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New Attention to the IUD

Expanding women's contraceptive options to meet their needs

Catherine Richey/CCP

Series B, Number 7
Intrauterine Devices

Photo: Midwives in Nicaragua learn about the IUD during a workshop. Midwives and other health workers besides physicians can provide IUD services safely and effectively when appropriately trained.

Key Points

Modern intrauterine devices (IUDs) are safe, effective, and quickly reversible long-term contraceptives that require little attention after insertion. Yet safety concerns and programmatic challenges have held back IUD services in many countries. New assessment of research findings, recently translated into guidance by the World Health Organization, should help reassure providers that most women can use IUDs safely.

Some family planning programs now are giving the IUD new attention. Basic requirements for making high-quality IUD services available include:

- **Service delivery guidelines** updated by stakeholders to remove unnecessary barriers.
- **Front line providers trained** how and why to follow the guidelines and backed up with supportive supervision.
- **A core group of IUD providers,** well trained in IUD insertion and removal, counseling, and management of side effects and complications, who can maintain their skills by seeing a steady flow of clients. Competency-based training, which focuses on ensuring each trainee demonstrates competence, works best.
- **A referral system** to assure that women who want IUDs can easily make contact with the core group of providers.
- **Necessary infrastructure, equipment and supplies** to provide high-quality IUD services. Low-resource settings can adopt innovative strategies to provide ongoing IUD services.
- **Clients who are well informed** about the IUD. Well-designed communication activities and helpful counseling increase people's understanding of the IUD and may reduce unfounded or exaggerated concerns.

CONTENTS

3 **The IUD: An Important Method with Potential**
Programmatic challenges and safety concerns have held back IUD use in many countries. Most recent research finds that serious complications are rare with modern IUDs. Some family planning programs now are taking action to create or renew interest in the method.

6 **Providing High-Quality IUD Services**
Successful IUD services require a holistic approach that pays attention both to policy and service delivery on one hand and to the public and potential users' knowledge and perceptions on the other.

8 ***Spotlight:* Kenya Commits to Renewing Interest in the IUD**
In Kenya levels of IUD use have dropped since the 1980s while overall contraceptive use has risen. The Kenya Ministry of Health recently began an initiative to reintroduce the IUD.

17 ***Feature:* Good Counseling Increases Client Satisfaction**
Informative and empathic counseling helps clients make good family planning choices and use their chosen methods successfully. Using visual aids, such as pelvic models, can help clients fully understand what to expect with use of the IUD.

19 **Very Low Overall Risk of Infection with IUDs**
The majority of evidence indicates that a woman who does not already have an STI—in particular, gonorrhea or chlamydia—cannot get pelvic inflammatory disease (PID) just from having an IUD inserted.
A woman with gonorrhea or chlamydia at the time of IUD insertion, however, is at higher risk of PID in the first few weeks after insertion than she is later. After the first few weeks, an STI may be no more likely to progress to PID in an IUD user than in another woman.

21 ***Box:* Evidence Shows Many Women with HIV Can Use IUDs**
Recent evidence shows that IUDs do not increase a woman's chances of acquiring HIV infection or the risk that an infected woman will pass HIV to a sex partner. Also, HIV infection does not appear to lead to more complications of IUD use.

22 **Minimizing the Risk of Infection**
Where laboratory testing for STI diagnosis is not available, medical and sexual history, client self-assessment, and pelvic examination can help assess whether a woman might have gonorrhea or chlamydia and so should not have an IUD inserted.

24 **Clinical Characteristics of IUDs**
IUDs are highly effective, quickly reversible, and require little action from the user. Increased bleeding with copper IUDs is common. Complications, including expulsion and perforation, are not.

27 **Bibliography**
Note: Italicized reference numbers in the text refer to citations printed on page 27. These were the most helpful in preparing this report. Other citations can be found online at http://www.populationreports.org/b7/.

Checklist: Program Plan for Providing High-Quality IUD Services, p. 7

Checklist for Screening Clients Who Want to Initiate Use of the Copper IUD, from Family Health International, p. 13

Counseling Aid for Communicating IUD Effectiveness, p. 25

IUD Use, STIs, and HIV-Related Conditions: 2004 WHO Medical Eligibility Criteria, p. 10

Do IUDs Increase the Risk of PID in Women with STIs?, p. 21

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The IUD: An Important Method with Potential

The intrauterine device (IUD), a flexible frame that fits inside a woman's uterus, provides very effective, safe, and long-term—yet quickly reversible—protection from pregnancy. IUDs can be one of the most cost-effective contraceptive methods because modern IUDs can be used for many years—up to 10 years and possibly more for the copper-bearing TCu-380A IUD, and up to 5 years for the copper-bearing Multiload-375 or the hormonal levonorgestrel-releasing IUD (LNG-IUD) (See Table 1). Many women find the IUD to be very convenient because it requires little action once it is in place.

Because it is a long-term, reversible method, the IUD could meet the needs of many women—both those who want to end childbearing altogether and those who want to postpone childbearing for some years. More than 100 million sexually active women in developing countries have an unmet need for family planning (191). That is, they do not want more children or they want to postpone their next pregnancy by at least two years, and yet they are not using contraception. Many of these women might find a long-term contraceptive method convenient.

In addition, many women become pregnant unintentionally due to contraceptive failure, often a result of users' incorrect or inconsistent use of contraceptives. Because IUDs are highly effective, their wider use would reduce the overall number of unintended pregnancies more than would wider use of most other methods. For example, in 19 countries with Demographic and Health Surveys, a median of 15% of unintended pregnancies resulted from contraceptive failure (31). Among IUD users, however, contraceptive failure is rare. In these 19 countries, 2% of IUD users who did not stop using the IUD for other reasons became pregnant by the end of the first year of use (due to method failure), compared with 7% of pill users, 10% of condom users, and 20% of periodic abstinence or withdrawal users. The IUD is very effective—more than many other methods—both because its contraceptive effect makes it less likely to fail than other reversible methods and because it requires little action from the user (31, 245).

Despite these advantages, IUDs are widely used only in a few large countries, such as China, Egypt, and Vietnam, and little used in most countries (see Figure 1, p. 5). Due to these few large countries, however, almost 153 million married women of reproductive age worldwide, or 13% of all such women, use IUDs (see Table 2). Among married users of family planning, about one in every five relies on the IUD—a rate second only to that of female sterilization (169, 248).

As family planning programs become aware of the potential of the IUD, more and more countries are taking action to create or renew interest in the method, among both

Table 1. Overview of IUDs

Characteristics of the copper-bearing TCu-380A IUD and the hormonal levonorgestrel-releasing IUD (LNG-IUD)

TCu-380A	LNG-IUD
EFFECTIVENESS • Very effective – 3 to 8 women per 1,000 become pregnant in the first year of use (*214, 216, 249*)	• Even more effective – 1 to 3 women per 1,000 become pregnant in the first year of use (125, *214*)
DURATION OF USE • Up to 10 years and may be extended to 12 years (49, *249*)	• Up to 5 years and may be effective for longer (*29, 267*)
POSSIBLE SIDE EFFECTS • Increases menstrual bleeding (*244*)	• Decreases menstrual bleeding with continued use and may cause lack of bleeding altogether (7, 38, 69, 127, 161, *235*) • Some other hormonal side effects, such as bloating, acne, and breast tenderness
THERAPEUTIC USES • None	• Increases blood iron levels over time (6, 188, 218, 219); helps avoid anemia (56) • Treating prolonged or excessive menstrual bleeding (6, 33, 98, 237) • As the progestin component of hormone replacement therapy, in place of oral progestins, to avoid bleeding caused by oral progestins (175, 234, 260)
PROGRAM CONSIDERATIONS • Cost effective because one IUD can be used for a long time • Requires specially trained providers	• More costly than the TCu-380A but still cost effective • Requires training providers in new insertion technique

Table 2. Estimated Worldwide Use of IUDs Among Married Women[a] Ages 15–49, 2005

Region & Country	% Using Any Method	% Using IUDs	% of Contraceptors Using IUDs
DEVELOPING AREAS	**57**	**14**	**24**
Sub-Saharan Africa	19	1	3
Near East & North Africa	52	14	29
Asia	63	16	26
China	84	36	43
Other Asian	50	4	9
Latin America & Caribbean	69	8	12
Pacific (Oceania)	28	1	2
All developing areas except China	48	5	11
DEVELOPED AREAS	**69**	**13**	**19**
Europe	73	9	13
Eastern Europe & Central Asia	63	26	42
North America	75	2	3
Other developed[b]	59	3	5
WORLD	**59**	**13**	**23**
World, except China	52	7	13

[a] Most countries in Asia and the Near East and North Africa do not survey unmarried women about their contraceptive practices. To facilitate cross-national comparisons, data reported are only for married women of reproductive age.

[b] Includes Australia, Israel, Japan, and New Zealand.

Methodology and data sources: Data for the number of married women ages 15–49 for each country were obtained from population projections for 2005 by the World Bank (261). Percentages are weighted by population size and use the most recent data from the Demographic and Health Surveys and Reproductive Health Surveys and, for countries without these surveys, data from the United Nations, 2004 (248), the U.S. Census Bureau's International Database (253), and other nationally representative surveys.

How To Use This Report

Family planning program managers can use this report to:

- Overcome perceived programmatic challenges to providing IUD services, including approaches to keep down costs (see p. 6).
- Help assure good-quality care for IUD services. The checklist, "Program Plan for Providing High-Quality IUD Services," may be particularly useful (see p. 7).
- Answer questions from providers and policy makers about IUD safety, medical eligibility criteria, and programming needs.
- Be alert for common provider biases—and practices that come out of those biases—that unnecessarily limit IUD use.

Family planning providers can use this report to:

- Apply evidence-based guidance so that women are not unnecessarily excluded from IUD use. A checklist developed by Family Health International can help providers screen potential IUD clients (see pp. 13–16).
- Learn how to minimize the risk of infection following IUD insertion (see p. 23).
- Explain more clearly to clients the effectiveness of IUDs and other contraceptive methods, using Paling Palettes© to show the chances of pregnancy visually rather than through numbers (see p. 25).
- Counsel potential IUD clients effectively to help them make good family planning choices and increase successful use of their chosen method (see p. 17).

clients and providers, by addressing barriers to greater IUD use (see below). These countries include Bangladesh, Ethiopia, Ghana, Guatemala, Honduras, Kenya, Mali, Nepal, Nigeria, Tanzania, and Uganda (66, 71, 99, 186, 187, 220). In these countries levels of IUD use among married women ranged from 0% to 10% in the latest surveys, conducted between 1999 and 2003. (See Web Table[1] for country data on use of contraceptive methods by married women.)

Outdated Safety Concerns and Current Programmatic Challenges Have Held Back Use

Misperceptions about the safety of the IUD help explain low rates of use in many countries. Concerns first arose in the 1970s, when one particular all-plastic IUD, the *Dalkon Shield*, was linked to septic (infected) miscarriages and pelvic inflammatory disease (PID) (infection ascending from the cervix into the uterus, fallopian tubes, and ovaries, which can lead to infertility) (*213*, 239). Unlike other IUDs, which have a single string of solid plastic, the strings of the *Dalkon Shield* were made of many fibers wound together and enclosed in a plastic sheath. Some researchers think that these multifilament strings helped bacteria to move from the vagina into the uterus, causing PID (*213*, 239, 240). The *Dalkon Shield* was available in the U.S. from January 1971 to June 1974 (236). Sales outside the U.S. stopped in April 1975 (298). After the *Dalkon Shield* controversy, most manufacturers took their IUDs off the market. Even now only 2% of married women in North America use IUDs (see Table 2).

Early research linking other types of IUDs to PID and infertility further damaged the reputation of IUDs. Most research since 1980, however, finds that serious complications such as PID are rare with modern IUDs (see p. 19). Early studies suffered from several biases that led them to overstate the risks. For example, most early studies compared IUD users with users of contraceptive methods that protect against PID, such as oral contraceptive pills and barrier methods (*244*). Still, a recent meta-analysis of 36 observational studies published between 1974 and 1990 concluded that users of IUDs other than the *Dalkon Shield* were about twice as likely as women not using contraception to develop PID (288). Analysis of data from 13 World Health Organization (WHO) clinical trials found the greater risk of PID among IUD users is concentrated in the first 20 days after insertion, suggesting that the risk is associated with the presence of a sexually transmitted infection (STI) at the time of insertion (see p. 19).

Studies in El Salvador, Ghana, Guatemala, Kenya, Morocco, and elsewhere reveal that programmatic challenges also have hindered IUD use (20, 26, *64*, 84, 101, 108, 231). These challenges include the need for more infrastructure, supplies, and equipment to provide IUD services than for many other reversible methods and a shortage of trained and

[1] Supplementary materials are available for download and printing from the World Wide Web at http://www.populationreports.org/b7/b7tables.shtml.

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Providers can assure family planning clients that the IUD is a small device. The copper-bearing TCu-380A IUD (left) and Multiload-375 (middle), and the hormal levonorgestrel-releasing IUD (right)—the three main IUDs used currently—are shown here in a woman's hand.

motivated professionals who are confident of their skills to insert and remove IUDs. A further problem has been inappropriate policies or providers' practices that hinder clients' access to IUDs, such as the misconception that IUDs cannot be used by women who have never had children.

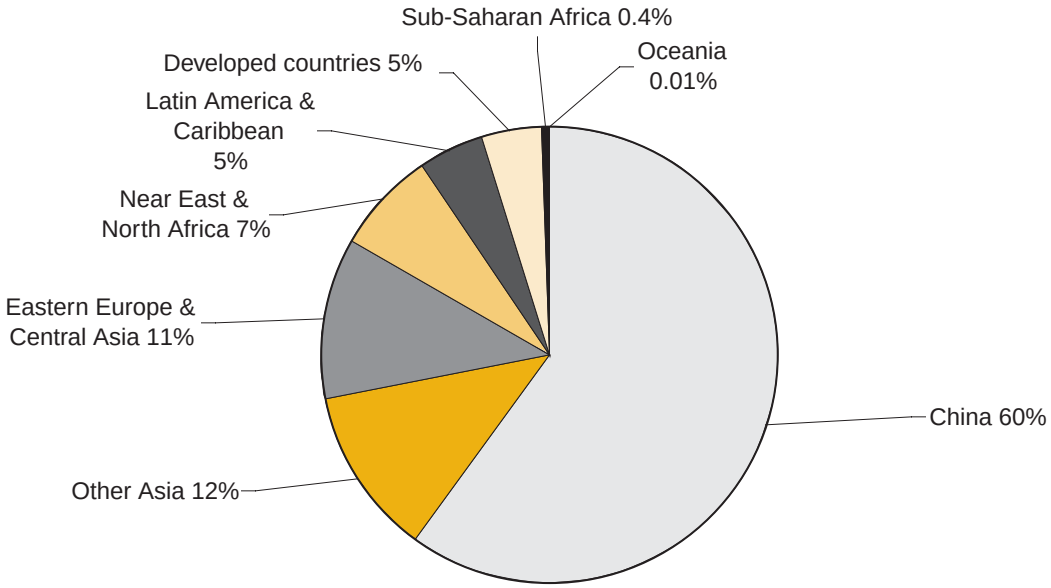
Current Supply of IUDs

The U.S. Agency for International Development (USAID) supplies the TCu-380A to developing-country programs. The two other major donors of contraceptives, the United Nations Population Fund (UNFPA) and the International Planned Parenthood Federation (IPPF), provide both the TCu-380A and the Multiload-375. In 2000 USAID provided about 1.6 million IUDs to family planning programs, and in 2004, nearly 2 million (179). The large majority of the IUDs were provided to one country—Egypt.

The hormonal LNG-IUD, marketed under the brand names *Mirena*® and, in some European countries, *Levonova*®, is currently registered in 104 countries worldwide (195). It has been sold in Europe since 1990. The U.S. Food and Drug Administration (FDA) approved it in December 2000 (28, 168). FDA approval would allow USAID to supply the LNG-IUD to developing countries. Its high cost and the need to train providers in a new insertion technique have discouraged USAID from distributing it, however (199, 201). Patent rights for the *Mirena* LNG-IUD expired in December 2003 (174). This could open up the market for less expensive, generic versions of the LNG-IUD.

Figure 1. Most IUD Users Are in China

Worldwide Distribution of IUD Users by Region



The large majority of married IUD users worldwide—60%, or almost 92 million—live in China. The IUD is popular in a few other Asian countries, including Mongolia, North Korea, Taiwan, and Vietnam; in Cuba and Mexico; and in several countries of the Near East and North Africa. Among developed countries the IUD is the most popular method in Eastern Europe and Central Asia and in Finland and Norway. In other countries of the world the IUD is much less commonly used.

Methodology and data sources: See Table 2, p. 4.

Population Reports

Providing High-Quality IUD Services

Introducing or reintroducing a contraceptive requires attention to policy and service delivery, on one hand, and to the public and potential users' knowledge and perceptions, on the other (206, 226, 264). Providing IUD services requires particular attention to service delivery factors—for example, service delivery guidelines that are up-to-date; providers who know how and why to follow guidelines; infrastructure, equipment, and supplies; a core group of competent IUD providers and a referral system that brings women to them (see checklist, p. 7). But programs cannot neglect improving the perceptions of the IUD among potential clients and ensuring they know where to obtain services. A holistic approach that brings well-informed clients together with good-quality services will help ensure a successful IUD program.

Updating Guidelines Can Remove Medical Barriers

Unnecessary medical barriers to contraceptive use incorrectly restrict or deny clients access to a method. These barriers often have a medical rationale, but they are not justified by the weight of scientific evidence (*203*). Common medical barriers to IUD use include limiting insertion to the time a woman is menstruating and requiring unnecessary multiple follow-up visits (*203*). Restrictions based on marital status, age, or the number of children that a woman has also are common barriers (22).

Medical barriers can be imposed at the policy level, through outdated or misinformed service delivery guidelines, or at the provider level, through individual attitudes and practices (22, *203*). To ensure good quality of care, service delivery guidelines for providing contraceptives should be based on current scientific evidence. In many countries, however, national guidelines have directed providers to impose unnecessary restrictions. For example, in Burkina Faso and Kenya guidelines in the 1990s restricted IUD use to women who had had children (22).

No universal rules exist for assessing when guidelines should be reviewed and updated. The most common advice is, with each revision, to plan when the next review will take place (296). Guidelines can become quickly outdated, however, if new evidence comes out before the scheduled review. An alternative approach is to update guidelines when new evidence becomes available.

At the local level systematically and continuously checking the world's medical literature for relevant new evidence would be time-consuming and duplicative. The World Health Organization, however, does continuously monitor medical literature, looking for new research that will affect its family planning guidance (293). A WHO Expert Working Group convenes as needed to update WHO guidance based on full reviews of medical literature including the most recent evidence.

Thus WHO guidance serves many countries as the primary basis for developing and updating national service delivery guidelines (59, 124, 230). In 2004 WHO updated its guidance for some contraceptive methods, including IUDs (*181*, 194). (For full text see the WHO Web site at: http://www.who.int/reproductive-health/family_planning/evidence.html.) In particular, the 2004 *Medical Eligibility Criteria for Contraceptive Use* contains several significant changes to recommendations for women with STIs and HIV-related conditions—changes that allow more women to start and continue using IUDs (see box, p. 10).

While international standards are important and useful, so too is the involvement of key stakeholders at the country level to develop and revise national guidelines. This involvement helps to promote consensus on and ownership of the new guidelines, and it reassures providers that the local situation has been taken into account (*46*, 124). For example, the Kenyan Ministry of Health sponsored a series of meetings for key stakeholders, including Ministry of Health personnel, leaders of medical and other health professionals' associations, donor organizations, program managers, and representative service providers, to translate WHO guidance on IUDs into national service delivery guidelines (see box, pp. 8–9). These meetings were crucial to building a sense of shared ownership of the new guidelines and strong partnerships among the stakeholders (128). For instance, various professional associations, which represent most health care providers in Kenya, are encouraging providers to support the Ministry of Health's initiative to improve access to the IUD (*17*).

A holistic approach that brings well-informed clients together with good-quality services will help ensure a successful IUD program.

Program Plan for Providing High-Quality IUD Services

Checklist

Family planning program managers can ask themselves, clinic administrators, and service providers the questions in this checklist to help assure that programs can provide high-quality IUD services. Programs should aim to accomplish most or all of the tasks in the checklist. A program can start offering IUD services, however, before completing all the tasks.

National service delivery guidelines are up-to-date

- ❑ Are the guidelines based on the most current scientific evidence?
  Example: Most women can use IUDs safely, including many women at high risk of or with HIV infection.
  Tip: The World Health Organization's *Medical Eligibility Criteria* and *Selected Practice Recommendations for Contraceptive Use* are authoritative resources for developing and updating national guidelines.
- ❑ Are key stakeholders involved in the development/revision process?
  Examples: Ministry of Health personnel, donors, professional associations, program managers, service providers, client representatives
- ❑ Have the updated guidelines been distributed to providers and their supervisors?
- ❑ Do providers and their supervisors know how and why to apply the guidelines?
- ❑ Do providers follow the guidelines?

Clients are well informed about IUDs

- ❑ Do family planning media campaigns mention the IUD as a contraceptive choice?
- ❑ Do community and clinic information sessions about contraceptive options include the IUD?
- ❑ Are printed materials about IUDs available in waiting rooms?

Clinics have necessary infrastructure, equipment, and supplies

- ❑ Do clinics have the infrastructure to provide IUD services?
  Examples: Clean water, sufficient light, a private space, a bed or table
- ❑ Do clinics have required disposable supplies?
  Examples: IUDs, cotton balls, antiseptic solution, gloves
- ❑ Do clinics have the required instruments and supplies?
  Examples: Vaginal specula, forceps, uterine sound, scissors, solution cup, basin with 0.5% chlorine solution
- ❑ Do clinics have the capacity to process IUD instruments by high-level disinfection or sterilization?

A core group of IUD providers are well-trained and confident of their skills

- ❑ Has a core group of IUD providers[1] been selected to provide IUD services?
- ❑ Are IUD providers competent to insert and remove IUDs, while taking care to reduce the risk of infection, in addition to being competent to provide other contraceptive methods?
- ❑ Are IUD providers competent to manage complications of IUD use or know where to refer clients with complications?
- ❑ Are IUD providers trained how to communicate effectively and sympathetically with clients?
- ❑ Do IUD providers serve enough IUD clients to maintain their skills?
- ❑ Do IUD providers receive refresher courses to help maintain their skills?
- ❑ Are IUD providers given continued support and guidance?
- ❑ Are there enough IUD providers to give women easy access to services?

A referral system enables potential IUD clients to easily contact competent IUD providers

- ❑ Do all providers offer IUDs to clients as a contraceptive choice when appropriate?
- ❑ Can all family planning providers communicate general information about the IUD to potential IUD clients?
- ❑ Is there a referral list of IUD providers available at all family planning facilities?
- ❑ Do family planning providers and community health workers use the IUD provider referral list?
- ❑ Are clinics that offer IUDs in easily accessible locations?

[1] Alternatively, programs can implement a broad-based approach in which many or all family planning providers are trained to provide IUD services. Experience has shown, however, that unless providers serve IUD clients regularly, many quickly lose their skills and confidence.

This checklist can be photocopied.

SPOTLIGHT

Kenya Commits To Renewing Interest in the IUD

While overall the use of modern contraceptives in Kenya has increased steadily, levels of IUD use have dropped since the 1980s. Between 1989 and 2003 the percentage of married women using the IUD fell from about 4% to 2%. The proportion of modern-method users relying on IUDs dropped over this time from 21% to 8% as use of short-term methods increased (109, 151). Some of these shifts reflect the growing availability of other methods, such as injectables. Still, a service delivery assessment attributed the decline in IUD use to several other factors as well—poor quality of IUD services, including lack of knowledge about the IUD among some providers; providers' fear of HIV transmission from clients; clients' negative perceptions of the IUD; and providers' reluctance to provide the IUD because of rare but serious side effects and because of perceptions that providing IUD services requires a high level of skill and too much time (47, 231).

In 2001 the Kenya Ministry of Health, in coordination with 15 partner organizations, began an initiative to reintroduce the IUD into Kenya's national family planning program. By renewing interest in the IUD and strengthening reproductive health service delivery systems in general, the Ministry seeks to improve the balance and sustainability of contraceptive choices (*46*).

The initiative uses several approaches to address the problems identified in the service delivery assessment. These include building consensus and support among stakeholders, improving service delivery, and raising awareness and interest among family planning clients (*46*).

Building consensus and support among stakeholders. In 2001 the Ministry of Health and its partners sponsored a series of stakeholder meetings among policymakers, funding agencies, program managers, and service providers. The stakeholders reviewed and discussed IUD research findings and international guidelines in the Kenyan context, and they revised national family planning policies and service delivery guidelines (*17*).

Since 2001 the Ministry of Health has distributed more than 4,400 IUD advocacy kits to program managers and providers. The kits are designed to increase program managers' and providers' awareness of the safety, effectiveness, cost-effectiveness, and convenience of the IUD (*46*, 111, 134). With this newly gained knowledge, the managers and providers can become IUD advocates themselves and draw clients' attention to the IUD.

Improving service delivery. The initiative also focuses on maintaining stocks of IUDs, equipment, and supplies. Currently, IUD insertions number about 10,000 per year in Kenya, but that number is expected to rise. USAID is providing an additional 50,000 IUDs to public and private health care centers (*17*). AMKENI — a USAID-funded family planning and reproductive health project in Kenya—and several international family planning organizations are supplying complete IUD insertion kits to the health centers participating in the reintroduction initiative (134).

The initiative also is exploring new IUD counseling and training techniques. For example, the Ministry of Health and its partners tested a "detailing" approach, in which ministry supervisors used education and marketing techniques to address providers' biases against the IUD and to enhance counseling skills (45). In this approach IUD champions, or "detailers," as they would be called in the pharmaceutical industry, made two visits to each health center to discuss the IUD with providers and community-based distributors and encourage improving IUD services and education. The detailers also distributed counseling materials that highlight key messages for clients about the IUD (45). The

health centers that received detailing visits showed an increase from a median of 0.3 insertions per month per center to 0.7 per month. The numbers of IUD insertions declined after the detailing intervention ended, however, indicating that continual detailing visits may be needed to sustain the increase in IUD insertions (303).

The Ministry of Health, Marie Stopes International, and the German government-owned bank Kreditanstalt für Wideraufbau Entwicklungsbank (KfW Development Bank) are exploring ways to provide IUDs at low cost to clients (113, 171). One such approach is to offer coupons to potential IUD users. A woman would give the coupon to the provider that she selects and pay only a small fee for the IUD herself. The government would reimburse the provider for the rest of the fee when the provider presented the coupon (170). Unlike a conventional approach, in which the government would pay for IUD supplies directly, this approach links payment to actual IUD insertions and encourages providers to offer high-quality services that attract clients (171, 279).

Creating demand for the IUD. The initiative works with community leaders and providers throughout Kenya to provide the public with accurate information about the IUD, address men's and women's concerns about the method in community forums, and dispel myths and misperceptions. The effort employs radio broadcasts, community fairs, and print materials. For example, at educational sessions AMKENI distributed to potential family planning clients 21,000 Swahili- and English-language brochures containing general family planning and IUD-specific information (134). As of March 2004 nearly 12,000 potential family planning clients had attended IUD educational sessions (*46*, 135). Between 2002 and 2005 the percentage of family planning clients choosing the IUD increased from 2% to 5% in the 68 participating facilities (5). Other countries in sub-Saharan Africa, including Ethiopia, Ghana, and Uganda, have shown interest in replicating Kenya's initiative (71).

Photo: Champions can use education and marketing techniques to help audiences implement best practices. Here, a Kenya Ministry of Health supervisor acts as an IUD champion, or "detailer," encouraging providers and community-based distributors to improve IUD services. Credit: Jennifer Wesson/FHI

Improving Providers' Practices

Providers often impose their own barriers to contraceptive use. Either they are not aware of the guidelines, or they misinterpret or even ignore them when they contradict established understanding, practices, or beliefs. For example, many providers interviewed in the 1990s in Botswana, Burkina Faso, Senegal, and Zanzibar, Tanzania, said that they impose a minimum age requirement for IUD use, even though national guidelines do not (22).

When researchers from Family Health International showed family planning providers in Bangladesh, the Dominican Republic, Kenya, and Senegal a checklist of medical eligibility criteria for IUD use (see pp. 13–16), the providers said it would be useful to help apply service delivery guidelines and easy to use (48). Still, posed with hypothetical scenarios, an average of 30% of these providers would ignore the checklist and would deny IUDs to women who would be, in fact, eligible for IUD insertion, based on 2004 WHO guidance. Apparently, some providers could not change their practices based solely on the guidance in the checklist.

This finding suggests that programs need to do more than distribute updated guidelines to providers. Programs should use a variety of dissemination and implementation approaches appropriate for the barriers to be overcome. For example, seminars or workshops may be sufficient if the only barrier is lack of knowledge among providers. Educational outreach through opinion leaders would be more appropriate for overcoming providers' biases against the IUD because of cultural issues or practices (286).

Providers are more likely to apply service delivery guidelines when trained how to apply them, especially when supportive supervision reinforces that training (192). In Kenya providers' knowledge, attitudes, and practices improved significantly and incrementally when they received standard training, training plus a package of printed materials, or training, printed materials, and follow-up supervision (*229*). Before the providers received training, 73% of them incorrectly thought that only women who had had children could use IUDs. After training, this number dropped to 46%, 41%, and 30% in the three groups. Returning to work, the trainees updated some of their colleagues who had not attended the training. The knowledge, attitudes, and practices of these providers also improved significantly but not as much as those of the directly trained providers.

Assuring Infrastructure, Equipment, and Supplies

To assure a continuing capability to offer IUDs, a health care facility needs more infrastructure, equipment, and supplies than for other reversible contraceptive methods. For example, IUD services require clean water, a private space, a bed

IUD Use, STIs, and HIV-Related Conditions: 2004 WHO Medical Eligibility Criteria

According to World Health Organization guidance, the following women with STIs and HIV-related conditions generally can start using IUDs (category 2)(*268*). (See table below for descriptions of categories.)

- Women who have had PID in the past, so long as they have no known current risk factors for STIs (If they had a subsequent pregnancy, they are category 1.)
- Women with STIs *other than* current purulent cervicitis, gonorrhea, and chlamydia
- Women with vaginitis, including trichomonas vaginalis and bacterial vaginosis
- Women who live in areas where STIs are common but who are not themselves at very high individual risk of exposure to gonorrhea or chlamydia
- Women at high risk of HIV infection
- Women who are infected with HIV but do not have AIDS
- Women with AIDS who are doing clinically well on antiretroviral therapy (ART)

In addition, the women described above *and* the following women generally can continue using an IUD if the condition develops while it is in place (category 2):

- Women who develop PID or any STI—including gonorrhea or chlamydia—while using an IUD and who are undergoing treatment
- Women whose individual risk of STIs increases after the IUD is in place
- Women who develop HIV infection or AIDS with an IUD already in place (regardless of whether they are using ART)

In contrast, WHO guidance recommends that the following women should *not* start using IUDs (category 4) or usually should not start using IUDs (category 3):

- Women with current purulent cervicitis, gonorrhea, chlamydia, or PID (category 4)
- Women at very high individual risk of exposure to gonorrhea or chlamydia (category 3)
- Women with AIDS who are not doing well on ART or not receiving ART (category 3)

WHO Medical Eligibility Criteria Classification

Category	Description	Interpretation When Clinical Judgment Is Available	Interpretation When Clinical Judgment Is Limited
1	A condition for which there is no restriction on use of the contraceptive method	Use the method in any circumstances.	Yes (Use the method.)
2	A condition where advantages of using the method generally outweigh theoretical or proven risks	Generally use the method.	
3	A condition where the theoretical or proven risks usually outweigh advantages of using the method	Use of the method not usually recommended unless other more appropriate methods are not available or not acceptable.	No (Do not use the method.)
4	A condition which represents an unacceptable health risk if the contraceptive method is used	Method not to be used.	

or table, vaginal specula to inspect the cervix, forceps to clean the cervix and stabilize the uterus, a uterine sound to measure uterine depth, cotton balls, antiseptic solution, gloves, and, of course, IUDs (102, 251). In addition, a facility must have equipment to assure that, before reuse, all instruments are either (a) sterilized by autoclaving (high-pressure steam) or dry heat, or (b) high-level disinfected by boiling or steaming for 20 minutes or soaking in special chemicals (102). (Sterilization kills all microorganisms, while high-level disinfection kills all but some forms of bacteria. High-level disinfection is acceptable for processing used IUD instruments because the instruments touch only intact mucous membranes or broken skin, not the sterile tissue beneath the skin (102).) Some donors, such as UNFPA, provide IUD kits that include all necessary supplies and equipment (252).

Providing IUD services can be demanding for family planning programs with limited resources. Many clinics lack either the necessary infrastructure or the equipment and supplies. In Guatemala in 2002, for example, nearly all government clinics and health centers had the necessary infrastructure (consisting of a private space, a gynecological bed, and electricity), but about half lacked equipment and supplies (20, 65). In contrast, in Ghana nearly all family planning facilities had equipment and supplies, but only about half had the necessary infrastructure (65, 84).

Still, family planning programs can adopt innovative

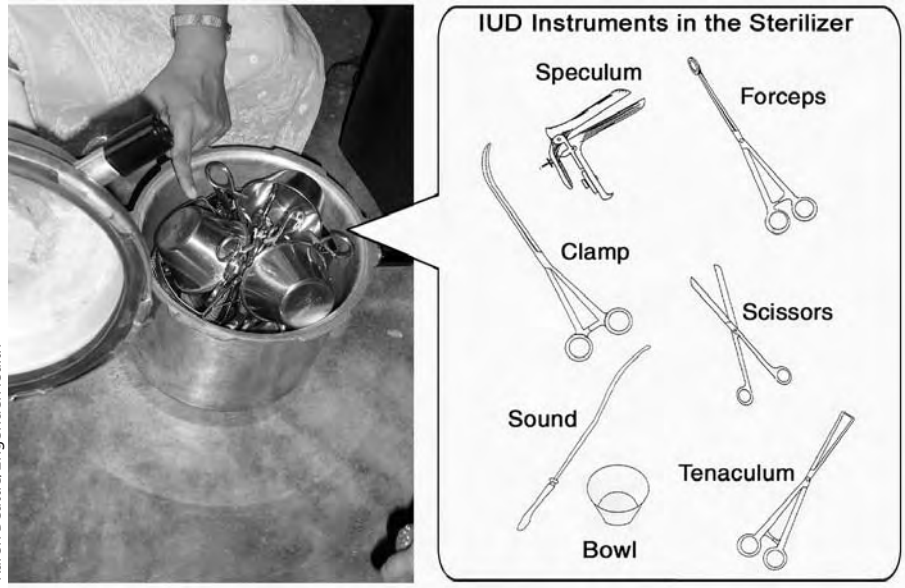
strategies in low-resource settings. In Bangladesh, for example, the Rural Service Delivery Program provides family planning services, including IUDs, through satellite clinics run out of rural homes without electricity or running water. The program transformed ordinary tables into gynecological beds and designed curtains to ensure privacy during pelvic exams (16). The program also adapted a portable steam sterilizer, originally designed for sterilizing hypodermic needles and syringes, for sterilizing IUD insertion equipment and supplies (13). The portable sterilizer enables health workers to fully sterilize IUD instruments and supplies beforehand at stationary clinics, instead of boiling them at the homes, which is not always possible. To be certain the instruments and supplies remain sterile during transport, health workers keep the instruments in the portable sterilizer until just before the insertion procedure. While mobile teams such as these can successfully offer IUD services, they must take special care to maintain cleanliness and avoid mistakes, since follow-up care is often difficult.

Cost-effective for programs and clients. An IUD can be used for many years, and the user does not need more supplies. Thus over time IUDs can be cost-effective for both programs and clients, even though initial costs may be higher than for other reversible contraceptive methods. In the Mombasa, Kenya, health care system, if each method were used for its full effective lifetime, the average cost per year of contraceptive protection with an IUD in 2003 would have been about US$4, compared with US$7 for tubal ligation and between US$10 and $20 for oral contraceptive pills, implants, or injectables (*110*). The one-time cost of IUD insertion amounted to less than other methods that involve continuing costs for supplies. Also, over the long run service delivery costs for IUDs are lower than for some other methods because the IUD requires only one revisit.

If clients are asked to pay for services, the initial fee for the IUD and its insertion may be higher than for other reversible methods. In urban clinics in Kenya, for example, clients pay about US$3 at the first visit for the IUD and insertion procedure. By comparison, a single injection of the three-month injectable depot medroxyprogesterone acetate (DMPA) or one packet of oral contraceptive pills—a month's supply—costs about $1. In many cost studies, however, the IUD becomes among the least expensive methods for clients in one to five years (*30, 110, 224, 246*). For clients who cannot afford to pay the initial fees all at once, programs can set up alternative payment plans such as paying the fees in installments (36).

Programs can keep down costs. There are a number of ways to provide IUD services at modest cost per client. One way is for programs to offer immediate postpartum IUD insertion (that is, insertion within the first 48 hours after delivery of the placenta) at birthing centers. In Nyeri, Kenya, for example, the Provincial General Hospital found in the 1990s that, for one year of contraceptive protection, IUD insertions at a maternal and child health clinic six or more weeks after childbirth cost about 40% more than immediate postpartum insertion in the hospital delivery room (289). This estimate took into account the greater likelihood of expulsion with immediate postpartum insertion and the average number of revisits for each type of insertion. (While expulsion is more likely with immediate postpartum insertion than with later insertion, the additional risk is not enough to favor delaying IUD insertion (see p. 26).) Postpartum insertions cost less in Kenya primarily because sterile conditions were already present in the delivery room. In contrast, staff at the clinic had to spend extra time preparing (287). A study in Lima, Peru, also found that outpatient insertions cost about 40% more than postpartum insertions in hospitals (62). The immediate postpartum period can be a convenient time for insertion, especially for women who lack easy access to family planning services.

Eliminating unnecessary routine follow-up visits also can save on costs. WHO recommends one routine visit about a month after insertion or around the time of the client's next menstrual period (*269*). At this visit the provider checks that the IUD is still in place, looks for any signs of infection, and finds out whether the client is satisfied or has any problems. While the client should be invited to come back any time she wants help or to have the IUD removed, further routine follow-up is not needed. Most IUD users whose problems require medical intervention have serious symptoms.



Karen Beattie/EngenderHealth

A portable steam sterilizer enables mobile health teams in Bangladesh to keep IUD instruments and supplies sterile during travel to satellite clinics. Innovative strategies can ensure successful IUD provision in low-resource settings. *Illustrations adapted from JHPIEGO, IUD guidelines for family planning service programs: A problem solving reference manual*

These clients come back without a scheduled routine visit (*92*, *100*, 153). In Ecuador the Céntros Médicos de Orientación y Planificación Familiar (CEMOPLAF), a private voluntary organization that operates family planning and reproductive health clinics throughout the country, once required IUD users to return to the clinic four times in the first year after insertion. Only 30% of IUD users returned for follow-up four or more times in the first year. The average number of revisits in the first year under the four-revisit norm was 2.3 (61). Still, these IUD revisits accounted for 74% of all family planning visits and 68% of all family planning costs. In 1993 CEMOPLAF reduced the number of required routine follow-up visits from four to one. This change resulted in 29% fewer IUD revisits in 1993 than in 1992, while the number of IUD insertions remained the same (61).

Costs also can be kept down by permitting trained allied health workers to insert and remove IUDs. Studies have found that nurses, midwives, physicians' assistants, and medical students can insert and remove IUDs safely and effectively when appropriately trained (*41*, *55*, 117), and at a lower cost to programs than when physicians insert IUDs. In Chile, China, Ecuador, Ghana, Indonesia, Nigeria, Sweden, Thailand, Turkey, the U.S., and many other countries, nurses, midwives, and other health care professionals besides physicians routinely insert IUDs (*244*).

Training Staff To Provide IUD Services

Good IUD services require competent health care providers. Training must cover how to insert and remove IUDs, manage potential side effects and complications, and communicate well with clients (see box, p. 17). To succeed, training must include practical experience.

Competency-based training works best. Competency-based training develops the skills, knowledge, and attitudes required to meet standards of competence. Training continues until each trainee is competent to provide IUD services. The approach focuses on the success of each trainee, recognizing that different providers need differing amounts of practice to reach competence. Key elements of the competency-based approach include standardization of the way that the trainers themselves provide IUD services, practice with a pelvic model, and opportunities for trainees to continue practicing until they have mastered *all* necessary skills (233).

JHPIEGO, an international health organization affiliated with Johns Hopkins University, has demonstrated the value of the competency-based approach for IUD skills training. In a comparative study in Thailand, a significantly higher percentage of midwives who learned through the competency-based approach achieved competence by the end of the study period than did midwives trained by conventional techniques. Midwives in the conventional training group needed an average of 6.5 insertions before achieving competence. With the new training approach, which involved practicing on pelvic models during classroom training, midwives were competent after an average of only 1.6 insertions, and 97% of the midwives achieved competence after no more than 3 insertions. Competency-based training takes less time, and therefore it costs less, than conventional approaches (*122*).

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Practicing on models before working with clients helps trainees achieve competence faster than conventional classroom approaches. Here, family planning providers in Cambodia practice IUD insertion on pelvic models.

JHPIEGO has developed an innovative approach to implement competency-based training for IUD provision, called Modified Computer-Assisted Learning (ModCal®). Trainees learn about IUD counseling, insertion, and removal at their own pace through interactive computer modules, which replace conventional classroom lectures. Clinical facilitators are available for individual coaching and follow-up. Once trainees pass ModCal's knowledge test, they move on to practical training with pelvic models and then with clients in a clinic (103).

(Continued on page 17)

Checklist for Screening Clients Who Want to Initiate Use of the Copper IUD

Research findings over the past 20 years have established that intrauterine devices (IUDs) are generally safe and effective for use by many women, including those who have not given birth, who want to space births, and those living with or at risk of HIV infection. For some women, IUDs are not recommended due to the presence of certain medical conditions, such as genital cancer and current cervical infection. For these reasons, women who desire to use an IUD must be screened for certain medical conditions to determine if they are appropriate candidates for the IUD.

Family Health International (FHI), with support from the U.S. Agency for International Development (USAID), has developed a simple checklist (see pp. 14–15) to help providers determine quickly and with confidence whether a client may use an IUD. The checklist is included in this issue of *Population Reports* as a collaborative distribution service of the INFO Project. Based on the *Medical Eligibility Criteria for Contraceptive Use* (WHO, 2004), the checklist consists of a series of questions designed to identify any medical conditions or behaviors that would either prevent safe IUD use or require further screening. The IUD screening checklist has been successfully field-tested in four countries (Bangladesh, the Dominican Republic, Kenya, and Senegal) for comprehensibility and effectiveness in ruling clients in or out for IUD use. The language and style of the checklist can be adapted to meet local cultural and linguistic needs as long as the meaning of the questions is not changed. Because even small changes in wording can cause significant changes in meaning, FHI recommends that any translations be reviewed by someone with expertise and knowledge of the medical basis for the checklist.

This checklist is part of a series of provider checklists for reproductive health services, which was first produced in 2000 and recently revised by FHI. The other checklists include the *Checklist for Screening Clients Who Want to Initiate Combined Oral Contraceptives, Checklist for Screening Clients Who Want to Initiate DMPA (or NET-EN),* and the *Checklist on How to be Reasonably Sure a Client is Not Pregnant.* For more information about the provider checklists, please visit www.fhi.org. Please address comments about the contents of this checklist to FHI's Research to Practice Initiative at rtop@fhi.org.

Providers can detach and use as a job aid.

Explanation of the IUD Checklist

The checklist is designed for use by health care providers to screen clients who intend to use IUDs as a contraceptive method of choice. Hence, clients should first be appropriately counseled to ensure an informed decision is made to use an IUD. The checklist consists of a list of 21 questions, designed to identify medical conditions and high-risk behaviors that would prevent safe IUD use or require further screening, as well as provide further guidance and directions based on clients' responses. A health provider should determine responses to all 21 questions before inserting an IUD. In some settings the responsibility for completing the checklist may be shared – with a counselor completing questions 1–14 and an appropriately trained health provider, including a physician, midwife, clinical officer, nurse, or auxiliary nurse, determining the answers to the remaining questions during the pelvic exam. Clients who are ruled out because they answered "YES" to some of the medical eligibility questions may still be good candidates for an IUD after the suspected condition is excluded through appropriate evaluation.

Determining Current Pregnancy

Questions 1–6 are intended to help a provider determine, with reasonable certainty, whether a client is not pregnant. If a client answers "yes" to any of these questions and there are no signs or symptoms of pregnancy, it is highly likely that she is not pregnant. An IUD should never be inserted in a woman who is pregnant as it may result in a septic miscarriage.

Assessing Medical Eligibility for the IUD

7. Have you given birth within the last 4 weeks?

There is an increased risk of perforating the uterus when IUDs are inserted after 48 hours and up to four weeks postpartum. However, IUDs can be inserted by a trained professional within the first 48 hours after the client has given birth. Clients who answered "yes" to this question only should wait until four weeks after delivery to have an IUD inserted. Since there is no risk of pregnancy during the first four weeks postpartum in breastfeeding and nonbreastfeeding women, there is no need to provide her with contraceptives to use in the meantime, unless it is unlikely that the woman will return to the clinic at the specified time.

8. Do you have bleeding between menstrual periods that is unusual for you, or bleeding after intercourse (sex)?

Unexplained vaginal bleeding may be a sign of an underlying pathological condition, such as genital malignancy (cancer), or a pregnancy-related problem. All these possibilities must be ruled out before an IUD can be inserted. If necessary, refer clients to a higher-level provider or specialist for evaluation and diagnosis. Counsel the client about other contraceptive options available and provide condoms to use in the meantime.

9. Have you been told that you have any type of cancer in your genital organs, trophoblastic disease, or pelvic tuberculosis?

There is a concern about the increased risk of infection, perforation, and bleeding at insertion in clients with genital cancer. Clients with trophoblastic disease may require multiple uterine curettages, and an IUD is unwise in this situation. There is also an increased risk of perforation. Clients with known pelvic tuberculosis may have a higher risk of secondary infection and bleeding if

Checklist for Screening Clients Who Want to Iniciate the Use of the Copper IUD

First, be reasonably sure that the client is not pregnant. If she is not menstruating at the time of her visit, ask the client questions 1–6, check the correct box, and follow the instructions.

YES	1.	Did you have a baby less than 6 months ago, are you fully or nearly-fully breastfeeding, and have you had no menstrual period since then?	NO
YES	2.	Have you abstained from sexual intercourse since your last menstrual period?	NO
YES	3.	Have you had a baby in the last 4 weeks?	NO
YES	4.	Did your last menstrual period start within the past 12 days?	NO
YES	5.	Have you had a miscarriage or abortion in the last 7 days?	NO
YES	6.	Have you been using a reliable contraceptive method consistently and correctly?	NO

If the client answered **YES** to ***at least one of questions 1–6*** and she is free of signs or symptoms of pregnancy, you can be reasonably sure that she is not pregnant. Proceed to questions 7–14 to determine if she is medically eligible to use an IUD.

If the client answered **NO** to ***all of questions 1–6,*** pregnancy cannot be ruled out. The client should await menses or use a pregnancy test.

NO	7.	Have you given birth within the last 4 weeks?	YES
NO	8.	Do you have bleeding between menstrual periods that is unusual for you, or bleeding after intercourse (sex)?	YES
NO	9.	Have you been told that you have any type of cancer in your genital organs, trophoblastic disease, or pelvic tuberculosis?	YES
NO	10.	Within the last 3 months, have you had more than one sexual partner?	YES
NO	11.	Within the last 3 months, do you think your partner has had another sexual partner?	YES
NO	12.	Within the last 3 months, have you been told you have an STI?	YES
NO	13.	Within the last 3 months, has your partner been told that he has an STI or has he had any	YES

NO	13. symptoms – for example, penile discharge?	YES
NO	14. Are you HIV-positive and have you developed AIDS?	YES

If the client answered **NO** to ***all of questions 7–14,*** proceed with the **PELVIC EXAM**.

During the pelvic exam, the provider should determine the answers to questions 15–21.

If the client answered **YES** to ***question 7,*** she might be a good candidate for an IUD, but the insertion should be delayed until 4 weeks after delivery. Ask her to come back at that time.

If the client answered **YES** to ***question 8 or 9,*** an IUD cannot be inserted. Further evaluation of the condition is required.

If the client answered **YES** to ***any of questions 10–13,*** she is not a good candidate for an IUD unless chlamydia and/or gonorrhea infection can be reliably ruled out.

If she answered **YES** to the ***second part of question 14*** and is not currently taking ARV drugs, use of the IUD is not usually recommended. If she is doing clinically well on ARVs, the IUD may generally be used. HIV-positive women without AIDS also generally can use an IUD.

NO	15. Is there any type of ulcer on the vulva, vagina, or cervix?	YES
NO	16. Does the client feel pain in her lower abdomen when you move the cervix?	YES
NO	17. Is there adnexal tenderness?	YES
NO	18. Is there purulent cervical discharge?	YES
NO	19. Does the cervix bleed easily when touched?	YES
NO	20. Is there an anatomical abnormality of the uterine cavity that will not allow appropriate IUD insertion?	YES
NO	21. Were you unable to determine the size and/or position of the uterus?	YES

If the answer to ***all of questions 15–21*** is **NO**, you may insert the IUD.

If the answer to ***any of questions 15-21*** is **YES**, the IUD cannot be inserted without further evaluation. See explanations for more instructions.

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an IUD is inserted. If a woman has any one of these three conditions, she should not have an IUD inserted. Counsel her about other contraceptive options available and provide condoms to use in the meantime.

Note: Questions 10–13 are intended to identify clients at high individual risk of sexually transmitted infections (STIs), because there is a possibility that they may currently have chlamydia and/or gonorrhea infection. Unless these STIs can be reliably ruled out, clients at high risk are not good candidates for IUD insertion. IUD insertion may increase risk of pelvic inflammatory disease (PID) in these clients. They should be counseled about other contraceptive options and provided with condoms for STI protection. However, if other contraceptive methods are not available or acceptable and there are no signs of STI, an IUD still can be inserted. Careful follow-up is required in such cases.

10. Within the last 3 months, have you had more than one sexual partner?

Clients who have multiple sexual partners are at high risk of contracting STIs. Unless chlamydia and/or gonorrhea infection can be reliably ruled out, these clients are not good candidates for IUD insertion. *(See note above regarding questions 10–13.)*

11. Within the last 3 months, do you think your partner has had another sexual partner ?

Clients whose partners have more than one sexual partner are at high risk of contracting STIs. Unless chlamydia and/or gonorrhea infection can be reliably ruled out, these clients are not good candidates for IUD insertion. In situations where polygamy is common, the provider should ask about sexual partners outside of the union. *(See note above regarding questions 10–13.)*

12. Within the last 3 months, have you been told you have an STI?

There is a possibility that these clients currently have chlamydia and/or gonorrhea infection. Unless these STIs can be reliably ruled out, these clients are not good candidates for IUD insertion. *(See note above regarding questions 10–13.)*

13. Within the last 3 months, has your partner been told that he has an STI or do you know if he has any symptoms – for example, penile discharge?

(Note: There are two parts to this question. Answering "yes" to either part or both parts of the question restricts IUD insertion.)

Clients whose partners have STIs may have these infections as well. Unless chlamydia and/or gonorrhea infection can be reliably ruled out, these clients are not good candidates for IUD insertion. *(See note above regarding questions 10–13.)*

14. Are you HIV-positive and have you developed AIDS?

This is a two part question, and both parts must be asked together. If the woman answers "yes" to both parts, ask whether she is taking ARVs and make sure she is doing clinically well. If she is, she may be a candidate for the IUD. If she is not, an IUD is usually not recommended unless other more appropriate methods are not available or not acceptable. There is concern that HIV-positive clients who have developed AIDS and are not taking ARVs may be at increased risk of STIs and PID because of a suppressed immune system. IUD use may further increase that risk. If the woman is HIV-positive but has not developed AIDS, the IUD may generally be used.

Pelvic Examination

15. Is there any type of ulcer on the vulva, vagina, or cervix?

Genital ulcers or lesions may indicate a current STI. While ulcerative STI is not a contraindication for IUD insertion, it indicates that the woman is at high individual risk of STIs, in which case IUDs are not generally recommended. Diagnosis should be established and treatment provided as needed. An IUD can still be inserted if co-infection with gonorrhea and chlamydia are reliably ruled out.

16. Does the client feel pain in her lower abdomen when you move the cervix?

Cervical motion tenderness is a sign of PID. Clients with current PID should not use an IUD. Treatment should be provided as appropriate. If necessary, referral should be made to a higher-level provider or specialist. Counsel the client about condom use and other contraceptives.

17. Is there adnexa tenderness?

Adnexa tenderness or/and adnexa mass may be a sign of a malignancy or PID. Clients with genital cancer or PID should not use an IUD. Diagnosis and treatment should be provided as appropriate. If necessary, referral should be made to a higher-level provider or specialist.

18. Is there a purulent cervical discharge?

Purulent cervical discharge is a sign of cervicitis and possibly PID. Clients with current cervicitis or PID should not use an IUD. Treatment should be provided as appropriate. If necessary, referral should be made to a higher-level provider or specialist. Counsel the client about condom use.

19. Does the cervix bleed easily when touched?

If the cervix bleeds easily at contact, it may indicate that the client has cervicitis or cervical cancer. Clients with current cervicitis or cervical cancer should not have an IUD inserted. Treatment should be provided as appropriate. If necessary, referral should be made to a higher-level provider or specialist. If, through appropriate additional evaluation beyond the checklist, these conditions may be excluded, then the woman can receive the IUD.

20. Is there an anatomical abnormality of the uterine cavity that will not allow appropriate IUD insertion?

If there is an anatomical abnormality that distorts the uterine cavity, proper IUD placement may not be possible. Cervical stenosis also may preclude an IUD insertion.

21. Were you unable to determine the size and/or position of the uterus?

Determining size and position of the uterus is essential before IUD insertion to ensure high fundal placement of the IUD and to minimize the risk of perforation.

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Training a core group of providers. Conventionally, programs have trained many providers at different professional levels in IUD insertion and removal (*204*). Despite training, some providers have been reluctant to provide IUDs because it requires more time and effort than providing other reversible contraceptive methods (85, 108, *200*, 231). Also, unless providers serve clients regularly, they quickly lose their skills and confidence.

An alternative is training a core group of providers to offer IUDs, giving them continued support and guidance, and referring clients to these providers. This approach helps ensure that providers see enough clients to maintain their IUD insertion and removal skills (196). Programs also can save money because they train fewer providers. Finally, and most importantly, this approach can assure clients of high-quality IUD services from competent providers.

Feature

Good Counseling Increases Client Satisfaction

Informative counseling that is focused on clients' needs helps clients make good choices and can increase successful use of contraceptive methods (193). Women who receive good counseling are more satisfied with their methods (9, 190) and use them longer than women who receive poorer counseling (2, 37, 73, 119, 227). Among users of copper-bearing IUDs, levonorgestrel-releasing IUDs, injectables, and implants, good counseling about potential bleeding changes makes it more likely that women will tolerate the changes and be satisfied with these methods (2, 9, 12, 80, 119, 211).

Good counseling entails a partnership between client and provider, in which they each share information openly and ask and answer questions freely (*254*). Family planning programs once thought that providers should give clients a lot of information about all methods equally to help clients make informed choices. This approach, however, can overload the client with information about irrelevant methods and can leave little time for discussing how to use the chosen method (120, *254*).

Today, programs increasingly encourage client-centered counseling, in which the clients' concerns, desires, and comfort are most important, and clients' wishes guide the counseling process (*254*). Providers tailor information based on the client's needs and preferences. For example, the provider should focus on the client's desired method first, if she has one, helping the client take into account her situation and lifestyle. Also, involving clients' partners in counseling, whenever possible and acceptable to the client, can help clients use contraception effectively (290, 291, 297).

Once a client expresses a preference for a specific method, the provider and client should discuss that method in more detail to confirm her decision and to help her learn how to use the method correctly. Important information for providers to discuss includes the characteristics of the method, medical eligibility criteria, potential side effects, how to use the method, when to start it, and what to remember about it (*266*). This counseling is not simply the provider presenting facts, however. Rather, it involves discussion of what these facts would mean to the client. For example, the provider can explore with the client whether bleeding changes due to the IUD would be too bothersome for her or interfere with her daily life. Would she want to change methods if she experienced these side effects?

Essential information to discuss with a client who chooses the IUD includes:

- How the IUD is inserted and removed (shown using a pelvic model if possible).
- Potential side effects (especially bleeding changes) and other possible problems, such as expulsion, perforation, and PID.
- How the client can check that her IUD is in place by feeling for the IUD strings.
- When and where the insertion will take place and who will perform the procedure.

Just before the insertion, the IUD provider should discuss in detail the steps of the insertion procedure:

- The provider should explain to the client that she may experience some discomfort or cramping during insertion and that she may have cramps for several days following insertion.
- The provider should encourage the client to speak up any time during the procedure if she feels discomfort or pain.
- The provider can advise the client to take ibuprofen 30 minutes before insertion and in the days following insertion to reduce cramping and pain.

After the insertion procedure, the provider should:

- Give the client the name of the IUD, date of insertion, and date when it will need to be removed or replaced, preferably written on an information card.
- Advise the client to come back any time she wants, including if she has problems with the IUD, has any questions, or wants the IUD removed; she thinks the IUD might be out of place; she thinks she might be pregnant; or she has symptoms of PID.
- Plan for a routine follow-up visit in three to six weeks or after the client's next menstrual period to discuss her experience with the IUD. The provider should explain that the routine follow-up visit is an opportunity to check for any problems. If routine follow-up is not possible, the client can still have an IUD inserted. Counsel the client on where to go for immediate care if it is needed.

Photo: Family planning counselors learn how to use a job aid, The Decision-Making Tool for Family Planning Clients and Providers, during a training of trainers workshop, focusing here on when a client can have an IUD inserted. Job aids can help providers make sure they are giving their clients complete, consistent, and correct information and guidance. Credit: Sarah Johnson/WHO

To train providers who will continue to offer IUD services, programs can identify and select those who have the interest and potential for or are already providing a high volume of IUD services. Also important is selecting providers from well-located clinics that serve many people without long travel. Referral networks ensure that clients interested in the IUD reach these clinics. This approach has worked in Bangladesh, Bolivia, India, and Pakistan (*204*).

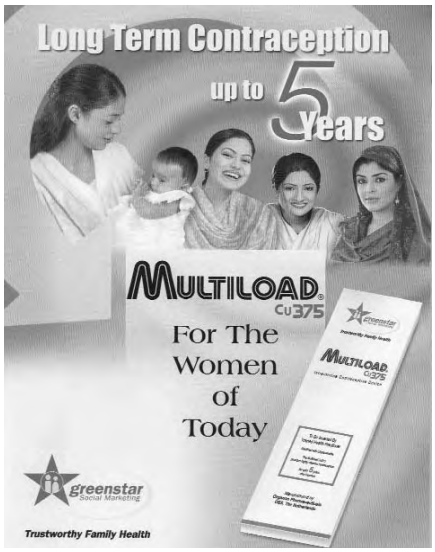
Improving Clients' Perceptions of IUDs

Even if programs are ready to provide IUDs, many women will miss the opportunity to choose this method if people are not aware of the IUD or have negative or incorrect perceptions. In 37 of 71 countries with data from Demographic and Health Surveys or Reproductive Health Surveys, the IUD was either the least known or the next to least known modern method (after male sterilization) among married women of reproductive age (283). In 19 sub-Saharan African countries surveyed and in Haiti and Mauritania, less than half of surveyed women had heard of the IUD. Insufficient promotion contributes to lack of awareness, especially when compared with pharmaceutical products, such as injectables, which tend to receive more attention in the mass media (137).

If people are aware of the IUD, they often have negative perceptions of it. These negative perceptions may be based on real side effects of the IUD—for example, increased bleeding with copper-bearing IUDs. Others, however, result from misinformation and have little or no basis in fact. Surveyed family planning providers around the world have reported many misperceptions among their clients, including that the IUD is large; can migrate to a woman's heart, brain, or other remote parts of her body; and can be used only by older women or women who have had children (*97*).

Well-designed communication campaigns can increase people's awareness of the IUD and address negative attitudes. Involving men in such campaigns is important. They play powerful, and sometimes dominant, roles in couple's reproductive decisions (302). Some approaches found to be effective include:

- **Low-cost educational materials and counseling.** In Honduras rural health centers used a simple and inexpensive approach to increase demand for IUDs. Six nurse auxiliaries newly trained in IUD insertion and other reproductive health services gave 10-minute talks to clients in groups about the new services they could offer, including IUD insertion. Then they asked each client to distribute five leaflets advertising the new services to friends and neighbors. Three months later the number of IUD insertions had increased by 50% compared with the three months before the project started. The entire project, including training, supervision, and the production of 25,000 leaflets, cost only US$950 (*64*, 138).
- **Branding.** In Pakistan the Greenstar network of over 11,000 franchised private health clinics in 40 urban areas delivers high-quality family planning services including IUD services at affordable prices (*133*). Greenstar practitioners agree to provide high-quality family planning services, meeting standards set by the franchiser, a local nongovernmental organization called Social Marketing Pakistan. In return, Social Marketing Pakistan provides the franchisees with training and support, and it markets the Greenstar brand name to attract clients. In 1997, two years after the program started, 93% of surveyed people in low-income urban areas recognized the Greenstar logo and identified it as a symbol of affordable, high-quality family planning services (178). Greenstar providers serve an estimated 7.5 million family planning clients each year. Greenstar's efforts helped increase contraceptive prevalence among married women in Pakistan from 18% to 28% between 1995 and 2001. While overall levels of IUD use in Pakistan remain relatively low, they nearly doubled, rising from 2% to almost 4%, during this period (141).
- **"Champions" to promote IUDs.** Communication campaigns sometimes use champions, or advocates, to educate audiences and motivate people to consider the method. In the 1980s in Sri Lanka, teams consisting of a midwife and a satisfied IUD user recruited almost two-thirds more new IUD users over a period of 13 months than midwives working alone (*60*). In Kenya the Ministry of Health uses district supervisors as champions to promote more and better counseling about IUDs among providers in clinics and community-based distribution programs (see box, pp. 8–9).
- **Community outreach.** In Egypt mobile teams consisting of a female physician, a nurse, a communication specialist, and a social worker visited rural health units periodically to provide IUD services to clients (295). In addition to increasing access to IUDs, the mobile teams also have improved women's knowledge about IUDs and their potential side effects. In Kenya local leaders and providers seek to dispel myths and misperceptions about the IUD by addressing men's and women's concerns in community forums and through radio broadcasts (see box, pp. 8–9).



Greenstar Pakistan

Marketing branded products and services can help attract clients, as in Pakistan's Greenstar program. Clients recognize the Greenstar logo as a symbol of affordable, high-quality family planning services.

Very Low Overall Risk of Infection with IUDs

One of the most persistent questions about the IUD is whether it increases the risk of pelvic inflammatory disease (PID). Infectious organisms, most often those causing gonorrhea or chlamydia, are the direct cause of PID (232, *272*).[2] The majority of evidence indicates that a woman who does not already have an STI—in particular gonorrhea or chlamydia—cannot get PID just from having an IUD inserted. It remains unclear whether the IUD increases the risk of developing PID in a woman with gonorrhea or chlamydia, however, beyond the usual risk just from having these STIs. The ideal study that would answer this question definitively cannot be conducted because it would require randomly assigning women with current gonorrhea or chlamydia either to a group having an IUD inserted or a group receiving no contraception at all.

Assessing a variety of evidence from several sources leads to the following conclusions:

Overall levels of PID in IUD users are low. In large studies mostly in developing countries, rates of acute PID among IUD users have been between 0.6 and 1.6 per 1,000 woman-years[3] of use (*50*, 96). Long-term WHO multicenter studies report 4 to 11 IUD removals for diagnosed PID per 1,000 women over a 10- to 12-year period of use (*249, 267*).[4] Although it is difficult to determine PID rates in the general population, studies among women in developed countries suggest rates range from 10 to 17 per 1,000 woman-years (207, 258).

Greatest PID risk is in the first few weeks after IUD insertion. Analysis of data from 13 WHO clinical trials conducted in Africa, the Americas, Asia, and Europe found that the risk of developing PID was 6.3 times greater during the first 20 days after IUD insertion than at any later time (*50*). After the first 20 days from insertion, the number of new PID cases occurring each year remained at a fairly constant low level—around 1.4 per 1,000 woman-years—throughout eight years of use (see Figure 2, p. 20). This low level is similar to or even lower than that among women in developed countries who do not use IUDs (207, 258).

PID risk probably is related to having an STI at IUD insertion. The same analysis of WHO clinical trials indicates that, not surprisingly, PID rates among IUD users appear to vary according to the prevalence of STIs in the population (*50*). There were no PID cases among the 4,300 IUD users in China. During the 1980s, when the studies were conducted, most Chinese couples were thought to be mutually monogamous (82), and the country was virtually without STIs (282). In contrast, in Africa, where STIs are much more common, eight PID cases were found among the 846 IUD users, a rate of about six cases per 1,000 woman-years (*50*). This suggests that the increased risk of PID is associated with the presence of gonorrhea or chlamydia at the time of IUD insertion. The insertion process probably pushes organisms from the lower genital tract into the upper genital tract, where PID develops. If the organisms are bacteria normally present in the genital tract, then it seems that some mechanism automatically eliminates this contamination from the uterus soon after the insertion process without infection occurring (143). If gonorrhea or chlamydia is present in the lower genital tract, however, PID may develop.

> ***A woman who does not already have gonorrhea or chlamydia cannot get PID just from having an IUD inserted.***

Except for the first few weeks after insertion, an STI may be no more likely to progress to PID in an IUD user than in another woman. Data from six small studies of women with gonorrhea or chlamydia who had had IUDs inserted (57, *147*, 163, 210, 222, 255) found percentages who developed PID within one month to two years after IUD insertion (0% to 5%)[5] that are comparable to levels of PID among women in the general population with inadequately treated or untreated gonorrhea and/or chlamydia (166, 176, 228). This indirect comparison, together with evidence showing a fairly constant low level of PID after the first 20 days following insertion (mentioned above), suggests that, after the first few weeks following insertion, there may be no greater risk that an STI will progress to PID for an IUD user than for other women with STIs (*145*).

A mathematical model taking into account STI prevalence and PID risk assessment data from other studies suggests

[2] Some researchers think that bacterial vaginosis (BV) may cause PID, and additionally that IUD users may be more likely to develop BV (11, 70, 90, 104, 105, 139). While some studies have shown that BV is common among women with PID, evidence proving that BV actually causes PID is lacking (*116*). One recent study followed women at high risk of getting an STI for a median of three years and found no overall increased risk of developing PID among women with BV (*152*).

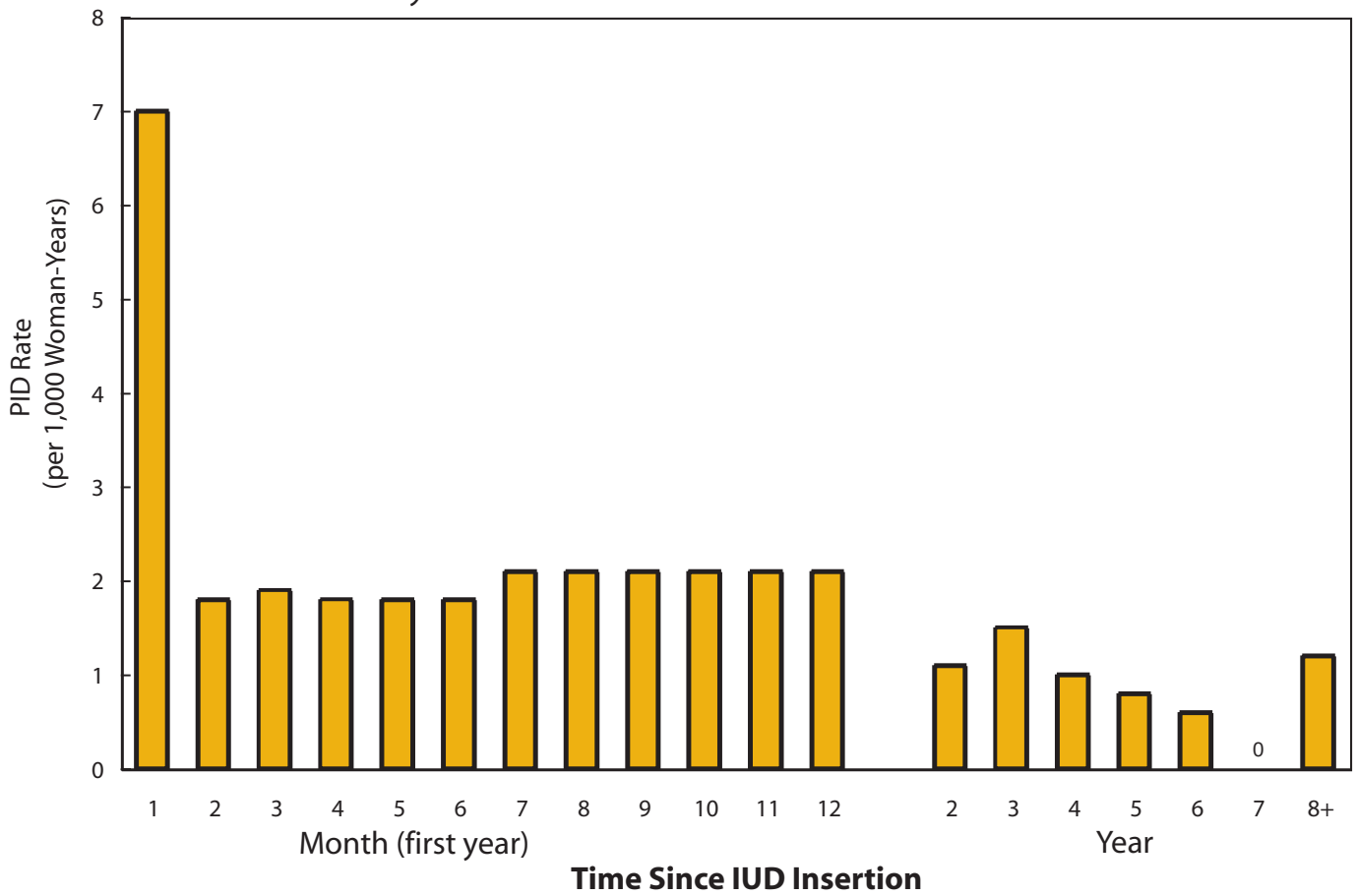
[3] "Woman-years" is an estimate of the actual time at risk that all women contributed to a study. It is calculated, in this case, by adding together the time each individual IUD user was at risk of PID, from the start of the study until either she was diagnosed with PID or the study ended, whichever came first.

[4] New guidance from the 2004 WHO *Medical Eligibility Criteria for Contraceptive Use* indicates that there usually is no need to remove the IUD if the client wishes to continue using it while being treated for PID (*268*). There is no difference in the clinical course of PID once it is being treated whether the IUD is removed or left in place (4, 292, 299, 301).

[5] If a broader definition of PID were used that included women with mild pelvic pain but without fever, the highest level in these studies might be 10% (*145*).

Figure 2. Risk of Pelvic Inflammatory Disease (PID) Greatest in First Few Weeks After IUD Insertion

PID Rates by Time Since IUD Insertion in 13 WHO Clinical Trials



Source: Farley, Rosenberg, Rowe, Chen, and Meirik 1992 (*50*)

Population Reports

that IUD users do indeed face a low risk of PID (*205*). The model estimates a 0.3% risk of PID attributable to the IUD, in a setting with a 10% STI prevalence, if clients are not screened for STIs before insertion. That is, about 3 more cases of PID would occur in every 1,000 women who have IUDs than would have occurred if they did not have IUDs inserted (or, in other words, 997 in every 1,000 women who have IUDs inserted would *not* develop PID). If IUD use were restricted to clients judged to be at low risk of STIs on the basis of risk-assessment questions (see p. 22), the estimated attributable risk would drop to 0.15%—that is, fewer than 2 women in every 1,000 would develop PID that would be related to IUD insertion.

WHO Guidance Allows More Women To Use IUDs

Current guidance from WHO indicates that women with PID, gonorrhea, chlamydia, or purulent cervicitis should not have IUDs inserted (see box, p. 10). (Purulent cervicitis is an infection of the cervix with a pus-like discharge from the opening of the cervix. It may be a sign of gonorrhea or chlamydial infection.) In contrast, women who develop any of these conditions after their IUDs are already in place can continue using their IUDs while the infection is being treated. Women who are at very high individual risk of exposure to gonorrhea or chlamydia should not have an IUD inserted unless other, more appropriate contraceptive methods are not available or not acceptable (*268*).

Changes to the WHO guidance now allow women with STIs other than gonorrhea, chlamydia, or purulent cervicitis to have IUDs inserted. In addition, a woman who lives in an area where STIs are common generally can have an IUD inserted as long as she herself is not at very high risk of gonorrhea or chlamydia (*268*). The guidance also generally allows women at risk of or with HIV infection to use IUDs (see box, p. 21).

The guidance against inserting an IUD in a woman at very high individual risk of gonorrhea or chlamydia reflects a concern that this woman may *currently* have gonorrhea or chlamydia but without any immediate symptoms. Only laboratory testing would detect these silent infections, and in many places these tests are not available (see p. 22).

No Significantly Increased Risk of Infertility with IUDs

Complications of PID can be severe. PID can permanently damage the lining of the fallopian tubes and may partially or totally block one or both tubes enough to cause infertility. Well-designed studies find no significant increase in infertility associated with IUD use, however (*77*, 79). In numerous cohort studies 72% to 96% of women conceived within a year after their IUDs were removed (*244*). These levels are comparable to those among women who have never used contraception (*244*). These observations are consistent with findings that the absolute risk of PID in IUD users is low.

The most recent study looked at women who had not yet had children to find out if those with tubal blockage were more likely to have used IUDs than pregnant women were. The childless women with tubal blockage were no more likely to have used IUDs than either childless women without tubal blockage or the pregnant women. Childless women with or without tubal blockage were more likely to have been exposed to chlamydial infection than pregnant women, however. This finding confirms that exposure to STIs—specifically to chlamydial infection—increases the risk of infertility (*94*).

Another study reported that, among women who had not yet had children, long-term IUD users took longer to have a child after they had their IUDs removed than short-term IUD users (39). Previous use of oral contraceptives or barrier methods did not affect the time to childbirth.

Numerous problems with this study have been pointed out. They include relevant differences between users of IUDs and other women in the study, little information about who might have had an STI at the time of insertion, and no information on whether delayed time to childbirth was due to tubal blockage or some other cause (78). Also, the findings may not apply to current IUDs. In the 1980s, when the data were collected, most of the IUDs used by the women in the study had to be replaced every two or three years, presumably with elevated risk of infection just after each insertion (81).

Do IUDs Increase the Risk of PID in Women with STIs?

QUICK LOOK

- Long-term studies of IUD users find a low risk of PID, similar to that in the population at large.
- Insertion of an IUD in a woman with gonorrhea or chlamydia appears to increase her risk of getting PID for the first 20 days after insertion.
- Analysis of indirect evidence from small studies suggests that, except in the first few weeks after IUD insertion, an STI may be no more likely to progress to PID in an IUD user than in another woman.

Evidence Shows Many Women with HIV Can Use IUDs

New guidance from WHO advises that many women with HIV-related conditions generally can start using an IUD (see p.10) (*268*). Based on theoretical concerns, previous guidelines had ruled out IUD use for these women, unless other, more appropriate methods were not available or not acceptable (*181*). Providers should make clear to these women, however, that IUDs do not protect against STIs or HIV and that consistent and correct use of condoms is needed to avoid transmitting infections to their partners.

The new WHO guidance reflects a variety of recent evidence:

- While a few studies find an association between IUD use and HIV infection (107, 154), the great majority of research finds that IUDs do not increase a woman's chances of acquiring HIV infection (25, 43, 106, 130–132, 167, 208, 225).
- A Kenyan study suggests that complications of IUD use are not significantly more common among women infected with HIV than among those who are not. There was no difference in the overall rates of complications (combining PID, expulsion of the IUD, pregnancy with the IUD in place, and removal of the IUD due to infection, pain, or bleeding) at four months or at two years after IUD insertion (*209*). The number of PID cases was small, and after two years PID rates were low in both groups. The rate was higher in IUD users with HIV infection (1.4% versus 0.2% at four months and 2.0% versus 0.4% after two years). These differences were not statistically significant (*148, 209*).
- A four-year cohort study in nine European countries found that IUDs do not increase the risk of HIV transmission from HIV-infected women to uninfected partners above the risk inherent in unprotected vaginal sex (43). The two studies that have looked at shedding of HIV-infected cervical cells found no greater shedding due to IUD use (149, *180*).

The new WHO guidance based on this recent research should help reassure providers that many women with HIV or AIDS generally can use IUDs. Some providers still might be reluctant to provide IUDs to women with HIV-related conditions because they worry about transmitting infection from one client to another or contracting infection themselves during the insertion procedure (231). These providers should be counseled that the risk of contracting HIV infection during clinic procedures such as pelvic exams, IUD insertion, and injections is small, and that providers can take steps to minimize the risk by following universal precautions such as wearing protective barriers including gloves and gowns, washing hands before and after procedures, and disinfecting instruments (284, 304).

Minimizing the Risk of Infection

Laboratory tests for STIs could contribute to safer use of IUDs (*269*), WHO notes, but such tests usually are not feasible for lack of facilities, equipment, and trained personnel (*265*). Programs and providers need to balance the risks of not performing the tests against the benefits of making the IUD available (*269*). Refusing women the choice of IUDs in the absence of laboratory tests for STIs would deny the great majority a method they could use safely and would create an unnecessary medical barrier.

Since STI tests usually are not available, WHO guidance considers STI risk assessment and physical examination essential to safe use of IUDs (*269*). Risk assessment conventionally has been based on the client's answers to a provider's questions about her and her partner's sexual behavior. Having the client assess her own risk of STIs is another approach.

Refusing women IUDs in the absence of laboratory tests for STIs would deny the great majority a method they could use safely.

While risk assessment seems focused on whether a woman might get an STI in the future, its real purpose as far as IUD insertion is concerned is to gauge whether she might have a gonorrheal or chlamydial infection now, which would rule out IUD insertion. A pelvic exam will identify some women with gonorrhea or chlamydia, but these infections often have no symptoms in women. Therefore a pelvic exam that finds no symptoms does not, by itself, rule out infection.

Risky Behaviors Can Suggest a Woman's Risk of STIs

Difficulty arises in deciding what indicates very high individual risk of STIs, and in particular of gonorrhea or chlamydia. Indicators of STI risk differ among communities, depending on patterns of sexual behavior and other factors (*147*, 162, *265*). Few family planning programs, however, have the resources to develop locally validated tools to assess women's individual risk of STIs.

In these situations the best that providers may be able to do is to discuss the behaviors or situations in their communities that they think are most likely to expose women to STIs. Examples of common risky behaviors include:

- Diagnosed with an STI in the last three months
- Partner diagnosed with an STI in the last three months
- Partner with STI symptoms such as pain or burning during urination, an open sore in the genital area, or pus coming from his penis
- More than one sexual partner in the last three months without always using condoms
- Unprotected sex with partner who has had more than one partner in the last three months (305).

Certain situations suggest the possibility of these risky behaviors. For example, if a man works far from home for long periods of time, he is more likely to have had other sex partners. Providers can address the situations that are locally relevant based on their knowledge of their clients or on program or clinic guidelines.

Programs might find a checklist developed by Family Health International to screen potential IUD clients helpful (see pp. 13–16). Using the checklist, the provider can assess whether the client has any conditions that would rule out IUD use—first by asking the client a series of yes-or-no questions and then by performing a pelvic exam. Some of the questions that the provider asks the client are related to her STI risk, based on the risky behaviors mentioned above. If her answers do not suggest very high individual risk of exposure to STIs, the provider goes on to examine the cervix for signs of infection just before the IUD would be inserted.

Pelvic Exam Detects Some but Not Most Cervical Infections

Where laboratory testing is not available, WHO recommends that providers conduct a careful speculum examination to look for signs of gonorrhea or chlamydia. These signs are:

- Mucopurulent discharge (yellowish discharge containing mucus and pus);
- The cervix bleeds easily when touched with a swab; *or*
- A positive swab test—a swab of cells collected from the cervical canal appears yellow when held against white paper (*270*). (Some experts do not think the swab test is helpful in detecting cervical infections (123, 172, 185, 202) because it takes into account only color and not consistency of the discharge (123) and because it requires providers trained to assess swabs (185).)

WHO recommends that the provider treat a woman who has any of these three signs for both gonorrhea and chlamydia and delay IUD insertion until she completes the full course of treatment and no longer shows any sign of infection (*270*).

Most women's infections have no symptoms, however. Research finds that these three signs detect only 30% to 40% of cervical infections under ideal study conditions. Providers working under typical clinical conditions may detect an even lower percentage of infections (*270*). To date, there is no simple, inexpensive, and accurate alternative to laboratory diagnostic tests for STIs.

Women's assessment of their own STI risk may indicate current infection better than the results of a physical examination, once women know what risky behavior is. In a Mexico City study family planning clients took part in 20-minute one-on-one information sessions with a nurse. The sessions covered different contraceptive methods including the IUD, STIs, and risky behavior. Each woman then selected the contraceptive method that she thought was most appropriate for her. Meanwhile, physicians noted whether or not these women should receive IUDs based only on findings from a physical examination including pelvic exam. Laboratory tests of the women's cervical specimens indicated that 2% of the women had gonorrhea or chlamydia. The physicians had inappropriately approved IUD use for 87% of these women. A much lower percentage of the women themselves—48% of those who had gonorrhea or chlamydia—chose the IUD inappropriately (*118*).

Women's assessment of their own STI risk may indicate current infection better than the results of a physical examination.

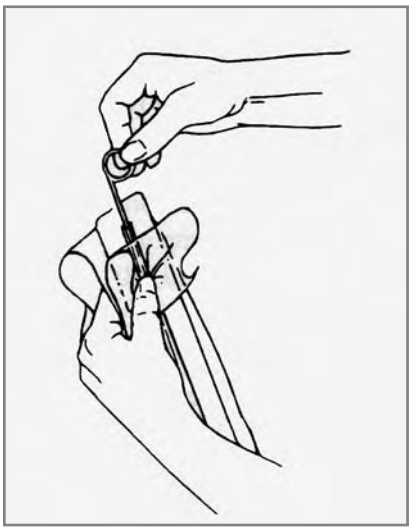
Care Can Reduce Infection Risk at IUD Insertion

Providers can reduce the risk of infection during IUD insertion, and thus minimize infection-related complications, by:

- Assessing or asking the client to assess whether she faces very high individual risk of exposure to STIs (see p. 22).
- Just before inserting the IUD, conducting a careful speculum examination to look for signs of cervical infection (see p. 22).
- Carefully following routine infection-prevention procedures for pelvic examinations and IUD insertion, including the "no-touch" insertion technique—that is, not letting the loaded IUD or uterine sound touch any unsterile surfaces (for example, hands, speculum, vaginal wall, table top). This involves (1) loading the IUD into the inserter while both are still in the sterile package, to avoid touching the IUD directly, and (2) passing the uterine sound and the loaded IUD through the opening of the cervix each one time only, while avoiding touching the vaginal wall or speculum blades (102). Also, if no other procedure, such as taking a swab of cervical cells, is planned, conducting the bimanual exam before the cervical inspection avoids inserting the speculum twice and lessens discomfort for the client (95).

Proper IUD insertion minimizes the risks of many complications of IUD use.

- Not replacing IUDs unnecessarily, before their effective lifetime expires, to reduce the number of removals and reinsertions for long-term users.
- Considering use of prophylactic antibiotics just before insertion in settings where gonococcal and chlamydial infections are common and STI screening is limited, while recognizing that routine use of such prophylaxis is not recommended (*269*). (Some experts go further and recommend presumptive treatment for chlamydia and gonorrhea before insertion, which involves giving IUD clients a full course of antibiotics rather than a lower prophylactic dose (82). The optimal dose for prophylaxis to prevent PID is unknown (300).)
- Counseling all IUD users about signs and symptoms of STIs and PID and advising them to come back immediately if any develop.
- Asking about symptoms of infection at the scheduled routine follow-up visit (three to six weeks after insertion) and performing a pelvic exam if there is a reason to suspect infection. If signs of infection are present, treating the infection in a timely manner and allowing the client to keep her IUD in place during treatment. Screening and early treatment help prevent progression of STIs to PID (89, 91, 159, 197, 256).



One step in the "no touch" insertion technique is loading the IUD in the inserter while both are still in the sterile package. The "no touch" technique minimizes the risk of contaminating the uterus during IUD insertion.

From JHPIEGO, IUD guidelines for family planning service programs: A problem-solving manual

Clinical Characteristics of IUDs

Most women who use IUDs are very satisfied with the method (156, 198). Many women prefer the IUD because it provides very effective, long-term and yet quickly reversible protection against pregnancy. Also, the IUD is convenient. It requires very little action from the woman once it is in place. On average, women use IUDs longer than other reversible contraceptive methods (3, 18).

With copper-bearing IUDs, increased bleeding is common and the primary medical reason that women stop using IUDs (*244*). Other side effects and complications with IUD use, including expulsion and perforation of the uterus, are uncommon. Researchers continue to develop and test new IUDs that promise to reduce expulsion rates and side effects and that simplify insertion procedures. (See *Population Reports*, "New Contraceptive Choices," Series M, Number 19, April 2005.)

Proper IUD insertion minimizes the risks of many complications with IUD use such as expulsion and perforation. When service delivery is organized so that clients are referred to a core group of well-trained providers, these providers will see enough IUD clients to maintain their insertion skills and help ensure a high quality of care (see p. 17). These providers also will have the skills necessary to manage any problems that IUD users may encounter. (See Web Box at http://www.populationreports.org/b7/supplements/) for a preview of consensus-based guidance on managing problems with IUD use from the forthcoming update of the *Essentials of Contraceptive Technology* handbook).

One of the Most Effective Methods

In a large international multicenter study sponsored by WHO, only about 4 women in every 1,000 using the TCu-380A became pregnant in the first year of use (*249*). This amounts to 0.4%. Earlier studies reported similar pregnancy rates—3 to 8 women per 1,000 became pregnant in the first year of use (0.3% to 0.8%) (*214, 216*). These rates are similar to those for female sterilization, another of the most effective family planning methods.

Effectiveness of IUDs is similar to that of female sterilization.

The levonorgestrel-releasing IUD (LNG-IUD) also has very low first-year pregnancy rates. Between 1 and 3 women per 1,000 become pregnant in the first year of use (0.1% to 0.3%) (125, *214*). Preliminary results from a large WHO international study comparing the TCu-380A and the LNG-IUD suggest that the LNG-IUD is more effective (*267*). After a total of six years of use, 5 women of every 1,000 using the LNG-IUD became pregnant compared with 20 per 1,000 using the TCu-380A.

Copper-Bearing IUDs Increase Bleeding

Copper-bearing IUDs increase blood flow volumes by 20% to 50% above levels before IUD insertion (*244*). Increased menstrual bleeding, often with pain, is the problem that women most often report while using copper-bearing IUDs. Many women who have these complaints keep their IUDs nonetheless (52). Overall rates of removal because of bleeding and/or pain at 12 months of use range from 1 to 17 per 100 women in major clinical trials of the TCu-380A and other copper-bearing IUDs (51–54, 165, 177, *214, 249*).

The increased bleeding could decrease blood iron levels. Some studies find no change in blood iron levels compared with levels before insertion of a copper-bearing IUD (115, 182). Other studies have found lower average blood iron levels in IUD users than before IUD insertion or when compared with levels in women not using contraception (44, 56, 72, 87, *238*). Decreases in blood iron levels measured about two to four grams per liter after 12 months of IUD use. While the average change is small, these decreases could be enough to lead to a diagnosis of clinical anemia among women who already have relatively low blood iron levels before IUD insertion (87, 184) (see Web Box at http://www.populationreports.org/b7/supplements/). WHO considers normal blood iron levels in nonpregnant women to be above 120 grams per liter (263).

Hormonal IUDs Decrease Bleeding

At first, during the first three months of use and sometimes longer, LNG-IUD users are likely to have markedly more days of vaginal bleeding and spotting than before IUD use (7, 88, *235*). The amount and duration of blood flow gradually decreases, however, because the continuous dose of progestin keeps the lining of the uterus thin. In fact, 20% to 35% of LNG-IUD users have no vaginal bleeding at all by the end of the first year of use (7, 38, 69, 127, 161, *235*). Even more users experience only light bleeding (188, *217, 235*). The decrease in or absence of bleeding is not harmful and does not affect a woman's ability to produce eggs or other aspects of fertility once the IUD is removed (155, 275, 276). In fact, the LNG-IUD has several therapeutic applications because it reduces bleeding (see Table 1, p. 3).

Counseling women before LNG-IUD insertion that the device may stop menstrual bleeding—and that this is harmless—is key to successful LNG-IUD use. Women who receive such counseling are more satisfied with the method than less informed women (9), and they are more likely to continue using the method (7, 188). In fact, many women see the absence of bleeding as an advantage of the LNG-IUD and a reason to continue using it (188). Still, some women will not accept the possible lack of menstrual bleeding. For these women, providers can propose the copper-bearing IUD or other contraceptive methods.

Counseling Aid for Communicating IUD Effectiveness

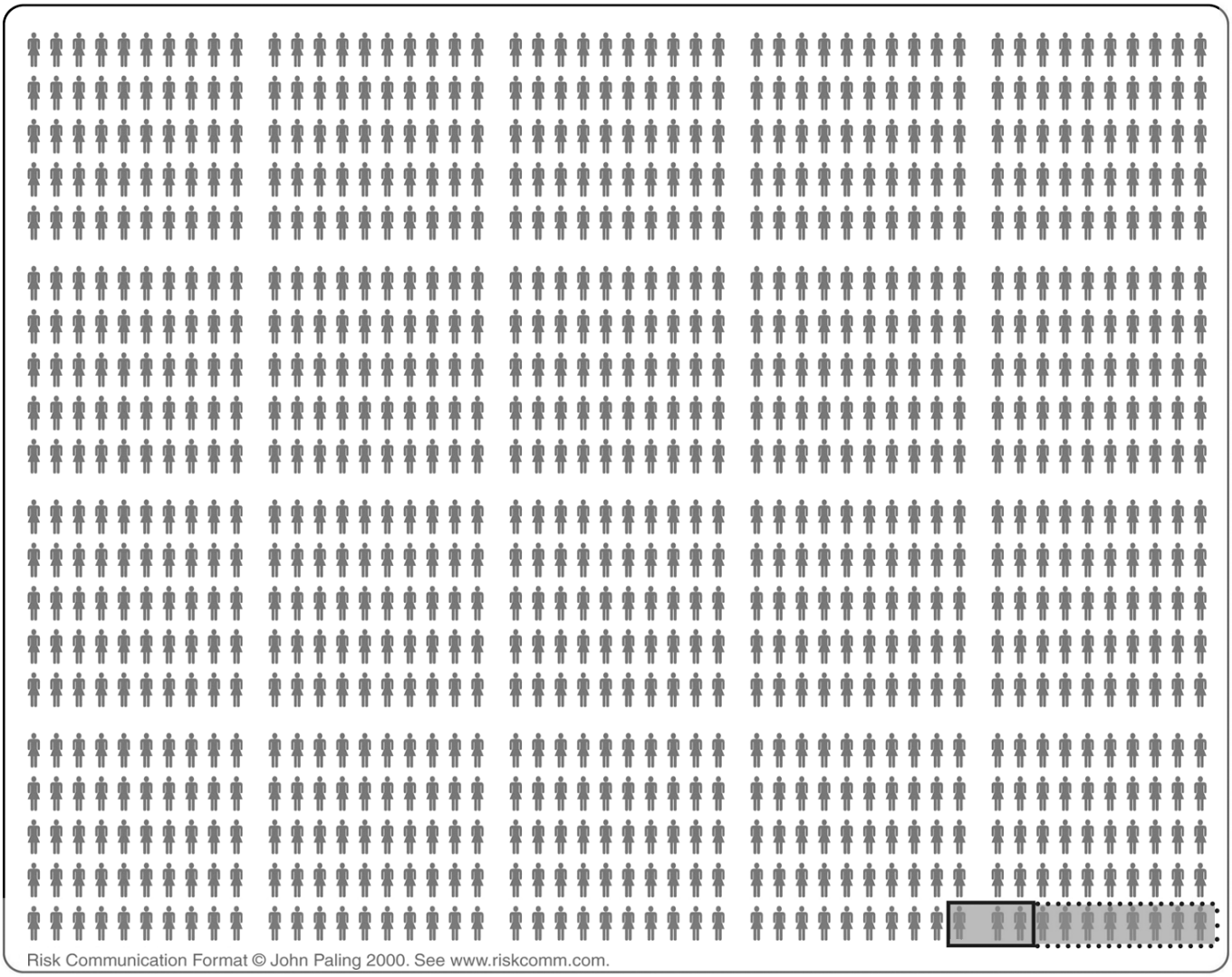
The Paling Palette© below is a visual representation of a woman's risk of becoming pregnant during the first year of use of the levonorgestrel-releasing IUD (LNG-IUD) and of the TCu-380A IUD. The illustration depicts 1,000 women. Among 1,000 women 1 to 3 would become pregnant while using the LNG-IUD (125, *214*), or 3 to 8 would become pregnant while using the TCu-380A (*214, 216, 249*). Family planning providers can use such tools with their clients to help show the risks of pregnancy visually rather than with numbers, which can be difficult to grasp. If a woman is considering the TCu-380A, for example, providers can point out that between 992 and 997 women of 1,000 would not become pregnant during the first year of use.

Population Reports would like to receive feedback on the usefulness of this tool from providers. Please send comments to poprepts@jhuccp.org. Please check the *Population Reports* Web site (www.populationreports.org/b7) to view selected responses.

IUDs Are Highly Effective

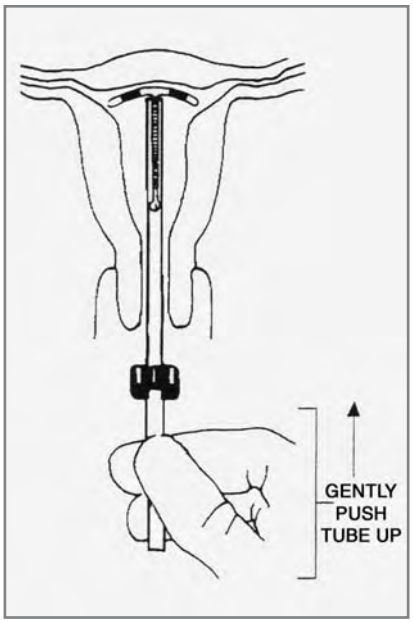
Women becoming pregnant during the first year of LNG-IUD use

Women becoming pregnant during the first year of TCu-380A use



Expulsion Uncommon

After IUD insertion uterine contractions can push the device downward, causing expulsion from the uterus. Correct insertion, with the IUD placed up to the top of the uterus, may reduce the chances of expulsion. Recent studies show, however, that T-shaped IUDs inserted low in the uterus tend to move upward on their own within two to three months after insertion (285, 294).



Careful insertion of the IUD as high as possible in the uterus helps avoid its expulsion. Women who expel their devices risk pregnancy. From JHPIEGO, IUD guidelines for family planning service programs: A problem-solving reference manual

Expulsion rates vary from 2 to 8 per 100 women in the first year of use (160, 189, 247, 274). Most expulsions occur in the first year and especially during the first three months after insertion (8, 247, 274). About one expulsion in every five goes unnoticed at the time (142). Women who expel their devices are at risk of pregnancy, especially if they do not notice the expulsion. Expulsion usually is not otherwise harmful.

Expulsion is more likely in such circumstances as:

- Young age at insertion (under 20 or 25 years old) (126, 183, *215*, 259, 281),
- Insertion early in the menstrual cycle (259),
- Immediate postpartum insertion (76, 257, 278), and
- Insertion immediately after second-trimester abortion (75).
- Some studies have found a higher rate of expulsion among women who have no children (121, 126, 164, *215*, 259).

The additional risk of expulsion is not sufficient to deny IUDs to women in any of these circumstances. Specifically, WHO advises that women under age 20 and women who have had no children generally can still use IUDs, because the advantages of the IUD outweigh the risk of expulsion (*268*).

Perforation Rare

Perforation of the uterus can occur during IUD insertion, when the IUD or a gynecological instrument pierces the uterine muscle wall. Careful insertion technique can avoid perforations. In large clinical trials uterine perforation is rare —fewer than 2 per 1,000 insertions (14, 24, 247, *249*, 274). Most perforations are recognized at insertion, and the IUD can be removed at once without causing any serious problems (see Web Box at http://www.populationreports.org/b7/supplements/). Some perforations go unnoticed and can lead to adhesions (fibrous bands of scar tissue that form between two surfaces inside the body). Usually, the adhesions do not cause any problems, but a few cases of bowel obstruction have been reported (1, 74, 157, 173).

Pregnancy Rare but Serious

The IUD is a very effective contraceptive. If pregnancy does take place with an IUD in place, however, potentially severe complications can occur such as miscarriage (*244*). In various reports 15% to 60% of uterine pregnancies ended in miscarriage if the IUD was not removed (40, 67, 112, 140, 223). Removing the IUD reduces this risk of miscarriage to about the same level of risk faced by other women, although the removal process itself entails a small risk of miscarriage (244) (see Web Box at http://www.populationreports.org/b7/supplements/). Studies have found that septic (infected) second-trimester miscarriage—a rare life-threatening condition—was more common among women who left their IUDs in place than among women not using IUDs at conception (*244*).

IUDs Reduce Risk of Ectopic Pregnancy

Because any pregnancy among IUD users is rare, ectopic pregnancy (pregnancy outside the uterus) in IUD users is even rarer. Data from 42 clinical trials report an ectopic pregnancy rate of 2 per 1,000 women over 10 years' use of the TCu-380A (or 0.2%) (*212*). Various studies have estimated that IUDs reduce ectopic pregnancy rates to 10% to 50% of the level among women not using contraception (146, 221, 271, 277).

The IUD helps to prevent ectopic pregnancy, but not as well as it prevents intrauterine pregnancy. In the rare event that an IUD user becomes pregnant, the pregnancy is much more likely to be ectopic than a pregnancy in a woman not using an IUD (*68*, 146, 277). Older women face greater risk that a pregnancy will be ectopic, as is true among women not using IUDs (*212*). Health care providers should be particularly alert for the possibility that a pregnancy in any IUD user is ectopic. In users of copper-bearing IUDs, an estimated 1 in every 13 to 16 pregnancies is ectopic (6% to 8%) (*68*, 136). The likelihood of ectopic pregnancy in the general population varies widely from country to country. In the US, according to the most recent data available, in 1992 some 2% of all pregnancies were ectopic (27).

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While misinformation about the safety and perceived programmatic challenges have limited IUD use in many countries, some family planning programs are now taking steps to correct these misperceptions and create or revive interest in the method. The IUD can be a good choice for women who want a highly effective and convenient method that is long-lasting but also quickly reversible.

Coming Soon! "IUD Toolkit" Web Site

The IUD Subcommittee of USAID's Maximizing Access and Quality Initiative will be launching an online IUD Toolkit of up-to-date evidence and best practices related to the IUD by summer 2006. The Toolkit is intended primarily for policy-makers and program managers interested in developing or expanding IUD services in their programs. Go to www.iudtoolkit.org to explore the Toolkit's wide range of topics. You also can access a variety of tools to help implement IUD-related activities as well as case studies from several countries. A CD-ROM version of the Toolkit also is planned.

Requests for the CD-ROM can be addressed to:
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Bibliography

This bibliography includes citations to the materials most helpful in the preparation of this report. In the text, reference numbers for these citations appear in italic. The complete bibliography can be found on the INFO Web site at: http://www.populationreports.org/b7/. The links included in this report were up-to-date at the time of publication.

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