2004 there would be full implementation of the Government's teenage pregnancy strategy, bringing about a 15% reduction in the rate of teenage conceptions, consistent with the longer-term target of reducing the rate of teenage conceptions by half by 2020.

To enable monitoring of these targets, the number of conceptions among girls aged under 18 resident in an area per 1000 girls aged 15–17 years resident in the area was included as one of the NHS performance indicators. However, it is worth mentioning that in the original 1999 document this indicator was based on conceptions in girls under the age of 16 years. The indicator was amended in 2000 to look at conceptions in girls under the age of 18 years, to facilitate monitoring of the Government's goals.

In 2001, the national strategy for sexual health and HIV consultation document was published. This strategy emphasised the Government's belief that the consequences of poor sexual health can be serious, and that unintended pregnancies and sexually transmitted infections can have a long-lasting impact on people's lives. The strategy describes how the Government aims to reduce unintended pregnancy rates and reduce the transmission of HIV and sexually transmitted infections through the modernisation of services and partnership working across a wide range of organisations. Amongst other things, the strategy aims to ensure that the NHS works to improve public health, by emphasising the importance of promoting health and preventing illness, as well as treating problems once they arise.

As well as the national targets found in the NHS Plan, the teenage pregnancy strategy and the national strategy for sexual health and HIV, throughout each document the Government recommends that local targets must be developed.

The setting of targets for local services should be determined by the overall strategic objectives of the services, bearing in mind local need. In every case the objective is to minimise the adverse health consequences of sexual behaviour and to optimise the health and social benefits of a population's sexual expression.

Local targets can therefore relate to inputs and processes such as sex and relationship education, counselling and advisory services, and clinical care. They can also relate to outputs and outcomes such as teenage pregnancy and induced abortion rates, levels of sexually transmitted infection and infertility. Such indicators not only provide good summary measures of the quality of education, accessibility and acceptability of services, but also indicate the level of power that young women have over their sexual and reproductive health. Each locally set target should have a time period for achievement, and be subject to review.

Outcome measures

Routine data can be used to monitor service uptake.

Where routine data are unavailable, contraceptive, induced abortion and fertility services can be monitored through the use of periodic, local community or special group surveys designed to show:

- sexual behaviour and the level of contraceptive use

- uptake of contraceptive provision by general practitioners and other clinics. Preferably, this should be detailed by age and type of contraceptive method chosen rather than just consultation rates per 1000 population. Establishing the proportion of people using both family planning clinics and general practitioner services concurrently would enable a comprehensive assessment of the prevalence of contraceptive use in the area to be calculated
- the extent of planned conceptions.

Services could also be monitored through the use of:

- induced abortion rates, analysed by age, area and social group populations to audit equity of access to services
- surveys that allow service users to indicate their overall satisfaction with the quality of consultations and the extent to which their needs are being met.¹³⁵

For fertility services, the extent to which the guidelines developed by the Royal College of Obstetricians and Gynaecologists are implemented at primary, secondary and tertiary care levels can be used to indicate the appropriateness of referrals from primary to secondary and tertiary care, and should be monitored and evaluated at the primary care trust level. Costs and benefits to health from these services require monitoring. This should include the monitoring of mortality and morbidity experienced by women following clinical procedures, conception and birth, and the proportion of multiple births resulting from assisted conception techniques. Human Fertilisation and Embryology Authority licensed clinics are required to continually monitor and evaluate the services provided.

Sex and relationship education

Appropriate indicators that could be used to set local targets include:

- the proportion of both primary and secondary schools that have established links with local health promotion units, youth advisory or other agencies
- the proportion of schools that have committed themselves to allocating adequate time and training within the school curriculum for sex and relationship education, and have a sex and relationship education policy that reflects the school as a health-promoting environment within the wider community
- the number of teachers who have been specifically trained to provide sex and relationship education and can handle moral and ethical issues sensitively and confidently.

Contraceptive services

Appropriate indicators that could be used to set local targets include:

- the development of a comprehensive range of complementary advisory and clinic services that address the needs of all men and women in the area. This includes men and women of all ages, people with special needs, such as those with learning and physical difficulties, and those in traditionally under-served groups, e.g. prostitutes, drug users and travellers
- a high level of uptake of contraceptive services
- the proportion of family doctors and other professionals providing a contraceptive service who have successfully completed accredited training
- the number of nurses who have completed further training and are willing and able to dispense contraceptives according to agreed protocols

- the number of local pharmacists who have completed further training and are willing and able to dispense emergency contraceptives according to agreed protocols
- the development of strategies to improve awareness and availability of emergency contraception
- inequalities in access to and uptake of services by different groups
- the development of alliances and partnerships between relevant local agencies.

Induced abortion services

Appropriate indicators that could be used to set local targets include:

- the development of strategies to ensure that at least 75% of induced abortions in every area are provided through the NHS
- the proportion of women seeking terminations who are offered appointments within a week of referral for termination
- the proportion of induced abortions provided by the NHS that are carried out by 9 weeks' gestation.

Fertility services

Appropriate indicators that could be used to set local targets include:

- the proportion of people experiencing fertility problems who undergo basic investigations in primary care to establish the likely cause of their infertility and assess their prognosis prior to referral to secondary or tertiary services
- the proportion of people with access to NHS-funded IVF and other specialised treatments at a regional or inter-regional level
- a progressive reduction in sexually transmitted infection rates, especially chlamydia, expressed as 3- or 5-year rolling averages
- an increase in the availability of barrier methods of contraception from general practitioners and other providers
- an increase in the use of barrier methods in the population.

9 Information and research requirements

Much of the crucial information that is required to establish need and to monitor and evaluate services is already collected by the ONS in the form of conception rates, pregnancy rates, induced abortion rates and population data. These data would be of much greater use if they were analysed more rapidly and were made available in relation to a smaller area, such as an electoral ward or primary care trust area.

All providers must fulfil minimum data collection requirements. This means that the information collected in general practice must be improved and made compatible with that collected by family planning clinics and other service providers.

The level and quality of service provision in primary care settings need to be better established, and to provide a comprehensive view of local needs, a minimum data set that enables the quality and equity of access to services to be monitored should be agreed with all service providers.

There is a need to develop methodologies to allow greater understanding of the contribution of both providers and service users to the effectiveness of contraception in normal use. An interesting area of research would be to establish whether there is a gap between the service providers' beliefs about men and women's level of knowledge of the basic biology of reproduction and how contraceptives work and the actual level of understanding among men and women service users. And if a gap exists, it would be useful to know the effect that it has on contraception use.

Methodologically sound evaluations of the effectiveness, including cost-effectiveness, of different approaches to sex and relationship education, contraceptive advice and specific young people's services are required.¹³⁶

With the development of an expanded role for nurses in the primary care setting, the cost-effectiveness and quality of contraceptive and other sexual health services provided by trained family planning nurses based in primary care trusts compared to general practitioners and family planning clinics need to be established.

The long-term clinical effectiveness of the levonorgestrel intrauterine device as an alternative to hysterectomy and the cost-effectiveness and acceptability to women of using this method of contraception need to be established.

The increasing demand for infertility services and the relatively poor outcome of treatment for many suggest that further work is required to estimate the true prevalence and main causes of infertility in the population.

Since a medical abortion is cheaper than a standard surgical procedure, a thorough economic evaluation of the two to help establish reasons for the low uptake of medical abortion is needed.

References

- 1 Whincup PH, Gilg JA, Odoki K, Taylor SJC, Cook DG. Age of menarche in contemporary British teenagers: survey of girls born between 1982 and 1986. *BMJ* 2001; **322**: 1095–6.
- 2 Robey B, Rutstein SO, Morris L, Blackburn R. The reproductive revolution: new survey findings. In: *Population Reports 1992*. Series M, No 11. Baltimore, MD: Johns Hopkins University Population Information Program, 1992.
- 3 The Cabinet Office. *Teenage Pregnancy. A Social Exclusion Unit Report*. London: The Stationery Office, 1999; www.cabinet-office.gov.uk/seu/1999/teenpreg.pdf (accessed on 23 January 2002).
- 4 Health Education Authority (HEA). *Health Update 4: sexual health*. London: HEA, 1994.
- 5 Newman M *et al*. *Contraception and Abortion Services in London: are we missing the need?* The Health of Londoners Project. London: Directorate of Public Health, East London and the City Health Authority, 1997.
- 6 NHS Centre for Reviews and Dissemination. Preventing and reducing the adverse effects of unintended teenage pregnancies. *Effect Health Care Bull* 1997; **3**(1).
- 7 Laing WA. *Family Planning: the benefits and costs*. London: Policy Studies Institute, 1982.
- 8 McGuire A, Hughes D. *The Economics of Family Planning Services: a report prepared for the Contraceptive Alliance*. London: Family Planning Association, 1995.
- 9 Bodard S, Baldwin B. A survey of women with unplanned pregnancies in Avon, January to March 1994. *Br J Fam Plan* 1996; **22**(1): 42–5.
- 10 Family Planning Association. *Unplanned Pregnancy*. Factsheet No. 4. London: Family Planning Association, 1997.
- 11 Gunnell DJ, Ewings P. Infertility prevalence, needs assessment and purchasing. *J Public Health Med* 1994; **16**(1): 29–35.
- 12 Schmidt L, Munster K. Infertility and the seeking of infertility treatment in a representative population. *Br J Obstet Gynaecol* 1995; **102**: 978–84.
- 13 Phipps WR. The future of infertility services. *Fertil Steril* 1996; **66**(2): 202–4.
- 14 Office for National Statistics (ONS). *UK Health Statistics*. London: The Stationery Office, 2001.
- 15 Office for National Statistics (ONS). *Health Statistics Quarterly. Winter 2001*. London: The Stationery Office, 2001.
- 16 Office for National Statistics (ONS). Legal abortions in England and Wales, 2000. In: *Health Statistics Quarterly. Summer 2001*. London: The Stationery Office, 2001.
- 17 Office for National Statistics (ONS). *Social Trends 27*. London: The Stationery Office, 1997.
- 18 Public Health Laboratory Service, Department of Health, Social Services and Public Safety (Northern Ireland) and The Scottish ISD-(D)-5 Collaborative Group. *Trends in Sexually Transmitted Infections in the UK, 1990–1999*. London: Public Health Laboratory Service, 2000.
- 19 Office for National Statistics (ONS). *Contraception and Sexual Health 1999. Results of the Omnibus Survey*. London: The Stationery Office, 2001.
- 20 Health Education Authority (HEA). *Promoting Sexual Health Services to Young People: guidelines for purchasers and providers*. London: HEA, 1996.
- 21 Jones EF *et al*. *Teenage Pregnancy in Industrialised Countries*. New Haven, CT: Yale University Press, 1996.
- 22 Department of Health. *ONS General Household Survey: contraception and sterilisation 2000*; www.doh.gov.uk/ (accessed on 25 January 2002).
- 23 Department of Health. *The New NHS: reference costs 2001*; www.doh.gov.uk/nhsexec/refcosts.htm (accessed on 30 March 2002).

- 24 British Pregnancy Advisory Service. *Price List*. London: British Pregnancy Advisory Service (applicable 1 April 1998).
- 25 Marie Stopes International. *Fees at Marie Stopes*. London: Marie Stopes International, 1998.
- 26 Office for National Statistics (ONS). *Birth Statistics. FM1 No. 29. Review of the Registrar General on births and patterns of family building in England and Wales, 2000*. London: The Stationery Office, 2001.
- 27 Laing W. *Laing's Review of Private Healthcare*. London: Laing and Buisson, 1997.
- 28 Human Fertilisation and Embryology Authority (HFEA). *Human Fertilisation and Embryology Authority Sixth Annual Report 1997*. London: HFEA, 1997.
- 29 Bissell P, Anderson C, Savage I, Goodyear L. Supplying emergency hormonal contraception through patient group direction: a qualitative study of the views of pharmacists. *Int J Pharm Pract* 2001; **9** (Suppl.): R57.
- 30 Department of Health. *The National Strategy for Sexual Health and HIV*. London: The Stationery Office, 2001.
- 31 McKeown T. *The Role of Medicine: dream, mirage or nemesis*. Oxford: Oxford University Press for the Nuffield Provincial Hospitals Trust, 1976.
- 32 Davies IM. Perinatal and infant deaths: social and biological factors. *Popul Trends* 1980; **19**: 19–21.
- 33 Ashton JR, Seymour H. *The New Public Health*. Milton Keynes: Open University Press, 1988.
- 34 Office for National Statistics (ONS). *Conceptions in England and Wales 1996*. London: The Stationery Office, 1998.
- 35 Department of Health. *Health Minister Welcomes Downward Trend in Teenage Conception Rates*. Press release 2002/0103 following publication of conception statistics for 2000, 28 February 2002; <http://tap.ccta.gov.uk/doh/inf> (accessed on 26 March 2002).
- 36 Wellings K, Fields J, Johnson A, Wadsworth J. *Sexual Behaviour in Britain: the National Survey of Sexual Attitudes and Lifestyle*. Harmondsworth: Penguin, 1994.
- 37 NHS Centre for Reviews and Disseminations, 1997, op. cit.
- 38 Office for National Statistics (ONS). *Health Statistics Quarterly. Spring 2002*. London: The Stationery Office, 2002.
- 39 Yoos C. Adolescent cognitive and contraceptive behaviours. *Paediatr Nurs* 1987; **13**(4): 247–50.
- 40 National Children's Bureau. *Supporting the Needs of Boys and Young Men in Sex and Relationships Education*. Forum Fact Sheet 11. London: Sex Education Forum, 1997.
- 41 Allen I. *Education in Sex and Personal Relationships*. Research Report No. 665. London: Policy Studies Institute, 1987.
- 42 National Children's Bureau. *Effective Learning: approaches to teaching sex education*. Forum Fact Sheet 12. London: Sex Education Forum, 1997.
- 43 Lenderyou G, Ray C (eds). *Let's Hear it for the Boys: supporting sex and relationships education for boys*. London: Sex Education Forum, 1997.
- 44 Cohen MW. Adolescent sexual activity as an expression of nonsexual needs. *Pediatr Ann* 1995; **24**: 324–9.
- 45 Turtle J, Jones A, Hickman M. *Young People and Health: the health behaviour of school-aged children. Summary of key findings*. London: Health Education Authority, 1997.
- 46 Sex Education Forum. *Sex Education Matters*. Forum Fact Sheet 4. London: National Children's Bureau, 1995.
- 47 National Foundation for Educational Research. *Parents' Views of Health Education. The European Network of Health-Promoting Schools*. London: Health Education Authority, 1997.
- 48 Healy DL, Trounson AO, Andersen AN. Female infertility: causes and treatment. *Lancet* 1994; **343**: 1539–44.
- 49 De Krester DM. Male Infertility (review). *Lancet* 1997; **349**: 787–90.

- 50 National Institute for Clinical Excellence. *Fertility: assessment and treatment for people with fertility problems. Clinical Guideline II*. February 2004. London: NICE.
- 51 British Fertility Society. *Diagnostic Classification, Basic Diagnostic Procedures and Basic Diagnostic Data Collection*. Dundee: British Fertility Society, 1995.
- 52 Office for National Statistics (ONS). *Abortion Statistics*. Series AB no. 27. London: The Stationery Office, 2001.
- 53 Hull MGR *et al.* Population study of causes, treatment and outcome of infertility. *BMJ* 1985; **291**: 1693–7.
- 54 Wellings K, Nanchahal K, Macdowall W *et al.* Sexual behaviour in Britain: early heterosexual experience. *Lancet* 2001; **358**: 1843–50.
- 55 Stuart Smith S. Teenage sex. *BMJ* 1996; **312**: 390–1.
- 56 While AE. The incidence of unplanned and unwanted pregnancies among live births from health visitor records. *Child Care Health Dev* 1990; **16**(4): 219–26.
- 57 Office for National Statistics (ONS). Legal abortions in England and Wales, 2000. In: *Health Statistics Quarterly. Summer 2001*. London: The Stationery Office, 2001.
- 58 Alan Guttmacher Institute. *Sharing Responsibility: women, society and abortion worldwide*. Special Report. New York and Washington: Alan Guttmacher Institute, 1999.
- 59 Ashton JR *et al.* Trends in induced abortion in England and Wales. *J Epidemiol Community Health* 1983; **37**: 105–10.
- 60 Ubido J, Ashton JR. *Liverpool Planned Parenthood Profile*. Liverpool Public Health Observatory Report No. 4. Liverpool: University of Liverpool, 1991.
- 61 Adler MW. *ABC of Sexually Transmitted Disease* (3e). London: BMJ Publishing Group, 1995.
- 62 Fenton KA, Korovessis C, Johnson AM *et al.* Sexual behaviour in Britain: reported sexually transmitted infections and prevalent genital *Chlamydia trachomatis* infection. *Lancet* 2001; **358**: 1851–4.
- 63 Johnson AM, Mercer CH, Erens B *et al.* Sexual behaviour in Britain: partnerships, practices and HIV risk behaviours. *Lancet* 2001; **358**: 1835–42.
- 64 Bower H. Britain launches pilot screening programme for chlamydia. *BMJ* 1998; **316**: 1477.
- 65 Paavonen J. Is screening for *Chlamydia trachomatis* infection cost-effective? *Genitourin Med* 1997; **73**: 103–4.
- 66 Department of Health. *Summary and Conclusions of Chief Medical Officer's Expert Advisory Group on Chlamydia trachomatis*. London: Department of Health, 1998; www.doh.gov.uk/chlamyd.htm (accessed on 11 January 2002).
- 67 Simms I *et al.* Epidemiology of genital *Chlamydia trachomatis* in England and Wales. *Genitourin Med* 1997; **73**: 122–6.
- 68 Stokes T. Screening for chlamydia in general practice: a literature review and summary of the evidence. *J Public Health Med* 1997; **19**(2): 222–32.
- 69 Dryden MS *et al.* Detection of *Chlamydia trachomatis* in general practice urine samples. *Br J Gen Pract* 1994; **44**: 114–17.
- 70 Public Health Laboratory Service. *Sexually Transmitted Infections Data from PHLS*. London: Public Health Laboratory Service, 2000; www.phls.org.uk/facts/STI/data_tables/sti_table_chlam1.htm (accessed on 25 January 2002).
- 71 Office for National Statistics (ONS). *NHS Contraceptive Services, England: 2000–2001*. London: The Stationery Office, 2001.
- 72 Office for Population Censuses and Surveys (OPCS). *Morbidity Statistics in General Practice. Fourth national study, 1991–1992*. Series MB5 no.3. London: OPCS, 1995.
- 73 Royal College of Obstetricians and Gynaecologists (RCOG). *Report on the RCOG Working Party on Unplanned Pregnancy*. London: RCOG, 1991.

- 74 Department of Health. *The NHS Plan: a plan for investment, a plan for reform*. London: The Stationery Office, 2000.
- 75 Department of Health. *Shifting the Balance of Power Within the NHS. Securing delivery*. London: Department of Health, 2001.
- 76 Royal College of Obstetricians and Gynaecologists (RCOG). *Report on the RCOG Working Party on Unplanned Pregnancy*. London: RCOG, 1991.
- 77 Institute of Population Studies. *Sexual Health and Family Planning Services in General Practice*. London: Family Planning Association, 1993.
- 78 Family Planning Association. *Use of Family Planning Services*. Factsheet No. 2. London: Family Planning Association, 1997.
- 79 Office for National Statistics (ONS). *NHS Contraceptive Services, England: 1999–2000*. London: The Stationery Office, 2000.
- 80 Barratt S (ed.). *Health Prospects for Young Citizens of the North West: a Special Report for the Regional Director of Public Health 1998*. Liverpool: Department of Public Health, University of Liverpool, 1998.
- 81 Brook Advisory Centre. *Annual Report 1995–96*. Liverpool: Brook Advisory Centre, 1996.
- 82 Trussell J, Leveque JA, Koenig JD. The economic value of contraception: a comparison of 15 methods. *Am J Public Health* 1995; **85**: 494–503; www.jr2.ox.ac.uk/bandolier/band50/b50-3.html#Heading2 (accessed on 25 January 2002).
- 83 Fotherby K. Twelve years of clinical experience with an oral contraceptive containing 30 µg ethinyloestradiol and 150 µg desogestrel. *Contraception* 1995; **51**: 3–12; www.jr2.ox.ac.uk/bandolier/band50/b50-3.html#Heading2 (accessed on 25 January 2002).
- 84 Family Planning Association. *Family Planning Services: a model for District Health Authorities*. London: Family Planning Association, 1990.
- 85 Trussell J, Stewart F. The effectiveness of postcoital hormonal contraception. *Fam Plan Perspect* 1992; **24**: 262–4.
- 86 Yuzpe A, Kubba A. Postcoital contraception. In: Filshie M, Guillebaud J (eds). *Contraception, Science and Practice*. London: Butterworth, 1989, pp. 126–43.
- 87 Kubba A, Wilkinson C. *Recommendations for Clinical Practice: emergency contraception*. London: Faculty of Family Planning and Reproductive Health Care of the Royal College of Obstetricians and Gynaecologists, CSC 1/98, valid until 01/2001.
- 88 Bury J. *Teenage Pregnancy in Britain*. London: Birth Control Trust, 1984.
- 89 Family Planning Association. *Contraception: patterns of use*. Factsheet No. 5. London: Family Planning Association, 1997.
- 90 British Pregnancy Advisory Service. *Price List*. London: British Pregnancy Advisory Service (applicable 1 April 1998).
- 91 Marie Stopes International, 1998, op. cit.
- 92 Office for National Statistics (ONS). *Abortions in England and Wales, 2000*. London: The Stationery Office (press release September 2001); www.statistics.gov.uk/products/p68.asp (accessed on 16 January 2002).
- 93 Ashton JR. Components of delay amongst women obtaining termination of pregnancy. *J Biosoc Sci* 1980; **12**: 261–73.
- 94 Paintin D. *Twenty Questions About Abortion Answered*. London: Birth Control Trust, 1997.
- 95 British Pregnancy Advisory Service (BPAS); www.bpas.org (accessed on 6 January 2002).
- 96 Abortion Law Reform Association. *Report on NHS Abortion Services*. London: Abortion Law Reform Association, 1997.
- 97 Cameron ST *et al.* Impact of the introduction of new medical methods on therapeutic abortions at the Royal Infirmary of Edinburgh. *Br J Obstet Gynaecol* 1996; **103**: 1222–9.

- 98 Laing W, 1997, op. cit.
- 99 Department of Health. *Report of the Royal Commission on the National Health Service* (Merrison Report). London: HMSO, 1979.
- 100 Department of Health. *Working for Patients*. London: HMSO, 1989.
- 101 Birth Control Trust. *Purchasing Abortion Services: a guide for fundholders*. London: Birth Control Trust, 1995.
- 102 Royal College of Obstetricians and Gynaecologists. *The Initial Investigation and Management of the Infertile Couple*, 1998; www.rcog.org.uk/guidelines/infertile.html (accessed on 3 January 2002).
- 103 Royal College of Obstetricians and Gynaecologists. *The Management of Infertility in Secondary Care*, 1998; www.rcog.org.uk/guidelines/secondary.html (accessed on 3 January 2002).
- 104 Royal College of Obstetricians and Gynaecologists. *The Management of Infertility in Tertiary Care*, 1999; www.rcog.org.uk/guidelines/tertiarycare.html (accessed on 3 January 2002).
- 105 Human Fertilisation and Embryology Authority (HFEA). *Human Fertilisation and Embryology Authority Annual Report 2000*. London: HFEA, 2001; www.hfea.gov.uk (accessed on 25 January 2002).
- 106 Personal communication from Michael Hull, Department of Obstetrics and Gynaecology, University of Bristol, 1998.
- 107 Human Fertilisation and Embryology Authority (HFEA). *Human Fertilisation and Embryology Authority Sixth Annual Report 1997*. London: HFEA, 1997.
- 108 Oakley A, Fullerton D, Holland J *et al.* Sexual health education interventions for young people: a methodological review. *BMJ* 1995; **310**: 158–62.
- 109 Kirby D *et al.* School-based programmes to reduce sexual risk behaviours: a review of effectiveness. *Public Health Rep* 1994; **109**(3): 339–61.
- 110 Harlap S, Kost K, Darroch Forrest J. *Preventing Pregnancy, Protecting Health: a new look at birth control choices in the US*. New York and Washington, DC: Alan Guttmacher Institute, 1991.
- 111 Jick HJ, Jick SS, Gurewich V, Myers MW, Vasilakis C. Risk of idiopathic cardiovascular death and non-fatal thromboembolism in women using oral contraceptives with differing progestagen components. *Lancet* 1995; **346**: 1589–93.
- 112 World Health Organization. Collaborative Study of Cardiovascular Disease and Steroid Hormone Contraception. Effect of different progestagens in low-oestrogen oral contraceptives on venous thromboembolic disease. *Lancet* 1995; **346**: 1582–8.
- 113 World Health Organization. WHO Scientific Group Meeting on Cardiovascular Disease and Steroid Hormone Contraceptives. In: *WHO Weekly Epidemiological Record* No. 48, 28 November 1997, pp. 361–3.
- 114 Centers for Disease Control, Cancer and Steroid Hormone Study. Oral contraceptive use and the risk of ovarian cancer. *JAMA* 1983; **249**: 1596.
- 115 Wright NH *et al.* Neoplasia and dysplasia of the cervix uteri and conception: a possible protective effect of the diaphragm. *Br J Cancer* 1978; **38**: 273.
- 116 Hubacher D, Lara-Ricalde R, Taylor DJ *et al.* Use of copper intrauterine devices and the risk of tubal infertility among nulligravid women. *NEJM* 2001; **345**: 561–7; <http://content.nejm.org/> (accessed on 25 January 2002).
- 117 Lähteenmaki P, Haukkamaa M, Puolakka J *et al.* Open randomised study of use of levonorgestrel-releasing intrauterine system as alternative to hysterectomy. *BMJ* 1998; **316**: 1122–6.
- 118 Botting B. Trends in abortion. *Popul Trends* 1991; **64**: 19–29.
- 119 Grimes DA. Medical abortion in early pregnancy: a review of the evidence. *Obstet Gynaecol.* 1997; **89**(5): 790–6.
- 120 Cabrol D, Dubois C, Cronje H *et al.* Induction of labour with Mifepristone (RU486) in intrauterine fetal death. *Am J Obstet Gynaecol* 1990; **163**: 540–1.

- 121 Urquhart DR, Templeton AA. Psychiatric morbidity and acceptability following medical and surgical methods of induced abortion. *Br J Obstet Gynaecol* 1991; **98**: 396–9.
- 122 Vandekerckhove P, O'Donovan PA, Lilford RJ, Harada RW. Infertility treatment: from cookery to science. The epidemiology of randomised controlled trials. *Br J Obstet Gynaecol* 1993; **100**: 1005–36.
- 123 Hughes EG, Fedorkow DM, Collins JA. A quantitative overview of controlled trials in endometriosis-associated infertility. *Fertil Steril* 1993; **59**: 963–70.
- 124 Hull MGR. Infertility treatment: relative effectiveness of conventional and assisted conception methods. *Hum Reprod* 1992; **7**: 785–96.
- 125 Emslie C, Grimshaw J, Templeton A. Do clinical guidelines improve general practice management and referral of infertile couples? *BMJ* 1993; **306**: 1728–31.
- 126 Human Fertilisation and Embryology Authority (HFEA). *The Patient's Guide to DI and IVF clinics* (3e). London: HFEA, 1997.
- 127 Garel M *et al.* Psychological consequences of having triplets: a four-year follow-up study. *Fertil Steril* 1997; **67**(6): 1162–5.
- 128 Doyle P. The outcome of multiple pregnancy. *Hum Reprod* 1996; **11**(Suppl. 4): 110–17.
- 129 Freemantle N (ed.). The management of subfertility. *Effect Health Care* 1992; **3**.
- 130 Hart JT. The Inverse Care Law. *Lancet* 1971; **1**: 405–12.
- 131 Department of Health. *Independent Inquiry into Inequalities in Health Report*. London: The Stationery Office, 1998.
- 132 Mackenzie M, Lawson L, Mackinnon J. *Evaluation of the Sandyford Initiative: having your voice heard – interim report*. Glasgow: Health Promotion Policy Unit, Department of Public Health, University of Glasgow, 2001.
- 133 Specialist Health Promotion Service for Central and East Cheshire. *Reducing Teenage Pregnancy in Cheshire: a living resource*. East Cheshire NHS Primary Care Trust; www.healthpromo.org/teenpreg/ (accessed on 20 September 2002).
- 134 Cossey D. *Teenage Birth Control: the case for the condom*. Liverpool: Brook Advisory Centre, 1979.
- 135 Smith C. Measuring quality in contraceptive service. *Qual Health Care* 1997; **6**: 59.
- 136 Medical Foundation for AIDS and Sexual Health. *Using Effectiveness Research to Guide the Development of School Sex Education*. A paper based on a workshop held by the BMA Foundation for AIDS (now known as the Medical Foundation for AIDS and Sexual Health), the Health Education Authority and the Sex Education Forum in early 1996. London: BMA Foundation for AIDS, 1997; www.medfash.org.uk/publications/documents/school_sex_education.htm (accessed on 10 September 2002).

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