

ESSENTIALS of Maternity, Newborn, & Women's Health Nursing - THIRD EDITION

Susan Scott Ricci, ARNP, MSN, MEd

4: Common Reproductive Issues

Learning Objectives

Upon completion of the chapter, you will be able to:

- **1.** Define the key terms used in this chapter.
- **2.** Examine 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.** Analyze the physiologic and psychological aspects of menopausal transition.
- **6.** Delineate the nursing management needed for women experiencing common reproductive disorders.

KEY TERMS

abortion

abstinence

amenorrhea

basal body temperature (BBT)

cervical cap

cervical mucus ovulation method

coitus interruptus

condoms

contraception

contraceptive sponge

Depo-Provera

diaphragm

dysfunctional uterine bleeding (DUB)

dysmenorrhea

dyspareunia

emergency contraception (EC)

ESSENTIALS of Maternity, Newborn, & Women's Health

Nursing - THIRD EDITION Susan Scott Ricci, ARNP, MSN, MEd

endometriosis

fertility awareness

implant

infertility

intrauterine contraceptive (IUC)

lactational amenorrhea method (LAM)

menopausal transition

oral contraceptives (OCs)

osteoporosis

premenstrual syndrome (PMS)

Standard Days Method (SDM)

sterilization

symptothermal method

transdermal patch

tubal ligation

vaginal ring

vasectomy

vulva

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 health care professional to identify problems early, when treatment may be most successful (**Teaching Guidelines 4.1**). Nurses can assist women in maintaining 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.

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 health care 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.

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

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 health care provider for consultation. The following menstruation-related conditions will be discussed in this section: amenorrhea, dysmenorrhea, dysfunctional uterine bleeding (DUB), premenstrual syndrome (PMS), premenstrual dysphoric disorder (PMDD), and endometriosis. To gain an understanding of menstrual disorders, nurses should know the terms used to describe them (**Box 4.1**).

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

Amenorrhea

Amenorrhea is the absence of menses during the reproductive years. Amenorrhea is normal in prepubertal, pregnant, postpartum, and postmenopausal females. The uterus, endometrial lining,

ESSENTIALS of Maternity, Newborn, & Women's Health

Nursing - **THIRD EDITION** Susan Scott Ricci, **ARNP, MSN, MEd**

ovaries, pituitary, and hypothalamus must function properly and in harmony for a menstrual cycle to occur. The two categories of amenorrhea are primary and secondary amenorrhea.

Primary amenorrhea is defined as either the:

- 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, 2010)

Ninety-eight percent of American girls menstruate by age 16 (Krantz, 2012a, 2012b). Secondary amenorrhea is the absence of menses for three cycles or 6 months in women who have previously menstruated regularly.

Etiology

Primary amenorrhea has multiple causes:

- 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 ovary syndrome
- Hypothyroidism
- Turner syndrome—defective development of the gonads (ovary or testes)
- Imperforate hymen
- Chronic illness—diabetes, thyroid disease, depression
- Pregnancy
- Cystic fibrosis
- Congenital heart disease (cyanotic)
- Ovarian or adrenal tumors (Oral & Aydogan, 2011)

Causes of secondary amenorrhea can include:

- Pregnancy
- Breast-feeding
- Emotional stress
- Pituitary, ovarian, or adrenal tumors
- Depression
- Hyperthyroid or hypothyroid conditions
- 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

ESSENTIALS of Maternity, Newborn, & Women's Health

Nursing - **THIRD EDITION** Susan Scott Ricci, ARNP, MSN, MEd

- Use of tranquilizers or antidepressants
- Postpartum pituitary necrosis (Sheehan syndrome)
- Early menopause (Storch, 2011)

Therapeutic Management

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. Dopamine agonists are effective in treating hyperprolactinemia. In most cases, this treatment restores normal ovarian endocrine function and ovulation (Santoro & Neal-Perry, 2010). Therapeutic interventions for secondary amenorrhea can include:

- Cyclic progesterone, when the cause is anovulation, or oral contraceptives
- Bromocriptine to treat hyperprolactinemia
- Nutritional counseling to address anorexia, bulimia, or obesity
- Gonadotropin-releasing hormone (GnRH), when the cause is hypothalamic failure
- Thyroid hormone replacement, when the cause is hypothyroidism (Popat & Sullivan, 2011)

Teaching Guidelines 4.2: TIPS FOR MAINTAINING A HEALTHY LIFESTYLE

- Balance energy expenditure with energy intake.
- Modify your 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 any medical conditions.
- Maintain bone density through:
 - Calcium intake (1,200 to 1,500 mg daily)
 - Vitamin D (1,000 International Units/daily)
 - Weight-bearing exercise (30 min or more daily)
 - Hormone therapy

Adapted from Holloway, D. (2011). An overview of the menopause: Assessment and management. *Nursing Standard*, 25(30), 47–58; and Popat, V., & Sullivan, S. D. (2011). Amenorrhea. *eMedicine*. Retrieved from <http://emedicine.medscape.com/article/252928-overview>.

Dysmenorrhea

ESSENTIALS of Maternity, Newborn, & Women's Health

Nursing - THIRD EDITION Susan Scott Ricci, ARNP, MSN, MEd

Dysmenorrhea refers to painful menstruation. This condition has also been termed *cyclic perimenstrual pain* (Calis, Papat, Dang, & Kalantaridou, 2011). The term *dysmenorrhea* is derived from the Greek words *dys*, meaning “difficult, painful, or abnormal,” and *rrhea*, meaning “flow.” It may affect more than half of menstruating women (Forman, 2011). Uterine contractions occur during all periods, but in some women these cramps can be frequent and very intense. Dysmenorrhea is classified as primary (spasmodic) or secondary (congestive) (Calis et al., 2011).

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 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 (Pinkerton, 2011b). 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. It occurs most commonly in the third or fourth decades of life and affects 10% of women of reproductive age (Adamson, 2011a). Endometriosis is the most common cause of secondary dysmenorrhea and is associated with pain beyond menstruation, dyspareunia, low back pain, and infertility (Coccia, Rizzello, Palagiano, & Scarselli, 2011). Treatment is directed toward removing the underlying pathology.

Think back to Izzy from the chapter opener. Is her pelvic pain complaint a common one with women?

Therapeutic Management

Severe dysmenorrhea can be distressing, adversely affecting social and occupational activities. Treatments vary from over-the-counter remedies to hormonal control. However, for some women satisfactory pain relief is difficult to achieve and alternative options are increasingly being sought. Complementary therapies such as acupuncture are gaining popularity and the evidence base for their use is growing (Cunningham & Tan, 2011).

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 to suppress ovulation, which thins the endometrial lining of the uterus with subsequent

ESSENTIALS of Maternity, Newborn, & Women’s Health

Nursing - **THIRD EDITION** Susan Scott Ricci, ARNP, MSN, MEd

reduction of fluid contents of the uterus during menses; and initiating lifestyle changes (Forman, 2011). **Table 4.1** lists selected treatment options for dysmenorrhea.

TABLE 4.1: TREATMENT OPTIONS FOR DYSMENORRHEA

Therapy Options	Dosage	Comments
Nonsteroidal anti-inflammatory agents (NSAIDs)		NSAIDs prevent prostaglandin synthesis by inhibiting COX-1 and COX-2 conversion, reducing cramping.
Ibuprofen (Advil, Motrin, Midol)	400–800 mg TID	Take with meals. Don’t take with aspirin.
Naproxen (Anaprox, Naprelan, Naprosyn, Aleve)	250–500 mg TID	Avoid alcohol. Watch for signs of GI bleeding. Same as above.
Hormonal contraceptives		Decrease prostaglandin synthesis; second-line treatment.
Low-dose oral contraceptives	Taken daily—extended cycle formulas (84 days on, 7 days off)	Take active pills for an extended time to reduce number of monthly cycles.
Depo-medroxyprogesterone (DMPA), Depo-Provera	150 mg IM every 12 wks	Within 9–12 mo of DMPA therapy, 75% of women will experience amenorrhea.
Levonorgestrel-releasing IUS (Mirena)	Inserted into uterine cavity and may remain for up to 5 yrs	Inhibits ovulation and decreases thickness of endometrium. Inhibits uterine contractions and reduces pain from menstrual cramps.

ESSENTIALS of Maternity, Newborn, & Women's Health

Nursing - THIRD EDITION Susan Scott Ricci, ARNP, MSN, MEd

Therapy Options	Dosage	Comments
Selective estrogen receptor modulators (SERMS)	Used for women not responding to NSAIDS and oral contraceptives; dosage is individualized	Adverse effects include hot flashes, nausea and vomiting, and risk of thromboembolism.
Raloxifene hydrochloride (Evista); tamoxifen citrate (Nolvadex)		Research is needed to validate effectiveness, doses, side effects, and contradictions.
Complementary therapies		
Thiamine (vitamin B)		
Vitamin E (tocopherols)		
Magnesium		Gives sense of control over life.
Omega-3 fatty acids (fish oil)		
Lifestyle changes		
Daily exercise		
Limited salty foods		
Weight loss		
Smoking cessation		
Relaxation techniques		
Adapted from Holder, A. (2011). Dysmenorrhea. <i>eMedicine</i> . Retrieved from http://emedicine.medscape.com/article/795677-overview ; King, T. L., & Brucker, M. C. (2011). <i>Pharmacology for women's health</i> . Sudbury, MA: Jones & Bartlett; and Schuiling, K. D., & Likis, F. E. (2013). <i>Women's gynecologic health</i> (2nd ed.) Sudbury, MA: Jones & Bartlett.		

ESSENTIALS of Maternity, Newborn, & Women's Health Nursing - THIRD EDITION

Susan Scott Ricci, ARNP, MSN, MEd

Laboratory and Diagnostic Tests

Common diagnostic tests that may be ordered to determine the cause of dysmenorrhea can include:

- Complete blood count to rule out anemia
- Urinalysis to rule out a bladder infection
- Pregnancy test (hCG level) to rule out pregnancy
- Cervical culture to exclude STI
- Erythrocyte sedimentation rate to detect an inflammatory process
- Stool guaiac test 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 (Forman, 2011)

What diagnostic tests might be ordered to diagnose Izzy's pelvic pain?

her care are listed in [Teaching Guidelines 4.3](#).

Teaching Guidelines 4.3: TIPS FOR MANAGING DYSMENORRHEA

- Exercise to increase endorphins and suppress 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.

Adapted from Chandran, L. (2011). Menstrual disorders. *eMedicine*. Retrieved from <http://emedicine.medscape.com/article/953945-overview>; Holder, A. (2011). Dysmenorrhea. *eMedicine*. Retrieved from <http://emedicine.medscape.com/article/795677-overview>; and Pinkerton, J. V. (2011a). The menstrual cycle—Mood disorder tandem: Screening, diagnosis, and treatment. *OBG Management*, 23(12), 24–30.

Dysfunctional Uterine Bleeding

Disturbances of menstrual bleeding manifest in a wide range of presentations. *Abnormal uterine bleeding* is the umbrella term used to describe any deviation from normal menstruation or from a normal menstrual cycle pattern. The key characteristics are regularity, frequency, heaviness of flow, and duration of flow, but each of these may exhibit

ESSENTIALS of Maternity, Newborn, & Women's Health

Nursing - THIRD EDITION

Susan Scott Ricci, ARNP, MSN, MED

considerable variability. More descriptive terminology is currently being deliberated internationally (Ian, 2011).

Dysfunctional uterine bleeding (DUB) is a disorder that occurs most frequently in women at the beginning and end of their reproductive years. Defined as irregular, abnormal bleeding that occurs with no identifiable anatomic pathology, it affects up to 50% of women (Thomas, 2011). 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 (Behera, 2011). 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)

Etiology

The possible causes of DUB may include:

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

Therapeutic Management

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 normalize

ESSENTIALS of Maternity, Newborn, & Women's Health

Nursing - **THIRD EDITION** Susan Scott Ricci, ARNP, MSN, MED

the bleeding, correct the anemia, prevent or diagnose early cancer, and restore quality of life (Thomas, 2011).

Management of DUB might include medical care with pharmacotherapy or insertion of a hormone-secreting intrauterine system. 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 progestin therapy (progesterone-releasing IUS [Mirena] or Depo-Provera) decrease menstrual blood loss significantly (King & Brucker, 2011). 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 in ovulatory menstrual cycles
- *Progesterone-releasing IUSs*: suppress endometrial growth
- *Androgens*: create a high-androgen/low-estrogen environment that inhibits endometrial growth
- *Iron salts*: replenish iron stores lost during heavy bleeding

If the client does not respond to medical therapy, surgical intervention might include dilation and curettage (D&C), endometrial ablation, or hysterectomy. Endometrial ablation is an alternative to hysterectomy. Techniques used for ablation include laser, electrosurgery excision procedure, freezing, heated fluid infusion, or thermal balloon ablation. Most women will have reduced menstrual flow following endometrial ablation, and up to half will stop having periods. Younger women are less likely than older women to respond to endometrial ablation. Recent scientific evidence supports that up to one quarter of clients treated with endometrial ablation require repeat ablation or subsequent hysterectomy to stop DUB. Hysterectomy should be considered a last resort for DUB when blood loss impedes health (Munro et al., 2011).

Premenstrual Syndrome

Premenstrual syndrome (PMS) describes a constellation of recurrent symptoms that occur during the luteal phase or last half of the menstrual cycle and resolve with the onset of menstruation (Biggs & Demuth, 2011). The American College of Obstetricians and Gynecologists (ACOG) defines premenstrual syndrome as “the cyclic occurrence of symptoms that are sufficiently severe to interfere with some aspects of life, and that appear with consistent and predictable relationship to menses” (ACOG, 2011). 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 75% of menstruating women report having one or more premenstrual symptoms, and up to 10% report disabling, incapacitating symptoms (Freeman et al., 2011). 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; Prozac, Paxil, Zoloft), however, which implies that other mechanisms may be involved (King & Brucker, 2011).

ESSENTIALS of Maternity, Newborn, & Women's Health

Nursing - **THIRD EDITION** Susan Scott Ricci, ARNP, MSN, MEd

As defined by the American Psychiatric Association, premenstrual dysphoric disorder (PMDD) is a more severe variant of PMS affecting 3% to 6% of premenopausal women. Experts compare the difference between PMS and PMDD to the difference between a mild tension headache and a migraine (Pinkerton, 2011a). PMDD markedly interferes with work, school, social activities, and relationships with others.

Therapeutic Management

Treatment of PMS is often frustrating for both clients and health care 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.

The management of PMS or PMDD requires a multi-dimensional 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 (Pinkerton, 2011a). To reduce the negative impact of premenstrual disorders on a woman's life, education, along with reassurance and anticipatory guidance, is needed for women to feel they have some control over their condition.

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](#)). Medications used in treating PMDD may include antidepressant and anti-anxiety drugs, diuretics, anti-inflammatory medications, analgesics, synthetic androgen agents, oral contraceptives, or GnRH agonists to regulate menses (King & Brucker, 2011).

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 and limit the 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)

ESSENTIALS of Maternity, Newborn, & Women's Health

Nursing - THIRD EDITION Susan Scott Ricci, ARNP, MSN, MED

- Anxiolytics (taken during luteal phase)
- Diuretics to remove excess fluid
- Progestins
- Gonadotropin-releasing hormone (GnRH) agonists
- Danazol (androgen hormone inhibits estrogen production)

Adapted from Biggs, W., & Demuth, R. (2011). Premenstrual syndrome and premenstrual dysphoric disorder. *American Family Physician*, 84(8), 918–924; Htay, T. T. (2011).

Premenstrual dysphoric disorder. *eMedicine*. Retrieved

from <http://emedicine.medscape.com/article/293257-overview>; Montazeri, S. (2011). Non-pharmacological treatment of premenstrual syndrome. *African Journal of Midwifery & Women's Health*, 5(3), 148–152; and Pinkerton (2011).

No single treatment is universally recognized as effective, and many clients often turn to therapeutic approaches outside of conventional medicine. Many women use dietary supplements and herbal remedies for their menstrual health and treating their bleeding disorders, although there has been little research to demonstrate their efficacy. Alternative therapies include the use of calcium carbonate, magnesium, vitamin B₆, evening primrose oil, vitex agnus castus, ginkgo biloba, viburnum, dandelion, stinging nettle, chaste tree berry, burdock, raspberry leaf, skullcap, and St. John's wort (Dante & Facchinetti, 2011). Although research has not validated the efficacy of these alternative therapies, it is important for the nurse to be aware of the alternative products that many women choose to use.

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 (Htay, 2011). It is estimated that up to 75% of reproductive-age women experience premenstrual symptoms that meet the ACOG criteria for PMS and up to 10% meet the diagnostic criteria for PMDD (Biggs & Demuth, 2011).

According to the American Psychiatric Association, a woman must have at least five of the typical symptoms to be diagnosed with PMDD (Pinkerton, 2011a). 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:

- Affective liability: sadness, tearfulness, irritability
- Anxiety and tension
- Persistent or marked anger or irritability
- Depressed mood, feelings of hopelessness
- Difficulty concentrating
- Sleep difficulties
- Increased or decreased appetite
- Increased or decreased sexual desire
- Chronic fatigue
- Headache
- Constipation or diarrhea
- Breast swelling and tenderness (Htay, 2011)

ESSENTIALS of Maternity, Newborn, & Women's Health

Nursing - THIRD EDITION

Susan Scott Ricci, ARNP, MSN, MEd

A recent research study proposes calcium (1,600 mg/day) and vitamin D (400 International Units/day) supplementation in adolescents and women in an effort to prevent PMS, but further research using a larger population needs to be conducted to validate this (Montazeri, 2011).

Explain the relationship between cyclic estrogen fluctuation and changes in serotonin levels and how the different management strategies help maintain serotonin 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, explain to the woman that she 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 6 million women in the United States, about 10% of the adult women population (Kapoor, 2011). 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.

ESSENTIALS of Maternity, Newborn, & Women's Health

Nursing - THIRD EDITION Susan Scott Ricci, ARNP, MSN, MEd

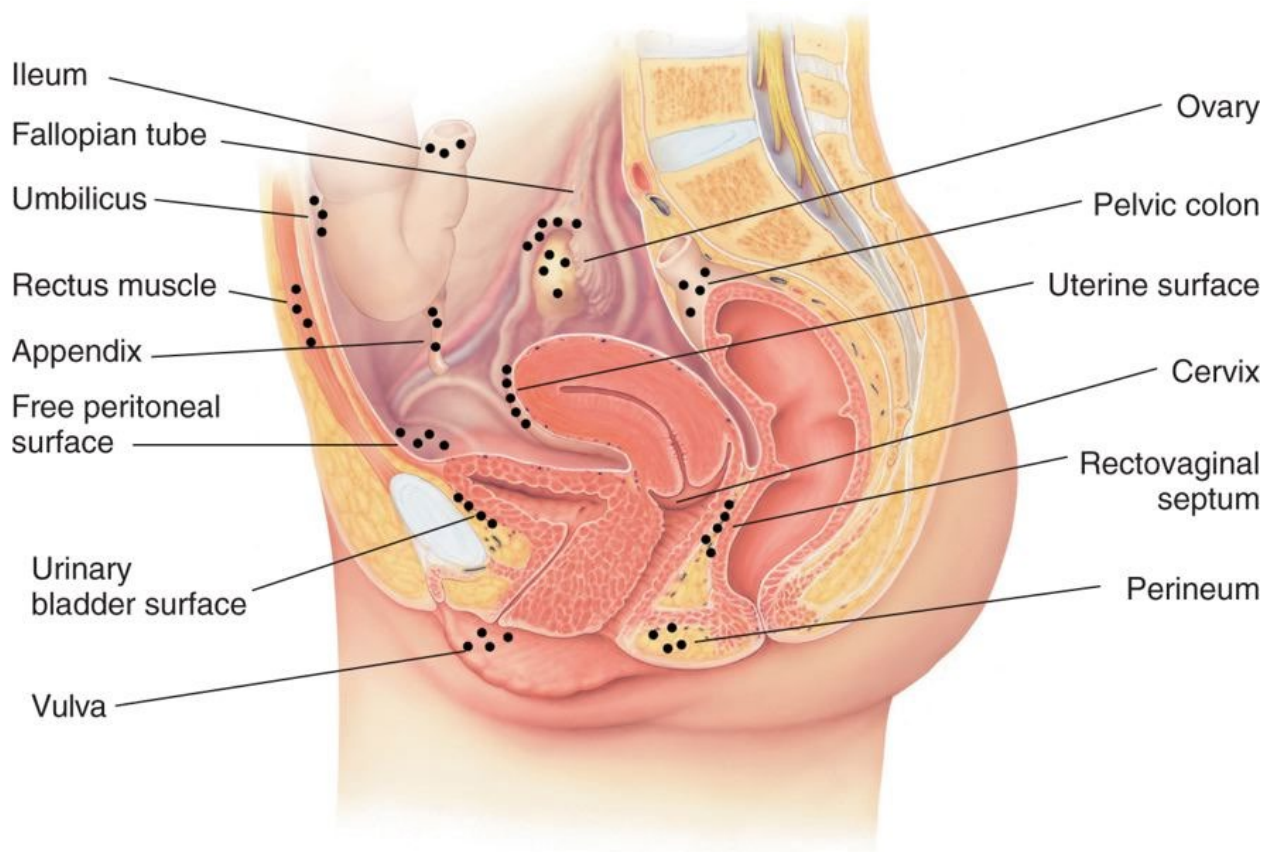


FIGURE 4.1

Common sites of endometriosis formation. (Asset provided by Anatomical Chart Co.)

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.

Think back to Izzy, with her progressive pelvic pain and infertility concerns. After a pelvic examination, her health care provider suspects she has endometriosis.

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 been scientifically proven. However, several factors 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)

ESSENTIALS of Maternity, Newborn, & Women's Health

Nursing - **THIRD EDITION** Susan Scott Ricci, ARNP, MSN, MEd

- High dietary fat consumption
- Young age of menarche (younger than 12)
- Few (one or two) or no pregnancies (Koninckx & Brosens, 2011)

Therapeutic Management

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 medications such as oral contraceptives, Depo-Provera, synthetic testosterone, and GnRH agonists (King & Brucker, 2011) ([Table 4.2](#)).

TABLE 4.2: TREATMENT OPTIONS FOR ENDOMETRIOSIS

Therapy Options	Comment
<i>Surgical intervention</i>	
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.
<i>Medication therapy</i>	
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

ESSENTIALS of Maternity, Newborn, & Women's Health Nursing - THIRD EDITION

Susan Scott Ricci, ARNP, MSN, MEd

Therapy Options	Comment
Gonadotropin-releasing hormone analogues (GnRH-a)	Suppresses endometriosis by creating a temporary pseudomenopause

Adapted from Kapoor, D. W. (2011). Endometriosis. *eMedicine*. Retrieved from <http://emedicine.medscape.com/article/271899-overview>; King, T. L., & Brucker, M. C. (2011). *Pharmacology for women's health*. Sudbury, MA: Jones & Bartlett; National Institute of Child Health and Human Development [NICHD]. (2011). *Endometriosis* (NIH Pub. No. 02-2413). Retrieved from <http://www.nichd.nih.gov/publications/pubs/endometriosis>; and Saul, T., & Dave, A. K. (2011). Emergent treatment of endometriosis. *eMedicine*. Retrieved from <http://emedicine.medscape.com/article/795771-overview>

The two most common symptoms are infertility and pelvic pain. Endometriosis occurs in 38% of infertile women and in 71% to 87% of women with chronic pelvic pain (Kapoor, 2011). About 30% to 40% of women with this condition are infertile, making it one of the top three causes of female infertility (National Institute of Child Health and Human Development [NICHD], 2011).

What are the two most common symptoms experienced by women with endometriosis? Is Izzy's profile typical? As a nurse, what would be your role in Izzy's continued workup?

Physical Examination and Laboratory and Diagnostic Tests

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. The only definitive diagnosis is one made during surgery (Saul & Dave, 2011).

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. Pelvic or transvaginal ultrasound is used to assess pelvic organ structures. However, a laparoscopy is needed to diagnose endometriosis. Laparoscopy is 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 confirms the diagnosis.

BOX 4.3: ORGANIZATIONS AND WEB RESOURCES TO ASSIST THE CLIENT WITH ENDOMETRIOSIS

- American College of Obstetricians and Gynecologists (ACOG) <http://www.acog.org> e-mail: resources@acog.org

ESSENTIALS of Maternity, Newborn, & Women's Health Nursing - THIRD EDITION

Susan Scott Ricci, ARNP, MSN, MEd

- American Society of Reproductive Medicine <http://www.asrm.org> e-mail: asrm@asrm.org
- Center for Endometriosis Care <http://www.centerforendo.com>
- Endometriosis Association <http://www.endometriosisassn.org> <http://www.KillerCramps.org>
- Endometriosis Association support groups e-mail: support@endometriosisassn.org
- National Institute of Child Health and Human Development Information Resource Center <http://www.nichd.nih.gov> e-mail: NICHDClearinghouse@mail.nih.gov
- National Women's Health Information Center (U.S. Department of Health and Human Services) <http://www.4women.gov>

INFERTILITY

Infertility is defined as the inability to conceive a child after 1 year of regular sexual intercourse unprotected by contraception (RESOLVE, 2011). 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 more than 6 million Americans, or 15% of the reproductive-age population, according to the American Society for Reproductive Medicine (ASRM, 2011). Infertility is a widespread problem that has an emotional, social, and economic impact on couples. Infertility affects relationships, leads to tension and anger between partners, and can result in severe sexual dysfunction and breakdown of the relationship. 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. Nurses have a central role in supporting couples through these stressful treatments. Couples will frequently confide in their nurse and can gain great benefit from a sympathetic and sensible discussion. Recent studies have found that women wish to be treated with respect and dignity and given appropriate information and support (Ledger, 2011). They want their distress recognized and they want to feel cared for and to have confidence in health care professionals in situations where outcomes were uncertain. The caring aspect of professional nursing is an essential component of meeting the special needs of these couples (Ledger, 2011). Prevention of infertility through education should also be incorporated into any client–nurse interaction.

Etiology and Risk Factors

Reproduction requires the interaction of the female and the male reproductive tracts, which involves (1) the release of a normal preovulatory oocyte, (2) the production of adequate spermatozoa, (3) the normal transport of the gametes to the ampullary portion of the fallopian tube (where fertilization takes place), and (4) the subsequent transport of the cleaving embryo into the endometrial cavity for implantation and development (Puscheck & Woodward, 2011).

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. In women,

ESSENTIALS of Maternity, Newborn, & Women's Health

Nursing - **THIRD EDITION** Susan Scott Ricci, **ARNP, MSN, MEd**

ovarian dysfunction (40%) and tubal/pelvic pathology (40%) are the primary contributing factors to infertility (ASRM, 2011).

Risk factors for infertility in women include:

- Overweight or underweight (can disrupt hormone function)
- Hormonal imbalances leading to irregular ovulation
- Uterine fibroids
- Tubal blockages
- Cervical stenosis
- Reduced oocyte quality
- Chromosomal abnormalities
- Congenital anomalies of the uterus
- Immune system disorders
- Chronic illnesses such as diabetes, thyroid disease, asthma
- STIs
- Age older than 27
- Endometriosis
- Turner syndrome
- History of PID
- Smoking and alcohol consumption
- Multiple miscarriages
- Exposure to chemotherapeutic agents
- Psychological stress (Jensen, Morbeck, & Coddington, 2011)

Risk factors for infertility in men include:

- Exposure to toxic substances (lead, mercury, x-rays, chemotherapy)
- 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
- Obesity is associated with decreased sperm quality
- Cushing syndrome
- Frequent long-distance cycling or running
- STIs
- Undescended testicles (cryptorchidism)
- Mumps after puberty (Puscheck & Woodward, 2011)

Therapeutic Management

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 a drug's benefits and side effects before consenting to take it. Depending on

ESSENTIALS of Maternity, Newborn, & Women's Health Nursing - THIRD EDITION

Susan Scott Ricci, ARNP, MSN, MEd

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 hitech approaches of artificial insemination ([Fig. 4.2](#)), in vitro fertilization (IVF; [Fig. 4.3](#)), and egg donation or they may contract for a gestational carrier or surrogate (Hansen, 2011). [Table 4.3](#) lists selected treatment options for infertility.

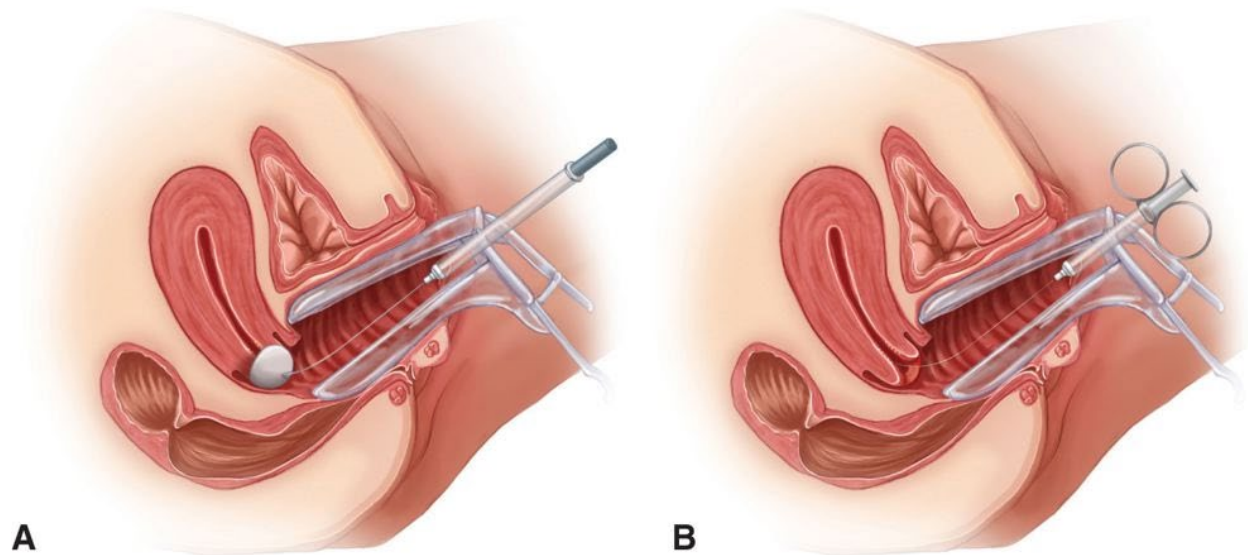


FIGURE 4.2

Artificial insemination. Sperm are deposited next to the cervix (A) or injected directly into the uterine cavity (B)

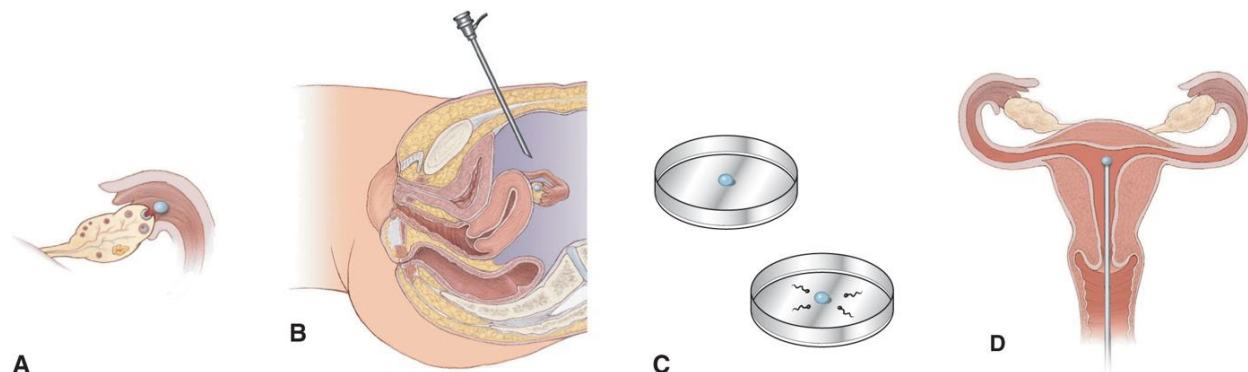


FIGURE 4.3

Steps involved 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 4.3: SELECTED TREATMENT OPTIONS FOR INFERTILITY

ESSENTIALS of Maternity, Newborn, & Women's Health

Nursing - **THIRD EDITION** Susan Scott Ricci, ARNP, MSN, MEd

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 wk starting after day 5 of medication.
Human menopausal gonadotropin (HMG); Pergonal	Induces ovulation by direct stimulation of ovarian follicle	Same as above
Artificial insemination	<p>The insertion of a prepared semen sample into the cervical os or intrauterine cavity</p> <p>Enables sperm to be deposited closer to improve chances of conception.</p> <p>Husband or donor sperm can be used.</p>	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)	<p>Oocytes are fertilized in the lab and transferred to the uterus.</p> <p>Usually indicated for tubal obstruction, endometriosis, pelvic adhesions, and low sperm counts</p>	Nurse advises woman to take medication to stimulate ovulation so the mature ovum can be retrieved by needle aspiration.
Gamete intrafallopian transfer (GIFT)	<p>Oocytes and sperm are combined and immediately placed in the fallopian tube so fertilization can occur naturally.</p> <p>Requires laparoscopy and general anesthesia, which increases risk</p>	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.

ESSENTIALS of Maternity, Newborn, & Women's Health Nursing - THIRD EDITION

Susan Scott Ricci, ARNP, MSN, MEd

Procedure	Comments	Nursing Considerations
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 older than 40 yr and those with poor-quality eggs.	Nurse needs to support couple in their ethical/religious discussions prior to deciding.
Preimplantation genetic diagnosis (PGD)	Used to identify genetic defects in embryos created through IVF before pregnancy. This is done specifically when one or both genetic parents have a known genetic abnormality and testing is performed on an embryo to see if it also carries a genetic abnormality.	Nurse should inform couple about this option and support them until test results return.
Gestational carrier (surrogacy)	Laboratory fertilization takes place and embryos are transferred to the uterus of another woman, who will carry the pregnancy. Or intrauterine insemination can be done with the male sperm. 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.
Adapted from American Society for Reproductive Medicine [ASRM]. (2011). <i>Frequently asked questions about infertility</i> . Retrieved from http://www.asrm.org/Patients/faqs.html ; Hansen, H. (2011, November). Increasing use of infertility treatment raises concerns about human fertility. <i>Fertility Weekly</i> , pp. 3–4; and Ledger, B. (2011). Nurses' support is crucial during fertility treatments. <i>Nursing Standard</i> , 25(33), 32–33.		

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

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 (ability of her eggs to become fertilized). FSH levels are drawn on cycle day 3 and on cycle day 10 after the

ESSENTIALS of Maternity, Newborn, & Women's Health Nursing - THIRD EDITION

Susan Scott Ricci, ARNP, MSN, MEd

woman has taken 100 mg clomiphene citrate on cycle days 5 through 9. If the FSH level is greater than 15, the result is considered abnormal and the likelihood of conception with her own eggs is very low (Schuiling & Likis, 2013).

HYSTEOSALPINGOGRAPHY

In hysterosalpingography, 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 fallopian tubes are patent, the dye will ascend upward to distend the uterus and the tubes and will spill out into the peritoneal cavity (Pavone, Hirshfeld-Cytron, & Kazer, 2011) (**Fig. 4.4**).

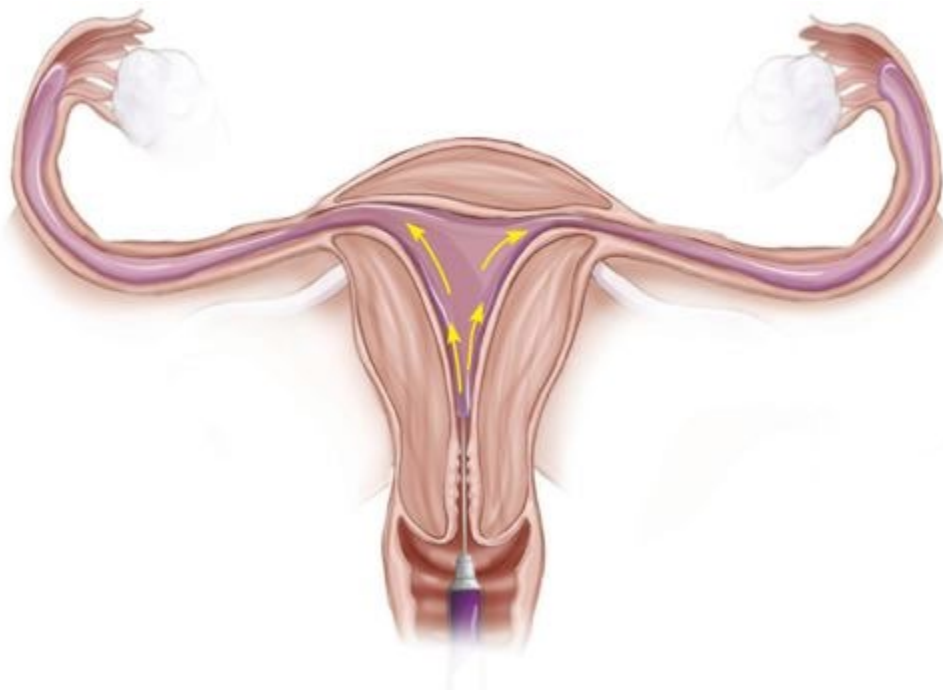


FIGURE 4.4

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

LAPAROSCOPY

A laparoscopy is usually performed early in the menstrual cycle. It is not part of the routine infertility evaluation. It is used when abnormalities are found on the ultrasound or the hysterosalpingogram. Because of the added risks of surgery, the need for anesthesia, and operative costs, it is only used when clearly indicated. During the procedure, an endoscope is inserted through a small incision in the anterior abdominal wall. Visualization of the peritoneal

ESSENTIALS of Maternity, Newborn, & Women's Health

Nursing - THIRD EDITION Susan Scott Ricci, ARNP, MSN, MED

cavity in an infertile woman may reveal endometriosis, pelvic adhesions, tubal occlusion, fibroids, or polycystic ovaries (Adamson, 2011b).

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 infertility. They provide a helpline, medical referral services, and a 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

Contraception is any method that prevents conception or childbirth, including oral contraceptives, sterilization of the female, and the male condom, which are the most popular methods in the United States (Alan Guttmacher Institute, 2011a). Additional types of contraceptives are discussed below.

In the United States, there are approximately 68 million women in their childbearing years, between the ages of 15 and 44, and throughout those years a variety of contraceptive methods may be used. Studies have shown that 98% of sexually active women in the United States admit to having used at least one form of contraception; however, despite widespread use of contraceptives, almost half of all pregnancies in the United States are unintended, accounting for a higher unintended pregnancy rate than any other Western country (Centers for Disease Control and Prevention [CDC], 2011). As outlined in the UNFPA *State of the World Population 2011 Report*, 7 billion people inhabit the earth now and about 80 million people are added to the world each year, more than half of whom are unintended.

In addition to unwanted pregnancies, which can result in abortion, some contraceptives also help prevent transmission of STIs and HIV. The UNFPA report also shows that 15 people in the United States become infected with HIV every minute of every day. Much of this suffering could be prevented by access to and consistent use of safe, efficient, appropriate, modern contraception for everyone who wants it, as well as proper education regarding benefits and instructions for use (UNFPA, 2011). In addition, climate change (extreme

ESSENTIALS of Maternity, Newborn, & Women's Health

Nursing - **THIRD EDITION** Susan Scott Ricci, ARNP, MSN, MEd

temperature changes and rising ocean levels) will interact with population growth in ways that put additional stress on already weak health systems and will exacerbate vulnerability to the adverse health effects of climate change. The damage done to the environment by modern society is perhaps one of the most inequitable health risks of our time (UNFPA 2011).

Today, the voluntary control of fertility is of vital importance to modern society. From a global perspective, countries currently face a crisis of rapid population growth that has begun to threaten human survival. At the present rate, the population of the world will double in 40 years; in several of the more socioeconomically disadvantaged countries, populations will double in less than 20 years (UNFPA 2011).

4-1: HEALTHY PEOPLE 2020

Objective	Nursing Significance
FP-1 Increase the proportion of pregnancies that are intended.	Would reduce number of unplanned pregnancies and girls not finishing their education. This would in turn reduce the number of single parents on state financial assistance.
FP-2 Reduce the proportion of females experiencing pregnancy despite use of a reversible contraceptive method.	Awareness of contraceptive methods and accessibility brings about better compliance and prevention of unintended pregnancies.
FP-3 Increase the proportion of publicly funded family planning clinics that offer the full range of FDA-approved methods of contraception, including emergency contraception, on site.	
FP-7 Increase the proportion of sexually active persons who received reproductive health services.	Accessibility of reproductive resources can offer pregnancy prevention and preventive education.

Healthy People objectives based on data from <http://www.healthypeople.gov>.

Types of Contraceptive Methods

Contraceptive methods can be divided into four types: behavioral methods, barrier methods, hormonal methods, and permanent Methods. Women must decide which method is appropriate for them to meet their changing contraceptive needs throughout their life cycles. Nurses can educate and assist women during this selection process. This part of the chapter will outline the most common birth control methods available.

ESSENTIALS of Maternity, Newborn, & Women's Health

Nursing - THIRD EDITION

Susan Scott Ricci, ARNP, MSN, MEd

In an era when many women wish to delay pregnancy and avoid STIs, choices are difficult. Numerous methods of contraception are 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 (Samra-Latif & Wood, 2011). Currently, no one contraceptive method offers everything. [Box 4.5](#) outlines the contraceptive methods available today. [Table 4.4](#) provides a detailed summary of each type, including information on failure rates, advantages, disadvantages, STI protection, and danger signs.

BOX 4.5: OUTLINE OF CONTRACEPTIVE METHODS

- **Reversible Methods**
 - **Behavioral**
 - Abstinence
 - Fertility awareness–based methods
 - Withdrawal (coitus interruptus)
 - Lactational amenorrhea method (LAM)
 - **Barrier**
 - Condom (male and female)
 - Diaphragm
 - Cervical cap
 - Sponge
 - **Hormonal**
 - Oral contraceptive
 - Injectable contraceptive
 - Transdermal patch
 - Vaginal ring
 - Implantable contraceptive
 - Intrauterine contraceptive
 - Emergency contraceptive
 - **Permanent Methods**
 - Tubal ligation for women
 - Vasectomy for men

TABLE 4.4: SUMMARY OF CONTRACEPTIVE METHODS

ESSENTIALS of Maternity, Newborn, & Women's Health

Nursing - THIRD EDITION Susan Scott Ricci, ARNP, MSN, MED

Type	Description	Failure Rate	Pros	Cons	STI Protection	Danger Signs
Abstinence	Refrain from sexual activity	None	Costs nothing	Difficult to maintain	100%	None
Fertility awareness-based methods	Refrain from sex during fertile period	25%	No side effects; acceptable to most religious groups	High failure rate with incorrect use	None	None
Withdrawal (coitus interruptus)	Man withdraws before ejaculation	27%	Involves no devices and is always available	Requires considerable self-control by the man	None	None
Lactational amenorrhea method (LAM)	Uses lactational infertility for protection from pregnancy	1-2% chance of pregnancy in first 6 mo	No cost; not coitus linked	Temporary method; effective for only 6 mo after giving birth	None	None
Male condom	Thin sheath placed over an erect penis, blocking sperm	15%	Widely available; low cost; physiologically safe	Decreased sensation for man; interferes with sexual spontaneity; breakage risk	Provides protection against STIs	Latex allergy
Female condom	Polyurethane sheath inserted vaginally to block sperm	21%	Use controlled by woman; eliminates postcoital drainage of semen	Expensive for frequent use; cumbersome; noisy during sex act; for single use only	Provides protection against STIs	Allergy to polyurethane
Diaphragm with spermicide	Shallow latex cup with spring mechanism in its rim to hold	16%	Does not use hormone; considered medically safe; provides some protection	Requires accurate fitting by health care professional;	None	Allergy to latex, rubber, polyurethane, or spermicide

ESSENTIALS of Maternity, Newborn, & Women's Health

Nursing - **THIRD EDITION**

Susan Scott Ricci, ARNP, MSN, MEd

	it in place in the vagina		against cervical cancer	increase in UTIs		Report symptoms of toxic shock syndrome May become dislodged in female superior position
Cervical cap with spermicide	Soft cup-shaped latex device that fits over base of cervix	24%	No use of hormones; provides continuous protection while in place	Requires accurate fitting by health care professional; odor may occur if left in too long	None	Irritation, allergic reaction; abnormal Pap test; risk of toxic shock syndrome
Sponge with spermicide	Disk-shaped polyurethane device containing a spermicide that is activated by wetting it with water	25%	Offers immediate and continuous protection for 24 hr; 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
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; possible undesirable side effects; high cost for some women; prescription needed	None	Dizziness, nausea, mood changes, high blood pressure, blood clots, heart attacks, strokes
Oral contraceptives	A pill containing only	8%	No estrogen-related side effects; may be	Must be taken with meticulous	None	Irregular bleeding, weight gain,

ESSENTIALS of Maternity, Newborn, & Women's Health

Nursing - **THIRD EDITION**

Susan Scott Ricci, ARNP, MSN, MED

(progestin-only minipills)	progestin that thickens cervical mucus to prevent sperm from penetrating		used by lactating women; may be used by women with history of thrombophlebitis	accuracy; may cause irregular bleeding; less effective than combination pills		increased incidence of ectopic pregnancy
Patch (Ortho Evra)	Transdermal patch that releases estrogen and progestin into circulation	8%	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 more than 200 pounds
Ring (NuvaRing)	Vaginal contraceptive ring about 2 inches in diameter that is inserted into the vagina; releases estrogen and progestin	8%	Easy system to remember; very effective	May cause a vaginal discharge; can be expelled without noticing and not offer protection	None	Similar to oral contraceptives
Depo-Provera injection	An injectable progestin that inhibits ovulation	3%	Long duration of action (3 mo); highly effective; estrogen-free; may be used by smokers; can be used by lactating women	Menstrual irregularities; return visit needed every 12 wks; weight gain, headaches, depression; return to fertility delayed up to 12 mo	None	If depression is a problem, this method may increase the depression.

ESSENTIALS of Maternity, Newborn, & Women's Health

Nursing - **THIRD EDITION**

Susan Scott Ricci, ARNP, MSN, MED

Implant (Implanon)	A time-release implant (one rod) of levonorgestrel for 3 yr	0.05%	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.
Intrauterine contraceptives (IUCs)	A T-shaped device inserted into the uterus that releases copper or progesterone or levonorgestrel	1%	It 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 6-12 mo	None	Cramps, bleeding, pelvic inflammatory disease; infertility; perforation of the uterus
Postcoital emergency contraceptives (ECs)	Combination of levonorgestrel-only pills; combined estrogen and progestin pills; or the copper IUS	80%	Provides a last chance to prevent a pregnancy	Risk of ectopic pregnancy if EC fails	None	Nausea, vomiting, abdominal pain, fatigue, headache

ESSENTIALS of Maternity, Newborn, & Women’s Health

Nursing - **THIRD EDITION** Susan Scott Ricci, ARNP, MSN, MEd

	inserted within 72 hr after unprotected intercourse					
Permanent sterilization						
Male	Sealing, tying, or cutting the vas deferens	< 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	Postoperative complications: pain, bleeding, infection
Female	Fallopian tubes are blocked to prevent conception	< 1%				

Adapted from Fine, P. (2011). Update on emergency contraception. *Advances in Therapy*, 28(2), 87-90; Hatcher (2012). *Contraceptive technology* (20th ed.). New York, NY: Ardent Media; Samra-Latif, O. M., & Wood, E. (2012). Contraception. *eMedicine*. Retrieved from <http://emedicine.medscape.com/article/258507-overview>; Schuilin, Likis, R E. (2013). *Women’s gynecologic health* (2nd ed.) Sudbury, MA: Jones & Bartlett; and U.S. Food and Drug Administration [FDA]. (2011). *Expanding contraceptive choice*. Retrieved from <http://www.prb.org/pdf09/contraceptivechoice.pdf>.

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 options for sex play without intercourse (“outer-course”), such as kissing, masturbation, erotic massage, sexual fantasy, sex toys such as vibrators, and oral sex.

ESSENTIALS of Maternity, Newborn, & Women's Health

Nursing - **THIRD EDITION** Susan Scott Ricci, ARNP, MSN, MEd

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, whereas 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–Based Methods

Fertility awareness refers to any natural contraceptive method that does not require hormones, pharmaceutical compounds, physical barriers, or surgery to prevent pregnancy. Fertility awareness-based methods (FAMs) use physical signs and symptoms that change with hormone fluctuations throughout a woman's menstrual cycle to predict a woman's fertility. The unifying theme of FAMs is that a woman can reduce her chance of pregnancy by abstaining from coitus or using barrier methods during times of fertility. These methods require couples to take an active role in preventing pregnancy through their sexual behaviors. Couples agree to practice certain techniques, use calculations, and be observant of the "fertile" and the "safe" periods in a monthly menstrual cycle. The normal physiologic changes caused by hormonal fluctuations during the menstrual cycle can be observed and charted. This information can then be used to avoid or promote pregnancy. Fertility awareness methods rely on 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. Because body 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 method, the symptothermal method, standard days method, and two-day method (Hatcher et al., 2012). Fertility awareness methods are moderately effective but are very unforgiving if not carried out as prescribed. 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 in consistency during the menstrual cycle and plays a vital role in fertilization of the egg. Studies conducted by the WHO indicate that 93% of women, regardless of their education level, are capable of identifying and distinguishing fertile and infertile cervical secretions (Stacey, 2011b). In the days preceding ovulation, fertile cervical mucus helps draw

ESSENTIALS of Maternity, Newborn, & Women's Health

Nursing - **THIRD EDITION** Susan Scott Ricci, ARNP, MSN, MEd

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.



FIGURE 4.5

Spinnbarkeit mucus is cervical mucus that can stretch a distance before breaking.

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., 2012).

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

ESSENTIALS of Maternity, Newborn, & Women's Health

Nursing - THIRD EDITION

Susan Scott Ricci, ARNP, MSN, MEd

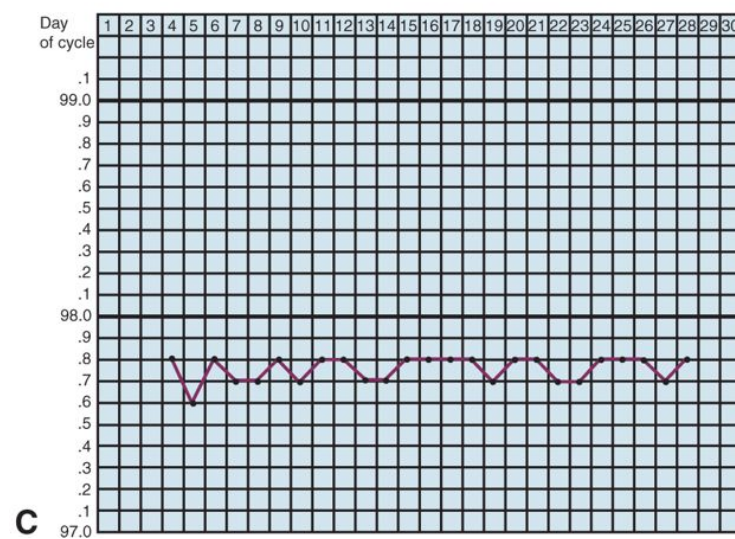
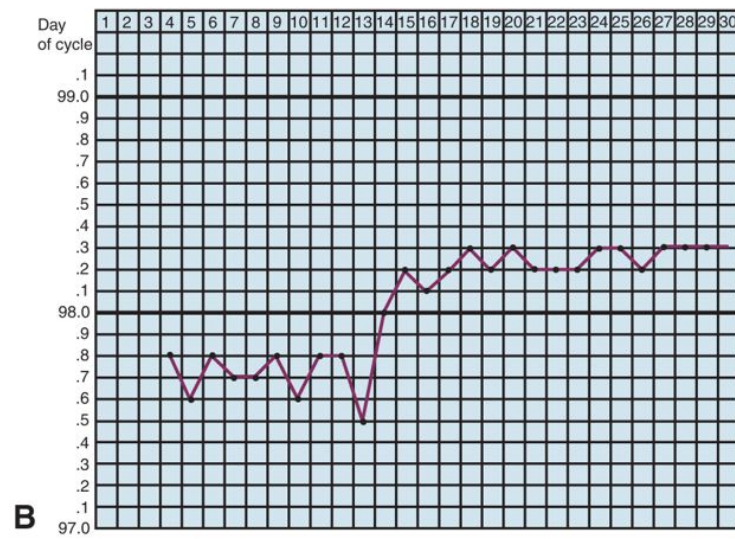
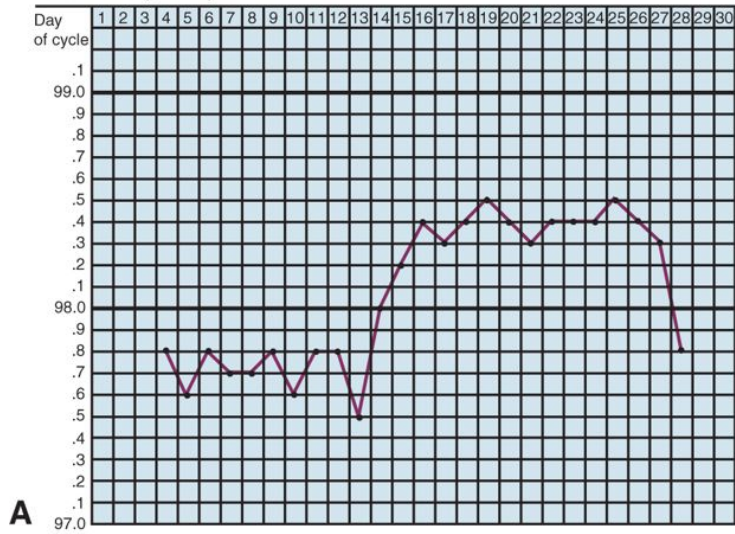
pregnancy. Each woman is an individual, so each woman's unsafe time of the month is unique and thus must be individually assessed and determined.

BASAL BODY TEMPERATURE METHOD

The **basal body temperature (BBT)** refers to the lowest temperature reached on awakening. 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. Other fertility awareness methods should be used along with BBT for better results ([Fig. 4.6](#)).

ESSENTIALS of Maternity, Newborn, & Women's Health Nursing - THIRD EDITION Susan Scott Ricci, ARNP, MSN, MEd

Basal body temperature



ESSENTIALS of Maternity, Newborn, & Women's Health

Nursing - THIRD EDITION Susan Scott Ricci, ARNP, MSN, MEd

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.

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 (Planned Parenthood, 2011). 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 tests are widely used for fertility and infertility regimens.

THE STANDARD DAYS METHOD AND THE TWO-DAY METHOD

The **Standard Days Method (SDM)** and the Two-Day Method are both natural methods of contraception developed by Georgetown University Medical Center's Institute for Reproductive Health. Both methods provide women with simple, clear instructions for identifying fertile days. 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 (Hatcher et al., 2012). SDM identifies the 12-day "fertile window" of a woman's menstrual cycle. These 12 days takes into account the life span 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. For the Two-Day Method, women observe the presence or absence of cervical secretions by examining toilet paper or underwear or by monitoring their physical sensations. Every day, the woman asks two simple questions "Did I note any secretions yesterday?" and "Did I note any secretions today?" If the answer to either question is yes, she considers herself fertile and avoids unprotected intercourse. If the answers are no, she is unlikely to become pregnant from unprotected intercourse on that day (Jennings, Sinai, Sacieta, & Lundgren, 2011).

To help women keep track of the days on which they should avoid unprotected intercourse, a string of 32 color-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 (Hatcher et al., 2012). This method has been used in underdeveloped countries for women with limited educational resources ([Fig. 4.7](#)).

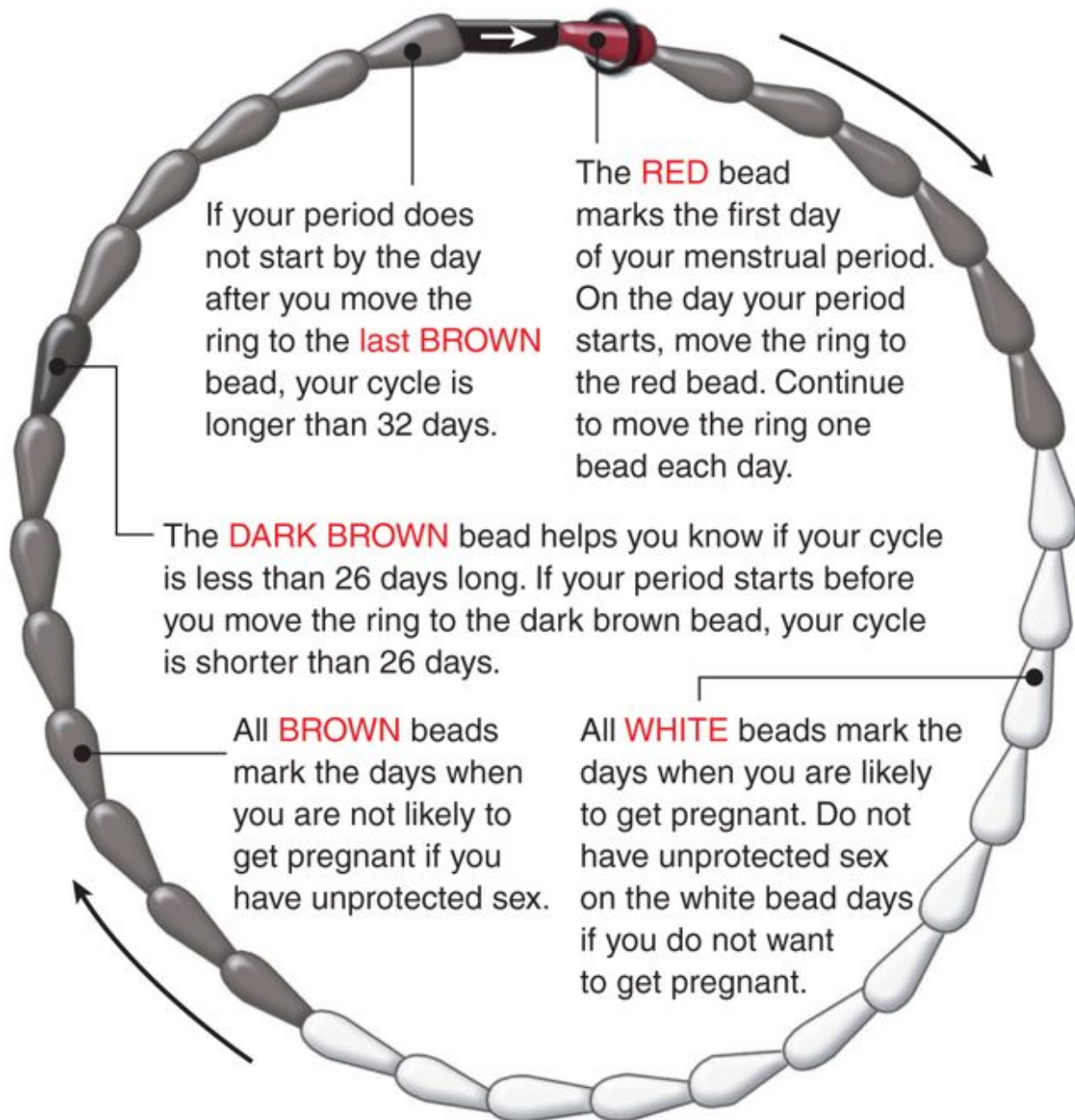


FIGURE 4.7

CycleBeads help women use the Standard Days Method.

Withdrawal (Coitus Interruptus)

In **coitus interruptus**, also known as withdrawal, 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

ESSENTIALS of Maternity, Newborn, & Women's Health

Nursing - **THIRD EDITION** Susan Scott Ricci, ARNP, MSN, MEd

pregnancy in the world (Doherty & Stuart, 2011). The problem with this method is that the first few drops of the true ejaculate contain the greatest concentration of sperm, and if some preejaculatory 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 breast-feeding mothers. Continuous breast-feeding can postpone ovulation and thus prevent pregnancy. Breast-feeding stimulates the hormone prolactin, which is necessary for milk production, and also inhibits the release of another hormone, gonadotropin, which is necessary for ovulation.

Breast-feeding 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
- Breast-feeds her baby at least six times daily on both breasts
- Breast-feeds 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, 2011)

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 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. Progress has been made in society's reaction to condom use as a disease prevention device now and not just as a contraceptive (Ratzan, 2011).

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 (AAAAI) (2011), 6% of the general population, 10% of health care workers, and 50% of spina bifida clients are sensitive to natural rubber latex. Health care workers in both the medical and dental environments, as well as specific groups of individuals including those with spina bifida, myelodysplasia, and food allergies (banana, kiwi, avocado, and others), were at increased risk of sensitization (Gawchik, 2011). [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
- 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 of polyurethane.
- Switch to another birth control method that isn't made with latex, such as oral contraceptives, intrauterine systems, Depo-Provera, fertility awareness, and other nonbarrier methods. However, these methods do not protect against sexually transmitted infections.

Adapted from American Academy of Allergy, Asthma and Immunology [AAAAI]. (2011). *Latex allergy: Tips to remember*. Retrieved from <http://www.aaaai.org/conditions-and-treatments/library/allergy-library/latexallergy.aspx>; Gawchik, S. M. (2011). Latex allergy. *Mount Sinai Journal of Medicine*, 78(5), 759–772; and Occupational Health and Safety Administration. (2011). *Latex allergy*. Retrieved from <http://www.osha.gov/SLTC/latexallergy>.

CONDOMS

Condoms are barrier methods of contraceptives 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](#)). It serves as a barrier to pregnancy by trapping seminal fluid and sperm and offers protection against STIs. Condoms are not perfect barriers, though, because breakage and slippage can occur. Emergency postcoital contraception may need to be sought to prevent a pregnancy. In addition, the nonlatex condoms have a higher risk of pregnancy and STIs than latex condoms (Hatcher et al., 2012).

ESSENTIALS of Maternity, Newborn, & Women's Health Nursing - THIRD EDITION

Susan Scott Ricci, ARNP, MSN, MEd

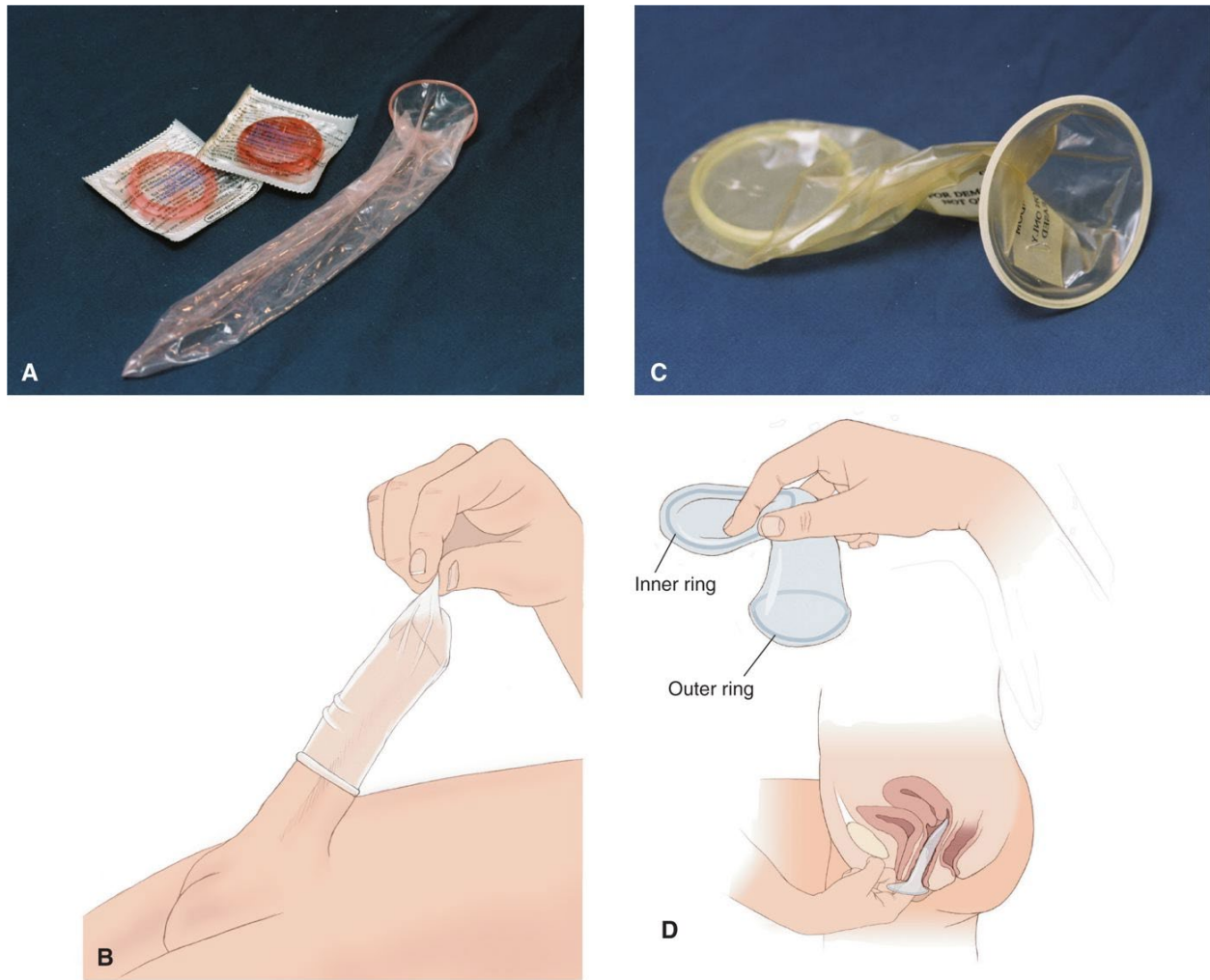


FIGURE 4.8

(A) Male condom. (B) Applying a male condom. Leaving space at the tip helps to ensure the condom will not break with ejaculation. (C) The female condom. (D) Insertion technique.

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 was the first woman-controlled method that offered protection against pregnancy and some STIs. Nurses can play a key role in influencing clients to initiate and maintain use of the female condom, an underused method for HIV/STI and pregnancy prevention in the United States (Mantell et al., 2011).

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

ESSENTIALS of Maternity, Newborn, & Women's Health

Nursing - THIRD EDITION Susan Scott Ricci, ARNP, MSN, MEd

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 health care professional. Women may need to be refitted with a different-sized diaphragm after pregnancy, abdominal or pelvic surgery, or weight loss or gain of 10 pounds or more. As a general rule, diaphragms should be replaced every 1 to 2 years (Hatcher et al., 2012).

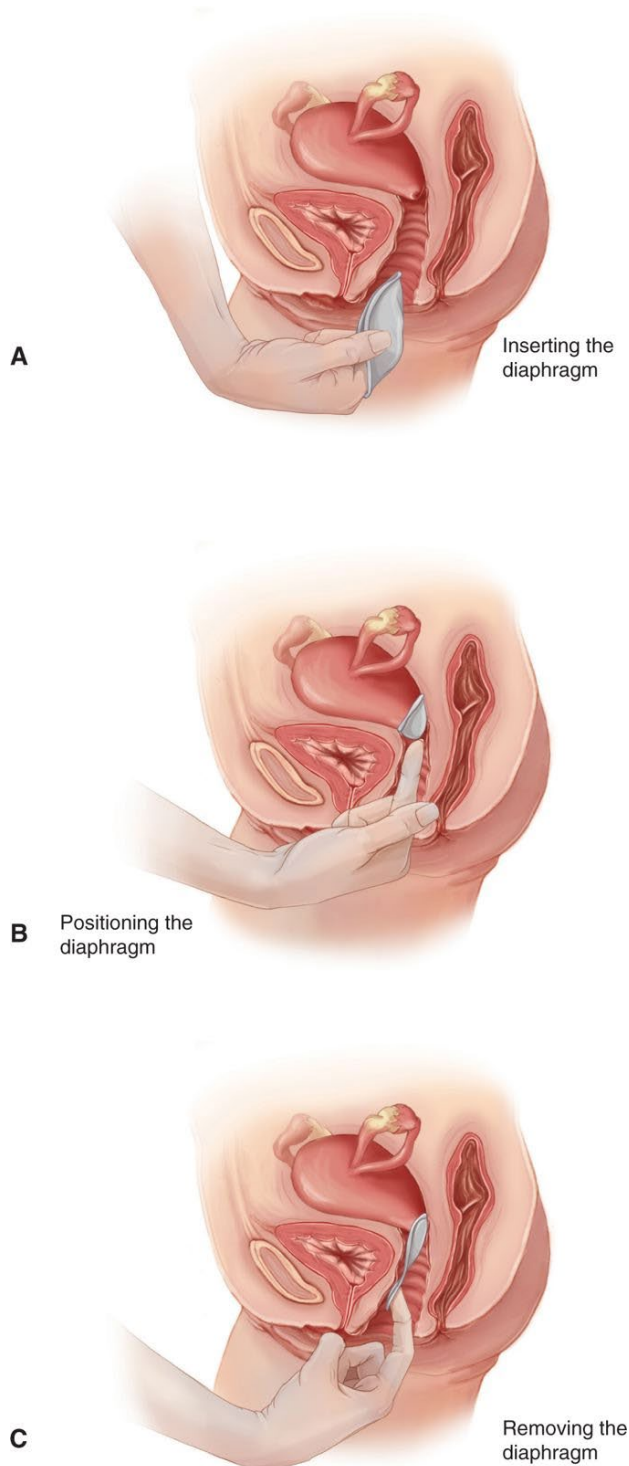


FIGURE 4.9

Sample diaphragm used for measuring.

the medical office (Fig. Diaphragms are user-controlled, nonhormonal methods that are needed only at the time of intercourse, but they are not effective unless used correctly. Women need to receive thorough instruction about diaphragm use and should practice putting one in and taking it out before they leave 4.10). FIGURE 4.10

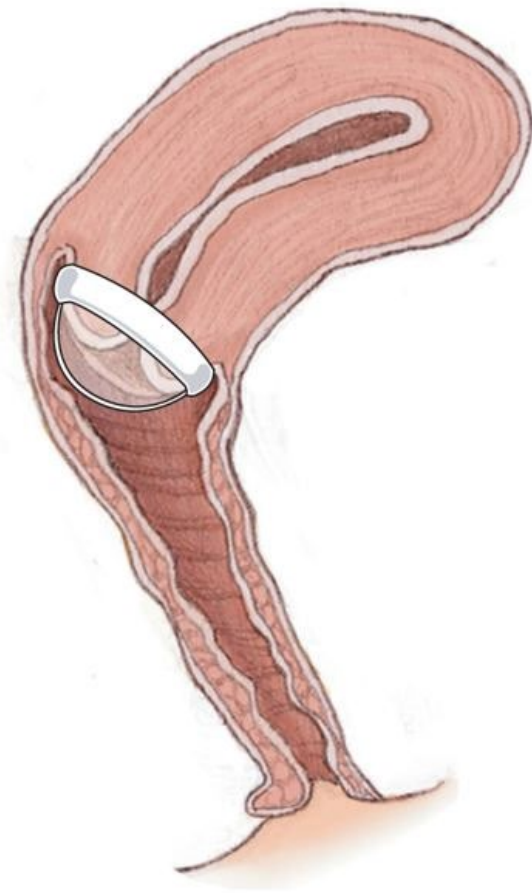
Application of a diaphragm. (A) To insert, fold the diaphragm in half, separate the labia with one hand, then insert upwards and back into the vagina. (B) To position, make certain the diaphragm securely covers the cervix. (C) To remove, hook a finger over the top of the rim and bring the diaphragm down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

Results of a two-year multisite study indicate that the effectiveness rates of the SILCS single-size, contoured diaphragm, now in development, are similar to those of traditional diaphragms (Schwartz, 2011). The biggest difference with this new device is that since it is a single size, a pelvic exam to assess size is not required. Most women in the study were able to correctly insert, remove, and check correct position of the device by simply using the instructions (Schwartz, 2011).

CERVICAL CAP

ESSENTIALS of Maternity, Newborn, & Women's Health

Nursing - THIRD EDITION Susan Scott Ricci, ARNP, MSN, MEd



The **cervical cap** is smaller than the diaphragm and covers only the cervix; it is held in place by suction. Caps are made from silicone or latex and are used with spermicide ([Fig. 4.11](#)). The Prentif cap and the FemCap are the only cervical cap devices approved in the United States as of 2011 (Planned Parenthood, 2011). The cap may be inserted up to 12 hours before intercourse and provides protection for 48 hours. The cap must be kept in the vagina for 8 hours after the final act of intercourse and should be replaced every 1 to 2 years. A refitting may also be necessary when a woman experiences pregnancy, abortion, or weight changes. The dome of the cap is filled about one third 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 health care professional.

FIGURE 4.11

A cervical cap is placed over the cervix and used with a spermicidal jelly, the same as a diaphragm.

CONTRACEPTIVE SPONGE

The **contraceptive sponge** is a nonhormonal, nonprescription device that includes both a barrier and a spermicide. When it was removed from the market in 1995, it was the most popular over-the-counter female contraceptive in America (Stacey, 2011a). The manufacturer, Wyeth, stopped making the sponge rather than upgrade its manufacturing plant after the FDA found deficiencies, but the device's effectiveness and safety were never questioned. After receiving reapproval from the FDA in 2005, the contraceptive sponge is once again being marketed to women.

The contraceptive sponge is a soft concave device that prevents pregnancy by covering the cervix and releasing spermicide. The sponge, made of polyurethane impregnated with nonoxynol-9 (1000 mg), releases 125 mg of the spermicide over 24 hours of use. Unlike the diaphragm, the sponge can be used for more than one coital act within 24 hours without the insertion of additional spermicide, and the sponge does not require fitting or a prescription from a health care provider (Kuyoh et al., 2011). While

ESSENTIALS of Maternity, Newborn, & Women's Health

Nursing - THIRD EDITION

Susan Scott Ricci, ARNP, MSN, MEd

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.

To use the sponge, the woman first wets it with water, and then inserts it into the vagina with a finger, using a cord loop attachment. It can be inserted up to 24 hours before intercourse and should be left in place for at least 6 hours following intercourse. The sponge provides protection for up to 12 hours, but should not be left in for more than 30 hours after insertion to avoid the risk of toxic shock syndrome (Planned Parenthood, 2011). The sponge is a contraceptive method but does not protect against STIs.

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 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 (Curtis, Tepper, & Marchbanks, 2011).

Development of hormonal contraception marked a revolutionary step in social change that has improved the lives of women and families worldwide. Since the first oral contraceptive was introduced in the 1960s, hormonal contraception has undergone various stages of advancement. Today, oral contraceptive regimens are safer and more tolerable, with equal or improved efficacy, than the early formulations (Bitzer & Simon, 2011).

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 30 combination OCs are available in the United States. The most notable change in over 50 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 25 million women in the United States (Samra-Latif & Wood, 2011) ([Fig. 4.12](#)). Unlike the original OCs that women took decades ago, the new low-dose forms carry fewer health risks.

ESSENTIALS of Maternity, Newborn, & Women's Health Nursing - THIRD EDITION

Susan Scott Ricci, ARNP, MSN, MEd



FIGURE 4.12

Oral contraceptive.

OCs, although most commonly prescribed for contraception, have long been used in the management of a wide range of conditions and has 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
 - Reduced risk of developing uterine fibroids
 - Maintenance of bone mineral density
 - Possible protection against pelvic inflammatory disease
- Increased menstrual cycle regularity
- Lower incidence of colorectal cancer
- Decrease pregnancy-related deaths by preventing pregnancy
- Reduced iron-deficiency anemia by treating menorrhagia
- Reduced incidence of dysmenorrhea (Maguire & Westhoff, 2011)

ESSENTIALS of Maternity, Newborn, & Women's Health

Nursing - **THIRD EDITION** Susan Scott Ricci, ARNP, MSN, MED

OCs work primarily by suppressing ovulation by adding estrogen and progesterone to a woman's body, thus mimicking pregnancy. This hormonal level stifles 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 (Hatcher et al., 2012).

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.

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 (Grimes, Lopez, O'Brien, & Raymond, 2011).

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!" (Seval, Buckley, Kuehl, & Sulak, 2011). Research has confirmed that the extended use of active OC pills carries the same safety profile as the conventional 28-day regimens (Hatcher et al., 2012). 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 and Seasonique, a combination OC, is on the market for women who choose to reduce the number of periods that they have. In 2009, the makers of Seasonique came out with LoSeasonique. LoSeasonique consists of 84 orange tablets containing 0.1 mg levonorgestrel and 0.02 mg ethinyl estradiol and 7 yellow tablets containing 0.01 mg ethinyl estradiol. The risk profile is similar to those of its sister products Seasonale and Seasonique; however, the risk of unplanned breakthrough bleeding is increased (Samra-Latif & Wood, 2011).

Lybrel is the first FDA-approved oral contraceptive with 365-day combination dosing. It contains a low combined daily dose of the hormones levonorgestrel and ethinyl estradiol (90 mcg and 20 mcg, respectively). It provides women with more hormonal exposure on a yearly basis (13 additional weeks of hormone intake per year) than conventional cyclic oral contraceptives that contain the same strength of synthetic estrogens and similar strength of progestins (Samra-Latif & Wood, 2011). There is no physiologic requirement for cyclic hormonal withdrawal bleeds while taking OCs (King & Brucker, 2011).

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. Comparison Chart 4.1 lists advantages and disadvantages of OCs. A thorough history and pelvic examination, including a Pap smear, are not required before the medication is prescribed, but a regular medical follow-up is advised. Women should also be counseled that the effectiveness of

ESSENTIALS of Maternity, Newborn, & Women's Health

Nursing - **THIRD EDITION** Susan Scott Ricci, ARNP, MSN, MED

OCs is decreased when the woman is taking antibiotics; thus, the woman will need to use an alternative or secondary method during this period to prevent pregnancy.

COMPARISON CHART 4.1: 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

Reduce ovarian and colorectal cancer risk

Modest risk for venous thrombosis and pulmonary emboli

Decrease benign breast disease

Increased risk for migraine headaches

Reduce risk of endometrial cancer

Improve acne

Increased risk for myocardial infarction, stroke, and hypertension for women who smoke

Minimize perimenopausal symptoms

May increase risk of depression

Decrease incidence of rheumatoid arthritis

User must remember to take pill daily

Improve PMS symptoms

High cost for some women

Protect against loss of bone density

Adapted from Bitzer, J., & Simon, J. A. (2011). Current issues and available options in combined hormonal contraception. *Contraception*, 84(4), 342–356; Hatcher, R. A., et al.

ESSENTIALS of Maternity, Newborn, & Women's Health Nursing - THIRD EDITION

Susan Scott Ricci, ARNP, MSN, MEd

Advantages

Disadvantages

(2012). *Contraceptive technology* (20th ed.). New York, NY: Ardent Media; and Maguire, K., & Westhoff, C. (2011). The state of hormonal contraception today: Established and emerging noncontraceptive health benefits. *American Journal of Obstetrics and Gynecology*, 205(4 Suppl), S4–S8. Pinkerton, J. V. (2011a). The menstrual cycle—Mood disorder tandem: Screening, diagnosis, and treatment. *OBG Management*, 23(12), 24–30

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.

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 may indicate hypertension or an attack.
- S = Severe leg pain may indicate a thromboembolic event.

Adapted from Hatcher, R. A., et al. (2012). *Contraceptive technology* (20th ed.). New York, NY: Ardent Media.

INJECTABLE CONTRACEPTIVE

Depo-Provera is the trade name for an injectable form of a progesterone-only contraceptive given every 12 weeks. Depo-Provera works by suppressing ovulation and the production of FSH and LH by the pituitary gland, by increasing the viscosity of cervical mucus and causing endometrial atrophy. A single injection of 150 mg into the buttocks acts like other progestin-only products to prevent pregnancy for 3 months at a time ([Fig. 4.13](#)). The primary side effect of Depo-Provera is menstrual cycle disturbance.



FIGURE 4.13

Injectable contraceptive.

Recent clinical studies have raised concerns about whether Depo-Provera reduces bone mineral density. This evidence has prompted the manufacturer and the U.S. Food and Drug Administration (FDA) to issue a warning about the long-term use of Depo-Provera and bone loss (Glasier, 2011). It is not entirely clear if this loss in bone mineral density is reversible because there haven't been any long-term prospective studies in current and past users (Hatcher et al., 2012).

TRANSDERMAL PATCHES

A **transdermal patch**, Ortho Evra, is also available. It is a matchbox-sized patch containing hormones that are absorbed through the skin when placed on the lower abdomen, upper outer arm, buttocks, or upper torso (avoiding the breasts). 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. Transdermal absorption allows the drug to enter the bloodstream directly, avoiding rapid inactivation in the liver known as first-pass metabolism. Because estrogen and progesterone are metabolized by liver enzymes, avoiding first-pass metabolism was thought to reduce adverse effects. However, recent evidence suggests that the

ESSENTIALS of Maternity, Newborn, & Women's Health Nursing - THIRD EDITION

Susan Scott Ricci, ARNP, MSN, MEd

risk of venous thrombosis and embolism is increased with the patch and the risk of skin burns occurring if undergoing a MRI (Bitzer & Simon, 2011). Additional studies are under way to understand the clinical significance of these latest findings, but in the interim nurses need to focus on ongoing risk assessment and should be prepared to discuss current research findings with clients.

Compliance with combination contraceptive patch use has been shown to be significantly greater than compliance with OCs (Bitzer & Simon, 2011). The patch provides combination hormone therapy with a side effect profile similar to that of OCs ([Fig. 4.14](#)).



FIGURE 4.14

Transdermal patch.

VAGINAL RINGS

The contraceptive **vaginal ring**, NuvaRing, is a flexible, soft, transparent ring that is inserted by the user for a 3-week period of continuous use followed by a ring-free week to allow withdrawal bleeding ([Fig. 4.15](#)). Ethinyl estradiol and etonogestrel are rapidly absorbed through the vaginal epithelium and result in a steady serum concentration. Studies have demonstrated that the efficacy and safety of the ring are equivalent to those of

ESSENTIALS of Maternity, Newborn, & Women's Health Nursing - THIRD EDITION

Susan Scott Ricci, ARNP, MSN, MEd

OCs. Clients report being highly satisfied with the vaginal ring and report fewer systemic side effects than do OC users. The ring provides effective cycle control as well as symptom relief for women with menorrhagia, dysmenorrhea, and polycystic ovarian syndrome (Kerns & Darney, 2011). 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. Recent studies suggest that a vaginal ring containing etonogestrel and ethinyl estradiol used on an extended regimen is a safe contraceptive method that offers good cycle control and can be an option for women who have gastric intolerance or other side effects when using oral hormonal contraceptives (Kerns & Darney, 2011).



FIGURE 4.15

Vaginal ring.

The **implant** is a subdermal time-release method that delivers synthetic progestin that inhibits ovulation. Once in place, it delivers 3 years of continuous, highly effective contraception. Like progestin-only pills, implants act by inhibiting ovulation and thickening cervical mucus so sperm cannot penetrate. A single-rod progestin implant (Implanon) received FDA approval in 2006 and is the only implant

ESSENTIALS of Maternity, Newborn, & Women's Health Nursing - THIRD EDITION

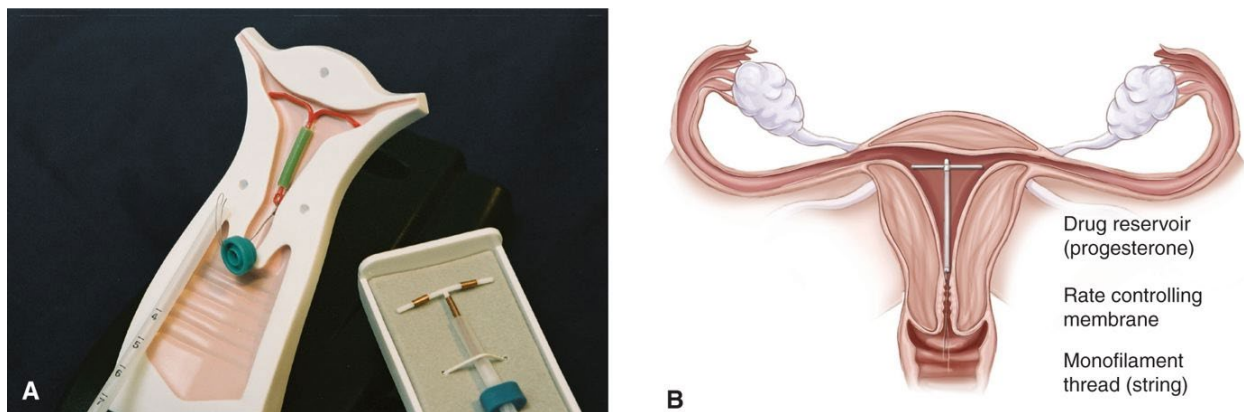
Susan Scott Ricci, ARNP, MSN, MEd

currently available in the United States. The capsules are not radio opaque but can be localized with ultrasound (King & Brucker, 2011). The side effects are also similar to those of progestin-only pills: irregular bleeding, headaches, weight gain, breast tenderness, and depression. Fertility is restored quickly after it is removed. Implants require a minor surgical procedure for both insertion and removal. The implants do not offer any protection against STIs.

Hormonal side effects are not exclusive to implants but tend to be a problem with all hormonal contraceptives. Preinsertion counseling by the nurse is essential to prepare the woman for any such side effects. Expert counseling should cover the one side effect most likely to cause discontinuation: initial irregular bleeding and the possibility of amenorrhea with longer use (Kubba, 2011).

INTRAUTERINE CONTRACEPTIVES

An **intrauterine contraceptive (IUC)** is a small plastic T-shaped object that is placed inside the uterus to provide contraception (Fig. 4.16). It prevents pregnancy by making the endometrium of the uterus hostile to implantation of a fertilized ovum by causing a nonspecific inflammatory reaction and inhibiting sperm and ovum from meeting (King & Brucker, 2011). The hormonal IUC will make monthly periods lighter, shorter, and less painful, making this a useful method for women with heavy, painful periods. Some implants 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 two intrauterine contraceptives are available in the United States: the copper ParaGard-TCu-380A and the levonorgestrel-releasing intrauterine system (LNG-IUS) marketed as Mirena. The ParaGard-TCu-380A is approved for 10 years of use and is nonhormonal. Its mechanism of action is based on the release of copper ions, which alone are spermicidal. Additionally, the device causes an inflammatory action leading to a hostile uterine environment. The TCu-380A is also approved for use as emergency contraception. Mirena provides intrauterine conception for 5 years, but has been shown to be effective for as long as 7 years. It releases a low dose of progestin causing thinning of the endometrium and thickening of cervical mucus, which inhibits sperm entry into the upper genital tract. Its use results in a major reduction in menstrual flow and dysmenorrhea, suggesting that it is a viable alternative to hysterectomy and endometrial ablation in women with menorrhagia (King & Brucker, 2011). An advantage of these hormonally impregnated intrauterine systems is that they are relatively maintenance-free: users must

ESSENTIALS of Maternity, Newborn, & Women's Health

Nursing - **THIRD EDITION** Susan Scott Ricci, ARNP, MSN, MEd

consciously discontinue using them to become pregnant rather than making a daily decision to avoid conception (Alan Guttmacher Institute, 2011a).

The intrauterine contraceptives are a safe, highly effective, long-lasting, yet reversible method of contraception. Expanding access to intrauterine contraception is an important measure to reduce the rate of unintended pregnancy in the United States. Nurses should consider including them in their discussion to appropriate candidates, including women who are nulliparous, adolescent, immediately postpartum, or postabortion and those who desire emergency contraception, and as an alternative to permanent sterilization. Barriers to intrauterine contraception such as requiring cervical cancer screening before insertion, routine testing for gonorrhea and chlamydial infection in low-risk women, or scheduling insertion only during menses are unnecessary according to Stoddard, McNicholas, & Peipert (2011). They feel these costly and time consuming requirements inhibit many women from choosing this contraceptive. (Stoddard, McNicholas, & Peipert, 2011). [Box 4.7](#) highlights the warning signs of the potential complications of IUCs.

BOX 4.7: WARNINGS FOR INTRAUTERINE SYSTEM 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

Adapted from Hatcher, R. A., et al. (2012). *Contraceptive technology* (20th ed.). New York, NY: Ardent Media.

EMERGENCY CONTRACEPTION

Unplanned pregnancy is a major health, economic, and social issue for women. Approximately one third of all unplanned pregnancies end in abortion (CDC, 2011). Using an emergency contraceptive is a woman's last chance to prevent an unintended pregnancy. **Emergency contraception (EC)** reduces the risk of pregnancy after unprotected intercourse or contraceptive failure such as condom breakage (Fine, 2011). 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% (Samra-Latif & Wood, 2011). The methods available in the United States are progestin-only pills, Plan B One-Step ([Fig. 4.17](#)), combined estrogen and progestin pills, or insertion of a copper-releasing intrauterine system up to 7 days after unprotected intercourse. Ulipristal acetate (marketed as Ella) is a selective progesterone receptor modulator that, when taken as a single 30-mg dose, is a new, safe, and effective emergency contraceptive that can be used from the first day and up to 5 days following unprotected intercourse. The older progesterone-only emergency contraceptive, levonorgestrel, is taken as two 0.75-mg pills 12 hours apart (Next Choice®; Watson Pharmaceuticals Inc., Morristown, NJ, USA) or as a single 1.5-mg pill (Plan B One-Step™;

ESSENTIALS of Maternity, Newborn, & Women's Health Nursing - THIRD EDITION

Susan Scott Ricci, ARNP, MSN, MEd

Watson Pharmaceuticals Inc.), and is approved for only 72 hours after unprotected intercourse (Fine, 2011).



The FDA-approved Plan B (levonorgestrel) is sold over the counter to women ages 18 and older; it is available by prescription to women younger than 18 years (FDA, 2009). Now, with the approval by FDA of Next Choice, the first generic EC, and Plan B One-Step, a one-dose EC, a new study suggests that adolescents and young adult women who use EC pills are not at higher risk than nonusers for sex at risk for pregnancy, unintended pregnancy, and STIs. Female adolescents ages 12 to 17 can comprehend over-the-counter (OTC) emergency contraception labeling, but OTC sales of emergency contraception are currently limited to those age 18 and older (Duffy & Gold, 2011).

Table 4.5 lists recommended oral medication and intrauterine regimens.

TABLE 4.5: EMERGENCY POSTCOITAL CONTRACEPTION OPTIONS

ESSENTIALS of Maternity, Newborn, & Women's Health

Nursing - THIRD EDITION Susan Scott Ricci, ARNP, MSN, MED

Product	Dosage (Within 72 Hr)	Comments
Combined estrogen & progestin pills (Yuzpe regimen)	OCSs are taken in various formulations to prevent conception.	Interfere with the cascade of events that result in ovulation and fertilization
Plan B One-Step	1.5 mg pill taken	Can cause nausea & vomiting
Intrauterine		
Copper-bearing IUS (ParaGard-TCu-380A)	Inserted within 5 days after unprotected sexual episode	Can be left in for long-term contraception (10 yr)
Adapted from King, T. L., & Brucker, M. C. (2011). <i>Pharmacology for women's health</i> . Sudbury, MA: Jones & Bartlett.		

Prime points to stress concerning ECs are:

- ECs do not offer any protection against STIs or future pregnancies.
- ECs should not be used in place of a regular birth control method, because they are less effective.
- ECs are regular birth control pills given at higher doses and more frequently.
- ECs are contraindicated during pregnancy (Miller, 2011).

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.

Sterilization

Sterilization is an attractive method of contraception for those who are certain they do not want any, or any more, children. **Sterilization** refers to surgical procedures intended to render the person infertile. Sterilization is a safe and effective form of permanent birth control. In the United States, it is still the second most commonly used form of contraception overall and is the most frequently used method among married women and among women over 30 years of age (Zite & Borrero, 2011). More women than men undergo surgical sterilization. According to the CDC (2011), approximately 18% of women undergo female sterilization in comparison to 7% of men in the United States. Sterilization should be considered a permanent end to fertility because reversal surgery is difficult, expensive, and not highly successful.

TUBAL LIGATION

ESSENTIALS of Maternity, Newborn, & Women's Health

Nursing - THIRD EDITION Susan Scott Ricci, ARNP, MSN, MEd

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](#)).

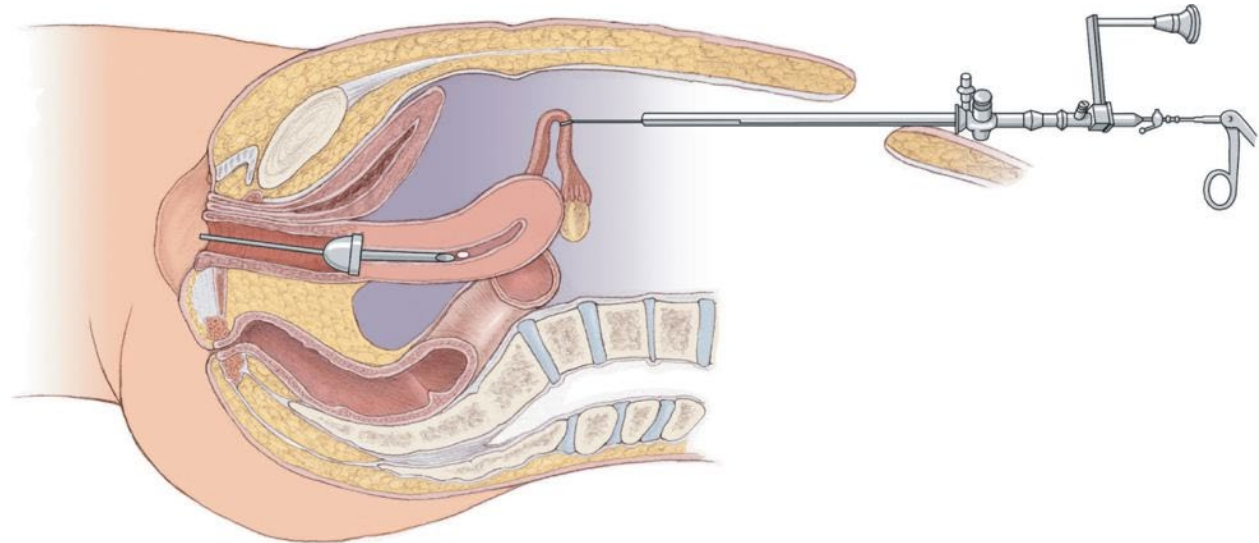


FIGURE 4.18

Laparoscopy for tubal sterilization.

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 (Essure) 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 (Holland-Hall, 2011). This less-invasive 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 a 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](#)). Complications from vasectomy are rare and minor in nature. Immediate risks include infection, hematoma, and pain. 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. When the specimen shows azoospermia, the man's sterility is confirmed (Shih, Turok, & Parker, 2011).

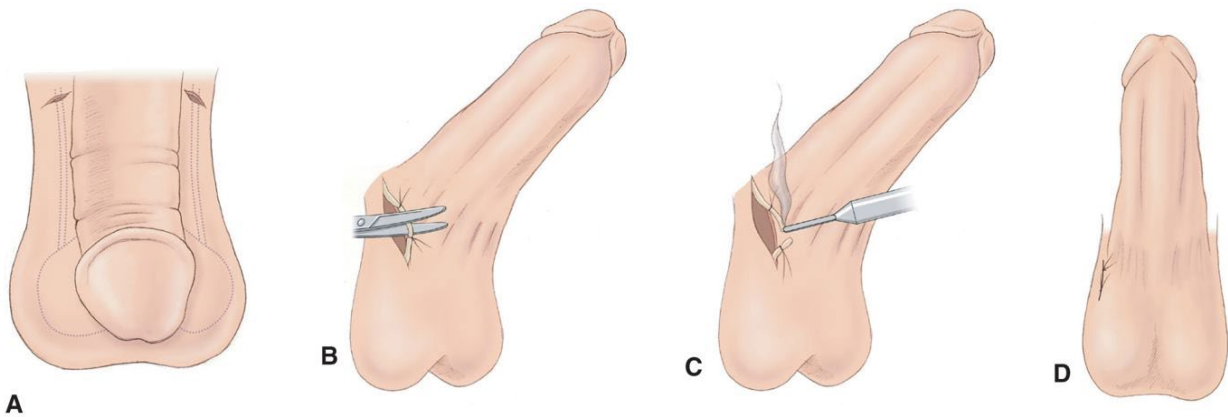


FIGURE 4.19

Vasectomy. (A) Site of vasectomy incisions. (B) The vas deferens is cut with surgical scissors. (C) Cut ends of the vas deferens are cauterized to ensure blockage of the passage of sperm. (D) Final skin suture.

Nursing Management of the Woman Choosing a Contraceptive Method

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

BOX 4.8:SELECTED RELIGIOUS CHOICES FOR FAMILY PLANNING AND ABORTION

- Roman Catholic—Abstinence and natural family planning; no abortion
- Judaism—Family planning and abortion accepted 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

ESSENTIALS of Maternity, Newborn, & Women's Health

Nursing - **THIRD EDITION** Susan Scott Ricci, ARNP, MSN, MEd

Adapted from Cook, R., & Dickens, B. (2009). From reproductive choice to reproductive justice. *International Journal of Gynecology and Obstetrics*, 106(2), 106–109.

- 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. If a client cannot comply with taking a pill daily, consider a method used once a week (transdermal patches), once every 3 weeks (transvaginal ring), or once every 3 months (Depo-Provera injection). Another option may be a progesterone intrauterine device that lasts 3 to 5 years and reduces menstrual flow significantly.

Regardless of which method is chosen, the client's needs should be paramount in the discussion. The nurse can educate clients about which methods are available and their advantages and disadvantages, efficacy, cost, and safety. Counseling can help the woman choose a contraceptive method that is efficacious and fits her preferences and lifestyle.

Nursing 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?
- Are you in a stable, monogamous relationship?
- 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?

Although deciding on a contraceptive is a very personal decision between a woman and her partner, nurses can assist in this process by performing a complete health history and physical examination, and by educating the woman and her partner about necessary laboratory and diagnostic testing. Areas of focus during the nursing assessment are as follows:

- *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

ESSENTIALS of Maternity, Newborn, & Women's Health Nursing - THIRD EDITION

Susan Scott Ricci, ARNP, MSN, MEd

- *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
- *Physical examination:* height, weight, blood pressure, breast examination, thyroid palpation, pelvic examination
- *Diagnostic testing:* urinalysis, complete blood count, Pap smear, wet mount to check for STIs, HIV/AIDS tests, lipid profile, glucose level

Figure 4.20 shows an example of a family planning flow record that can be used during the assessment. After collecting the assessment data above, consider the medical factors to help decide if the woman is a candidate for all methods or whether some should be eliminated. For example, if she reports she has multiple sex partners and a history of pelvic infections, she would not be a good candidate for an intrauterine contraceptive. Barrier methods (male or female condoms) of contraception might be recommended to this client to offer protection against STIs.

**ESSENTIALS of Maternity, Newborn, & Women's Health
Nursing - THIRD EDITION** Susan Scott Ricci, **ARNP, MSN, MEd**

FIGURE 4.20

Family planning flow (visit) record.

Nursing Diagnoses

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

- 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

Contraception is an important issue for all couples, and the method used should be decided by the woman and her partner jointly. Facilitate this process by establishing a trusting relationship with the client and by providing unbiased, accurate information about all methods available. As a nurse, reflect honestly on your feelings about contraceptives while allowing the client's feelings to be central. Be aware of the practical issues involved in contraceptive use, and avoid making assumptions, making decisions on the woman's behalf, and making judgments about her and her situation. To do so, it is important to keep up to date on the latest methods available and convey this information to clients. Encourage female clients to take control of their lives by sharing information that allows them to plan their futures.

The following guidelines are helpful in counseling and educating the client or couple about contraceptives:

ESSENTIALS of Maternity, Newborn, & Women's Health

Nursing - **THIRD EDITION** Susan Scott Ricci, ARNP, MSN, MEd

- Encourage the client/couple to participate in choosing a method.
- Provide client education. The client/couple must become informed users before the method is chosen. 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 [Fig. 4.21](#).

Teaching Guidelines 4.5:TIPS FOR THE USE OF 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. 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 one third 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 6 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

ESSENTIALS of Maternity, Newborn, & Women's Health

Nursing - THIRD EDITION Susan Scott Ricci, ARNP, MSN, MED

- 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 back in bed
 - 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, because they 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 3-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 (Schuiling & Likis, 2013).

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.
- 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.
- Obtain written informed consents, which are needed for intrauterine contraceptives, 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 (Schuiling & Likis, 2013).
- 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.

It is also important to clear up common misconceptions about contraception and pregnancy. 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 misconceptions include:

- Breast-feeding protects against pregnancy.
- Pregnancy can be avoided if the male partner "pulls out" before he ejaculates.
- Pregnancy can't occur during menses.

ESSENTIALS of Maternity, Newborn, & Women's Health

Nursing - **THIRD EDITION** Susan Scott Ricci, ARNP, MSN, MEd

- Douching after sex will prevent pregnancy.
- Pregnancy won't happen during the first sexual experience.
- Taking birth control pills protects against STIs.
- The woman is too old to get pregnant.
- Irregular menstruation prevents pregnancy.

When discussing in detail each method of birth control, focus on specific information for each method outlined. Include information such as how this particular method works to prevent pregnancy under normal circumstances of use; the noncontraceptive benefits to overall health; advantages and disadvantages of all methods; the cost involved for each particular method; danger signs that need to be reported to the health care provider; and the required frequency of office visits needed for the particular method.

In addition, outline factors that place the client at risk for method failure. Contraceptives can fail for any of many reasons. Use [Table 4.6](#) to provide client education concerning a few of the reasons for contraceptive failure. Help clients who have chosen abstinence or fertility awareness methods to define the sexual activities in which they do or do not want to participate. 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.

TABLE 4.6: 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. Two to 5% of condoms will break or tear during use.
Condom broke during sex	Check expiration date.

ESSENTIALS of Maternity, Newborn, & Women's Health

Nursing - THIRD EDITION Susan Scott Ricci, ARNP, MSN, MED

Contraceptive Failure Problem	Client Education Needed
	Store condoms properly. Use only a water-based lubricant. Watch for tears caused by long fingernails. Use spermicides to decrease possibility of pregnancy. Seek emergency postcoital conception.
Use of antibiotics or other herbs taken with OCs Belief that you can't get pregnant during menses or that it is safe "just this one time"	Use alternative methods during the antibiotic therapy, plus 7 additional days. Implement on day 1 of taking antibiotics. It may be possible to become pregnant on almost any day of the menstrual cycle.

After clients have chosen a method of contraception, it is important to address the following:

- 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

Abortion is defined as the expulsion of an embryo or fetus before it is viable (Alexander, LaRosa, Bader, & Garfield, 2010). 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 1.3 million annually) and might be the most common surgical procedure in the world (Alan Guttmacher Institute, 2011b). 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. Eighty-nine percent of abortions occur in the first 12 weeks of pregnancy (Alan Guttmacher Institute, 2011b).

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. 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 (Orentlicher, 2011).

ESSENTIALS of Maternity, Newborn, & Women's Health

Nursing - THIRD EDITION Susan Scott Ricci, ARNP, MSN, MEd

Surgical Abortion

The three major types of surgical abortion are vacuum aspiration, dilation, and evacuation and induction. Method selection is based on gestational age. 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 it is empty. The entire procedure lasts about 10 minutes. The major risks and complications in the first trimester are infection, retained tissue, or hemorrhage, or cervical tear (Achilles & Reeves, 2011).

Medical Abortion

Medical abortions are achieved through administration of medication either vaginally or orally. The administration of medication occurs in the clinic or doctor's office, may require two to four office visits, and costs an average \$400 (O'Reilly, 2009). Three drugs are currently used to terminate a pregnancy during the first trimester. The first drug is 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., 2012).

The second drug 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. Currently, the most widely used method of medication abortion in the United States is the administration of mifepristone in conjunction with misoprostol. Another frequent method used includes the combination of methotrexate with misoprostol (Schuiling and Likis 2013). Mifepristone, the generic name for RU-486, is sold under the brand names Mifeprex and Early Option. Mifepristone is an antiprogesterin and blocks the action of progesterone, which is necessary for the maintenance of the pregnancy. This method is 95% effective when used within 49 days after the last menstrual cycle (Hatcher et al., 2012).

Another drug frequently used is misoprostol (Cytotec), which is a prostaglandin analog that softens the cervix and causes uterine contractions, which results in the expulsion of uterine contents. There is no standard protocol for use of misoprostol (Cytotec) alone for termination of early pregnancy, and it is not FDA approved for this purpose (King & Brucker, 2011).

The assessment of the woman with an unintended pregnancy should be performed with cautious sensitivity. It is essential to explore the women's feelings about pregnancy before congratulating or consoling her. The encounter should be guided by the feelings of the client, not by the assumptions and values of the nurse.

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

ESSENTIALS of Maternity, Newborn, & Women's Health Nursing - THIRD EDITION

Susan Scott Ricci, ARNP, MSN, MEd

the nursing care and help she requires. This may necessitate a transfer to another area or a staffing reassignment.

MENOPAUSAL TRANSITION

Meno is derived from the Greek word for “month,” and *pause* is derived from the Greek word for “pause” or “halt.” Menopause is the technical term for a point in time at which menses and fertility cease (King & Brucker, 2011). 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. The term **menopausal transition** refers to the transition from a woman's reproductive phase of her life to her final menstrual period. This period is also referred to as *perimenopause*. It is the end of her menstruation and childbearing capacity. The average age of natural menopause—defined as 1 year without a menstrual period—is 51.4 years old. The average age of natural menopause has remained constant for the last several hundred years despite improvements in nutrition and health care (Alexander et al., 2010). With current female life expectancy at 84 years, this event comes in the middle of a woman's adult life.

Take Note!

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, 2011). Menopause does not happen in isolation. Midlife is often experienced as a time of change and reflection. Change happens in many arenas: children are leaving or returning home, employment pressures intensify as career moves or decisions are required, elderly parents require more care or the death of a parent may have a major impact, and partners are retrenching or undergoing their own midlife crises. Women must negotiate all these changes in addition to menopause. Managing these stressful changes can be very challenging for many women as they make the transition into midlife.

A woman is born with approximately 2 million ova, but only about 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 (Reddish, 2011). 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.

ESSENTIALS of Maternity, Newborn, & Women's Health

Nursing - THIRD EDITION

Susan Scott Ricci, ARNP, MSN, MEd

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 (Schuiling & Likis, 2013). 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* (Harlow & Paramsothy, 2011). In perimenopause, the ovaries begin to fail, 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 (Reddish, 2011). In addition, testosterone levels decrease with menopause.

Menopausal transition, with its dramatic decline in estrogen, affects not only the reproductive organs, but also other body systems:

ESSENTIALS of Maternity, Newborn, & Women's Health
Nursing - **THIRD EDITION** Susan Scott Ricci, **ARNP, MSN, MEd**

- mood and memory problems

Brain: hot flashes, disturbed sleep,

ESSENTIALS of Maternity, Newborn, & Women's Health

Nursing - **THIRD EDITION** Susan Scott Ricci, **ARNP, MSN, MEd**

- *Cardiovascular*: lower levels of high-density lipoprotein (HDL) and increased risk of cardiovascular disease
- *Skeletal*: rapid loss of bone density that increases the risk of osteoporosis
- *Breasts*: replacement of duct and glandular tissues by fat
- *Genitourinary*: vaginal dryness, stress incontinence, cystitis
- *Gastrointestinal*: less absorption of calcium from food, increasing the risk for fractures
- *Integumentary*: dry, thin skin and decreased collagen levels
- *Body shape*: more abdominal fat; waist size that swells relative to hips

Therapeutic Management

Menopausal transition 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 (WHI) study and the Heart and Estrogen/Progestin Replacement Study Follow-Up (HERS II), which reported that long-term hormone therapy (HT) increased the risks of heart attacks, strokes, and breast cancer; in short, the overall health risks of HT exceeded the benefits (Roush, 2011). In addition, HT did not protect against the development of coronary artery disease (CAD), nor did it prevent the progression of CAD, as it was previously touted to do. A recent research finding examined the timing of HT in relation to CAD in women and it found that the earlier initiation of HT was associated with less CAD in women with natural but not surgical menopause (Shufelt et al., 2011). 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. A current study, however, showed that the incidence of fractures among menopausal transition and postmenopausal women increased significantly in the 3 years after publication of the WHI and HERS II results. This trend followed a decline in the use of hormone therapy, concurrent with an increase in the use of other bone-modifying agents (Schnatz, 2011). There is considerable evidence that estrogen or hormone therapy reduces the risk of postmenopausal osteoporotic fracture of both the spine and hip (Kass-Wolff & Fisher, 2011).

A number of treatment options are available, 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 health care provider on the right menopause therapy. The following factors should be considered in management:

- The risk/benefit ratio is highest in younger women who begin HT not long after menopause.
- HT is approved for two indications: relief of vasomotor symptoms and prevention of osteoporosis.
- Research suggests that HT may be beneficial for preventing diabetes, improving mood, or avoiding urinary tract problems.
- Using HT long beyond menopause carries increased risks, which, for some women, may be outweighed by the benefits (North American Menopause Society, 2011).

Many women consider nonhormonal therapies such as bisphosphonates and selective estrogen receptor modulators (SERMs). Consider weight-bearing exercises, calcium, vitamin D, smoking

ESSENTIALS of Maternity, Newborn, & Women's Health

Nursing - **THIRD EDITION** Susan Scott Ricci, ARNP, MSN, MEd

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, although none have been validated by rigorous research studies (Andrews, 2011).

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 are discussed next.

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
- Decreased lubrication
- Weight gain and water retention
- Night sweats
- Atrophic changes—loss of elasticity of vaginal tissues
- Fatigue
- Irritability
- Poor self-esteem
- Insomnia
- Stress incontinence
- Heart palpitations

Adapted from Holloway, D. (2011). An overview of the menopause: Assessment and management. *Nursing Standard*, 25(30), 47–58; Kessenich, C. R. (2011). Inevitable menopause. *Nursing Spectrum*. Retrieved from <http://ce.nurse.com/ce232-60/Inevitable-Menopause>; North American Menopause Society. (2011).

Recommendations for estrogen and progesterone use in post-menopausal women. *Menopause*, 15(4), 584–603; and Schuiling, K. D., & Likis, F. E. (2013). *Women's gynecologic health* (2nd ed.) Sudbury, MA: Jones & Bartlett.

Preventing and Managing Osteoporosis

Osteoporosis has been recognized as a significant worldwide public health problem. As the world's population ages, both in the United States and internationally, the prevalence of osteoporosis is expected to increase significantly. **Osteoporosis** is the state of diminished bone density. This disorder is a systemic skeletal disease characterized by low bone mass and microarchitectural deterioration of bone tissue with a consequent increase in bone fragility and susceptibility to fracture (National Osteoporosis Foundation [NOF], 2011b).

According to recent information from NOF (2011b), osteoporosis is a major medical problem that affects 10 million women and 2 million men in the United States. An

ESSENTIALS of Maternity, Newborn, & Women's Health

Nursing - THIRD EDITION

Susan Scott Ricci, ARNP, MSN, MEd

additional 34 million Americans have low bone mass. Each year, an estimated 1.5 million individuals in the United States experience a fragility fracture secondary to osteoporosis, resulting in an annual cost of \$18 billion. By 2025, experts predict that osteoporosis will be responsible for approximately 3 million fractures and \$25.3 billion in costs each year (NOF, 2011b). With the rapidly aging U.S. population, the problem of osteoporosis is now reaching epidemic proportions. Seventy-five million baby boomers are entering the stage in their lives when they are most at risk for osteoporosis. One half of all women and one third of all men will sustain a fragility fracture during their lifetime. Osteoporosis continues to be underdiagnosed and undertreated because it is often not recognized until the first fracture occurs.

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 (Alexander et al., 2010). 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.



FIGURE 4.22

Skeletal changes associated with osteoporosis. (John Radcliffe Hospital/Photo Researcher Inc.)

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

- Increasing age

ESSENTIALS of Maternity, Newborn, & Women's Health

Nursing - **THIRD EDITION** Susan Scott Ricci, **ARNP, MSN, MEd**

- Postmenopausal status without hormone replacement
- Small, thin-boned frame
- Low bone mineral density
- Caucasian or Asian with small bone frame
- Impaired eyesight that would increase risk of falling
- Rheumatoid arthritis
- Family history of osteoporosis
- Sedentary lifestyle
- History of treatment with:
 - Antacids with aluminum
 - Heparin
 - Long-term use of steroids > 3 months
 - Thyroid replacement drugs
- Smoking and consuming alcohol
- Low calcium and vitamin D intake
- Excessive amounts of caffeine
- Personal history of nontraumatic fracture
- Anorexia nervosa or bulimia (NOF, 2011a)

Currently, no method exists for directly measuring bone mass. Instead a bone mineral density (BMD) measurement is used. BMD is a two-dimensional measurement of the average content of mineral in a section of bone. BMD evaluations are made at the hip, femoral neck, and spine. There is a significant relationship between BMD and fracture: as BMD is reduced, the risk of fracture increases (Tufts, 2011). 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. The dual energy x-ray absorptiometry scan (DEXA scan) is the gold standard radiologic method for identifying osteoporosis through measuring BMD (U.S. Preventive Services Task Force, 2011).

The best management for this painful, crippling, and potentially fatal disease is prevention. Women can modify many risk factors by doing the following:

- Engage in daily weight-bearing exercise, such as walking to increase osteoblast activity.
- Increase calcium and vitamin D intake.
- Avoid smoking and excessive alcohol (more than two drinks per day).
- Discuss bone health with a health care provider.
- When appropriate, have a bone density test and take medication if needed (NOF, 2011a).

Medications that can help in preventing and managing osteoporosis include:

- HT (Premarin)
- SERMs (raloxifene [Evista])
- Calcium and vitamin D supplements (Tums)
- Bisphosphonates (Actonel, Fosamax, Boniva, or Reclast)
- Parathyroid hormone (Forteo)
- Calcitonin (Miacalcin) (King & Brucker, 2011)

ESSENTIALS of Maternity, Newborn, & Women's Health

Nursing - **THIRD EDITION** Susan Scott Ricci, ARNP, MSN, MEd

Preventing and Managing Cardiovascular Disease

Cardiovascular disease (CVD) remains the number-one killer of women in the United States (DeVon, 2011). More women die from heart disease and stroke than the next five causes of death combined, including breast cancer. 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., 2010). This translates into approximately one death every minute. While men's CVD mortality has decreased since the 1980s, women's CVD mortality has climbed. This has resulted in a sex-related CVD mortality gap, with women having higher mortality than men since 1984. Contributing to this female-majority CVD mortality gap is a lack of awareness of CVD risk among women and their physicians. Awareness campaigns, such as the Heart Truth and the Red Dress symbol, appear to have improved recognition of CVD risk in women. Further, female-specific guidelines have been developed to prevent and reduce CVD in women. Though the current understanding of the role of menopause in CVD is controversial, studies suggest that menopause does not exacerbate CVD independent of aging, and hormone replacement therapy is not effective for secondary prevention of CVD (Johannes & Bairey Merz, 2011).

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 low-density lipoprotein levels, helping to keep the arteries clean from plaque accumulation. But when estrogen levels plummet as women age and experience menopause, the incidence of CVD increases dramatically.

Menopause is not the only factor that increases a woman's risk for CVD. 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

Two of the major risk factors for coronary heart disease are hypertension and dyslipidemia. Both are modifiable and can be prevented by lifestyle changes and, if needed, controlled by medication. This is why prevention is essential. In addition, women who experience early menopause lose the protection afforded by endogenous estrogen to the cardiac system and are at greater risk for more extensive atherosclerosis. Major preventive strategies include a healthy diet, increased activity, exercise, smoking cessation, decreased alcohol intake, and weight reduction.

Nurses, particularly those caring for women during their reproductive years, are uniquely positioned to provide education and support for women's long-term cardiovascular health. Raising awareness of heart disease in women is an essential role for nurses. The good news

ESSENTIALS of Maternity, Newborn, & Women's Health

Nursing - **THIRD EDITION** Susan Scott Ricci, **ARNP, MSN, MEd**

is that CVD is largely preventable. Because CVD is a chronic disease that develops over time, primary prevention lifestyle modification interventions are most effective if initiated before the development of overt disease. Stressing the importance of lifestyle modifications must begin early in life and should be reinforced from the beginning of a young woman's reproductive years through menopause. Nurses are in an ideal position to teach the importance of good nutrition, healthy weight, and daily exercise before CVD becomes clinically evident.

Healthy lifestyles and stress management techniques are vital to health and longevity, and it is important to keep these on the client's agenda when discussing menopause (Boston Women's Health Book Collective, 2011). Evidence-based interventions include lifestyle modifications, risk management therapies, and preventive drug interventions, such as the following:

- Participate actively in maintaining health.
- Exercise regularly to prevent CVD and osteoporosis.
- 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.
- Monitor blood pressure, lipids, and diabetes (drug therapy management).
- Use low-dose aspirin to prevent blood clots.
- Reduce dietary intake of fat, cholesterol, and sodium to prevent cardiovascular disease.
- Maintain a healthy weight for body frame.
- Perform breast self-examinations for breast awareness.
- Control stress to prevent depression (DeVon, 2011).

These life approaches may seem 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 to stick with them.

KEY CONCEPTS

- Establishing good health habits and avoiding risky behaviors early in life will prevent chronic conditions later in life.
- Premenstrual syndrome has more than 200 symptoms, 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 their normal site, the uterine cavity.
- Infertility is a widespread problem that has an emotional, social, and economic impact on couples.
- More than half 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.

ESSENTIALS of Maternity, Newborn, & Women's Health

Nursing - **THIRD EDITION** Susan Scott Ricci, **ARNP, MSN, MEd**

- Recent studies have shown that the extension of active extended cycle oral contraceptive pills carries the same safety profile as the conventional 28-day regimens (Hatcher et al., 2012).
- Currently two IUCs available in the United States: the copper ParaGard-TCu-380A and the levonorgestrel intrauterine system (LNG-IUS) called Mirena, a levonorgestrel-releasing device (King & Brucker, 2011).
- Oral contraceptives, sterilization, and male condoms are the most popular methods of contraception in the United States and worldwide (Hatcher et al., 2012).
- Menopause, with a dramatic decline in estrogen levels, affects not only the reproductive organs but also other body systems.
- Most women with osteoporosis do not know they have the disease until they sustain a fracture, usually of the wrist or hip (NOF, 2011a).
- Half a million women die annually in the United States of cardiovascular diseases, with strokes accounting for about 20% of the deaths (Alexander et al., 2010).
- Nurses should aim to have a holistic approach to the sexual health of women from menarche through menopause.