

# Network

FAMILY HEALTH INTERNATIONAL, VOLUME 22 NUMBER 3, 2003

2002 GLOBAL MEDIA AWARD  
BEST POPULATION JOURNAL



## Hormonal Contraceptive Methods

# News Briefs

## HPV VACCINE EFFECTIVE

An experimental vaccine is effective against a strain of the sexually transmitted human papilloma virus (HPV) — Type 16 — that causes about half of all cases of cervical cancer, a recent U.S. study has found.

Researchers predict that, if confirmed by additional testing to be safe and effective, the vaccine could reach the market in about five years, being given in three shots over six months.

Although more than 30 types of HPV infect human genitalia, not all cause cervical cancer. And, while infection with HPV is common among sexually active individuals, more than 90 percent of HPV infections are either naturally eliminated or suppressed by individuals' immune systems. However, the infection persists in some women and causes cervical lesions. Most lesions go away, but some develop — usually over about 20 years — into cervical cancer. The disease kills about half of some 450,000 women throughout the world who develop it each year. It is also the leading cancer killer of women in the developing world, where Pap tests to detect cervical abnormalities are not routinely available.

The study was conducted by U.S.-based Merck Research Laboratories, a unit of Merck & Co., Inc., which developed the vaccine and funded the research, and by the University of Washington among 2,392 women ages 16 to 23 years at 16 U.S. sites. Of 1,533 women included in the final data analysis, none of the 768 women who received three doses of the vaccine became infected with HPV-16 or developed precancerous lesions. In contrast, 41 of the 765 women who received injections of placebo instead of the vaccine developed persistent HPV infections, and nine developed precancerous lesions. Women receiving the vaccine experienced no serious vaccine-related adverse effects.

The results, reported November 20, 2002 in the *New England Journal of Medicine*, describe the outcome for women followed for 17 to 27 months (median of

17.4 months), but the study will continue until the women have been tracked for four years.

How long the protection afforded by the HPV vaccine may last is unknown. Whether any vaccine can completely protect against cervical cancer is also unclear, since cervical cancer is caused by more than 20 types of HPV (primarily types 16, 18, 31, 33, and 45). Thus, regular Pap smears to detect cervical cancer will probably remain necessary even for vaccinated women. Furthermore, there is no evidence that the vaccine under development can reverse infection or eliminate cervical lesions once they have developed.

However, other adverse reproductive health effects caused by HPV infection — such as genital warts and rare forms of penile, anal, and oral cancer — might be prevented by such a vaccine. The vaccine now being developed and tested by Merck would immunize patients against both HPV-16 and HPV-18 (which causes another 20 percent of cervical cancers), as well as HPV-6 and HPV-11, which cause about 90 percent of genital warts. Because some HPV-infected men develop genital warts, they may have an incentive to be vaccinated and, consequently, would not transmit the virus to their sexual partners.

## NETWORK WINS GLOBAL MEDIA AWARD

Family Health International's quarterly publication, *Network*, has been named best population journal in the 2002 Global Media Awards for Excellence in Population Reporting. Sponsored by the Washington, D.C.-based Population Institute, the awards were presented December 5, 2002 in Havana, Cuba.

The award recognizes *Network* for providing accurate news on technical developments in reproductive health, as well as thoughtful examinations of the social dimensions of contraception.

Other awards included:

**Best columnist:** David Broder of the U.S.-based newspaper *The Washington Post*.

**Best individual reporting effort:** Rita Widiadana, bureau chief for *The Jakarta Post* in Bali, who has focused on such critical

social issues in Indonesia as population, family planning, sex education, and domestic violence.

**Best international daily:** *The International Herald Tribune*, headquartered in Paris.

**Best periodical:** *TIME* magazine for a special issue on the United Nations World Summit on Sustainable Development.

**Best editorial cartoonist:** Peter Schrank of the United Kingdom's *The Independent on Sunday* for a commentary on the United States' role at the World Summit on Sustainable Development.

**Most conscientious news service award:** Inter Press Service for reporting on issues relevant to sustainable development in a dozen languages to more than 100 countries, more than 1,000 media outlets, and 15,000 nongovernmental organizations and diplomats.

**Best editorial support for solutions to population problems:** Omar Garcia, editorial writer for the *Reforma* in Mexico.

**Best radio program:** Noeleen @ 9, produced in Johannesburg, South Africa, for entertaining listeners while informing them about population and general health issues.

**Best television documentary:** U.S.-based Barbara Pyle for her program, "One Child — One Voice," a documentary about how children urgently want to protect the environment.

**Best population/environment reporting effort:** *Earthtimes* of New York for consistently providing in-depth coverage of key population and environmental issues.

**Best combined media effort on behalf of population:** The Zambia Integrated Health Programme and the Zambian Central Board of Health for using print and electronic media to disseminate family planning information.

**Best commercial advertising campaign:** The Turkish Family Health and Planning Foundation for their social marketing campaign to increase the use and availability of high-quality, low-cost contraceptives in Turkey.

**Network** is published quarterly in English, Spanish, and French by Family Health International and is distributed without charge. Periodicals postage is paid at Durham, NC and additional mailing offices. POSTMASTER: Send requests, queries, and address corrections to:

**Network**  
 Family Health International  
 P.O. Box 13950  
 Research Triangle Park, NC 27709 USA

To obtain a free subscription, please write to the Publications Coordinator at the above address.

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Family Health International is a nonprofit research and technical assistance organization dedicated to contraceptive development, family planning, reproductive health, and AIDS prevention around the world.

**Network** is supported in part by the U.S. Agency for International Development. The contents do not necessarily reflect FHI or USAID policy.



ISSN 0270-3637  
 USPS 696-610

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FAMILY HEALTH INTERNATIONAL, VOLUME 22 NUMBER 3, 2003

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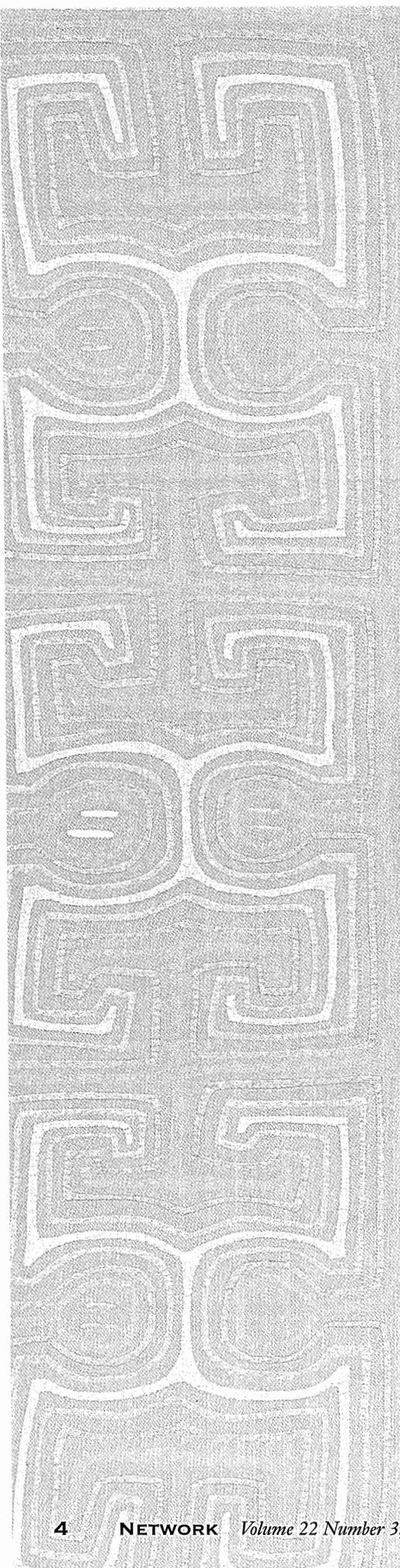
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*Recent advances in hormonal contraception give women with different needs more choices and should increase method acceptability, consistent use, and continuation rates. Women in Cali, Colombia, socialize in the cover photograph by Aymer Alvarez.*





# Advances in Hormonal Contraception

Over time, methods have become safer, more acceptable, easier to use, and more diverse.

Researchers have been altering formulations and delivery systems for hormonal contraceptives — used by more than 100 million women worldwide<sup>1</sup> — to develop new versions that are safer, more acceptable, and easier to use. New products are now entering the market, some only in the developed world but some also in developing countries.

“New methods are coming to the market, and that translates into more choices,” says Dr. Miriam Zieman, a family planning expert at Emory University School of Medicine in Atlanta, Georgia, USA, who has extensively studied one of the new delivery systems. “We hope more choices will result in greater method acceptability, client satisfaction, consistent use, continuation, and ultimately fewer unplanned pregnancies.”

A major change in hormonal contraception since combined oral contraceptives (COCs) were introduced in the early 1960s has been the development of low-dose hormonal formulations to decrease side effects, says Dr. Malcolm Potts, president emeritus of FHI and professor of population and family planning at the University of California at Berkeley, USA.

High-dose COCs in the 1960s and 1970s contained as much as 50 µg to 150 µg estrogen and 10 mg progestin, and were reported to be associated with risks of serious cardiovascular side effects, including venous thrombosis (a blood clot in a vein), heart attack, and stroke. But, notes Dr.

Potts, “these risks were still less than those associated with unplanned pregnancies and much less than other daily risks we all take.”

Most countries now distribute mostly low-dose pills containing 35 µg or less estrogen and 400 µg or less progestin (of which there are several types). According to a report by a World Health Organization committee of experts on cardiovascular disease and steroidal hormone contraception, women who use low-dose COCs and do not smoke, do not have high blood pressure, and do not have diabetes are not at increased risk of heart attack or stroke when compared with non-users.<sup>2</sup> Healthy users of low-dose COCs do have a three- to sixfold higher risk of venous thrombosis than healthy women who do not use COCs, but the absolute risk remains minimal.<sup>3</sup> Additional research has shown that certain types of progestins may slightly increase the risk of venous thrombosis and other cardiovascular complications among COC users.<sup>4</sup>

## FURTHER REDUCING ESTROGEN

Today, pills with 20 µg or less estrogen are available in several countries, including Chile, India, Malaysia, New Zealand, and the United States and Puerto Rico. Research suggests that these pills are associated with a decrease in most side effects when compared with pills with higher estrogen content. For example, in a U.S. study conducted between 1998 and

1999 among 463 women using pills with 20 µg versus 35 µg estrogen, the common side effects of bloating, breast tenderness, and nausea were approximately half as frequent among users of the 20 µg pills.<sup>5</sup>

RICHARD LORD

One potential disadvantage of lowering estrogen doses is loss of menstrual cycle control. Reports of menstrual disturbances vary greatly;<sup>6</sup> but, overall, COCs containing low doses of estrogen appear to cause more menstrual disturbances.<sup>7</sup> However, for all COCs, spotting and bleeding disturbances are most frequent during the first few cycles of use, after which they often decrease or disappear.<sup>8</sup> If a woman using COCs containing 20 µg estrogen does have persistent spotting or bleeding problems, providers can consider switching to pills that contain 30 µg to 35 µg estrogen.<sup>9</sup> Research also shows that changing the type of progestin and the dosing regimen may improve cycle control.<sup>10</sup>

More data are needed to fully understand the impact of COCs containing 20 µg estrogen, says Dr. David Grimes, vice president of biomedical affairs at FHI. Toward this aim, María Gallo, an FHI research associate, Dr. Kavita Nanda, an FHI associate medical director, and colleagues are writing a Cochrane Review comparing the contraceptive efficacy, discontinuation rates, bleeding patterns, and side effects associated with pills containing 20 µg estrogen with those containing more than 20 µg estrogen.

Results of the review are expected in 2003.

#### IMPROVING EASE OF USE

While COC pills are a traditional way to deliver contraceptive hormones, two novel systems for providing the same hor-

mones (estrogen and progestin) were approved by the U.S. Food and Drug Administration in 2001 and are now available in the United States. Both systems —



A FAMILY PLANNING PROVIDER IN VIETNAM SUGGESTS LOW-DOSE COCS AS A CONTRACEPTIVE OPTION.

a weekly transdermal contraceptive patch and a three-week vaginal ring — have characteristics that may make them easier for women to use correctly and consistently. This may improve compliance, a problem among many COC users. (See articles, pages 8 and 11.)

The transdermal contraceptive, called Ortho Evra and developed by U.S.-based Ortho-McNeil Pharmaceutical, Inc., is a 20-square-cm patch that can be applied to

the abdomen, upper torso, upper outer arm, or buttocks, where it continuously releases low doses of estrogen and progestin through the skin and into the bloodstream. A single patch is worn for one week, discarded, and replaced with a new one. Three weeks of use are

followed by a patch-free week to allow for menses (much like the pill-free interval for most COCs).

The vaginal ring, called NuvaRing and developed by U.S.-based Organon, Inc., is a flexible and transparent ring that is slightly smaller than a diaphragm and is inserted into the vagina, where it continuously releases low doses of estrogen and progestin. Each ring is worn for three weeks in a row and then discarded. After a ring-free week for menses, the client inserts a new ring.

“The nice thing about these new methods is they do not require daily attention,” says Dr. Ziemen, an author of several recent studies of the Ortho Evra patch. “And, unlike implants or intrauterine devices, the transdermal contraceptive patch and the vaginal ring are user-controlled.”

Researchers at FHI are completing a Cochrane Review comparing the Ortho Evra patch and NuvaRing with COCs. Randomized controlled trials from the United States, Canada, Europe, and South Africa have shown that the contraceptive efficacy, cycle control, contraindications, and side effect profiles are generally comparable between the contraceptive patch and low-dose COC pills. However, patch users are more likely to report breast discomfort and have reported the additional adverse events of application site reactions and, rarely, patch detachment.<sup>11</sup>

Of note, Ortho Evra patch users may have higher compliance rates than COC

#### WHAT ARE COCHRANE REVIEWS?

Cochrane Reviews are evidence-based systematic reviews published in the Cochrane Library to provide the highest-quality information on specific medical topics to health care providers, clients, administrators, and funders. FHI is a contributor to the international collaborative group producing reviews dealing with fertility regulation. More information on the Cochrane Library and Cochrane Reviews can be found at <http://www.update-software.com/Cochrane/default.htm>.

## NORPLANT ALTERNATIVE TO JOIN METHOD MIX SOON

Since Norplant was introduced in the 1980s, researchers have worked to simplify this very safe and effective contraceptive implant comprised of six 3-cm levonorgestrel-releasing capsules.<sup>1</sup> They succeeded by developing in the 1990s what is now trademarked as Jadelle: an implant containing only two 4-cm levonorgestrel-releasing rods. Now, Jadelle is beginning to be introduced into the developing world as an alternative to — and potential replacement for — Norplant.

The biggest practical difference between the two implants is that Jadelle is easier to insert and remove, an advantage for both clients and providers.

“We recognized that six capsules were rather complicated to remove and insert, so we had hoped that we could develop more efficient implants,” says Irving Sivin, senior scientist with the New York-based Population Council’s implant development program. The Population Council developed Jadelle and also Norplant, which is now approved in more than 60 countries, including the United States.

Among clinicians using standard techniques to remove Norplant or Jadelle, Jadelle took only half the time to remove (a mean of approximately 5 minutes for Jadelle versus 10 minutes for Norplant).<sup>2</sup> Saving time in this way, Sivin says, may give providers more opportunity to counsel or otherwise help clients. Jadelle is also associated with fewer insertion and removal complications. In a study conducted among some 1,000 women using Norplant or Jadelle, 15 percent of Norplant users had some type of removal complication (such as bruising, pain, broken implants, or multiple incisions), compared with only 7 percent of Jadelle users.<sup>3</sup>

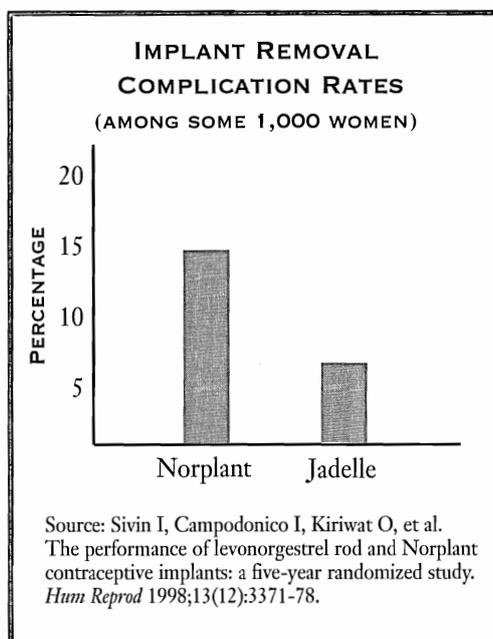
Of note, duration of effectiveness is up to seven years for Norplant and only

up to five years for Jadelle, which may be another important practical consideration for potential users. Otherwise, the two delivery systems are comparable. “The pregnancy rates have been identical for the two, at 1.1 per 100 women over a five-year period, roughly two pregnancies per 1,000 women per year,” says Sivin. In the study of some 1,000 women using Norplant or Jadelle, mean annual discontinuation rates due to menstrual disturbances (such as prolonged or heavy bleeding, intermenstrual spotting, and absence of bleeding) were approximately 4 per 100 women for both delivery systems.<sup>4</sup>

Jadelle has been approved in several European countries, Thailand, and Indonesia. In 2002 the International Planned Parenthood Federation added the method to its commodities list. USAID has not yet added it to its commodities list but will be working with the manufacturer to establish a public-sector price. Meanwhile, the Population Council is planning activities with

PROFAMILIA in the Dominican Republic to determine the client preferences, educational materials, and provider training necessary for family planning programs to make a transition from Norplant to Jadelle.

— Kerry L. Wright



### REFERENCES

1. Croxatto HB. Progestin implants for female contraception. *Contraception* 2002; 65(1):15-19; Sivin I, Moo-Young A. Recent developments in contraceptive implants at the Population Council. *Contraception* 2002;65(1): 113-19.
2. Sivin I, Campodonico I, Kiriwat O, et al. The performance of levonorgestrel rod and Norplant contraceptive implants: a five-year randomized study. *Hum Reprod* 1998; 13(12):3371-78.
3. Sivin, Campodonico, Kiriwat.
4. Sivin, Campodonico, Kiriwat. ■

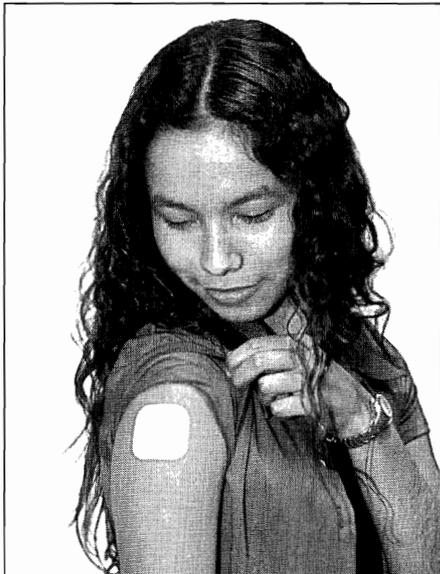
users. Pooled data from the United States and Canada showed that some 800 women using the patch used it perfectly during 89 percent of their cycles, while some 600 COC users used the pill perfectly only 79 percent of the time.<sup>12</sup> The higher compliance rate among contraceptive patch users may result from the convenience of the patch, researchers have noted. Results also suggested that the patch’s ease of use was particularly important for young women, who often have the most difficulty remem-

bering to take contraceptive pills consistently.<sup>13</sup>

No randomized controlled trials have been conducted to compare NuvaRing with COCs. Large nonrandomized trials suggest that the efficacy and side effects of NuvaRing are comparable to those of COCs, although NuvaRing users more frequently report vaginitis, vaginal discharge, and vaginal irritation.<sup>14</sup> Like Ortho Evra patch users, NuvaRing users may have higher compliance rates than COC users

(92 percent versus 75 percent in one group of comparative studies).<sup>15</sup>

A possible advantage of NuvaRing over other low-dose hormonal methods, including the Ortho Evra patch, is its effect on cycle control. The ring contains only 15 µg estrogen, but studies suggest that this low dose of estrogen is not associated with increased intermenstrual bleeding. About two-thirds of some 100 vaginal ring users, compared with fewer than half of some 100 COC users, reported expected



THE CONTRACEPTIVE PATCH IS WORN FOR ONE WEEK, DISCARDED, AND REPLACED WITH A NEW ONE. A PATCH-FREE WEEK FOLLOWS THREE WEEKS OF CONSECUTIVE USE.

bleeding patterns during all their cycles.<sup>16</sup> Such good cycle control may have been attributable to correct use of the method or, according to the authors, the fact that the ring continuously releases hormones, which prevents the daily fluctuations in hormone levels that occur during COC use.

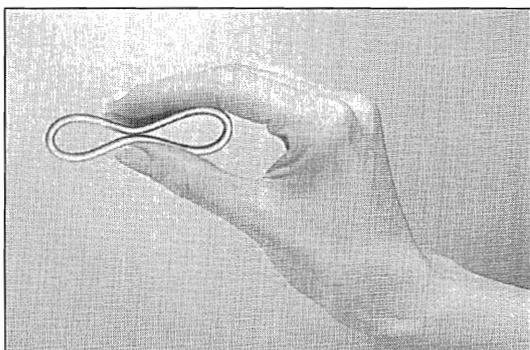
Novel products such as the Ortho Evra patch and NuvaRing are advances that will appeal to some women. But, Dr. Potts notes, cost may prohibit such products from making a worldwide impact in the near future. (Currently, in the United States, the monthly cost of the patch or

NuvaRing may be almost twice that of COCs.<sup>17</sup> "At a world level," he says, "what we need in vast quantities are low-dose, low-cost contraceptive pills that women know how to use consistently and correctly."

— Kerry L. Wright

## REFERENCES

1. *World Contraceptive Use 2001*, wall chart. New York, NY: United Nations Population Division, 2002.
2. World Health Organization. *Cardiovascular Disease and Steroid Hormone Contraception: Report of a WHO Scientific Group. WHO Technical Report Series 877*. Geneva, Switzerland: World Health Organization, 1998.
3. World Health Organization; Hannaford PC, Owen-Smith V. Using epidemiological data to guide clinical practice: review of studies on cardiovascular disease and use of combined oral contraceptives. *BMJ* 1998;316(7136):984-87; Vandenbroucke JP, Rosing J, Bloemenkamp KW, et al. Oral contraceptives and the risk of venous thrombosis. *N Engl J Med* 2001;344(20):1527-35.
4. Vandenbroucke; Kovacs P. The risk of cardiovascular disease with second- and third-generation oral contraceptives. *Medscape Women's Health eJournal* 2002;7(4). Available: <http://www.medscape.com/viewarticle/439354>.
5. Rosenberg MJ, Meyers A, Roy V. Efficacy, cycle control, and side effects of low- and lower-dose oral contraceptives: a randomized trial of 20 µg and 35 µg estrogen preparations. *Contraception* 1999;60(6):321-29.
6. Rosenberg MJ, Long SC. Oral contraceptives and cycle control: a critical review of the literature. *Adv Contracept* 1992;8(Suppl 1):35-45.
7. Saleh WA, Burkman RT, Zacur HA, et al. A randomized trial of three oral contraceptives; comparison of bleeding patterns by contraceptive types and steroid levels. *Am J Obstet Gynecol* 1993;168(6 Pt 1):1740-45; Endrikat J, Muller U, Dusterberg B. A twelve-month comparative clinical investigation of two low-dose oral contraceptives containing 20 µg ethinylestradiol/75 µg gestodene and 30 µg ethinylestradiol/75 µg gestodene, with respect to efficacy, cycle control, and tolerance. *Contraception* 1997;55(3):131-37; Akerlund M, Rode A, Westergard J. Comparative profiles of reliability, cycle control, and side effects of two oral contraceptive formulations containing 150 micrograms desogestrel and either 30 micrograms or 20 micrograms ethinyl estradiol. *Br J Obstet Gynaecol* 1993;100(9):832-38.
8. Endrikat; Rosenberg, Long.
9. Endrikat.
10. Rosenberg, Long; van Vliet HA, Grimes DA, Helmerhorst FM, et al. Biphasic versus triphasic oral contraceptives for contraception. *Contraception* 2002;65(5):321-24.
11. Audet MC, Moreau M, Koltun WD, et al. Evaluation of contraceptive efficacy and cycle control of a transdermal contraceptive patch vs an oral contraceptive: a randomized controlled trial. *JAMA* 2001;285(18):2347-54; Dittrich R, Parker L, Rosen JB, et al. Transdermal contraception: evaluation of three transdermal norelgestromin/ethinyl estradiol doses in a randomized, multicenter, dose-response study. *Am J Obstet Gynecol* 2002;186(1):15-20; Hedon B, Helmerhorst FM, Cronje HS, et al. Comparison of efficacy, cycle control, compliance and safety in users of a contraceptive patch vs an oral contraceptive. *Int J Gynaecol Obstet* 2000;70 (Suppl 1):78.
12. Archer DF, Bigriff A, Smallwood GH. Assessment of compliance with a weekly contraceptive patch (Ortho Evra/Evra) among North American women. *Fertil Steril* 2002;77(2 Suppl 2):27-31.
13. Rosenberg MJ, Waugh MS, Long S. Unintended pregnancies and use, misuse, and discontinuation of oral contraceptives. *J Reprod Med* 1995;40(5):355-60; Potter LS. Oral contraceptive compliance and its role in the effectiveness of the method. In Cramer JA, Spilker B, eds. *Patient Compliance in Medical Practice and Clinical Trials*. New York, NY: Raven Press, 1991.
14. Dieben TO, Roumen JME, Apter D. Efficacy, cycle control, and user acceptability of a novel combined contraceptive vaginal ring. *Obstet Gynecol* 2002;100(3):585-93; Roumen FJ, Apter D, Mulders TM, et al. Efficacy, tolerability, and acceptability of a novel contraceptive vaginal ring releasing etonogestrel and ethinyl estradiol. *Hum Reprod* 2001;16(3):469-75.
15. Dieben.
16. Bjarnadotfir RI, Tuppurainen M, Killick SR. Comparison of cycle control with a combined contraceptive vaginal ring and oral levonorgestrel/ethinyl estradiol. *Am J Obstet Gynecol* 2002;186(3):389-95.
17. Planned Parenthood Federation of America, Inc. *Birth Control: Your Contraceptive Choices*. Available: <http://www.plannedparenthood.org/bc/choices4.html>. □



NUVARING IS INSERTED INTO THE VAGINA, WORN FOR THREE WEEKS IN A ROW, AND THEN DISCARDED. AFTER A RING-FREE WEEK, THE CLIENT INSERTS A NEW RING.

# Why Women Miss Pills

Research identifies reasons and suggests how to improve consistency of use.

When used correctly and consistently, oral contraceptives (OCs) are among the most effective reversible methods of contraception. But reported pregnancy rates during the first year of OC use are as high as 32 percent.<sup>1</sup> Because a major contributing factor to these OC “failures” is thought to be missed pills, researchers are trying to determine how women’s daily routines, interpretations of pill taking, or knowledge about OCs affects their pill use. Such information is needed so that family planning programs can help clients take OCs more consistently.

One place where this issue has been explored is China. Family planning there is nearly universal among people of reproductive age, and OCs are free and widely available. Yet the pregnancy rate during the first year of OC use has been about 11 percent,<sup>2</sup> much higher than that in many other countries. Investigators from the University of Michigan School of Nursing, Ann Arbor, Michigan, USA, and China’s Hunan Family Planning Committee, Hunan Family Planning Institute, and Beijing University have sought to determine why this is so.<sup>3</sup>

Five urban and five rural women who were married and using No. 1, a Chinese brand of combined OCs containing 35 µg ethinyl estradiol and 600 µg norethindrone, were included in the study. All women were instructed to take one pill a day for 22 consecutive days. No placebo pills were available, and women were to resume pill taking on the fifth day of menses. For three cycles, women were given a special pill package with a computer

inside that recorded the time and date that each pill was dispensed.

During in-depth personal interviews, each woman was asked to develop a detailed calendar showing unusual events that occurred during each of her cycles, including sickness, absence from home, overnight visitors, or other disruptions to home or work routines. Each woman was also shown the computer-recorded data on her pill use and asked to explain missed pills or extended pill-free intervals.

Computer-recorded data showed, notably, that no woman who remained in the study for all three cycles took all of her pills on the correct days. According to the World Health Organization, women may be at increased risk for pregnancy if they miss as few as two active pills in a row (depending on when in the cycle they miss them) or if they extend the pill-free interval beyond seven days.<sup>4</sup> Four women missed at least two consecutive pills during the study; three of the same women also had an overly long pill-free interval. Although no pregnancies were reported, investigators considered three of the 10 women to have been at increased risk of pregnancy.

Analysis showed three main reasons for missed pills: changes in the routine of daily life, absence of husbands, and presence of bleeding. Interviews showed that the women sometimes confused spotting with menses and often did not take pills if they detected any bleeding at all. Data also showed that more rural than urban users took their pills consistently. The researchers hypothesized this occurred because rural users had more routine daily schedules.

On the basis of their data, the researchers suggested several yet-to-be evaluated strategies to improve consistency of OC use in China:

- Educational materials could be created to stress the importance of consistent OC use even when a husband is temporarily not at home.
- Pill-taking instructions could be changed so that women are told to take one active pill daily for 22 days and to resume taking active pills after six pill-free days, regardless of menstruation. This would create a more routine 28-day cycle and remove any link between pill taking and menses, so women would no longer have to interpret the meaning of bleeding.
- Mention of menses could be removed from pill-taking instructions to further dispel the myth that pills cannot be taken on bleeding days.

Bangladesh provides another good opportunity to study pill-taking behaviors. Nearly half of all contraceptive users in Bangladesh take the pill,<sup>5</sup> yet studies show that many Bangladeshi women do not follow correct pill-taking procedures.<sup>6</sup> A recent study conducted by the University

of New England in Australia, Ipas in North Carolina, USA, and the University of Dhaka in Bangladesh aimed to determine predictors of inconsistent OC use in rural Bangladesh.<sup>7</sup>

The study included 801 of some 1,400 OC users served by government family planning workers (FPWs) and surveyed between 1995 and 1996 about adherence to OC pill-taking regimens. Women in the study had been using 28-day pill packets containing 21 active pills and seven iron or placebo pills for at least six months.

Self-reports of past pill-taking behavior were recorded for each woman. A woman's pill taking was defined as inconsistent if she remembered missing one or more active pills during the last six months of OC use. Several factors — including religion, place of residence, access to television or radio, duration of OC use, side effects, knowledge about contraindications, and visits by a FPW during the last six months — were also analyzed as potential predictors of inconsistent use.

Half of the women reported missing at least one active pill during the last six months, but an even higher proportion

may have used their OCs inconsistently. Research conducted by FHI in 1996 comparing self-reported data on pill-taking behavior with computer-recorded data (such as that used in the study from China) has shown that in self-reports many women underestimate the number of pills that they miss.<sup>8</sup>

Data also showed that four factors significantly increased a woman's risk of inconsistent OC use: lack of knowledge about contraindications to OC use, no visit by a FPW in the last six months, Islam as a religion, and no access to television or radio. Lack of knowledge about contraindications was the most significant predictor of inconsistent use. This finding suggests that, in general, "less-informed women may have a tendency to use the pills inconsistently, and that increased access to more comprehensive information could help to alleviate this trend," the researchers stated.

To increase consistent use of OCs in rural Bangladesh, the authors made the following recommendations, which — while not evaluated in Bangladesh or elsewhere — may be applicable to rural settings in other countries:

- Regular in-service training about issues related to OC use should be offered to providers. All potential OC users should be counseled on the contraindications and possible side effects of OC use, as well as on how to use OCs correctly.
- Regular contact is needed between service providers and clients in rural areas. The family planning program of Bangladesh recently switched from a home-delivery system to a fixed-site, clinic-based delivery system, which needs to be promoted to improve women's awareness, and use, of the clinics.
- For social or religious reasons, some Muslim women have limited mobility within their communities, which may decrease their contact with service providers. Since many Muslim women do not leave the home without a male companion, involving men in women's reproductive health decisions — by counseling men as well as women — could facilitate adherence to OC regimens.
- Behavior change communication materials need to be revised, and mass media programs could be adjusted, to include

BERYL GOLDBERG



WHY WOMEN MISS TAKING ORAL CONTRACEPTIVES HAS BEEN STUDIED IN VARIOUS SETTINGS, INCLUDING CHINA. HERE, A MOTHER FROM SHANGHAI, CHINA, EMBRACES HER YOUNG SON WHILE HIS HAIR IS TRIMMED.

## 'QUICK START' OF PILLS PROMISING

Starting oral contraceptives (OCs) while being supervised by a health care provider during the first clinic visit, regardless of the time in a woman's menstrual cycle — an initiation method called Quick Start — may improve OC continuation rates without increasing menstrual side effects.

OCs have traditionally been initiated during or shortly after menses, in part to make sure a woman is not pregnant when she starts taking her pills. However, waiting until menses to start OCs may not be successful if women lose motivation, are confused about when to start taking pills, or become pregnant while waiting for their menses. In fact, up to a quarter of women waiting to initiate OCs may never even take their first pill.<sup>1</sup> "We thought that starting the pill while the patient was in the clinic asking for it might address all of these issues to some degree," says Dr. Carolyn Westhoff, a professor of obstetrics and gynecology at Columbia University in New York, USA, and one of the developers of the Quick Start approach.

One common objection to Quick Start is that a woman who starts her pills mid-cycle may be pregnant. But pregnancy can usually be ruled out using a simple urine pregnancy test. Where such tests are not available, a simple six-question checklist has been created by FHI (based on criteria developed by the U.S. Agency for International Development and the World Health Organization) to help providers be reasonably sure that a woman is not pregnant. (The checklist is available in English, Spanish, and French at <http://www.fhi.org/en/isp/checklistse/cbklstfpe/index.html>.) In addition, research has shown that OC use during early pregnancy does not harm a developing fetus.<sup>2</sup>

At family planning clinics in New York, Dr. Westhoff and colleagues recently evaluated three-month OC continuation rates among 227 Hispanic women, 58 of whom used Quick Start to initiate OC use and 169 who planned to initiate OCs at other times after they left the clinic.<sup>3</sup> Taking all variables associated with continuation into account, women who took their first pill at the clinic were nearly three times more likely to start their second pack of pills than were women who planned to start their pills later.

Another Quick Start study was conducted by researchers at Case Western Reserve School of Medicine, Cleveland, Ohio, USA, and Allegheny General Hospital, Pittsburgh, Pennsylvania, USA, among nearly 200 women ages 22 and younger.<sup>4</sup> Nearly three-quarters of Quick Start initiators, compared with just more than half of the young women who were instructed to initiate their pills

on the first Sunday after their next menses, were still using OCs after three months. The study also showed no differences between groups in nausea, vomiting, or breakthrough bleeding up to one year after OC initiation. Dr. Westhoff and colleagues also conducted a randomized trial to specifically compare bleeding patterns of women using Quick Start with those of women using a traditional start, and they found no differences in the number of bleeding or spotting days or the duration of bleeding and spotting episodes between groups.<sup>5</sup>

Although these studies have all been conducted in the United States, Dr. Kavita Nanda, an associate medical director at FHI, reports that she and fellow researchers are evaluating potential sites for an upcoming study to examine continuation rates and bleeding patterns for women in the developing world who use Quick Start initiation versus traditional initiation using an advance-provision strategy.

Advance provision of OCs — providing nonmenstruating women with one or more packets of pills they can take home and initiate once menstruation has occurred — is the standard alternative to Quick Start. But even advance provision is not available in many countries. "Quick Start has great potential for the developing

world," says Dr. John Stanback, an FHI senior associate who has studied advance provision of OCs in sub-Saharan Africa.<sup>6</sup> "But we also need to make sure that providers know that advance provision is a safe alternative, for example, when pregnancy cannot be ruled out or for women who wish to wait until their next menses to begin pill taking."

— Kerry L. Wright



CATHRYN JONES/FHI  
A FAMILY PLANNING PROVIDER HELPS A CLIENT BEGIN USE OF ORAL CONTRACEPTIVES DURING A CLINIC VISIT — AN INITIATION METHOD THAT MAY IMPROVE CONTINUATION RATES.

### REFERENCES

1. Oakley D, Sereika S, Bogue EL. Oral contraceptive use after an initial visit to a family planning clinic. *Fam Plann Perspect* 1991;23(4):150-54.
2. Bracken MB. Oral contraception and congenital malformations in offspring: a review and meta-analysis of prospective studies. *Obstet Gynecol* 1990;76(3 Pt 2):552-57.
3. Westhoff C, Kerns J, Morroni C, et al. Quick Start: a novel oral contraceptive initiation method. *Contraception* 2002;66(3):141-45.
4. Lara-Torre E, Schroeder B. Adolescent compliance and side effects with Quick Start initiation of oral contraceptive pills. *Contraception* 2002;66(2):81-85.
5. Westhoff C, Morroni C, Kerns J, et al. Bleeding patterns after immediate versus conventional contraceptive initiation: a randomized controlled trial. *Fertil Steril* 2003;79(2):322-29.
6. Stanback J, Janowitz B. Provider resistance to advance provision of oral contraceptives in Africa. *J Fam Plann Reprod Health Care* 2003; 29(1):35-36. ■

information on user behavior, such as instructions on how to take pills correctly and on what to do if pills are missed. Also, instructions should reinforce the importance of taking pills every day.

— Kerry L. Wright

## REFERENCES

1. Jejeebhoy S. Measuring contraceptive use-failure and continuation: an overview of new approaches. In Bogue DJ, Arriaga EE, Anderton DL, eds. *Readings in Population Research Methodology*. New York, NY: United Nations Fund for Population Activities, 1993; Fu H, Darroch JE, Haas T, et al. Contraceptive failure rates: new estimates from the 1995 National Survey of Family Growth. *Fam Plann Perspect* 1999;31(2):56-63.

2. Wang SX, Wing SG, Hang M. A study on the effects of common contraception measures in China. *Popul Res* 1991;29:1 [In Chinese].

3. Oakley D, Yu M-Y, Zhang Y-M, et al. Combining qualitative with quantitative approaches to study contraceptive pill use. *J Women's Health* 1999;8(2):249-57.

4. World Health Organization. *Selected Practice Recommendations for Contraceptive Use*. Geneva, Switzerland: World Health Organization, 2002.

5. National Institute of Population Research and Training, Mitra and Associates, and ORC Macro International Inc. *Bangladesh Demographic and Health Survey 1999-2000*. Dhaka, Bangladesh, and Calverton, MD: National Institute of Population Research and Training, Mitra and Associates, and ORC Macro International Inc., 2001.

6. Mitra SN, Lerman C, Islam S. *Bangladesh Contraceptive Prevalence Survey, 1991 Key Findings*. Dhaka, Bangladesh: Mitra and Associates, 1992; Larson A, Islam S, Mitra SN. *Pill Use in Bangladesh: Compliance, Continuation, and Unintentional Pregnancies. Report of the 1990 Pill Use Study*. Dhaka, Bangladesh: Mitra and Associates, 1991.

7. Khan MA, Trotter DA, Islam MA. Inconsistent use of oral contraceptives in rural Bangladesh. *Contraception* 2002;65(6):429-33.

8. Potter L, Oakley D, de Leon-Wong E, et al. Measuring compliance among oral contraceptive users. *Fam Plann Perspect* 1996;28(4):154-58. □

## DAILY PILL-TAKING ROUTINE IMPORTANT

In various developed countries, lack of a daily pill-taking routine and lack of client knowledge about correct oral contraceptive (OC) use contribute to nonadherence to pill-taking regimens, research has shown.

The findings suggest that providers can play an important role in increasing OC adherence by helping clients establish a daily pill-taking routine, understand the instructions for OC use, and identify where to obtain further OC information should a problem or question arise. The need to improve OC adherence is clear: It has been estimated that nonadherence to OC regimens contributes to 15 percent of the more than one million unplanned pregnancies occurring each year in the United States alone.<sup>1</sup>

To determine variables associated with lack of OC adherence, researchers from Health Decisions, Inc., and the University of North Carolina, Chapel Hill, North Carolina, USA, conducted a survey in urban Denmark, France, Italy, Portugal, and the United Kingdom among some 6,500 women who had ever used OCs.<sup>2</sup> From 1995 to 1996, researchers from these institutions and Planned Parenthood Federation of America, New York, NY, USA, also delivered questionnaires (in part to identify characteristics affecting consistency of OC use) to nearly 1,000 U.S. women who were initiating OCs or switching from another method to OCs.<sup>3</sup> In both studies, the strongest predictor of OC nonadherence was lack of a daily pill-taking routine: Those women who did not have an established routine were three to five times more likely to miss pills than were those who had such a routine. The studies also found that women who understood little or none of the written information that came with their OC packages were at least twice as likely to use their pills inconsistently as were those who completely understood the instructions. Other factors that predicted OC nonadherence (though not as strongly) included dissatisfaction with counseling about OCs and the presence of side effects such as hair growth, breast tenderness, nausea, and bleeding problems.

The researchers subsequently suggested several ways that providers can help improve OC adherence:<sup>4</sup>

- Help each woman consider her contraceptive choices according to her individual needs and concerns.
- Stress the importance of a daily routine for pill taking.
- Emphasize that most OC side effects — especially spotting and bleeding — are transient.
- Dispel OC misinformation, and discuss noncontraceptive health benefits of OCs.
- Demonstrate correct use of the specific OC prescribed.
- Provide easy-to-understand oral and written instructions about proper OC use and what to do in case pills are missed. (See figure, page 18.)
- Suggest a backup contraceptive method (and provide a few condoms).
- Tell clients how to obtain more information about OCs and their use, in case problems or questions arise.
- Follow clients for signs of lack of adherence to pill-taking regimens. For example, telephone calls or visits from clients about spotting should alert providers to inconsistent OC use and may be an opportunity to review pill-taking instructions.

— Kerry L. Wright

## REFERENCES

1. Rosenberg MJ, Waugh MS, Long S. Unintended pregnancies and use, misuse and discontinuation of oral contraceptives. *J Reprod Med* 1995;40(5):355-60.

2. Rosenberg MJ, Waugh MS, Meehan TE. Use and misuse of oral contraceptives: risk indicators for poor pill taking and discontinuation. *Contraception* 1995;51(5):283-88.

3. Rosenberg MJ, Waugh MS, Burnhill MS. Compliance, counseling and satisfaction with oral contraceptives: a prospective evaluation. *Fam Plann Perspect* 1998;30(2):89-92.

4. Rosenberg M, Waugh MS. Causes and consequences of oral contraceptive noncompliance. *Am J Obstet Gynecol* 1999;180(2 Pt 2):276-79. ■



# CBD of Injectables

Studies, pilot programs evaluate effectiveness, safety of approach.

**T**raining health workers and volunteers to provide injectable contraceptives in their communities can improve access to this popular, highly effective method and attract new contraceptive users.<sup>1</sup> While community-based distribution (CBD) of injectables has been limited, in part because of concerns about safety, experience suggests that well-trained CBD workers can administer injectables safely.

The impact of CBD of injectables has been investigated in a few studies in Asia and sub-Saharan Africa and is increasingly being tested in various settings in Latin America.

The most extensive efforts to provide injectables in communities began in 1976 as part of a project by the International Center for Diarrhoeal Disease Research, Bangladesh (ICDDR,B) in Matlab, Bangladesh. The project trained literate, married women to offer counseling with the progestin-only injectable depot-medroxyprogesterone acetate (DMPA) — and other contraceptives — in clients' homes. The project also provided a strong referral system. From 1977 to 1985, when 40 percent of contraceptive users in Matlab chose DMPA, the fertility rate in the area declined by 25 percent compared with rates in other study areas, where DMPA use was rare.<sup>2</sup> A higher contraceptive prevalence in Matlab than in the rest of rural Bangladesh was largely attributable to DMPA use.<sup>3</sup> Bangladesh's experience showed that injectables "are enormously popular when you put them at the doorstep," says Dr. James Phillips, a Population Council senior

associate who has conducted research on the Matlab project and other family planning programs in Bangladesh.

In communities in northern Ghana, CBD of injectables was also found to have a substantial impact on fertility levels. A study conducted by the Navrongo Community Health and Family Planning Project was not specifically designed to assess the effect of introducing community access to injectables, but the overwhelming majority of clients — 92 percent — chose DMPA from the range of methods offered by nurses during home visits. In three years, births per woman had been reduced by one in the communities receiving CBD of contraception by nurses and promotion of family planning by community volunteers. This represented a 16 percent decline compared with fertility levels in similar communities served by standard Ministry of Health (MOH) services.<sup>4</sup>

Meanwhile, governmental agencies and nongovernmental organizations (NGOs) in Latin America are beginning to expand efforts to provide injectables through CBD workers:

- The Guatemalan family planning association Asociación Pro-Bienestar de la Familia de Guatemala (APROFAM) added CBD of injectables to its programs in all the country's 22 departments after a study by APROFAM and the New York-based Population Council showed that this approach was as effective as clinic provision of DMPA in attracting new contraceptive users and achieving high continuation rates. CBD of DMPA proved a particularly effective strategy for

increasing access to injectable contraception among rural, primarily indigenous women in Guatemala: 83 percent of the 500 Mayan clients received DMPA services from community-based educators and volunteers, compared with half of 692 women of European ancestry who participated in the study.<sup>5</sup>

- A study of the introduction of DMPA through MOH services and the CARE CBD program in Peru, conducted by the Population Council and the Andean Institute of Population and Development Studies, demonstrated that community-based volunteers could provide DMPA safely and reach clients not served by MOH health workers.<sup>6</sup>
- In Mexico, a large introductory study of the monthly combined injectable contraceptive Cyclofem included community-based provision to women in rural areas. CBD workers actually achieved a higher continuation rate than MOH staff: 37 percent of the 640 rural women served by CBD workers were still using Cyclofem after one year, compared with 24 percent of the 2,817 urban and suburban women who visited health centers.<sup>7</sup>
- In Bolivia, community-based injectable services in a small acceptability study, conducted in 1998 by FHI and the Bolivian Center for Research, Education and Services in Sexual and Reproductive Health (Centro de Investigación, Educación y Servicios, or CIES) in El Alto, achieved high DMPA continuation rates. Only four women discontinued during the study, and three of the four resumed using DMPA with the help of CBD workers. Half of the 29 users recruited for this study chose to receive subsequent injections from a CBD worker.<sup>8</sup> CBD workers in El Alto continue to distribute injectables, and CIES plans to expand this service to Santa Cruz and Cochabamba in 2003.

FHI plans to adapt the CBD training curriculum<sup>9</sup> it developed with CIES and CARE in Bolivia for use in a study of the safety and feasibility of community-based injection services in Uganda. “The Bolivian study, as well as the experience of the Population Council and others, showed that CBD provision of DMPA was feasible, and that FHI’s screening checklist — to help nonclinic-based providers determine women’s eligibility for DMPA use — and a

good curriculum could facilitate the process,” says Dr. John Stanback, an FHI senior associate. “The time is right to do a rigorous study in Africa designed to respond to the technical and logistical objections that prevent access to this popular method.”

### CBD CHALLENGES

Technical concerns about CBD of injectables include doubts about CBD workers’ ability to screen properly any potential injectable users, counsel them, meet injection schedules, and follow appropriate procedures for disposing of used needles and syringes. Logistical concerns address the ability of CBD programs to maintain a consistent supply of contraceptives and injection equipment and to provide adequate medical support for women with side effects. All programs that provide injectables face these challenges, however.

Concerns that CBD workers will not be able to recognize medical conditions that might contraindicate their provision of DMPA — such as a history of stroke, blood clot in the legs or lungs, or heart attack — are addressed in part by the updated checklist that FHI developed and field tested for the Technical Guidance/

Competence Working Group of the U.S. Agency for International Development (USAID).<sup>10</sup> (The checklist is available in English, Spanish, and French at <http://www.fhi.org/en/fp/checklistse/cbklstfpe/index.html>.) An FHI study in Nepal found that medical conditions that would contraindicate DMPA provision by CBD workers were rare and would have been easily identified by use of the checklist.<sup>11</sup> Reassured by these findings, the U.S. NGOs CARE and Save the Children, USA, are working with Nepal’s MOH to revise training materials (developed and tested by Save the Children) to prepare CBD workers to provide DMPA under the USAID-funded Nepal Family Health Program.

Another frequent concern is that CBD workers may not provide clients with counseling that will sufficiently prepare them for bleeding problems that are a common side effect of injectable contraceptives. “Providers tend to gloss over the side effects, particularly the amenorrhea, and clients become unnecessarily worried that they might be pregnant, and they discontinue,” explains Dr. Stanback. But CBD workers can be trained to counsel clients effectively, says Population Council consultant Dr. Edwin Montúfar, who

RICHARD LORD



EFFORTS TO HAVE COMMUNITY-BASED WORKERS PROVIDE INJECTABLE CONTRACEPTIVES ARE EXPANDING IN LATIN AMERICA. HERE, A COMMUNITY-BASED DISTRIBUTOR OF CONTRACEPTIVES PRESENTS VARIOUS METHOD OPTIONS TO INDIGENOUS WOMEN OF CHACAN, PERU.

## SINGLE-USE INJECTABLE DEVICES ADDRESS BARRIERS, CONCERNS

The ongoing development of various single-use injection devices may make injectable contraceptive provision safer.

One such device is called SoloShot FX. Since September 2002, it has been packaged with all U.S. Agency for International Development (USAID) shipments of the three-month, progestin-only injectable depot-medroxyprogesterone acetate (DMPA). Developed by the U.S.-based Program for Appropriate Technology for Health (PATH) with support from USAID, SoloShot FX has a metal clip that locks the plunger after a single use and is packaged with a detachable needle that cannot be attached to any other type of syringe.<sup>1</sup> To encourage safe disposal of used syringes, all USAID shipments of SoloShot FX and DMPA include a special container in which syringes, needles, and other contaminated materials can be discarded. Notably, SoloShot FX causes less pollution than most standard syringes when it is burned (after disposal), since it does not contain a black rubber piston seal.

Another such device, also developed by PATH with support from USAID and commercially produced and distributed by U.S.-based BD (Becton, Dickinson and Company), is called Uniject. This plastic device houses hormones, needle, and syringe together in one small sealed pouch. Such an arrangement makes Uniject easy to transport outside of a clinic setting and particularly easy to administer, even by paramedical or trained nonmedical personnel. Like the SoloShot FX, Uniject was specifically designed so it could not be refilled or used again. An additional and important feature of Uniject is that it is prefilled with a single dose of hormones so the correct dose is always administered.

These new devices for injecting contraceptives address several concerns about, and barriers to, the use of injectable contraceptives, which more than 12 million women worldwide use. First, in some resource-poor settings or where contraceptive supplies are limited, needle reuse — which can put clients at risk for blood-borne infections such as HIV — sometimes occurs. The use of single-use injection devices would minimize this risk in both clinic and community-based distribution programs. (See article, page 12.) Second, for many women, travel to clinics to receive injections is difficult and expensive.<sup>2</sup> But community-based workers could more easily give injections if Uniject were available for them. “We see technologies like Uniject enhancing the ability to take interventions to clients through outreach activities — clients who would otherwise not be reached,” says Steve Brooke, PATH senior program officer, business development and commercialization.

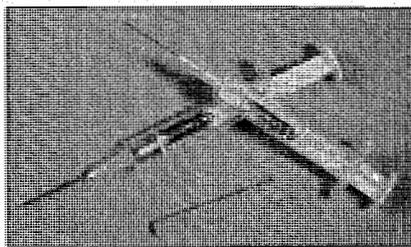
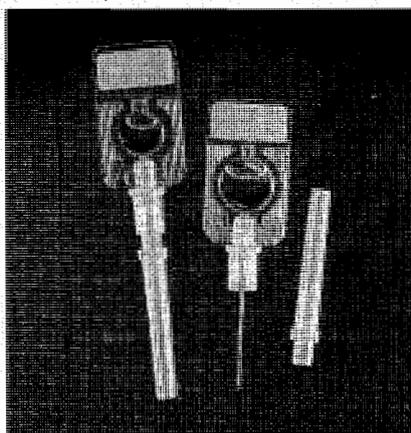
With support and technical assistance from the World Health Organization and PATH, the Universidade Estadual de Campinas (UNICAMP), Centro de Pesquisas das Doenças Materno-infantis de Campinas (CEMICAMP), Intrah, and colleagues evaluated in Brazil the administration of the one-month, combined injectable Cyclofem using Uniject versus standard syringes. A study including 20 registered and auxiliary nurses and 135 injectable users from five reproductive health clinics there showed that nurses could easily administer Cyclofem in the Uniject device.<sup>3</sup> Ninety percent of the nurses said the device was easy to activate and inject, and all said it was easy to store and transport.

The same Brazilian study showed high rates of acceptability among users. Women in the study reported little pain during injections, and almost all said they would receive another Uniject injection. An additional study from Brazil showed that even self-administration was feasible and acceptable to some women: More than 90 percent of 56 injectable users were able to self-administer Uniject/Cyclofem correctly, and half said they wished to continue injecting the contraceptive themselves.<sup>4</sup>

A similar study has been conducted by public-sector agencies in Mexico; results are pending. In the meantime, the Mexican company Aplicaciones Farmacéuticas has acquired regulatory approval to sell Uniject/Cyclofem in the public and private sectors. The company plans to do so once it is certain that its high-volume manufacturing process will reliably meet demand for the product, says PATH's Brooke. The U.S.-based company Pharmacia is also considering the feasibility of Uniject as a delivery system for DMPA. Meanwhile, USAID is supporting the application of Uniject for the delivery of either Cyclofem or DMPA, and hopes to begin testing this approach in 2003.

— Kerry L. Wright and  
Kathleen Henry Shears

BD (BECTON, DICKINSON AND COMPANY)



BOTH UNIJECT (ABOVE) AND SOLOSHOT FX  
(BELOW) ARE DESIGNED TO BE USED ONLY ONCE.

### REFERENCES

1. HealthTech. *Introducing Auto-Disable Syringes and Sharps Disposal Containers with DMPA*. Seattle, WA: Program for Appropriate Technology in Health, 2001. Available: [http://www.path.org/files/SI\\_CNVP15904\\_English.pdf](http://www.path.org/files/SI_CNVP15904_English.pdf).
2. Bahamondes L, Marchi NM, Nakagava HM, et al. Self-administration with Uniject of the once-a-month injectable contraceptive Cyclofem. *Contraception* 1997;56(5):301-4.
3. Bahamondes L, Marchi NM, de Lourdes Cristofolletti M, et al. Uniject as a delivery system for the once-a-month injectable contraceptive Cyclofem in Brazil. *Contraception* 1996;53(2):115-19.
4. Bahamondes, Marchi, Nakagava. ■

attributes the high continuation rate achieved by APROFAM's community-based injectables services to thorough training, high-quality counseling, and regular supervision through monthly visits to APROFAM's volunteers.

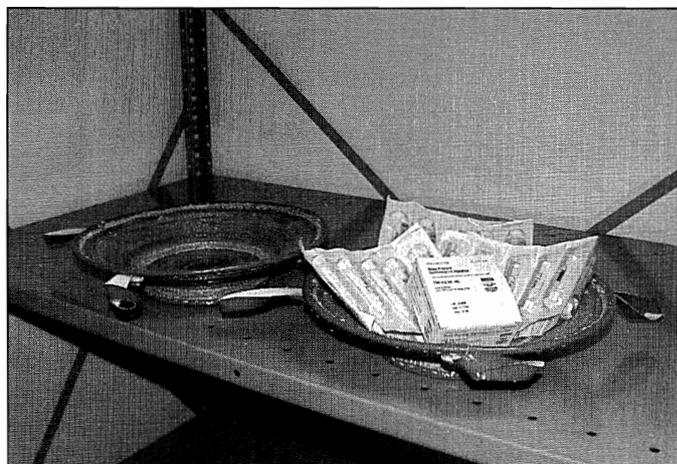
In CBD programs, community-based agents are responsible for reaching clients at the right time. "CBD workers would have to adhere to a tight schedule for home visits," Dr. Stanback says. "Clients are supposed to get their shots every three months, and CBD agents will have to ensure that their visits fall within the relatively narrow window of opportunity."

Clients do have a "grace period," he adds, but it is important to ensure that a woman is not left without any contraceptive protection, such as condoms, if a CBD worker arrives a few days after the scheduled injection date. The World Health Organization and USAID's Technical Guidance/Competence Working Group determined that DMPA can be given up to four weeks early (though not ideal) or up to two weeks late and possibly up to four weeks late, depending on the population. (Some populations, such as women from Southeast Asia, seem to metabolize DMPA more slowly than others, so that the contraceptive effect may last longer than three months.)<sup>12</sup>

Sometimes even the most conscientious CBD worker may be unable to locate a client. The most common reason for discontinuation of Cyclofem in Mexico was change of address. Seasonal migration for work was one of the main reasons for discontinuation of DMPA in a small CBD pilot study in Guatemala.<sup>13</sup> APROFAM addressed this problem by selling one or two doses of DMPA to women who planned to migrate for part of the year. "There are people trained to administer DMPA throughout the country," explains Dr. Montúfar. "The migrant woman must take each dose of DMPA to be administered by an APROFAM volunteer promoter or MOH staff member."

Like other family planning providers, CBD workers cannot be effective without a consistent supply of contraceptives. Dr. Montúfar says an important element in APROFAM's success with CBD of injectables is its strong logistics system, which also supplies other Guatemalan NGOs that provide family planning services. DELIVER, John Snow Inc.'s USAID-funded health

commodity logistics project, recommends a simple system that has been used to resupply CBD workers in Africa. Each CBD worker receives two bins filled with the same set of contraceptive supplies. When the first bin is empty, a CBD worker knows it is time to turn it in for new supplies.<sup>14</sup>



AN EMPTY BIN REMINDS COMMUNITY-BASED WORKERS IN AFRICA TO GET MORE SUPPLIES.

### REDUCING RISK

Syringes that automatically become disabled after a single use address an overriding concern for both clinic and CBD programs: the risk of spreading infection, including HIV and hepatitis B, through unsterilized or improperly sterilized injection equipment. These syringes greatly reduce that risk because they are designed to preclude reuse.<sup>15</sup>

Dr. Stanback hopes that the increasing availability of DMPA in single-use syringes such as SoloShot FX (see article, page 14) will help reduce opposition — based on safety concerns — to CBD injectable services. However, many medical professionals remain reluctant to cede responsibility for the provision of injectable contraceptives to paramedical or nonmedical personnel.

FHI is working with Ugandan health officials to design a study that will address concerns about the safety of CBD of injectables. The proposed research design calls for an assessment of trained CBD workers' ability to give injections safely in clinics before deciding whether to provide community-based services. Evaluation of that second phase would include an expert assessment of the pilot project and comparisons of continuation rates, injection site infections, user satisfaction, and client recall of key information among new DMPA users served in clinics and those served by the CBD workers.<sup>16</sup> "We hope it will be a model for the continent," Dr. Stanback says.

Providing community-based injectable services in sub-Saharan Africa is important because it is the only way some women will have access to one of the most popular

methods in the region, Dr. Stanback adds. "Most populations in Africa very much want injectables," he says. "Those who do not have access to clinic services will really miss out."

— Kathleen Henry Shears

### REFERENCES

1. Fernández VH, Montúfar E, Ottolenghi E. Injectable contraceptive service delivery provided by volunteer community promoters. Unpublished paper. Population Council, 1997; Phillips JF, Hossain MB, Huque AA, et al. A case study of contraceptive introduction: domiciliary depot-medroxyprogesterone acetate (DMPA) services in Bangladesh. In Segal S, Tsui AO, Rogers S, eds. *The Demographic and Programmatic Consequences of New Contraceptives*. New York, NY: Plenum Press, 1989; Debpuur C, Phillips JF, Jackson EF, et al. The impact of the Navrongo project on contraceptive knowledge and use, reproductive preferences, and fertility. *Stud Fam Plann* 2002;33(2):141-64.
2. Phillips.
3. Haaga JG, Maru RM. The effect of operations research on program changes in Bangladesh. *Stud Fam Plann* 1996;27(2):76-87; Caldwell P, Caldwell J. What does the Matlab fertility experience really show? *Stud Fam Plann* 1992;23(5):292-310.
4. Debpuur, Asuru R, Phillips JF, Akumah I, et al. The success and failure of alternative strategies for community-based distribution of contraception in the Navrongo Project. *American Public Health Association 130th Annual Meeting*, Philadelphia, PA, November 9-13, 2002.
5. Fernández.
6. León F. Utilizing operations research solutions: a case study in Peru. Unpublished paper. Population Council, 2001.

7. Garza-Flores J, Del Olmo AM, Fuziwarra JL, et al. Introduction of Cyclofem once-a-month injectable contraceptive in Mexico. *Contraception* 1998;58(1):7-12.

8. McCarraher D, Bailey P. Bolivia: Depo-Provera provision by community based distribution workers and other CIES staff in El Alto. Unpublished paper. Family Health International, 2000.

9. Zuna OV, López ME, Johnson S, et al. *Salud Sexual y Salud Reproductiva: Guía para Promotores. Módulo: Depo Provera*. La Paz, Bolivia: Centro de Investigación, Educación y Servicios, CARE, and Family Health International, 1998.

10. Family Health International. *Provider Checklists for Reproductive Health Services Reference Guide*. Research Triangle Park, NC: Family Health International, 2002.

11. Rai C, Thapa S, Bhattarai L, et al. Conditions in rural Nepal for which depot medroxyprogesterone acetate initiation is not recommended: implications for community based service delivery. *Contraception* 1999; 60(1):31-37.

12. Curtis KM, Bright P, eds. *Recommendations for Updating Selected Practices in Contraceptive Use: Results of a Technical Meeting. Volume 1*. Chapel Hill, NC: Intra, 1995.

13. Fernández.

14. Aronovich D. Best practices for health commodity logistics in CBD programs: ensuring product availability. Meeting on best practices in CBD programs in sub-Saharan Africa: lessons learned from research and evaluation, Washington, DC, December 2, 2002.

15. Ekuwueme DU, Weniger BG, Chen RT. Model-based estimates of risks of disease transmission and economic costs of seven injection devices in sub-Saharan Africa. *Bull WHO* 2002;80(11):859-70.

16. Stanback J. Safety and feasibility of DMPA provision by CBRH workers in Uganda. Unpublished paper. Family Health International, 2002. □

## Perceived 'Wetness' Can Affect Injectable Acceptability

A perception that progestin-only injectable use can increase vaginal wetness has been identified in two recent studies conducted in South Africa.<sup>1</sup> In the two studies of side effects and reasons for discontinuation given by progestin-only injectable users there (where, in the early 1990s, the method accounted for up to 80 percent of contraceptive use<sup>2</sup>), menstrual disturbances were the most frequently mentioned side effects. But vaginal wetness emerged as another common — and undesirable — perceived side effect in a setting where “dry sex” is practiced, as it is in several parts of central and southern Africa.<sup>3</sup>

Notably, this perception is not supported by scientific evidence. No association between progestin-only injectable use and an increase in vaginal moisture has been documented. In fact, progestin-only injectable use would be expected to lower estrogen levels in users and, as a result, perhaps decrease vaginal moisture.<sup>4</sup> Whether vaginal infections unrelated to contraception, such as bacterial vaginosis or trichomoniasis, contribute to the perception of increased wetness is also unknown. Until such information is available, any link between vaginal wetness and injectable progestin-only contraceptives remains speculative.

Nevertheless, providers need to be aware that a perceived association with vaginal wetness can affect the acceptability

of progestin-only injectables and could lead to their discontinuation. In the first study, conducted in a rural district of KwaZulu-Natal, about a fifth of 187 users of progestin-only injectables reported vaginal wetness as a side effect and said that it was what they liked least about the contraceptive method. Both male and female participants in focus group discussions involving some 100 users and non-users associated injectable use with both vaginal wetness and lack of female sexual desire, two characteristics that many male participants equated with female promiscuity.<sup>5</sup> In the second study, conducted at a family planning clinic in Soweto, Johannesburg, a fifth of 189 new users of progestin-only injectables mentioned vaginal discharge as a perceived side effect at least once. Almost all of the women said they were unhappy with the discharge, which they described as “watery,” and three of the women gave it as the primary reason for discontinuing use.<sup>6</sup>

— Kerry L. Wright

### REFERENCES

1. Smit J, McFadyen L, Zuma K, et al. Vaginal wetness: an underestimated problem experienced by progestogen injectable contraceptive users in South Africa. *Soc Sci Med* 2002;55(9):1511-22; Bekinska ME, Rees HV. Vaginal discharge: a perceived side effect and minor reason for discontinuation in hormonal injectable users in South Africa. *Afr J Reprod Health* 2001;5(3):84-88.

2. Reproductive Health Task Force, South African Ministry of Health, World Health Organization. Assessment of reproductive health in South Africa: focusing on family planning. Unpublished report. Reproductive Health Task Force, South African Ministry of Health, and World Health Organization, 1994.

3. Bekinska ME, Rees HV, Kleinschmidt I, et al. The practice and prevalence of dry sex among men and women in South Africa: a risk factor for sexually transmitted diseases? *Sex Transm Infect* 1999;75(3):178-80; Brown JE, Brown RC. Traditional intravaginal practices and the heterosexual transmission of disease. A review. *Sex Transm Dis* 2000;27(4):183-87; Brown JE, Ayowa OB, Brown RC. Dry and tight: sexual practices and potential AIDS risk in Zaire. *Soc Sci Med* 1993;37(8):989-94; Civic D, Wilson D. Dry sex in Zimbabwe and implications for condom use. *Soc Sci Med* 1996; 42(1):91-98.

4. Bahamondes L, Trevisan M, Andrade L, et al. The effect upon the human vaginal histology of the long-term use of the injectable contraceptive Depo-Provera. *Contraception* 2000; 62(1):23-27; Miller L, Patton DL, Meier A, et al. Depomedroxyprogesterone-induced hypoestrogenism and changes in vaginal flora and epithelium. *Obstet Gynecol* 2000;96(3):431-39.

5. Smit.  
6. Bekinska, Rees. ■

## CLINICAL CHALLENGES

### COC USE AND MIGRAINES

A 28-year-old mother of two who often suffers from headaches has traveled two hours to reach the family planning clinic. She wants a contraceptive method that will help her delay the birth of another child and is considering combined oral contraceptives (COCs). She has steady work that involves a regular schedule and feels that she could consistently take pills each morning before work. She has heard from her friends that COCs will not cause any irregular bleeding that might interfere with her work. Would COC use be advisable in her case?

Unless she has risk factors for stroke, a woman experiencing headaches that are not migraines can safely initiate COC use. However, distinguishing severe headaches from migraines and evaluating any new headaches with aura (visual, auditory, olfactory, or other symptoms before pain onset) or marked changes in headaches is important. Thus, before COCs are prescribed, likely causes of the woman's headache should be explored and a diagnosis made. In the meantime, nonhormonal contraceptives such as condoms should be offered to her.

Women with a history of both migraine and COC use are two to four times more likely to have a stroke than women with a history of migraine alone, according to case-control studies that have examined COC use, history of migraine, and risk of stroke.<sup>1</sup> The World Health Organization's medical eligibility criteria state that women with migraines can safely use COCs as long as they do not have focal neurologic symptoms and are younger than 35 years.<sup>2</sup> But COC initiation by women who are 35 years or older

and have migraines (even those without focal neurologic symptoms) is not recommended. No woman experiencing migraines with focal neurologic symptoms (such as an aura) should use COCs.

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### DMPA USE BY ADOLESCENTS

A 17-year-old, sexually active student wants a contraceptive that is discreet and convenient. After counseling, she chooses the progestin-only injectable depot-medroxyprogesterone acetate (DMPA). The method appeals to her because it is highly effective and requires only four clinic visits each year. But will DMPA be appropriate for this young client?

Women younger than 18 years can safely use DMPA, as the advantages of using the method generally outweigh the risks, according to the World Health Organization's medical eligibility criteria. However, bone demineralization occurs in DMPA users, especially those younger than 21 years.<sup>3</sup> Extent of bone loss in the spine and proximal femur depends upon the duration of use, with bone loss occurring as early as the first three months of use and becoming magnified by 15 years of use and longer.<sup>4</sup> Biochemical studies of bone resorption and formation have confirmed an association between DMPA use and bone loss.<sup>5</sup> A marked increase in bone density, especially at the spine, occurs following discontinuation,<sup>6</sup> but complete recovery may not occur in all bones. The adolescent years are the time of maximum bone deposition, and impairment of mineral deposition during this interval may have long-lasting effects. The concern is that women who have used DMPA as adolescents may enter menopause with a bone deficit and thus be more likely to suffer fractures than those who have not used the contraceptive method.

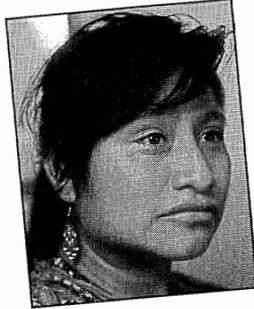
However, DMPA has several advantages for teenagers. Its use is discreet. Also, it offers long-term pregnancy protection, convenience, high effectiveness, and low cost.<sup>7</sup> The disadvantages of unplanned adolescent pregnancy probably outweigh the potential risk of bone loss. This client should be told, however, that DMPA will not protect her from sexually transmitted infections (STIs). If she is at risk for STIs/HIV, she should consistently use — in addition to DMPA — a condom for STI protection.

### MANAGEMENT FOR MISSED COCS

An unmarried, 24-year-old woman comes to the family planning clinic for advice. She had been using combined oral contraceptives (COCs) regularly. But three days ago, she traveled out of town to see her sister and forgot to take her COCs with her. During that interval, she had unprotected sex and is now worried about becoming pregnant. Discuss your management options in this case.

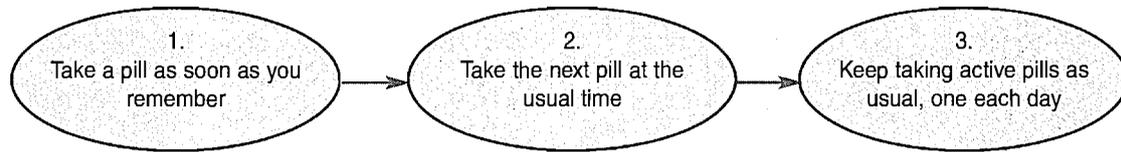
The chance that pregnancy will occur depends not only on how many pills were missed (in this case, three) but also on when those pills were missed. If this woman missed taking three of the first seven active (hormonal) pills in a pack (days 1-7), she will be at risk of pregnancy and should be offered emergency contraception as an option that can prevent most pregnancies when administered correctly. She should abstain from sex or use additional contraceptive protection for the next seven days.

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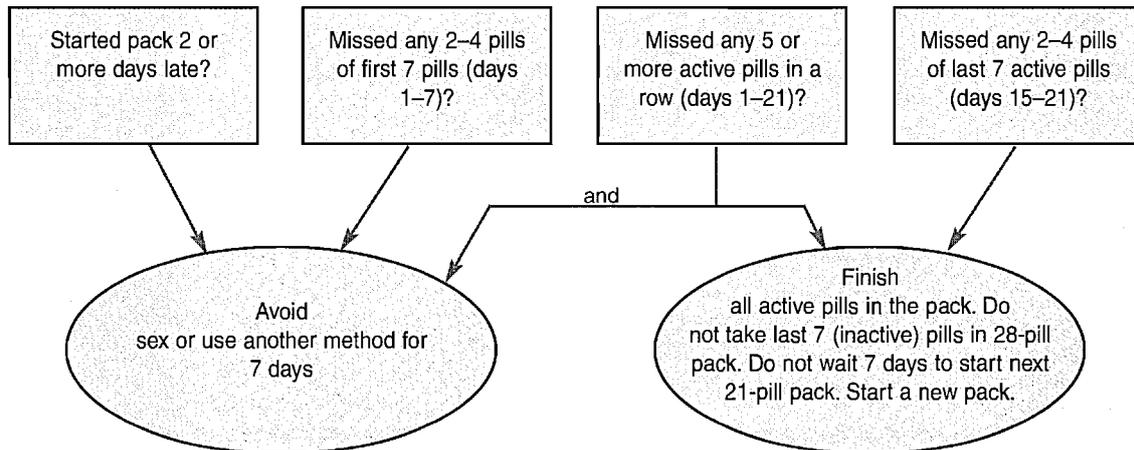


## What to Do If You Miss One or More Pills

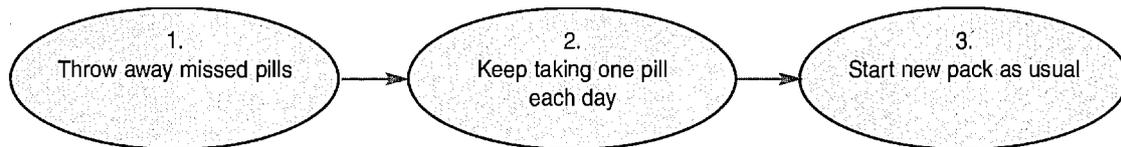
Every time you miss one or more active pills (days 1–21):



In these special cases, **ALSO** follow these special rules:



If you miss any of the 7 inactive pills (in a 28-pill pack only):



Source: Johns Hopkins University Bloomberg School of Public Health, Population Information Program. In World Health Organization. *Selected Practice Recommendations for Contraceptive Use*. Geneva, Switzerland: World Health Organization, 2002.

Recommendations for the resumption of regular pill taking are the same whether the woman missed taking three of the *first* seven active pills in a pack (days 1–7), three of the *middle* seven active pills in a pack (days 8–14), or three of the *last* seven active pills in a pack (days 15–21). She should take the first missed pill as soon as possible (discarding the other two missed pills). She should then take the next pill at the usual time (even if this means taking two pills on the same day or at the same time) and continue taking the remaining pills daily. (If she missed taking three of the *last* seven active pills in a pack, she should discard the inactive pills and immediately begin using the next pack of pills.)<sup>8</sup>

Management of other cases involving missed pills is depicted in the figure above.

## HORMONALS AND HYPERTENSION

A 34-year-old woman who delivered her second baby nine weeks ago comes to the family planning clinic wishing to delay the birth of a third child. She experienced severe preeclampsia during her pregnancy, and her blood pressure now is 165/115 mm Hg. This elevated pressure was confirmed by measurements repeated several weeks apart. She used an intrauterine device (IUD) in the past but discontinued it because it increased her menstrual bleeding. She thinks diaphragms and spermicides are messy, and her husband dislikes condoms. Can she use hormonal contraceptives?

Evidence is growing that, among women with a history of hypertension, combined oral contraceptive (COC) users have a higher risk of adverse cardiovascular events, such as stroke and heart attack, than non-users.<sup>9</sup> As blood pressure increases, this risk increases. Because this client's blood pressure is quite elevated (exceeding 160/100 mm Hg), she should not use COCs or combined injectable contraceptives, according to the World Health

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Organization's medical eligibility criteria. The use of the progestin-only injectable depot-medroxyprogesterone acetate (DMPA) is not usually recommended, but progestin-only pills and subdermal implants can generally be used. For women with multiple risk factors for arterial cardiovascular disease — such as hypertension (blood pressure that exceeds 140/90 mm Hg), smoking,

older age, history of cardiovascular disease, and diabetes — the same recommendations described above generally apply.<sup>10</sup>

Blood pressure measurements should be taken, if possible, before initiating the use of combined hormonal methods. The benefit of doing so has been demonstrated in various studies, including a World Health Organization collaborative, multicenter study involving users of low-dose COCs in developed and developing countries. In these studies, risks of ischemic stroke and heart attack were higher among women who did not have their blood pressure checked before starting COCs (a measure that would have screened out women with hypertension), compared with women who had their blood pressure checked.<sup>11</sup> However, if blood pressure cannot be measured, women should not be denied use of hormonal methods. This is because the absolute risk of any adverse cardiovascular events in women of reproductive age is low; even among hypertensive women ages 20 to 24 years who use COCs, such adverse events are estimated to be only 312 per million woman-years.<sup>12</sup> That risk is less than the risk associated with pregnancy and childbirth resulting from non-use of contraception, particularly in many resource-constrained settings.

Of note, however, this woman's blood pressure is dangerously high, meriting prompt evaluation and treatment.

## COCS AND ACNE

**An 18-year-old client seeks contraception at a family planning clinic. After family planning counseling, she opts for combined oral contraceptives (COCs), primarily for their convenience. The client, you notice, has marked facial acne. She explains that she began experiencing the acne about three months before and was just considering seeing a doctor for advice about treating it. Would COCs be advisable for contraception and also be helpful in controlling her acne?**

Low-dose COCs not only serve for contraception but also reduce acne, a common dermatological problem for adolescents that can leave both psychological and physical scars. Acne can be

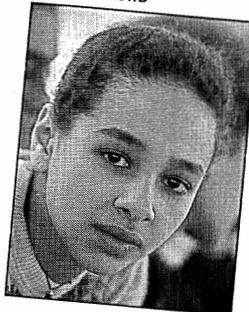
treated by reducing the effect of androgen in the body,<sup>13</sup> either directly (with anti-androgen) or indirectly (with estrogen). Estrogen reduces the availability of active free androgen by increasing sex hormone-binding globulin in the blood, and several randomized controlled trials have found COCs to improve acne when compared with placebos.<sup>14</sup> Similarly, combinations of low-dose estrogens and such progestins as cyproterone or drospirenone are effective in treating acne and providing contraception at the same time.<sup>15</sup>

*The questions above were answered by Dr. David Grimes, vice president of biomedical affairs at FHI, and Dr. Ayodele Arowojolu, an FHI clinical research fellow in contraceptive technology who is on leave from his position as senior lecturer/consultant in obstetrics and gynecology at the College of Medicine, University of Ibadan, Nigeria. The FHI fellowship program, based in Research Triangle Park, North Carolina, USA, aims to increase the number of qualified clinical researchers in contraceptive technology worldwide, and to establish a collegial relationship between FHI and the fellows' sponsor institutions.*

## REFERENCES

1. Curtis KM, Chrisman CE, Peterson HB. Contraception for women in selected circumstances. *Obstet Gynecol* 2002;99(6):1100-12; Lidegaard O. Oral contraceptives, pregnancy and the risk of cerebral thromboembolism: the influence of diabetes, hypertension, migraine and previous thrombotic disease. *Br J Obstet Gynaecol* 1995;102(2):153-59; Chang CL, Donaghy M, Poulter N, et al. Migraine and stroke in young women: case-control study. *BMJ* 1999;318(7175):13-18; Tzourio C, Tehindrazanarivo A, Iglésias S, et al. Case-control study of migraine and risk of ischemic stroke in young women. *BMJ* 1995;310(6983):830-33; Schwartz SM, Petitti DB, Siscovick DS, et al. Stroke and use of low-dose oral contraceptives in young women: a pooled analysis of two U.S. studies. *Stroke* 1998;29(11):2277-84.
2. World Health Organization. *Improving Access to Quality Care in Family Planning. Medical Eligibility Criteria for Contraceptive Use*. Geneva, Switzerland: World Health Organization, 2000.
3. Scholes D, LaCroix AZ, Ott SM, et al. Bone mineral density in women using depot medroxyprogesterone acetate for contraception. *Obstet Gynecol* 1999;93(2):233-38; Cundy T, Cornish J, Roberts H, et al. Spinal bone density in women using depot medroxyprogesterone contraception. *Obstet Gynecol* 1998;92(4 Pt 1):569-73; Cromer BA, Blair JM, Mahan JD, et al. A prospective comparison of bone density in adolescent girls receiving depot medroxyprogesterone acetate (Depo-Provera), levonorgestrel (Norplant), or oral contraceptives. *J Pediatr* 1996;129(5):671-76.
4. Scholes; Cundy.
5. Ott SM, Scholes D, LaCroix AZ, et al. Effects of contraceptive use on bone biochemical markers in young women. *J Clin Endocrinol Metab* 2001;86(1):179-85.
6. Scholes D, LaCroix AZ, Ichikawa LE, et al. Injectable hormone contraception and bone density: results from a prospective study. *Epidemiology* 2002;13(5):581-87.
7. Davis AJ. Use of depot medroxyprogesterone acetate contraception in adolescents. *J Reprod Med* 1996;41(5 Suppl):407-13.

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*Continued on page 23*

# Hormonal Contraception and STIs

Researchers continue to investigate a possible relationship.

The possible impact of hormonal contraceptive use on the acquisition or transmission of sexually transmitted infections (STIs), including HIV, remains an important research question. However, current knowledge of a potential relationship is insufficient to change family planning practices.

According to the World Health Organization medical eligibility criteria for contraceptive use, no restriction exists for the use of any hormonal contraceptive method for individuals with a current STI, at increased risk of STIs (for example, having multiple partners or a partner who has multiple partners), at high risk of HIV, who are HIV-positive, or who have AIDS.<sup>1</sup> Yet, hormonal contraceptives do not appear to protect against HIV or other STIs. Thus, while continuing to promote hormonal contraception for family planning when appropriate, providers should counsel hormonal contraceptive users who are also at high risk of HIV/STIs to use a condom during each act of intercourse.

A review of issues related to hormonal contraceptive use by women who are infected with HIV or are at risk of infection was held in Washington, DC, USA, in January 2003. Sponsored by the U.S. National Institute for Child Health and Human Development (NICHD), the meeting was organized to address HIV-infected and at-risk women's need for guidance regarding pregnancy prevention, fertility regulation, and hormone use. The meeting identified the need to better understand:

- Possible interactions between hormonal contraception and antiretroviral therapy;
- Any relationships between hormonal contraception and HIV-disease progression;
- Possible effects of hormonal contraception on HIV-positive women's infectivity; and

- Appropriateness of nonhormonal methods for HIV-infected or at-risk women.

Meanwhile, research has focused on the following potential areas of risk:

**Hormonal use and HIV acquisition:** Two thorough reviews of numerous studies of the risk of HIV acquisition among women who use hormonal contraceptives have been conducted. One found a relationship between use of oral contraceptives (OCs) and HIV acquisition,<sup>2</sup> while the other did not.<sup>3</sup> Authors of the reviews, however, noted that the quality of such studies was generally poor<sup>4</sup> and their results inconsistent.<sup>5</sup>

Few studies of hormonal contraceptive use and HIV acquisition have been prospective (which would reduce the chance of bias), and most have had methodological flaws. However, a large prospective study of the relationship between the use of combined OCs or depot-medroxyprogesterone acetate (DMPA) and HIV acquisition is being conducted by FHI researchers and collaborating institutions, and should yield results in 2004. The study, funded by NICHD, is being conducted in Uganda, Thailand, and Zimbabwe among some 6,200 HIV-negative, 18- to 35-year-old users of combined OCs, users of DMPA, and women not using hormonal contraception. Study participants are tested for HIV every 12 weeks until they have become infected or have been followed for 15 to 24 months. The study is also designed to determine if the presence of STIs other than HIV affects the rate of HIV acquisition among hormonal contraceptive users compared with non-users.

**Hormonal use and acquisition of other STIs:** Researchers are investigating the effect of hormonal contraceptive use on the acquisition of STIs (other than HIV), which can have major health consequences such as infertility, certain cancers, and other

chronic diseases. Infection with STIs (particularly those that cause genital ulcers) also increases both infectivity of and susceptibility to HIV.<sup>6</sup> A prospective cohort study involving 948 Kenyan sex workers found that use of oral or injectable hormonal contraception was associated with susceptibility to STIs: Users of OCs were at greater risk of acquiring chlamydial infection and vaginal candidiasis than women not using hormonal contraception, while women using DMPA had a significantly increased risk of chlamydial infection.<sup>7</sup>

Meanwhile, in a prospective study among some 1,000 U.S. women (484 OC users, 151 DMPA users, and 368 controls), FHI researchers and collaborating institutions found that use of DMPA — but not OCs — was significantly associated with the risk of chlamydial and gonococcal infection.<sup>8</sup> A substudy of this larger investigation found that DMPA use was associated with the risk of acquiring oncogenic human papilloma virus (HPV). OC use, in contrast, was associated with a decrease in the persistence of oncogenic HPV infection.<sup>9</sup> Oncogenic HPV infection is of concern because it is associated with increased rates of cervical cancer.

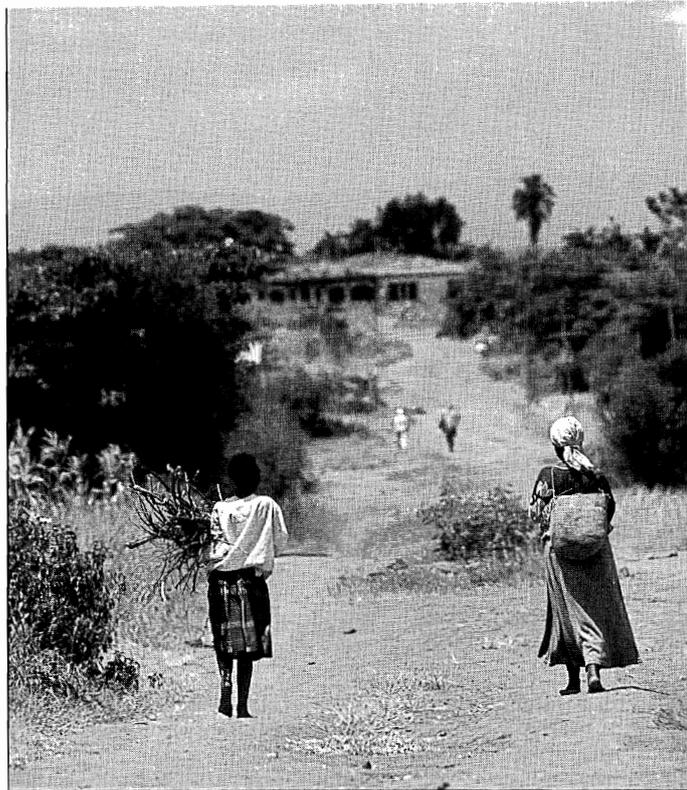
OC users also had a significantly lower incidence of HPV infection than non-users in a prospective study that included, at study entry, 105 HPV-negative, 13- to 21-year-old U.S. women attending family planning clinics.<sup>10</sup> However, once a persistent HPV infection is established, OCs appear to provide no protection against, and may even facilitate, progression to cervical cancer.<sup>11</sup> A pooled analysis of data from eight case control studies conducted by the International Agency for Research on Cancer showed that prolonged use of OCs (from five to nine years) among HPV-infected women was associated with up to a threefold increased risk of cervical cancer. Use for 10 years or longer was associated with up to a fourfold increased risk of cervical cancer.<sup>12</sup>

**Hormonal use and HIV transmission:** A theoretical concern exists that hormonal contraceptive use by HIV-infected women might increase shedding of HIV and thus increase transmission to uninfected partners. A cross-sectional study evaluating cervical and vaginal secretions of 318 HIV-infected women attending STI clinics in Mombasa, Kenya, found that cervical shedding of HIV-infected cells was significantly associated with use of DMPA and with both low-dose and high-dose OCs.<sup>13</sup> But a prospective study among HIV-positive women attending a family planning clinic in Mombasa (101 of whom chose to use DMPA; 52, low-dose combined OCs; seven, high-dose combined OCs; and 50, progestin-only OCs) detected no increase in cervical shedding of HIV-infected cells or free virus one and two months after initiation of hormonal contraception, compared with the period before initiation.<sup>14</sup>

To further clarify the matter, FHI researchers are conducting a prospective study in Zimbabwe and Uganda, funded by NICHD, of the effect of combined OC or DMPA use on HIV genital shedding among 140 women with acute or early HIV infection. The women, who will be compared with HIV-infected women not using hormonal contraception, are being followed every 12 weeks for up to four years. Preliminary results are expected in 2004.

Whether hormonal contraceptive use near the time of HIV infection affects disease progression is also of concern. One study among 115 HIV-infected Kenyan sex workers found that those using hormonal contraceptives near the time of HIV acquisition were more likely to be infected with multiple strains of the virus than women not using hormones. Infection with multiple strains may be associated with faster HIV progression.<sup>15</sup> Similarly, in a prospective cohort study of HIV acquisition among 1,337 sex workers in Mombasa — 230 of whom acquired HIV during follow-up — the use of DMPA and presence of genital ulcer disease at the time of HIV infection were associated with a higher viral load set point (the blood level at which the HIV virus settles about six months after initial infection). The higher the viral load set point, the faster HIV-related deterioration of the immune system occurs. Thus, this research finding suggests

A PEACEFUL DAY IN RIURU, KENYA. RESEARCHERS IN KENYA AND ELSEWHERE CONTINUE STUDYING WHETHER HORMONAL CONTRACEPTIVE USE AFFECTS ACQUISITION OR TRANSMISSION OF SEXUALLY TRANSMITTED INFECTIONS, INCLUDING HIV.



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that DMPA use and genital ulcer disease may hasten the natural course of HIV infection.<sup>16</sup>

— Kim Best

## REFERENCES

1. World Health Organization. *Improving Access to Quality Care in Family Planning. Medical Eligibility Criteria for Contraceptive Use*. Geneva, Switzerland: World Health Organization, 2002.
2. Wang CC, Kreiss JK, Reilly M. Risk of HIV infection in oral contraceptive pill users: a meta-analysis. *J Acq Immune Defic Syndr* 1999; 21(1):51-58.
3. Stephenson JM. Systematic review of hormonal contraception and risk of HIV transmission: when to resist meta-analysis. *AIDS* 1998;12(6):545-53.
4. Stephenson.
5. Stephenson; Wang.
6. Eng TR, Butler WT, eds. *The Hidden Epidemic. Confronting Sexually Transmitted Diseases*. Washington, DC: National Academy Press, 1997.
7. Baeten JM, Nyange PM, Richardson BA, et al. Hormonal contraception and risk of sexually transmitted disease acquisition: results from a prospective study. *Am J Obstet Gynecol* 2001;185(2):380-85.
8. Morrison CS, Bright P, Wong E, et al. Hormonal contraception, cervical ectopy and the acquisition of cervical infections. *14th Meeting of the International Society for Sexually Transmitted Diseases Research*, Berlin, Germany, June 24-27, 2001.
9. Morrison C, Nanda K, Wong E, et al. Hormonal contraception and incidence and persistence of high-risk HPV infection. *20th International Papillomavirus Conference*, Paris, France, October 4-9, 2002.
10. Moscicki A-B, Hills N, Shiboski S, et al. Risks for incident human papillomavirus infection and low-grade squamous intraepithelial lesion development in young females. *JAMA* 2001;285(23):2995-3002.
11. Brabin L. Interactions of the female hormonal environment, susceptibility to viral infections, and disease progression. *AIDS Patient Care STDS* 2002;16(5):211-21.
12. Moreno V, Bosch FX, Muñoz N, et al. Effect of oral contraceptives on risk of cervical cancer in women with human papillomavirus infection: the IARC multicentric case-control study. *Lancet* 2002;359(9312):1085-92.
13. Mostad SB, Overbaugh J, DeVange DM, et al. Hormonal contraception, vitamin A deficiency, and other risk factors for shedding of HIV-1 infected cells from the cervix and vagina. *Lancet* 1997;350(9082):922-27.
14. McClelland RS, Wang CC, Overbaugh J, et al. The effect of hormonal contraception on genital shedding of human immunodeficiency virus type-1. *The XIV International Conference on HIV/AIDS*, Barcelona, Spain, July 7-12, 2002.
15. Sagar M, Lavreys L, Baeten J, et al. Correlates of viral diversity in primary HIV-1 infection in women. *The Ninth Conference on Retroviruses and Opportunistic Infections*, Seattle, WA, February 24-28, 2002.
16. Lavreys L, Baeten JM, Kreiss JK, et al. Natural history and covariates of HIV-1 viremia among women in Mombasa, Kenya. *The XIV International Conference on HIV/AIDS*, Barcelona, Spain, July 7-12, 2002. □

## ENHANCING PHARMACY ECP PROVISION TO YOUTH

As emergency contraceptive pills (ECPs) are being incorporated into family planning programs and dedicated products are being registered in more countries, the word is spreading among youth that ECPs are available to help prevent pregnancy after unprotected intercourse. But youths' detailed knowledge of ECPs is limited, and their rates of use are still low.<sup>1</sup> According to Dr. Irina Yacobson, an associate medical director at FHI and youth-friendly services specialist for FHI's YouthNet program, one

of several ways to increase youths' knowledge and use of ECPs is to focus on pharmacies — a growing outlet for ECP information and provision.

"In countries where ECPs are available through pharmacies, youth prefer to go to a pharmacy for ECPs because it is a convenient way to obtain services and has fewer barriers than many traditional outlets," says Dr. Yacobson. But more youth need to know

that pharmacies can provide ECP services, and pharmacists need to take a greater interest in distributing ECP information, she says.

Studies from Zambia and the United Kingdom have shown that youth often view staff from traditional health care facilities as unwelcoming and judgmental, and may not seek their services because of embarrassment, lack of privacy, and the fact that clinics may not be open when emergency contraception is needed.<sup>2</sup> To identify alternative outlets for ECP services in Zambia, the Population Council, CARE/Zambia, Lusaka's University Teaching Hospital, and the Zambia Society for Family Health conducted a study in which

clinic-based health care providers, pharmacists, peer counselors, and community sales agents were trained to provide ECP information and, if possible, services. Researchers then measured, among other outcomes, how many of some 400 women in the study visited each group of providers and how effective each group was at delivering ECP information and services.<sup>3</sup>

Pharmacists proved to be the lead provider of both ECP information and pills. About half of youth in the study turned to pharmacists for information and nearly three-quarters for ECP provision. However, pharmacists were the least likely of all the groups to offer clients detailed information about ECPs or to offer information on alternative contraceptive options. They did not raise the issue of sexually transmitted infections (STIs), and they were just as likely not to mention the potential side effects of emergency contraception as they were to do so, noted the authors of a report on the study.

Because some pharmacists may be uncomfortable discussing family planning issues in public and clients want to maintain their privacy, providing information that clients can read on their own may help pharmacies in Zambia to better serve youth needing ECPs. For instance, once a dedicated ECP product is available there, an insert that provides accurate information about ECPs could be created. An ECP brochure could also be developed and distributed to youth who visit the pharmacies, the authors recommended.

The U.S.-based Program for Appropriate Technology for Health (PATH) is conducting a three-year project in Cambodia, Kenya, and Nicaragua to strengthen pharmacies' capacity to provide youth-friendly reproductive health services focused on needs arising from unprotected intercourse. Emergency contraception is one of those needs, says Jolene Beitz, a program associate at PATH. (The project also emphasizes STI risk assessment and contraceptive management.) If successful, the Reproductive Health Access Project — which is funded by the William and Flora

Hewlett Foundation and is now in its final year — may serve as a model for other developing countries where pharmacies provide reproductive health services to youth.

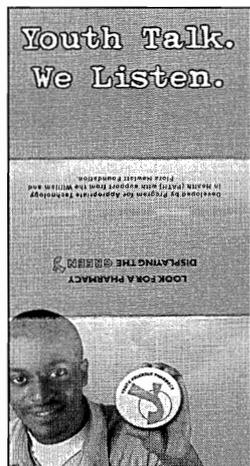
As part of the project, educational materials for clients and providers are being developed, and pharmacists and other frontline staff are being trained to give youth correct, up-to-date ECP information and services, including provision, counseling, and referral. An outreach component is also being implemented in collaboration with local youth-service organizations. "The purpose of this component is to increase peer counselors' knowledge about emergency contraception and to increase their knowledge that pharmacies, as well as traditional health care facilities, are available to provide emergency contraception and other reproductive health information and services," says Beitz.

— Kerry L. Wright

*YouthLens is an activity of YouthNet, a five-year program coordinated by FHI and funded by the U.S. Agency for International Development to improve reproductive health and prevent HIV/AIDS among young people.*

### REFERENCES

1. Arowojolu AO, Adekunle AO. Perception and practice of emergency contraception by post-secondary school students in southwest Nigeria. *Afr J Reprod Health* 2000;4(1):56-65; Arowojolu AO, Adekunle AO. Knowledge and practice of emergency contraception among Nigerian youths. *Int J Gynaecol Obstet* 1999;66(1):31-32; Sorhaindo A, Becker D, Fletcher H, et al. Emergency contraception among university students in Kingston, Jamaica: a survey of knowledge, attitudes, and practices. *Contraception* 2002;66(4):261-68.
2. Ahmed Y, Ketata M, Skibiak J. *Emergency Contraception in Zambia: Setting a New Agenda for Research and Action*. Nairobi, Kenya: Population Council, 1998; Bullock J. Raising awareness of emergency contraception. *Community Nurse* 1997;3(7):28-29.
3. Skibiak JP, Chambeshi-Moyo M, Ahmed Y. *Testing Alternative Channels for Providing Emergency Contraception to Young Women. Final Report*. New York, NY: Population Council, 2001. □



A PATH BROCHURE DIRECTS YOUTH TO PHARMACIES FOR EMERGENCY CONTRACEPTIVE PILLS.

## CLINICAL CHALLENGES

Continued from page 19

8. World Health Organization. *Selected Practice Recommendations for Contraceptive Use*. Geneva, Switzerland: World Health Organization, 2002.

9. World Health Organization. *Cardiovascular Disease and Steroid Hormone Contraception: Report of a WHO Scientific Group. WHO Technical Report Series 877*. Geneva, Switzerland: World Health Organization, 1998.

10. World Health Organization. *Improving Access to Quality Care in Family Planning*.

11. Heinemann LA, Lewis MA, Spitzer WO, et al. Thromboembolic stroke in young women. *Contraception* 1998;57(1):29-37; Dunn N, Thorogood M, Faragher B, et al. Oral contraceptives and myocardial infarction: results of the MICA case-control study. *BMJ* 1999;318(7198):1579-84; WHO Collaborative Study of Cardiovascular Disease and Steroid Hormone Contraception. Ischaemic stroke and combined oral contraceptives: results of an international, multicentre, case-control study. *Lancet* 1996;348(9026):498-505.

12. Farley TM, Collins J, Schlesselman JJ. Hormonal contraception and risk of cardiovascular disease. *Contraception* 1998;57(3):211-30.

13. Slayden SM, Moran CM, Sams WM Jr, et al. Hyperandrogenemia in patients presenting with acne. *Fertil Steril* 2001;75(5):889-92.

14. Lucky AW, Henderson TA, Olson WH, et al. Effectiveness of norgestimate and ethinyl estradiol in treating moderate acne vulgaris. *J Am Acad Dermatol* 1997;37(5):746-54; Redmond GP. Effectiveness of oral contraceptives in the treatment of acne. *Contraception* 1998;58(3 Suppl):29S-33S; Thiboutot D, Archer DF, Lemay A, et al. A randomized, controlled trial of a low-dose contraceptive containing 20 µg of ethinyl estradiol and 100 µg of levonorgestrel for acne treatment. *Fertil Steril* 2001;76(3):461-68; Redmond GP, Olson WH, Lippman JS, et al. Norgestimate and ethinyl estradiol in the treatment of acne vulgaris: a randomized, placebo-controlled trial. *Obstet Gynecol* 1997;89(4):615-22.

15. van Vloten WA, van Haselen CW, van Zuuren EJ, et al. The effect of two combined oral contraceptives containing either drospirenone or cyproterone acetate on acne and seborrhea. *Cutis* 2002;69(4 Suppl):2-15. □

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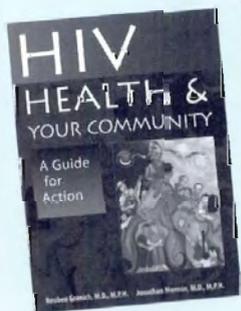
February 2003

# Resources

## HESPERIAN FOUNDATION MATERIALS

Our health care resources for providers are available from the Hesperian Foundation:

- *HIV, Health and Your Community: A Guide for Action*, a 256-page illustrated guide for community health care workers with little medical knowledge or HIV prevention training who are confronting HIV in their communities. The publication emphasizes successful HIV-prevention efforts and suggests ways to counsel clients about infection risk and changing behaviors that increase that risk. Topics include HIV biology, prevention program design, disease epidemiology, and grant writing. Available in English, this resource costs U.S. \$16 for U.S. providers. It is offered at a discount to qualified developing-country providers, who should contact Hesperian prior to placing orders to determine whether they qualify.



- A free women's health education and training newsletter, published three to four times

annually in English (*Women's Health Exchange*) and Spanish (*Saludos*). Each issue includes a topic-oriented training guide, women's health information, and news from women's groups worldwide.

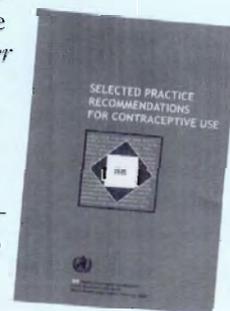
- *Where Women Have No Doctor*, a health care book for women wanting to improve their health and providers seeking health information related to women. Developed with community-based groups and experts from over 40 countries, this 584-page illustrated book helps individuals understand, treat, and prevent many health problems affecting women. It is also available in Spanish (*Donde no hay doctor para mujeres*). Cost is U.S. \$20 for U.S. providers. A discount may be available for developing-country providers, but they should contact Hesperian to see whether they qualify before placing orders.
- *Where There Is No Doctor*, a 512-page illustrated manual that provides information on the diagnosis and treatment of common diseases. A recent reprint of the Spanish version (*Donde no hay doctor*) includes updated information on common medicines, hepatitis, tuberculosis, and HIV/AIDS. Cost is U.S. \$17 for U.S. providers. A discount may be available for qualified developing-country providers.



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## WORLD HEALTH ORGANIZATION RESOURCES

*Selected Practice Recommendations for Contraceptive Use*, available free from the World Health Organization (WHO), provides evidence-based guidance on how to use contraceptive methods safely and effectively once they are deemed to be medically appropriate. WHO is also offering the free resource *Transforming Health Systems: Gender and Rights in Reproductive Health*, a CD-ROM-format curriculum for trainers. It is intended to give health managers, planners, policy-makers, and other reproductive health workers the analytical tools and skills necessary to integrate gender equity and reproductive rights concepts into reproductive health programs and policies. Participatory in nature, the curriculum uses case studies, exercises, and practical material to present a spectrum of reproductive health issues, including information on



maternal mortality, HIV/AIDS, sexual violence, and sexual debut. To obtain either of these resources, both available in English, contact: World Health Organization, Department of Reproductive Health and Research, Documentation Centre, 1211 Geneva 27, Switzerland. Telephone: 41-22-791-4447. Fax: 41-22-791-4189. E-mail: [rhrpublications@who.int](mailto:rhrpublications@who.int). An electronic version of *Selected Practice Recommendations for Contraceptive Use* is available at [http://www.who.int/reproductive-health/publications/rhr\\_02\\_7/](http://www.who.int/reproductive-health/publications/rhr_02_7/).

## HORMONAL CONTRACEPTIVE DATABASE

The International Planned Parenthood Federation (IPPF) offers a free, searchable, online database of hormonal contraception. Available in English, Spanish, and French, this tool for family planning practitioners, doctors, health workers, medical researchers, pharmaceutical companies, international health organizations, and others can be found at <http://contraceptive.ippf.org>.