chapter 4

Common Reproductive Issues

KeyTERMS

abortion
abstinence
amenorrhea
basal body temperature (BBT)
cervical cap
cervical mucus ovulation method
coitus interruptus
condoms
contraception
contraceptive sponge
Depo-Provera
diaphragm
dysmenorrhea
dysfunctional uterine bleeding (DUB)
emergency contraception (EC)
endometriosis
fertility awareness
infertility
lactational amenorrhea method (LAM)
Lunelle injection
menopause
Norplant
oral contraceptives
premenstrual syndrome (PMS)
Standard Days Method (SDM)
sterilization
symptothermal method
transdermal patch
tubal ligation
vaginal ring
vasectomy

LearningOBJECTIVES

After studying the chapter content, the student should be able to accomplish the following:

1. Define the key terms.
2. Describe common reproductive concerns in terms of symptoms, diagnostic tests, and appropriate interventions.
3. Identify risk factors and outline appropriate client education needed in common reproductive disorders.
4. Compare and contrast the various contraceptive methods available and their overall effectiveness.
5. Discuss the physiologic and psychological aspects of menopause.
6. Delineate the nursing management needed for women experiencing common reproductive disorders.

WOW

When women bear their souls to us, we must respond without judgment.

Good health throughout the life cycle begins with the individual. Women today can expect to live well into their 80s and need to be proactive in maintaining their own quality of life. Women need to take steps to reduce their risk of disease and need to become active partners with their healthcare professional to identify problems early, when treatment may be most successful (Teaching Guidelines 4-1). Nurses can assist women to maintain their quality of life by helping them to become more attuned to their body and its clues and can use the assessment period as an opportunity for teaching and counseling.

Common reproductive issues addressed in this chapter that nurses might encounter in caring for women include menstrual disorders, infertility, contraception, abortion, and menopause.

Menstrual Disorders

Many women sail through their monthly menstrual cycles with little or no concern. With few symptoms to worry about, their menses are like clockwork, starting and stopping at nearly the same time every month. For others, the menstrual cycle causes physical and emotional symptoms that initiate visits to their healthcare provider for consultation. The following menstruation-related conditions will be discussed in this chapter: amenorrhea, dysmenorrhea, dysfunctional uterine bleeding (DUB), premenstrual syndrome (PMS), premenstrual dysphoric disorder (PMDD), and endometriosis.

TEACHING GUIDELINES 4-1

Tips for Being an Active Partner in Managing Your Health

- Become an informed consumer. Read, ask, and search.
- Know your family history and know factors that put you at high risk.
- Maintain a healthy lifestyle and let moderation be your guide.
- Schedule regular medical checkups and screenings for early detection.
- Ask your healthcare professional for a full explanation of any treatment.
- Seek a second medical opinion if you feel you need more information.
- Know when to seek medical care by being aware of disease symptoms.

To gain an understanding of menstrual disorders, it is important to know the terms used in describing them (Box 4-1).

Amenorrhea

Amenorrhea is the absence of menses during the reproductive years. Amenorrhea is a normal feature in prepubertal, pregnant, and postmenopausal females. The two categories of amenorrhea are *primary* and *secondary* amenorrhea. Primary amenorrhea is defined as either (1) absence of menses by age 14, with absence of growth and development of secondary sexual characteristics, or (2) absence of menses by age 16, with normal development of secondary sexual characteristics (Bielak, 2002). Ninety-eight percent of American girls menstruate by age 16 (Minjarez & Carr, 2002). Secondary amenorrhea is the absence of menses for three cycles or 6 months in women who have previously menstruated regularly.

Etiology

There are multiple causes of primary amenorrhea:

- Extreme weight gain or loss
- Congenital abnormalities of the reproductive system
- Stress from a major life event
- Excessive exercise
- Eating disorders (anorexia nervosa or bulimia)
- Cushing's disease
- Polycystic ovarian syndrome
- Hypothyroidism
- Turner syndrome
- Imperforate hymen
- Chronic illness
- Pregnancy
- Cystic fibrosis
- Congenital heart disease (cyanotic)
- Ovarian or adrenal tumors (Thompson, 2004)

BOX 4-1

MENSTRUAL DISORDER VOCABULARY

- Meno = menstrual-related
- Metro = time
- Oligo = few
- A = without, none or lack of
- Rhagia = excess or abnormal
- Dys = not or pain
- Rhea = flow

Causes of secondary amenorrhea might include:

- Pregnancy
- Breastfeeding
- Emotional stress
- Pituitary, ovarian, or adrenal tumors
- Depression
- Hyperthyroid or hypothyroid
- Malnutrition
- Hyperprolactinemia
- Rapid weight gain or loss
- Chemotherapy or radiation therapy to the pelvic area
- Vigorous exercise, such as long-distance running
- Kidney failure
- Colitis
- Use of tranquilizers or antidepressants
- Postpartum pituitary necrosis (Sheehan syndrome)
- Early menopause (Nelson & Bakalov, 2004)

Assessment

A thorough history and physical examination is needed to determine the etiology. The history should include questions about the women's menstrual history; past illnesses; hospitalizations and surgeries; obstetric history; use of prescription and over-the-counter drugs; recent or past lifestyle changes; and history of present illness, with an assessment of any bodily changes.

The physical examination should begin with an overall assessment of the woman's nutritional status and general health. Height and weight should be taken, along with vital signs. Hypothermia, bradycardia, hypotension, and reduced subcutaneous fat may be observed in women with anorexia nervosa. Facial hair and acne might be evidence of androgen excess secondary to a tumor. The presence or absence of axillary and pubic hair may indicate adrenal and ovarian hyposecretion or delayed puberty. A general physical examination may uncover unexpected findings that are indirectly related to amenorrhea. For example, hepatosplenomegaly, which may suggest a chronic systemic disease or an enlarged thyroid gland, might point to a thyroid disorder as well as a reason for amenorrhea (Nelson & Bakalov, 2004).

Common laboratory tests that might be ordered to determine the cause of amenorrhea include:

- Karyotype (might be positive for Turner syndrome)
- Ultrasound to detect ovarian cysts
- Pregnancy test to rule out pregnancy
- Thyroid function studies to determine thyroid disorder
- Prolactin level (an elevated level might indicate a pituitary tumor)
- Follicle-stimulating hormone (FSH) level (an elevated level might indicate ovarian failure)
- Luteinizing hormone (LH) level (an elevated level might indicate gonadal dysfunction)
- 17-ketosteroids (an elevated level might indicate an adrenal tumor)
- Laparoscopy to detect polycystic ovary syndrome
- CT scan of head if a pituitary tumor is suspected (Cavanaugh, 2003)

Treatment

Therapeutic intervention depends on the cause of the amenorrhea. The treatment of primary amenorrhea involves the correction of any underlying disorders and estrogen replacement therapy to stimulate the development of secondary sexual characteristics. If a pituitary tumor is the cause, it might be treated with drug therapy, surgical resection, or radiation therapy. Surgery might be needed to correct any structural abnormalities of the genital tract. Therapeutic interventions for secondary amenorrhea may include:

- Cyclic progesterone, when the cause is anovulation, or oral contraceptives
- Bromocriptine to treat hyperprolactinemia
- Gonadotropin-releasing hormone (GnRH), when the cause is hypothalamic failure
- Thyroid hormone replacement, when the cause is hypothyroidism (Littleton & Engebretson, 2002)

Nursing Management

Counseling and education are primary interventions and appropriate nursing roles. The nurse should address the diverse causes of amenorrhea, the relationship to sexual identity, possible infertility, and the possibility of a tumor or a life-threatening disease. In addition, the nurse should inform the woman about the purpose of each diagnostic test, how it is performed, and when the results will be available to discuss with her. Sensitive listening, interviewing, and presenting treatment options are paramount to gain the woman's cooperation and understanding.

Nutritional counseling is also vital in managing this disorder, especially if the woman has findings suggestive of an eating disorder. Although not all causes can be addressed by making lifestyle changes, the nurse can still emphasize maintaining a healthy lifestyle (Teaching Guidelines 4-2).

Dysmenorrhea

Dysmenorrhea refers to painful menstruation. The term is derived from the Greek words dys, meaning difficult/painful/abnormal, and rrhea, meaning flow. It may affect more than half of menstruating women (Alzubaidi & Calis, 2004). Uterine contractions occur during all periods, but in some women these cramps can be frequent and very intense. Dysmenorrhea is categorized as primary or secondary.

Etiology

Primary dysmenorrhea is caused by increased prostaglandin production by the endometrium in an ovulatory cycle. This hormone causes contraction of the uterus, and levels tend

TEACHING GUIDELINES 4-2

Tips for Maintaining a Healthy Lifestyle

- Balance energy expenditure with energy intake.
- Modify diet to maintain ideal weight.
- Avoid excessive use of alcohol and mood-altering or sedative drugs.
- Avoid cigarette smoking.
- Identify areas of emotional stress and seek assistance to resolve them.
- Balance work, recreation, and rest.
- Maintain a positive outlook regarding the diagnosis and prognosis.
- Participate in ongoing care to monitor replacement therapy or associated conditions.
- Maintain bone density through:
  - Calcium intake (1,200–1,500 mg daily)
  - Weight-bearing exercise (30 minutes or more daily)
  - Hormone replacement therapy (Nelson & Bakalov, 2004)

to be higher in women with severe menstrual pain than women who experience mild or no menstrual pain. These levels are highest during the first 2 days of menses, when symptoms peak (Hart, 2005). This results in increased rhythmic uterine contractions from vasoconstriction of the small vessels of the uterine wall. This condition usually begins within a few years of the onset of ovulatory cycles at menarche.

Secondary dysmenorrhea is painful menstruation due to pelvic or uterine pathology. It may be caused by endometriosis, adenomyosis, fibroids, pelvic infection, an intrauterine device, cervical stenosis, or congenital uterine or vaginal abnormalities. Adenomyosis involves the ingrowth of the endometrium into the uterine musculature. Endometriosis involves ectopic implantation of endometrial tissue in other parts of the pelvis (Youngkin & Davis, 2004). It occurs most commonly in the third or fourth decades of life. Endometriosis is the most common cause of secondary dysmenorrhea and is associated with pain beyond menstruation, dyspareunia, and infertility (Speroff & Fritz, 2005). Treatment is directed toward removing the underlying pathology.

Clinical Manifestations

Affected women experience sharp, intermittent spasms of pain, usually in the suprapubic area. Pain may radiate to the back of the legs or the lower back. Systemic symptoms of nausea, vomiting, diarrhea, fatigue, fever, headache, or dizziness are fairly common. Pain usually develops within hours of the start of menstruation and peaks as the flow becomes heaviest during the first day or two of the cycle (Clark & Steele, 2004).

Assessment

As with any gynecologic complaint, a thorough focused history and physical examination is needed to make the diagnosis of primary or secondary dysmenorrhea. In primary dysmenorrhea, the history usually reveals the typical cramping pain with menstruation, and the physical examination is completely normal. In secondary dysmenorrhea, the history discloses cramping pain starting after 25 years old with a pelvic abnormality, a history of infertility, heavy menstrual flow, irregular cycles, and little response to nonsteroidal anti-inflammatory drugs (NSAIDs), oral contraceptives, or both (Alzubaidi & Calis, 2004).

During the initial interview, the nurse might ask some of the following questions to assess the woman's symptoms:

- "At what age did you start your menstrual cycles?"
- "Have your cycles always been painful, or did the pain start recently?"
- "When in your cycle do you experience the pain?"
- "How would you describe the pain you feel?"
- "Are you sexually active?"
- "What impact does your cycle have on your physical and social activity?"
- "When was the first day of your last menstrual cycle?"
- "Was the flow of your last menstrual cycle a normal amount for you?"
- "Do your cycles tend to be heavy or last longer than 5 days?"
- "Are your cycles generally regular and predictable?"
- "What have you done to relieve your discomfort? Is it effective?"
- "Has there been a progression of symptom severity?"
- "Do you have any other symptoms?"

A detailed sexual history is essential to assess for inflammation and scarring (adhesions) secondary to pelvic inflammatory disease (PID). Women with a previous history of PID, sexually transmitted infections (STIs), multiple sexual partners, or unprotected sex are at increased risk.

The physical examination performed by the healthcare provider centers on the bimanual pelvic examination. This examination is done during the nonmenstrual phase of the cycle. The nurse needs to offer an explanation to the woman about how it is to be performed, especially if is her first pelvic examination. The nurse should prepare the woman for it in the examining room by offering her a cover gown to put on and covering her lap with a privacy sheet on the examination table. The nurse will remain in the examining room throughout the examination to assist the healthcare provider with any procedures or specimens and offer the woman reassurance.

Common laboratory tests that may be ordered to determine the cause of dysmenorrhea might include:

- Complete blood count to rule out anemia
- Urinalysis to rule out a bladder infection
- Pregnancy test to rule out pregnancy

- Cervical culture to exclude STI
- Erythrocyte sedimentation rate to detect an inflammatory process
- Stool guaiac to exclude gastrointestinal bleeding or disorders
- Pelvic and/or vaginal ultrasound to detect pelvic masses or cysts
- Diagnostic laparoscopy and/or laparotomy to visualize pathology that may account for the symptoms

Treatment

Therapeutic intervention is directed toward pain relief and building coping strategies that will promote a productive lifestyle. Treatment measures usually include treating infections if present; suppressing the endometrium if endometriosis is suspected by administering low-dose oral contraceptives; administering prostaglandin inhibitors to reduce the pain; administering Depo-Provera; and initiating lifestyle changes. Table 4-1 lists selected treatment options for dysmenorrhea.

Nursing Management

Educating the client about the normal events of the menstrual cycle and the etiology of her pain is paramount in achieving a successful outcome. Explaining the normal menstrual cycle will teach the woman the correct terms so she can communicate her symptoms more accurately and will help dispel myths. Provide the woman with monthly graphs or charts to record menses, the onset of pain, the timing of medication, relief afforded, and coping strategies used. This involves the woman in her care and provides objective information so that therapy can be modified if necessary.

The nurse should explain in detail the dosing regimen and the side effects of the medication therapy selected. Commonly prescribed drugs include NSAIDs such as ibuprofen (Motrin), naproxen (Naprosyn), and Advil. They alleviate dysmenorrhea symptoms by decreasing intrauterine pressure and inhibiting prostaglandin synthesis, thus reducing pain (Skidmore-Roth, 2005). COX-2 inhibitors such as Vioxx or Bextra are also used, but they

Table 4-1 Treatment Options for Dysmenorrhea

Therapy Options	Dosage	Comments
Nonsteroidal Anti-inflammatory Agents (NSAIDs)		
Ibuprofen (Ibuprin, Advil, Motrin)	400–800 mg TID	Take with meals. Don't take with aspirin. Avoid alcohol. Watch for signs of GI bleeding.
Naproxen (Anaprox, Naprelan, Naprosyn, Aleve)	250–500 mg TID	Same as above
Cyclooxygenase-2 Inhibitors (COX-2)		
Valdecoxib (Bextra)	20 mg BID	More costly than NSAIDs, but decreased risk of GI bleeding
Rofecoxib (Vioxx)	50 mg QD	Same as above
Celecoxib (Celebrex)	200 mg BID	Same as above
Hormonal Contraceptives		
Low-dose oral contraceptives	Taken daily (42/7 days; 63/7 or 84/7)	Take active pills for an extended time to reduce number of monthly cycles (Policar, 2002).
Depo-medroxyprogesterone (DMPA), Depo-Provera	150 mg IM every 12 wks	Within 9–12 months of DMPA therapy, 75% of women will be amenorrheic (Homes & Laden, 2002).
Lifestyle Changes Daily exercise Limit salty foods Weight loss Smoking cessation Relaxation techniques		Gives sense of control over life

are more costly than NSAIDs. If pain relief is not achieved in two to four cycles, a low-dose combination oral contraceptive may be initiated. Client teaching and counseling should include information about how to take pills, side effects, and danger signs to watch for.

Additional information includes lifestyle changes that the woman can make to restore some sense of control and active participation in her care (Teaching Guidelines 4-3).

Dysfunctional Uterine Bleeding

Dysfunctional uterine bleeding (DUB) is a disorder that occurs most frequently in women at the beginning and end of their reproductive years. It is defined as irregular, abnormal bleeding that is not caused by pregnancy, a tumor, or an infection (Bradley, 2005). It is frequently associated with anovulatory cycles, which are common for the first year after menarche and later in life as women approach menopause.

The pathophysiology of DUB is related to a hormone disturbance. With anovulation, estrogen levels rise as usual in the early phase of the menstrual cycle. In the absence of ovulation, a corpus luteum never forms and progesterone is not produced. The endometrium moves into a hyperproliferative state, ultimately outgrowing its estrogen supply. This leads to irregular sloughing of the endometrium and excessive bleeding (Aeby & Frattarelli, 2002). If the bleeding is heavy enough and frequent enough, anemia can result.

DUB is similar to several other types of uterine bleeding disorders and sometimes overlaps these conditions. They include:

- Menorrhagia (abnormally long, heavy periods)
- Oligomenorrhea (bleeding occurs at intervals of more than 35 days)
- Metrorrhagia (bleeding between periods)
- Menometrorrhagia (bleeding occurs at irregular intervals with heavy flow lasting more than 7 days)
- Polymenorrhea (too frequent periods)

TEACHING GUIDELINES 4-3

Tips to Manage Dysmenorrhea

- Exercise increases endorphins and suppresses prostaglandin release.
- Limit salty foods to prevent fluid retention.
- Increase water consumption to serve as a natural diuretic.
- Increase fiber intake with fruits and vegetables to prevent constipation.
- Use heating pads or warm baths to increase comfort.
- Take warm showers to promote relaxation.
- Sip on warm beverages, such as decaffeinated green tea.
- Keep legs elevated while lying down or lie on side with knees bent.
- Use stress management techniques to reduce emotional stress.
- Practice relaxation techniques to enhance ability to cope with pain.
- Stop smoking and decrease alcohol use (Hart, 2004).

Etiology

The possible causes of DUB may include:

- Adenomyosis
- Pregnancy
- Hormonal imbalance
- Fibroid tumors (see Chapter 7)
- Endometrial polyps or cancer
- Endometriosis
- Intrauterine device (IUD)
- Polycystic ovary syndrome
- Morbid obesity
- Steroid therapy
- Hypothyroidism
- Blood dyscrasias/clotting disorder

Clinical Manifestations

The common symptoms associated with DUB include vaginal bleeding between periods, irregular menstrual cycles (usually less than 28 days between cycles), infertility, mood swings, hot flashes, vaginal tenderness, variable menstrual flow ranging from scanty to profuse, obesity, acne, and diabetes. Signs of polycystic ovary syndrome might be present, since it is associated with unopposed estrogen stimulation, elevated androgen levels, and insulin resistance and is a common cause of anovulation (Albers, Hull, & Wesley, 2004).

Assessment

A thorough history should be taken to differentiate between DUB and other conditions that might cause vaginal bleeding, such as pregnancy and pregnancy-related conditions (abruptio placentae, ectopic pregnancy, abortion, or placenta previa); systemic conditions such as Cushing's disease, blood dyscrasias, liver disease, renal disease, or thyroid disease; and genital tract pathology such as infections, tumors, or trauma (Queenan & Whitman, 2004). The healthcare provider, with the nurse assisting, performs a pelvic examination to identify any structural abnormalities.

Common laboratory tests that may be ordered to determine the cause of DUB include:

- Complete blood count, which is useful to reveal anemia
- Prothrombin time (PT) to detect blood dyscrasias
- Pregnancy test to rule out a spontaneous abortion or ectopic pregnancy
- Thyroid-stimulating hormone (TSH) level to screen for hypothyroidism
- Transvaginal ultrasound to measure endometrium
- Pelvic ultrasound to view any structural abnormalities
- Endometrial biopsy to check for intrauterine pathology
- Dilation and curettage (D&C) for diagnostic evaluation

Treatment

Treatment of DUB depends on the cause of the bleeding and the age of the client. When known, the underlying cause of the disorder is treated. Otherwise, the goal of treatment is to relieve the symptoms so that uterine bleeding does not interfere with a woman's normal activities or cause anemia (Dodds & Sinert, 2005).

Management of DUB might include medical care with pharmacotherapy or insertion of an IUD. Oral contraceptives are used for cycle regulation as well as contraception. They help prevent the risks associated with prolonged unopposed estrogen stimulation of the endometrium. NSAIDs and the levonorgestrel-releasing IUD (Mirena) decrease menstrual blood loss significantly (Lethaby, Cooke, & Rees, 2003).

If the client does not respond to medical therapy, surgical intervention might include D&C, endometrial ablation, or hysterectomy. Endometrial ablation is an alternative to hysterectomy. A thermal balloon is used to ablate the tissue, and improvement is found in 90% of women (Speroff & Fritz, 2005).

The drug categories used in the treatment of DUB are:

- *Estrogens:* cause vasospasm of the uterine arteries to decrease bleeding
- *Progestins:* used to stabilize an estrogen-primed endometrium
- *Oral contraceptives:* regulate the cycle and suppress the endometrium
- *NSAIDs:* inhibit prostaglandins
- *Levonorgestrel-20 Intrauterine System:* suppresses endometrial growth
- *Iron salts:* replenish iron stores lost during heavy bleeding

Nursing Management

Educate the client about normal menstrual cycles and the possible reasons for her abnormal pattern. Inform the woman about treatment options. Instruct her about any prescribed medications and potential side effects. Do not simply encourage the woman to "live with it": complications such as infertility can result from lack of ovulation, severe anemia can occur secondary to prolonged or heavy menses, and endometrial cancer can occur associated with prolonged buildup of the endometrial lining without menstrual bleeding (Debernardo, 2004). Adequate follow-up and evaluation for women who do not respond to medical management is essential.

See Nursing Care Plan 4-1: Overview of a Woman With Dysfunctional Uterine Bleeding (DUB).

Premenstrual Syndrome

Premenstrual syndrome (PMS) describes a wide range of recurrent symptoms that occur during the last half of the menstrual cycle and resolve with the onset of menstruation (Braverman & Neinstein, 2002). A woman experiencing PMS may have a wide variety of seemingly unrelated symptoms; for that reason, it is difficult to define and more challenging to diagnose. PMS affects millions of women during their reproductive years: up to 85% of menstruating women report having one or more premenstrual symptoms, and up to 10% report disabling, incapacitating symptoms (Dickerson, Mazyck, & Hunter, 2003).

Etiology

The exact cause of PMS is not known. It is thought to be related to the interaction between hormonal events and neurotransmitter function, specifically serotonin. Not all women respond to serotonin reuptake inhibitors (SSRIs), however, which implies that other mechanisms may be involved (Braverman & Neinstein, 2002).

Clinical Manifestations

Although little consensus exists in the medical literature and among researchers about what constitutes PMS, the physical and psychological symptoms are very real. The extent to which the symptoms debilitate or incapacitate a woman is highly variable.

There are more than 200 symptoms assigned to PMS, but irritability, tension, and dysphoria are the most prominent and consistently described (Dickerson et al., 2003). Diagnostic criteria for PMS consists of having a least one of the following affective and somatic symptoms during the 5 days before menses in each of the three previous cycles:

- Affective symptoms: depression, angry outbursts, irritability, anxiety
- Somatic symptoms: breast tenderness, abdominal bloating, edema, headache
- Symptoms relieved from days 4 to 13 of the menstrual cycle (ACOG, 2000)

There are two different syndromes recognized: PMS and *premenstrual dysphoric disorder* (PMDD). As defined by the American Psychological Association, PMDD is a more severe variant of PMS. Experts equate the difference between PMS and PMDD to the difference between a mild tension headache and a migraine (Healthy Women, 2005). PMDD markedly interferes with work and school, or with social activities and relationships with others. In PMDD, the main symptoms are mood disorders such as depression, anxiety, tension, and persistent anger or irritability. Physical symptoms such as headache, joint and muscle pain, lack of energy, bloating, and breast tenderness are also present.

According to the American Psychiatric Association, a woman must have at least five of the typical symptoms to be diagnosed with PMDD (Lowdermilk & Perry, 2004). These must occur during the week before and a few days after the onset of menstruation and must include one or more of the first four symptoms:

1. Affective lability: sadness, tearfulness, irritability
2. Anxiety and tension
3. Persistent or marked anger or irritability

Nursing Care Plan 4-1

Overview of a Woman With Dysfunctional Uterine Bleeding (DUB)

Stacy, a 52-year-old obese woman, comes to her gynecologist with the complaint of heavy erratic bleeding. Her periods were fairly regular until about 4 months ago, and since that time they have been unpredictable, excessive, and prolonged. Stacy reports she is tired all the time, can't sleep, and feels "out of sorts" and anxious. She is fearful she has cancer.

Nursing Diagnosis: Fear related to current signs and symptoms possibly indicating a life-threatening condition

Outcome Identification and *evaluation*	Interventions with *rationales*
The client will acknowledge her fears as *evidenced by statements made that fear and anxiety have been lessened after explanation of diagnosis.*	Distinguish between anxiety and fear to *determine appropriate interventions.* Check complete blood count and assess for possible anemia secondary to excessive bleeding to *determine if fatigue is contributing to anxiety and fears. Fatigue occurs because the oxygen-carrying capacity of the blood is reduced.* Reassure client that symptoms can be managed *to help address her current concerns.* Provide client with factual information and explain what to expect *to assist client with identifying fears and help in her coping with her condition.* Provide symptom management *to reduce concerns associated with the cause of bleeding.* Teach client about early manifestations of fear and anxiety *to aid in prompt recognition and minimize escalation of anxiety.* Assess client's use of coping strategies in the past and reinforce use of effective ones *to help control anxiety and fear.* Instruct client in relaxation methods, such as deep-breathing exercises and imagery *to provide her with additional methods for controlling anxiety and fear.*

Nursing Diagnosis: Deficient knowledge related to perimenopause and its management

Client will demonstrate understanding of her symptoms *as evidenced by making health-promoting lifestyle choices, verbalizing appropriate health care practices, and adhering to measures to comply with therapy.*	Assess client's understanding of perimenopause and its treatment *to provide a baseline for teaching and developing a plan of care.*

(continued)

Overview of a Woman With Dysfunctional Uterine Bleeding (DUB) (continued)

Outcome Identification and *evaluation*	Interventions with *rationales*
	Review instructions about prescribed procedures and recommendations for self-care, frequently obtaining feedback from the client *to validate adequate understanding of information.* Outline link between anovulatory cycles and excessive buildup of uterine lining in perimenopausal women *to assist client in understanding the etiology of her bleeding.* Provide written material with pictures *to promote learning and help client visualize what is occurring to her body during perimenopause.* Inform client about the availability of community resources and make appropriate referrals as needed *to provide additional education and support.* Document details of teaching and learning *to allow for continuity of care and further education, if needed.*

4. Depressed mood, feelings of hopelessness
5. Difficulty concentrating
6. Sleep difficulties
7. Increased or decreased appetite
8. Increased or decreased sexual desire
9. Chronic fatigue
10. Headache
11. Constipation or diarrhea
12. Breast swelling and tenderness (Hendrick, 2005)

Assessment

To establish the diagnosis of PMS, the nurse interviewing the woman needs to elicit a description of cyclic symptoms occurring before the woman's menstrual period. The woman should chart her symptoms daily for two cycles. These data will help demonstrate symptoms clustering around the luteal phase of ovulation, with resolution after bleeding starts. Ask the woman to bring her list of symptoms to the next appointment. Symptoms can be categorized using the following:

- A: anxiety: difficulty sleeping, tenseness, mood swings, clumsiness
- C: craving: headache, cravings for sweets, salty foods, chocolate
- D: depression: feelings of low self-esteem, anger, easily upset
- H: hydration: weight gain, abdominal bloating, breast tenderness
- O: other: hot flashes or cold sweats, nausea, change in bowel habits, aches or pains, dysmenorrhea, acne breakout (Clark, 2004)

Treatment

Treatment of PMS is often frustrating for both patients and healthcare providers. Clinical outcomes can be expected to improve as a result of recent consensus on the diagnostic criteria for PMS and PMDD, data from clinical trials, and the availability of evidence-based clinical guidelines (Dickerson et al., 2003).

Therapeutic interventions for PMS and PMDD address the symptoms because the exact cause of this condition is still unknown. Treatments may include vitamin supplements, diet changes, exercise, lifestyle changes, and medications (Box 4-2).

The management of PMS or PMDD requires a multidimensional approach because these conditions are not likely to have a single cause, and they appear to affect multiple systems within a woman's body; therefore, they are not likely to be amenable to treatment with a single therapy. Because there are no diagnostic tests that can reliably determine the existence of PMS or PMDD, it is the woman herself who must decide that she needs help during this time of the month. The woman must embrace multiple therapies and become an active participant in her treatment plan to find the best level of symptom relief.

Nursing Management

Educate the client about the management of PMS or PMDD. Advise her that lifestyle changes often result in significant symptom improvement without pharmacotherapy. Explain the relationship between cyclic estrogen fluctuation and changes in serotonin levels and how the different management strategies help maintain serotonin

BOX 4-2

TREATMENT OPTIONS FOR PMS AND PMDD

- Lifestyle changes
  - Reduce stress.
  - Exercise three to five times each week.
  - Eat a balanced diet and increase water intake.
  - Decrease caffeine intake.
  - Stop smoking.
  - Limit intake of alcohol.
  - Attend a PMS/women's support group.
- Vitamin and mineral supplements
  - Multivitamin daily
  - Vitamin E, 400 units daily
  - Calcium, 1,200 mg daily
  - Magnesium, 200–400 mg daily
- Medications
  - NSAIDs taken a week prior to menses
  - Oral contraceptives (low dose)
  - Antidepressants (SSRIs)
  - Anxiolytics (taken during luteal phase)
  - Diuretics to remove excess fluid

levels, thus improving symptoms. It is important to rule out other conditions that might cause erratic or dysphoric behavior. If the initial treatment regimen does not work, the woman should return for further testing. Behavioral counseling and stress management might help women regain control during these stressful periods. Reassuring the woman that support and help are available through many community resources/support groups can be instrumental in her acceptance of this monthly disorder. Nurses can be a very calming force for many women experiencing PMS or PMDD.

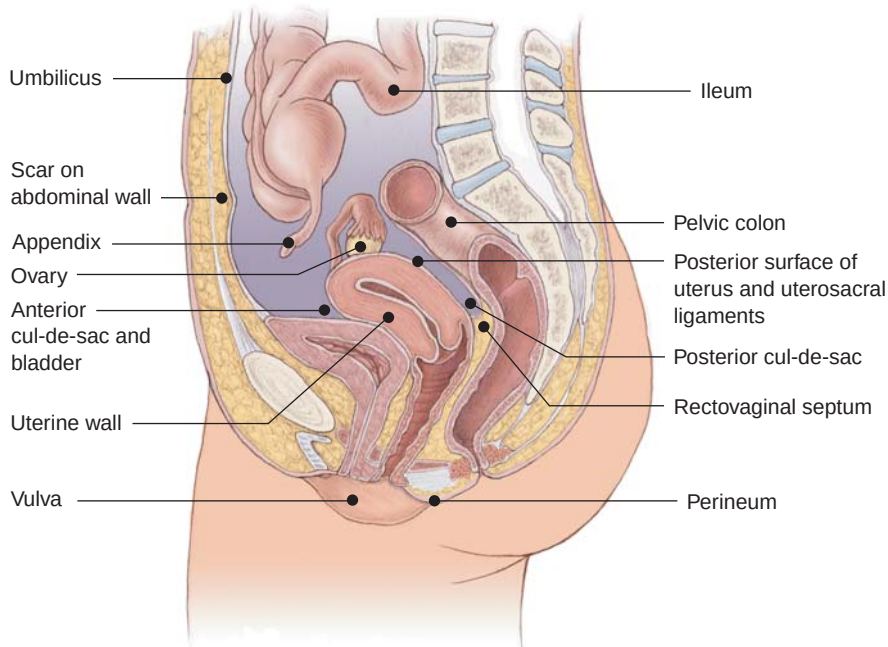
Endometriosis

Endometriosis is one of the most common gynecologic diseases, affecting more than 5.5 million women in the United States. In this condition, bits of functioning endometrial tissue are located outside of their normal site, the uterine cavity. This endometrial tissue is commonly found attached to the ovaries, fallopian tubes, the outer surface of the uterus, the bowels, the area between the vagina and the rectum (rectovaginal septum), and the pelvic side wall (Fig. 4-1). The places where the tissue attaches are called implants, or lesions. Endometrial tissue found outside the uterus responds to hormones released during the menstrual cycle in the same way as endometrial lining within the uterus.

At the beginning of the menstrual cycle, when the lining of the uterus is shed and menstrual bleeding begins, these abnormally located implants swell and bleed also. In short, the woman with endometriosis experiences several "mini-periods" throughout her abdomen, wherever this endometrial tissue exists.

Etiology and Risk Factors

It is not currently known why endometrial tissue becomes transplanted and grows in other parts of the body. Several theories exist, but to date none has scientifically proven the true etiology of this condition. However, several factors



● Figure 4-1 Common sites of endometriosis formation.

that increase a woman's risk of developing endometriosis have been identified:

- Increasing age
- Family history of endometriosis in a first-degree relative
- Short menstrual cycle (less than 28 days)
- Long menstrual flow (more than 1 week)
- Young age of menarche (younger than 12)
- Few (one or two) or no pregnancies (Speroff & Fritz, 2005)

Clinical Manifestations

Endometriosis is chronic and progressive. Symptoms include:

- Infertility (Kapoor & Davila, 2004)
- Pain before and during menstrual periods
- Pain during or after sexual intercourse
- Painful urination
- Depression
- Fatigue
- Painful bowel movements
- Chronic pelvic pain
- Hypermenorrhea (heavy menses)
- Pelvic adhesions
- Irregular and more frequent menses
- Premenstrual vaginal spotting

The two most common symptoms are infertility and pain. Endometriosis occurs in 38% of infertile women and in 71% to 87% of women with chronic pelvic pain (Youngkin & Davis, 2004). About 30% to 40% of women with this condition are infertile, making it one of the top three causes of female infertility (NICHD, 2002).

Assessment

Nurses encounter women with endometriosis in a variety of settings: community health settings, schools, clinics, day surgical centers, and hospitals. Healthcare professionals must not trivialize or dismiss the concerns of these women, because early recognition is essential to preserve fertility. Elicit a description of signs and symptoms and obtain a health history to determine risk factors.

The pelvic examination typically correlates with the extent of the endometriosis. The usual finding is nonspecific pelvic tenderness. The hallmark finding is the presence of tender nodular masses on the uterosacral ligaments, the posterior uterus, or the posterior cul-de-sac (Hsu, 2004).

After a thorough history and a pelvic examination, the health care practitioner may suspect endometriosis, but the only certain method of diagnosing it is by seeing it. This can be done through laparoscopy, the direct visualization of the internal organs with a lighted instrument inserted through an abdominal incision. A tissue biopsy of the suspected implant taken at the same time and examined microscopically can confirm the diagnosis.

Nurses can play a role in offering a thorough explanation of the condition and why tests are needed to diagnose endometriosis. The nurse can set up appointments for imaging studies, such as a pelvic or transvaginal ultrasound to assess pelvic organ structures, although a laparoscopy is needed for a definitive diagnosis.

Treatment

Therapeutic management of the client with endometriosis needs to take into consideration the following factors: severity of symptoms, desire for fertility, degree of disease, and the client's therapy goals. The aim of therapy is to suppress levels of estrogen and progesterone, which cause the endometrium to grow. Treatment can include surgery or medication (Table 4-2).

Nursing Management

In addition to the interventions outlined above, the nurse should encourage the client to adopt healthy lifestyle habits with respect to diet, exercise, sleep, and stress management. Referrals to support groups and Internet resources can help the woman to understand this condition and to cope with chronic pain. A number of organizations provide information about the diagnosis and treatment of endometriosis and offer support to women and their families (Box 4-3).

Infertility

Infertility is defined as the inability to conceive a child after 1 year of regular sexual intercourse unprotected by contraception, or to carry a pregnancy to term (DeMasters, 2004). *Secondary infertility* is the inability to conceive after a previous pregnancy. Many people take the ability to conceive and produce a child for granted, but infertility affects about 6.1 million Americans, or 10% of the reproductive-age population, according to the American Society for Reproductive Medicine (2002). Infertility is a widespread problem that has an emotional, social, and economic impact on couples. Nurses must recognize infertility and understand its causes and treatment options so that they can help couples understand the possibilities as well as the limitations of current therapies for infertility. The caring aspect of professional nursing is an essential component of meeting the special needs of these couples (Brucker & McKenry, 2004). Prevention of infertility through education should also be incorporated into any client–nurse interaction.

Etiology and Risk Factors

Multiple known and unknown factors affect fertility. Female-factor infertility is detected in about 40% of cases, male-factor infertility in about 40% of cases. The remaining 20% fall into a category of combined (both male and female factors) or unexplained infertility (Gray

Table 4-2 Treatment Options for Endometriosis

Therapy Options	Comment
Surgical Intervention	
Conservative surgery	Removal of implants/lesions using laser, cautery, or small surgical instruments. This intervention will reduce pain and allows pregnancy to occur in the future.
Definitive surgery	Abdominal hysterectomy, with or without bilateral salpingo-oophorectomy. Will eliminate pain but will leave a woman unable to become pregnant in the future.
Medication Therapy	
NSAIDs	First-line treatment to reduce pain; taken early when premenstrual symptoms are first felt
Oral contraceptives	Suppresses cyclic hormonal response of the endometrial tissue
Progestogens	Used to cast off the endometrial cells and thus destroy them
Antiestrogens	Suppresses a woman's production of estrogen, thus stopping the menstrual cycle and preventing further growth of endometrium
Gonadotropin-releasing hormone analogues (GnRH-a)	Suppresses endometriosis by creating a temporary pseudomenopause

et al., 2004). In women, ovarian dysfunction (40%) and tubal/pelvic pathology (40%) are the primary contributing factors to infertility.

Risk factors for infertility include:

- *For women:*
  - Overweight or underweight (can disrupt hormone function)
  - Hormonal imbalances leading to irregular ovulation
  - Fibroids
  - Tubal blockages
  - Chronic illnesses such as diabetes, thyroid disease, asthma
  - STIs
  - Age older than 27
  - Endometriosis
  - History of PID
  - Smoking and alcohol consumption
  - Multiple miscarriages
  - Psychological stress
- *For men:*
  - Exposure to toxic substances (lead, mercury, x-rays)
  - Cigarette or marijuana smoke
  - Heavy alcohol consumption
  - Use of prescription drugs for ulcers or psoriasis
  - Exposure of the genitals to high temperatures (hot tubs or saunas)
  - Hernia repair
  - Frequent long-distance cycling
  - STI
  - Undescended testicles (cryptorchidism)
  - Mumps after puberty (Women's Health Guide, 2004)

BOX 4-3

ORGANIZATIONS AND WEB RESOURCES TO ASSIST THE CLIENT WITH ENDOMETRIOSIS

- American College of Obstetricians and Gynecologists (ACOG): www.acog.org or e-mail at resources@acog.org
- American Society of Reproductive Medicine: www.asrm.org or e-mail at asrm@asrm.org
- Center for Endometriosis Care: http://www.centerforendo.com/
- Endometriosis Association: www.endometriosisassn.org or www.KillerCramps.org
- Endometriosis Association support groups: e-mail at support@endometriosisassn.org
- NICHD Information Resource Center: www.nichd.nih.gov or e-mail at NICHDClearinghouse@mail.nih.gov
- National Women's Health Information Center (Dept. of Health and Human Services): http://www.4women.gov

Assessment

Infertile couples are under tremendous pressure and can be by nature secretive, considering their problem to be very personal. The couple is often beset by feelings of inadequacy and guilt, and many are subjected to pressures from both family and friends. As their problem becomes more chronic, they may begin to blame one another, with consequent martial discord. Seeking help is often a very difficult step for them, and it may take a lot of courage to discuss something about which they feel deeply embarrassed or upset. The nurse working in this specialty set-

ting must be aware of the conflict and problems couples present with and must be very sensitive to their needs.

A full medical history should be taken from both partners, along with a physical examination. The data needed for the infertility evaluation are very sensitive and of a personal nature, so the nurse must use very professional interviewing skills.

There are numerous causes of and contributing factors to infertility, so it is important to use the process of elimination, determining what problems don't exist in order to better comprehend the problems that do exist. At the first visit, a plan of investigation is outlined and a complete health history is taken. This first visit forces many couples to confront the reality that their desired pregnancy may not occur naturally. The nurse can alleviate some of the anxiety associated with diagnostic testing by offering explanations as to the timing and reasons for each test.

Male Factors

The initial screening evaluation for the male partner should include a reproductive history and a semen analysis. From the male perspective, three things must happen for conception to take place: there must be an adequate number of sperm; those sperm must be healthy and mature; and the sperm must be able to penetrate and fertilize the egg. Semen analysis is the most important indicator of male fertility. The man should abstain from sexual activity for 24 to 48 hours before giving the sample. For a semen examination, the man is asked to produce a specimen by ejaculating into a specimen container and delivering it to the laboratory for analysis within 1 to 2 hours. When the specimen is brought to the laboratory, it is analyzed for volume, viscosity, number of sperm, sperm viability, motility, and sperm shape. If semen parameters are normal, no further male evaluation is necessary (Youngkin & Davis, 2004).

The physical examination routinely includes:

- Assessment for the presence of appropriate male sexual characteristics, such as body hair distribution, development of the Adam's apple and muscle development
- Examination of the penis, scrotum, testicles, epididymis, and vas deferens for abnormalities (e.g., nodules, irregularities, varicocele)
- Assessment for normal development of external genitalia (small testicles)
- Performance of a digital internal examination of the prostate to check for tenderness or swelling (DeMasters, 2004).

Female Factors

The initial assessment of the woman should include a thorough history of factors associated with ovulation and the pelvic organs. Diagnostic tests to determine female infertility may include:

- Assessment of ovarian function
  - Menstrual history: regularity of cycles
  - Ovulation predictor kits used midcycle
  - Urinary LH level
  - Clomiphene citrate challenge test
  - Endometrial biopsy to document luteal phase
- Assessment of pelvic organs
  - Papanicolaou (Pap) smear to rule out cervical cancer or inflammation
  - Cervical culture to rule out *Chlamydia* infection
  - Postcoital testing to evaluate sperm–cervical mucus interaction
  - Hysterosalpingogram (HSG) to assess tubal patency
  - Ultrasound to assess pelvic structures
  - Hysterosalpingography to visualize structural defects
  - Laparoscopy to visualize pelvic structures and diagnose endometriosis

Home Ovulation Predictor Kits

Home ovulation predictor kits contain monoclonal antibodies specific for LH and use the ELISA test to determine the amount of LH present in the urine. A significant color change from baseline indicates the LH surge and presumably the most fertile day of the month for the woman.

Clomiphene Citrate Challenge Test

The clomiphene citrate challenge test is used to assess a woman's ovarian reserve (capability of her eggs to become fertilized). FSH levels are drawn on cycle day 3 and on cycle day 10 after the woman has taken 100 mg clomiphene citrate on cycle days 5 through 9. If the FSH level is greater than 15, the test is considered abnormal and the likelihood of conception with her own eggs is very low (Youngkin & Davis, 2004).

Endometrial Biopsy

Another assessment of ovulation that indicates whether the secretion of progesterone is adequate is an endometrial biopsy. A strip of endometrial tissue is removed just before menstruation. Histologic documentation of secretory endometrial development implies that ovulation has taken place. An endometrium that does not conform to the normal histologic pattern indicates a defect in the luteal phase.

Postcoital Testing

Postcoital testing is done to assess the receptivity of the cervical mucus to sperm. Cervical mucus from the woman is examined 2 to 8 hours after intercourse during the expected time of ovulation, and the number of live, motile sperm present is assessed. Cervical mucus is also evaluated for stretchability (spinnbarkeit) and consistency (Marchiano, 2004). The results are described in Table 4-3.

Hysterosalpingogram

In a hysterosalpingogram, 3 to 10 mL of an opaque contrast medium is slowly injected through a catheter into the endocervical canal so that the uterus and tubes can be visualized during fluoroscopy and radiography. If the

Table 4-3 Postcoital Test Results

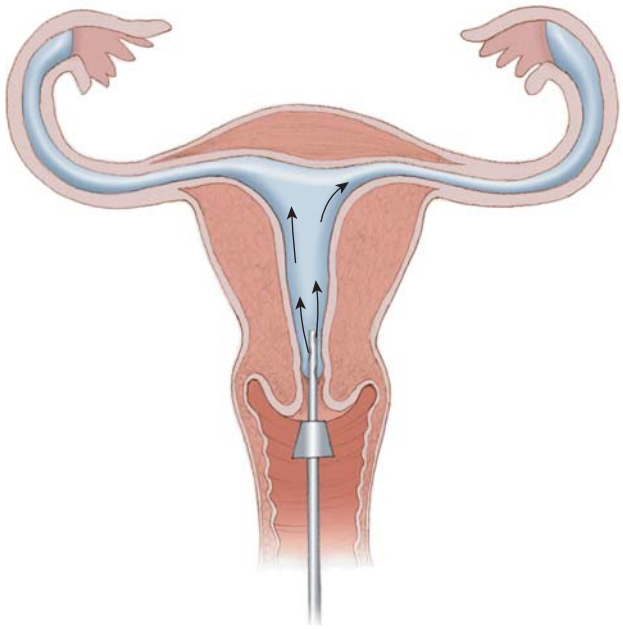
Normal:	Normal amounts of sperm are seen in the sample. Sperm are moving forward through the cervical mucus. The mucus stretches at least 2 in (5 cm). The mucus dries in a fernlike pattern.
Abnormal:	Mucus cannot stretch 2 in (5 cm). Mucus does not dry in a fernlike pattern. No sperm or a large percentage of dead sperm are seen in the sample. Sperm are clumped.

Nissi, J. (2004). Postcoital test. *WebMD.* (Online) Available at: http://my.webmd.com/hw/infertility_reproduction/ux1259.asp

fallopian tubes are patent, the dye will ascend upward to distend the uterus and the tubes and spill out into the peritoneal cavity (Fig. 4-2).

Laparoscopy

A laparoscopy is usually performed early in the menstrual cycle. During the procedure, an endoscope is inserted through a small incision in the anterior abdominal wall. Visualization of the peritoneal cavity in an infertile woman may reveal endometriosis, pelvic adhesions, tubal occlusion, fibroids, or polycystic ovaries (Lowdermilk & Perry, 2004).



● Figure 4-2 Insertion of a dye for a hysterosalpingogram. The contrast dye outlines the uterus and fallopian tubes on x-ray to demonstrate patency.

Treatment

The test results are presented to the couple and different treatment options are suggested. The majority of infertility cases are treated with drugs or surgery. Various ovulation-enhancement drugs and timed intercourse might be used for the woman with ovulation problems. The woman should understand the drug's benefits and side effects before consenting to take them. Depending on the type of drug used and the dosage, some women may experience multiple births. If the woman's reproductive organs are damaged, surgery can be done to repair them. Still other couples might opt for the high-tech approaches of artificial insemination (Fig. 4-3), in vitro fertilization (IVF; Fig. 4-4), and egg donation or contract for a gestational carrier or surrogate (Brucker & McKenry, 2004). Table 4-4 lists selected infertility options.

Nursing Management

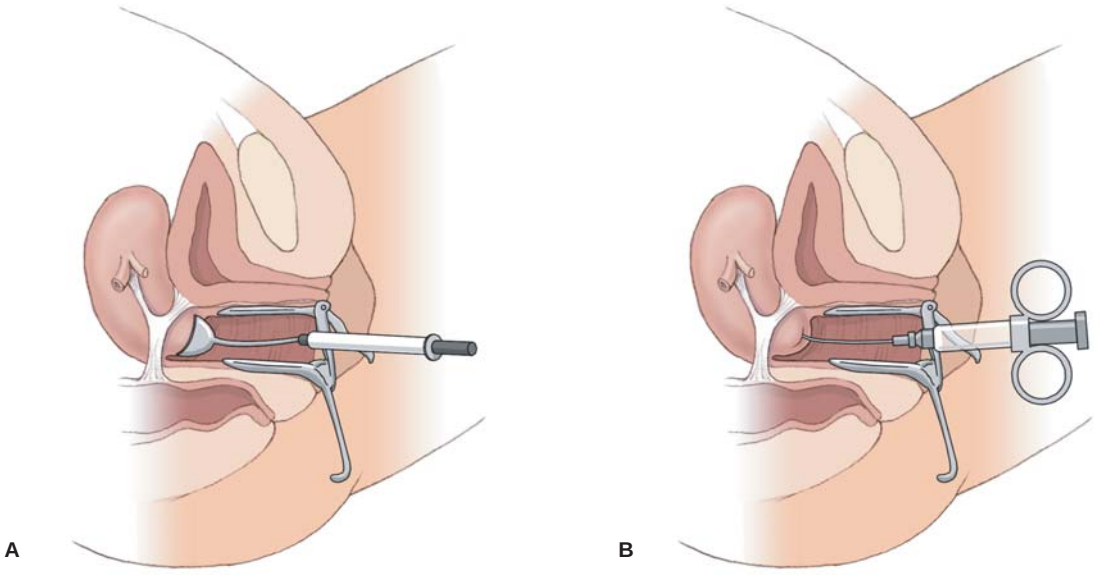
ConsiderTHIS!

We had been married for 3 years and wanted to start a family, but much to our dismay nothing happened after a year of trying. I had some irregular periods and was finally diagnosed with endometriosis and put on Clomid. After 3 years of taking Clomid on and off, I went to a fertility expert. The doctor lasered the endometriosis tissue, sent air through my tubes to make sure they were patent, and put me back on Clomid, but still with no luck. Finally 2 years later we were put on an IVF waiting list and prayed we would have the money for the procedure when we were chosen. By then I felt a failure as a woman. We then decided that it was more important for us to be parents than it was for me to be pregnant, so we considered adoption. We tried for another year without any results.

We went to the adoption agency to fill out the paperwork for the process to begin. Our blood was taken and we waited for an hour, wondering the whole time why it was taking so long for the results. The nurse finally appeared and handed a piece of paper to me with the word "positive" written on it. I started to cry tears of joy, for a pregnancy had started and our long journey of infertility was finally ending.

Thoughts: For many women the dream of having a child is not easily realized. Unwanted infertility can affect self-esteem, disrupt relationships, and result in depression. This couple experienced many years of frustration in trying to have a family. What help can be offered to couples during this time? What can be said to comfort the woman who feels she is a failure?

Nurses play an important role in the care of infertile couples. The nurse is most effective when he or she offers care and treatment in a professional manner and regards the couple as valued and respected individuals. The nurse's focus must encompass the whole person, not just the

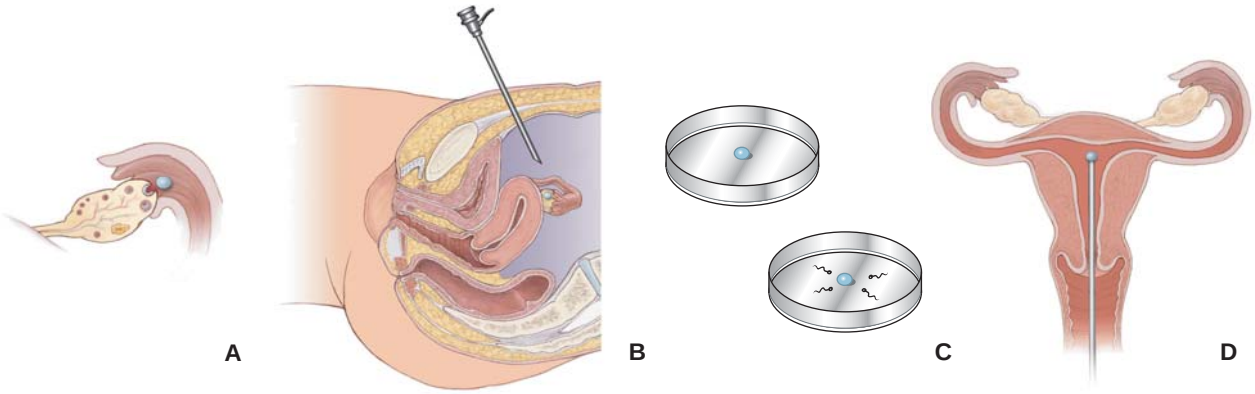


● Figure 4-3 Artificial insemination. Sperm are deposited next to the cervix (**A**) or injected directly into the uterine cavity (**B**).

results of the various infertility studies. Throughout the entire process, the nurse's role is to provide information, anticipatory guidance, stress management, and counseling. The couple's emotional distress is usually very high, and the nurse must be able to recognize that anxiety and provide emotional support. The nurse may need to refer couples to a reproductive endocrinologist or surgeon, depending on the problem identified.

There is no absolute way to prevent infertility per se because so many factors are involved in conception. Nurses can be instrumental in educating men and women about the factors that contribute to infertility. The nurse can also outline the risks and benefits of treatments so that the couple can make an informed decision.

With advances in genetics and reproductive medicine also come a myriad of ethical, social, and cultural issues that will affect the couple's decisions. With this in mind, nurses must provide an opportunity for the couple to make informed decisions in a nondirective, nonjudgmental environment. Through the use of advocacy and anticipatory guidance, nurses can assist and support couples through the diagnosis and treatment of infertility (Jones, 2004).



● Figure 4-4 Steps involved in in vitro fertilization. (**A**) Ovulation. (**B**) Capture of the ova (done here intra-abdominally). (**C**) Fertilization of ova and growth in culture medium. (**D**) Insertion of fertilized ova into uterus.

Table 4-4 Selected Treatment Options for Infertility

Procedure	Comments	Nursing Considerations
Fertility Drugs		
Clomiphene citrate (Clomid)	A nonsteroidal synthetic antiestrogen used to induce ovulation	Nurse can advise the couple to have intercourse every other day for 1 week starting after day 5 of medication.
Human menopausal gonadotropin (HMG); Pergonal	Induces ovulation by direct stimulation of ovarian follicle	Same as above
Artificial Insemination	The insertion of a prepared semen sample into the cervical os or intrauterine cavity Enables sperm to be deposited closer to improve chances of conception Husband or donor sperm can be used	Nurse needs to advise couple that the procedure might need to be repeated if not successful the first time.
Assisted Reproductive Technologies*		
In vitro fertilization (IVF)	Oocytes are fertilized in the lab and transferred to the uterus. Usually indicated for tubal obstruction, endometriosis, pelvic adhesions, and low sperm counts	Nurse advises woman to take medication to stimulate ovulation so the mature ovum can be retrieved by needle aspiration.
Gamete intrafallopian transfer (GIFT)	Oocytes and sperm are combined and immediately placed in the fallopian tube so fertilization can occur naturally. Requires laparoscopy and general anesthesia, which increases risk	Nurse needs to inform couple of risks and have consent signed.
Intracytoplasmic sperm injection (ICSI)	One sperm is injected into the cytoplasm of the oocyte to fertilize it. Indicated for male factor infertility	Nurse needs to inform the male that sperm will be aspirated by a needle through the skin into the epididymis.
Donor oocytes or sperm	Eggs or sperm are retrieved from a donor and the eggs are inseminated; resulting embryos are transferred via IVF. Recommended for women > 40 and those with poor-quality eggs	Nurse needs to support couple in their ethical/religious discussions prior to deciding.
Gestational carrier (surrogacy)	Laboratory fertilization takes place and embryos are transferred to the uterus of another woman, who will carry the pregnancy. Medical-legal issues have resulted over the "true ownership" of the resulting infant.	Nurse should encourage an open discussion regarding implications of this method with the couple.

*When other options have been exhausted, these are considered.

Finances and insurance coverage often dictate the choice of treatment. Nurses can help couples decipher their insurance coverage and can help them weigh the costs of various procedures by explaining what each will provide in terms of information about their infertility problems. Assisting them to make a priority list of diagnostic tests and potential treatment options will help the couple plan their financial strategy.

Many infertile couples are not prepared for the emotional roller-coaster of grief and loss during infertil-

ity treatments. Financial concerns and coping as a couple are two major areas of stress when treatment is undertaken. During the course of what may be months, or even years, of infertility care, it is essential to develop a holistic approach to nursing care. Stress management and anxiety reduction need to be addressed, and referral to a peer support group such as Resolve might be in order (Box 4-4).

Contraception

In the United States, there are approximately 60 million women in their childbearing years, ages 15 to 44. Overall, 64% of those 60 million women use contraception, but still more than 3 million unintended pregnancies occur every year (U.S. Bureau of the Census, 2003). Although numerous fertility-control methods are available, the United States continues to have the highest unintended pregnancy rate when compared to other Western countries. Every minute of every day, 10 people become infected with HIV, most through heterosexual contact; 190 women conceive an unwanted pregnancy; 1 woman dies from a pregnancy-related cause; and 40 women undergo unsafe abortions, as outlined in the UNFPA State of the World Population 2000 Report. Much of this suffering could be prevented by access to safe, efficient, appropriate, modern contraception for everyone who wants it (UNFPA, 2000).

BOX 4-4

ORGANIZATIONS AND WEB RESOURCES TO ASSIST THE CLIENT WITH INFERTILITY

- Resolve: A nationwide network of chapters dedicated to providing education, advocacy, and support for men and women facing the crisis of infertility. They provide a helpline, medical referral services, member-to-member contact system. (http://www.resolve.org)
- American Society of Reproductive Medicine (ASRM): Provides fact sheets and other resources on infertility, treatments, insurance, and other issues (http://www.asrm.org)
- International Counsel on Infertility (INCIID): Provides information about infertility, support forums, and a directory of infertility specialists (http://www.inciid.org)
- American Fertility Association: Offers education, referrals, research, support, and advocacy for couples dealing with infertility (http://www.americaninfertility.org)
- Bertarelli Foundation: The Human Face of Infertility: Aims to promote and improve understanding of infertility by offering resources (http://www.bertarelli.edu)
- International Consumer Support for Infertility: An international network engaged in advocacy on behalf of infertile couples via fact sheets and information (http://www.icsi.ws)

Contraception is any method that prevents conception or childbirth. A woman's reproductive life spans almost 40 years, and throughout those years, a variety of contraceptive methods may be used. Oral contraceptives, sterilization of the female, and the male condom are the most popular methods in the United States (Alan Guttmacher Institute, 2004a,b).

Couples must decide which method is appropriate for them to meet their changing contraceptive needs throughout their life cycles. Nurses can educate and assist couples during this selection process. This chapter will outline the most common birth control methods available.

In an era when many women wish to delay pregnancy and at the same time face potential STIs, choices are difficult. There are numerous methods available today, and many more will be offered in the near future. The ideal contraceptive method for many women would have to have the following characteristics: ease of use, safety, effectiveness, minimal side effects, "naturalness," nonhormonal method, and immediate reversibility (Burkman, 2002). Currently, no one contraceptive method offers everything. Box 4-5 outlines the contraceptive methods

BOX 4-5

OUTLINE OF CONTRACEPTIVE METHODS

Reversible Methods

Behavioral
- Abstinence
- Fertility awareness
- Withdrawal (coitus interuptus)
- Lactational amenorrhea method (LAM)

Barrier
- Condom (male and female)
- Diaphragm
- Cervical cap
- Sponge

Hormonal
- Oral contraceptives
- Injectable contraceptive
- Transdermal patches
- Vaginal ring
- Implantable contraceptives
- Intrauterine devices
- Emergency contraceptives

Abortion

Permanent Methods
- Tubal ligation for women
- Vasectomy for men

available today. Table 4-5 provides a detailed summary of each type, including information on failure rates, advantages, disadvantages, STI protection, and danger signs.

Contraceptives methods can be divided into three types: behavioral methods, barrier methods, and hormonal methods.

Behavioral Methods

Behavioral methods refer to any natural contraceptive method that does not require hormones, pharmaceutical compounds, physical barriers, or surgery to prevent pregnancy. These methods require couples to take an active role in preventing pregnancy through their sexual behaviors.

Abstinence

Abstinence (not having vaginal or anal intercourse) is one of the least expensive forms of contraception and has been used for thousands of years. Basically, pregnancy cannot occur if sperm is kept out of the vagina. It also reduces the risk of contracting HIV/AIDS and other STIs, unless body fluids are exchanged through oral sex; however, some infections, like herpes and HPV, can be passed by skin-to-skin contact. There are many pleasurable alternatives for sex play without intercourse ("outercourse"), such as kissing, masturbation, erotic massage, sexual fantasy, sex toys such as vibrators, and oral sex.

Many people have strong feelings about abstinence based on religious and moral beliefs. There are many good and personal reasons to choose abstinence. For some it is a way of life, while for others it is a temporary choice. Some people choose abstinence because they want to:

- Wait until they are older
- Wait for a long-term relationship
- Avoid pregnancy or STIs
- Follow religious or cultural expectations

Fertility Awareness

Fertility awareness is a natural method of contraception in which no contraceptive devices are used; instead, certain observations, techniques, and calculations are used to determine the "fertile" and the "safe" periods in a monthly menstrual cycle. There are normal physiologic changes caused by hormonal fluctuations during the menstrual cycle that can be observed and charted. This information can be used to avoid a pregnancy or encourage one. Fertility awareness methods rely upon the following assumptions:

- A single ovum is released from the ovary 14 days before the next menstrual period. It lives approximately 24 hours.
- Sperm can live up to 5 days after intercourse. The "unsafe period" during the menstrual cycle is thus approximately 6 days: 3 days before and 3 days after ovulation. Since

(text continues on page 82)

Table 4-5 Summary of Contraceptive Methods

Type	Description	Failure Rate	Pros	Cons	STI Protection	Danger Signs	Comments
Abstinence	Refrain from sexual activity	None	Costs nothing	Difficult to maintain	100%	None	Must be joint couple decision Requires high level of couple commitment
Fertility awareness	Refrain from sex during fertile period	27%	No side effects; acceptable to most religious groups	High failure rate with incorrect use	None	None	
Withdrawal (coitus interruptus)	Man withdraws before ejaculation	19%	Involves no devices and is always available	Requires considerable self-control by the man	None	None	Places woman in trusting and dependent role

Lactational amenorrhea method (LAM)	Uses lactational infertility for protection from pregnancy	1–2% chance of pregnancy in first 6 months	No cost Not coitus-linked	Temporary method; effective for only 6 months after giving birth	None	None	Mother must breastfeed infant on demand without supple-mentation for 6 months
Male condom	Thin sheath placed over an erect penis, blocking sperm	14%	Widely available; low cost; physiologi-cally safe	Decreased sensation for man; interferes with sexual spontaneity; breakage	Provides protection against STIs	Latex allergy	Couple must be instructed on proper use of condom
Female condom	Polyurethane sheath inserted vaginally to block sperm	21%	Use controlled by woman; eliminates postcoital drainage of semen	Expensive for frequent use; cumber-some; noisy during sex act; for single use only	Provides protection against STIs	Allergy to polyurethane	Couple must be instructed on proper use of condom
Diaphragm with spermicide	Shallow latex cup with spring mechanism in its rim to hold it in place in the vagina	20%	Does not use hormones; considered medically safe; provides some protection against cervical cancer	Requires accurate fitting by healthcare professional; increase in UTIs	None	Allergy to latex, rubber, polyure-thane, or spermicide Report symptoms of toxic shock syndrome; change size if excessive weight gain or loss	Woman must be taught to insert and remove diaphragm correctly.
Cervical cap with spermicide	Soft cup-shaped latex device that fits over base of cervix	17%	No use of hormones; provides continuous protection while in place	Requires accurate fitting by healthcare professional; odor may occur if left in too long	None	Irritation, allergic reaction; abnormal Pap test; risk of toxic shock syndrome	Instructions on insertion and removal must be understood by client.

(continued)

Table 4-5 Summary of Contraceptive Methods (continued)

Type	Description	Failure Rate	Pros	Cons	STI Protection	Danger Signs	Comments
Sponge with spermicide	Disk-shaped polyurethane device containing a spermicide that is activated by wetting it with water	14–28%	Offers immediate and continuous protection for 24 hours; OTC	Can fall out of vagina with voiding; is not form-fitting in the vagina	None	Irritation, allergic reactions; toxic shock syndrome can occur if sponge left in too long	Caution woman not to leave sponge in beyond 24 hours.
Oral contraceptives (combination)	A pill that suppresses ovulation by combined action of estrogen and progestin	8%	Easy to use; high rate of effectiveness; protection against ovarian and endometrial cancer	User must remember to take pill daily; user may experience undesirable side effects; high cost for some women; prescription needed	None	Dizziness, nausea, mood changes, high blood pressure, blood clots, heart attacks, strokes	Each woman must be assessed thoroughly to make sure she is not a smoker and does not have a history of thrombo-embolic disease.
Oral contraceptives (progestin-only minipills)	A pill containing only progestin that thickens cervical mucus to prevent sperm from penetrating	2%	No estrogen-related side effects; may be used by lactating women; may be used by women with history of thrombo-phlebitis	Must be taken with meticulous accuracy; may cause irregular bleeding; less effective than combination pills	None	Irregular bleeding, weight gain, increased incidence of ectopic pregnancy	Women should be screened for history of functional ovarian cysts, previous ectopic pregnancy, hyperlipidemia prior to giving prescription

Lunelle injectable	An injectable form of progestin and estrogen given monthly	<1%	Woman will regain fertility 2–3 months after last injection; no need for daily pill taking	Must make arrange-ments for monthly injection; possible weight gain	None	Irregular spotting; similar to oral combination pills	Screen potential candidate's ability to schedule monthly appointment for injection
The patch (Ortho Evra)	Transdermal patch that releases estrogen and progestin into circulation	1%	Easy system to remember; very effective	May cause skin irritation where it is placed; may fall off and not be noticed and thus provide no protection	None	Less effective in women weighing > 200 pound	Instruct woman to apply patch every week for 3 weeks and then not to wear one during week 4
The ring (NuvaRing)	Vaginal contra-ceptive ring about 2 inches in diameter that is inserted into the vagina; releases estrogen and progestin	1%	Easy system to remember; very effective	May cause a vaginal discharge; can be expelled without noticing and not offer protection	None	Similar to oral contra-ceptives	Instruct woman to use a backup method if ring is expelled and remains out for > 3 hours
Depo-Provera injection	An injectable progestin that inhibits ovulation	<1%	Long duration of action (3 months); highly effective; estrogen-free; may be used by smokers; can be used by lactating women	Menstrual irregularities; return visit needed every 12 weeks; weight gain, headaches, depression; return to fertility delayed up to 12 months	None	If depression is a problem, this method may increase the depression.	Inform woman that fertility is delayed after stopping the injections.

(continued)

Table 4-5 Summary of Contraceptive Methods (continued)

Type	Description	Failure Rate	Pros	Cons	STI Protection	Danger Signs	Comments
Implant (Norplant) As of 2003, the manufacturer decided not to continue to market this device.	A time-release implant (matchstick rods) of levonorgestrel for 5 years	<1%	Long duration of action; low dose of hormones; reversible; estrogen-free	Irregular bleeding; weight gain; breast tenderness; headaches; difficulty in removal	None	If bleeding is heavy, anemia may occur.	Before insertion, assess woman to make sure she is aware that this method will produce about 5 years of infertility
Intrauterine devices (IUDs)	A T-shaped device inserted into the uterus that releases copper or progesterone or levonorgestrel	<1%	Is immediately and highly effective; allows for sexual spontaneity; can be used during lactation; return to fertility not impaired; requires no motivation by the user after insertion	Insertion requires a skilled professional; menstrual irregularities; prolonged amenorrhea; can be unknowingly expelled; may increase the risk of pelvic infection; user must regularly check string for placement; no protection against STIs; delay of fertility after discontinuing for possibly 6 to 12 months	None	Cramps, bleeding, pelvic inflammatory disease; infertility; perforation of the uterus	Instruct woman how to locate string to check monthly for placement

Postcoital emergency contra-ceptives (ECs)	Combination or progestin-only pills taken within 72 hours after unprotected intercourse	80%	Provides a last chance to prevent a pregnancy	Risk of ectopic pregnancy if EC fails	None	Nausea, vomiting, abdominal pain, fatigue, headache	Inform woman that ECs do not interrupt an established pregnancy, and the sooner they are taken, the more effective they are.
Permanent sterilization Male Female	Sealing, tying, or cutting the vas deferens Fallopian tubes are blocked to prevent conception	<1% <1%	One-time decision provides permanent sterility; short recovery time; low long-term risks	Procedures are difficult to reverse; initial cost may be high; chance of regret; some pain/ discomfort after procedures	None for both	Post operative complica-tions—pain, bleeding, infection	Counsel both as to permanence of procedure and urge them to think it through prior to signing consent

Sources: Samra, 2003; FDA, 2002; Youngkin & Davis, 2004; Hatcher, 2004; and Sloane, 2002.

bodily changes start to occur before ovulation, the woman can become aware of them and not have intercourse on these days or use another method to prevent pregnancy.
- The exact time of ovulation cannot be determined, so 2 to 3 days are added to the beginning and end to avoid pregnancy

Techniques used to determine fertility include the cervical mucus ovulation method, the basal body temperature (BBT) method, and the symptothermal method (Hatcher et al., 2004).

Fertility awareness methods are moderately effective but are very unforgiving if not carried out as prescribed: not following the guidelines might cause a 27% failure or pregnancy rate per cycle (Youngkin & Davis, 2004). Fertility awareness can be used in combination with coital abstinence or barrier methods during fertile days if pregnancy is not desired.

Cervical Mucus Ovulation Method

The **cervical mucus ovulation method** is used to assess the character of the cervical mucus. Cervical mucus changes consistency during the menstrual cycle and plays a vital role in fertilization of the egg. In the days preceding ovulation, fertile cervical mucus helps draw sperm up and into the fallopian tubes, where fertilization usually takes place. It also helps maintain the survival of sperm. As ovulation approaches, the mucus becomes more abundant, clear, slippery, and smooth; it can be stretched between two fingers without breaking. Under the influence of estrogen, this mucus looks like egg whites. It is called spinnbarkeit mucus (Fig. 4-5). After ovulation, the cervical mucus becomes thick and dry under the influence of progesterone.

The cervical position can also be assessed to confirm changes in the cervical mucus at ovulation. Near ovulation, the cervix feels soft and is high/deep in the vagina, the os is slightly open, and the cervical mucus is copious and slippery (Hatcher et al., 2002).

This method works because the woman becomes aware of her body changes that accompany ovulation. When she notices them, she abstains from sexual intercourse or uses another method to prevent pregnancy. Each woman is an individual, so each woman's unsafe time of the month is unique. In using this method, one size doesn't fit all.

Basal Body Temperature

The **basal body temperature (BBT)** refers to the lowest temperature reached upon wakening. The woman takes her temperature orally before rising and records it on a chart. Preovulation temperatures are suppressed by estrogen, whereas postovulation temperatures are increased under the influence of heat-inducing progesterone. Temperatures typically rise within a day or two after ovulation and remain elevated for approximately 2 weeks (at which point bleeding usually begins). If using this method by itself, the woman should avoid unprotected intercourse until the BBT has been elevated for 3 days.

● Figure 4-5 Spinnbarkeit is the property of cervical mucus to stretch a distance before breaking.

Other fertility awareness methods should be used along with BBT for better results (Fig. 4-6).

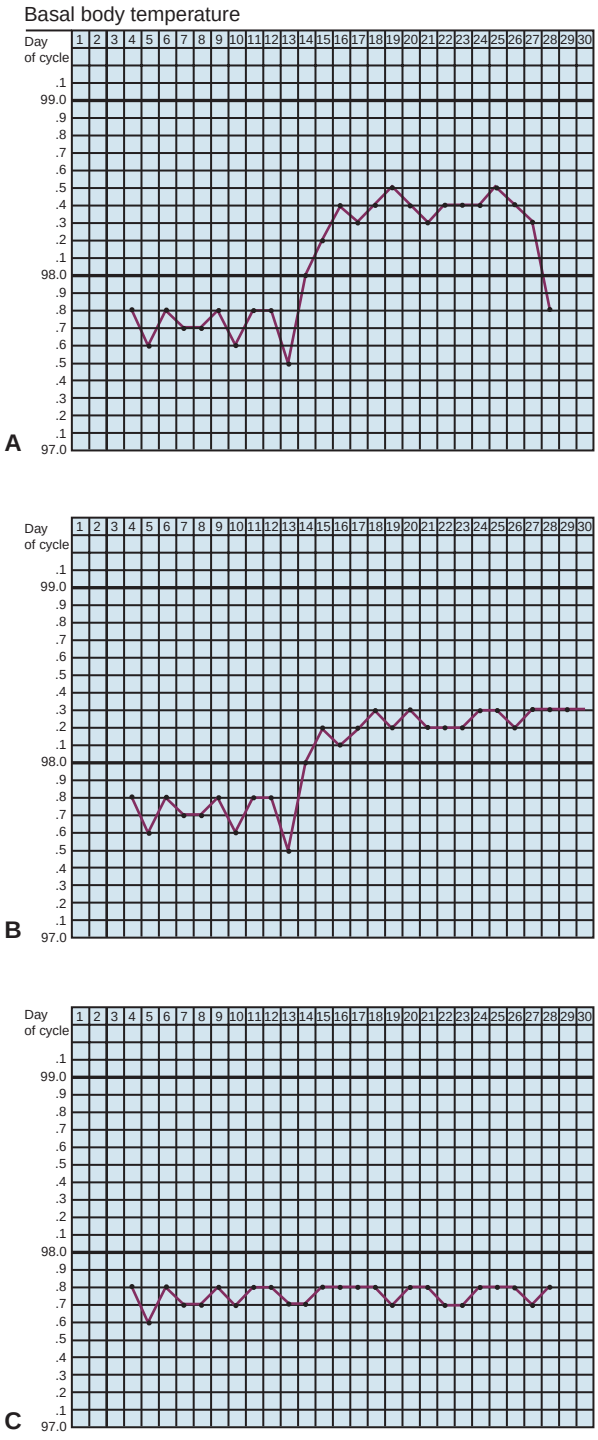
Symptothermal Method

The **symptothermal method** relies on a combination of techniques to recognize ovulation, including BBT, cervical mucus changes, alterations in the position and firmness of the cervix, and other symptoms of ovulation, such as increased libido, mittelschmerz, pelvic fullness or tenderness, and breast tenderness (Sloane, 2002). Combining all these predictors increases awareness of when ovulation occurs and increases the effectiveness of this method. A home predictor test for ovulation is also available in most pharmacies. It measures LH levels to pinpoint the day before or the day of ovulation. These are widely used for fertility and infertility regimens.

The Standard Days Method

The **Standard Days Method (SDM)** is a new natural method of contraception developed by Georgetown University Medical Center's Institute for Reproductive Health. Women with menstrual cycles between 26 and 32 days long can use the SDM to prevent pregnancy by avoiding unprotected intercourse on days 8 through 19 of their cycles. An international clinical trial of the SDM showed that the method is more than 95% effective when used correctly (Arevalo & Sinai, 2003). SDM identifies the 12-day "fertile window" of a woman's menstrual cycle. These 12 days takes into account the lifespan of the women's egg (about 24 hours) and the viability of the sperm (about 5 days) as well as the variation in the actual timing of ovulation from one cycle to another.

To help women keep track of the days on which they should avoid unprotected intercourse, a string of 32 color-



● Figure 4-6 Basal body temperature graph. (**A**) The woman's temperature dips slightly at midpoint in the menstrual cycle, then rises sharply, an indication of ovulation. Toward the end of the cycle (the 24th day), her temperature begins to decline, indicating that progesterone levels are falling and that she did not conceive. (**B**) The woman's temperature rises at the midpoint in the cycle and remains at that elevated level past the time of her normal menstrual flow, suggesting that pregnancy has occurred. (**C**) There is no preovulatory dip, and no rise of temperature anywhere during the cycle. This is the typical pattern of a woman who does not ovulate.

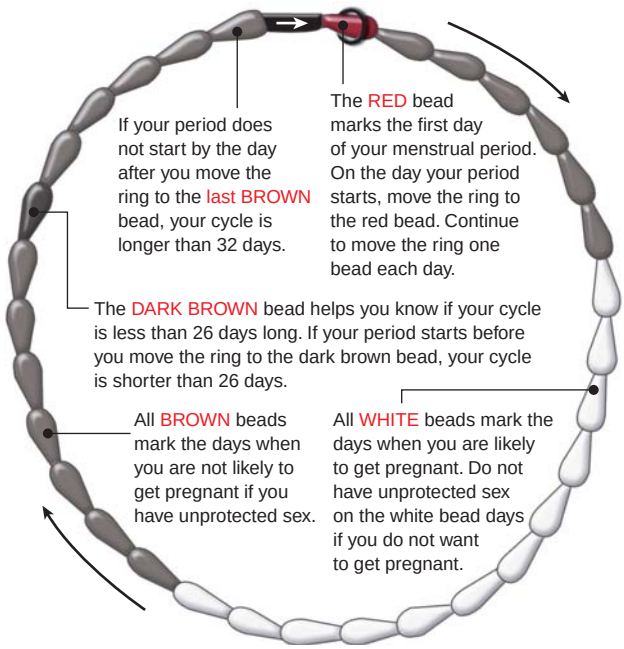
coded beads (CycleBeads) is used, with each bead representing a day of the menstrual cycle. Starting with the red bead, which represents the first day of her menstrual period, the woman moves a small rubber ring one bead each day. The brown beads are the days when pregnancy is unlikely, and the white beads represent her fertile days (Arevalo, 2003). This method has been used in underdeveloped countries for women with limited educational resources (Fig. 4-7).

Withdrawal (Coitus Interruptus)

In withdrawal, or **coitus interruptus,** a man controls his ejaculation during sexual intercourse and ejaculates outside the vagina. It is better known colloquially as "pulling out in time" or "being careful." It is one of the oldest and most widely used means of preventing pregnancy in the world (Sloane, 2002). The problem with this method is that the first few drops of the true ejaculate contain the greatest concentration of sperm, and if some pre-ejaculatory fluid escapes from the urethra before orgasm, conception may result. This method requires that the woman rely solely on the cooperation and judgment of the man.

Lactational Amenorrhea Method

The **lactational amenorrhea method (LAM)** is an effective temporary method of contraception used by breastfeeding mothers. Continuous breastfeeding can postpone ovulation and thus prevent pregnancy. Breastfeeding stimulates the hormone prolactin, which is necessary for milk production and also inhibits the release of another hormone, gonadotropin, which is necessary for ovulation.



● Figure 4-7 CycleBeads help women use the Standard Days Method.

Breastfeeding as a contraceptive method can be effective for 6 months after delivery only if a woman:

- Has not had a period since she gave birth
- Breastfeeds her baby at least six times daily on both breasts
- Breastfeeds her baby "on demand" at least every 4 hours
- Does not substitute other foods for a breast-milk meal
- Provides nighttime feedings at least every 6 hours
- Does not rely on this method after 6 months (Planned Parenthood, 2005)

Barrier Methods

Barrier contraceptives are forms of birth control that prevent pregnancy by preventing the sperm from reaching the ovum. Mechanical barriers include condoms, diaphragms, cervical caps, and sponges. These devices are placed over the penis or cervix to prevent passage of sperm. They physically obstruct the passage of sperm through the cervix. Chemical barriers called spermicides may be used along with mechanical barrier devices. They come in creams, jellies, foam, suppositories, and vaginal films. They chemically destroy the sperm in the vagina.

These contraceptives are called barrier methods because they not only provide a physical barrier for sperm, but also protect against STIs. Since the HIV/AIDS epidemic started in the early 1980s, these methods have become extremely popular.

Many of these barrier methods contain latex. Allergy to latex was first recognized in the late 1970s, and since then it has become a major health concern, with increasing numbers of people affected. According to the American Academy of Allergy, Asthma and Immunology (2004), 6% of the general population, 10% of healthcare workers, and 50% of spina bifida patients are sensitive to natural rubber latex. Since the late 1980s, with the establishment of policies dictating barrier requirements resulting from the HIV/AIDS epidemic, there has been an exponential increase in the use of latex gloves and condoms (Lenehan, 2004). Teaching Guidelines 4-4 provides tips for individuals with latex allergy.

TEACHING GUIDELINES 4-4

Tips for Individuals Allergic to Latex

- Symptoms of latex allergy include:
  - Skin rash, itching, hives
  - Itching or burning eyes
  - Swollen mucous membranes in the genitals
  - Shortness of breath, difficulty breathing, wheezing
  - Anaphylactic shock (OSHA, 2003)
- Use of or contact with latex condoms, cervical caps, and diaphragms is contraindicated for men and women with a latex allergy.
- If the female partner is allergic to latex, have the male partner apply a natural condom over the latex one.
- If the male partner experiences penile irritation after condom use, try different brands or place the latex condom over a natural condom.
- Use polyurethane condoms rather than latex ones.
- Use female condoms; they are made out of polyurethane.
- Switch to another birth control method that isn't made with latex, such as oral contraceptives, IUDs, Depo-Provera, fertility awareness, and other nonbarrier methods. However, these methods do not protect against sexually transmitted infections.

Condoms

Condoms are made for both males and females. The male condom is made from latex or polyurethane or natural membrane and may be coated with spermicide. Male condoms are available in many colors, textures, sizes, shapes, and thicknesses. When used correctly, the male condom is put on over an erect penis before it enters the vagina and is worn throughout sexual intercourse (Fig. 4-8).

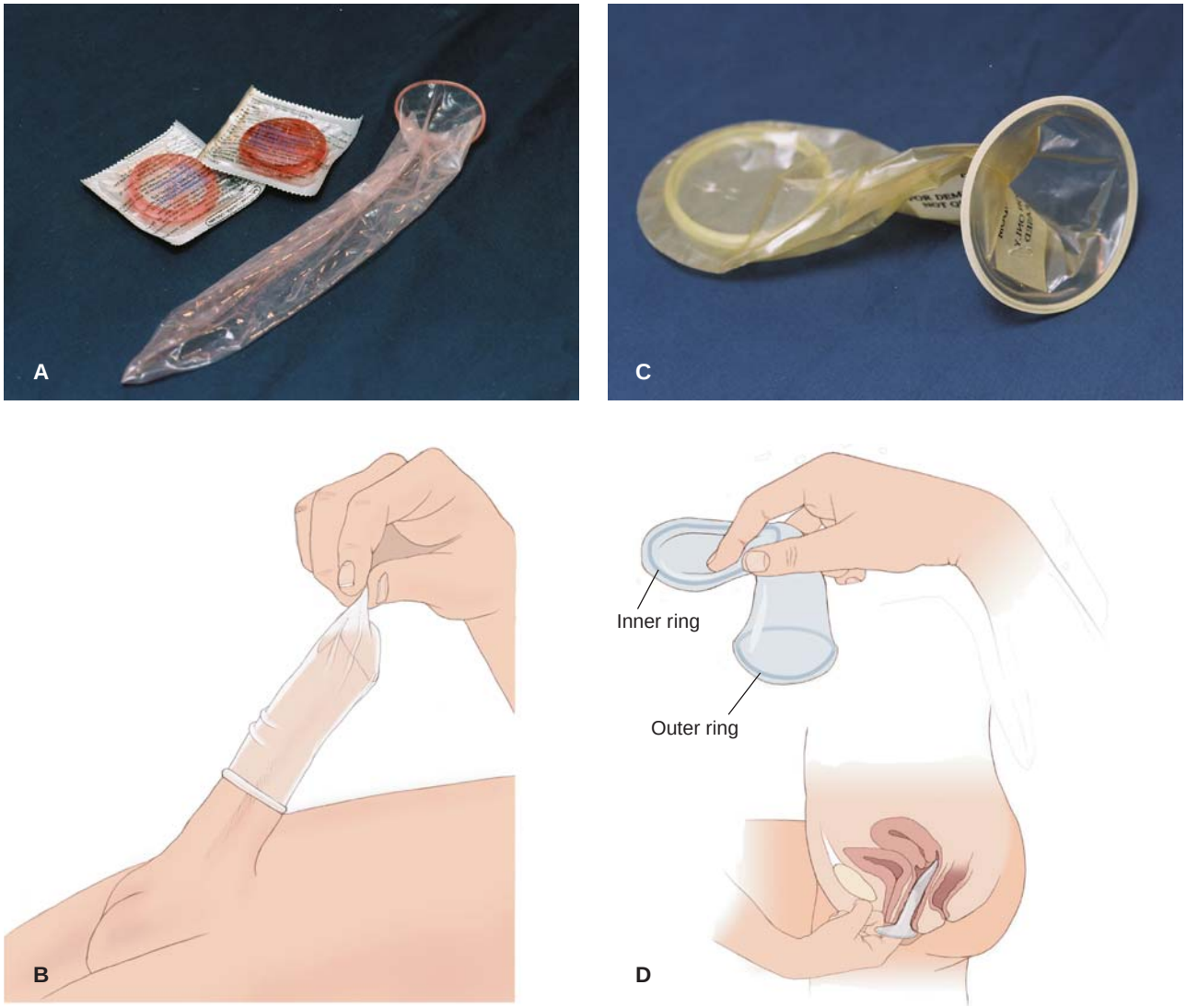
The female condom is a polyurethane pouch inserted into the vagina. It consists of an outer and inner ring that is inserted vaginally and held in place by the pubic bone. Some women complain that the female condom is cumbersome to use and makes noise during intercourse. Female condoms are readily available, are inexpensive, and can be carried inconspicuously by the woman. The female condom is the first contraceptive device to protect women against STIs under her control.

Diaphragm

The **diaphragm** is a soft latex dome surrounded by a metal spring. Used in conjunction with a spermicidal jelly or cream, it is inserted into the vagina to cover the cervix (Fig. 4-9). The diaphragm may be inserted up to 4 hours before intercourse but must be left in place for at least 6 hours afterwards. Diaphragms are available in a range of sizes and styles. The diaphragm is available only by prescription and must be professionally fitted by a healthcare professional. The device should be replaced every 2 years and may need to be refitted after weight loss or gain or term birth (Hatcher et al., 2004). The woman also needs to receive thorough instruction about its use and should practice putting it in and taking it out before she leaves the medical office (Fig. 4-10). This contraceptive is not effective unless it is used correctly.

Cervical Cap

The **cervical cap** is smaller than the diaphragm and covers only the cervix; it is held there by suction. Caps are made from rubber and are used with spermicide the same way diaphragms are (Fig. 4-11). The cap may be inserted up to 12 hours before intercourse and provides protection for 48 hours. The dome of the cap is filled about one-third



● Figure 4-8 (**A**) Male condom. (**B**) Applying a male condom. Being certain that space is left at the tip helps to ensure the condom will not break with ejaculation. (**C**) The female condom. (**D**) Insertion technique.

full with spermicide. Spermicide should not be applied to the rim because it might interfere with the seal that must form around the cervix. The cap is available only by prescription and must be fitted by a healthcare professional.

Contraceptive Sponge

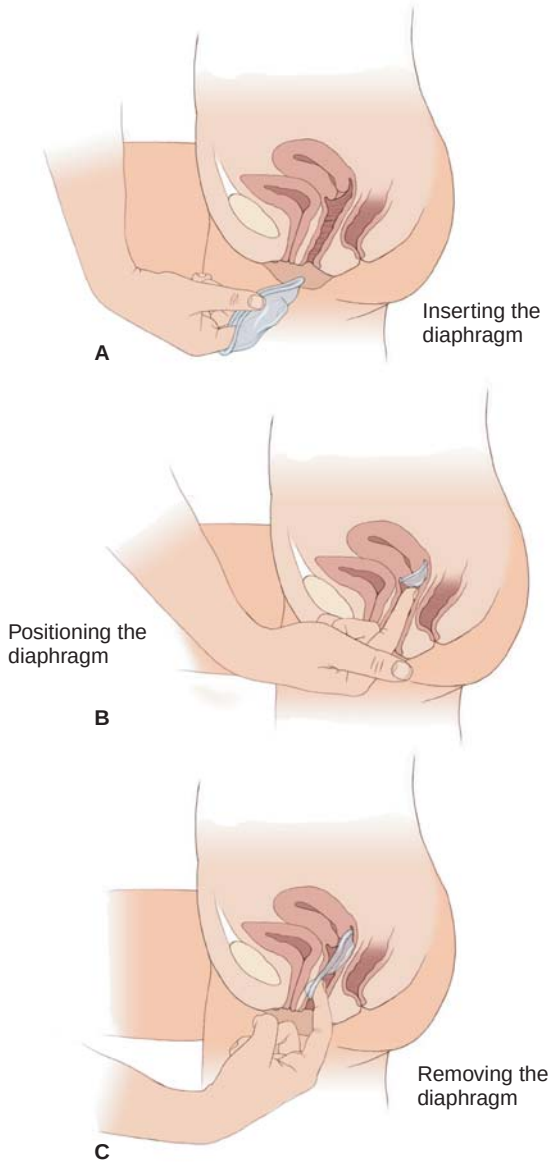
After being removed from the market in 1995, the **contraceptive sponge** is once again being marketed to women after receiving approval from the U.S. Food and Drug Administration (FDA). It should be available in summer 2005 (Weise, 2005). At one time, it was a very popular nonprescription birth control device for women, but a decade ago Wyeth stopped making it rather than upgrade its manufacturing plant after the FDA found deficiencies there, even though the device's effectiveness and safety were never questioned.

The contraceptive sponge is a soft concave device that prevents pregnancy by covering the cervix and releasing spermicide. While it was less effective than several other methods and does not offer protection against STIs, the sponge achieved a wide following among women who appreciated the spontaneity with which it could be used and its easy availability.

Hormonal Methods

Several options are available to women who want long-term but not permanent protection against pregnancy. These methods of contraception work by altering the hormones within a woman's body. They rely on estrogen and progestin or progestin alone to prevent ovulation. When used consistently, these methods are a most reliable way

● Figure 4-9 Diaphragm.



● Figure 4-10 Application of a diaphragm. (**A**) To insert, fold the diaphragm in half, separate the labia with one hand, then insert upwards and back into the vagina. (**B**) To position, make certain the diaphragm securely covers the cervix. (**C**) To remove, hook a finger over the top of the rim and bring the diaphragm down and out.

to prevent pregnancy. Hormonal methods include oral contraceptives, injectables, implants, vaginal rings, and transdermal patches.

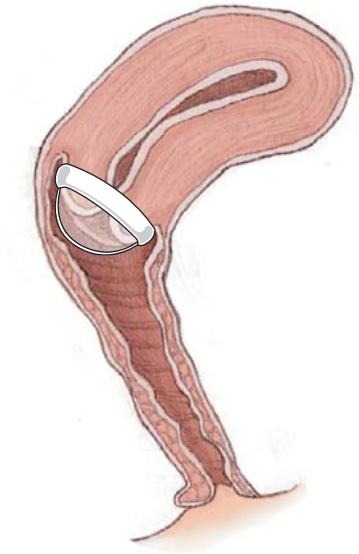
Oral Contraceptives

As early as 1937, scientists recognized that the injection of progesterone inhibited ovulation in rabbits and provided contraception. Breakthrough bleeding was reported in early clinical trials in women, and the role of estrogen in cycle control was launched. This established the rationale for modern combination **oral contraceptives** (OCs) that contain both estrogen and progesterone (Wysocki et al., 2002). In 1960 the FDA approved the first combination OC, Enovid-10 (150 mcg estrogen and 9 mg progesterone) for use in the United States.

Today, nearly 50 combination OCs are available in the United States. The most notable change in over 40 years of OC improvement has been the lowering of the estrogen dose to as low as 20 mcg and the introduction of new progestins. Oral contraceptives are the most popular method of nonsurgical contraception, used by approximately 18 million women in the United States (Wysocki et al., 2002) (Fig. 4-12).

Unlike the original OCs that women took decades ago, the new low-dose forms have fewer health risks attached to them. OCs, while most commonly prescribed for contraception, have long been used in the management of a wide range of conditions and have many health benefits, such as:

- Reduced incidence of ovarian and endometrial cancer
- Prevention and treatment of endometriosis
- Decreased incidence of acne and hirsutism
- Decreased incidence of ectopic pregnancy
- Decreased incidence of acute PID
- Reduced incidence of fibrocystic breast disease
- Decreased perimenopausal symptoms
- Increased menstrual cycle regularity



● Figure 4-11 A cervical cap is placed over the cervix and used with a spermicidal jelly the same as a diaphragm.

- Protection against colorectal cancer
- Reduced iron-deficiency anemia by treating menorrhagia
- Reduced incidence of dysmenorrhea (Zieman, 2002)

OCs work primarily by suppressing ovulation by adding estrogen and progesterone to a woman's body, thus mimicking pregnancy. This hormonal level stifles gonadotropin-releasing hormone (GnRH), which in turn suppresses FSH and LH and thus inhibits ovulation. Cervical mucus also thickens, which hinders sperm transport into the uterus. Implantation is inhibited by suppression of the maturation of the endometrium and alterations of uterine secretions (Trussell, 2003).

The combination pills are prescribed as monophasic pills, which deliver fixed dosages of estrogen and progestin, or as multiphasic ones. Multiphasic pills (e.g., biphasic and triphasic OCs) alter the amount of progestin and estrogen within each cycle. To maintain adequate hormonal levels for contraception and enhance compliance, OCs should be taken at the same time daily (Lowdermilk & Perry, 2004).

● Figure 4-12 Oral contraceptive.

OCs that contain progestin only are called *minipills*. They are prescribed for women who cannot take estrogen. They work primarily by thickening the cervical mucus to prevent penetration of the sperm and make the endometrium unfavorable for implantation. Progestin-only pills must be taken at a certain time every 24 hours. Breakthrough bleeding and a higher risk of pregnancy have made these OCs less popular than combination OCs (Murray et al., 2006).

Extended OC regimens have been used for the management of menstrual disorders and endometriosis for years but now are attracting wider attention. Surveys asking women about their willingness to reduce their menstrual cycles from 12 to 4 annually were returned with a resounding "yes!" (Sulak et al., 2002). Recent studies have shown that the extended use of active OC pills carries the same safety profile as the conventional 28-day regimens (Wysocki et al., 2002). The extended regimen consists of 84 consecutive days of active combination pills, followed by 7 days of placebo. The woman has four withdrawal-bleeding episodes a year. Seasonale, a combination OC, is on the market for women who choose to reduce the number of periods that they have.

The balance between the benefits and the risks of OCs must be determined for each woman when she is being assessed for this type of contraceptive. It is a highly effective contraceptive when taken properly but can aggravate many medical conditions, especially in women who smoke. Table 4-6 lists advantages and disadvantages of OCs. A thorough history and pelvic examination, including a Pap smear, must be completed before the medication is prescribed and yearly thereafter.

Nurses need to provide OC users with a great deal of education before they leave the health care facility. They need to be able to identify early signs and symptoms that might indicate a problem. The mnemonic "ACHES" can help women remember the early warning signs that necessitate a return to the health care provider (Box 4-6).

Injectable Contraceptives

The **Lunelle injection** is a long-term reversible contraceptive for women. It contains the same hormones as the combination OCs. It is administered once every 28 to 33 days by intramuscular injection. It provides immediate, very effective contraception if given within 5 days after the last normal menses. Its mechanism of action, contraindications, and side effects are similar to those of oral contraceptives (Hatcher et al., 2004).

Depo-Provera is the trade name for an injectable contraceptive that delivers progesterone every 12 weeks. Depo-Provera works by suppressing ovulation and the production of FSH and LH by the pituitary gland. A single injection of 150 mg into the buttocks acts like other

Table 4-6 Advantages and Disadvantages of Oral Contraceptives

Advantages	Disadvantages
Regulate and shorten menstrual cycle	Offer no protection against STIs
Decrease severe cramping and bleeding	Pose slightly increased risk of breast cancer
Reduce anemia	Modest risk for vein thrombosis and pulmonary emboli
Reduce ovarian and colorectal cancer risk	Increased risk for migraine headaches
Decrease benign breast disease	Increased risk for myocardial infarction, stroke, and hypertension for women who smoke
Reduce risk of endometrial cancer	May increase risk of depression
Improve acne	User must remember to take pill daily
Minimize perimenopausal symptoms	High cost for some women (Dickey, 2002)
Decrease incidence of rheumatoid arthritis	
Improve PMS symptoms	
Protection against loss of bone density	

progestin-only products to prevent pregnancy for 3 months at a time (Fig. 4-13).

Transdermal Patches

A **transdermal patch,** Ortho Evra, is also available. The patch is applied weekly for 3 weeks, followed by a patch-free week during which withdrawal bleeding occurs. The patch delivers continuous levels of progesterone and estrogen. Recommended application sites include the upper arm, buttocks, and lower abdomen. Compliance with combination contraceptive patch use has been shown to be significantly greater than compliance with OCs (Herndon & Zieman, 2004). The patch provides combination hormone therapy with a side effect profile similar to that of OCs. The manufacturer is currently evaluating extended regimens for the patch (Youngkin & Davis, 2004) (Fig. 4-14).

Vaginal Rings

The contraceptive **vaginal ring,** NuvaRing, is a flexible, soft, transparent ring that is inserted by the user for a

● Figure 4-13 Injectable contraceptive.

BOX 4-6

EARLY SIGNS OF COMPLICATIONS FOR OC USERS

- **A** Abdominal pain may indicate liver or gallbladder problems.
- **C** Chest pain or shortness of breath may indicate a pulmonary embolus.
- **H** Headaches may indicate hypertension or impending stroke.
- **E** Eye problems might indicate hypertension or a attack.
- **S** Severe leg pain may indicate a thromboembolic event (Lowdermilk & Perry, 2004).

● Figure 4-14 Transdermal patch.

3-week period of continuous use followed by a ring-free week to allow withdrawal bleeding (Fig. 4-15). The ring can be inserted by the woman and does not have to be fitted. The woman compresses the ring and inserts it into the vagina, behind the pubic bone, as far back as possible, but precise placement is not critical. The hormones are absorbed through the vaginal mucosa. It is left in place for 3 weeks and then removed and discarded. Effectiveness and adverse events are similar to those seen with combination OCs. Clients need to be counseled regarding timely insertion of the ring and what to do in case of accidental expulsion. This device is also being tested for extended regimens to reduce menstrual bleeding.

Implantable Contraceptives

Norplant is a subdermal time-release implant that delivers synthetic progestin, levonorgestrel. Once in place, it delivers 5 years of continuous, highly effective contraception. The original system consists of six Silastic capsules that are implanted in a fanlike pattern through a small incision, usually on the inside of a woman's upper arm. A one- and two-capsule Norplant system has been approved by the FDA but has not been marketed yet in the United States (Hatcher et al., 2002). Norplant, like progestin-only pills, acts by thickening cervical mucus so sperm cannot penetrate. The side effects are also similar to progestin-only pills: irregular bleeding, headaches, weight gain, breast tenderness, and depression. Fertility is restored quickly after it is removed. Norplant requires a minor surgical procedure for both insertion and removal. It is not currently available in the United States.

Intrauterine Devices (IUDs)

Intrauterine devices (IUDs) are small plastic T-shaped objects that are placed inside the uterus to provide contraception (Fig. 4-16). They prevent pregnancy by making the endometrium of the uterus hostile to implantation of a fertilized ovum by causing a nonspecific inflammatory reaction (Sloane, 2002). They may contain copper or progesterone to enhance their effectiveness. One or two attached strings protrude into the vagina so that the user can check for placement.

Currently there are three IUDs available in the United States: the copper ParaGard-T-380A; Progestasert, a progesterone device; and the levonorgestrel intrauterine system (LNG-IUS) Mirena, a levonorgestrel-releasing device. The ParaGard-T-380A is approved for 10 years of use. The Progestasert may stay in place 1 year, then must be removed and replaced. Mirena provides intrauterine conception for up to 5 years (Wysocki et al., 2002). Box 4-7 highlights warning signs of potential complications.

● Figure 4-15 Vaginal ring.

Emergency Contraception

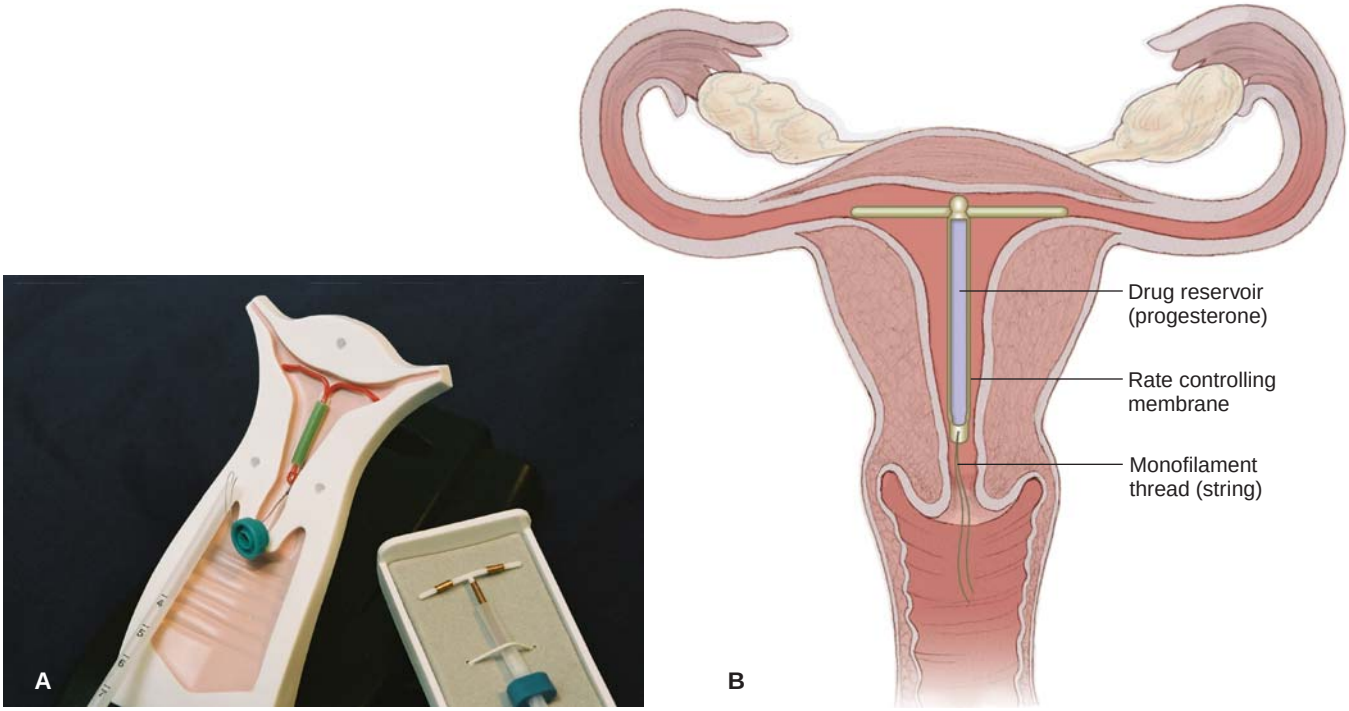
Emergency contraception (EC) reduces the risk of pregnancy after unprotected intercourse or contraceptive failure such as condom breakage (Sloane, 2002). It is used within 72 hours of unprotected intercourse to prevent pregnancy. The sooner ECs are taken, the more effective they are. They reduce the risk of pregnancy for a single act of unprotected sex by almost 80% (Weismiller, 2004). The four methods available in the United States are progestin-only OCs, combination OCs, EC kits (Preven or Plan B; Fig. 4-17), and preemptive endometrial aspiration. Table 4-7 lists recommended oral medication and intrauterine regimens.

Contrary to popular belief, ECs do not induce abortion and are not related to Mifepristone or RU-486, the so-called abortion pill approved by the FDA in 2000. Mifepristone chemically induces abortion by blocking the body's progesterone receptors, which are necessary for pregnancy maintenance. ECs simply prevent embryo creation and uterine implantation from occurring in the first place. There is no evidence that ECs have any effect on an already implanted ovum. The side effects are nausea and vomiting.

Abortion

Abortion is defined as the expulsion of an embryo or fetus before it is viable (Alexander et al., 2004). Abortion can be a medical or surgical procedure. The purpose of abortion is to terminate a pregnancy. Surgical abortion is the most common procedure performed in the United States, approximately 1.6 million annually, and might be the most common surgical procedure in the world (Speroff & Fritz, 2005). Both medical and surgical abortions are safe and legal in the United States; an abortion is considered a woman's constitutional right based on the fundamental right to privacy (Sloane, 2002).

Since the landmark U.S. Supreme Court decision *Roe v. Wade* legalized abortion in 1973, debate has continued over how and when abortions are provided. Every state has laws regulating some aspects of the provision of abortion, and many have passed restrictions such as parental consent or notification requirements, mandated counseling and waiting periods, and limits on funding for abortion.



● Figure 4-16 (**A**) Intrauterine device. (**B**) An IUD in place in the uterus.

Each state addresses these matters independently, and the laws that are passed or enforced are a legislative decision and a function of the political system. Although opponents of abortion continue to be very much a part of the current debates, recently they have refocused their attention on "regulation legislation" to reduce the number of abortions not medically necessary. For this continuing emotional debate, we will all have to stay tuned to see what the future holds within the political arena.

Surgical Abortion

Surgical abortion is usually carried out by vacuum aspiration or suction curettage. It is an ambulatory procedure done under local anesthesia. The cervix is dilated prior to surgery and then the products of conception are removed by suction evacuation. The uterus may gently be scraped by curettage to make sure that the uterus is empty. The entire procedure lasts about 10 minutes.

BOX 4-7

WARNINGS FOR IUD USERS OF POTENTIAL COMPLICATIONS

P Period late, pregnancy, abnormal spotting or bleeding
A Abdominal pain, pain with intercourse
I Infection exposure, abnormal vaginal discharge
N Not feeling well, fever, chills
S String length shorter or longer or missing
(Hatcher et al., 2002)

Medical Abortion

In a *medical abortion,* the woman takes certain medications to induce a miscarriage to remove the products of conception. There are two methods currently used to terminate a pregnancy during the first trimester. The first method uses methotrexate (an antineoplastic agent) followed by misoprostol (a prostaglandin agent) given as a vaginal suppository or in oral form 3 to 7 days later. Methotrexate induces abortion because of its toxicity to trophoblastic tissue, the growing embryo. Misoprostol works by causing uterine contractions, which helps to expel the products of conception. This method is 90% to 98% successful in completing an abortion (Hatcher et al., 2004).

● Figure 4-17 Emergency contraceptive kit.

Table 4-7 Emergency Contraception (EC) Options

Product	First Dose (Within 72 Hours)	Second Dose (Taken 12 Hours Later)
Combined OCs		
Preven	2 tablets	2 tablets
Ovral Lo/Ovral, Nordette Levlen, TriLevlen Triphasil	4 tablets	4 tablets
Progestin-Only OCs		
Ovrette	20 tablets	20 tablets
Plan B	1 tablet	1 tablet
Intrauterine Devices		
Copper-containing IUD such as Paragard-T-380A	Inserted within 7 days after unprotected sexual episode	Can be left in for long-term contraception

The second method used to induce first-trimester abortions involves using mifepristone (a progesterone antagonist) followed 48 hours later by misoprostol (a prostaglandin agent), which causes contractions of the uterus and expulsion of the uterine contents. Mifepristone, the generic name for RU-486, is sold under the brand names Mifeprex and Early Option. Mifepristone is a potent oral anti-progestogen; it blocks the action of progesterone that prepares the endometrium for implantation and then maintains the pregnancy. This method is 95% effective when used within 49 days after the last menstrual cycle (Hatcher et al., 2004).

Sterilization

Sterilization is an attractive method of contraception for those who are certain they do not want any or more children. Sterilization refers to surgical procedures intended to render the person infertile (Lowdermilk & Perry, 2004). Sterilization is among the most popular method of contraception in the United States and worldwide (Youngkin & Davis, 2004). More women than men undergo surgical sterilization. According to the U.S. Centers for Disease Control & Prevention (CDC), approximately 18% of women undergo female sterilization in comparison to 7% of men in the United States (CDC, 2004). Sterilization should be considered a permanent end to fertility because reversal surgery is difficult, expensive, and not highly successful.

Tubal Ligation

Tubal ligation, the sterilization procedure for women, can be performed postpartum, after an abortion, or as an interval procedure unrelated to pregnancy. A laparoscope is inserted through a small subumbilical incision to provide a view of the fallopian tubes. They are grasped and sealed with a cauterizing instrument or with rings, bands, or clips or cut, and tied (Fig. 4-18).

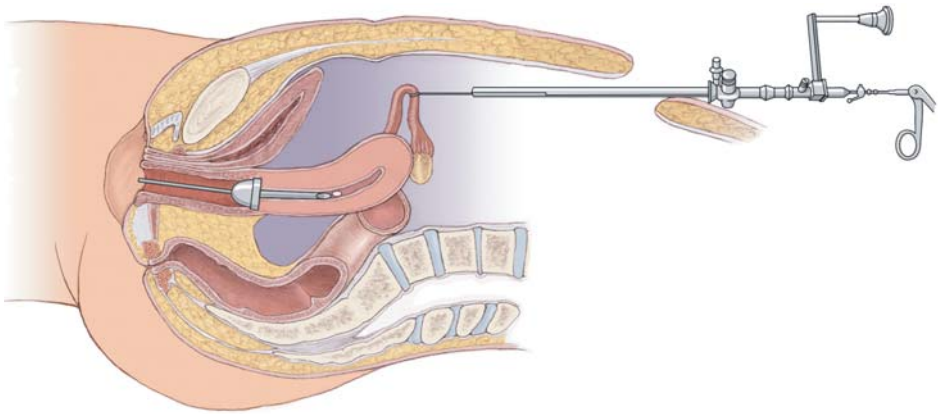
A new approach used to visualize the fallopian tubes is through the cervix instead of the abdominal incision. This procedure, called transcervical sterilization, offers several advantages over conventional tubal ligation: general anesthesia and incisions are not needed, thereby increasing safety, lowering costs, and improving access to sterilization. A tiny coil is introduced and released into the fallopian tubes through the cervix. The coil promotes tissue growth in the fallopian tubes, and over a period of 3 months, this growth blocks the tubes (Schwartz & Gabelnick, 2002). This new technique has become increasingly popular.

Vasectomy

Male sterilization is accomplished with a surgical procedure known as a **vasectomy.** It is usually performed under local anesthesia in an urologist's office, and most men can return to work and normal activities in a day or two. The procedure involves making a small incision into the scrotum and cutting the vas deferens, which carries sperm from the testes to the penis (Fig. 4-19). After vasectomy, semen no longer contains sperm. This is not immediate, though, and the man must submit semen specimens for analysis until two specimens show that no sperm is present (Murray & McKinney, 2006).

Nursing Management

The choice of a contraceptive method is a very personal one involving many factors. What makes a woman choose



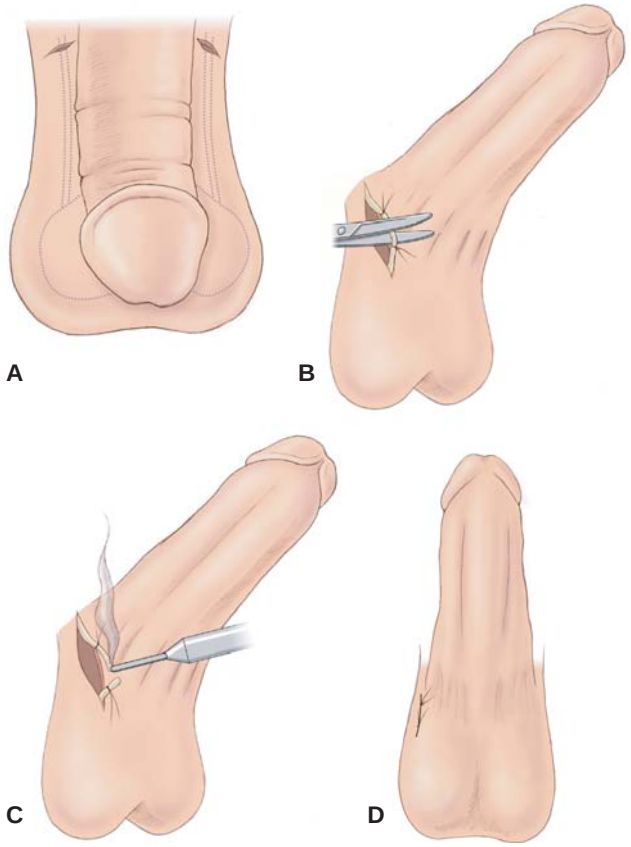
● Figure 4-18 Laparoscopy for tubal sterilization.

one contraceptive method over another? In making contraceptive choices, couples must balance their sexual lives, their reproductive goals, and each partner's health and safety. The search for a choice that satisfies all three objectives is challenging. A method that works for a sexually active teenage girl may not meet her needs later in life. Several considerations influence a person's choice of contraceptives:

- Motivation
- Cost
- Cultural and religious beliefs (Box 4-8)
- Convenience
- Effectiveness
- Side effects
- Desire for children in the future
- Safety of the method
- Comfort level with sexuality
- Protection from STIs
- Interference with spontaneity

If a contraceptive is to be effective, the woman must understand how it works, must be able to use it correctly and consistently, and must be comfortable and confident with it.

A nurse can provide clients with facts to help them decide which contraceptive method is right for them. The nurse can educate clients about which methods are available and their advantages and disadvantages, efficacy, cost, and safety.



● Figure 4-19 Vasectomy. (**A**) Site of vasectomy incisions. (**B**) The vas deferens being cut with surgical scissors. (**C**) Cut ends of the vas deferens are cauterized to completely ensure blockage of the passage of sperm. (**D**) Final skin suture.

Assessment

When assessing which contraceptive method might meet the client's needs, the nurse might ask:

- Do your religious beliefs interfere with any methods?
- Will this method interfere with your sexual pleasure?
- Are you aware of the various methods currently available?
- Is cost a major consideration, or does your insurance cover it?
- Does your partner influence which method you choose?
- Have you heard anything troubling about any of the methods?
- How comfortable are you touching your own body?
- What are your future plans for having children?

Counseling can help the woman choose a contraceptive method that is efficacious and fits her personal preferences and lifestyle. Although deciding on a contraceptive is a very personal decision between a woman and her

BOX 4-8

SELECTED RELIGIOUS CHOICES FOR FAMILY PLANNING AND ABORTION

- Roman Catholic—Abstinence and natural family planning; no abortion
- Judaism—Yes for family planning and abortion in first trimester
- Islam—Family planning accepted; abortion only for serious reasons
- Protestant Christianity—Firmly in favor of family planning; mixed on abortion
- Buddhism—Long experience with family planning and abortion
- Hinduism—Accept both family planning and abortion
- Native American religions—Accept both family planning and abortion
- Chinese religions—Taoism and Confucianism accept both (Maguire, 2004)

partner, nurses can assist in this process by assessing the following areas:

- Medical history: smoking status, cancer of reproductive tract, diabetes mellitus, migraines, hypertension, thromboembolic disorder, allergies, risk factors for cardiovascular disease
- Family history: cancer, cardiovascular disease, hypertension, stroke, diabetes
- OB/GYN history: menstrual disorders, current contraceptive, previous STIs, PID, vaginitis, sexual activity
- Personal history: use of tampons and female hygiene products, plans for childbearing, comfort with touching herself, number of sexual partners and their involvement in the decision
- Diagnostic testing: urinalysis, complete blood count, Pap smear, wet mount to check for STIs, HIV/AIDS tests, lipid profile, glucose level
- Physical examination: height, weight, blood pressure, breast examination, thyroid palpation, pelvic examination

Figure 4-20 shows a Family Planning flow record to be used during the assessment. After collecting the assessment data above, consider the medical factors to help decide if she is a candidate for all methods or whether some should be eliminated. For example, if she reports she has multiple sex partners and has a lengthy history of various pelvic infections, she would not be a good candidate for an IUD, based on her infection history. Barrier methods (male or female condoms) of contraception might be recommended to this client to offer protection against STIs.

Nursing Diagnoses

A few nursing diagnoses that might be appropriate based on the nurse's assessment during the decision-making process might be:

- Deficient knowledge related to:
  - methods available
  - side effects/safety
  - correct use of method chosen
  - previous myths believed
- Risk for infection related to:
  - unprotected sexual intercourse
  - past history of STIs
  - methods offering protection

Nursing diagnoses applicable to the contraceptive would be:

- Health-seeking behaviors related to:
  - perceived need for limiting number of children
  - overall health relative to contraceptives
- Risk for ineffective health maintenance related to:
  - not being familiar with the various contraceptive methods
  - being unaware of high-risk sexual behavior leading to STIs
- Fear related to:
  - not understanding the correct procedure to use
  - unintended pregnancy occurring if not used correctly
  - general health concerning the long-term side effects

Nursing Interventions

It is important for the nurse to establish a trusting relationship with the client. The following guidelines are helpful in counseling and educating the client or couple about contraceptives:

- Encourage the client/couple to participate in choosing a method.
- Provide client education. The client/couple must be informed users before the method is agreed upon. Education should be targeted to the client's level so it is understood. Provide step-by-step teaching and an opportunity for practice for certain methods (cervical caps, diaphragms, vaginal rings, and condoms). See Teaching Guidelines 4-5 and Figure 4-21.
- Obtain written informed consents, which are needed for IUDs, implants, abortion, or sterilization. Informed consent implies that the client is making a knowledgeable, voluntary choice; has received complete information about the method, including the risks; and is free to change her mind before using the method or having the procedure (Youngkin & Davis, 2004).
- Discuss contraindications for all selected contraceptives.
- Consider the client's cultural and religious beliefs when providing care.
- Address myths and misperceptions about the methods under consideration in your initial discussion of contraceptives. Clearing up misconceptions will permit new learning to take hold and a better client response to whichever methods are explored and ultimately selected. Some common ones include:
  - Breastfeeding protects against pregnancy.

FAMILY PLANNING FLOW (VISIT) RECORD

Name:_____
ID #:_____
Date of Birth:_____

	Date:		Date:	
Current Method				
Reason for Visit				
LMP				
SUBJECTIVE DATA	**Pt.**	**Comments**	**Pt.**	**Comments**
Severe headaches				
Depression				
Visual abnormalities				
Dyspnea/chest pain				
Breast changes				
SBE				
Abdominal pain				
Nausea and vomiting				
Dysuria/frequency				
Menstrual irregularities				
Vaginal discharge/infections				
Leg pain				
Surgery, injury, infections, or serious illness since last visit				
Allergic reaction				
Pregnancy plans				
Other				
OBJECTIVE DATA	**Weight**	**B.P.**	**Weight**	**B.P.**
Other				
Lab				
ASSESSMENT Check here if assessment continues on progress notes	O		O	
PLAN Type of contraceptive given				
COUNSELING/EDUCATION				
Next appointment				
SIGNATURE/TITLE				
SIGNATURE/TITLE				

O = normal ✓= abnormal

● Figure 4-20 Family planning flow (visit) record.

TEACHING GUIDELINES 4-5

Tips for Cervical Caps, Diaphragms, Vaginal Rings, and Condoms

Cervical cap insertion/removal technique:

- It is important to be involved in the fitting process.
- To insert the cap, pinch the sides together, compress the cap dome, insert into the vagina, and place over the cervix.
- Use one finger to feel around the entire circumference to make sure there are no gaps between the cap rim and the cervix.
- After a minute or two, pinch the dome and tug gently to check for evidence of suction. The cap should resist the tug and not slide off easily.
- To remove the cap, press the index finger against the rim and tip the cap slightly to break the suction, and gently pull out the cap.
- The woman should practice inserting and removing the cervical cap three times to validate her proficiency with this device.

Client teaching and counseling regarding the cervical cap:

- Fill the dome of the cap up about 1/3 full with spermicide cream or jelly. Do not apply spermicide to the rim, since it may interfere with the seal.
- Wait approximately 30 minutes after insertion before engaging in sexual intercourse to be sure that a seal has formed between the rim and the cervix.
- Leave the cervical cap in place for a minimum of six hours after sexual intercourse. It can be left in place for up to 48 hours without additional spermicide being added.
- Do not use during menses due to the potential for toxic shock syndrome. Use an alternative method such as condoms during this time.
- Inspect the cervical cap prior to insertion for cracks, holes, or tears.
- After using the cervical cap, wash it with soap and water, dry thoroughly, and store in its container.

Diaphragm insertion/removal technique:

- Always empty the bladder prior to inserting the diaphragm.
- Inspect diaphragm for holes or tears by holding it up to a light source, or fill it with water and check for a leak.
- Place approximately a tablespoon of spermicidal jelly or cream in the dome and around the rim of the diaphragm.
- The diaphragm can be inserted up to 6 hours prior to intercourse.
- Select the position that is most comfortable for insertion:
  - Squatting
  - Leg up, raising the nondominant leg up on a low stool
  - Reclining position, lying on her back in bed
  - Chair method, sitting forward on the edge of a chair
- Hold the diaphragm between the thumb and fingers and compress it to form a "figure-eight" shape.
- Insert the diaphragm into the vagina, directing it downward as far as it will go.
- Tuck the front rim of the diaphragm behind the pubic bone so that the rubber hugs the front wall of the vagina.
- Feel for the cervix through the diaphragm to make sure it is properly placed.
- To remove the diaphragm, insert the finger up and over the top side and move slightly to the side, breaking the suction.
- Pull the diaphragm down and out of the vagina.

Client teaching and counseling regarding the diaphragm:

- Avoid the use of oil-based products such as baby oil, since this may weaken the rubber.
- Wash the diaphragm with soap and water after use and dry thoroughly.
- Place the diaphragm back into the storage case.
- The diaphragm may need to be refitted after weight loss or gain or childbirth.
- Diaphragms should not be used by women with latex allergies.

Vaginal ring insertion/removal technique and counseling:

- Each ring is used for one menstrual cycle, which consists of 3 weeks of continuous use followed by a ring-free week to allow for menses.
- No fitting is necessary—one size fits all.
- The ring is compressed and inserted into the vagina, behind the pubic bone, as far back as possible.
- Precision placement is not essential.
- Backup contraception is needed for 7 days if the ring is expelled for more than 3 hours during the three-week period of continuous use.
- The vaginal ring is left in place for 3 weeks, then removed and discarded.
- The vaginal ring is not recommended for women with uterine prolapse or lack of vaginal muscle tone (Youngkin & Davis, 2004).

Male condom insertion/removal technique and counseling:

- Always keep the condom in its original package until ready to use.
- Store in a cool, dry place.
- Spermicidal condoms should be used if available.
- Check expiration date before using.
- Use a new condom for each sexual act.
- Condom is placed over the erect penis prior to insertion.
- Place condom on the head of the penis and unroll it down the shaft.

(continued)

TEACHING GUIDELINES 4-5

Tips for Cervical Caps, Diaphragms, Vaginal Rings, and Condoms (continued)

- Leave a half-inch of empty space at the end to collect ejaculate.
- Avoid use of oil-based products, because they may cause breakage.
- After intercourse, remove the condom while the penis is still erect.
- Discard condom after use.

Female condom insertion/removal technique and counseling:

- Practice wearing and inserting prior to first use with sexual intercourse.
- Condom can be inserted up to 8 hours before intercourse.
- Condom is intended for one-time use.
- It can be purchased over the counter—one size fits all.
- Avoid wearing rings to prevent tears; long fingernails can also cause tears.
- Spermicidal lubricant can be used if desired.
- Insert the inner ring high in the vagina, against the cervix.
- Place the outer ring on the outside of the vagina.
- Make sure the erect penis is placed inside the female condom.
- Remove the condom after intercourse. Avoid spilling the ejaculate.

  - Pregnancy can be avoided if the male partner "pulls out" before he ejaculates.
  - Pregnancy can't occur during menses.
  - Douching after sex will prevent pregnancy.
  - Pregnancy won't happen on the first sexual experience.
  - Taking birth control pills protects against STIs.
  - The woman is too old to get pregnant.
  - Irregular menstruation prevents pregnancy.
- Focus on the following specific information for each method outlined:
  - How this particular method works to prevent pregnancy
  - How effective it is under normal circumstances of use
  - Noncontraceptive benefits to overall health
  - Advantages and disadvantages of all methods
  - Cost involved
  - Danger signs that need to be reported to healthcare provider
  - Frequency of office visits needed
- Outline factors that place the client at risk for method failure. There are several reasons why there are contraceptive failures. A few that nurses could help to educate their clients about are outlined in Table 4-8.
- Help clients who have chosen abstinence or fertility awareness methods to define what sexual activities they want and don't want. This helps them set sexual limits or boundaries. Help them to develop communication and negotiation skills that will allow them to be successful. Supporting, encouraging, and respecting a couple's choice of abstinence is vital for nurses.
- Emphasize that a second method to use as a backup is always needed.
- Provide both oral and written instructions on the method chosen.
- Discuss the need for STI protection if not using a barrier method.
- Inform the client about the availability of ECs.
- Abortion is a very emotional, deeply personal issue. Give support and accurate information. If for personal, religious, or ethical reasons you feel unable to actively participate in the care of a woman undergoing an abortion, you still have the professional responsibility to ensure that the woman receives the nursing care and help she requires. This may necessitate a transfer to another area or a staffing reassignment.

● Figure 4-21 The nurse demonstrates insertion of a vaginal ring during client teaching.

Contraception is an important issue for all couples, and the method used should be decided by the woman and her partner jointly. The nurse can facilitate this process by providing unbiased, accurate information about all methods available. As a nurse you need to reflect honestly on your feelings towards contraceptives while allowing the client's feelings to be central. Nurses should be aware of the practical issues involved in contraceptive use and must be determined to avoid making assumptions, making decisions on the woman's behalf, and making judgments about her and her situation. To do so, the nurse must keep up to date on the latest methods available and convey this information to clients. Nurses can encourage female clients to take control of

Table 4-8 Contraceptive Problems and Educational Needs

Contraceptive Failure Problem	Client Education Needed
Not following instructions for use of contraceptive correctly	Take pill the same time every day. Use condoms properly and check condition before using. Make sure diaphragm or cervical cap covers cervix completely. Check IUD for placement monthly.
Inconsistent use of contraceptive	Contraceptives must be used regularly to achieve maximum effectiveness. All it takes is one unprotected act of sexual intercourse to become pregnant.
Condom broke during sex	2% to 5% will break or tear during use. Check expiration date. Store condoms properly. Use only a water-based lubricant. Watch for tears caused by long fingernails. Use spermicides to decrease possibility of pregnancy if failure occurs.
Use of antibiotics or other herbs taken with OCs	Use alternative methods during the antibiotic therapy, plus 7 additional days. Implement on day 1 of taking antibiotics.
Belief that you can't get pregnant during menses or that it is safe "just this one time."	It may be possible to become pregnant on almost any day of the menstrual cycle.

Source: Herndon & Zieman, 2004.

their lives by sharing information that allows them to plan their futures.

Menopause

The change of life. The end of fertility. The beginning of freedom. Whatever people call it, menopause is a unique and personal experience for every woman. **Menopause** refers to the cessation of regular menstrual cycles. It is the end of menstruation and childbearing capacity. The average age of natural menopause—defined as 1 year without a menstrual period—is 51 years old (Alexander et al., 2004). With current female life expectancy at 80, this event comes in the middle of women's adult life. Interestingly, humans are virtually the only species to outlive their reproductive capacities.

Menopause signals the end of an era for many women. It concludes their ability to reproduce, and some women find advancing age, altered roles, and these physiologic changes to be overwhelming events that may precipitate depression and anxiety (Kessenich, 2004).

Why or how does this happen? A woman is born with approximately 500,000 ova, but only 300 to 400 ever mature fully to be released during the menstrual cycle. The absolute number of ova in the ovary is a major determinant of fertility. Over the course of her premenopausal life there is a steady decline in the number of immature ova. No one understands this depletion, but it does not occur in isolation. Maturing ova are surrounded by follicles that produce two major hormones: estrogen, in the form of estradiol, and progesterone. The cyclic maturation of the ovum is directed by the hypothalamus. The hypothalamus triggers a cascade of neurohormones, which act through the pituitary and the ovaries as a pulse generator for reproduction.

This hypothalamic-pituitary-ovarian axis begins to break down long before there is any sign that menopause is imminent. Some scientists believe that the pulse generator in the hypothalamus simply degenerates; others speculate that the ovary becomes more resistant to the pituitary hormone FSH and simply shuts down (Sloane, 2002). The final act in this well-orchestrated process is amenorrhea.

As menopause approaches, more and more of the menstrual cycles become anovulatory. This period of time, usually 2 to 8 years, before cessation of menstruation is termed *perimenopause* (Shoupe, 2002). In perimenopause, the ovary begins to sputter, producing irregular and missed periods and an occasional hot flash. When menopause finally appears, viable ova are gone. Estrogen levels plummet by 90%, and estrone, produced in fat cells, replaces estradiol as the body's main form of estrogen. The major hormone produced by the ovaries during the reproductive years is estradiol; the estrogen found in postmenopausal women is estrone. Estradiol is much more biologically active than estrone (Sloane, 2002). In addition, testosterone levels decrease with menopause.

Menopause, with a dramatic decline in estrogen, affects not only the reproductive organs, but also other bodily systems:

- Brain: hot flashes, disturbed sleep, mood and memory problems

- Cardiovascular: lower levels of HDL and increase in risk of cardiovascular disease
- Skeletal: rapid loss of bone density increases the risk of osteoporosis
- Breasts: duct and glandular tissues are replaced by fat
- Genitourinary: vaginal dryness, stress incontinence, cystitis
- Gastrointestinal: less calcium is absorbed from food, increasing the risk for fractures
- Integumentary: skin becomes dry and thin, and collagen levels decrease
- Body shape: more abdominal fat; waist size swells relative to hips

Assessment

Menopause is a universal and irreversible part of the overall aging process involving a woman's reproductive system. While not a disease state, menopause does place women at greater risk for the development of many conditions of aging. Proactive disease prevention can help the woman become aware of her risk for postmenopausal diseases, as well as strategies to prevent them. The nurse can be instrumental in assessing risk factors and planning interventions in collaboration with the client. These might include:

- Screening for osteoporosis, cardiovascular disease, and cancer risk
  - Assessment of blood pressure to identify hypertension
  - Blood cholesterol to identify hyperlipidemia risk
  - Mammogram to find a cancerous lesion
  - Pap smear to identify cervical cancer
  - Pelvic examination to identify endometrial cancer or masses
  - Digital rectal examination to assess for colon cancer
  - Bone density testing as a baseline at menopause to identify osteopenia (low bone mass), which might lead to osteoporosis
- Assessing lifestyle to plan strategies to prevent chronic conditions:
  - Dietary intake of fat, cholesterol, and sodium
  - Weight management
  - Calcium intake
  - Use of tobacco, alcohol, and caffeine
  - Performance of breast self-examinations

Treatment

Menopause should be managed individually. In the past, despite the wide diversity of symptoms and risks, the traditional reaction was to reach for the one-size-fits-all therapy: hormone therapy. Today the medical community is changing its thinking in light of the Women's Health Initiative study, which reported that long-term hormone replacement therapy (HRT) increased the risks of heart attacks, strokes, and breast cancer; in short, the overall health risks of HRT exceeded the benefits (Writing Group 2002, p. 321). As expected, the fallout from this study and others forced practitioners to reevaluate their usual therapies and tailor treatment to each client's history, needs, and risk factors.

There is a universe of treatment options out there, but factors in the client's history should be the driving force when determining therapy. Women need to educate themselves about the latest research findings and collaborate with their healthcare provider on the right menopause therapy. The following factors should be considered in management:

- HRT is not indicated to treat or prevent cardiovascular disease, according to Women's Health Initiative study. Instead, consider lipid-lowering agents and lifestyle changes if risk or disease is present.
- HRT should not be taken for more than 5 years for vasomotor symptoms. Use the lowest dose possible for any hormone therapy.
- Consider nonhormonal therapies such as bisphosphonates and selective estrogen receptor modulators (SERMs).
- Consider weight-bearing exercises, calcium, vitamin D, smoking cessation, and avoidance of alcohol to treat or prevent osteoporosis.
- Annual breast examinations and mammograms are essential.
- Local estrogen creams can be used for vaginal atrophy.
- Consider herbal therapies for symptoms (Kaunitz, 2005).

Although numerous symptoms have been attributed to menopause (Box 4-9), some of them are more closely related to the aging process than to estrogen deficiency. A few of the more common menopausal conditions and their management will be discussed.

Hot Flashes and Night Sweats

Hot flashes and night sweats are classic signs of estrogen deficiency and the predominant complaint of perimenopausal women. A *hot flash* is a transient and sudden sen-

BOX 4-9

COMMON SYMPTOMS OF MENOPAUSE

- Hot flashes or flushes of the head and neck
- Dryness in the eyes and vagina
- Personality changes
- Anxiety and/or depression
- Loss of libido
- Weight gain and water retention
- Night sweats
- Fatigue
- Irritability
- Insomnia
- Stress incontinence
- Heart palpitations (Ernst, 2003)

sation of warmth that spreads over the body, particularly the neck, face, and chest. Hot flashes are caused by vasomotor instability. Nearly 85% of menopausal women experience them (Alexander et al., 2003). Hot flashes are an early and acute sign of estrogen deficiency. These flashes can be mild or extreme and can last from 2 to 30 minutes (Shoupe, 2002).

There are many options for treating hot flashes. Treatment must be based on symptom severity, the client's medical history, and the client's values and concerns. Although the gold standard in the treatment of hot flashes is estrogen, this is not recommended for all women. The following are suggestions for the management of hot flashes:

- Pharmacologic options
  - Estrogen replacement therapy (ERT) unless contraindicated
  - Androgen therapy (potentiates estrogen)
  - Progestin therapy (Depo-Provera injection every 3 months)
  - Clonidine (central alpha-adrenergic agonist) weekly patch
  - Propranolol (beta-adrenergic blocker)
  - Gabapentin (Neurontin): antiseizure drug
  - Vitamin E, 100 mg daily
  - SSRIs
- Lifestyle changes
  - Lower room temperature; use fans.
  - Wear clothing in layers for easy removal.
  - Limit caffeine and alcohol intake.
  - Drink 8 to 10 glasses of water daily.
  - Stop smoking or cut back.
  - Avoid hot drinks and spicy food.
  - Take calcium (1,200–1,500 mg) and vitamin D (400–600 IU).
  - Try relaxation techniques, deep breathing, and meditation.
  - Exercise daily, but not just before bedtime.
  - Maintain a healthy weight.
  - Identify stressors and learn to manage them.
  - Keep a diary to identify triggers of hot flashes.
- Alternative therapies
  - Soy: daily intake of 25 to 50 grams
  - Black cohosh: helps control hormone surges
  - Chamomile: mild sedative to alleviate insomnia
  - Chaste berry (Vitex): balances progesterone and estrogen
  - Dong quai: acts as a form of phytoestrogen
  - Ginseng: helps improve memory and balances hormones
  - St. John's wort: reduces depression and fatigue
  - Valerian root: induces sleep and relaxation (McKee & Warber, 2005)

Although scientific evidence for many of these alternative remedies might be lacking, their use has skyrocketed. While there might indeed be some benefits to their use, evidence of the efficacy of alternative products in menopause is largely anecdotal. Small, preliminary clinical trials might demonstrate the safety of some of the nonpharmacologic products, but longitudinal, randomized, placebo-controlled clinical trials that demonstrate their efficacy have yet to be conducted. Nurses should be aware of the purported action of these agents, as well as any potential adverse effects or drug interactions that women may experience.

Urogenital Changes

Menopause can be a physically and emotionally challenging time for women. In additional to the psychological burden of leaving behind the reproductive phase of life and the stigma of an "aging" body, sexual difficulties due to urogenital changes plague most women but are frequently not addressed.

Vaginal atrophy occurs during menopause because of declining estrogen levels. These changes include thinning of the vaginal walls, an increase in pH, irritation, increased susceptibility to infection, dyspareunia, loss of lubrication with intercourse, and a decrease in sexual desire related to the changes (Lowry et al., 2003).

Management of these changes might include the use of estrogen vaginal tablets (Vagifem) or Premarin cream; Estring, an estrogen-releasing vaginal ring that lasts for 3 months; testosterone patches; and over-the-counter moisturizers and lubricants (Astroglide). A positive outlook on sexuality and a supportive partner are also needed to make the sexual experience enjoyable and fulfilling (Bachmann, 2002).

Osteoporosis

Women are greatly affected by osteoporosis after menopause. Osteoporosis is a condition in which bone mass declines to such an extent that fractures occur with minimal trauma. Bone loss begins in the third or fourth decade of a woman's life and accelerates rapidly after menopause. It affects 8 million women, with millions more at high risk for developing it. This translates to 1 in 2 women over the age of 50 having an osteoporosis-related fracture in their lifetime (Alexander et al., 2003). This condition puts many women into long-term care, with a resulting loss of independence. Figure 4-22 shows the skeletal changes associated with osteoporosis.

Most women with osteoporosis don't know they have the disease until they sustain a fracture, usually of the wrist or hip. Risk factors include:

- Increasing age
- Postmenopausal status without hormone replacement
- Small frame, thin-boned
- Caucasian or Asian
- Impaired eyesight
- Rheumatoid arthritis
- Family history of osteoporosis

● Figure 4-22 Skeletal changes associated with osteoporosis.

- Sedentary lifestyle
- History of treatment with:
  - Antacids with aluminum
  - Heparin
  - Steroids
  - Thyroid replacement drugs
- Smoking and consuming alcohol
- Low calcium and vitamin D intake
- Excessive amounts of caffeine
- Anorexia nervosa or bulimia (Colyar, 2004)

Screening tests to measure bone density are not good predictors for young women who might be at risk for developing this condition. Dual-energy x-ray absorptiometry (DXA or DEXA) is a screening test that calculates the mineral content of the bone at the spine and hip. It is highly accurate, fast, and relatively inexpensive (Sloane, 2002).

The best management for this painful, crippling, and potentially fatal disease is prevention. Women can modify many risk factors by engaging in daily weight-bearing exercise, such as walking; increasing calcium and vitamin D intake; quitting smoking; and reducing their intake of alcohol and caffeine.

Medications that can help in preventing and managing osteoporosis include:

- ERT (Premarin)
- SERMs (Evista)
- Calcium and vitamin D supplements (Tums)
- Bisphosphonates (Actonel or Fosamax)
- Calcitonin (Miacalcin) (Bachmann, 2002)

Cardiovascular Disease

Although cardiovascular disease is still thought of as a "man's disease," it is the major killer of postmenopausal women 50 to 75 years of age (Sloane, 2002). Half a million women die annually in the United States of cardiovascular disease, with strokes accounting for about 20% of the deaths (Alexander et al., 2004).

For the first half of a woman's life, estrogen seems to be a protective substance for the cardiovascular system by smoothing, relaxing, and dilating blood vessels. It even helps boost HDL and lower LDL levels, helping to keep the arteries clean from plaque accumulation. But when estrogen levels plummet as women age and experience menopause, the incidence of cardiovascular disease increases dramatically.

Menopause is not the only factor that increases a woman's risk for cardiovascular disease. Lifestyle and medical history factors such as the following play a major role:

- Smoking
- Obesity
- High-fat diet
- Sedentary lifestyle
- High cholesterol levels
- Family history of cardiovascular disease
- Hypertension
- Apple-shaped body
- Diabetes

Nursing Management

There is no "magic bullet" in managing menopause. Nurses can counsel women about their risks and help them to prevent disease and debilitating conditions with specific health-maintenance education. Women should make their own decisions, but the nurse should make sure they are armed with the facts to do so intelligently. Nurses can offer a thorough explanation of the menopausal process, including the latest research findings, to help women understand and make decisions about this inevitable event.

Nurses should also promote "tried-and-true" tips for healthy living by encouraging women to:

- Participate actively in maintaining their health
- Exercise regularly
- Take supplemental calcium and eat appropriately to prevent osteoporosis
- Stop smoking to prevent lung and heart disease
- Reduce caffeine and alcohol intake to prevent osteoporosis
- Reduce dietary intake of fat, cholesterol, and sodium to prevent cardiovascular disease
- Maintain a health weight for body frame
- Control stress
- Perform breast self-examinations to detect breast lesions

These life approaches may be low-tech, but they can stave off menopause-related complications such as cardiovascular disease, osteoporosis, and depression. These tips for healthy living work well, but the client needs to be motivated and stick with it.

Summary

Sexual health is a concept that means different things to different people. In a global sense, it includes reproductive concerns in a woman's life from menarche through menopause, as this chapter has addressed. Nurses should aim to have a holistic approach to the sexual health of women and focus on health-promotion advice that will assist them to adapt to their changing bodies and needs throughout the life cycle. There will be incredible advances in all areas of women's health in the near future, and nurses must keep current in terms of new therapies to meet women's needs.

KEY CONCEPTS

- Establishing good health habits and avoiding risky behaviors early in life will prevent chronic conditions later on.
- There are more than 100 symptoms of PMS, and at least two different syndromes have been recognized: PMS and premenstrual dysphoric disorder (PMDD).
- Endometriosis is a condition in which bits of functioning endometrial tissue are located outside of their normal site, the uterine cavity.
- Infertility is a widespread problem that has an emotional, social, and economic impact on couples.
- More than half (53%) of all unintended pregnancies occur in women who report using some method of birth control during the month of conception.
- Hormonal methods include oral contraceptives, injectables, implants, vaginal rings, and transdermal patches.
- Recent studies have shown that the extension of active oral contraceptive pills carries the same safety profile as the conventional 28-day regimens.
- Currently there are three IUDs available in the United States: the copper ParaGard-T-380A; Progestasert, a progesterone device; and the levonorgestrel intrauterine system (LNG-IUS) Mirena, a levonorgestrel-releasing device.
- Sterilization is the most popular method of contraception in the United States and worldwide.
- Menopause, with a dramatic decline in estrogen levels, affects not only the reproductive organs but also other bodily systems.
- Most women with osteoporosis don't know they have the disease until they sustain a fracture, usually of the wrist or hip.
- Half a million women die annually in the United States of cardiovascular diseases, with strokes accounting for about 20% of the deaths.
- Nurses should aim to have a holistic approach to the sexual health of women from menarche through menopause.

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Web Resources

American College of Obstetricians and Gynecologists (ACOG): (202) 863-2518, **http://www.acog.org**
American Psychiatric Association: (202) 682-6000, **http://psych.org**
American Society for Reproductive Medicine: (205) 978-5000, **http://www.asrm.org**
Centers for Disease Control and Prevention: (202) 329-1819, **http://www.cdc.gov**
Emergency Contraception Hotline: (888) 668-2528, **http://www.not-2-late.com**
Endometriosis Association: (414) 355-2200, **http://www.ovf.com/endohtml.html**
Hormone Foundation: (800) 467-6663, **http://hormone.org**
International Counsel on Infertility Information Dissemination: (703) 379-9178, **http://www.inciid.org**
National Institute of Mental Health: (301) 443-4513, **http://www.nimh.nih.gov**
National Women's Health Resource Center: (877) 986-9472, **http://www.healthywomen.org**
National Women's Information Center (NWHIC): (800) 994-9662, **http://www.4women.gov**
North American Menopause Society: http://www.menopause.org
Planned Parenthood Federation of America, Inc.: (800) 669-0156, **http://www.plannedparenthood.org**
Premenstrual Institute: (248) 624-3366, **http://www.pmsinst.com**
Resolve, The National Infertility Association: (617) 623-0744, **http://www.resolve.org**

Chapter WORKSHEET

MULTIPLE CHOICE QUESTIONS

1. A couple is considered infertile after how many months of trying to conceive?
   a. 6 months
   b. 12 months
   c. 18 months
   d. 24 months
2. A couple reports that their condom broke while they were having sexual intercourse last night. What would you advise to prevent pregnancy?
   a. Inject a spermicidal agent into her vagina immediately.
   b. Obtain emergency contraceptives from their doctor.
   c. Douche with a solution of vinegar and hot water tonight.
   d. Take a strong laxative now and again at bedtime.
3. Which of the following combination contraceptives has been approved for extended continuous use?
   a. Seasonale
   b. NuvaRing
   c. Ortho Evra
   d. Mirena
4. Which of the following measures helps *prevent* osteoporosis?
   a. Iron supplementation
   b. Sleeping 8 hours nightly
   c. Eating lean meats only
   d. Walking 3 miles daily
5. Which of the following activities will *increase* a woman's risk of cardiovascular disease if she is taking oral contraceptives?
   a. Eating a high-fiber diet
   b. Smoking cigarettes
   c. Taking daily multivitamins
   d. Drinking alcohol
6. Hormone replacement therapy (HRT) taken by menopausal women reduces:
   a. Weight gain
   b. Bone density
   c. Hot flashes
   d. Heart disease
7. Throughout life, a woman's most proactive activity to promote health would be to engage in:
   a. Consistent exercise
   b. Socialization with friends
   c. Quality quiet time with herself
   d. Consuming water

CRITICAL THINKING EXERCISE

1. Ms. London, 25, comes to your family planning clinic requesting to have an intrauterine device (IUD) inserted because "birth control pills give you cancer." In reviewing her history, you note she has been into the STI clinic three times in the past year with vaginal infections and was hospitalized for pelvic inflammatory disease (PID) last month. In questioning her about her sexual history, she reports having sex with multiple partners and not always using protection.
   a. Is an IUD the most appropriate method for her? Why or why not?
   b. What myths/misperceptions will you address in your counseling session?
   c. Outline the safer sex discussion you plan to have with her.

STUDY ACTIVITIES

1. Arrange to shadow a nurse working in family planning for the morning. Observe the following: What questions does the nurse ask to ascertain the kind of family planning method that is right for this woman? What teaching goes along with each method? What follow-up care is needed? Share your findings with your classmates during a clinical conference.
2. Surf the Internet and locate three resources for infertile couples to consult that provide support and resources.
3. Sterilization is the most prevalent method of contraception used by married couples in the United States. Contact a local urologist and gynecologist to learn the procedure involved and the cost of a male and female sterilization. Which procedure poses less risk to the person and costs less?
4. Take a field trip to a local drugstore to check out the variety and costs of male and female condoms. How many different brands did you find? What was the range of costs?
5. Noncontraceptive benefits of combined oral contraceptives include which of the following? Select all that apply.

   a. Protection against ovarian cancer

   b. Protection against endometrial cancer

   c. Protection against breast cancer

   d. Reduction in incidence of ectopic pregnancy

   e. Prevention of functional ovarian cysts

   f. Reduction in deep venous thrombosis

   g. Reduction in the risk of colorectal cancer