LEARNING OBJECTIVES

- Compare the various methods of contraception.
- State the advantages and disadvantages of commonly used methods of contraception.
- Explain the common nursing interventions that facilitate contraceptive use.
- Recognize the various ethical, legal, cultural, and religious considerations of contraception.
- Describe the techniques used for medical and surgical interruption of pregnancy.

- Recognize the various ethical and legal considerations of elective abortion.
- List common causes of infertility.
- Discuss the psychologic impact of infertility.
- Identify common diagnoses and treatments for infertility.
- Examine the various ethical and legal considerations of assisted reproductive therapies for infertility.

KEY TERMS AND DEFINITIONS

assisted reproductive therapies (ARTs) Treatments for infertility, including in vitro fertilization procedures, embryo adoption, embryo hosting, and therapeutic insemination

basal body temperature (BBT) Lowest body temperature of a healthy person taken immediately after awakening and before getting out of bed

fertility awareness methods (FAMs) Methods of family planning that identify the beginning and end of the fertile period of the menstrual cycle

induced abortion Intentionally produced termination of pregnancy

in vitro fertilization Fertilization in a culture dish or test tube

periodic abstinence Contraceptive methods in which a woman abstains from sexual intercourse during the fertile period of her menstrual cycle; also referred to as natural family planning (NFP) because no other form of birth control is used during this period

semen analysis Examination of semen specimen to determine liquefaction, volume, pH, sperm density, and normal morphology

sterilization Surgical contraceptive procedures intended to be permanent contraception

therapeutic donor insemination (TDI) Introduction of donor semen by instrument injection into the vagina or uterus for impregnation

ELECTRONIC RESOURCES

Additional information related to the content in Chapter 6 can be found on the companion website at http://evolve.elsevier.com/Lowdermilk/Maternity/

- NCLEX Review Questions
- WebLinks

or on the interactive companion CD

- NCLEX Review Questions
- Critical Thinking Exercise—Patient Teaching: Contraception
- Plan of Care—Infertility
The reproductive spectrum is the focus of this chapter, covering voluntary control of fertility, interruption of pregnancy, and impaired fertility. The nursing role in the care of women varies, depending on whether management of these fertility-related concerns is associated with assessment of needs, investigation of problems, or implementation of interventions.

**CONTRACEPTION**

Contraception is the intentional prevention of pregnancy during sexual intercourse. Birth control is the device and/or practice to decrease the risk of conceiving, or bearing, offspring. Family planning is the conscious decision on when to conceive, or avoid pregnancy, throughout the reproductive years. With the wide assortment of birth control options available, it is possible for a woman to use several different contraceptive methods at various stages throughout her fertile years. Nurses interact with the woman to compare and contrast available options, reliability, relative cost, protection from sexually transmitted infections (STIs), the individual’s comfort level, and partner’s willingness to use a particular birth control method. Those who use contraception may still be at risk for pregnancy simply because their choice of contraceptive method is not perfect or is used inconsistently and/or incorrectly. Providing adequate instruction about how to use a contraceptive method, when to use a backup method, and when to use emergency contraception could decrease the risk of an unintended pregnancy (Stewart, Trussell, & Van Look, 2004).

**CARE MANAGEMENT**

Family, friends, media, partner(s), religious affiliation, and health care professionals all influence a woman’s perception of contraceptive choices. Because of these external influences, a woman formulates her unique view. The nurse assists in supporting the woman’s decision which is based on the woman’s individual situation.

**Assessment and Nursing Diagnoses**

The woman’s knowledge about contraception and her sexual partner’s commitment to any particular method are determined. Data are required about the frequency of coitus, the number of sexual partners, the level of contraceptive involvement, and her or her partner’s objections to any methods (see Guidelines/Guías box). The woman’s level of comfort and willingness to touch her genitals and cervical mucus are assessed. Myths are identified, and religious and cultural factors are determined. The woman’s verbal and nonverbal responses to hearing about the various available methods are carefully.

**GUIDELINES/GUÍAS**

**Contraception**

- Do you plan to have more children?
- ¿Piensa tener más hijos?
- Are you sexually active?
- ¿Tiene relaciones sexuales?
- Do you have many partners?
- ¿Tiene muchas parejas sexuales?
- Have you had many partners in the past?
- ¿Ha tenido muchas parejas sexuales en el pasado?
- Do you presently use contraception or birth control?
- ¿Usa anticonceptivos/control de natalidad actualmente?
- The Pill? Condoms? The diaphragm? The IUD?
- ¿La píldora anticonceptiva? ¿Los condones (preservativos)? ¿El diafragma? ¿El dispositivo intrauterino (DIU)?
- Spermicides? The rhythm method? Injection (Depo-Provera)?
- ¿Los espermaticidas? ¿El método del ritmo? ¿La inyección (Depo-Provera)?
- How long have you used this method?
- ¿Por cuánto tiempo ha usado este método?
- Do you like this method?
- ¿Le gusta este método?
- Why did you stop using it?
- ¿Por qué dejó de usarlo?
- Do you want to change to a different method?
- ¿Quieres cambiar a otro método?
- Have you had a tubal ligation?
- ¿Ha tenido una ligadura de trompas?
- Has he had a vasectomy?
- ¿Tuvo él una vasectomía?
- ¿Quiere cambiar a otro método?
noted. An individual’s reproductive life plan must be considered. A history (including menstrual, contraceptive, and obstetric), physical examination (including pelvic examination), and laboratory tests are usually completed.

Informed consent is a vital component in the education of the patient concerning contraception or sterilization. The nurse has the responsibility of documenting information provided and the understanding of that information by the patient. Using the acronym BRAIDED may be useful (see Legal Tip).

**Informed Consent**

- **B** — Benefits: information about advantages and success rates
- **R** — Risks: information about disadvantages and failure rates
- **A** — Alternatives: information about other available methods
- **I** — Inquiries: opportunity to ask questions
- **D** — Decisions: opportunity to decide or to change mind
- **E** — Explanations: information about method and how it is used
- **D** — Documentation: information given and patient’s understanding

Nursing diagnoses reflect analysis of the assessment findings. Examples of nursing diagnoses that may emerge regarding contraception include those listed.

- **Decisional conflict related to**
  - contraceptive alternatives
  - partner’s willingness to agree on contraceptive method
- **Fear related to**
  - contraceptive method side effects
- **Risk for infection related to**
  - unprotected sexual intercourse
  - use of contraceptive method
  - broken skin or mucous membrane after surgery or intrauterine device (IUD) insertion
- **Ineffective sexuality patterns related to**
  - fear of pregnancy
- **Acute pain related to**
  - postoperative recovery after sterilization
- **Risk for spiritual distress related to**
  - discrepancy between religious or cultural beliefs and choice of contraception

**Expected Outcomes of Care**

Planning is a collaborative effort among the woman, her sexual partner (when appropriate), the primary health care provider, and the nurse. The expected outcomes are determined and stated in patient-centered terms and may include that the woman or couple will do the following:

- State comfort and satisfaction with the chosen method
- Use the contraceptive method correctly and consistently
- Experience no adverse sequelae as a result of the chosen method of contraception
- Prevent unplanned pregnancy or plan a pregnancy

**Plan of Care and Interventions**

To foster a safe environment for consultation, a private setting should be provided in which the patient can openly interact. Distractions should be minimized, and samples of birth control devices for interactive teaching should be available (Fig. 6-1). The ideal contraceptive should be safe, easily available, economical, acceptable, simple to use, and promptly reversible. Although no method may ever achieve all these objectives, significant advances in the development of new contraceptive technologies have occurred over the past 30 years (World Health Organization [WHO], 2004).

**Contraceptive failure rate** refers to the percentage of contraceptive users expected to have an accidental pregnancy during the first year, even when they use a method consistently and correctly. Contraceptive effectiveness varies from couple to couple and depends on both the properties of the method and the characteristics of the user (WHO, 2004). Failure rates decrease over time, either because a user gains experience by using a method more appropriately or because those for whom a method is less effective stop using it.

**NURSE ALERT** A backup method of birth control and emergency contraceptive pills (ECPs) should be readily available during the initial learning phase when a woman uses a new method of contraception to help avoid an unintentional conception.

Safety of a method depends on the woman’s medical history. Barrier methods offer some protection from STIs, and oral contraceptives may reduce the incidence of breast, ovarian, and endometrial cancer but increase the risk of thromboembolic problems.

**Fig. 6-1** Nurse counseling woman about contraceptive methods. (Courtesy Dee Lowdermilk, Chapel Hill, NC.)
Methods of Contraception

The following discussion of contraceptive methods provides the nurse with information needed for patient teaching. After implementing the appropriate teaching for contraceptive use, the nurse supervises return demonstrations to assess patient understanding. The woman is given written instructions and telephone numbers for questions. If the woman has difficulty understanding written instructions, she (and her partner, if available) is offered graphic material and a telephone number to call as necessary. She may also be offered an opportunity to return for further instruction.

Coitus interruptus

Coitus interruptus (withdrawal or “pulling out”) involves the male partner withdrawing the entire penis from the woman’s vagina and moving away from her external genitalia before he ejaculates. In theory, the spermatozoa are unlikely to reach the ovum to cause fertilization. Although the effectiveness of coitus interruptus depends mostly on the man’s disciplined capability to consistently ignore the powerful urge to continue thrusting, it has some concrete advantages over using no method. Adolescents and men with premature ejaculation may find this method difficult to use. This method is immediately available, costs nothing, and involves no hormonal alterations or chemicals; the effectiveness of this birth control technique is similar to that of barrier methods (Kowal, 2004). The percentage of women who will experience an unintended pregnancy within the first year of typical use (failure rate) of withdrawal is about 27% (Trussell, 2004). Some religions and cultures prohibit this technique. Coitus interruptus does not adequately protect against STIs or human immunodeficiency virus (HIV) infection.

Fertility awareness methods

Fertility awareness methods (FAMs) of contraception depend on identifying the beginning and end of the fertile period of the menstrual cycle. When women who want to use FAMs are educated about the menstrual cycle, three phases are identified:

1. Infertile phase: before ovulation
2. Fertile phase: about 5 to 7 days around the middle of the cycle, including several days before, during, and the day after ovulation
3. Infertile phase: after ovulation

Although ovulation can be unpredictable in many women, teaching the woman about how she can directly observe her fertility patterns is an empowering tool. There are nearly a dozen categories of FAMs. Each one uses a combination of charts, records, calculations, tools, observations, and either abstinence (natural family planning) or barrier methods of birth control during the fertile period in the menstrual cycle to prevent pregnancy (Jennings, Arevalo, & Kowal, 2004). The charts and calculations associated with these methods can also be used to increase the likelihood of detecting the optimal timing of intercourse to achieve conception.

Advantages of these methods include low to no cost, absence of chemicals and hormones, and lack of alteration in the menstrual flow pattern. Disadvantages of FAM include adherence to strict record-keeping, unintentional interference from external influences that may alter the woman’s core body temperature and vaginal secretions, decreased effectiveness in women with irregular cycles (particularly adolescents who have not established regular ovulatory patterns), decreased spontaneity of coitus, and attending possibly time-consuming training sessions by qualified instructors (Jennings, Arevalo, & Kowal, 2004). The typical failure rate for most FAMs is 25% during the first year of use (Trussell, 2004). FAMs do not protect against STIs or HIV infection.

FAMs involve several techniques to identify high risk fertile days. The following discussion includes the most common techniques as well as some promising techniques for the future.

Periodic abstinence. Periodic abstinence, or natural family planning (NFP), provides contraception by using methods that rely on avoidance of intercourse during fertile periods. NFP methods are the only contraceptive practices acceptable to the Roman Catholic Church. Fertility awareness is the combination of charting signs and symptoms of the menstrual cycle with the use of abstinence during fertile periods. Signs and symptoms most commonly used are menstrual bleeding, cervical mucus, and basal body temperature (see later discussions) (Jennings, Arevalo, & Kowal, 2004).

The human ovum can be fertilized no later than 16 to 24 hours after ovulation. Motile sperm have been recovered from the uterus and the oviducts as long as 60 hours after coitus. However, their ability to fertilize the ovum probably lasts no longer than 24 to 48 hours. Pregnancy is unlikely to occur if a couple abstains from intercourse for 4 days before and for 3 or 4 days after ovulation (fertile period). Unprotected intercourse on the other days of the cycle (safe period) should not result in pregnancy. However, there are two principal problems with this method: the exact time of ovulation cannot be predicted accurately, and couples may find it difficult to exercise restraint for several days before and after ovulation. Women with irregular menstrual periods have

Potential Pitfalls of Using Fertility Awareness Methods of Contraception

Potential pitfalls of using fertility awareness methods include the five Rs:

- Restriction on sexual spontaneity
- Rigorous daily monitoring
- Required training
- Risk of pregnancy during prolonged training period
- Risk of pregnancy high on unsafe days

the greatest risk of failure with this form of contraception. The typical failure rate is 25% during the first year of use.

**Calendar rhythm method.** Practice of the calendar rhythm method is based on the number of days in each cycle counting from the first day of menses. With this method the fertile period is determined after accurately recording the lengths of menstrual cycles for 6 months. The beginning of the fertile period is estimated by subtracting 18 days from the length of the shortest cycle. The end of the fertile period is determined by subtracting 11 days from the length of the longest cycle (Jennings, Arevalo, & Kowal, 2004). If the shortest cycle is 24 days and longest is 30 days, application of the formula is as follows:

Shortest cycle: 24 – 18 = sixth day
Longest cycle: 30 – 11 = nineteenth day

To avoid conception the couple would abstain during the fertile period—days 6 through 19. If the woman has very regular cycles of 28 days each, the formula indicates the fertile days to be as follows:

Shortest cycle: 28 – 18 = tenth day
Longest cycle: 28 – 11 = seventeenth day

To avoid pregnancy, the couple abstains from day 10 through 17 because ovulation occurs on day 14 plus or minus 2 days.

**Standard days method.** The Standard Days Method (SDM) is essentially a modified form of the calendar rhythm method that has a “fixed” number of days of fertility for each cycle—that is, days 8 to 19 (Institute of Reproductive Health, 2003). A CycleBeads necklace—a color-coded string of beads—can be purchased as a concrete tool to track fertility (Fig. 6-2). Day 1 of the menstrual flow is counted as the first day to begin the counting. Women who use this device are taught to avoid unprotected intercourse on days 8 to 19 (white beads on CycleBeads necklace). Although this method is useful to women whose cycles are 26 to 32 days long, it is unreliable to those who have longer or shorter cycles (CycleBeads, 2003). The typical failure rate for the SDM is 12% during the first year of use (Sinai, Jennings, and Arevalo, 2004).

**Ovulation method.** The cervical mucus ovulation-detection method (also called the Billings method and the Creighton model ovulation method) requires that the woman recognize and interpret the cyclic changes in the amount and consistency of cervical mucus that characterize her own unique pattern of changes (see Patient Instructions for Self-Care box). The cervical mucus that accompanies ovulation is necessary for viability and motility of sperm. It alters the pH environment, neutralizing the acidity, to be more compatible for sperm survival. Without adequate cervical mucus, coitus does not result in conception. Women check quantity and character of mucus on the vulva or introitus with fingers or tissue paper each day for several months to learn cycle. To ensure an accurate assessment of changes, the cervical mucus should be free from semen, contraceptive gels or foams, and blood or discharge from vaginal infections for at least one full cycle. Other factors that create difficulty in identifying mucus changes include douches and vaginal deodorants, being in the sexually aroused state (which thins the mucus), and taking medications such as antihistamines (which dry up the mucus). Intercourse is considered safe without restriction beginning the fourth day after the last day of wet, clear, slippery mucus (postovulation) (Hatcher et al., 2004).

Some women may find this method unacceptable if they are uncomfortable touching their genitals. Whether or not the individual wants to use this method for contraception, it is to the woman’s advantage to learn to recognize mucus characteristics at ovulation (Barron & Daly, 2001).

**Basal body temperature method.** The basal body temperature (BBT) is the lowest body temperature of a healthy person, taken immediately after waking and before getting out of bed. The BBT usually varies from 36.2°C to 36.3°C during menses and for about 5 to 7 days afterward (Fig. 6-3). At about the time of ovulation, a slight decrease in temperature (approximately 0.05°C) may occur in some women, but others may have no decrease at all. After ovulation, in concert with the increasing progesterone levels of the early luteal phase of the cycle, the BBT increases slightly (approximately 0.4°C to 0.8°C). The temperature remains on an elevated plateau until 2 to 4 days before menstruation, and then it decreases to the low levels recorded during the previous cycle, unless pregnancy has occurred, and the temperature remains elevated. If ovulation fails to occur, the pattern of lower body temperature continues throughout the cycle.

To use this method, the fertile period is defined as the day of first temperature drop, or first elevation through 3 consecutive days of elevated temperature. Abstinence begins the
PATIENT INSTRUCTIONS FOR SELF-CARE

Cervical Mucus Characteristics

SETTING THE STAGE
- Show charts of menstrual cycle along with changes in the cervical mucus.
- Have woman practice with raw egg white.
- Supply her with a basal body temperature (BBT) log and graph if she does not already have one.
- Explain that assessment of cervical mucus characteristics is best when mucus is not mixed with semen, contraceptive jellies or foams, or discharge from infections. Douching should not be done before assessment.

CONTENT RELATED TO CERVICAL MUCUS
- Explain to woman (couple) how cervical mucus changes throughout the menstrual cycle.
  a. Postmenstrual mucus: scant.
  b. Preovulation mucus: cloudy, yellow or white, sticky
  c. Ovulation mucus: clear, wet, sticky, slippery
  d. Postovulation fertile mucus: thick, cloudy, sticky
  e. Postovulation, postfertile mucus: scant

- Right before ovulation, the watery, thin, clear mucus becomes more abundant and thick (Fig. A). It feels like a lubricant and can be stretched 5+ cm between the thumb and forefinger; this is called spinnbarkeit (Fig. B). This indicates the period of maximal fertility. Sperm deposited in this type of mucus can survive until ovulation occurs.

ASSESSMENT TECHNIQUE
- Stress that good handwashing is imperative to begin and end all self-assessment.
- Start observation from last day of menstrual flow.
- Assess cervical mucus several times a day for several cycles. Mucus can be obtained from vaginal introitus; no need to reach into vagina to cervix.
- Record findings on the same record on which BBT is entered.

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<tr>
<th>Estrogens</th>
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<th>Progesterone</th>
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<tr>
<th>Early follicular phase</th>
<th>Ovulation</th>
<th>Luteal phase</th>
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<td>Estrogens</td>
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<th>Spinnbarkeit 6 cm</th>
<th>Spinnbarkeit 12 cm</th>
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<td>Day 10</td>
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When the entire month’s temperatures are
shift.

easily.

postovulation method is 25% during the first year of use

postovulation method. The postovulation method is 25% during the first year of use

Symptothermal method. The symptothermal method is a tool that the woman learns to gain fertility awareness as she tracks the physiologic and psychologic symptoms that mark the phases of her cycle. This method combines at least two methods, usually cervical mucus changes with BBT, in addition to heightened awareness of secondary, cycle phase-related symptoms. Secondary symptoms may include increased libido, midcycle spotting, mittelschmerz, pelvic fullness or tenderness, and vulvar fullness. The woman is taught to palpate her cervix to assess for changes in texture, position, and dilation, which indicate ovulation. During the preovulatory and ovulatory periods, the cervix softens, opens, rises in the vagina, and is more moist. During the postovulatory period the cervix drops, becomes firm, and closes. The woman notes days on which coitus, changes in routine, illness, and so on have occurred (Fig. 6-4). Calendar calculations and cervical mucus changes are used to estimate the onset of the fertile period; changes in cervical mucus or the BBT are used to estimate its end.

Home predictor test kits for ovulation

All of the preceding methods discussed are indicative of but do not prove the occurrence and exact timing of ovulation. The urine predictor test for ovulation is a major addition to the NFP and fertility-awareness methods to help women who want to plan the time of their pregnancies and those who are trying to conceive (Fig. 6-5). The urine predictor test for ovulation detects the sudden surge of luteinizing hormone (LH) that occurs approximately 12 to 24 hours before ovulation. Unlike BBT, the test is not affected by illness, emotional upset, or physical activity. For home use, a test kit contains sufficient material for several days of testing during each cycle. A positive response indicative of an LH surge is noted by an easy-to-read color change. Directions for use of urine predictor test kits vary with the manufacturer. Saliva predictor tests for ovulation use dried, nonfoamy saliva as a tool to show fertility patterns. More research is needed to determine the efficacy of use of these tests for pregnancy prevention.

The Marquette Model (MM) is a natural family planning method that was developed through the Marquette University College of Nursing Institute for Natural Family Planning. The MM uses cervical monitoring along with the ClearPlan Easy Fertility Monitor. The ClearPlan Monitor is a handheld device that uses test strips to measure urinary metabolites of estrogen and LH. The monitor provides the user with “Low,” “High,” and “Peak” fertility readings. The MM incorporates the use of the monitor as an aid to learning NFP and fertility awareness. The MM is currently being tested at different sites in the United States for its effectiveness in helping couples avoid pregnancy (Institute for Natural Family Planning Services, 2005).

TwoDay method of family planning. Based on monitoring and the recording of cervical secretions, a new algorithm for identifying the fertile window has been developed by the Institute for Reproductive Health, Georgetown

first day of menstrual bleeding and lasts through 3 consecutive days of sustained temperature rise (at least 0.2° C). (Jennings, Arevalo, & Kowal, 2004). The decrease and subsequent increase in temperature are referred to as the thermal shift. When the entire month’s temperatures are recorded on a graph, the pattern described is more apparent. It is more difficult to perceive day-to-day variations without the entire picture. Infection, fatigue, less than 3 hours sleep per night, awakening late, and anxiety may cause temperature fluctuations, altering the expected pattern. If a new BBT thermometer is purchased, this fact is noted on the chart because the readings may vary slightly. Jet lag, alcohol and antipyretic medications taken the evening before, or sleeping in a heated waterbed also must be noted on the chart because each affects the BBT. Therefore the BBT alone is not a reliable method of predicting ovulation (Jennings, Arevalo, & Kowal, 2004). To determine whether an increase in temperature is indeed the thermal shift, the woman must be aware of other signs of approaching ovulation while she continues to assess the BBT (see later discussion of symptothermal method for other indicators of ovulation).

Postovulation method. The postovulation method permits unprotected intercourse only after signs of ovulation (BBT, cervical mucus alterations, etc) have subsided. If a woman experiences an anovulatory cycle, this demands great self-control, as complete abstinence is the only way to assure that pregnancy will not occur. This method is difficult for those in early adolescence, when the woman approaches menopause, and in postpartum women when cycles are irregular (or absent). The typical failure rate for the postovulation method is 25% during the first year of use (Trussell, 2004).
University (Arevalo, Jennings, Nikula, & Sinai, 2004). The TwoDay Algorithm appears to be simpler to teach, learn, and use than current natural methods. Results suggest that the algorithm can be an effective alternative for low literacy populations or for programs that find current Natural Family Planning methods too time consuming or otherwise not feasible to incorporate into their services. Two questions are posed. Each day, the woman is to ask herself, (1) “Did I note secretions today?” and (2) “Did I note secretions yesterday?” If the answer is yes to either question, she should avoid coitus or use a backup method of birth control. If the answer is no to both questions, her probability of getting pregnant is very low. Further studies are needed to determine the efficacy of the TwoDay Algorithm in avoiding pregnancy and to assess its acceptability to users and providers.

**Barrier methods**

Barrier contraceptives have gained in popularity not only as a contraceptive method but also as a protective measure against the spread of STI, such as human papilloma virus.
(HPV) and herpes simplex virus (HSV). Some male condoms and female vaginal methods provide a physical barrier to several STIs, and some male condoms provide protection against HIV (Cates & Stewart, 2004; Warner, Hatcher, & Steiner, 2004). Spermicides serve as chemical barriers against the sperm.

**Spermicides.** Spermicides, such as nonoxynol-9, work by reducing the sperm’s mobility, as the chemicals attack the sperm flagella and body, thereby preventing the sperm from reaching the cervical os. Nonoxynol-9, the most commonly used spermicidal chemical in the United States, is a surfactant that destroys the sperm cell membrane; however, recent data suggest that frequent use (more than two times a day) of nonoxynol-9, or use as a lubricant during anal intercourse, may increase the transmission of HIV and can cause lesions (Cates & Raymond, 2004). Women with high risk behaviors that increase their likelihood of contracting HIV and other STIs are advised to avoid the use of spermicidal products containing nonoxynol-9, including those lubricated condoms, diaphragms, and cervical caps to which nonoxynol-9 is added (WHO, 2004). Intravaginal spermicides are marketed and sold without a prescription as foams, tablets, suppositories, creams, films, and gels (Fig. 6-6). Preloaded, single-dose applicators small enough to be carried in a small purse are available. Effectiveness of spermicides depends on consistent and accurate use. Caution patients against misunderstanding terms: contraceptive gel differs from fruit jelly, and cosmetics or hair products containing the nonspermicidal forms of nonoxynol are not adequate substitutes. The spermicide should be inserted high into the vagina so that it makes contact with the cervix. Some spermicide should be inserted at least 15 minutes before, and no longer than 1 hour before, sexual intercourse. Spermicide needs to be reapplied for each additional act of intercourse, even if a barrier method is used. Studies have shown varying effectiveness rates for spermicidal use alone. Typical failure rates for spermicidal use alone range between 20% and 50% (U.S. Food and Drug Administration [FDA], 2003).

**Condoms.** The male condom is a thin, stretchable sheath that covers the penis before genital, oral, or anal contact and is removed after the penis is withdrawn from the partner’s orifice after ejaculation (Fig. 6-7, A). When condoms are used as a primary contraceptive, it is helpful to have ECPs available, as couples may experience condom breakage or slippage in 3% to 5% of acts of coitus (Hatcher et al., 2004). Condoms are made of latex rubber, polyurethane (strong, thin plastic), or natural membranes (animal tissue). In addition to providing a physical barrier for sperm, non-spermicidal latex condoms also provide a barrier for STIs (particularly gonorrhea, chlamydia, and trichomonas) and HIV transmission. Condoms lubricated with nonoxynol-9 are no longer recommended for preventing STIs or HIV (Centers for Disease Control and Prevention, 2002). Latex condoms will break down with oil-based lubricants and should be used only with water-based or silicone lubricants (Warner, Hatcher, & Steiner, 2004). Because of the growing number of people with latex allergies, condom manufacturers have begun using polyurethane, which is thinner and stronger than latex. Research is being conducted to determine the effectiveness of polyurethane condoms to protect against STIs and HIV.

**NURSE ALERT** All persons should be questioned about the potential for latex allergy. Latex condom use is contraindicated for people with latex sensitivity.

A small percentage of condoms are made from the lamb cecum (natural skin). Natural skin condoms do not provide the same protection against STIs and HIV infection as latex condoms. Natural skin condoms contain small pores that could allow passage of viruses such as hepatitis B, HSV, and HIV. Condoms need to be discarded after each single use. They are available without a prescription.
The female condom is a lubricated vaginal sheath made of polyurethane and has flexible rings at both ends (see Fig. 6-7, A). The closed end of the pouch is inserted into the vagina and is anchored around the cervix, and the open ring covers the labia. Women whose partner will not wear a male condom can use this as a protective mechanical barrier. Rewetting drops or oil- or water-based lubricants can be used to help decrease the distracting noise that is produced while penile thrusting occurs. The female condom is available in one size, intended for single use only, and is sold over the counter. Male condoms should not be used concurrently, because the friction from both sheathes can increase the likelihood of either or both tearing (Female Condom, 2004). Typical failure rate in the first year of female condom use is 21% (Trussell, 2004).

Diaphragms, cervical caps, shields, and sponges. Diaphragms, cervical caps, and shields are soft latex or silicone barriers that cover the cervix and prevent the sperm from migrating to fertilize the ovum. They are washable and reusable and need inspection for holes, tears, or other problems before each use. Each needs to be filled with spermicidal jelly or cream before vaginal insertion. These mechanical barriers are nonhormonal but still require a prescription from a licensed health care provider. It is essential the patient undergo proper fitting of the device. Women who choose to use these methods need to be willing to touch their genitalia and be capable of providing accurate return demonstrations of proper insertion and removal techniques.

Diaphragms. The contraceptive diaphragm is a shallow, dome-shaped latex or silicone device with a flexible rim that covers the cervix (see Fig. 6-7, A). There are three types of diaphragms available: coil spring, arcing spring, and wide seal rim. Available in many sizes, the diaphragm should be the largest size the woman can wear without her being aware of its presence. Typical failure rate of the diaphragm combined with spermicide is 16% in the first year of use (Trussell, 2004). Effectiveness of the diaphragm is less when used without spermicide (Trussell, 2004). Women at high risk for HIV should avoid use of nonoxynol-9 spermicides with the diaphragm (Cates & Raymond, 2004).

The woman is informed that she needs an annual gynecologic examination to assess the fit of the diaphragm. The device should be inspected before every use, replaced every 2 years, and may need to be refitted for a 20% weight fluctuation, after any abdominal or pelvic surgery, and after every pregnancy (Planned Parenthood, 2004). Because various types of diaphragms are on the market, the nurse uses the package insert for teaching the woman how to use and care for the diaphragm (see Patient Instructions for Self-Care).

Disadvantages of diaphragm use include the reluctance of some women to insert and remove the diaphragm. Although it can be inserted up to 6 hours before intercourse, a cold diaphragm and a cold gel temporarily reduce vaginal response to sexual stimulation if insertion of the diaphragm occurs immediately before intercourse. Some women or couples object to the messiness of the spermicide. These annoyances of diaphragm use, along with failure to insert the
PATIENT INSTRUCTIONS FOR SELF-CARE

Use and Care of the Diaphragm

**PREPARATION OF DIAPHRAGM**
Rinse off cornstarch. Your diaphragm must always be used with a spermicidal lubricant to be effective. Pregnancy cannot be prevented effectively by the diaphragm alone.

Always empty your bladder before inserting the diaphragm. Place about 2 teaspoonfuls of contraceptive jelly or contraceptive cream on the side of the diaphragm that will rest against the cervix (or whichever way you have been instructed). Spread it around to coat the surface and the rim. This aids in insertion and offers a more complete seal. Many women also spread some jelly or cream on the other side of the diaphragm (Fig. A).

**POSITIONS FOR INSERTION OF DIAPHRAGM**

**Squatting**
Squatting is the most commonly used position, and most women find it satisfactory.

**Leg-up Method**
Another position is to raise the left foot (if right hand is used for insertion) on a low stool and, while in a bending position, insert the diaphragm.

**Chair Method**
Another practical method for diaphragm insertion is to sit far forward on the edge of a chair.

**Reclining**
You may prefer to insert the diaphragm while in a semi-reclining position in bed.

**INSERTION OF DIAPHRAGM**
The diaphragm can be inserted as long as 6 hours before intercourse. Hold the diaphragm between your thumb and fingers. The dome can either be up or down, as directed by your health care provider. Place your index finger on the outer rim of the compressed diaphragm (Fig. B).

**INSPECTION OF DIAPHRAGM**
Your diaphragm must be inspected carefully before each use. The best way to do this is as follows:

- Hold the diaphragm up to a light source. Carefully stretch the diaphragm at the area of the rim, on all sides, to make sure there are no holes. Remember, it is possible to puncture the diaphragm with sharp fingernails.
- Another way to check for pinholes is to carefully fill the diaphragm with water. If there is any problem, it will be seen immediately.
- If your diaphragm is puckered, especially near the rim, this could mean thin spots.
- The diaphragm should not be used if you see any of these; consult your health care provider.
Use and Care of the Diaphragm—cont’d

Use the fingers of the other hand to spread the labia (lips of the vagina). This will assist in guiding the diaphragm into place.

Insert the diaphragm into the vagina. Direct it inward and downward as far as it will go to the space behind and below the cervix (Fig. C).

Tuck the front of the rim of the diaphragm behind the pubic bone so that the rubber hugs the front wall of the vagina (Fig. D).

Feel for your cervix through the diaphragm to be certain it is properly placed and securely covered by the rubber dome (Fig. E).

GENERAL INFORMATION
Regardless of the time of the month, you must use your diaphragm every time intercourse takes place. Your diaphragm must be left in place for at least 6 hours after the last intercourse. If you remove your diaphragm before the 6-hour period, your chance of becoming pregnant could be greatly increased. If you have repeated acts of intercourse, you must add more spermicide for each act of intercourse.

REMOVAL OF DIAPHRAGM
The only proper way to remove the diaphragm is to insert your forefinger up and over the top side of the diaphragm and slightly to the side.

Next, turn the palm of your hand downward and backward, hooking the forefinger firmly on top of the inside of the upper rim of the diaphragm, breaking the suction.

Pull the diaphragm down and out. This avoids the possibility of tearing the diaphragm with the fingernails. You should not remove the diaphragm by trying to catch the rim from below the dome (Fig. F).

CARE OF DIAPHRAGM
When using a vaginal diaphragm, avoid using oil-based products, such as certain body lubricants, mineral oil, baby oil, vaginal lubricants, or vaginitis preparations. These products can weaken the rubber.

A little care means longer wear for your diaphragm. After each use, wash the diaphragm in warm water and mild soap. Do not use detergent soaps, cold-cream soaps, deodorant soaps, and soaps containing oil products, because they can weaken the rubber.

After washing, dry the diaphragm thoroughly. All water and moisture should be removed with a towel. Then dust the diaphragm with cornstarch. Scented talc, body powder, baby powder, and the like should not be used because they can weaken the rubber.

To clean the introducer (if one is used), wash with mild soap and warm water, rinse, and dry thoroughly.

Place the diaphragm back in the plastic case for storage. Do not store it near a radiator or heat source or exposed to light for an extended period.
device once foreplay has begun, are the most common reasons for failures of this method. Side effects may include irritation of tissues related to contact with spermicides. The diaphragm is not a good option for women with poor vaginal muscle tone or recurrent urinary tract infections. For proper placement, the diaphragm must rest behind the pubic symphysis and completely cover the cervix. To decrease the chance of exerting urethral pressure, the woman should be reminded to empty her bladder before diaphragm insertion and immediately after intercourse. Diaphragms are contraindicated for women with pelvic relaxation (uterine prolapse) or a large cystocele. Women with a latex allergy should not use latex diaphragms.

Toxic shock syndrome (TSS), although reported in very small numbers, can occur in association with the use of the contraceptive diaphragm and cervical caps (Cates & Stewart, 2004). The nurse should instruct the woman about ways to reduce her risk for TSS. These measures include prompt removal 6 to 8 hours after intercourse, not using the diaphragm or cervical caps during menses, and learning and watching for danger signs of TSS.

NURSE ALERT The nurse should be alert for signs of TSS in women who use a diaphragm or cervical cap as a contraceptive method. The most common signs include a sunburn-type rash, diarrhea, dizziness, faintness, weakness, sore throat, aching muscles and joints, sudden high fever, and vomiting (Planned Parenthood, 2004).

Cervical caps. Three types of cervical caps are available; two come in varying sizes and one is one size fits all. They are made of rubber or latex-free silicone and have soft domes and firm brims (see Fig. 6-7, A). The cap fits snugly around

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**BOX 6-2**

**Male Condoms**

**MECHANISM OF ACTION**

- Sheath is applied over the erect penis before insertion or loss of pre-ejaculatory drops of semen. Used correctly, condoms prevent sperm from entering the cervix. Spermicide-coated condoms cause ejaculated sperm to be immobilized rapidly, thus increasing contraceptive effectiveness.

**FAILURE RATE**

- Typical users, 15%
- Correct and consistent users, 2%

**ADVANTAGES**

- Safe.
- No side effects.
- Readily available.
- Premalignant changes in cervix can be prevented or ameliorated in women whose partners use condoms.
- Method of male nonsurgical contraception.

**DISADVANTAGES**

- Must interrupt lovemaking to apply sheath.
- Sensation may be altered.
- If condom is used improperly, spillage of sperm can result in pregnancy.
- Condoms occasionally may tear during intercourse.

**PROTECTION AGAINST STIs**

If a condom is used throughout the act of intercourse and there is no unprotected contact with female genitals, a latex rubber condom, which is impermeable to viruses, can act as a protective measure against STIs.

**NURSING CONSIDERATIONS**

Teach man to do the following:

- Place condom after penis is erect and before intimate contact.
- Place condom on head of penis (Fig. A) and unroll it all the way to the base (Fig. B).
- Leave an empty space at the tip (Fig. A); remove any air remaining in the tip by gently pressing air out toward the base of the penis.
- If a lubricant is desired, use water-based products such as K-Y lubricating jelly. Do not use petroleum-based products because they can cause the condom to break.
- After ejaculation, carefully withdraw the still-erect penis from the vagina, holding onto condom rim; remove and discard the condom.
- Store unused condoms in cool, dry place.
- Do not use condoms that are sticky, brittle, or obviously damaged.
Instructions for the actual insertion and use of the cervical cap closely resemble the instructions for the use of the contraceptive diaphragm. Some of the differences are that the cervical cap can be inserted hours before sexual intercourse without a need for additional spermicide later, no additional spermicide is required for repeated acts of intercourse when the cap is used, and the cervical cap requires less spermicide than the diaphragm when initially inserted. The angle of the uterus, the vaginal muscle tone, and the shape of the cervix may interfere with the cervical cap’s ease of fitting and use. Correct fitting requires time, effort, and skill from both the woman and the clinician. The woman must check the cap’s position before and after each act of intercourse (see Patient Instructions for Self-Care box).

Because of the potential risk of TSS associated with the use of the cervical cap, another form of birth control is recommended for use during menstrual bleeding and up to at least 6 weeks postpartum. The cap should be refitted after any gynecologic surgery or birth and after major weight losses or gains. Otherwise, the size should be checked at least once a year.

Women who are not good candidates for wearing the cervical cap include those with abnormal Papanicolaou (Pap) test results, those who cannot be fitted properly with the existing cap sizes, those who find the insertion and removal of the device too difficult, those with a history of TSS, those with vaginal or cervical infections, and those who experience allergic responses to the latex cap or spermicide. Failure rates the first year of use are 16% in nulliparas and 32% in multiparous women (Trussell, 2004).

Contraceptive sponge. The vaginal sponge is a small, round, polyurethane sponge that contains nonoxynol-9 spermicide (see Fig. 6-7, B). It is designed to fit over the cervix (one size fits all). The side that is placed next to the cervix is concave for better fit. The opposite side has a woven polyester loop to be used for removal of the sponge.

The sponge must be moistened with water before it is inserted. It provides protection for up to 24 hours and for repeated instances of sexual intercourse. The sponge should be left in place for at least 6 hours after the last act of intercourse. Wearing longer than 24 to 30 hours may put the woman at risk for TSS (Cates & Stewart, 2004). A vaginal contraceptive sponge that had been unavailable in the U.S. since 1994 is once again marketed in the United States, as well as in Canada and Europe.

Hormonal methods

More than 30 different contraceptive formulations are available in the United States today. General classes are described in Table 6-1. Because of the wide variety of preparations available, the woman and nurse must read the package insert for information about specific products prescribed. Formulations include combined estrogen-progestin medications and prostegational agents. The formulations are administered orally, transdermally, vaginally, by implantation, by injection, or via the intrauterine route.
Combined estrogen-progestin contraceptives

Oral contraceptives. The normal menstrual cycle is maintained by a feedback mechanism. Follicle-stimulating hormone (FSH) and LH are secreted in response to fluctuating levels of ovarian estrogen and progesterone. Regular ingestion of combined oral contraceptive pills (COCs) suppresses the action of the hypothalamus and anterior pituitary, leading to inappropriate secretion of FSH and LH; therefore, follicles do not mature and ovulation is inhibited.

Other contraceptive effects are induced by the combined steroids. Maturation of the endometrium is altered, making it a less favorable site for implantation. COCs also have a direct effect on the endometrium, so that from 1 to 4 days after the last COC is taken, the endometrium sloughs and bleeds as a result of hormone withdrawal. The withdrawal bleeding usually is less profuse than that of normal menstruation and may last only 2 to 3 days. Some women have no bleeding at all. The cervical mucus remains thick from the effect of the progestin (Hatcher & Nelson, 2004).

Cervical mucus under the effect of progesterone does not provide as suitable an environment for sperm penetration as does the thin, watery mucus at ovulation. The possible effect, if any, of altered tubal and uterine motility induced by COCs is not clear.

Monophasic pills provide fixed dosages of estrogen and progestin. Multiphasic pills (e.g., biphasic and triphasic oral contraceptives) alter the amount of progestin and sometimes the amount of estrogen within each cycle. These preparations reduce the total dosage of hormones in a single cycle without sacrificing contraceptive efficacy (Hatcher & Nelson, 2004). To maintain adequate hormonal levels for contraception and enhance compliance, COCs should be taken at the same time each day.

Advantages. Because taking the pill does not relate directly to the sexual act, its acceptability may be increased. Improvement in sexual response may occur once the possibility of pregnancy is not an issue. For some women, it is convenient to know when to expect the next menstrual flow.

Evidence of noncontraceptive benefits of oral contraceptives is based on studies of high-dose pills (50 mg of estrogen). Few data exist on noncontraceptive benefits of low-dose oral contraceptives (less than 35 mg of estrogen) (Hatcher & Nelson, 2004). The noncontraceptive health benefits of COCs include decreased menstrual blood loss and decreased iron-deficiency anemia, regulation of menorrhagia and irregular cycles, and reduced incidence of dysmenorrhea and premenstrual syndrome (PMS). Oral contraceptives also offer protection against endometrial cancer and ovarian cancer, reduce the incidence of benign breast disease, improve acne, protect against the development of functional ovarian cysts and salpingitis, and decrease the risk of ectopic pregnancy. Oral contraceptives are considered a safe option for nonsmoking women until menopause. Perimenopausal women can benefit from regular bleeding cycles, a regular hormonal pattern, and the noncontraceptive health benefits of oral contraceptives (Hatcher & Nelson, 2004).

Women taking combined oral contraceptives are examined before the medication is prescribed and yearly thereafter. The examination includes medical and family history, weight, blood pressure, general physical and pelvic examinations, and screening cervical cytologic analysis (Pap test). Consistent monitoring by the health care provider is valuable in the detection of non–contraception-related disorders as well, so that timely treatment can be initiated. Most health care providers assess the woman 3 months after she begins COCs to detect any complications.

Use of oral hormonal contraceptives is initiated on one of the first days of the menstrual cycle (day 1 of the cycle is the first day of menses). With a “Sunday start,” women begin taking pills on the first Sunday after the start of their menstrual period. If contraceptives are to be started at any time other than during normal menses, or within 3 weeks after birth, miscarriage, or induced abortion, another method of contraception should be used throughout the first week to avoid the risk of pregnancy (Hatcher & Nelson, 2004). Taken exactly as directed, oral contraceptives prevent ovulation, and pregnancy cannot occur; the overall effectiveness rate is almost 100%. Almost all failures (i.e., occurrence of pregnancy) are caused by omission of one or more pills during the regimen. The typical failure rate of COCs resulting from omission is 8% (Trussell, 2004).

Disadvantages and Side Effects. Since hormonal contraceptives have come into use, the amount of estrogen
and progestational agent contained in each tablet has been reduced considerably. This is important because adverse effects are, to a degree, dose related.

Women must be screened for medical conditions that preclude the use of oral contraceptives. Contraindications for COC use include a history of thromboembolic disorders, cerebrovascular or coronary artery disease, breast cancer or other estrogen-dependent tumors, impaired liver function, liver tumor, smoking if woman is older than 35 years of age (more than 15 cigarettes per day), headaches with focal neurologic symptoms, surgery with prolonged immobilization or any surgery on the legs, hypertension (160/100), and diabetes mellitus (of more than 20 years’ duration) with vascular disease (Hatcher & Nelson, 2004).

Certain side effects of COCs are attributable to estrogen, progestin, or both. Serious adverse effects documented with high doses of estrogen and progestrone include stroke, myocardial infarction, thromboembolism, hypertension, gallbladder disease, and liver tumors. Common side effects of estrogen excess include nausea, breast tenderness, fluid retention, and chloasma. Side effects of estrogen deficiency include early spotting (days 1 to 14), hypomenorrhea, nervousness, and atrophic vaginitis leading to painful intercourse (dyspareunia). Side effects of progestin excess include increased appetite, tiredness, depression, breast tenderness, vaginal yeast infection, oily skin and scalp, hirsutism, and postpill amenorrhea. Side effects of progestin deficiency include late spotting and breakthrough bleeding (days 15 to 21), heavy flow with clots, and decreased breast size. One of the most common side effects of combined COCs is bleeding irregularities (Hatcher & Nelson, 2004).

In the presence of side effects, especially those that are bothersome to the woman, a different product, different drug content, or another method of contraception may be required. The “right” product for a woman contains the lowest dose of hormones that prevents ovulation and that has the fewest and least harmful side effects. There is no way to predict the right dosage for any particular woman. Issues to consider in prescribing oral contraceptives include history of oral contraceptive use, side effects during past use, menstrual history, and drug interactions (Hatcher & Nelson, 2004).

The effectiveness of oral contraceptives can be negatively influenced when the following medications are taken simultaneously (Hatcher & Nelson, 2004).

- The nurse reviews the prescribing information in the package insert with the woman. Because of the wide variations, each woman must be clear about the unique dosage regimen for the preparation prescribed for her. Directions for care after missing one or two tablets also vary (Fig. 6-8).

Withdrawal bleeding tends to be short and scanty when some combination pills are taken. A woman may see no fresh blood at all. A drop of blood or a brown smudge on a tampon or the underwear counts as a menstrual period.

About 68% of women who start taking oral contraceptives are still taking them after 1 year (Trussell, 2004). It therefore is important that nurses recommend that all women choosing to use oral contraceptives be provided with a second method of birth control and be instructed and comfortable with this backup method. Most women stop taking oral contraceptives for nonmedical reasons.

The nurse also reviews the signs of potential complications associated with the use of oral contraceptives (see Signs of Potential Complications box). Oral contraceptives do not protect a woman against STIs or HIV. A barrier method such as condoms and spermicide should be used for protection.

NURSE ALERT Over-the-counter medications, as well as some herbal supplements (such as St John’s wort) can alter the effectiveness of COCs. Women should be asked about their use when COCs are being considered for contraception.
the frequency of intercourse. Because users will have fewer menstrual flows, they should consider the possibility of pregnancy if they do not experience their thirteenth-week flow. Typical failure rate in the first year of Seasonale use is less than 2% (FDA, 2003).

**Transdermal contraceptive system.** Available by prescription only, the contraceptive transdermal patch delivers continuous levels of norelgestromin (progesterone) and ethinyl estradiol. The patch can be applied to intact skin of the upper outer arm, upper torso (front and back, excluding the breasts), lower abdomen, or buttocks (Fig. 6-9). Application is on the same day once a week for 3 weeks, followed by a week without the patch. Withdrawal bleeding occurs during the “no patch” week. Mechanism of action, efficacy, contraindications, skin reactions, and side effects are similar to those of COCs. The typical failure rate during the first year of use is under 2% in women weighing less than 198 pounds (FDA, 2003).

**Vaginal contraceptive ring.** Available only with a prescription, the vaginal contraceptive ring is a flexible ring (made of ethylene vinyl acetate copolymer) worn in the vagina to deliver continuous levels of etonorgestrel (progesterone) and ethinyl estradiol (see Fig. 6-9). One vaginal ring is worn for 3 weeks, followed by a week without the ring. The ring is inserted by the woman and does not have to be fitted. Some wearers may experience vaginitis, leukorrhea, and vaginal discomfort (Hatcher & Nelson, 2004). Withdrawal bleeding occurs during the “no ring” week. If the

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**Fig. 6-8** Flowchart for missed contraceptive pills. (Courtesy Patsy Huff, PharmD, Chapel Hill, NC.)
woman or partner notices discomfort during coitus, the ring should not be removed from the vagina for any longer than 3 hours for it to still be effective for the rest of the 3 week period. Mechanism of action, efficacy, contraindications, and side effects are similar to those of COCs. The typical failure rate of the vaginal contraceptive ring is reportedly under 2% during the first year of use (FDA, 2003).

**Injectable progestins.** Depot medroxyprogesterone acetate (DMPA or Depo-Provera), 150 mg, is given intramuscularly in the deltoid or gluteus maximus muscle. A 21- to 23-gauge needle, 2.5 to 4 cm long, should be used. DMPA should be initiated during the first 5 days of the menstrual cycle and administered every 11 to 13 weeks. When administering an intramuscular injection of progestin (e.g., Depo-Provera), do not massage the site after the injection, because this action can hasten the absorption and shorten the period of effectiveness.

Advantages of DMPA include a contraceptive effectiveness comparable to that of combined oral contraceptives, long-lasting effects, requirement of injections only four times a year, and unlikehood that lactation will be impaired (Hatcher, 2004). Side effects at the end of a year include decreased bone mineral density, weight gain, lipid changes, increased risk of venous thrombosis and thromboembolism, irregular vaginal spotting, decreased libido, and breast changes (Contraception Online, 2003). Other disadvantages include a lack of protection against STIs (including HIV). A delay in return to fertility may be as long as 18 months after discontinuing DMPA. Typical failure rate is 3% in the first year of use (Trussell, 2004).

**Implantable progestins.** The Norplant system consists of six flexible, nonbiodegradable polymeric silicone (Silastic) capsules. The Silastic capsules contain levonorgestrel, providing up to 5 to 7 years of contraception, dependent on the patient’s weight and age. Insertion and removal of the capsules are minor surgical procedures involving a local anesthetic, a small incision, and no sutures. The capsules are placed subdermally in the inner aspect of the nondominant upper arm. The progestin prevents some, but not all, ovulatory cycles and thickens cervical mucus. Other advantages include reversibility and long-term continuous contraception that is not related to frequency of coitus. Irregular menstrual bleeding is the most common side effect. Less common side effects include headaches, nervousness, nausea, skin changes, and vertigo. No STI protection is provided with the Norplant method, so condoms should be used for protection.
Since July 2002 the Norplant system has been unavailable in the United States because of questions about effectiveness (FDA, 2003). A single rod implant (Implanon) is available in Europe and Australia and is expected to be available in the United States by the time this text is published (Hatcher, 2004).

**Emergency contraception**

Emergency contraception is available in over 100 countries, and in about one third of those countries it is available without a prescription. Although there is much support for making emergency contraception available over-the-counter in the United States, it is currently only available without a prescription in limited pharmacies and clinics in six states: Alaska, California, Hawaii, Maine, New Mexico, and Washington.

In the United States only one product is approved and marketed as emergency contraception. This product is Plan B, which contains 2 doses of levonorgestrel. Other options that the FDA has determined to be safe for emergency contraception include high doses of oral progestins or COCs and insertion of the copper IUD (Stewart, Trussell, & Van Look, 2004).

Emergency contraception should be taken by a woman as soon as possible but within 120 hours (Ellertson et al., 2003) of unprotected intercourse or birth control mishap (e.g., broken condom, dislodged ring or cervical cap, missed OCPs, late for injection) to prevent unintended pregnancy. If taken before ovulation, emergency contraception prevents ovulation by inhibiting follicular development. If taken after ovulation occurs, there is little effect on ovarian hormone production or the endometrium. Recommended oral medication regimens with progestin only and estrogen-progestin pills for emergency contraception are presented in Table 6-2.

To minimize the side effect of nausea that occurs with high doses of estrogen and progestin, the woman can be advised to take an over-the-counter antiemetic 1 hour before each dose. Women with contraindications for estrogen use should use progestin-only emergency contraception. No medical contraindications for emergency contraception exist, except pregnancy and undiagnosed abnormal vaginal bleeding (Stewart, Trussell, & Van Look, 2004). If the woman does not begin menstruation within 21 days after taking the pills, she should be evaluated for pregnancy (Stewart, Trussell, & Van Look, 2004). Emergency contraception is ineffective if the woman is pregnant, as the pills do not disturb an implanted pregnancy. Risk of pregnancy is reduced by as much as 75% and 89% if the woman takes oral ECPs (Stewart, Trussell, & Van Look, 2004).

**NURSE ALERT** Emergency contraception will not protect the woman against pregnancy if she engages in unprotected intercourse in the days or weeks that follow treatment. Because ingestion of ECPs may delay ovulation, caution the woman that she needs to establish a reliable form of birth control in order to prevent unintended pregnancy (Stewart, Trussell, & Van Look, 2004). Information about emergency contraception method options and access to providers are available on the web at http://www.NOT-2-LATE.com or by calling 1-888-NOT-2-LATE.

### TABLE 6-2

**Emergency Contraceptive Pills Dosages**

<table>
<thead>
<tr>
<th>BRAND NAMES</th>
<th>FIRST DOSE (WITHIN 120 HR)</th>
<th>SECOND DOSE (12 HR LATER)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>COMBINED ORAL CONTRACEPTIVES</strong>*</td>
<td>2 white tablets</td>
<td>2 white tablets</td>
</tr>
<tr>
<td>Ovral</td>
<td>2 white tablets</td>
<td>2 white tablets</td>
</tr>
<tr>
<td>Oergestrel</td>
<td>4 white tablets</td>
<td>4 white tablets</td>
</tr>
<tr>
<td>Lo/Ovral</td>
<td>4 white tablets</td>
<td>4 white tablets</td>
</tr>
<tr>
<td>Low-Oergestrel</td>
<td>4 light orange tablets</td>
<td>4 light orange tablets</td>
</tr>
<tr>
<td>Nordette tablets</td>
<td>4 light orange tablets</td>
<td>4 light orange tablets</td>
</tr>
<tr>
<td>Levlen tablets</td>
<td>4 yellow tablets</td>
<td>4 yellow tablets</td>
</tr>
<tr>
<td>Trivora</td>
<td>4 white tablets</td>
<td>4 white tablets</td>
</tr>
<tr>
<td>Levora</td>
<td>4 yellow tablets</td>
<td>4 yellow tablets</td>
</tr>
<tr>
<td>Triphasil</td>
<td>5 pink tablets</td>
<td>5 pink tablets</td>
</tr>
<tr>
<td>Tri-Levlen</td>
<td>5 pink tablets</td>
<td>5 pink tablets</td>
</tr>
<tr>
<td>Aviane</td>
<td>5 orange tablets</td>
<td>5 orange tablets</td>
</tr>
<tr>
<td><strong>PROGESTIN ONLY</strong></td>
<td>20 yellow tablets</td>
<td>20 yellow tablets</td>
</tr>
<tr>
<td>Ovrette</td>
<td>1 white tablet</td>
<td>1 white tablet</td>
</tr>
<tr>
<td>Plan B†</td>
<td>1 white tablet</td>
<td>1 white tablet</td>
</tr>
</tbody>
</table>


*Antinausea medications needed for any of the combined oral contraceptives.
†May take both pills at same time.
IUDs containing copper (see later discussion) provide another emergency contraception option. The IUD should be inserted within 8 days of unprotected intercourse (Stewart, Trussell, & Van Look, 2004). This method is suggested only for women who wish to have the benefit of long-term contraception. The risk of pregnancy is reduced by as much as 99% with emergency insertion of the copper-releasing IUD.

Contraceptive counseling should be provided to all women requesting emergency contraception, including a discussion of modification of risky sexual behaviors to prevent STIs and unwanted pregnancy (Kettle & Klima, 2002).

**Intrauterine devices**

An IUD is a small, T-shaped device with bendable arms for insertion through the cervix (Fig. 6-10). Once the trained health care provider inserts the IUD against the uterine fundus, the arms open near the fallopian tubes to maintain position of the device and to adversely affect the sperm motility and irritate the lining of the uterus. Two strings hang from the base of the stem through the cervix and protrude into the vagina for the woman to feel to assure that the device has not been dislodged (Grimes, 2004). The patient should have had a negative pregnancy test, treatment for dysplasia, cervical cultures to rule out STIs, and a consent form signed before IUD insertion. Advantages to choosing this method of contraception include long-term protection from pregnancy and immediate return to fertility when removed. Disadvantages include increased risk of pelvic inflammatory disease (PID) shortly after placement, unintentional expulsion of the device, infection, and possible uterine perforation. IUDs offer no protection against HIV or other STIs. Therefore, women who are in mutually monogamous relationships are the best candidates for this device.

There are two FDA-approved IUDs. The ParaGard T-380A (copper IUD) is made of radiopaque polyethylene and fine solid copper and is approved for 10 years of use. The copper primarily serves as a spermicide and inflames the endometrium, preventing fertilization (Grimes, 2004). Sometimes women experience more bleeding and cramping within the first year after insertion, but nonsteroidal antiinflammatory drugs (NSAIDs) may be taken for pain relief. The typical failure rate in the first year of use of the copper IUD is less than 1% (Trussell, 2004).

Mirena is a hormonal intrauterine system that releases levonorgestrel from its vertical reservoir. Effective for up to 5 years, it impairs sperm motility, irritates the lining of the uterus, and has some anovulatory effects (Grimes, 2004). Uterine cramping and uterine bleeding is usually improved with this device, although irregular spotting is common in the first few months after insertion. The typical failure rate in the first year of use is less than 1% (Trussell, 2004).

**Nursing considerations.** The woman should be taught to check for the presence of the IUD strings after menstruation to rule out expulsion of the device. If pregnancy occurs with the IUD in place, an ultrasound should confirm that it is not ectopic. Early removal of the IUD helps decrease the risk of spontaneous miscarriage or preterm labor. The woman should report any signs of flulike illness, as this may indicate a septic miscarriage (Grimes, 2004). In some women who are allergic to copper, a rash develops, necessitating the removal of the copper-bearing IUD. Signs of potential complications to be taught to the woman are listed in the accompanying box (Signs of Potential Complications Box).

**Sterilization**

Sterilization refers to surgical procedures intended to render a person infertile. Most procedures involve the occlusion of the passageways for the ova and sperm (Fig. 6-11). For the woman, the uterine tubes are occluded; for the man, the vas deferens are occluded. Only surgical removal of the ovaries (oophorectomy) and/or the uterus (hysterectomy) will result in absolute sterility for the woman. Most other sterilization procedures have a less than 1% failure rate (Trussell, 2004).

**Female sterilization.** Female sterilization (bilateral tubal ligation [BTL]) (see Fig. 6-11, A) may be done immediately after childbirth (within 48 hours), concomitant with abortion, or as an interval procedure (during any phase of the menstrual cycle). If sterilization is performed as an interval procedure, the health care provider must be certain that the woman is not pregnant. Half of all female sterilization procedures in the United States are performed immediately after a pregnancy (Hatcher et al., 2004). Sterilization procedures can be safely done on an outpatient basis.

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**POTENTIAL COMPLICATIONS**

**Intrauterine Devices**

Signs of potential complications related to intrauterine devices (IUDs) can be remembered in the following manner (Hatcher et al., 2004):

- **P** — Period late; abnormal spotting or bleeding
- **A** — Abdominal pain, pain with intercourse
- **I** — Infection exposure; abnormal vaginal discharge
- **N** — Not feeling well, fever, or chills
- **S** — String missing, shorter or longer

**Fig. 6-10** Intrauterine devices (IUDs). A, Copper T-380A. B, Levonorgestrel-releasing IUD.
Tubal occlusion. A laparoscopic approach or a minilaparotomy may be used for tubal ligation (salpingectomy), tubal electrocoagulation (bipolar cautery), or the application of bands (Silastic: Fallope ring or Yoon Band) or clips (Hulka-Clemens spring clip or Filshie clip). Electrocoagulation and ligation are considered to be permanent methods. Use of the bands or clips has the theoretic advantage of possible removal and return of tubal patency (Pollack, Carignan, & Jacobstein, 2004).

For the mini-laparotomy, the woman is admitted the morning of surgery, having taken nothing by mouth since midnight. Preoperative sedation is given. The procedure may be carried out with a local anesthetic, but general anesthetic also may be used. A small incision is made in the abdominal wall below the umbilicus. The woman may experience sensations of tugging, but no pain, and the operation is completed within 20 minutes. She may be discharged several hours later after she has recovered from anesthesia. Any abdominal discomfort usually can be controlled with a mild analgesic (e.g., acetaminophen). Within days the scar is almost invisible (see Patient Instructions for Self-Care box). As with any surgery, there is always a possibility of complications of anesthesia, infection, hemorrhage, and trauma to other organs.

Transcervical sterilization. Still considered experimental, hysteroscopic techniques can be used to inject occlusion agents into the uterine tubes. One FDA-approved device is the Essure System, an interval sterilization method (not intended for the postpartum period). A trained health care professional inserts a small catheter holding the polyester fibers through the vagina and cervix and places the small metallic implants into each uterine tube. The device works by stimulating the woman’s own scar tissue formation to occlude the uterine tubes and prevent conception (FDA, 2003). Advantages include the nonhormonal nature of the contraception and the ability to insert the device during an office procedure without anesthesia. Analgesia is recommended to decrease mild to moderate discomfort associated with tubal spasm. Particularly convenient for obese women or those with abdominal adhesions, the transcervical approach eliminates the need for abdominal surgery. Because the procedure is not immediately effective, it is essential that the woman and her partner use another form of contraception until tubal blockage is proven. It may take up to 3 months for tubal occlusion to fully occur, and success must be confirmed by hysterosalpingogram. Other disadvantages include expulsion and perforation (Essure, 2004). Typical failure rate during the first year of use of the Essure System is less than 1% (FDA, 2003). Long-term efficacy and safety rates are unknown (Pollack, Carignan, & Jacobstein, 2004).

Tubal reconstruction. Restoration of tubal continuity (reanastomosis) and function is technically feasible except after laparoscopic tubal electrocoagulation. Sterilization reversal, however, is costly, difficult (requiring microsurgery), and uncertain. The success rate varies with the extent of tubal destruction and removal. The risk of ectopic pregnancy after tubal reanastomosis is increased between 2% and 12.5% (Pollack, Carignan, & Jacobstein, 2004).

Male sterilization. Vasectomy is the sealing, tying, or cutting of a man’s vas deferens so that the sperm cannot travel from the testes to the penis (FDA, 2003). It is considered the easiest and most commonly used operation for male sterilization. Vasectomy can be carried out with local
anesthesia on an outpatient basis. Pain, bleeding, infection, and other postsurgical complications are considered the disadvantages to the surgical procedure (FDA, 2003). It is considered a permanent method of sterilization because reversal is generally unsuccessful.

Two methods are used for scrotal entry: conventional and no-scalpel vasectomy. The surgeon identifies and immobilizes the vas deferens through the scrotum. Then the vas is ligated or cauterized (see Fig. 6-11, 8). Surgeons vary in their techniques to occlude the vas deferens: ligation with sutures, division, cautery, application of clips, excision of a segment of the vas, fascial interposition, or some combination of these methods (Pollack, Carignan, & Jacobstein, 2004).

The man is instructed in self-care to promote a safe return to routine activities. To reduce swelling and relieve discomfort, ice packs are applied to the scrotum intermittently for a few hours after surgery. A scrotal support may be applied to decrease discomfort. Moderate inactivity for about 2 days is advisable because of local scrotal tenderness. Sexual intercourse may be resumed as desired; however, sterility is not immediate. Some sperm will remain in the proximal portions of the sperm ducts after vasectomy. One week to several months are required to clear the ducts of sperm (i.e., after approximately 20 ejaculations); therefore, some form of contraception is needed until the sperm count in the ejaculate on two consecutive tests is down to zero (Pollack, Carignan, & Jacobstein, 2004).

Vasectomy has no effect on potency (ability to achieve and maintain erection) or volume of ejaculate. Endocrine production of testosterone continues so that secondary sex characteristics are not affected. Sperm production continues, but sperm are unable to leave the epididymis and are lysed by the immune system. Complications after vasectomy are uncommon and usually not serious. They include hematoma, bruising, wound infection, epididymitis, or adverse reaction to anesthetic agent (Pollack, Carignan, & Jacobstein, 2004). Less common are painful granulomas from accumulation of sperm. Typical failure rate in the first year for male sterilization is 0.15% (Trussell, 2004).

Vasectomy reversal. Microsurgery to reanastomose (restore tubal continuity) the sperm ducts can be accomplished successfully (i.e., sperm in the ejaculate) in more than 90% of cases; however, the fertility rate is only about 50% (Hatcher et al., 2004). The rate of success decreases as the time since the procedure increases. The vasectomy may result in permanent changes in the testes that leave men unable to initiate a pregnancy. The skill of the surgeon, presence of antisperm antibodies in the man, and his partner’s ability to initiate a pregnancy. The nurse provides information about the procedures, how much discomfort or pain can be expected, and what type of care is needed. Many individuals fear sterilization procedures because of the imagined effect on their sex life. They need reassurance concerning the hormonal and psychologic basis for sexual function and that sterilization and their feelings about and motivation for this choice. The nurse records this information, which may be the basis for referral to a family-planning clinic, a psychiatric social worker, or another professional health care provider.

Information must be given about what is entailed in various procedures, how much discomfort or pain can be expected, and what type of care is needed. Many individuals fear sterilization procedures because of the imagined effect on their sex life. They need reassurance concerning the hormonal and psychologic basis for sexual function and that vasectomy reversal (Hatcher et al., 2004).

Preoperative care includes health assessment, which includes a psychologic assessment, physical examination, and laboratory tests. The nurse assists with the health assessment, answers questions, and confirms the patient’s understanding of printed instructions (e.g., nothing by mouth after midnight). Ambivalence and extreme fear of the procedure are reported to the physician.

Postoperative care depends on the procedure performed (e.g., laparoscopy, laparotomy, or vasectomy). General care includes recovery after anesthesia, vital signs, fluid and electrolyte balance (intake and output, laboratory values), prevention of or early identification and treatment for infection or hemorrhage, control of discomfort, and assessment of emotional response to the procedure and recovery.

Discharge planning depends on the type of procedure performed. In general, the patient is given written instructions about observing for and reporting symptoms and signs of complications, the type of recovery to be expected, and the date and time for a follow-up appointment.
Breastfeeding: Lactational Amenorrhea Method

Lactational Amenorrhea Method (LAM) can be a highly effective, temporary method of birth control. It is more popular in underdeveloped countries and traditional societies where breastfeeding is used to prolong birth intervals. The method has seen limited use in the United States, because only about half of new mothers initiate breastfeeding and most American women do not establish breastfeeding patterns that provide maximum protection against pregnancy (Kennedy & Trussell, 2004).

When the infant suckles at the mother’s breast, a surge of prolactin hormone is released, which inhibits estrogen production and suppresses ovulation and the return of menses. LAM works best if the mother is exclusively or almost exclusively breastfeeding, if the woman has not had a menstrual flow since giving birth, and if the infant is under 6 months of age. Effectiveness is enhanced by frequent feedings at intervals of less than 4 hours during the day and no more than 6 hours during the night, long duration of each feeding, and no bottle supplementation or limited supplementation by spoon or cup. The typical failure rate is 2% (Kennedy & Trussell, 2004).

NURSE ALERT The woman should be counseled that disruption of the breastfeeding pattern or supplementation can increase the risk of pregnancy.

Future trends

Contraceptive options are more limited in the United States and Canada than in some other industrialized countries. Lack of funding for research, governmental regulations, conflicting values about contraception, and high costs of liability coverage for contraception have been cited as blocks to new and improved methods. Existing methods of contraception are being improved, however, and a variety of new methods are being developed.

Lower-dose COCs (15 mcg of ethinyl estradiol) are available in Europe. Female barrier methods (new female condoms, patient-fitted diaphragms, and new vaginal sponges) are being tested. Vaginal hormonal methods including progestin-only vaginal rings and progesterone daily suppositories are under investigation. Two new IUDs and spermicidal microbicides are being evaluated. Male hormonal methods also are being investigated, including hormonal injections (testosterone), gonadotropin-releasing hormone (GnRH) antagonists, antisperm compounds, immunologic methods, and contraceptive vaccines (Hatcher et al., 2004; Hutti, 2003).

Evaluation

The nurse can be reasonably assured that care was effective when the patient-centered expected outcomes have been achieved: the woman and her partner learn about the various methods of contraception; the couple achieve pregnancy only when planned; and they have no adverse sequelae as a result of the chosen method of contraception.

INDUCED ABORTION

Induced abortion is the purposeful interruption of a pregnancy before 20 weeks of gestation. (Spontaneous abortion [miscarriage] is discussed in Chapter 23.) If the abortion is performed at the woman’s request, the term elective abortion is used; if performed for reasons of maternal or fetal health or disease, the term therapeutic abortion applies. Many factors contribute to a woman’s decision to have an abortion. Indications include (1) preservation of the life or health of the mother, (2) genetic disorders of the fetus, (3) rape or incest, and (4) the pregnant woman’s request. The control of birth, dealing as it does with human sexuality and the question of life and death, is one of the most emotional components of health care and has been a controversial social issue since the mid-twentieth century. Regulations exist to protect the mother from the complications of abortion.

Abortion is regulated in most countries, including the United States. Before 1970 legal abortion was not widely available in the United States. However, in January, 1973, the U.S. Supreme Court set aside previous antiabortion laws and legalized abortion. This decision established a trimester approach to abortion. In the first trimester, abortion is permissible, the decision is between the woman and her health care provider, and a state has little right to interfere (Stewart, Ellerton, & Cates, 2004). In the second trimester, abortion was left to the discretion of the individual states to regulate procedures as long as they are reasonably related to the woman’s health. In the third trimester, abortions may be limited or even prohibited by state regulation unless the...
restriction interferes with the life or health of the pregnant woman (Stewart, Ellertson, & Cates, 2004).

In 1992 the U.S. Supreme Court made another landmark ruling, this time allowing states to restrict early abortion services as long as the restrictions did not place an “undue burden” on the woman’s ability to choose abortion. Since then many bills have been introduced to limit access to and funds for women seeking abortion.

The laws for abortion in Canada have changed over the last 35 years as well. Before 1969, abortion was permitted only to save the life of the woman. Between 1969 and 1988 the laws became more liberal in interpretation of the health of the life of the woman. In 1988 this law was struck down and Canada is now one of the only countries in the world without abortion regulation. Abortion is available throughout pregnancy (Santoro, 2004).

**LEGAL TIP**

*Induced Abortion*

*It is important for nurses to know the laws regarding abortion in their state of practice before they offer abortion counseling or nursing care to a woman choosing an abortion. Many states enforce a mandatory delay or state-directed counseling before a woman may legally obtain an abortion.*

**Incidence**

The reported number of abortions performed in the United States in 2001 was 853,485 (Strauss et al., 2004). About 88% of all abortions are performed in the first trimester, with about 60% of these in the first 9 weeks after the last menstrual period. Most women who are having an elective abortion are Caucasian, younger than 24 years of age, and unmarried. Over 60% have had at least one previous live birth (Strauss et al., 2004). In 2002, 105,154 abortions were reportedly performed in Canada (National Campus Life Network, 2005).

**Decision to Have an Abortion**

A woman who is deciding whether or not to have an abortion is often ambivalent. She needs information and an opportunity to discuss her feelings about pregnancy, abortion, and the impact of either choice on her future. She needs to make her decision without feeling coercion about her choice (Robinson, Dollins, & McConlogue-O’Shaughnessy, 2000).

Nurses and other health care providers often struggle with the same values and moral convictions as those of the pregnant woman. The conflicts and doubts of the nurse can be readily communicated to women who are already anxious and overly sensitive. Regardless of personal views on abortion, nurses who provide care to women seeking abortion have a responsibility to counsel women about their options or to make appropriate referrals (Goss, 2002).

AWHONN (1999) continues to support a nurse’s right to choose to participate in abortion procedures in keeping with his or her “personal, moral, ethical, or religious beliefs.” AWHONN also advocates that “nurses have a professional obligation to inform their employers, at the time of employment, of any attitudes and beliefs that may interfere with essential job functions.”

**LEGAL TIP**

*Refusal to Give Care Based on Moral, Religious, and Ethical Reasons*

*Nurses’ rights and responsibilities related to abortion as described by AWHONN (1999) should be protected through institutional policies that are written to address how the institution will make “reasonable accommodations” for the nurse’s moral or ethical beliefs and what the nurse should do to give notice in such situations to avoid patient abandonment. Nurses should know what policies are in place in their institutions and encourage such policies to be written if they are not available (JCAHO, 2000).*

**First-Trimester Abortion**

Methods for performing early abortion (less than 9 weeks of gestation) include surgical (aspiration) and medical methods (mifepristone with misoprostol) and methotrexate with misoprostol.

**Aspiration**

Aspiration (vacuum or suction curettage) is the most common procedure in the first trimester, with about 95% of all procedures being performed by this method (Strauss et al., 2004). Aspiration abortion is usually performed using local anesthesia in the physician’s office, the clinic, or the hospital. The suction procedure for performing an early elective abortion (ideal time is 8 to 12 weeks since the last menstrual period) usually requires less than 5 minutes.

A bimanual examination is done before the procedure to assess uterine size and position. A speculum is inserted and the cervix is anesthetized with a local anesthetic agent. The cervix is dilated if necessary and a cannula connected to suction is inserted into the uterine cavity. The products of conception are evacuated from the uterus. During the procedure the nurse or physician keeps the woman informed about what to expect next (e.g., menstrual-like cramping, sounds of the suction machine). The nurse assesses the woman’s vital signs. The aspirated uterine contents must be carefully inspected to ascertain whether all fetal parts and adequate placental tissue have been evacuated. After the abortion the woman rests on the table until she is ready to stand. Then she remains in the recovery area or waiting room for 1 to 3 hours for detection of excessive cramping or bleeding; then she is discharged.

Bleeding after the operation is normally about the equivalent of a heavy menstrual period, and cramps are rarely severe. Excessive vaginal bleeding and infection, such as endometritis or salpingitis, are the most common complications of elective abortion. Retained products of conception are the primary cause of vaginal bleeding. Evacuation of the uterus, uterine massage, and administration of oxytocin or methylergonovine (Methergine) or both may be necessary. Prophylactic antibiotics to decrease the risk
EVIDENCE-BASED PRACTICE
Comparing Medical and Surgical Abortions

BACKGROUND
• Abortion has been practiced for millennia. Approximately 53 million abortions are performed each year. An estimated one third of these are performed in unsafe circumstances, mostly in developing countries, and account for one out of eight maternal deaths worldwide. Surgical abortion in safe settings has the lowest complication rates. Complications are 2.3 times higher for dilation and curettage (D&C) as compared with vacuum aspiration. Complications of surgical abortion include infection, incomplete evacuation, cervical trauma, uterine perforation, hemorrhage, complications with anesthesia, and possible associations with infertility, miscarriages, and low birth weight in subsequent pregnancies. Medical abortions use pharmaceuticals to terminate pregnancy growth or stimulate expulsion of uterine contents. Four protocols are commonly used: misoprostol (prostaglandin E1), mifepristone, mifepristone with misoprostol, and methotrexate with misoprostol. Methotrexate stops rapid cell replication. Misoprostol causes uterine contractions. Both methotrexate and misoprostol are teratogenic. Side effects of medical abortion are moderate to heavy bleeding, pain, nausea, vomiting, diarrhea, and more observed blood loss and passage of tissue.

OBJECTIVES
• The reviewers compared medical versus surgical methods of first trimester abortion.
• Outcomes were efficacy, side effects, and acceptability of the procedure. Primary outcomes included incomplete abortion, pelvic infection, blood transfusion, blood loss or hemoglobin drop, uterine perforation, cervical injury, and readmission. Secondary outcomes included hospital stay exceeding 24 hours, duration of bleeding, use of analgesia for pain, and readmission. Statistical analyses secondary outcomes included hospital stay exceeding 24 hours, duration of bleeding, use of analgesia for pain, and readmission.

METHODS
Search Strategy
• The authors searched Cochrane, MEDLINE, and POPLINE, and contacted experts at the World Health Organization (WHO). Search keywords included abortion, pregnancy termination, first trimester, vacuum aspiration, suction, dilation and curettage, D&C, mifepristone, misoprostol, prostaglandin, methotrexate, and RU 486.
• Five randomized trials comparing medical versus surgical abortion were chosen. The trials represented 989 women from Sweden, Denmark, the United Kingdom, the United States, and a WHO multicenter trial from India, Vietnam, Slovenia, Zambia, China, Sweden, and Hungary. The trials were published from 1984 to 2000.

Statistical Analyses
• Outcomes of each medical abortion protocol were compared with outcomes of vacuum aspiration, the surgical treatment of choice for first trimester abortion.

FINDINGS
• Misoprostol alone, versus vacuum aspiration: The misoprostol group resulted in significantly more incomplete abortions and increased bleeding and pain, compared with vacuum aspiration. No significant differences were found between groups in infection rates.
• Mifepristone alone, versus vacuum aspiration: No significant differences were found between groups in infection rates, incomplete abortions, or perforations.
• Mifepristone plus misoprostol, versus vacuum aspiration: No difference in blood loss occurred, but the medical group had significantly longer duration of bleeding.
• Methotrexate plus misoprostol, versus vacuum aspiration: Duration of bleeding and use of analgesia for pain were both significantly greater in the medical abortion group. No differences between groups were found in incomplete abortion rates.
• Overall efficacy rate for medical abortions was 76% to 97% and for surgical abortions was 94% to 100%. Mifepristone alone had the lowest efficacy, at 76%. One perforation occurred in the surgical groups. Medical intervention groups experienced more days of bleeding than surgical patients. The medical group also experienced more pain, which may reflect the use of analgesia during the surgical procedure. The longer the gestation, the less acceptable the medical procedure was to the women. In one study, 63% of the medical group would choose that method again, whereas 92% of the surgical group would opt to repeat the surgical procedure, should the need arise. Overall, vacuum aspiration may be more effective than misoprostol alone and seems to be associated with less pain and bleeding.

LIMITATIONS
• The small number of trials and small sample sizes limit the generalizability of the results to the larger population. Many patients were lost to follow-up.

CONCLUSIONS
• Both medical and surgical abortions are effective and safe; vacuum extraction was more effective than medical abortion and was associated with less pain and bleeding.

IMPLICATIONS FOR PRACTICE
• The decision between a medical or a surgical abortion carries trade-offs. Careful counseling is necessary to prepare the woman for realistic expectations of each protocol, with careful attention to the attitude toward pregnancy and abortion. The setting may dictate one procedure over another, depending on whether a safe surgical procedure is available, or the proximity of a woman to a health facility for the duration of the medical abortion.

IMPLICATIONS FOR FURTHER RESEARCH
• Larger studies about women’s preferences for methods of abortion, and the efficacy of the methods, are needed. More information about the pain experienced in abortion, preparation techniques, precounseling, alternative therapies, and presence of a support person would be useful.

Mifepristone, formerly known as RU 486, was approved by the FDA in 2000. It works by binding to progesterone receptors and blocking the action of progesterone, which is necessary for maintaining pregnancy (Kahn et al., 2000; Taylor & Hwang, 2003-2004).

**Methotrexate and misoprostol.** There is no standard protocol, but methotrexate is given intramuscularly or orally (usually mixed with orange juice). Vaginal placement of misoprostol follows in 3 to 7 days. The woman returns for a follow-up visit to confirm the abortion is complete. If not, the woman is offered an additional dose of misoprostol or vacuum aspiration is performed (Kahn et al., 2000).

**Mifepristone and misoprostol.** Mifepristone can be taken up to 7 weeks after the last menstrual period. The FDA-approved regimen is that the woman takes 600 mg of mifepristone orally; 48 hours later she returns to the office and takes 400 mcg of misoprostol orally (unless abortion has already occurred and been confirmed). Two weeks after the administration of mifepristone, the woman must return to the office for a clinical examination or ultrasound to confirm that the pregnancy has been terminated. In about 1% to 5% of cases, the drugs do not work, and surgical abortion (aspiration) is needed (Kahn et al., 2000).

Research has demonstrated a more effective regimen that has fewer side effects. This regimen can be given up to 9 weeks after the last menstrual period and includes administration of 200 mg mifepristone orally followed by misoprostol 800 mcg vaginally in 24 to 48 hours. This vaginal insertion can be done at home by the woman. A follow-up visit occurs in 4 to 8 days (National Abortion Federation, 2003).

With any medical abortion regimen, the woman usually will experience bleeding and cramping. Side effects of the medications include nausea, vomiting, diarrhea, headache, dizziness, fever, and chills. These are attributed to misoprostol and usually subside in a few hours after administration (Taylor & Hwang, 2003-2004).

**Second-Trimester Abortion**

Second-trimester abortion is associated with more complications and costs than first-trimester abortion. Dilation and evacuation (D&E) accounts for almost all procedures performed in the United States. Induction of uterine contractions with hypertonic solutions (e.g., saline, urea) injected directly into the uterus, and uterotonic agents (e.g., misoprostol, dinoprostone) account for only about 0.5% of all reported abortions (Strauss et al., 2004).

**Dilation and evacuation**

D&E can be performed at up to 20 weeks of gestation, although it is most commonly performed between 13 and 16 weeks of gestation (Stewart, Ellerton, & Cates, 2004). The cervix requires more dilation because the products of conception are larger. Often, osmotic dilators (e.g., laminaria) are inserted several hours or several days before the procedure, or misoprostol can be applied to the cervix. The procedure is similar to vaginal aspiration except a larger cannula is used and other instruments may be needed to remove the fetus and placenta. Nursing care includes monitoring vital signs of infection are commonly prescribed (Stewart, Ellerton, & Cates, 2004). Postabortion pain may be relieved with NSAIDs such as ibuprofen.

Postabortion instructions differ among health care providers (e.g., tampons should not be used for at least 3 days or should be avoided for up to 3 weeks, and resumption of sexual intercourse may be permitted within 1 week or discouraged for 2 weeks). The woman may shower daily. Instruction is given to watch for excessive bleeding and other signs of complications (see Signs of Potential Complications Box) and to avoid douches of any type. The woman may expect her menstrual period to resume 4 to 6 weeks from the day of the procedure. Information about the birth control method the woman prefers is offered if this has not been done previously during the counseling interview that usually precedes the decision to have an abortion. Some methods, such as an IUD insertion, can be initiated immediately. Hormonal methods may be started immediately or within a week (Stewart, Ellerton, & Cates, 2004). The woman must be strongly encouraged to return for her follow-up visit so that complications can be detected. A pregnancy test may also be performed to determine whether the pregnancy was successfully terminated (Stenchever, Droegemueller, Herbst, & Mishell, 2001).
Nursing Considerations

The woman will need help exploring the meaning of the various alternatives and consequences to herself and her significant others. It is often difficult for a woman to express her true feelings (e.g., what abortion means to her now and in the future and what support or regret her friends and peers may demonstrate). A calm, matter-of-fact approach on the part of the nurse can be helpful (e.g., “Yes, I know you are pregnant. I am here to help. Let’s talk about alternatives.”). Listening to what the woman has to say and encouraging her to speak are essential. Neutral responses such as “Oh,” “Uh-huh,” and “Umm” and nonverbal encouragement such as nods, maintaining eye contact, and use of touch are helpful in setting an open, accepting environment. Clarifying, restating, and reflecting statements; open-ended questions; and feedback are communication techniques that can be used to maintain a realistic focus on the situation and bring the woman’s problems into the open. Once a decision has been made, the woman must be assured of continued support. Information about what is entailed in various procedures, how much discomfort or pain can be expected, and what type of care is needed must be given. A discussion of the various feelings including depression, guilt, regret, and relief that the woman might experience after the abortion is needed. Information about community resources for postabortion counseling may be needed (Goss, 2002). If family or friends cannot be involved, scheduling time for nursing personnel to give the necessary support is an essential component of the care plan.

After the abortion, studies have indicated that most women report relief, but some have temporary distress or mixed emotions. Guilt and anxiety may occur more with young women, women with poor social support, multiparous women, and women with a history of psychiatric illness. Women having second-trimester abortions may have more emotional distress than do women having abortions in the first trimester (Williams, 2000). Also, women feeling pressure to have an abortion had symptoms of short-term grief in the study reported by Williams (2000). Because symptoms can vary among women who have had abortions, nurses must assess women for grief reactions and facilitate the grieving process through active listening and nonjudgmental support and care.

Critical Thinking Exercise

Infertility

Bob, 37, and Shirley, 36, have been married for 5 years and have been unsuccessful in their attempts to achieve a pregnancy. They have come to the Center for Reproductive Medicine for an infertility workup. Shirley tells the nurse that she is sure that in vitro fertilization is the answer to their problem and is asking questions about the procedure. How should the nurse respond to Shirley’s comments and questions?

1. Evidence—Is there sufficient evidence to draw conclusions about what response the nurse should give?
2. Assumptions—Describe underlying assumptions about the following issues:
   a. Age and fertility
   b. Infertility as a major life stressor
3. What implications and priorities for nursing care can be drawn at this time?
4. Does the evidence objectively support your conclusion?
5. Are there alternative perspectives to your conclusion?
gametogenesis—the formation of sperm and ova. Although sperm remain viable in the female’s reproductive tract for 48 hours or more, probably only a few retain fertilization potential for more than 24 hours. Ova remain viable for approximately 24 hours, but the optimal time for fertilization may be no more than 1 to 2 hours (Cunningham et al., 2001). Therefore the timing of intercourse is critical.

After fertilization the conceptus must travel down the patent uterine tube to the uterus and implant within 7 to 10 days in a hormone-prepared endometrium. The conceptus must develop normally, reach viability, and be born in good condition for extrauterine life.

An alteration in one or more of these structures, functions, or processes results in some degree of impaired fertility. In general, about 20% of couples will have unexplained or idiopathic causes of infertility. Among the 80% of couples who have an identifiable cause of infertility, about 40% are related to factors in the female partner, 40% are related to factors in the male partner, and 20% are related to factors in both partners (Nelson & Marshall, 2004; Stenchever et al., 2001). Boxes 6-3 and 6-4 list factors affecting female and male infertility.

**CARE MANAGEMENT**

**Assessment and Nursing Diagnoses**

The nurse assists in the assessment by obtaining data relevant to fertility through interview and physical examination. The database must include information to determine whether infertility is primary or secondary. Religious, cultural, and ethnic data are noted because they may place restrictions on tests and treatments (see Box 6-5).

Some of the data needed to investigate impaired fertility are of a sensitive, personal nature. Obtaining these data may be viewed as an invasion of privacy. The tests and examinations are occasionally painful and intrusive and can take the romance out of lovemaking. A high level of motivation is needed to endure the investigation.

Because multiple factors involving both partners are common, the investigation of impaired fertility is conducted systematically and simultaneously for both male and female partners. Both partners must be interested in the solution to the problem. The medical investigation requires time (3 to 4 months) and considerable financial expense, and it causes emotional distress and strain on the couple’s interpersonal relationship (Angard, 2000).

**Assessment of female infertility.** Investigation of impaired fertility begins for the woman with a complete history and physical examination. The history explores the duration of infertility and past obstetric events and contains a detailed menstrual and sexual history. Medical and surgical conditions are evaluated. Exposure to reproductive hazards in the home (e.g., mutagens such as vinyl chlorides, teratogens such as alcohol, and emotional stresses) and workplace are explored.

**BOX 6-3**

**Factors Affecting Female Fertility**

**OVARIAN FACTORS**
- Developmental anomalies
- Anovulation, primary
- Pituitary or hypothalamic hormone disorder
- Adrenal gland disorder
- Congenital adrenal hyperplasia
- Anovulation, secondary
- Disruption of hypothalamic-pituitary-ovarian axis
- Amenorrhea after discontinuing oral contraceptive pills
- Premature ovarian failure
- Increased prolactin levels

**UTERINE, TUBAL, AND PERITONEAL FACTORS**
- Developmental anomalies
- Tubal motility reduced
- Inflammation within the tube
- Tubal adhesions
- Endometrial and myometrial tumors
- Asherman syndrome (uterine adhesions or scar tissue)
- Endometriosis
- Chronic cervicitis
- Hostile or inadequate cervical mucus

**OTHER FACTORS**
- Nutritional deficiencies (e.g., anemia)
- Thyroid dysfunction
- Idiopathic condition

**BOX 6-4**

**Factors Affecting Male Fertility**

**STRUCTURAL OR HORMONAL DISORDERS**
- Undescended testes
- Hypospadias
- Varicocele
- Obstructive lesions of the vas deferens or epididymis
- Low testosterone levels
- Hypopituitarism
- Endocrine disorders
- Testicular damage caused by mumps
- Retrograde ejaculation

**OTHER FACTORS**
- Sexually transmitted infections
- Exposure to workplace hazards such as radiation or toxic substances
- Exposure of scrotum to high temperatures
- Nutritional deficiencies
- Antisperm antibodies
- Substance abuse
- Changes in sperm—cigarette smoking, heroin, marijuana, amyl nitrate, butyl nitrate, ethyl chloride, methaqualone
- Decrease in libido—heroin, methadone, selective serotonin reuptake inhibitors, and barbiturates
- Impotence—alcohol, antihypertensive medications
- Idiopathic condition
BOX 6-5

Religious and Cultural Considerations of Fertility

**RELIGIOUS CONSIDERATIONS**

Civil laws and religious proscriptions about sex must always be kept in mind by the health care provider. Conservative and reform Jewish couples are accepting of most infertility treatment; however, the Orthodox Jewish husband and wife may face infertility investigation and management problems because of religious laws that govern marital relations. For example, according to Jewish law, the Orthodox couple may not engage in marital relations during menstruation and through the following 7 “preparatory days.” The wife then is immersed in a ritual bath (*mikvah*) before relations can resume. Fertility problems can arise when the woman has a short cycle (i.e., a cycle of 24 days or fewer; when ovulation would occur on day 10 or earlier).

The Roman Catholic Church regards the embryo as a human being from the first moment of existence and regards as unacceptable technical procedures such as in vitro fertilization, therapeutic donor insemination, and freezing of embryos.

Other religious groups may have ethical concerns about infertility tests and treatments. For example, most Protestant denominations and Muslims usually support infertility management as long as in vitro fertilization (IVF) is done with the husband’s sperm, there is no reduction of fetuses, and insemination is done with the husband’s sperm. These groups are less supportive of surrogacy and use of donor sperm and eggs. Christian Scientists do not permit surgical procedures or IVF but do permit insemination with husband and donor sperm.

Care providers should seek to understand the woman’s spirituality and how it affects her perception of health care, especially in relation to infertility. Women may wish to seek infertility treatment but have questions about proposed diagnostic and therapeutic procedures because of religious proscriptions. These women are encouraged to consult their minister, rabbi, priest, or other spiritual leader for advice.

**CULTURAL CONSIDERATIONS**

Worldwide cultures continue to use symbols and rites that celebrate fertility. One fertility rite that persists today is the custom of throwing rice at the bride and groom. Other fertility symbols and rites include passing out of congratulatory cigars, candy, or pencils by a new father and baby showers held in anticipation of a child’s birth.

In many cultures, the responsibility for infertility is usually attributed to the woman. A woman's inability to conceive may be a result of her sins, of evil spirits, or of the fact that she is an inadequate person. The virility of a man in some cultures remains in question until he demonstrates his ability to reproduce by having at least one child (D’Avanzo & Geissler, 2003).

A complete general physical examination is followed by a specific assessment of the reproductive tract. Evidence of endocrine system abnormalities is sought. Inadequate development of secondary sex characteristics (e.g., inappropriate distribution of body fat and hair) may point to problems with the hypothalamic-pituitary-ovarian axis or genetic aberrations (e.g., polycystic ovarian syndrome, Turner syndrome).

A woman may have an abnormal uterus and tubes as a result of exposure to diethylstilbestrol (DES) in utero. Evidence of past infection of the genitourinary system or endometriosis is sought. Bimanual examination of internal organs may reveal lack of mobility of the uterus or abnormal contours of the uterus and adnexa. Data from routine urine and blood tests are obtained along with results of other diagnostic tests.

**Diagnosis.** The basic infertility survey of the woman involves evaluation of the cervix, uterus, tubes, and peritoneum (Figs. 6-12, 6-13, and 6-14); detection of ovulation; assessment of immunologic compatibility; and evaluation of psychogenic factors (Nelson & Marshall, 2004). The nurse can alleviate some of the anxiety associated with diagnostic testing by explaining to patients the timing and rationale for each test (Table 6-3). Test findings that are favorable to fertility are summarized in Box 6-6.

**Assessment of male infertility.** The systematic investigation of infertility in the male patient begins with a thorough history and physical examination. Assessment of the male patient starts with noninvasive tests.

**Semen analysis.** The basic test for male infertility is the semen analysis. A complete semen analysis, study of the effects of cervical mucus on sperm forward motility and survival, and evaluation of the sperm’s ability to penetrate an ovum provide basic information. Semen is collected by ejaculation into a clean container or a plastic sheath that does not contain...
marijuana; gonadotropic inadequacy; and obstructive lesions of the epididymis and vas deferens. Congenital absence of the vas deferens can occur more frequently in men with the gene for cystic fibrosis. If this abnormality is found, genetic counseling would be helpful before any fertility treatments (Keye, 2000). Hormone analyses are done for testosterone, gonadotropin, FSH, and LH. The sperm penetration assay may be used to evaluate the ability of sperm to penetrate an egg. Because human oocytes are not readily available, hamster eggs have been used as a substitute to evaluate sperm penetration abilities (no actual fertilization occurs). Testicular biopsy may be warranted.

Assessment of the couple

Postcoital test. The postcoital test (PCT) is one method used to test for adequacy of coital technique, cervical mucus, sperm, and degree of sperm penetration through cervical mucus. Intercourse is synchronized with the expected time of ovulation (as determined from evaluation of BBT, cervical mucus changes, and usual length of menstrual cycle or use of an LH detection kit to determine LH surge). The test is performed in the clinic or physician’s office within several hours after ejaculation of semen into the vagina. A specimen of cervical mucus is obtained from the cervical os and examined under a microscope. The quality of mucus and the number of forward-moving sperm are noted. A PCT with good mucus and motile sperm is associated with fertility.

Examples of nursing diagnoses related to impaired fertility include the following:

- Anxiety related to
  - unknown outcome of diagnostic workup
- Disturbed body image or situational low self-esteem related to
  - impaired fertility
- Risk for ineffective individual coping related to
  - methods used in the investigation of impaired fertility
  - alternatives to therapy: child-free living or adoption
- Interrupted family processes related to
  - unmet expectations for pregnancy
- Acute pain related to
  - effects of diagnostic tests (or surgery)
- Ineffective sexuality patterns related to
  - loss of libido secondary to medically imposed restrictions
- Deficient knowledge related to
  - preconception risk factors
  - factors surrounding ovulation
  - factors surrounding fertility

Expected Outcomes of Care

The expected outcomes are phrased in patient-centered terms and may include that the couple will do the following:

- Verbalize understanding of the anatomy and physiology of the reproductive system
Table 6-3
Tests for Impaired Fertility

<table>
<thead>
<tr>
<th>Test or Examination</th>
<th>Timing (Menstrual Cycle Days)</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hysterosalpingogram</td>
<td>7-10</td>
<td>Late follicular, early proliferative phase; will not disrupt a fertilized ovum; may open uterine tubes before time of ovulation</td>
</tr>
<tr>
<td>Postcoital test</td>
<td>1-2 days before ovulation</td>
<td>Ovulatory late proliferative phase; look for normal motile sperm in cervical mucus</td>
</tr>
<tr>
<td>Sperm immobilization antigen-antibody reaction</td>
<td>Variable, ovulation</td>
<td>Immunologic test to determine sperm and cervical mucus interaction</td>
</tr>
<tr>
<td>Assessment of cervical mucus</td>
<td>Variable, ovulation</td>
<td>Cervical mucus should have low viscosity, high spinnbarkeit</td>
</tr>
<tr>
<td>Ultrasound diagnosis of follicular collapse</td>
<td>Ovulation</td>
<td>Collapsed follicle is seen after ovulation</td>
</tr>
<tr>
<td>Serum assay of plasma progesterone</td>
<td>20-25</td>
<td>Midluteal midsecretory phase; check adequacy of corpus luteal production of progesterone</td>
</tr>
<tr>
<td>Basal body temperature</td>
<td>Chart entire cycle</td>
<td>Elevation occurs in response to progesterone, documents ovulation</td>
</tr>
<tr>
<td>Endometrial biopsy</td>
<td>21-27</td>
<td>Late luteal, late secretory phase; check endometrial response to progesterone and adequacy of luteal phase</td>
</tr>
<tr>
<td>Sperm penetration assay</td>
<td>After 2 days but no more than 1 week of abstinence</td>
<td>Evaluation of ability of sperm to penetrate an egg</td>
</tr>
</tbody>
</table>

Box 6-6
Summary of Findings Favorable to Fertility

1. Follicular development, ovulation, and luteal development are supportive of pregnancy:
   a. Basal body temperature (BBT) (presumptive evidence of ovulatory cycles) is biphasic, with temperature elevation that persists for 12 to 14 days before menstruation
   b. Cervical mucus characteristics change appropriately during phases of menstrual cycle
   c. Laparoscopic visualization of pelvic organs verifies follicular and luteal development
2. The luteal phase is supportive of pregnancy:
   a. Levels of plasma progesterone are adequate
   b. Findings from endometrial biopsy samples are consistent with day of cycle
3. Cervical factors are receptive to sperm during expected time of ovulation:
   a. Cervical os is open
   b. Cervical mucus is clear, watery, abundant, and slippery and demonstrates good spinnbarkeit and arborization (fern pattern)
   c. Cervical examination does not reveal lesions or infections
   d. Postcoital test findings are satisfactory (adequate number of live, motile, normal sperm present in cervical mucus)
   e. No immunity to sperm demonstrated
4. The uterus and uterine tubes are supportive of pregnancy:
   a. Uterine and tubal patency are documented by:
      1. Spillage of dye into peritoneal cavity
      2. Outlines of uterine and tubal cavities of adequate size and shape, with no abnormalities
   b. Laparoscopic examination verifies normal development of internal genitals and absence of adhesions, infections, endometriosis, and other lesions
5. The male partner’s reproductive structures are normal:
   a. No evidence of developmental anomalies of penis, testicular atrophy, or varicocele (varicose veins on the spermatic vein)
   b. No evidence of infection in prostate, seminal vesicles, and urethra
   c. Testes are >4 cm in largest diameter
6. Semen is supportive of pregnancy:
   a. Sperm (number per milliliter) are adequate in ejaculate
   b. Most sperm show normal morphology
   c. Most sperm are motile, forward moving
   d. No autoimmunity exists
   e. Seminal fluid is normal
of lovemaking must be shared with health care professionals—nurses must be comfortable with their own sexuality so that they can better help couples understand why the private act of lovemaking may add tension to a couple’s sexual functioning. The prescriptions and proscriptions for achieving conception is successful (Nelson & Marshall, 2004).

Infertility is recognized as a major life stressor that can affect self-esteem; relations with the spouse, family, and friends; and careers. Couples often need assistance in separating their psychosocial. Within the United States, feelings connected to impaired fertility are numerous and complex. The origins of some of these feelings are myths, superstitions, and misinformation about the causes of infertility. Other feelings arise from the need to undergo many tests and examinations (e.g., infections, blocked uterine tubes, sperm allergy, varicocele) and be able to make an informed decision about treatment. Infertility is considered to be a risk factor for pregnancy. If the couple conceives, nurses need to be aware that the concerns and problems of the previously infertile couple may not be over. Many couples are overjoyed with the pregnancy; however, some are not. Some couples rearrange their lives, sense of self, and personal goals within their acceptance of their infertile state. The couple may feel that those who worked with them to identify and treat impaired fertility expect them to be happy with the pregnancy. The couple may be shocked to find that they themselves feel resentment because the pregnancy, once a cherished dream, now necessitates another change in goals, aspirations, and identities. The normal ambivalence toward pregnancy may be perceived as reneging on the original choice to become parents. The couple might choose to abort the pregnancy at this time. Other couples worry about miscarriage. If the couple wishes to continue with the pregnancy, they will need the care other expectant couples need. A history of impaired fertility is considered to be a risk factor for pregnancy. If the couple does not conceive, they are assessed regarding their desire to be referred for help with adoption, therapeutic intrauterine insemination, other reproductive alternatives, or with choosing a child-free state. The couple may find a list of agencies, support groups, and other resources in their community helpful (see Resources at end of chapter).

Contraception, Abortion, and Infertility

Verbalize understanding of treatment for any abnormalities identified through various tests and examinations (e.g., infections, blocked uterine tubes, sperm allergy, varicocele) and be able to make an informed decision about treatment.

Verbalize understanding of their potential to conceive.

Resolve guilt feelings and not need to focus blame.

Conceive or, failing to conceive, decide on an alternative acceptable to both of them (e.g., child-free living, adoption).

Psychologic responses to a diagnosis of infertility may tax a couple’s giving and receiving of physical and sexual closeness. The prescriptions and proscriptions for achieving conception may add tension to a couple’s sexual functioning. Couples may report decreased desire for intercourse, orgasmic dysfunction, or midcycle erectile disorders.

To be able to deal comfortably with a couple’s sexuality, nurses must be comfortable with their own sexuality so that they can better help couples understand why the private act of lovemaking must be shared with health care profession-als. Nurses need up-to-date factual knowledge about human sexual practices and must be able to accept the preferences and activities of others without being judgmental. They must be skilled in interviewing and in therapeutic use of self, sensitive to the nonverbal cues of others, and knowledgeable regarding each couple’s sociocultural and religious beliefs.

The support systems of the couple with impaired fertility must be explored. This exploration should include persons available to assist, their relationship to the couple, their ages, their availability, and the cultural or religious support that is available.

If the couple conceives, nurses need to be aware that the concerns and problems of the previously infertile couple may not be over. Many couples are overjoyed with the pregnancy; however, some are not. Some couples rearrange their lives, sense of self, and personal goals within their acceptance of their infertile state. The couple may feel that those who worked with them to identify and treat impaired fertility expect them to be happy with the pregnancy. The couple may be shocked to find that they themselves feel resentment because the pregnancy, once a cherished dream, now necessitates another change in goals, aspirations, and identities. The normal ambivalence toward pregnancy may be perceived as reneging on the original choice to become parents. The couple might choose to abort the pregnancy at this time. Other couples worry about miscarriage. If the couple wishes to continue with the pregnancy, they will need the care other expectant couples need. A history of impaired fertility is considered to be a risk factor for pregnancy.

If the couple does not conceive, they are assessed regarding their desire to be referred for help with adoption, therapeutic intrauterine insemination, other reproductive alternatives, or with choosing a child-free state. The couple may find a list of agencies, support groups, and other resources in their community helpful (see Resources at end of chapter).

Nonmedical. Simple changes in lifestyle may be effective in the treatment of subfertile men. Only water-soluble lubricants should be used during intercourse because many commonly used lubricants contain spermicides or have spermicidal properties. High scrotal temperatures may be caused by daily hot tub bathing or saunas in which the testes are kept at temperatures too high for efficient spermatogenesis.

Treatment is available for women who have immunologic reactions to sperm. The use of condoms during genital intercourse for 6 to 12 months will reduce female antibody production in most women who have elevated antisperm antibody titers. After the serum reaction subsides, condoms are used at all times except at the expected time of ovulation. Approximately one third of couples with this problem conceive by following this course of action.

Changes in nutrition and habits may increase fertility for both men and women. For example, a well-balanced diet, exercise, decreased alcohol intake, not smoking or abusing drugs, and stress management may be effective.

**BOX 6-7**

**Semen Analysis**

- Liquefaction usually complete within 10 to 20 min
- Semen volume 2 ml to 6 ml
- Semen pH 7.2 to 8.0
- Sperm density 20 million to 200 million per milliliter
- Total sperm count 40 million per milliliter
- Normal morphology 30% (normal oval)
- Motility (important consideration in sperm evaluation)—percentage of forward-moving sperm estimated with respect to normally motile and nonmotile sperm, 50%
- White cell count 1 million per milliliter
- Ovum penetration test (may be done if further evaluation necessary)

Note: These values are not absolute but are only relative to final evaluation of the couple as a single reproductive unit. Values also differ according to source used as a reference. These values are based on WHO (1992).

- Verbalize understanding of treatment for any abnormalities identified through various tests and examinations (e.g., infections, blocked uterine tubes, sperm allergy, varicocele) and be able to make an informed decision about treatment.
- Verbalize understanding of their potential to conceive.
- Resolve guilt feelings and not need to focus blame.
- Conceive or, failing to conceive, decide on an alternative acceptable to both of them (e.g., child-free living, adoption).

**Plan of Care and Interventions**

**Psychosocial.** Within the United States, feelings connected to impaired fertility are numerous and complex. The origins of some of these feelings are myths, superstitions, and misinformation about the causes of infertility. Other feelings arise from the need to undergo many tests and examinations and from being different from others.

Infertility is a major life stressor that can affect self-esteem; relations with the spouse, family, and friends; and careers. Couples often need assistance in separating their concepts of success and failure related to treatment for infertility from personal success and failure. Recognizing the significance of infertility as a loss and resolving these feelings is crucial to putting infertility into perspective, even if treatment is successful (Nelson & Marshall, 2004).

Psychologic responses to a diagnosis of infertility may tax a couple’s giving and receiving of physical and sexual closeness. The prescriptions and proscriptions for achieving conception may add tension to a couple’s sexual functioning. Couples may report decreased desire for intercourse, orgasmic dysfunction, or midcycle erectile disorders.

To be able to deal comfortably with a couple’s sexuality, nurses must be comfortable with their own sexuality so that they can better help couples understand why the private act of lovemaking must be shared with health care profession-
Herbal alternative measures. Most herbal remedies have not been proven clinically to promote fertility or to be safe in early pregnancy and should be taken by the woman only as prescribed by a physician or nurse-midwife who has expertise in herbology. Relaxation, osteopathy, stress management (e.g., aromatherapy, yoga), and nutritional and exercise counseling have been reported to increase pregnancy rates in some women (Tiran & Mack, 2000). Herbal remedies that promote fertility in general include red clover flowers, nettle leaves, dong quai, St. John’s wort, chastenberry, and false unicorn root (Weed, 1986). Vitamin E, calcium, and magnesium may promote fertility and conception (Tiran & Mack, 2000).

Herbs to avoid while trying to conceive include licorice root, yarrow, wormwood, ephedra, fennel, goldenseal, lavender, juniper, flaxseed, pennyroyal, passionflower, wild cherry, cascara, sage, thyme, and periwinkle (Kennedy, Grif- fin, & Frishman, 1998; Sampey, Bourque, & Wren, 2004).

Medical. Pharmacologic therapy for female infertility is often directed at treating ovulatory dysfunction either by stimulating ovulation or by enhancing ovulation so that more oocytes mature. The most common medications include clomiphene citrate, human menopausal gonadotropin (HMG), FSH, recombinant FSH, and human chorionic gonadotropin. GnRH agonists, progesterone, and bromocriptine are also used (Leibowitz & Hoffman, 2000; Nelson & Marshall, 2004). Table 6-4 describes common medications used for treating infertility. Thyroid-stimulating hormone is indicated if the woman has hypothyroidism. Combined oral contraceptives, GnRH agonists, or danazol may be used to treat endometriosis; progesterone may be used to treat luteal phase defects (Nelson & Marshall, 2004).

Drug therapy may be indicated for male infertility. Problems with the thyroid or adrenal glands are corrected with appropriate medications. Infections are identified and treated.

### Table 6-4

**Medications Used in the Treatment of Infertility**

<table>
<thead>
<tr>
<th>DRUG</th>
<th>INDICATION</th>
<th>MECHANISM OF ACTION</th>
<th>DOSE</th>
<th>SELECTED SIDE EFFECTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clomiphene citrate</td>
<td>Ovulation induction, treatment of luteal-phase inadequacy</td>
<td>Thought to bind to estrogen receptors in the pituitary, blocking them from detecting estrogen</td>
<td>Tablets, starting with 50 mg/day for 5 days beginning on fifth day of menses; if ovulation does not occur, may increase dose next cycle-variable dosage</td>
<td>Vasomotor flushes, abdominal discomfort, nausea and vomiting, breast tenderness, ovarian enlargement</td>
</tr>
<tr>
<td>Menotropins (human menopausal gonadotropins)</td>
<td>Ovarian follicular growth and maturation</td>
<td>LH and FSH in 1:1 ratio, direct stimulation of ovarian follicle; given sequentially with hCG to induce ovulation</td>
<td>Intramuscular injections, dosage regimen variable based on ovarian response</td>
<td>Ovarian enlargement, ovarian hyperstimulation, local irritation at injection site, multifetal gestations</td>
</tr>
<tr>
<td>Follitropins (purified FSH)</td>
<td>Treatment of polycystic ovarian disease; follicle stimulation for assisted reproductive techniques</td>
<td>Direct action on ovarian follicle</td>
<td>Subcutaneous or intramuscular injections, dosage regimen variable</td>
<td>Ovarian enlargement, ovarian hyperstimulation, local irritation at injection site, multifetal gestations</td>
</tr>
<tr>
<td>Human chorionic gonadotropin (hCG)</td>
<td>Ovulation induction</td>
<td>Direct action on ovarian follicle to stimulate meiosis and rupture of the follicle</td>
<td>5000-10,000 international units intramuscularly 1 day after last dose of menotropins; dosage regimen variable</td>
<td>Local irritation at injection site; headaches, irritability, edema, depression, fatigue</td>
</tr>
</tbody>
</table>
promptly with antimicrobials. FSH, HMG, and clomiphene may be used to stimulate spermatogenesis in males with hypogonadism (Leibowitz & Hoffman, 2000).

The primary care provider is responsible for informing patients fully about the prescribed medications. However, the nurse must be ready to answer patients’ questions and to confirm their understanding of the drug, its administration, potential side effects, and expected outcomes. Because information varies with each drug, the nurse needs to consult the medication package inserts, pharmacology references, physician, and pharmacist as necessary.

**Surgical.** A number of surgical procedures can be used to treat problems causing female infertility. Ovarian tumors must be excised. When possible, functional ovarian tissue is left intact. Scar tissue adhesions caused by chronic infections may cover much or all of the ovary. These adhesions usually necessitate surgery to free and expose the ovary so that ovulation can occur.

Hysterosalpingography is useful for identification of tubal obstruction and also for the release of blockage (see Fig. 6-12). During laparoscopy, delicate adhesions may be divided and removed and endometrial implants may be destroyed by electrocoagulation or laser (see Fig. 6-13). Laparotomy and even microsurgery may be required to do extensive repair of the damaged tube. Prognosis depends on the degree to which tubal patency and function can be restored.

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**TABLE 6-4**

Medications Used in the Treatment of Infertility—cont’d

<table>
<thead>
<tr>
<th>DRUG</th>
<th>INDICATION</th>
<th>MECHANISM OF ACTION</th>
<th>DOSE</th>
<th>SELECTED SIDE EFFECTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Androgens (danazol)</td>
<td>Treatment of endometriosis</td>
<td>Combination of estrogen and androgen suppresses ovarian activity, eliminating stimulation to endometrial glands and stroma, with resultant shrinkage and disappearance</td>
<td>200-800 mg/day for 3 to 6 mo</td>
<td>Mild hirsutism, acne, edema and weight gain, increase of liver enzyme levels</td>
</tr>
<tr>
<td>GnRH agonists</td>
<td>Treatment of endometriosis, uterine fibroids</td>
<td>Desensitization and downward regulation of GnRH receptors of pituitary, resulting in suppression of LH, FSH, and ovarian function</td>
<td>Nafarelin, 200 mcg (1 spray) intra-nasally twice daily for 6 mo; leuprolide acetate-depot 3.75 mg IM every 28 days for 6 mo</td>
<td>Nafarelin irritation, nosebleeds; both Nafarelin and leuprolide–hot flashes, vaginal dryness, myalgia and arthralgia, headaches, mild bone loss (usually reversible within 12-18 mo after treatment)</td>
</tr>
<tr>
<td>Progesterone (progesterone in oil, Progestoral)</td>
<td>Treatment of luteal-phase inadequacy</td>
<td>Direct stimulation of endometrium</td>
<td>Vaginal suppositories, 25-50 mg twice daily or 50 mg every night; rectal suppositories, 12.25 mg every 12 hr; progesterone capsules, 100 mg by mouth three times daily</td>
<td>Breast tenderness, local irritation, headaches</td>
</tr>
<tr>
<td>GnRH antagonists</td>
<td>Controlled ovarian stimulation for infertility treatment</td>
<td>Suppresses gonadotropin secretion; inhibits premature LH surges in women undergoing ovarian hyperstimulation</td>
<td>250 mcg daily subcutaneously usually in the early to midfollicular phase of the menstrual cycle; usually followed by hCG administration</td>
<td>Abdominal pain, headache, vaginal bleeding, irritation at the injection site</td>
</tr>
</tbody>
</table>

Surgical removal of tumors or fibroids involving the endometrium or uterus often improves the woman’s chance of conceiving and maintaining the pregnancy to viability. Surgical treatment of uterine tumors or maldevelopment that results in successful pregnancy usually requires birth by cesarean surgery near term gestation to prevent uterine rupture as a result of weakness of the area of surgical healing. Surgical procedures may also be used for problems causing male infertility. Surgical repair of varicocele has been relatively successful in increasing sperm counts but not fertility rates.

Reproductive alternatives

Assisted reproductive therapies. There have been remarkable developments in reproductive medicine. Assisted reproductive therapies (ARTs) have created ethical and legal issues (Box 6-8). The lack of information or misleading information about success rates and the risks and benefits of treatment alternatives prevents couples from making informed decisions. Nurses can provide information so that couples have an accurate understanding of their chances for a successful pregnancy and live birth. Some of the ARTs for treatment of infertility include in vitro fertilization procedures including in vitro fertilization-embryo transfer (IVF-ET), gamete intrafallopian transfer (GIFT) (Fig. 6-15), zygote intrafallopian transfer (ZIFT), ovum transfer (oocyte donation), embryo adoption, embryo hosting, surrogate mothering, therapeutic donor insemination (TDI), intracytoplasmic sperm injection, and assisted hatching. Table 6-5 describes these procedures and the possible indications for the ARTs.

Cryopreservation of Human Embryos

Couples who have excess embryos frozen for later use must be fully informed before consenting to the procedure, to make decisions regarding the disposal of embryos in the event of (1) death, (2) divorce, or (3) the decision that the couple no longer wants the embryos at a later time.

Legal Tip

Complications. Other than the established risks associated with laparoscopy and general anesthesia, few risks are associated with IVF-ET, GIFT, and ZIFT. The more common transvaginal needle aspiration requires only local or intravenous analgesia. Congenital anomalies occur no more frequently than among naturally conceived embryos. Multiple gestations are more likely and are associated with increased risks for both the mother and infants. Ectopic pregnancies occur more often as well, and these carry a significant maternal risk. There is no increase in maternal or perinatal complications with TDI; the same frequencies of anomalies (approximately 5%) and obstetric complications (between 5% and 10%) that accompany natural insemination (through sexual intercourse) apply also to TDI.

Preimplantation Genetic Diagnosis. Preimplantation genetic diagnosis (PGD) is a form of early genetic testing designed to eliminate embryos with serious genetic defects before implantation through one of the ARTs and to prevent later termination of the pregnancy for genetic reasons. There are over 20 centers worldwide where PGD
## TABLE 6-5

### Assisted Reproductive Therapies

<table>
<thead>
<tr>
<th>PROCEDURE</th>
<th>DEFINITION</th>
<th>INDICATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>In vitro fertilization–embryo transfer (IVF-ET)</td>
<td>A woman’s eggs are collected from her ovaries, fertilized in the laboratory with sperm, and transferred to her uterus after normal embryo development has occurred.</td>
<td>Tubal disease or blockage; severe male infertility; endometriosis; unexplained infertility; cervical factor; immunologic infertility</td>
</tr>
<tr>
<td>Gamete intrafallopian transfer (GIFT)</td>
<td>Oocytes are retrieved from the ovary, placed in a catheter with washed motile sperm, and immediately transferred into the fimbriated end of the uterine tube. Fertilization occurs in the uterine tube.</td>
<td>Same as for IVF-ET, except there must be normal tubal anatomy, patency, and absence of previous tubal disease in at least one uterine tube</td>
</tr>
<tr>
<td>IVF-ET and GIFT with donor sperm</td>
<td>This process is the same as described above except in cases where the male partner's fertility is severely compromised and donor sperm can be used; if donor sperm are used, the woman must have indications for IVF and GIFT.</td>
<td>Severe male infertility; azoospermia; indications for IVF-ET or GIFT.</td>
</tr>
<tr>
<td>Zygote intrafallopian transfer (ZIFT)</td>
<td>This process is similar to IVF-ET; after in vitro fertilization the ova are placed in one uterine tube during the zygote stage.</td>
<td>Same as for GIFT.</td>
</tr>
<tr>
<td>Donor oocyte</td>
<td>Eggs are donated by an IVF procedure, and the donated eggs are inseminated. The embryos are transferred into the recipient's uterus, which is hormonally prepared with estrogen/progesterone therapy.</td>
<td>Early menopause; surgical removal of ovaries; congenitally absent ovaries; autosomal or sex-linked disorders; lack of fertilization in repeated IVF attempts because of subtle oocyte abnormalities or defects in oocyte-spermatozoa interaction</td>
</tr>
<tr>
<td>Donor embryo (embryo adoption)</td>
<td>A donated embryo is transferred to the uterus of an infertile woman at the appropriate time (normal or induced) of the menstrual cycle.</td>
<td>Infertility not resolved by less aggressive forms of therapy; absence of ovaries; male partner is azoospermic or is severely compromised</td>
</tr>
<tr>
<td>Gestational carrier (embryo host; surrogate mother)</td>
<td>A couple undertakes an IVF cycle, and the embryo(s) is transferred to the uterus of another woman (the carrier) who has contracted with the couple to carry the baby to term. The carrier has no genetic investment in the child. Surrogate motherhood is a process by which a woman is inseminated with semen from the infertile woman's partner and then carries the baby until birth.</td>
<td>Congenital absence or surgical removal of uterus; a reproductively impaired uterus, myomas, uterine adhesions, or other congenital abnormalities; a medical condition that might be life-threatening during pregnancy, such as diabetes, immunologic problems, or severe heart, kidney, or liver disease</td>
</tr>
<tr>
<td>Therapeutic donor insemination (TDI)</td>
<td>Donor sperm are used to inseminate the female partner.</td>
<td>Male partner is azoospermic or has a very low sperm count; couple has a genetic defect; male partner has antisperm antibodies</td>
</tr>
<tr>
<td>Intracytoplasmic sperm injection</td>
<td>Selection of one sperm cell that is injected directly into the egg to achieve fertilization. Used with IVF.</td>
<td>Same as TDI.</td>
</tr>
<tr>
<td>Assisted hatching</td>
<td>The zona pellucida is penetrated chemically or manually to create an opening for the dividing embryo to hatch and implant into uterine wall.</td>
<td>Recurrent miscarriages; to improve implantation rate in women with previously unsuccessful IVF attempts; advanced age</td>
</tr>
</tbody>
</table>

is being used clinically. Couples must be counseled about their options and choices, as well as the implications of their choices, when genetic analysis is considered (Jones, 2000).

Adoption. Couples may choose to build their family by adopting children who are not their own biologically. However, with increased availability of birth control and abortion and increasing numbers of single mothers keeping their babies, the adoption of Caucasian infants is extremely limited. Minority infants, infants with special needs, older children, and foreign adoptions are other options.

Couples who decide to adopt a child have decided that being a parent and having a child is more important than the actual process of birthing the child. The birth process is a small aspect of having a baby and becoming a parent. So much emphasis is placed on being pregnant and having a child composed of one’s own genetic makeup that the focus of the reason to have a child becomes cloudy. The question to be answered by couples who are considering adoption is, “What is important to you—that you become parents or that you go through the experience of pregnancy and birth?” Nurses should have information on options for adoption available for couples or refer them to community resources for further assistance (ASRM, 2003; Salzer, 2000) (see Resources at end of chapter).

Evaluation
Evaluation of the effectiveness of care of the couple experiencing impaired fertility is based on the previously stated outcomes (see Plan of Care).
Key Points

- A variety of contraceptive methods is available with various effectiveness rates, advantages, and disadvantages.
- Nurses need to help couples choose the contraceptive method or methods best suited to them.
- Effective contraceptives are available through both prescription and nonprescription sources.
- A variety of techniques are available to enhance the effectiveness of periodic abstinence in motivated couples who prefer this natural method.
- Hormonal contraception includes both pre-coital and postcoital prevention through various modalities and requires thorough patient education.
- Emergency contraceptive methods should be initiated as soon as possible after unprotected intercourse, but no later than 120 hours.
- The barrier methods of diaphragm and cervical cap provide safe and effective contraception for women or couples motivated to use them consistently and correctly.
- Proper use of latex condoms provides protection against STIs.
- Tubal ligations and vasectomies are permanent sterilization methods that have become two of the most widely used methods of contraception.
- Elective abortion performed in the first trimester is safer than an abortion performed in the second trimester.
- The most common complications of elective abortion include infection, retained products of conception, and excessive vaginal bleeding.
- Major psychologic sequelae of elective abortion are rare.
- Infertility is the inability to conceive and carry a child to term gestation at a time the couple has chosen to do so.
- Infertility affects between 10% and 15% of otherwise healthy adults. Infertility increases in women older than 40 years.
- In the United States, 80% of infertility has an identified cause related to factors involving the man and the woman and 20% of infertility is related to unexplained causes.
- Common etiologic factors of infertility include decreased sperm production, ovulation disorders, tubal occlusion, and endometriosis.
- Reproductive alternatives for family building include IVF-ET, GIFT, ZIFT, oocyte donation, embryo donation, TDI, surrogate motherhood, and adoption.

Answer Guidelines to Critical Thinking Exercises

Contraception

1. Yes, there is sufficient evidence for the nurse to discuss methods of birth control that are effective but also not directly related to sexual activity.

2. a. A method that does not fit the woman’s personal lifestyle is likely not to be used correctly or consistently. Personal considerations for a 25-year-old woman with three children may reflect the desire to prevent further pregnancies or to space her pregnancies. Questions the woman may ask herself when deciding on a method include (Trussell, 2004): Have I had problems with this method before? Does this method affect my menstrual periods? Could this method cause me serious complications? Will I have trouble remembering how to use this method? Will I have trouble remembering to use this method?

b. Efficacy or contraceptive effectiveness is the most frequently asked question about methods of birth control. Pregnancy rates for typical use (actual use including inconsistent and incorrect use) and perfect use (consistently following directions for use) are often used to describe efficacy. Factors that influence efficacy include inherent efficacy (methods such as sterilization and injectable hormones allow little room for user error) and characteristics of the user (age, frequency of intercourse, imperfect use, menstrual cycle regularity).

c. Arleta should be fully informed about the contraceptive method she chooses. Informed consent includes information about risks and benefits, information about alternatives, an opportunity to ask questions, an opportunity to make her decision or to change her mind, and information about how to use the method.

3. The nursing priority at this time is to provide information about the methods that are effective but low maintenance, such as an IUD or Depo-Provera injections.

4. Yes, there is evidence that both of these methods provide effective contraception with low failure rates. The failure rate for typical use for the IUD is less than 1%, whereas the rate for the Depo-Provera injections is 3%.

5. Arleta may decide that she would like to try oral contraception again, or she may decide that she would like a sterilization procedure. Both would provide protection (typical failure rate for OCPs is 8% and for sterilization is less than 1%), and neither would be a method that has to be used at time of sexual activity.

Abortion

1. Yes, at this stage of pregnancy vacuum aspiration is the most common procedure done. Although medical abortion can be done in the first trimester, its use is usually up to 49 days after the first day of the last menstrual period. Second-trimester abortions are associated with more complications.

2. a. The procedure is performed using local anesthesia in the clinic office. Meghan’s cervix will be dilated and the products of conception will be evacuated from the uterus. Meghan may feel cramping during the procedure. She will likely have vaginal bleeding and mild cramping afterward. Excessive bleeding and infections are the most common complications. Menses should return within 4 to 6 weeks.

b. Meghan may experience some fear or anxiety during the procedure. Various feelings may be experienced after the abortion and include depression, guilt, regret, and relief.
Information about postabortion counseling may be needed. Support by the nurse and friends and family if possible will help Meghan cope with any of these reactions. The abortion is unlikely to affect future childbearing; however, Meghan needs counseling about contraception. If she had unprotected intercourse because she did not like the method she was using, she may need to make another choice. She may need some counseling on how to say no or how to recognize situations that could lead to risky behaviors.

Nursing priorities at this time are to ensure that Meghan knows the options available and then to support her in her decision. Patient teaching about the procedure, self-care after the procedure, and contraception are needed.

Infertility

1. No. Since a cause of infertility has not been determined, the type of procedure that can be used cannot be identified. The prognosis is determined by the cause and by the therapy.

2. a. Infertility increases with the age of the woman, especially in those over age 40. Fertility naturally decreases with age, and the woman may develop problems that affect fertility such as endometriosis and ovulatory dysfunction.

   b. Feelings about infertility are numerous and complex. Infertility can affect the man or woman’s self-esteem, their careers, and their relationships with each other, family members, and friends. Frustration, isolation, depression, and stress are common reactions. Infertility is seen as a loss, and couples must work through their grief to some resolution, whether it is choosing to try reproductive therapies or to deal with not having a child.

Resources

American College of Obstetricians and Gynecologists (ACOG)
409 12th St., SW
Washington, DC 20024
800-762-2264
www.acog.com

American Society for Reproductive Medicine (ASRM)
1209 Montgomery Hwy.
Birmingham, AL 35236
205-978-5000
www.asrm.com

Association of Reproductive Health Professionals
2401 Pennsylvania Ave., NW, Suite 350
Washington, DC 20037
202-466-3825
www.arhp.org

Contraception Online
www.contraceptiononline.org

Emergency Contraception Hotline
P.O. Box 33344
Washington, DC 20033
888-668-2528
www.not-2-late.com

Endometriosis Association
8585 N. 76th Place
Milwaukee, WI 53223
414-355-2200
800-992-3636
www.endometriosisassn.org

Georgia Reproductive Services
5445 Meridian Mark Dr., Suite 270
Atlanta, GA 30342
404-843-2229
www.ivf.com

International Council on Infertility Information Dissemination
703-379-9178
www.inciid.org

Internet Health Resources–Infertility Resources for Consumers
www.ihr.com/infertility/

National Abortion Federation
1755 Massachusetts Ave., NW, Suite 600
Washington, DC 20036
800-772-9100 Consumer Hotline
www.prochoice.org

National Clearinghouse for Family Planning Information
P.O. Box 10716
Rockville, MD 20850
703-558-4990

National Women’s Health Resource Center
120 Albany St., Suite 820
New Brunswick, NJ 08901
877-986-9472
www.healthywomen.org
References


