

HEALTH CARE NEEDS OF WOMEN OF REPRODUCTIVE AGE

I. *What the Reproductive-Age Woman Wants and Needs from Her Physician*

- The woman in her reproductive years wants and needs what any patient wants and deserves from a physician - justified trust that her physician will lead her to the best information regarding her condition and will provide fair access to the remedies and technologies that may aid in the maintenance of her health.
- Physician visits in a woman's reproductive years are different than at any other time in her life. She, of course, has the need for preventive care, screening, and attention to general medical problems. The unique concerns of the woman contemplating or experiencing pregnancy, the physical and emotional factors surrounding birth or miscarriage, and the physical and psychological changes in preparation for menopause require that the woman have social and psychological support as well as technically competent medical care.
- When a positive physician-patient relationship develops, the patient has confidence in the physician's technical knowledge, skills, and experience. Physicians earn the trust of their patients by their own actions: by being their patients' advocates and by adhering to the principles that have attributed virtue to the profession of medicine.
- Patients trust their physicians to appropriately inform them of options and to offer timely advice; to sustain their rights as patients and as women; to appropriately delegate care to others in whom the physicians have placed their own trust; to be abreast of current research and new technologies; to engage in collegial relationships with other professionals involved in their patient's care; and to acknowledge their own limitations in instances where they may not be the best care provider for the patient.
- The physician-patient relationship, founded in trust, is strengthened by open communication between the two parties.
- Ultimately, what the reproductive-age woman wants and needs from her physician is a trustworthy, competent, caring physician practicing "good" medicine, acknowledging the boundaries of medical science, using judgment to apply wisdom appropriately, and attending patients with honesty and empathy.

II. *Sexually Transmitted Diseases and Pelvic Inflammatory Disease*

- Sexually transmitted diseases (STDs) pose a continuing challenge for society and health care providers alike. There are over 13 million new cases of STDs, excluding HIV infection, reported each year in the United States.
- Although more men than women are affected by STDs, women are more likely to suffer from complications. These include increased fetal/perinatal morbidity and mortality, PID, infertility, ectopic pregnancy, chronic abdominal/pelvic pain, and even neoplasia. This higher complication rate is attributed to the difficulties in

diagnosing STDs in women; many women are asymptomatic, resulting in diagnostic and treatment delays.

- Men and women are encouraged to be proactive regarding preventive measures, which can dramatically reduce the likelihood for infection. Suggested approaches to reduce the chances of acquiring an STD are listed below:

STD Prevention Strategies

Abstinence - Avoid intercourse with a known infected partner.
Use a new condom with each episode of intercourse.
Strive for a mutually monogamous relationship with an uninfected partner.
Examine your partner for the presence of lesions.
Talk about your partner's past sexual history.
Refrain from partners who have had multiple sexual partners.
Practice genital self-examination.
Avoid illicit drug use that may be associated with unsafe sexual practices.

III. *Genital Human Papillomavirus Infection*

- Condylomata acuminata, or genital warts, is a common STD. The best estimate suggests that about 10 to 20 percent of men and women between the ages of 15 and 49 have evidence of the disease based on colposcopic/cytologic, serologic, or DNA/RNA probe findings.
- The disease poses a particular threat to women because human papillomavirus (HPV) infection is associated with the development of cervical cancer.
- Use of condoms can reduce but not eliminate the likelihood of infection with HPV. Importantly, despite treatment of symptomatic warts, contemporary regimens do not cure or eliminate the disease.

A. Pathophysiology

- The lesions associated with genital warts can appear anywhere in the genital tract of women. Common sites include the external genitalia and the perineum. The vagina and cervix may also be affected.

B. Diagnosis

- Direct visual inspection, colposcopy (with and without biopsies), and the results of Pap smears are the most clinically useful methods to detect the presence of HPV infection in women.

C. Treatment

- The treatment of genital warts can be discouraging for both the clinician and the patient. The treatment of genital warts is usually divided into cytotoxic, physical ablation, and immunologic modes.

1. Cytotoxic Drugs: Include trichloroacetic acid, bichloroacetic acid, podophyllin, podofilox, and 5-fluorouracil. These agents destroy the infected tissue and are applied topically. Dose and duration of therapy vary with the agent used.

2. Physical Ablation: Methods include cryotherapy, laser therapy, electrodesiccation, loop electrosurgical excisional procedure, and surgical excision. These methods are reserved for patients in whom topical therapies have failed or who have a large number or surface area of warts.

3. Immunologic Therapy: Intralesional interferon and topical imiquimod are newer methods used to treat genital warts.

4. Counseling: Counseling women about HPV infection should be considered as important as the treatment itself.

Counseling Strategies for Women with HPV Infections

1. Advise condom use and limiting the number of sexual partners.
2. Stress that visible warts can be treated and removed (but not cured).
3. Make the patient an active participant in treatment decisions.
4. Describe the natural history and course of HPV infection.
5. Stress the need for regular Pap smears and follow-up.
6. Help the patient inform her partner(s).
7. Refer to support group if necessary.

IV. *Genital Herpes Simplex*

- Genital herpes simplex virus infection is an STD caused by herpes simplex virus type 2 (HSV-2) or herpes simplex virus type 1 (HSV-1). Although both types can cause genital or oral infection, most cases of genital herpes are caused by HSV-2 (estimated 70 percent).

- Most persons seropositive for HSV-2 shed virus from urogenital and perianal skin. Asymptomatic shedding is more frequent in the first year after symptomatic primary infection and with HSV-2 infection.
- The transmission rate with regular intercourse has been estimated to be 10 percent per year in studies.
- Use of barrier contraception, such as a diaphragm, condom, or both, reduced the overall rate to 5.7 percent compared to a rate of 13.6 percent associated with nonuse.

A. Pathophysiology

- In primary herpes simplex infection, there is often a prodrome of malaise, myalgias, headache, and low-grade fever. Symptoms usually occur within 3 to 7 days of exposure. Painful lesions, itching, and burning in the genital area begin in the first few days after onset of the prodrome. typical lesions are groups of small painful vesicles on the vulva, perineum or perianal skin, or cervix. Lesions are usually painful to touch. Viral shedding lasts for a mean of 12 days, with a mean of 20 days required for lesion healing. In recurrent genital herpes, 85 percent of women note itching or burning in the genital or perianal area 30 min to 2 days before lesions develop.

B. Diagnosis

- Viral culture is the gold standard for diagnosis. A positive culture is more likely when obtained in the earlier vesicular state of disease rather than later. Sensitivity of cultures during recurrent disease is only about 50 percent.

C. Treatment

- Three antiviral drugs are available for the treatment of genital herpes: acyclovir (Zovirax), valacyclovir hydrochloride (Valtrex), and famciclovir (Famvir). Systemic therapy (oral or intravenous) is more efficacious and better tolerated than topical therapy.

1. Initial Episode: Acyclovir and valacyclovir have been studied in the treatment of initial episodes of genital herpes. Acyclovir significantly reduced duration of infection and time to lesion healing compared to placebo. Famciclovir does not currently have an indication for the initial treatment.

2. Suppression: Individuals who experience more than six recurrences per year benefit from suppressive therapy. Acyclovir, valacyclovir, or famciclovir taken continuously have each been shown to significantly reduce recurrences.

D. Herpes in Pregnancy

- Genital herpes in pregnancy causes significant fetal and newborn morbidity and mortality.

E. Education and Prevention

- The psychological impact of being diagnosed with an incurable STD should not be underestimated. Providing information and emotional support in a sensitive, nonjudgmental manner can help the patient adjust more easily to the diagnosis. Several promising vaccines are being studied for primary prevention of HSV-2.

V. *Gonococcal Infection*

- Gonorrhea is among the most frequently reported communicable diseases in the United States. It is estimated that up to 80 percent of women infected with gonorrhea are asymptomatic.
- Antibiotic-resistant strains of gonococci have been steadily increasing, with an estimated 30 percent of strains now resistant to penicillin and tetracycline. quinolone-resistant strains are becoming widespread in Asia, but to date occur only rarely in the United States.

A. Pathophysiology

- The endocervical canal is the primary site of gonococcal infection in women. Common symptoms include increased vaginal discharge, dysuria, menorrhagia, and intermenstrual bleeding.
- The most common serious complication of *N. gonorrhoeae* is PID. More than half of the approximately 1 million cases of PID per year are associated with this organism.

B. Diagnosis

- The gold standard test for gonococcal infection in asymptomatic persons is culture from the sites of exposure.
- The DNA probe has become increasingly favored. When studied in patients in STD clinics, the DNA probe had a very high sensitivity and specificity (97 to 99 percent), high positive predictive value (>90 percent), and was more sensitive than a single culture.

C. Treatment

- Both broad-spectrum cephalosporins and quinolones remain highly effective against *N. gonorrhoeae* when given as a single dose.
- Patients should be advised to avoid sexual intercourse until therapy is completed (or for 7 days after a single-dose regimen) and both the patient and their sex partner(s) are free of symptoms.

D. Screening and Prevention

- The CDC recommends annual screening of asymptomatic women in the following groups: (1) women with mucopurulent cervicitis, (2) sexually active adolescents, (3) women aged 20 to 24 who have new or multiple partners or who do not consistently use barrier contraception.

VI. *Chlamydia Trachomatis*

- Chlamydia trachomatis infection is the most common bacterial STD in the United States, with an estimated 4 million cases annually.

A. Pathophysiology

- Chlamydiae are gram-negative bacteria with an obligate intracellular life cycle.
- The cervix is the usual initial site of infection. Most infections are asymptomatic, but vaginal discharge and dysuria may occur.

B. Diagnosis

- Cell culture of *C. trachomatis* is nearly 100 percent specific but has a relatively low sensitivity of 70 - 85 percent.
- Because *C. trachomatis* organisms live in columnar epithelial cells, it is important that the sample be obtained from within the endocervix.

D. Treatment

- Azithromycin is four times as costly as doxycycline; however, because it may be given as a single, directly observed dose, it may be more cost-effective due to improved compliance, thereby preventing more cases of PID.
- After treatment with erythromycin, retesting more than 3 weeks after treatment is recommended due to lower cure rates.
- Rescreening in several months is advisable if likelihood of reinfection is high. Patients should be instructed to refer their sex partners for evaluation and treatment.

VII. *Syphilis*

- The prevalence of syphilis for men and women of all racial and ethnic groups has been on the steady decline since 1990.

A. Pathophysiology

- Syphilis is caused by the spirochete *Treponema pallidum*. The organism can invade intact mucous membranes or damaged skin. It gains entry into the bloodstream via the lymphatics and then disseminates throughout the body.
- Fifty percent of persons with untreated primary syphilis will progress to the secondary stage; the remainder will enter the latent stage.

Clinical Characteristics of Syphilis Stages

Primary:	<p>Mean incubation period of 21 d</p> <p>Solitary, painless, indurated lesion (chancre) at infection site</p> <p>Women may be unaware of vaginal/cervical lesion</p> <p>Phimosis may occur in males due to edema</p> <p>Inguinal lymphadenopathy may be present</p> <p>Chancre may persist for 3-6 wk</p>
Secondary:	<p>Occurs 9 wk following initial exposure (persists 2-12 wk)</p> <p>Stage may develop earlier in AIDS patients</p> <p>Generalized lymphadenopathy</p> <p>Flulike symptoms</p> <p>Cutaneous eruptions</p> <p>Minimal symptoms with cutaneous lesions</p> <p>Neurosyphilis may present with vague neurologic complaints</p> <p>Resolution of stage occurs spontaneously</p>
Latent:	<p>Essentially no symptoms</p> <p>Early phase- < 1 y following inoculation (secondary symptoms may recur)</p> <p>Late phase- > 1 y following inoculation (no symptoms)</p> <p>30% of persons enter tertiary phase</p>
Tertiary:	<p>Can occur at any time following latency</p> <p>Superficial and/or deep tissue gummas</p> <p>Cardiovascular, neurologic, and other organ infiltration</p>

B. Diagnosis

- The clinical diagnosis of primary syphilis is made on the basis of darkfield microscopic examination or direct fluorescent antibody tests of chancre exudate or tissue and/or serologic tests.

C. Treatment

- The treatment of syphilis requires the parenteral administration of an appropriate bactericidal antibiotic. Regardless of the stage or clinical manifestation of the disease, the drug of choice has remained parenteral penicillin G. Partners of persons with documented syphilis should be evaluated, both clinically and serologically, and treated.

- Because no well-established alternative therapies exist for the management of syphilis, patients allergic to penicillin must be carefully evaluated and desensitized.

VIII. *Pelvic Inflammatory Disease*

- Pelvic inflammatory disease is the clinical syndrome resulting from infection of the uterus, fallopian tubes, ovaries, peritoneum, and contiguous structures. PID is the most common serious complication of STDs in women.
- Risk factors for PID include: young age at first intercourse, multiple sex partners, high frequency of sexual intercourse, and increased rate of acquiring new partners within the previous 30 days. IUD usage increases a woman's risk of PID. Use of a barrier contraceptive or oral contraceptive reduces the risk of PID.

A. Pathophysiology

- Most cases of PID are polymicrobial. *N. gonorrhoeae* and *C. trachomatis* as well as endogenous anaerobic and aerobic bacteria.
- The current favored hypothesis for the mechanism of PID is that *N. gonorrhoeae* and *C. trachomatis* initiate tubal infection with secondary invasion of other bacteria from the cervix and vagina.
- Altered host defenses then allow cervical pathogens to ascend into the uterus and establish infection.

B. Diagnosis

- A clinical diagnosis of PID is confirmed by laparoscopy about 75 percent of the time. Delay in diagnosis and treatment contributes to the development of long-term sequelae.
- All women with suspected PID should have cervical cultures for *N. gonorrhoeae* and cervical culture or a nonculture test for *C. trachomatis*.

CDC Criteria for the Diagnosis of PID

Empirical treatment of PID should be initiated in sexually active young women and others at risk for STDs if all of the following **minimum criteria** are present, and no other cause(s) for the illness are identified:

- lower abdominal tenderness
- adnexal tenderness, and
- cervical motion tenderness

Additional criteria that support a diagnosis of PID include the following:

- oral temperature > 101°F (38.3°C)

- abnormal cervical or vaginal discharge
- elevated erythrocyte sedimentation rate
- elevated C-reactive protein, and
- laboratory documentation of cervical infection with *N. gonorrhoeae* or *C. trachomatis*

continued

The **definitive criteria** for diagnosing PID which are warranted in selected cases include the following:

- histopathologic evidence of endometritis on endometrial biopsy
- transvaginal sonography or other imaging studies showing thickened fluid-filled tubes with or without free pelvic fluid or tubo-ovarian complex, and
- laparoscopic abnormalities consistent with PID

C. Treatment

- All PID treatment regimens must provide broad-spectrum coverage of likely pathogens, including *N. gonorrhoeae*, *C. trachomatis*, anaerobes, gram negative bacteria, and streptococci.

D. Complications

- An estimated 15 to 20 percent of women with PID will suffer from long-term sequelae such as infertility, ectopic pregnancy, chronic pelvic pain, dyspareunia, pyosalpinx, tubo-ovarian abscess, and pelvic adhesions.

E. Prevention

- Screening women at risk for *N. gonorrhoeae* and *C. trachomatis* is an important prevention strategy for PID.

IX. HIV Infection

- It is now recognized that women, including pregnant women, experience the same natural course of HIV-1 infection as men.
- A number of distinctive clinical conditions may occur in women as the disease progresses. These include severe mucocutaneous candidiasis, genital warts, herpes simplex infections, PID, cervical dysplasia, carcinoma in situ, and invasive cervical carcinoma.
- Treatment-resistant or recurrent vaginal candidiasis may be the initial presentation of clinical HIV-1 infection in women.

A. Diagnosis

- If an HIV-infected woman becomes pregnant, there is a 15 to 25 percent risk of the infant being born with the infection. The use of antiretroviral therapy during pregnancy and labor, with subsequent administration to the infant, can reduce the risk of neonatal infection to 8 percent.
- Antibody tests are used to diagnose HIV-1 infection. A positive screening test must be confirmed with an additional test, such as the Western blot or an immunofluorescence assay. A positive confirmatory test indicates that the person is infected and capable of transmitting the virus.

B. Treatment

- The management of HIV-1 infection and its complications, including opportunistic infections, is both complicated and costly.

X. Summary

- The STDs, including PID, continue to affect the medical community, patients, and society at large.
- Because women are disproportionately affected, health care providers must advocate and encourage empowerment of women to practice prevention measures to reduce the likelihood of infection. Likewise, clinicians are encouraged to enhance their knowledge and skills in the detection and management of STDs and PID and to adopt an evidence-based approach to their practice.

CONTRACEPTION AND ABORTION

- The primary care provider can help patients reduce the likelihood of unintended pregnancy by proactively asking every patient about their contraceptive needs and experience. Waiting for the reproductive-age woman to raise the issue of contraception can be a serious problem for the many who are shy about this sensitive topic.
- Do not wait for the patient to ask. Tell each patient that family planning services are available; decide for your practice what you can offer directly, what you can learn, and what you will refer out.

I. Condoms

- Most male condoms are latex and may be lubricated with either a nonoxynol-9 based spermicide or with an inert lubricant.
- Female condoms are made of polyurethane, lubricated with an inert fluid supplied with each package, and prevent passage of both sperm and of STDs.
- All condoms prevent pregnancy by blocking access of sperm to the upper reproductive tract of the female. Typical users of condoms report about 10

pregnancies per 100 couples in the first year of condom use. Two frequent reasons for unplanned pregnancy among condom users include not using the condom during the early minutes of intercourse leading to insemination by the preejaculatory fluid, and also failure to use condoms during an imperfectly calculated safe period.

- The only medical risk associated with condom use is latex allergy. This is an increasingly common problem that can be manifested by local irritation or systemic symptoms. Local symptoms, such as irritation, itching, and discharge, may indicate allergy, but are more likely due to other factors, such as inadequate lubrication, or irritation from exposure to the spermicide or its vehicle. Patients with these complaints can use a water-based lubricant or use brands of condoms without spermicide.

II. Hormonal Methods - Combination Oral Contraceptives

- Essentially all of the combination pills contain 21 active pills followed by 7 days of placebo. Today's active pills contain from 20 to 35 ug of ethinyl estradiol, and a wide variety of different progestins. Birth control pills prevent pregnancy through multiple simultaneous mechanisms of action. First, the continuous estrogen inhibits follicle-stimulating hormone (FSH) release, thus diminishing the development of ovarian follicles. Second, the continuous progestin prevents the occurrence of a midcycle luteinizing hormone surge, which would otherwise stimulate ovulation if a dominant follicle were present. Third, the progestin thickens cervical mucus, which prevents the ascent of sperm to the upper genital tract. Finally, the progestin prevents development of an endometrium that would be suitable for implantation if a fertilized ovum reached the uterus.
- Today's low-dose pills are highly effective, and the typical failure rates reported for the first year of use are about 3 percent. One of the main reasons for unintended pregnancy is that oral contraceptive users are too quick to discontinue the method when they experience small problems or when they anticipate a short period of abstinence. Another common reason for pregnancy in OC users is difficulty in refilling a prescription.
- Drug interactions are a rare cause of OC failure. Antiseizure medications, including phenobarbital, phenytoin, primidone, and carbamazepine, may have this effect. Barbiturates used for other indications are suspect. The only antibiotics clearly shown to have this effect are rifampin and possibly griseofulvin.
- The widespread fear of OCs is completely out of proportion to any risks. The main fears focus on cancer and cardiovascular diseases. The risk of venous thromboembolism (VTE) - whether presenting as a deep vein thrombosis in the leg, or as a pulmonary embolism, or as a cerebral vein thrombosis - is still increased with the use of combined OCs. Fear of cancer is another reason that women and their doctors avoid the OCs.
- There are many short-term noncontraceptive benefits that accrue to women taking OCs. Menstrual cycle control is improved for women of all ages. Combined OCs are also the best treatment for dysmenorrhea. A more recently recognized OC benefit is improvement in acne. In addition to these major and clearly

demonstrated benefits of OCs, epidemiologic and clinical studies over the years have indicated numerous other noncontraceptive effects that are probably direct results of the physiologic actions of the OC. These include decreased ovarian cysts, decreased endometriosis, decreased salpingitis, decreased ectopic pregnancy, decreased benign breast disease, and increased bone density.

- The main contraindications are the existence of definite or suspected vascular disease. Also, women older than 35 years who smoke have a markedly increased risk of myocardial infarction. Women with current abnormal liver function may not metabolize OCs predictably, and should not use them. Women with current gallbladder disease may become worse with OCs and should not use them. Women who have migraine and use OCs may be at increased risk of thrombotic stroke.
- Pills are usually initiated during the next menstrual period. Starting the pack on the first day of menstrual flow is simple and gives the quickest onset of contraceptive protection. In general, the OCs are effective after taking them for seven days. If a pill is forgotten, the patient should take two the next day with no loss of contraceptive effectiveness. Any patient who misses two or more active pills should use condoms (or abstinence) until the active pills are taken again for seven consecutive days. A variety of minor side effects during the first month or two of OC use may be experienced. Some patients will experience breast tenderness, nausea, headaches, appetite changes, and changes in mood or sense of well-being.

III. Injections

- A depot preparation of medroxyprogesterone acetate (DMPA), Depo-Provera is the only injectable contraceptive currently available in the United States. It contains 150 mg of hormone, and is given as a deep intramuscular injection every 12 to 13 weeks. It is highly effective, with failures well below 1 percent per year. It works by inhibition of ovulation. This long duration of action, combined with an inability to actively reverse its action, means that DMPA is not a suitable contraceptive for any woman planning a pregnancy within the next 18 months. The main current controversy regarding use of DMPA is whether the temporary, and apparently reversible, bone loss sometimes seen among users will lead to adverse clinical effects in later years. The main nuisance side effects associated with DMPA use are overwhelmingly the various changes in menstrual pattern. During initial use, women may have extended periods of bleeding and unpredictable menstrual patterns. After use of one year or more, the majority of DMPA users become nearly or completely amenorrheic.
- Depo-Provera is an excellent choice for women who need a highly effective birth control method and who cannot remember to take a daily pill, or those who may not be candidates for combination oral contraceptives due to smoking or hypertension. The injection is best initiated during the first seven days of a woman's menstrual cycle when pregnancy protection will begin immediately following injection. Repeat injections can be scheduled every 12 weeks.

IV. *Implants*

- The use of subcutaneous silastic implants to deliver contraceptive hormones allows the continuous release of a minimal therapeutic dose. The currently available implant, Norplant, consists of six implants that each contain levonorgestrel, a progestin. The Norplant system is effective for at least five years of use. Recent U.S. data indicate failure rates well below 1 percent each year. The continuous hormone released by the system inhibits ovulation in most users, particularly during the first three years of use. There is a thickening of the cervical mucus, which prevents the ascent of sperm, and changes in the endometrial lining. The implants are inserted through a small incision or puncture into a shallow subcutaneous plane. The upper arm is chosen because it is accessible and inconspicuous.
- Onset of contraceptive protection occurs as soon as 48 h after insertion of the implants, and reversal of protection may be equally quick after removal of the implants. Current information indicates that Norplant implants do not generally result in serious risks, and can be used safely by most women. As with the other progestin-only contraceptives, disruption of the menstrual bleeding pattern is the most common side effect in implant users. The menstrual disruption is greatest during the first six months of use. In addition to the bleeding changes, many implant users report headache, weight gain, and an increase in acne. Contraceptive implants are suitable for almost any woman who wants a highly effective, low-maintenance contraceptive method. Implantable contraception is usually initiated during the first seven days of the menstrual cycle.

V. *Emergency Contraception*

- Every reproductive-age female should understand that emergency contraception (EC) is available. EC includes those techniques that can be used after unprotected intercourse to prevent pregnancy by the delay of ovulation, or through interference with fertilization or implantation. The main type of EC consists of two doses of oral contraceptive hormones taken 12 h apart. The standard dose is 100 ug of ethinyl estradiol and 0.50 mg of DL-norgestrel. Another approach is to use progestin-only pills (2 doses of 0.75 mg of DL-norgestrel 12 h apart). If either of these regimens is initiated within 72 h of unprotected intercourse, the risk of pregnancy is reduced substantially. The main side effect of the EC pill regimen is nausea in up to 50 percent of women.

VI. *Intrauterine Contraceptives (Copper and Hormonal)*

- IUDs are the most underutilized contraceptive methods in the U.S. Today's copper IUDs have even higher effectiveness and a longer duration of action (up to 10 years) than those previously available.
- The main mechanism of action of today's IUDs is the prevention of fertilization. This effect is particularly strong with copper-containing IUDs because copper both intensifies the inflammatory reaction in the uterus and because copper has a

direct adverse effect on sperm motility. The main IUD available today in the United States is the copper-T 380A (Paragard) which is effective for up to 10 years, and which has a failure rate of less than 1 percent per year. The progesterone-containing IUD (Progestasert) needs annual replacement and has an annual failure rate of about 2 percent. The contraceptive effect of IUDs is immediately reversible when the IUD is removed.

- The main side effect of IUD use is increased menstrual flow and increased dysmenorrhea. In contrast to inert or copper-containing IUDs, the hormonal IUDs decrease menstrual flow and cramps. This effect is particularly noted with a longer-acting IUD with levonorgestrel that is used in Europe.
- Women who want a highly effective, convenient, long-acting contraceptive without hormones are particularly good candidates for a copper IUD. Women who have current or recent STDs, or women with a documented history of PID are not suitable IUD users due to their risk of recurrent infection. Evaluation of a woman prior to IUD insertion includes obtaining the relevant history, as well as any history of previous IUD use. IUDs are most commonly inserted during menstruation.

VII. Spermicides

- Spermicides can be used alone or as adjuncts to barrier contraceptive methods. All of the spermicide preparations available in the United States use nonoxynol-9 (N-9) as the active ingredient. Preparations of N-9 include cream or jelly, which are intended to be used with a diaphragm or cervical cap, and foams, suppositories, and films, which can be used alone or with condoms.
- The reported typical user 1-year failure rates for spermicides used as the sole contraceptive method are about 20 to 25 percent. Although laboratory studies indicate that spermicides are active against sexually transmitted pathogens, clinical studies are inconsistent regarding their effect on protecting users against infection. The only medical drawback to use of spermicides is hypersensitivity reactions. As much as 10 percent of the population may have allergic irritation due to these preparations.

VIII. Diaphragm and Cervical Cap

- Latex rubber caps of various sizes have been used to cover the cervix for contraceptive purposes since the nineteenth century. In the United States, diaphragms consist of a soft, thin, latex bowl with an embedded flexible metal rim that covers the entire upper vagina. Clinical trial estimates of failure rates are 16 percent per year. There are no estimates of diaphragm effectiveness if used without spermicide, but its main mechanism of action may be that it holds the spermicide over the cervix, maximizing the effectiveness of the spermicide.
- The cervical cap is a smaller rubber device that fits over the cervix itself. The cap is labeled for use with spermicide and has reported failure rates identical to the diaphragm when used in this fashion. Both caps and diaphragms tend to protect against upper genital tract infections that gain entry via the cervical mucosa.

- There is an increase in urinary tract infection risk among diaphragm users. Both the diaphragm and the cervical cap must be individually fitted. During digital examination, the distance from the pubic arch to the posterior fornix should be estimated, and a diaphragm approximating that distance can be selected and inserted.

IX. Abortion

A. First Trimester: Surgical

- Early surgical abortion is performed using the technique of vacuum aspiration. An oral analgesic or antianxiety agent can be given as an adjunct to the local anesthetic.
- First trimester abortions are typically performed in a single visit with mechanical dilatation of the cervix preceding insertion of a cannula into the uterine cavity for aspiration of the products of conception. Transvaginal sonography is sometimes used prior to the procedure to locate and date the pregnancy, and inspection of the aspirated material is performed to document completion of the abortion. Patients are usually observed briefly for pain and bleeding, and are usually discharged from care within 1 hour after completing the procedure.
- To decrease the risk of infection to less than one percent, most women receive antibiotic prophylaxis with doxycycline after the procedure. Major complications include uterine perforation or bleeding requiring hospitalization and transfusion; these events occur in only 1 per 1000 early abortion procedures.
- The safety of abortion is greatest when performed very early; that is, by 8 weeks of pregnancy. Rh-negative patients should be identified to prevent isoimmunization by administration of RhoGAM. Patients can expect some bleeding and cramps during the week following an early abortion.

B. First Trimester: Medical

- Abortion using a medical treatment rather than surgery is still a new and little-used approach in the United States.
- Mifepristone, an orally administered progesterone receptor antagonist, has been used routinely for abortion up to 49 days of gestation (counting from the beginning of the last normal menstrual period) in Europe for more than a decade. Most protocols include a dose of mifepristone followed two days later by an oral or vaginal dose of misoprostol, a prostaglandin that causes uterine contractions. Administration of the misoprostol is followed rapidly by intense uterine cramping that typically lasts 2 to 6 hours. In most cases, expulsion of the products of conception occurs promptly and predictably during this period of cramping.
- Follow-up examination reveals complete abortion in over 95 percent of women. An aspiration procedure may be required in the other five percent due to incomplete abortion with bleeding, failure of expulsion, or, in about one percent, a pregnancy that is continuing to grow.

C. Second Trimester

- Abortions in the second trimester are performed with either surgical techniques or by administering medications that cause uterine contractions and expulsion of the pregnancy. The majority of second trimester abortions are performed surgically.
- The major risks of any surgical abortion include perforation of the uterus with possible damage to other organs, and hemorrhage that requires transfusion or surgical intervention. These major problems occur in about 1 per 1000 procedures, and may be more common in women who have had multiple cesarean section operations.