

**Recent Advances in
Fertility Control
Vol. 3**

Recent Advances in Fertility Control

Volume 3

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Recent Advances in Fertility Control
Tokyo, November 27, 1988

Held under the patronage of
the Japan Family Planning Association

Editor:

Seiichi Matsumoto

Jichi Medical School

Chairman, Japan Family Planning Association



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IIIrd International Symposium on Recent Advances in Fertility Control, Tokyo, November 27, 1988

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Preface

Seiichi Matsumoto

Chairman, Japan Family Planning Association

The 3rd International Symposium on Recent Advances in Fertility Control, organized by the Medical Committee of the Japan Family Planning Association, held in Tokyo on November 27, 1988, was attended by a total of 220 delegates, including 150 obstetrician-gynecologists, 70 physicians from other field, midwives, and nurses.

In the 2 previous symposia, presentations were made only by physicians from overseas, who reported on recent progress in fertility control in different parts of the world. These presentations had a marked impact on the audience at a time when research and practice in this area in Japan was somewhat sluggish. Following these meetings we were requested by the delegates to include current topics on family planning in Japan, particularly future problems of population, adolescent pregnancy, and contraception. For the 3rd symposium, therefore, 2 Japanese physicians were invited to speak, in addition to 2 from abroad.

In May 1988, the 6th International Congress of the Society for the Advancement of Contraception (SAC) was held, during which many presentations were made. For the 3rd Symposium on Recent Advances in Fertility Control, therefore, we tried to avoid topics covered during the May meeting, and chose subjects of interest to practicing obstetrician-gynecologists: "Contraception for teenagers in the USA" by Dr Louise Tyrer, Vice President for Medical Affairs, Medical Division, Planned Parenthood Federation of America, Inc.; "Current status of adolescent pregnancy in Japan and the role of obstetrician-gynecologists" by Professor Taro Tamada of the Department of Obstetrics and Gynecology, Jichi Medical School; "Contraception in women over 35 years old" by Dr Michael Gillmer of the John Radcliffe Hospital, Oxford, UK; and "Future population problems in Japan" by Professor Masaaki Yasukawa of the Department of Economics, Keio University.

The extremely interesting and informative presentations made during the symposium provoked many lively discussions among the delegates, who included more practicing obstetrician-gynecologists than at the previous symposia, indicating their increasing interest in fertility control.

On behalf of the organizers of this symposium, I would like to thank the

4 speakers who so carefully prepared and gave such interesting presentations. I sincerely hope that this symposium will contribute to current and future practice of fertility control in Japan.

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Contraception for teenagers in the USA

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INTRODUCTION

The United States of America has the dubious distinction of leading all other developed nations of the world that have been surveyed in rates of teenage pregnancy, childbearing, and abortion. This is a national problem that affects every racial, income, and ethnic group across the USA. In fact, pregnancy rates for white teenagers alone are much higher than pregnancy rates for most industrialized nations.

A March 1985 study by the Alan Guttmacher Institute found that the US pregnancy rate for 15- to 19-year-olds was 96 per 1000 (83 per 1000 for whites). In the Netherlands, the rate is 14 per 1000, in Sweden 35, France 43, Canada 44, and England and Wales 45. The study also found that American teenagers were not having sexual relations earlier or more often than teenagers in other developed countries (1). The situation is disturbing. So far, scientists, policy makers, and concerned citizens have been unable to find easy and effective solutions.

TEENAGE PREGNANCY AND PARENTHOOD IN THE USA

Sexual experience

Growing age range

Over the past 10 years, there has been a steady increase in the percentage of teenage girls at each age level engaging in premarital intercourse. Of great concern, however, is the growing number of younger adolescents in the USA who are becoming sexually active. Menarche begins earlier now for US teenagers (often by age 10 or 11), so sexual experimentation in the younger age-group entails risk of pregnancy much earlier than previously. A 1986 Harris poll showed that 1 of 9 of the total polled US young people aged 14 and under had had sexual intercourse.

The problem is a serious one: health officials predict girls aged 14 and under will represent a major share of unwanted pregnancies in the coming

years. These teenagers are uninformed: fewer than 20% of students have had a sex education course by the age of 14. Additionally, a recent study showed that 42% of girls who become sexually active before age 15 delay contraceptive use for more than a year after their first experience, compared to 15% of girls aged 18 to 19 (2). Contraception is used sporadically, if at all by these younger teenagers. The birth rate for US girls under age 15 is approximately 5 times the birth rate for 15-year-olds in any other developed country for which data are available (3).

Demographics

The USA has seen a shift to a higher percentage of births to unmarried teenagers (Figs 1 and 2). In 1970 about one-third of all births to teenagers were outside marriage, but by 1982 this figure had risen to 90% for pregnant teenagers under age 15 and 50% for those between 15 and 19 (4).

Contrary to common belief, high teenage birth rates are not traceable to any particular racial group in the USA. Whether black, Hispanic, or white, 20% of 16- to 19-year-old young women living with families at poverty level with below-average academic skills were teenage mothers in 1981. However, of the above racial groups in the same age-bracket, only 3% to 5% with solid academic skills whose families' incomes were above poverty level were teenage mothers that year (5).

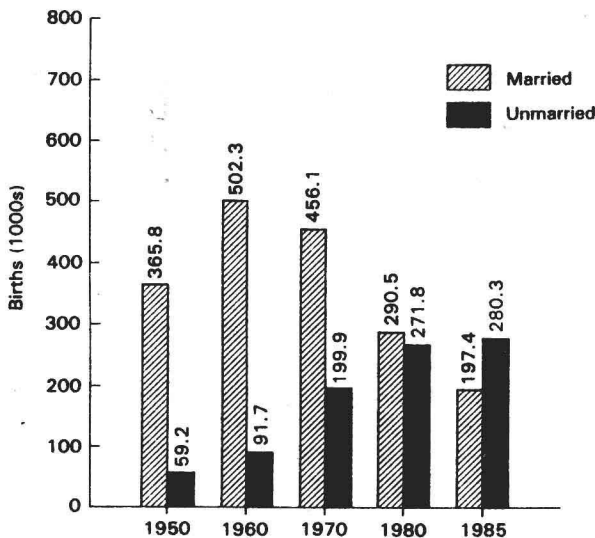


Fig 1 Births to US teenagers according to marital status. Reprinted, with permission, from Children's Defense Fund (5).

Contraception for US teenagers

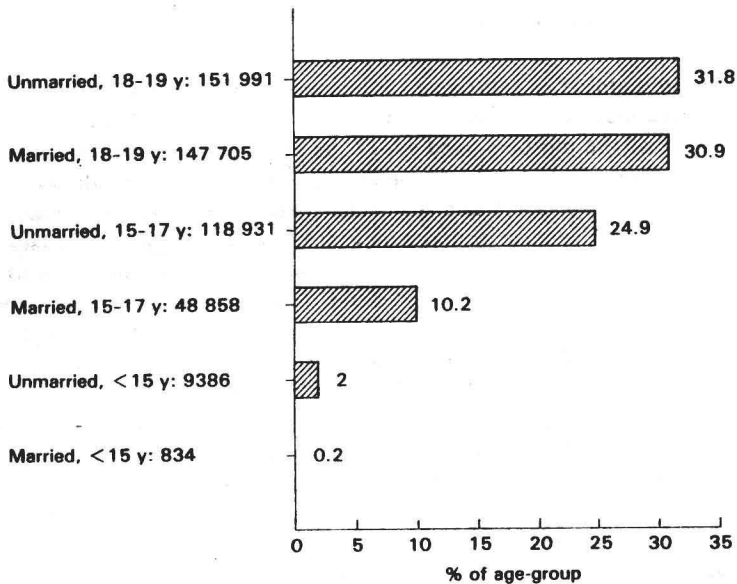


Fig 2 Births to women under 20 by marital status and age, 1985. Reprinted, with permission, from Children's Defense Fund (5).

Teenage pregnancy

Medical aspects

One part of the growing concern over high teenage pregnancy rates in the USA revolves around related health risks. The maternal death rate of young teenage mothers (under age 15) is 2 1/2 times that of mothers aged 20-24. Teenage mothers also tend to have higher rates of nonfatal maternal complications than older mothers. They are 15% more likely to suffer from toxemia, 92% more likely to be anemic, and 23% more likely to experience a premature birth and accompanying complications than mothers in their early 20s (6).

Infants born to teenage mothers are more likely to be born prematurely, to die within the first year of life, and to have low birth weights and low Apgar scores. However, once a young woman elects to continue her pregnancy, early and continuing prenatal care decreases the complication rates, although less among the youngest adolescents.

Sexually transmitted diseases (STDs) are escalating in the USA. According to data from the Centers for Disease Control, the past 20 years have shown a 4-fold increase in the incidence of STDs—chlamydia, gonorrhea, and herpes—and approximately one-quarter of those patients are between the ages of 15 and 19. In 1989 alone, an estimated 2.5 million US teenagers will contract an STD.

Socioeconomic consequences

Although the number of marriages involving teen pregnancy has diminished, where teenage marriages do occur, they often show a lack of stability. Forty-four percent of the mothers aged 14–17 are separated or divorced within 15 years. This figure is 3 times the percentage of women who do not begin childbearing until age 20 or later (6). Each year, at least 40 000 teenage girls drop out of school because of pregnancy. Because a teenage mother lacks job skills and work experience, she earns half the lifetime earnings of a woman who waits until 20 to have her first child. She also is much more likely to become dependent upon government support and remain so for a longer time. The economic toll for the US public is staggering. Each year births to teenagers cost approximately 1.35 billion tax dollars, and annual assistance to all teenage parents costs \$2.7 billion (7). The children of teenage mothers are also adversely affected. Studies have demonstrated that children born to adolescent mothers generally perform less well academically and that their cognitive development is delayed. In addition, these children are more likely to become teenage parents themselves, perpetuating the cycle. It is clear that the negative medical, social, and economic consequences of adolescent childbearing are severe in the USA and serve as a negative model to the rest of the more developed countries of the world.

Possible explanations

The high number of teenage pregnancies in the USA is largely the result of the often contradictory messages regarding sexual activity that pervade our society, combined with the confusion inherent in adolescence itself. US parents and the public at large generally disapprove of sexual activity for adolescents. At the same time, parents often avoid discussion of sexuality with their children. This vacuum is filled by the media's glossy, glamorized portrayal of sex as the route to gratification, adulthood, and self-esteem.

Peer pressure often pushes teens into sexual activity before they are ready. In one study, 73% of teenage girls and 50% of boys of similar age cited peer pressure as the major reason they initiated sexual relations (8). Unexpected sexual activity even after the first occurrence remains a key feature of adolescent sexuality in the USA. Since teenagers are often unwilling to acknowledge to themselves that they are likely to engage in sexual activity, they tend not to be prepared with any contraceptive method or to choose less effective options.

Additionally, associations have been found between teenage parenthood and certain aspects of contemporary life in the USA. For example, teenagers who engage in drug and alcohol use—which has reached near epidemic proportions nationally—are also more likely to become sexually active (9).

As for the growing number of teenagers under age 14 who are becoming pregnant, they are least likely to be objective about the sexual images and pressures that surround them, least likely to get contraceptive assistance, least likely to see the long-term consequences of their behavior, and least likely to know how to negotiate the health system to obtain help.

PROVIDING CONTRACEPTION TO THE US TEENAGER

Current contraceptive use or nonuse/effectiveness rates

The rate of teenage pregnancy has been rising at a slower pace than the rate of sexual activity, a trend that is explained by an increased and more consistent use of contraception. Even though the number of teenage pregnancies has risen because of earlier and increased sexual activity, the pregnancy rate among sexually active teenagers is declining. However, in the USA, the average teenage girl who is sexually active waits 9 months before asking for some form of contraception (8).

For young women, teenage pregnancy poses the greatest reproductive health risk, far greater than the risk posed by any form of fertility control, including abortion. Therefore, efficacy of the contraceptive used is an important consideration. Younger women tend to have higher contraceptive failure rates with virtually all methods. For example, women under the age of 22 are about twice as likely to experience an unintended pregnancy as women aged 30 or older when the most highly effective methods of contraception, eg, oral contraception and intrauterine devices (IUDs), are used. The failure rates with less effective methods are 7 to 10 times greater for these younger women (10). This difference is probably due to a combination of factors: younger women are generally less experienced users; they have less accurate information about side effects; they are more fertile; and they may have more difficulty obtaining follow-up services.

Initiating contraceptive use

Planning for sexual activity is of key importance to the initiation of contraceptive use. Once the teenager has acknowledged that he or she may engage in sexual activity, the next step is deciding about preventive measures. Although condoms are readily available to boys, they appear to be less likely than girls to assume contraceptive responsibility for sexual activity. A study of the contraceptive practices of premaritally sexually active metropolitan-area teenagers found that 72% of girls who planned to have their first intercourse used some form of contraceptive method (including male methods), but only 51% of the teenage males did (5).

Choosing the appropriate method

The only choice for sexually active male teenagers in the USA is the condom. For the female teenager, however, there are a number of possibilities. When a female teenager in the USA seeks the assistance of a clinician in choosing a contraceptive method, information about the risks, benefits, potential side effects, and effectiveness of all contraceptive methods is provided. Psychological, physical, emotional, and logistic considerations make the pro-

cess of identifying an appropriate method a delicate task. In addition to the effectiveness and safety of a particular method, it is important to consider such key factors as the user's age, level of maturity, religious orientation, frequency of intercourse, and number of partners.

Hormonal contraception

Low-dose oral contraception (35 μ g of estrogen) is usually the first-choice method for those US teenagers who are regularly sexually active. It is by far the most effective reversible method available, it is safest for this age-group, and it is not dependent upon the cooperation of the male partner. Additionally, US teenagers themselves choose oral contraception first among all other methods (Table). Approval of oral contraception has risen as information on its health benefits has been disseminated and new low-dosage formulations with a lower incidence of side effects have become more widely used. This in part explains why over the past 5 years favorable opinion of oral contraception has increased steadily among US women—from 65% to 76%—and 95% of all US oral contraceptive users are satisfied with their method (11) (Fig 3).

Oral contraceptive (OC) use has a highly positive benefit-risk ratio: teenagers using OCs have a theoretical mortality risk of 0.5 deaths per 100 000 nonsterile teenagers, compared to 7 deaths per 100 000 for nonsterile teenagers who use no method and experience a pregnancy which is continued to delivery (10). (In actuality, no deaths have been reported among OC users below the age of 18.) In 1987 a panel of the National Academy of Sciences National Research Council concluded that OCs and condoms are particularly appropriate methods for teenagers. This recommendation was largely based on method safety. The panel found that for young people who do not smoke, the pill carries a lower mortality risk than any other option, except barrier methods.

Table Number of adolescents using contraception. Reprinted, with permission, from Ory HW et al (10).

Method	Estimated no. (1000s)
Pill	1539
Condom	726
Spermicides	260
Withdrawal	176
IUD	102
Diaphragm	39
Rhythm	13
Other	66
No method	642

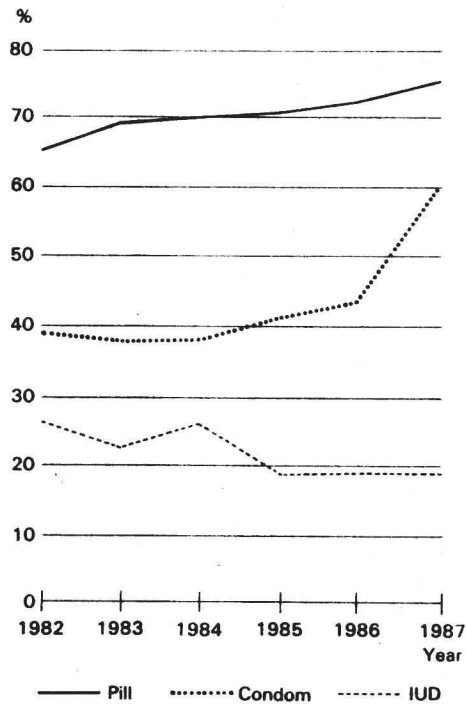


Fig 3 Percentage of US women aged 18–44 holding favorable opinions of the pill, the IUD, and the condom (Ortho Birth Control Studies). Reprinted, with permission, from Forrest JD et al (11).

OC use provides some protection against several health complications that frequently lead to hospitalization, including benign breast disease, ovarian and endometrial cancers, ectopic pregnancy, and ovarian retention cysts. Moreover, the protection against development of ovarian cancer in later life appears to increase with duration of use, and persists long after pill use is discontinued (12). While using OCs, there is a 50% reduction in the incidence of pelvic inflammatory disease (PID). This protective action can have a positive effect on the protection of future fertility. However, OC use does not protect against contracting STDs as do the barrier methods. Other potential benefits associated with OCs for teenagers are reduction of adolescent acne and menstrual problems—especially premenstrual syndrome, dysmenorrhea, menorrhagia, and iron-deficiency anemia.

If a teenager is considering oral contraception, the clinician takes a complete history and does a physical assessment. The routine laboratory tests that are performed are an initial hematocrit or hemoglobin and a Pap smear. Other tests, such as urinalysis and testing for STDs, are performed as indicated. Oral contraception is prescribed for the teen who requests it when there are no absolute contraindications and after considering the young woman's level of sex-

ual activity. Women over age 18 who are identified as potentially at increased risk for OC use related to a risk of diabetes, through either personal history or family history of diabetes in parents or siblings, have special laboratory tests to determine their diabetic potential (blood sugar).

Absolute contraindications are followed, which, according to the US Food and Drug Administration (FDA), include history of thromboembolism or thrombotic disease; active, acute, or chronic liver disease; pregnancy; undiagnosed uterine bleeding; breast cancer; and estrogen-dependent neoplasia. Relative contraindications require individualized assessment. These include diabetes or a family history of diabetes in parents or siblings; cardiac or renal disease, particularly hypertension 160/100 or above; recent liver disease; and a history of depression requiring therapy. If there are relative contraindications, they are weighed carefully and discussed in detail with the patient. At this point other contraceptive options are also considered.

At one time, oral contraception was not prescribed until 2 years after the onset of menses. That time interval was later revised to 3 months. Concerns about premature epiphyseal closure with stunted growth are unfounded. Additionally, the data now corroborate that there is no increase in postpill infertility as compared with nonusers (13). Only those women who experience oligoovulation and are likely subfecund prior to OC use experience subsequent infertility. Therefore, there should be no concern about initiating OCs in young girls who are sexually active, even prior to the onset of menses.

Young women in Planned Parenthood Federation of America (PPFA) clinics continue OC use as long as they wish if no complications occur. Teenagers are not advised to rest from OC use periodically or to limit pill use to 5 years. In fact, resting from OC use only heightens the chance of an unplanned pregnancy.

Oral contraception is best initiated for the first time with one of the following schedules: either starting on the 5th day following the onset of menses or starting on the first Sunday following the onset of menses (if the woman wishes to avoid withdrawal menses occurring on weekends). The 28-day package allows teenagers to establish the daily pill-taking habit. Use of a barrier method during the first months of pill use may be indicated for teens who are likely to forget to take their pills regularly.

Since OC users in the teenage bracket are most likely either to discontinue OC use or use OCs inconsistently, careful patient counseling at the initial visit is essential. The clinician gives simple but complete explanations about oral contraception and its possible side effects and the importance of follow-up visits. PPFA Fact Sheets and Consent Forms are readable by those with a 6th-grade education.

When the OC user returns for her follow-up visits, the clinician considers whether alteration of the dosage or type of OC may be indicated. Among pill users, a variety of minor symptoms, including nausea, breast enlargement, weight gain, and dizziness are more common complaints. Because the lowest-dose OCs, the triphasics, have fewer of these minor side effects, they are particularly valuable for teenagers (14). Minor side effects typically disappear with continued use, but unfortunately they are often disturbing enough to

cause many teenagers to discontinue use out of fear that they may foreshadow more major complications, such as cardiovascular problems, benign liver tumors, and gallbladder disease. Hospitalizations associated with these complications do occur among women who take pills with higher doses of estrogen, among those with contraindicating factors, and among those aged 35 and older. Such hospitalizations are, however, extremely rare among women under age 25: only 4 per 100 000 pill users (10).

Emergency postcoital contraception

Emergency postcoital contraception is an important option that needs to be more extensively prescribed. Since teenagers are the most likely group to have unplanned sexual intercourse, access to this method of fertility control is particularly important. Yuzpe has shown that initiating a high dose of oral contraceptives (eg, 100 μ g of ethinyl estradiol with 1 mg Norgestrel repeated 12 h later) within 72 h of a single act of unprotected or inadequately protected coitus is at least 95% effective. High-dose estrogens alone are similarly effective, but often cause more nausea and vomiting (15).

Condom

The condom, combined with a spermicide, is the next best contraceptive choice for teenagers. A National Academy of Sciences National Research Council panel has stressed the importance of condoms as a readily accessible contraceptive that not only prevents pregnancy but also protects against some STDs.

Condoms can be particularly useful for adolescent girls during the vulnerable period, often a year, between first intercourse and first use of prescription contraceptive methods. When used correctly at every coitus, the condom is an effective contraceptive option.

Spermicides

Spermicides are available over the counter in the USA, in foams, jellies, creams, suppositories, foaming powders, and tablets. Some are packaged in individual applications for immediate use. The spermicide Nonoxynol-9 contained in most chemical spermicides has been shown to offer some protection in vitro against many sexually transmitted microorganisms, including gonococci, *Treponema pallidum*, chlamydia, monilia, *Trichomonas*, and herpesvirus. To obtain higher efficacy rates spermicides can be combined with a condom as protection against repeated coital acts, or with a diaphragm.

The spermicide-releasing vaginal sponge is a relatively new spermicidal option in the USA. Unlike other spermicidal preparations, it can be inserted several hours before intercourse. Its effectiveness rate is lower than that of the diaphragm, but can be improved when it is used in conjunction with a condom.

Many young women consider it an advantage that spermicides require

neither a prescription nor consultation with a clinician. Spermicide-related products also tend to be inexpensive and need be used only as required. Side effects are relatively few—basically limited to rare allergic reactions. Vaginal contraceptives can present an attractive, if not highly effective choice for teenagers.

Diaphragm/cervical cap

As young women have become more concerned with active control of their reproductive functions, the diaphragm has become somewhat more popular in the USA. There are few medical contraindications to diaphragm use other than allergy to latex or spermicide. However, many teenagers consider the diaphragm unacceptable, because its use is directly related to coitus and often they lack the privacy necessary for consistent use.

The cervical cap has recently received approval from the US FDA for national marketing. There has been enthusiastic support for the cervical cap in certain quarters of the US public. However, it is not at all certain that this method will be popular with teenagers. The cervical cap has the advantage of being noncoitally dependent and less messy than other female barrier methods. However, in terms of patient insertion and removal the cervical cap is more difficult than the diaphragm, while it is about as effective. FDA regulations require that the cap can only be prescribed for women with normal Pap smears, and the Pap must be repeated after 3 months of use and annually thereafter.

Patients who choose the cap require instruction regarding dislodgement during intercourse as well as identification of possible cap-related health problems, since appropriate clinical treatment is essential if dysplasia develops.

The diaphragm and cervical cap with spermicidal cream or jelly may be appropriate for highly motivated teenagers (particularly those who specifically do not want OCs). Like the condom and spermicides, both have the benefit of providing some protection against STDs. Although in some ways more convenient than the diaphragm, the cap has disadvantages which make it an unlikely candidate for general acceptance with teenagers. The diaphragm is a safe contraceptive with no serious side effects and may be more appropriate for the young woman whose sexual relations occur only rarely or sporadically.

IUDs

There are 2 IUDs currently available in the USA: the ParaGard and Progestasert. The ParaGard (or Copper T 380A) is especially effective for women over 25. The IUD has an excellent effectiveness rate, but it is generally considered unsuitable for most adolescents due to concern about increased risk of PID and subsequent infertility. The IUD is only recommended for women in mutually exclusive monogamous relationships.

Other negative aspects of teenage IUD use include a considerably higher rate of IUD expulsion in nulligravid patients as well as a greater incidence of cramping and bleeding. In addition, the tightness of the cervical canal in most