

Health Issues Distinctive to Women

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- Read the enclosed course.
- Complete the questions at the end of the course.
- Return your completed Evaluation to NetCE by mail or fax, or complete online at www.NetCE.com. (If you are a behavioral health professional or Florida nurse, please return the included Answer Sheet/Evaluation.) Your postmark or facsimile date will be used as your completion date.
- Receive your Certificate(s) of Completion by mail, fax, or email.

Faculty

Gayle Roux, PhD, RN, CNS, FNP, received her BSN from University of Nebraska, and her MS and PhD in Nursing from Texas Women's University. She has been employed in various aspects of women's care including childbearing, family planning, and women's health. Currently, she practices as a family nurse practitioner and is faculty at University of North Dakota. Dr. Roux's area of research is focused on inner strength in women living with chronic health conditions such as breast cancer. She lives in Dallas, Texas, and has two daughters. Dr. Roux enjoys cross-country skiing, traveling, and reading mystery stories.

Faculty Disclosure

Contributing faculty, Gayle Roux, PhD, RN, CNS, FNP, has disclosed no relevant financial relationship with any product manufacturer or service provider mentioned.

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The division planners and director have disclosed no relevant financial relationship with any product manufacturer or service provider mentioned.

Audience

This course is designed for nurses and other healthcare professionals involved in improving health outcomes for women.

Accreditations & Approvals



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About the Sponsor

The purpose of NetCE is to provide challenging curricula to assist healthcare professionals to raise their levels of expertise while fulfilling their continuing education requirements, thereby improving the quality of healthcare.

Our contributing faculty members have taken care to ensure that the information and recommendations are accurate and compatible with the standards generally accepted at the time of publication. The publisher disclaims any liability, loss or damage incurred as a consequence, directly or indirectly, of the use and application of any of the contents. Participants are cautioned about the potential risk of using limited knowledge when integrating new techniques into practice.

Disclosure Statement

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Course Objective

The purpose of this course is to provide healthcare professionals with updated information related to issues surrounding women across the lifespan to facilitate thorough and appropriate care.

Learning Objectives

Upon completion of this course, you should be able to:

1. Consider factors that may influence access to and quality of health services for women, including economic, cultural, and demographic issues.
2. Review the historical and current context of the inclusion of women in health research.
3. Review gender-specific health theories and models.

4. Compare and contrast the presentation of sexually transmitted infections in men and women.
5. Explain communication skills that foster a non-judgmental attitude regarding sexual activity.
6. Identify issues related to gynecologic health, including the recommended Pap screening schedules.
7. Discuss the risk factors for cervical cancer and the holistic therapeutic plan of care for a woman with gynecologic cancer.
8. Define menarche, perimenopause, and menopause, and identify care issues that may arise in these life stages.
9. Discuss the risks, benefits, and contraindications for hormone replacement therapy.
10. Discuss various health promotion and pharmacologic options for women experiencing menopause.
11. Discuss recommendations regarding breast cancer screening.
12. Identify the various factors that should be considered when making treatment choices for women with breast cancer.
13. Compare and contrast gender differences in women and men with cardiovascular disease.
14. Explain the relationship between a balanced diet and exercise to maintain health across the lifespan.
15. List the risk factors and treatment and screening guidelines for obesity, diabetes, and heart disease.
16. Discuss osteoporosis risk factors and the risks, benefits, and side effects of the common medications used in the treatment of the disease.
17. Discuss common mental health issues in women's health, including depression and domestic violence.
18. Review culturally specific risk factors and health disparities for women of color.
19. Identify complementary therapies, including those that have been effective in various women's health issues, such as cancer, heart disease, and menopause.
20. Review health screening guidelines and immunization recommendations for women across the lifespan.



Sections marked with this symbol include evidence-based practice recommendations. The level of evidence and/or strength of recommendation, as provided by the evidence-based source, are also included so you may determine the validity or relevance of the information. These sections may be used in conjunction with the course material for better application to your daily practice.

INTRODUCTION

Health issues distinctive to women encompass all of the dimensions in which a woman interacts with herself and her environment—mind, body, and spirit. This course will include information on healthy lifestyle behaviors, risk factors, and interventions for common health issues in women. Major health promotion issues and treatment in the care of women, including sexual and reproductive health, gynecologic cancers, perimenopause and menopause, breast care, heart disease, obesity, diabetes, and psychologic health will be highlighted. While men may also experience some of these conditions, the course will focus on distinct aspects for women. Health choices and actions reflect the individual's place in her world, including her cultural, social, and spiritual perspective. These beliefs will form the basis for her actualization of health choices. Nurses and other health professionals are in a position to understand the complexity of women's health beliefs and behaviors and to assume leadership positions in health promotion, primary care, primary prevention, and treatment of women and their families.

WOMEN'S HEALTH AND HEALTH PROMOTION

Health is a key concept of health care, and it should not be characterized as the absence of illness or a disability. The multiplicity of emotional, spiritual, social, financial, and cultural dimensions to health should also be considered. In addition, a new view of women's health is especially needed because of the great change and expansion from its original focus on reproductive health. Based on the philosophy that patients should control their bodies and make informed choices regarding their health care, the definition of health and health promotion has evolved.

Health promotion is a process that enables people to address cultural, social, and political factors to increase control over and improve their health [1]. It is a transformative process in which the health professional functions as a partner with the patient and her family in education, consciousness raising, and advocacy. This process is characterized by a respect for the patient's autonomy and an acknowledgment of the dynamic relationship between the patient and her environment. The goal of health care is to improve and maintain health. Health is a highly complex professional practice that continues to evolve as scholars, researchers, and practitioners address its many facets [2]. Health promotion choices and actions reflect the individual's cultural, educational, social, and spiritual perspective.

Many of the health problems that plague women today may be avoided or lessened through better health education and community and public health programs. Nurses and other health professionals are in a position to make a difference. Sharing concerns about issues that affect women's health is a prerequisite to making a change in the way nurses and other health professionals practice. The information should also be used as resource material for teaching plans. There is a distinct need for more health education and comprehensive preventive programs to improve access and quality of health care for women of all ages.

DEMOGRAPHIC CHANGES

The Office on Women's Health (OWH) has noted that women are living longer, facing more chronic conditions by virtue of lifespan, and coming from a variety of cultural backgrounds, necessitating a focus on the health of women across the lifespan to encourage well-being and functional outcomes. Both demographic changes and increasing incidence rates of conditions such as heart disease, diabetes, and breast cancer provide justification for further advancement of health issues facing women. The population increase of aging or elderly women is significant. An estimated 47.8 million Americans are 65 years of age and older, approximately 55% of

whom are women. This percentage of older persons, which now comprises 14.9% of the population, is expected to grow to 98.2 million by the year 2060, or approximately 25% of the population [3; 4; 5; 6]. The older population is also becoming more racially and ethnically diverse. Between 2014 and 2060, the share of the older population that is non-Hispanic white is projected to drop by 24%, from 78.3% to 54.6% [6]. Blacks accounted for 9% of this population in 2017. This number is projected to grow to 13% by 2060 [7]. Hispanics accounted for 8% in 2017 and are expected to account for 21% by 2060 [7]. Asians represented 4% in 2017 and are expected to represent 8% by 2060 [7].

One in eight women, or approximately 13%, will develop breast cancer in their lifetime [8]. Aging is a serious risk factor for breast cancer. An estimated 84% of new cases occur in women 50 years of age and older, with the highest incidence rates (26%) occurring in women 50 to 69 years of age [9]. The older a woman, the greater her risk of both heart disease and breast cancer. While age is a well-established risk factor for chronic health conditions, research is lacking regarding differences, health needs, and interventions to maximize strengths in women living with these conditions.

As women age and the incidence of breast cancer, heart disease, and osteoporosis increases, nurses and healthcare professionals must recognize that health care impacts the physical, emotional, and spiritual lives of women. The Office of Research on Women's Health (ORWH) at the National Institutes of Health (NIH) has specified research priorities that "advance the understanding of biologic sex differences in health and disease at multiple levels, from genes to hormones to complex systems" [10]. Topical research priorities for the ORWH include studies on diseases and conditions that affect women, methodologic advances, education and career development of women in science, quality of life, and fostering research collaborations and partnerships to further women's health research [10].

The U.S. Department of Health and Human Services composed Healthy People 2030 with a global goal to promote health and well-being for women. This includes a need for improvements in screening, early diagnosis, and treatment of women of color with conditions such as heart disease, diabetes, and cancer [11].

WOMEN IN RESEARCH STUDIES

Despite the evolution and political strength of the women's health movement, women's health advocacy in the United States does not consistently address experiences specific to women in ethnic, socioeconomic, and aging subgroups. In the past, women were generally excluded from research studies, leaving gaps in the body of knowledge relating to ways women respond to and deal with health and illness and creating assumptions that findings were the same for women as for men. Today, the NIH closely monitors the inclusion of women and minorities in research. In addition, extensive studies on women's health issues, such as the Women's Health Initiative (WHI), have provided scientific information previously lacking.

GENDER-SPECIFIC HEALTH THEORIES AND MODELS

Gender-sensitive care should be the direction for the philosophical and theoretical development of women's health. Overcoming the limitations imposed by the dominant medical model in women's health requires theoretical bases that do not reduce women's health and illness experience into a disease. The gender-sensitive philosophy incorporates explanations of health and empowers women to effectively and adequately deal with their situations. The major components incorporated into the development of gender-sensitive care include:

- Gender is a central feature.
- Women's own voices and experiences are reflected.
- Diversities and complexities are incorporated into women's experiences.

- Theorists reflect about underlying androcentric and ethnocentric assumptions.
- Sociopolitical contexts and constraints of women's experiences are considered.
- Guidelines for practice with specific groups of women are provided.

These criteria have guided the philosophical premise of this course.

Nurses and health professionals have adopted a model of care that views women in a holistic way. The individual woman, her family, and her community cannot really be separated but are treated as one and the same. This philosophy of care provides women with a means to grow and change. Women are confronted with a variety of psychologic and physiologic stresses over the course of their lifespan. Nurses and other health professionals should offer holistic approaches, support, and advocacy to improve and maintain health. Health concepts include the development of a theory in relation to empowerment, collaboration, stages of change, learning, participation, and equity [12].

Health care may be viewed as a global term that defines actions intended to promote health. Health promotion includes the complex dimensions of health education, marketing the health message, lifestyle modification, engaging in social and environmental change, and addressing the patient's set of values. Health professionals perform a thorough health history to elicit each woman's definition of these dimensions in relation to her health behaviors and choices. Health care includes both self-management strategies and interventions implemented by healthcare professionals. Therapies to promote and maintain health include both traditional and complementary therapies, which are nontraditional therapies that complement or augment the usual traditional therapies.

SEXUAL AND REPRODUCTIVE HEALTH

It is now recognized that environmental factors and lifestyle patterns are crucial variables in the promotion of individual, family, and public health. This is also true in the development of healthy sexuality, the prevention of sexually transmitted infections (STIs), and the maintenance of reproductive health. Lifestyle-related diseases involve not only diet, smoking, alcohol consumption, and exercise but also emotional relationships and sexuality. Health professionals should never underestimate the importance of sexual health and history in girls and women of all ages. Professional care involves developing competency in conducting a thorough and sensitive health history and assessment of sexual and reproductive health. Health history questions should include the following objective data:

- When was your last Pap test? Have you ever had an abnormal Pap? If yes, when and what treatment was performed?
- How many pregnancies, term deliveries, preterm deliveries, elective abortions, and miscarriages? If miscarriages, at what gestational age and any known cause? Vaginal births or cesarean? Normal birth or complications? Living children and ages?
- Are you sexually active? At what age did you initiate intercourse? With men, women, or both?
- How many partners have you had in the last year?
- What type of contraceptive(s) do you use? Are you satisfied with this contraceptive?
- Do you use condoms? With every sexual encounter?
- Are you satisfied with your sexual relationship(s)?

After conducting this health history, the healthcare professional and the patient are better equipped to mutually identify risk factors and discuss sexual behaviors they would like to change. This health history should be conducted at the annual exam with a nurse practitioner or physician or when the patient presents with a sexual health or contraceptive concern. Regular pelvic exams and Pap tests are essential for early detection of various conditions in the reproductive system [13; 14].

SEXUALLY TRANSMITTED INFECTIONS

Although the organisms, transmission, and complications of STIs are known, healthcare professionals have not been able to control these diseases. The incidence of many STIs has increased in the last few decades to 26 million new infections per year [15]. They now result in an estimated \$16 billion in direct medical costs annually [15]. The spread of STIs dramatically demonstrates that the social determinants of disease must be addressed. Healthcare professionals should become more informed regarding the pathophysiology and the social ramifications of genital/oral infections and STIs and provide education and anticipatory guidance to patients of all ages at each stage of the lifespan.

STIs are caused by a spectrum of organisms. More than 100 diseases and syndromes are recognized as being sexually transmissible. Although some STIs affect one anatomical area alone, such as the labia or cervix, other organisms ascend the female reproductive tract, where further invasion is possible. These organisms can move upward from the vagina, through the cervical canal, and into the uterus, from which colonization into the fallopian tubes, ovaries, and entire pelvis may occur. Infections such as chlamydia, gonorrhea, syphilis, herpes, and acquired immunodeficiency syndrome (AIDS) can cause serious threats to future reproductive viability as well as to life itself. Other infections are transmitted to or via the oral cavity and facial area.

Each organism requires a unique diagnostic strategy and treatment. There is considerable variation in the symptoms and treatment options. Therefore, the following information is given as a general guide for major STIs for adults in the United States. The information is not intended to be exhaustive, and other textbooks and resources will be needed to describe care in more detail. The Centers for Disease Control and Prevention (CDC) remains the central body of expertise on treatment protocols for STIs [16; 17].

STI Variations in Men and Women

It has been said that STIs are biologically sexist. This is because women experience a disproportionate amount of the STI burden and complications, including sterility, perinatal infections, genital tract neoplasm, and death. STIs in women are often asymptomatic, but the silent process is both infectious and damaging. Vertical transmission of the disease in the perinatal period places the fetus at risk for developing illness, congenital anomalies, and developmental disabilities, or may result in fetal death [16; 18; 19].

Prevention and treatment programs for STIs are common denominators across all racial, ethnic, and economic strata. Sexual behavior choices are not always made in a logical and rational manner. For example, teenage girls may believe condoms are unnecessary because a boyfriend declares his love. Education that conveys factual information and addresses the social context of the patient and partner is necessary. Young teenagers and all patients should be instructed on the use of condoms. When women seek oral contraceptives, they should be reminded that these contraceptives do not prevent STIs. Safer sexual practices that decrease the risk of STIs include limiting sexual partners and always using latex condoms. STIs may also result from rape or sexual assault, which are much more common among women than men (lifetime prevalence: 17.6% and 3%, respectively) [20].

Care for Commonly Acquired STIs

The most common (new and existing) STIs in the United States are human papillomavirus (HPV) (42.5 million infections), genital herpes simplex virus (HSV-2) (18.6 million infections), trichomoniasis (2.6 million infections), chlamydia (2.4 million infections), human immunodeficiency virus (HIV) (0.9 million infections), gonorrhea (209,000), syphilis (156,000), and hepatitis B (103,000 infections) [15]. These are the STIs that will be discussed in this section. As noted, the CDC treatment guidelines remain the gold standard for information and treatment of STIs [16].

Human Papillomavirus

To date, 120 types of HPV have been isolated from humans, and more than 40 can infect the genital tract [21]. These types have been classified into the relative risk categories of low, intermediate, and high. Low-risk viruses include types 6, 11, 42, 43, and 44. These are rarely associated with cancer of high-grade squamous intraepithelial lesion (HSIL). Visible genital warts are often caused by HPV types 6 and 11. Intermediate-risk types 31, 33, 35, 39, 51, and 52 are infrequently associated with invasive cervical cancer. Types 16, 18, 45, and 58 are high-risk HPV types found in women with HSIL [22]. It is important to remember that the presence of HPV does not always mean that disease will develop. Studies continue to show that only a small proportion of women remain HPV-positive over time. Women at greatest risk for HPV-related cervical disease are those who lack an adequate immune response to HPV exposure and those in whom high-risk HPV infection persists [16; 22].

Most HPV infection is not visible, but the most common recognized visible manifestation of HPV is the presence of genital warts [22]. If left untreated, warts may resolve on their own, remain unchanged, or increase in size.

Both patient-applied and provider-applied treatments are available. Factors that influence treatment choices include wart size, number, location, morphology, cost, and convenience. Treatment is not recommended in the absence of warts for subclinical genital HPV, as the lesions typically clear spontaneously [16]. The most effective strategy is the prevention of HPV through immunization. Bivalent, quadrivalent, and nine-valent HPV vaccines are approved for the prevention of HPV-related diseases [16; 23]. The immunizations are recommended for girls, boys, and young women and men up to 26 years of age [24; 25].



The Advisory Committee on Immunization Practices recommends routine HPV vaccination for all girls at 11 or 12 years of age, with a second dose administered 6 to 12 months later.

(<https://www.cdc.gov/mmwr/volumes/65/wr/mm6549a5.htm>. Last accessed July 9, 2021.)

Level of Evidence: Expert Opinion/Consensus Statement

Genital Herpes

Genital HSV is a chronic, lifelong viral infection. Symptoms may occur immediately or as late as a year after contact; in some cases, there are no symptoms at all. If apparent, symptoms include an itching, tingling sensation followed by painful vesicles that appear in clusters [16; 26]. Women may be asymptomatic with cervical lesions, and outbreaks may occur in a sporadic manner. Antiviral medications offer relief to most symptomatic patients and are also used to treat recurrent episodes or as daily suppressant therapy. Patients should be treated with an antiviral at the first clinical presentation to reduce the incidence of prolonged or severe symptoms, which can develop even if the initial episode is mild [16]. Acyclovir is the first-line recommended treatment for antiviral and suppressive therapy, followed by valacyclovir or famciclovir. Famciclovir is less effective at reducing viral shedding [16].

Valacyclovir has been shown to reduce transmission of genital herpes. A 500-mg dose once daily cuts transmission by 50% [28]. Patients taking valacyclovir to suppress transmission should be counseled on the following points [16; 29]:

- Medication must be taken daily. When the medication is stopped, transmission risk goes back up.
- While this drug is an effective assistance, it is not a cure.
- The use of condoms during asymptomatic periods with a partner who understands the risks and total abstinence from sex during outbreaks is still necessary.

Trichomoniasis

Infection with *Trichomoniasis vaginalis* is the most common nonviral STI in the United States, especially among ethnic minority women (prevalence 9.6% in black women, compared with 0.8% in non-Hispanic white women and 1.4% in Mexican American women) [30]. The infectious organism is a protozoan species. The symptoms of trichomoniasis are typically mild or absent in women, but a small percentage of patients will experience a diffuse, foul-smelling, or yellow-green vaginal discharge that may or may not be accompanied by vulvar irritation [31]. All women presenting with abnormal vaginal discharge should be tested for trichomoniasis, but routine screening for the infection in asymptomatic women with low risk is not recommended [16]. Screening should be considered for asymptomatic, high-risk women (e.g., history of STI, multiple sex partners, sex workers, illicit drug users) or women in high-prevalence settings (e.g., correctional facilities, STI clinics). High sensitivity/specificity testing (versus wet-mount microscopy), including nucleic acid amplification testing (NAAT) and the APTIMA *T. vaginalis* assay (RNA detection), is recommended by the CDC [16]. Other U.S. Food and Drug Administration (FDA)-cleared DNA assays are available and are recommended over wet-mount microscopy, if available [16]. Treatment of trichomoniasis includes a single 2-g oral dose of metronidazole or tinidazole. Alternatively, patients may be prescribed oral metronidazole 500 mg twice per day for seven days. To

reduce the possibility of a disulfiram-like reaction, patients should be instructed to abstain from alcohol until at least 24 hours after completion of metronidazole and 72 hours after tinidazole [16].

Chlamydia/Nongonococcal Urethritis/Cervicitis

Infection with *Chlamydia trachomatis* is the most common bacterial STI in the United States, especially among adolescents and young adults [16; 32]. Although many women have no symptoms, any of the following may occur one to three weeks after contact [16]:

- Frequent, uncomfortable urination
- Cervicitis with scant cervical discharge
- Lower abdominal pain
- Pelvic inflammatory disease (PID)

Chlamydia is also a major cause of nongonococcal urethritis (NGU) and lymphogranuloma venereum (LGV) in men [16]. Diagnosis is frequently made in men as NGU and in women after treatment of a male partner for NGU, or on a routine pregnancy screening in asymptomatic women. Laboratory testing has become more sophisticated, with NAAT used to detect the specific DNA of *C. trachomatis*, (e.g., polymerase chain reaction tests) [16]. A vaginal swab, either collected by a provider or self-collected in a clinic, is the recommended test for women. Antibiotic treatment is doxycycline, 100 mg orally twice per day for one week. Azithromycin and levofloxacin are alternative options [16; 29].



The Centers for Disease Control and Prevention (CDC) recommends annual chlamydia screening of all sexually active women younger than 25 years of age and older women at increased risk for infection (e.g., those who have a new sex partner, more than one sex partner, a sex partner with concurrent partners, or a sex partner who has a sexually transmitted infection).

<https://www.cdc.gov/std/treatment-guidelines/screening-recommendations.htm>. Last accessed October 14, 2021.

Level of Evidence: Expert Opinion/Consensus Statement

HIV/AIDS

Infection with HIV produces a condition that progresses from a latent or asymptomatic state to AIDS. Progression varies from a few months to years. Management of HIV involves a complex team of behavioral, psychosocial, and medical services. Referral to a provider or center specializing in HIV care is recommended [16].

Gonorrhea

Most gonorrheal infections among men produce symptoms (e.g., burning on urination, discharge) that cause them to seek treatment, thus preventing complications. However, many women have no symptoms, leading to upper reproductive infection and PID [16]. When symptoms are present, any of the following may occur one to three weeks after contact: pus-like vaginal discharge; lower abdominal pain; painful urination; and urinary frequency. Diagnosis is obtained by culture of the organism from the vagina, cervix, pharynx, or rectum or NAAT of endocervical swabs, vaginal swabs, or urine specimens. Patients infected with gonorrhea are often co-infected with chlamydia and are routinely treated with a regimen effective against both organisms. Treatment recommendations no longer include quinolone, as quinolone-resistant strains of gonorrhea have disseminated throughout the United States. Cephalosporins are the only class of antimicrobials available for treatment of gonorrhea [16]. The preferred regimen for uncomplicated urogenital, rectal, or pharyngeal infection is ceftriaxone 500 mg IM in a single dose (or cefixime 800 mg orally in a single dose) [16].

Syphilis

The first-stage symptoms of syphilis appear 10 to 90 days after infection, most often within three weeks, and include rash, flulike symptoms, and a painless genital chancre. Diagnosis is via a blood test and physical examination. Treatment consists of an antibiotic regimen of parenteral penicillin G, 2.4 million units in a single dose. The preparation, dosage, and length of treatment depend on the stage and clinical manifestations of the infection and whether the patient is pregnant [16; 33].

Hepatitis B

Hepatitis B is caused by the hepatitis B virus, which produces a symptomatic illness in approximately half of infections and has an onset of six weeks to six months [16]. The infection can be chronic or self-limited, largely depending upon age when acquired; chronic infection develops in approximately 90% of infants, 30% of children, and 2% to 6% of adults. Usual risk factors among female adolescents and adults are history of STIs, injection drug use, unprotected sex, and multiple sex partners, with premarital and poor infection control in healthcare settings being less common identified risk factors [16].

The diagnosis of hepatitis B relies on serologic testing. Treatment is mainly supportive, but there are FDA-approved drugs that can suppress viral replication and support liver disease remission in patients with chronic infection. Referral to a specialist is recommended. Prevention strategies include hepatitis B immune globulin (for postexposure prophylaxis) and the hepatitis B vaccine. The vaccine is recommended for all children, adolescents, high-risk adults, and any adults who want to have protection from the virus, including unvaccinated STI clinic patients [16]. All pregnant women should be tested for hepatitis B, and those at high-risk should be vaccinated. Pregnant women who are found to be hepatitis B positive should be referred to a specialist and enrolled in a perinatal hepatitis B prevention program [16].

COMMUNICATION SKILLS AND PLAN OF CARE FOR WOMEN WITH SEXUAL HEALTH NEEDS

Despite the availability of public health information, the discussion of contraception, safer sex, and sexual concerns are complex communication issues. Conflict with religious beliefs, inconvenience, cost, stigma, and responsibility are just a few communication barriers that persist between the woman and the provider. Communication techniques to enhance a frank discussion of sexual health needs should include:

- Discuss the woman's experiences of sexual risk behavior.

- Challenge myths to help protect women against unsafe sexual demands (e.g., having unprotected sex because “they love each other”)
- Explore situations with the woman to establish a realistic assessment of her sexual risks.
- Demonstrate value to the woman by establishing rapport and taking time to discuss her situation.

GYNECOLOGIC HEALTH

INFECTIONS OF THE REPRODUCTIVE TRACT

Health professionals should provide women with a teaching plan for perineal hygiene and the prevention of infections. The goal is to prevent infections from organisms, such as *Escherichia coli*, from causing vaginitis and urethritis [18; 27]. Women should be instructed to wash their hands before and after genital contact and after using the restroom. The woman should always wipe the perineum from front to back, not back to front or back and forth, and discard the tissue. This single front to back motion should be used after urination, bowel movement, sex, or menses [34]. Women should also avoid products that may disturb the normal flora of the vagina or cause irritation and allergic reaction of the genital area. If a woman is prone to vaginitis, she should use only white, unscented tissue and unscented pads or tampons [27; 34]. Women should not use feminine hygiene sprays or any sprays near the perineum. They should avoid deodorant or scented tampons and pads, and when using tampons, be sure that the string does not slip back to the rectal area. If it does, the tampon should be changed immediately.

Douches are rarely necessary. Douching washes out the normal balance of bacteria in the vagina and puts the woman at risk for developing bacterial vaginosis. Women do not need to douche, unless

otherwise instructed by a healthcare provider [18; 34; 35]. Women should avoid the use of perfumed or flavored douches. Vaginal deodorants, sprays, gels, or powders are not recommended for routine hygiene [34; 35].

Women are often at risk for genital infections or vaginitis because of microbial growth in the warm, moist environment of the vagina. Wearing cotton underpants with a cotton crotch, especially under pantyhose, girdles, and exercise suits, can decrease this risk [34]. Cotton pants are best during any exercise activity (e.g., aerobics, jogging, biking). Women should avoid nonabsorbent clothing as much as possible, especially when exercising. Showers are preferable to tub baths. Women prone to vaginitis and urinary tract infections should avoid bubble bath and other bath additives. If a lubricant is necessary during sexual intercourse, an over-the-counter water-soluble vaginal lubricant may be used [18]. Vaseline is not water soluble and is not recommended as a vaginal lubricant. Allowing time for proper sexual arousal is often the only lubrication technique necessary. However, vaginal dryness may occur with perimenopausal changes or when taking certain medications.

Changes in vaginal physiology or a rise in the pH makes women more vulnerable to vaginal infections [27; 34]. Caution women that risk factors for reduced vaginal acidity include pregnancy, use of high-estrogen oral contraceptives, antibiotic therapy, and uncontrolled diabetes. Women in these situations should follow the suggested techniques for avoidance in addition to a protocol for care for that specific risk factor. If the woman is taking antibiotics, taking probiotics either from food sources or as supplements may help to prevent vaginal infections. Some women will need prophylactic antifungal therapy in conjunction with antibiotic therapy. If a woman has itching, irritation, burning, sores, or odor, she should be examined to determine the exact cause. There are many different types of vaginal infections, each with different treatments [34; 36].

Transmission of organisms to and from sexual partners should be avoided. During any treatment for vaginal infections, the woman should either refrain from sexual contact or ensure the use of a condom. If the woman gets irritations easily, she should check with her partner, as his or her soap or other personal products could be the problem.

Candidiasis or Yeast Infections

Vaginitis can result from a wide number of different organisms. A bacterial infection is often the cause of vaginitis, but candidiasis, or yeast infection, is also very common. Any of these organisms may cause the symptoms of vaginitis, such as burning, itching, and vaginal discharge. Asymptomatic colonization may also occur [16; 18; 27; 37; 38].

The incidence of yeast infections may be increasing, in part due to the widespread, often improper use of antimicrobial therapy. Other factors, such as positive HIV status, diabetes, and recent IV drug use, are also believed to contribute to yeast colonization [39]. The organism most often responsible for vulvovaginal candidiasis is a fungus called *Candida albicans*. Other species (e.g., *C. glabrata*, *C. tropicalis*) may also cause vulvovaginal candidiasis and are more resistant to treatment [39]. The number of healthy, asymptomatic women who harbor *Candida* organisms is also increasing. A change in the vaginal environment and pH may cause the candidal organisms to grow, resulting in irritation. Certain health situations may increase the risk of yeast infections [16; 18; 27; 34]:

- Taking an antibiotic for an infection in another part of the body may destroy bacteria that are the normal flora of the vagina. Because these bacteria normally keep candidal fungi from flourishing, their removal may allow a yeast infection to develop.
- Hormonal changes present during pregnancy or when taking high-dose estrogen oral contraceptives may change the environment of the vagina and make it conducive to the growth of yeast cells. For example, during pregnancy, vaginal secretions become less acidic; the pH changes from about 4 or 5 to about 5.5 or 6.5.

- HIV infection or the use of immunosuppressive medications may promote yeast infections. An impaired immune system may allow yeast to grow unchecked.
- Diabetes may foster the growth of the fungi because high blood sugar reduces the body's natural ability to resist infection. Diabetes also increases the glucose in the body's tissues, which makes it easier for yeast to grow.

The primary symptom of a yeast infection is a burning and itching sensation on the vulva or in the vagina. Candidiasis typically produces a thick, curdy white discharge resembling cottage cheese with no odor. Symptoms tend to worsen just before menstrual periods, but the cause of this increase is unclear. A male sexual partner may experience a rash or excoriation of the skin of the penis or may be asymptomatic. The CDC does not recommend treatment for men unless candidal inflammation of the penis is present or frequent recurrence of infection occurs [16].

Many antifungal medications are available over the counter. These medications are convenient and economical for women who are well informed on the etiology and symptoms of fungal infections. Medications available without a prescription include clotrimazole, miconazole, and tioconazole. Butoconazole is available by prescription [16]. If the vulva is also infected, a cream is available for topical application in addition to the intravaginal insertions. Yeast infections may be treated with these agents over three to seven days. Candidiasis itself does not pose a serious health risk; however, any infection that does not respond to treatment should be taken very seriously. If over-the-counter treatment does not eradicate the infection, it is very important for the woman to see a healthcare provider to treat the symptoms and rule out other serious problems, such as diabetes and HIV. An infection that does not respond to topical treatment might respond to prescription oral medications, such as fluconazole, a 150-mg pill given in a one-time dose [16; 27]. Re-infection from the partner or other serious medical problems must be ruled out when the condition is not resolved [16].

To confirm that the symptoms are due to candidiasis, a vaginal smear will be examined on a wet mount preparation. On physical exam, the woman's labia and perineum may be red, swollen, and excoriated if the fungus and pruritus has been severe [16].

THE PAP TEST AND OTHER SCREENING TECHNOLOGIES

The Papanicolaou (Pap) test, or smear, is a safe and inexpensive tool for the early detection of cervical cancer. Developed by Dr. George Papanicolaou in the 1940s, the Pap test became a regular component of the gynecologic examination during the 1950s. It has been the gold standard for the last 50 years; however, reports of false negatives occur in as many as 50% of samples [22]. The Pap test involves scraping the endocervix with a swab, brush, or spatula to obtain a sample of cells [22; 36; 40]. Most women barely feel the scraping of the cervix during the Pap test. Barriers to gynecologic checkups and Pap tests include fear, denial, lack of information, cultural beliefs, social status, embarrassment, absence of symptoms experienced, lack of access to health care, and cost.

Since the introduction of the Pap test, the incidence of invasive cervical cancer and the death rate from cervical cancer have declined significantly in the United States, but the number of women with cervical intraepithelial neoplasia (CIN) has increased at alarming rates [41]. When diagnosed early, the cure rate for CIN is almost 100%. However, approximately 4,200 women die each year from this disease [42]. Approximately 92% of women whose cervical cancer is localized (stage I) at diagnosis are alive five years later, while only 17% of those with metastatic disease (stage IV) at diagnosis are alive at five years [43]. The percentage of Pap screening is lower among minorities, the elderly, and those without insurance [44; 45]. Women who have never been screened for cervical cancer account for approximately 50% of the cases diagnosed in the United States, with an additional 10% of cases diagnosed in women who have not been screened in the previous five years [41; 46; 47]. Eligible and underserved women should be informed that the National Breast and Cervical Cancer Early Detection Program (NBCCEDP) offers free or low-cost Pap tests and mammograms [48].

Colposcopy is an office-based procedure using a lighted microscope that permits close and direct examination of the cervix and vagina as well as biopsy and removal of the abnormal tissue. The magnified view of the cervix, vagina, and vulva allows the practitioner to locate and define the size and distribution of CIN [49]. The goal of colposcopy is to detect pre-invasive disease and prevent development of invasive cervical cancer [50]. Lack of skilled technicians, potential for overtreatment, increased risk to patients, and high cost prohibit the widespread use of colposcopy as an adjunct to the Pap test [22; 41]. Consequently, new screening technologies have been developed, including liquid-based Pap (LBP) technologies and computer-assisted screening methods. The liquid-based technologies have shown a greater sensitivity to squamous epithelial lesions (SIL), fewer unsatisfactory samples, and improved sample quality than the conventional Pap test, but equivalent sensitivity to CIN as the Pap test [22; 51; 52]. The newer methods have been shown to increase life expectancy, but they are associated with a higher cost per screening than the conventional Pap test.

HPV DNA testing is a molecular technique used to identify high risk types of HPV. In 2009, the FDA approved two HPV DNA diagnostic tests: the Cervista HPV HR and the Cervista HPV 16/18 [53]. The Cervista HPV HR is designed to identify 14 high-risk types of HPV. The Cervista HPV 16/18 is designed to specifically detect HPV types 16 and 18, which cause about 70% of all cervical cancers. Both tests are approved for use with LBP samples and should be used in conjunction with the Pap test and patient history to help the practitioner determine needed follow-up, such as colposcopy and/or repeat cytology sampling. The tests are indicated for women 30 years of age and older who are at high risk of disease. They are not recommended for routine screening [16; 22; 54]. Since 2009, three additional DNA tests have been approved: the Aptima HPV Assay (identifies 14 high-risk types), the Aptima HPV 16 18/45 Genotype Assay (differentiates HPV 16 from HPVs 18/45, but cannot differentiate HPV 18 from HPV 45), and the COBAS HPV Test (specific HPV 16 and 18 genotyping and detects 12 other high-risk types) [16; 55].

Guidelines for Screening

Recommendations vary regarding how frequently women should have Pap tests. National health organizations, such as the American Cancer Society (ACS), the National Cancer Institute (NCI), and the American Medical Association (AMA), have adopted consensus recommendations. Other organizations, such as the ACS, the CDC, and the U.S. Preventive Services Task Force (USPSTF) have developed guidelines for cervical cancer screening. Recommendations from the ACS, the CDC, and the USPSTF are similar and summarized below [16; 41; 56]:

- Pap tests should initiate at 21 years of age (regardless of sexual debut). A conventional or liquid-based Pap test should be done every three years; annual Pap testing is no longer recommended. HPV testing is not recommended alone or in combination with cytology for women younger than 30 years of age.
- Beginning at 30 years of age, women who have had three or more consecutive normal Pap results should be screened every five years with HPV and cytology co-testing. However, more frequent screening may be recommended for women with certain high-risk conditions, such as HIV.
- Women of any age with abnormal cytology should be screened according to the American Society for Colposcopy and Cervical Pathology 2019 Risk-Based Management Consensus Guidelines for Abnormal Cervical Cancer Screening Tests and Cancer Precursors.
- Women older than 65 years of age and who have had two consecutive normal Pap tests and no abnormal findings for the last 10 years may stop Pap tests.
- Most women who have had a total hysterectomy with removal of the cervix do not need Pap tests unless the hysterectomy was done as treatment for cervical cancer or precancerous conditions.
- Because cervical precancers grow slowly, having a test every three to five years will find those that can be treated successfully. Most cases of cervical cancers are caused by HPV, and this condition warrants close follow-up and/or treatment.

In its 2018 updated guideline, the USPSTF recommends screening every five years with high-risk HPV testing alone as an alternative to cytology screening every three years [56].

There are three FDA-approved vaccines for the prevention of cervical cancer caused by HPV [16; 25; 57]. These vaccines also protect against most types of genital warts and vulvar, vaginal, anal, and oropharyngeal precancerous lesions and cancers caused by HPV [57]. Gardasil, licensed for use in 2006, is a recombinant vaccine effective against HPV types 6, 11, 16, and 18 [16; 58]. It is approved for administration in girls/boys and women/men 9 to 26 years of age, but as of 2016, it is no longer being distributed in the United States [25; 58]. A second vaccine, Cervarix, was approved in 2009 for use in girls and women 9 to 25 years of age and is effective against HPV types 16 and 18, but it also is no longer being distributed in the United States [16; 25; 59]. A third vaccine, Gardasil 9, was licensed in 2014 and protects against HPV types 6, 11, 16, 18, 31, 33, 45, 52, and 58 in men and women [16; 57]. The CDC's Advisory Committee on Immunization Practices (ACIP) recommends routine HPV vaccination at 11 or 12 years of age; it can begin starting at 9 years of age [25]. ACIP also recommends catch-up vaccination for all persons through 26 years of age who were not adequately vaccinated previously [25]. In 2018, the FDA approved expanded use of Gardasil 9 to include women and men up to 45 years of age [60]. ACIP recommends a three-dose vaccination regimen for persons initiating vaccination on or after their 15th birthday. The ACIP also recommends a three-dose regimen for females and males 9 to 26 years of age with primary or secondary immunocompromising conditions [25]. Vaccines for genital herpes are also in clinical trials.

It is critical to emphasize to the professional and the public that healthcare appointments are needed for women to be assessed for knowledge deficits, sexual risk factors, presence of STIs, contraceptive needs, blood pressure, weight control, clinical breast exams, and any other issues of concern to women.

Classification of Pap Tests

The cells of the cervix go through a series of normal changes throughout the female lifespan [22]. The term CIN describes and encompasses all epithelial abnormalities of the cervix (i.e., CIN 1 to CIN 3+). The older classification system included only two categories: dysplasia and carcinoma in situ, which influenced different treatment techniques. This system was replaced by The Bethesda System, which was introduced in 1988 and revised in 1991, 2001, and 2014 [61].

The Bethesda System is the preferred reporting system because, while it retains subgroups, it indicates more of a continuum of pre-invasive cancer of the cervix. For example, definite abnormal cells have been categorized into two levels: low-grade squamous intraepithelial lesions (LSILs), which typically encompass CIN 1, and high-grade squamous intraepithelial lesions (HSILs), which encompass CIN 2 and CIN 3. In The Bethesda System 2014, the category atypical squamous cells (ASC) is divided into two distinct qualifiers: ASC of “undetermined significance” (ASC-US), and atypical squamous cells “cannot exclude HSIL” (ASC-H) [22; 27; 41; 61]. Also in The Bethesda System 2014, atypical findings in the mucus-producing cells of the cervix are categorized as atypical glandular cells (AGC), and the presence of precancerous cells in the glandular tissue has been categorized as endocervical adenocarcinoma in situ [41; 61; 62].

The pattern of changes that cervical cells undergo occurs as a continuum over months to years. Women should know that if a Pap test shows any abnormality, the physician or nurse practitioner will perform additional tests to identify the problem. When a vaginal infection is the suspected cause of an abnormal Pap test, the practitioner will treat the infection and then repeat the test, usually in three months. If

an infection is not the reason for the abnormal Pap test, the practitioner will often perform a colposcopy and biopsy [16]. Even a minimally abnormal Pap is significant and should not be ignored. The majority of high-grade disease is identified at the time of colposcopy in women with ASC-US and LSIL [22].

GYNECOLOGIC CANCERS

CERVICAL CANCER

Most risk factors for cervical cancer are related to sexual history. Although the exact cause is unknown, it is thought that cervical cancer is the result of cellular changes in the cervix due to insult from viruses (as discussed) and multiple partners. Women with cervical cancer often report a history of cervical infection and virtually all test positive for HPV [41]. Infections that may lead to cervical carcinoma are caused by HSV-2; HPV types 16, 18, 31, 33, 45, and 58; HIV; and perhaps cytomegalovirus.

HPV 16 is most frequently linked to squamous cancers and HPV 18 to adenocarcinomas [16; 22; 27; 41]. These viruses alter the DNA of nuclei of immature cervical cells. HPV DNA testing may be performed to identify women at high risk for disease. Women whose high-risk HPV infection persists in genital skin cells are at greatest risk for subsequently developing cervical cancer [41]. These women require close follow-up treatment and repeat Pap tests. For example, a patient with ASC-US may often require repeat Pap testing every 3 to 6 months over 6 to 12 months. With an abnormal Pap test, and certainly when three consecutive Pap tests over 12 months demonstrate epithelial cell abnormalities, a cervical biopsy under magnified visualization with colposcopy should be done [16; 22; 27; 41]. Fortunately, most women with an abnormal Pap test have an easily treatable precancerous condition of mild dysplasia (CIN 1).

Risk factors for cervical cancer include [16; 22; 27; 41; 63]:

- Multiple sexual partners
- Early age at first sexual intercourse (i.e., younger than 18 years of age)

- History of sexually transmitted infections
- HPV
- Lack of access to or utilization of health care
- A nonmonogamous male partner
- Diethylstilbestrol (DES) exposure
- Cigarette smoking
- Lower socioeconomic status
- Oral contraceptive use
- Diet
- Intrauterine device use
- Multiple full-term pregnancies

The fact that most of the predisposing factors relate to patterns of sexual activity may lead to barriers for early detection and treatment of cervical cancer. Health professionals should be sensitive to women to decrease any embarrassment. Discussions of psychosexual factors and the implications for risk of cervical cancer should be nonjudgmental. Communication should convey that sexual health is regarded as a part of total health, and women should not feel ashamed of what is a normal physiologic function. Societal norms today often differ from the norms of 40 years ago. For example, women often marry later, divorce and remarriage are relatively frequent, and most women have more than one sexual partner in their lifetime (average: 4) [64]. These changes should be considered a social norm, not as a stigma associated with a risk factor for cervical cancer. Health professionals should educate themselves and the women with whom they work regarding sexual health and the risk factors for cervical cancer. Because many women will learn about their positive HPV status at the time that they learn about an abnormal Pap test result, it is important for health professionals to teach women about HPV as early as possible [22]. Health professionals should also encourage sexually active women to participate in regular gynecologic checkups and Pap tests and utilize safe sex practices, such as limiting sexual partners and using latex condoms.

Treatment

The goal in the treatment of cervical cancer is to eradicate the central cervical disease and any potential spread to the lymph nodes. The upgraded Bethesda System will determine the type of squamous cell abnormality; however, treatment and management decisions may be difficult. For example, if a cure is not likely, the goal may be to remove or destroy as much of the cancer as possible. If the goal is to relieve symptoms, the treatment method is likely to differ. The type of treatment selected will depend on the stage or severity of the disease and the treatment goals, as well as the patient's age, overall health, and preferences [65; 66]. The three main types of treatment for cervical cancer are surgery, radiation, and chemotherapy. Newer treatment types include targeted therapy and immunotherapy [65].

Surgery

There are several types of surgery available for the treatment of cervical cancer. The most common types include [65; 66]:

Cryosurgery kills abnormal cells by freezing them. It is used to treat pre-invasive cervical cancer.

Laser surgery uses a beam to burn off cells or remove a small piece of tissue for analysis. It is used only as a treatment for pre-invasive cancer.

Loop electrosurgical excision procedure (LEEP) removes abnormal tissue or cancer using an electrical current passed through a wire.

Conization involves removing a cone-shaped piece of tissue from the cervix using LEEP or a surgical or laser knife. It is used for early detection and as a lone treatment for women with early cancer who desire children.

Simple hysterectomy removes the uterus but not the tissue next to the uterus. After this surgery, pregnancy is not possible.

Radical hysterectomy removes the uterus, adjacent tissues, the upper part of the vagina, and some pelvic lymph nodes. After this surgery, pregnancy is not possible.

Bilateral salpingo-oophorectomy removes both the ovaries and both fallopian tubes.

Trachelectomy removes the cervix, the upper part of the vagina, and nearby lymph nodes. This method is used for certain young women with early stage cancer who desire children.

Pelvic exenteration removes the cervix, vagina, bladder, rectum, nearby lymph nodes, and possibly part of the colon. It is used in extreme cases for cancer that reoccurs after earlier treatment.

Radiation

Radiation is a common treatment modality for cervical cancer, because it can be used in all stages of the disease. Radiation destroys the ability of cells to grow and divide. It affects both normal and diseased cells; however, most normal cells are able to recover quickly. Either external or internal radiation therapy may be used. External beam radiation to the pelvis is used to treat the regional nodes and disease, while intracavitary radiation implants treat the central cancer [65; 66; 67]. When external beam radiation therapy is the primary treatment, it is usually combined with chemotherapy (concurrent chemoradiation) [65].

The primary goal of radiation therapy is to deliver the highest curative dose while limiting damage to normal tissue. Complications and side effects of radiation therapy vary and may include fatigue, upset stomach, loose bowels, nausea and vomiting, changes to the skin, early menopause, problems urinating, anemia, and low white blood cell counts. In addition, the implant phase of treatment may produce some degree of vaginal stenosis and loss of vaginal lubrication. Learning to use vaginal dilation may help the woman undergoing radiation therapy to minimize the effect of vaginal stenosis [65; 67].

Chemotherapy

Chemotherapy involves the use of drugs (given intravenously or orally) to kill cancer cells. More than one drug may be given during a single treatment. Side effects are common and may include nausea and vomiting, loss of appetite, short-term hair loss,

mouth sores, increased risk of infection, bleeding or bruising after minor cuts or injuries, fatigue, early menopause, and infertility. Most side effects cease when treatment ends [65; 66].

Following are recommendations for the treatment and management of women with LSIL or HSIL that encompasses moderate or severe CIN. It is important to note that triage and treatment methods vary and continue to be clinically investigated.

LSIL Encompassing HPV and CIN 1: Mild Dysplasia

Mild dysplasia might not require any treatment and may resolve on its own; however, it should be checked regularly for any changes. The management options for women with a histologic diagnosis of CIN 1 preceded by an ASC-US, ASC-H, or LSIL cytology include observation (with cytology for women younger than 25 years of age; with HPV-based testing at 1 and 2 years for women 25 years of age or older). If the test results are negative, then retesting at three years is recommended. Colposcopy is recommended if the co-testing reports any cytology abnormality (except HSIL) or if the HPV DNA test is positive. A return to normal screening is recommended if the HPV test and cytology are negative. If CIN 1 persists for at least two years, either continued follow-up or treatment is recommended. If colposcopy is adequate, treatment with excision or ablation is recommended. Excision is preferred if the colposcopy is inadequate, in the presence of CIN 2+, or if the patient has been previously treated [54].

HSIL Encompassing CIN 2 and CIN 3: Moderate-to-Severe Dysplasia

Women with moderate-to-severe dysplasia (and satisfactory colposcopy) may be treated with either excisional modalities (e.g., loop electrosurgical excision procedure, conization), which are preferred, or ablative modalities (e.g., cryotherapy, laser ablation). Exceptions to this recommendation include [54]:

- Women with recurrent CIN 2 or CIN 3. A diagnostic excisional procedure is recommended for these women.

- Women with a histologic diagnosis of CIN 2 or CIN 3 and unsatisfactory colposcopy. A diagnostic excisional procedure is recommended for these women; ablation is unacceptable.
- Adolescent and young women. Treatment or observation for up to 24 months, at 6-month intervals, with colposcopy and cytology is recommended (with satisfactory colposcopy).
- Pregnant women. Additional colposcopy and cytology are recommended at 12-month intervals, in the absence of invasive disease or advanced pregnancy. If cytology suggests invasive cancer, repeat biopsy is recommended.
- Women with cervical adenocarcinoma in situ. If future child-bearing is desired, conservative management is recommended. If not, or if child-bearing is completed, hysterectomy is an option.

Ablative and excisional modalities appear to be similarly effective at eliminating CIN and reducing a woman's risk of future invasive cervical cancer. Patient age and history, interest in future child-bearing, cytology, treatment history, and extent of the disease should be considered when selecting the treatment option [54]. Ablative methods may have an adverse effect on future pregnancies [16; 22; 27; 41].

Sexual Rehabilitation

Some women may not feel comfortable initiating a discussion about sexual relations. Health professionals should be sensitive to this and responsible in initiating sexual rehabilitation in women with cervical cancer. Inform women that normal sexual relations may be resumed after cancer treatment. Explore grief over the loss of childbearing ability in premenopausal women. The potential loss of childbearing is a common clinical situation because

of the increase in the number of younger women diagnosed with cervical cancer. Reinforce the necessity of follow-up examinations and the need to report any vaginal bleeding.

Case Study of a Woman with HPV and Cervical Dysplasia

The following case study illustrates some of the common feelings experienced by women confronted with an abnormal Pap test and the healthcare implications involved in the care of the woman and her partner.

Patient M is a female college student, 21 years of age, who presented to the college health clinic for her annual exam to renew her prescription for birth control pills. Patient M had been involved in a serious relationship with a fellow college student for one year. Following the results of her exam and Pap test, Patient M was diagnosed with HPV and epithelial abnormalities of the cervix. The patient was upset, embarrassed, and angry with herself and her boyfriend. Upon confronting her boyfriend, Patient M learned that he had been sexually involved with another girl on campus, during a brief time when they had broken up, and that this was the likely source of transmission of the virus. Patient M confided in her mother, who was also upset at the notion of the sexually transmitted virus. Patient M's mother had recently been treated for breast cancer, and her daughter's diagnosis renewed many fearful and unpleasant feelings regarding cancer.

Care for Patient M involved exploration of preconceived notions of sexuality and cancer. The patient established good communication with her boyfriend, and both attended a clinic session for pretreatment counseling where factual information was given for the recommended cryosurgery treatment. Concerns regarding future problems with sexual intercourse and fertility were dispelled. Discussion of HPV as a risk factor for cervical epithelial changes was reviewed in a factual manner, and the couple had an opportunity to explore their plans regarding their relationship.

UTERINE CANCER

While gynecologic cancers can affect any part of the reproductive tract, the most common type is cancer of the uterus. The three layers comprising the uterus are the inner layer or lining, which is called the endometrium, the middle muscular layer, which is called the myometrium, and the layer of tissue that coats the outside of the uterus, which is known as the serosa [68]. Most uterine cancers begin in the endometrium [68].

Risk factors for endometrial cancer include advancing age, hormone imbalance, estrogen therapy, use of birth control pills, use of an intrauterine device, breast or ovarian cancer, early menarche (i.e., before 12 years of age), use of the drug tamoxifen, infertility or no pregnancies, obesity, high-fat diet, diabetes, and family history [68; 69]. Research has indicated that a relationship of mismatch repair (MMR) gene mutations to endometrial cancer may be present. MMR genetic abnormalities are also considered causal in hereditary nonpolyposis colorectal cancer (HNPCC), which may be a risk factor for endometrial cancer [68; 70]. More research is necessary to fully understand the genetics involved in the development of HNPCC-associated uterine cancers.

The one and only early sign of endometrial cancer is abnormal vaginal bleeding or spotting, especially in postmenopausal women. Therefore, women must be instructed to seek treatment when any abnormal bleeding occurs. Endometrial biopsy is the most commonly conducted test, and it may be performed in the office with a pelvic examination. A transvaginal ultrasound may be done before the biopsy to help the physician detect suspicious areas for biopsy. Following a positive biopsy result, the mainstay of treatment is a hysterectomy (simple or total). A bilateral salpingo-oophorectomy may be performed in conjunction with the hysterectomy. Other treatments, depending on the stage of the cancer, include radiation and chemotherapy. Early detection and treatment of endometrial cancer has a very high survival rate because these tumors tend to be well differentiated and localized [67; 68].

OVARIAN CANCER

Ovarian cancer is the fifth leading cause of cancer-related death in women [71]. It is the most fatal of all cancers in women because it is very difficult to detect and diagnose in an early stage. If diagnosed and treated before the cancer has spread beyond the ovaries, the survival rate is about 92%. However, only 20% of all ovarian cancers are found at this early stage [71]. By the time it is diagnosed, the cancer may have already spread throughout the pelvis.

Screening for early ovarian cancer remains a scientific challenge, because the symptoms can be somewhat vague. The most common sign of ovarian cancer is enlargement of the abdomen. Women may complain of inability to fasten pants and skirts. Other symptoms may include pelvic pressure or stomach pain, trouble eating or feeling full quickly, and ascites [71]. The exact cause remains unknown; however, evidence suggests a link to endocrine function. The number of times a woman ovulates also may be a factor in the development of the disease, as protection is provided in women who conceive before 25 years of age, experience early menopause, and/or use oral contraceptives for years [71].

Age is a primary risk factor for ovarian cancer. It occurs most frequently in women 40 to 70 years of age, with more than half occurring in women 63 years of age and older. Survival rate in these women is only about 30% [71]. Other risk factors include family history (with an increase as much as 50% in women who have a mother or sister with ovarian cancer), obesity, no pregnancy before 30 years of age, breast cancer, estrogen or hormone replacement therapy, fertility treatment, and environmental factors (e.g., exposure to asbestos) [67; 71].

Due to the high mortality rate associated with ovarian cancer, these women and their loved ones require extensive case management with an entire treatment team of surgeons, oncologists, oncology nurse specialists, social workers, and pastoral care. Health professionals should provide these women with the latest information to make informed choices about their treatment options. Radiation

therapy is only rarely used in the United States as the main treatment. The recommended treatment of ovarian cancer is surgery followed by chemotherapy. Standard treatment includes three to six courses of chemotherapy with a combination of carboplatin (or cisplatin) and paclitaxel (or docetaxel) [72].

Methods that may help prevent ovarian cancer include the removal of both ovaries (bilateral oophorectomy) in women who are undergoing hysterectomy for other medical reasons and who have a family history of ovarian cancer. Oophorectomy can be performed by laparoscopy, decreasing the cost, risks, and recovery time for the woman. Tubal ligation and hysterectomy may also lower the risk of getting ovarian cancer; however, these should be performed only for valid medical reasons, not just as preventive measures [73].

WOMEN WITH GYNECOLOGIC CANCER: A HOLISTIC PLAN OF CARE

Gynecologic cancer is not always a visible disease. Consequently, the full impact of the cancer is sometimes minimized or further hidden by women, their families, and healthcare professionals. An appreciation and understanding of the magnitude of adjustments for the woman and for the people who care about her is essential. Concerns about treatment, sex, and childbearing are common. Guilt, embarrassment, shame, and body image disturbances are common reactions to the diagnosis of any gynecologic condition. Women may also feel their personal privacy is intruded upon. They may feel defensive and angry about the healthcare team having to treat such a private part of themselves. Some women will associate cancer in the genital area with forms of punishment for real or imagined sexual expression. Shame and guilt associated with the diagnosis can be diminished if healthcare providers communicate with an accepting and nonjudgmental approach. Assessment of how the disease affects a woman's self-image is necessary. Factual information on how the disease or treatment may interfere with normal sexual function should be addressed.

Feelings of guilt, anger, and shame may prevent women from asking questions or initiating a discussion on the subject of sexual activity. The general interactions that should be included in the care of women with gynecologic cancer are [74]:

- Establish a rapport with the woman. Perform a complete assessment of the woman's preconceived notions about cancer and how the treatment will affect her.
- Alleviate fears and misconceptions by communicating accurate facts and answering questions.
- Provide as much privacy and comfort as possible. Explore the woman's feelings about privacy and how you can meet her privacy needs within the scope of the treatment.
- Encourage verbalization about the causes of the cancer. Reinforce that gynecologic cancer has multiple risk factors and that the exact cause is unknown. Encourage the woman not to blame herself for the cancer.
- Provide open and sensitive discussions about issues of fertility, sexual expression, body image, and impact of treatment.
- Encourage women to follow up with the entire course of the treatment plan and future Pap tests. Inform eligible underserved women that the NBCCEDP offers free or low-cost Pap tests and mammograms.
- Encourage safer sexual practices.
- Offer the assistance of cancer support groups.
- Refer the woman and her family or partner to appropriate resources (e.g., family therapists, psychologists, sex therapists).
- Use a nonjudgmental attitude in developing a relationship, and maintain this attitude throughout the entire treatment plan with the woman and her family.

MENARCHE TO PERIMENOPAUSAL YEARS

Menarche, the initiation of menses, begins when the brain, ovaries, and adrenal glands have matured. Initial menstrual cycles are usually irregular, as the hormonal communications may be erratic. Pregnancy may occur at any time, even before a girl's first menstrual period, if she has already ovulated. On average, girls in the United States begin menstruating at around 12 to 13 years of age [75].

Premenstrual syndrome (PMS) is defined as the regular occurrence of premenstrual physical and/or emotional symptoms that may interfere with daily living and functioning in the home and work environment [18; 76]. PMS occurs during the luteal phase of the menstrual cycle, when estrogen and progesterone initially rise and then fall if no pregnancy occurs. Common symptoms include anxiety, irritability, mood swings, fatigue, palpitations, crying, forgetfulness, fluid retention, weight gain, and breast tenderness [27]. Dysmenorrhea, or painful menses, is relatively common. Due to differences in reporting methods, incidence estimates range from 20% to 90% of adolescent girls [77]. Dysmenorrhea is characterized by crampy abdominal or pelvic pain on the first day of menstruation and may be accompanied by nausea, diarrhea, fatigue, or lightheadedness.

Despite the prevalence of these conditions, much remains unknown about what causes PMS and dysmenorrhea. Several theories involve the imbalance of hormones or neurotransmitters. Popular theories also include vitamin deficiency, mineral deficiency, and prostaglandin imbalance [27; 76; 78]. Treatments often seek to balance the levels of hormones or serotonin and address lifestyle issues, such as diet and exercise. Treatment often begins

with lifestyle changes for a two- to three-month period while the woman logs her symptoms, treatment, and response. Lifestyle changes that may be helpful include decreased sodium and refined sugar intake, decreased consumption of alcohol and caffeine, increased B vitamins and calcium, exercise, relaxation techniques, and increased rest. Calcium supplementation, with two antacid tablets containing calcium twice a day during the luteal phase, has been shown to reduce bloating, pain, mood changes, and food cravings. Aerobic exercise during the luteal phase is thought to be beneficial to decrease anxiety, depression, and anger [76; 78].

Medical treatment may include trying to balance hormones with oral contraceptives or balancing serotonin with antidepressants. Selective serotonin reuptake inhibitors (SSRIs), such as fluoxetine, paroxetine, and sertraline, are used for the treatment of PMS and premenstrual dysphoric disorder (PMDD) [76; 78]. Most women suffering from dysmenorrhea and PMS may be effectively treated with conservative therapies, such as diet, exercise, cognitive therapies, and calcium supplementation. For the minority who experience severe symptoms or PMDD, pharmacologic interventions are needed. Because severe PMS and PMDD are expected to last until menopause, long-term treatment plans are necessary.



The Faculty of Sexual and Reproductive Healthcare asserts that combined hormonal contraception can reduce menstrual bleeding and pain, which may be particularly relevant for women older than 40 years of age.

(<https://www.fsrh.org/standards-and-guidance/documents/fsrh-guidance-contraception-for-women-aged-over-40-years-2017>. Last accessed July 9, 2021.)

Level of Evidence: A (At least one meta-analysis, systematic review, or randomised controlled trial rated as 1++, and directly applicable to the target population)

PERIMENOPAUSE AND MENOPAUSE AS NORMAL LIFE EVENTS

In Western culture, with its strong emphasis on female youth and beauty, menopause may be a difficult adjustment for some women. However, in general, the perimenopausal years should be looked upon as a positive time in a woman's life.

The negative stereotypes associated with menopause probably originated during the period in history when a woman's life expectancy was shorter and she was valued primarily for her reproductive capability. Generations ago, many women did not live past menopause. Women who did live long enough to reach menopause were few and considered to be old if they survived beyond 50 years of age. Consequently, menopause came to be associated with the undesirable attributes of extreme old age.

Although menopause literally means cessation of menses, it is a process rather than a discrete, single occurrence. Menopause is a transition of biologic and cultural events over a period of months to years and not purely the single event of absence of menses. Menopause does not occur suddenly unless it is the result of surgery, such as a hysterectomy, medically induced by chemotherapy or radiation, or the result of premature ovarian failure [79].

Perimenopause refers to the period of a woman's life when she passes through the stages of regression of ovarian function, which typically begins in the late 30s and can be as long as 7 to 10 years [18; 27; 79]. Menstrual periods stop occurring because the ovaries no longer produce the hormones progesterone and estrogen. The major source of estrogen before menopause is the ovarian follicle, which accounts for more than 90% of the body's total production. This estrogen deficiency may result in symptoms, such as hot flashes, vaginal dryness, emotional changes, and weight gain [27; 79]. Some women experience no symptoms at all.

To work effectively and sensitively with midlife women, health professionals should understand and convey the following information [18; 27; 79; 80]:

- Menopause is a gradual process, not merely the absence of menses.
- Menopause takes place over many years, and during this time ovulation may be sporadic. Therefore, contraception should be continued for one year following the last menstrual period.
- The average life expectancy of women is 80 years of age, meaning that most women still have one-third of their lives to live after menopause.
- Menopause does not mean the end of a woman's sexuality. Rather, it can free women from periods, fear of pregnancy, and contraceptive concerns.
- Menopause may be seen as a time of fewer child care responsibilities, with increased opportunities to pursue other goals. This combination of events is often energizing for women who are seeking added dimensions to their careers or relationships.
- The transition to menopause often provides more leisure time as well as increasing opportunities for self-expression and community involvement.
- In spite of a strong cultural message that youth is valued above age, women who maintain a positive image and value themselves adapt well to menopause.
- Menopause is not an illness, but if severe or troubling symptoms persist, a variety of treatments are available.

Along with changes in women's rights and roles in our society, many women and healthcare providers want to replace the negative stereotypes of the menopausal woman with a realistic and positive outlook.

This new viewpoint is easier to achieve as women learn more about how to manage the changes that occur during middle age with good health and peace of mind. Women's own understanding and expectations, marital or relationship stability, financial resources, family views, physical health, and socio-cultural expectations influence their adjustment to menopause.

HORMONE REPLACEMENT THERAPY: RISKS, BENEFITS, AND CONTRAINDICATIONS

Although hormone replacement therapy (HRT) is an option for management of menopausal symptoms, it is not without risk and is not a viable option for every woman. All therapies, including HRT, have risks and benefits.

The NIH established the WHI in 1991 to address cardiovascular disease, cancer, osteoporosis, and quality of life issues in postmenopausal women [81; 82]. One component of the Initiative was a randomized clinical trial involving postmenopausal women 50 to 79 years of age. A portion of the trial was conducted to examine the risks, benefits, and long-term effects of hormone therapy. Women with intact uteruses received combined HRT (estrogen plus progestin) or placebo. The study was halted in 2002, three years early, because the WHI safety board found both an increased risk of breast cancer in study participants and a persistence of previously identified risks (i.e., heart attacks, strokes, blood clots in the lungs and legs). The numbers of women who had hip and other fractures or colorectal cancer were lower, and there were no differences in the incidence or mortality rates for women with endometrial cancer. However, when compared to an equal number of women (10,000) taking placebo, there were 8 more breast cancers, 7 more heart attacks, 8 more strokes, and 18 more instances of blood clots to the lungs or legs in the women taking the combined therapy. These results led the safety board to conclude that estrogen plus progestin therapy neither prevents heart disease nor offers benefits sufficient to outweigh the overall risks [81; 82].

The WHI also completed a study in which it tested the relative risks and benefits associated with estrogen-only hormone therapy for postmenopausal women without uteruses [83]. It found that although the risks with estrogen-only therapy were significantly less than those identified with estrogen plus progestin, they nonetheless outweighed the benefits. The WHI also found a significant increase in the risk of stroke, a slight increase in the risk for dementia or cognitive decline, a decrease in the risk of hip fracture, and no change in the risk for breast cancer or heart disease. This study was halted in 2004, one year earlier than anticipated [82; 83; 84].

While the numbers of adverse events are small, it is important to remember that behind each number are a woman, her family, and her community. The following general approach to HRT has been recommended [81; 82; 85; 86]:

- HRT may continue to be prescribed to manage menopausal symptoms.
- The risks and benefits should be explained to each woman. Alternative therapies or other medications should be discussed as options.
- When prescribing HRT, use the lowest dosage for the shortest period of time. When used, optimally prescribe for less than five years. Assess each woman annually.
- HRT is not effective for elevated lipids and cardiovascular disease; other therapies and medications should be prescribed. HRT is not a substitute for statins or other lipid-lowering agents.
- Other treatments exist for the prevention and treatment of osteoporosis.
- Absolute contraindications for HRT include: women with a personal or family history of breast cancer; any other estrogen-dependent neoplasia; or a history of estrogen-related thromboembolic disease, such as a woman who experienced a deep vein thrombosis while on oral contraceptives.

The USPSTF recommends against the use of combined estrogen and progestin for the primary prevention of chronic conditions in postmenopausal persons. They also recommend against the use of estrogen alone for the primary prevention of chronic conditions in postmenopausal persons who have had a hysterectomy [258].

HEALTH PROMOTION AND PHARMACOLOGIC OPTIONS FOR WOMEN EXPERIENCING MENOPAUSE

The decision to take HRT rests with the individual. Women experiencing difficult menopausal symptoms that are dramatically affecting their quality of life and ability to function may be candidates for HRT in the absence of absolute contraindications. It is best for health professionals to perform a thorough personal and family history, educate women about estrogen, and be willing to help them objectively evaluate the pros and cons of HRT. For women who decide to discontinue HRT, it is best to taper off the drugs to decrease symptoms. However, symptoms may recur. The woman's perception of her experiences, her history of cancer, uncontrolled hypertension, or thrombophlebitis, and her knowledge and concerns about sexuality should all be assessed. Also, women who take HRT should be cautioned about the increased risk of breast cancer and instructed to have regular mammograms as well as clinical breast exams for the duration of the HRT.



According to the North American Menopause Society, individualization is of key importance in the decision to use hormone therapy, with periodic re-evaluation to determine an individual woman's benefit-risk profile.

(<https://www.menopause.org/docs/default-source/2017/nams-2017-hormone-therapy-position-statement.pdf>. Last accessed July 9, 2021.)

Level of Evidence: Expert Opinion/Consensus Statement

BREAST HEALTH AND BREAST CANCER


At one time or another, many women who menstruate go through the frightening experience of finding a lump in a breast. Less than 20% of these lumps will be malignant or need treatment; however, there are few women's conditions that create as much concern as breast cancer [87]. Understanding breast health, screening protocols, and options for treatment are important dimensions of women's health. While breast cancer remains a concern for many women, early detection and treatment remain the best hopes for improving both the quality of life and survival. Health professionals have important roles, as educators and advocates, in shaping the experiences of women and their families with breast health and breast cancer. Many women with breast cancer live full and productive lives.

INCIDENCE AND RISK FACTORS

An understanding of breast health and breast cancer is important for all women. Aside from nonmelanoma skin cancers, breast cancer is the most frequently diagnosed cancer in women. It is also one of the most treatable, if detected early. One in eight women in the United States will develop breast cancer [8]. Although the cause of breast cancer remains essentially unknown, some risk factors have been identified. The greatest risk factor is being a woman. Other risk factors include current age, age at first menstrual period, age at first live birth, obesity, physical inactivity, race, and personal and family history of breast cancer [8; 9]. Many women diagnosed with breast cancer do not have any known risk factors.

Approximately 5% to 10% of women diagnosed each year with breast cancer have a form of the disease resulting from inherited alterations in the genes called *BRCA1* and *BRCA2* (breast cancer 1 and breast cancer 2). The incidence is highest in women with a family history of breast cancer. The risk of developing breast cancer in women with clinically significant gene mutations is 45% to 65% by 70

years of age, compared with 12.3% of the general population [88; 89]. Testing for *BRCA1* or *BRCA2* is done on a blood sample and can range from several hundred to several thousand dollars [90]. Genetic counseling and risk assessment should accompany the testing. Routine referral is not recommended for women with no family history of breast cancer. However, women with one or more relatives with a *BRCA* mutation should be offered genetic counseling and testing following evaluation with a validated risk stratification tool [88].



EVIDENCE-BASED
PRACTICE
RECOMMENDATION

The U.S. Preventive Services Task Force recommends that primary care clinicians assess women with a personal or family history of breast, ovarian, tubal, or peritoneal cancer or who have an ancestry associated with breast cancer susceptibility 1 and 2 (*BRCA1/2*) gene mutations with an appropriate brief familial risk assessment tool. Women with a positive result on the risk assessment tool should receive genetic counseling and, if indicated after counseling, genetic testing.

(<https://www.uspreventiveservicestaskforce.org/uspstf/recommendation/brca-related-cancer-risk-assessment-genetic-counseling-and-genetic-testing>. Last accessed July 9, 2021.)

Strength of Recommendation: B (Clinicians should provide the service to eligible patients based on at least fair evidence that it improves important health outcomes and concludes that benefits outweigh harms.)

EARLY DETECTION AND SCREENING

The ACS, NCI, USPSTF, and others have recommended several methods and timelines for the early detection of and screening for breast cancer in women [91; 92; 93; 94; 95]. The health professional should communicate to women and their families that these recommendations are based on the generalized population of women. Individual risk factors and informed choice should still guide each woman.

Breast Self-Exam

Early detection of potential malignancies continues to be the single most important factor in the successful treatment of breast cancer. While clinical breast exam occurs only periodically or yearly, breast self-exam (BSE) may be done more frequently. BSE is a method for women to check their own breasts by feeling the breast tissue for changes and lumps and observing the breasts in a mirror for changes in appearance. The ACS and the American College of Obstetricians and Gynecologists (ACOG) recommend BSE as an option for women starting in their 20s; other sources suggest that BSE does not reduce mortality and instead increases the number of biopsies performed and the diagnosis of benign lesions [91; 92; 94]. Generally speaking, women 20 years of age and older should know how their breasts normally look and feel and report any suspicious breast changes to a health professional at a checkup or when they are found. Signs and symptoms that require follow-up are [27; 91; 92; 96]:

- Lumps
- Pain (Breast cancer may or may not be painful.)
- Bloody or other spontaneous discharge (not breast milk)
- Skin changes (e.g., irritation, dimpling)
- Nipple changes (e.g., nipple inversion)
- Lymphadenopathy, with or without other symptoms
- Any change that the woman finds as unusual for her

Women who ask for information regarding BSE should be cautioned that it may lead to undue anxiety, as benign cysts are relatively common [92]. It is important for women to know that they should not try to diagnose any changes discovered during BSE. There is no substitute for a practitioner's evaluation and further diagnostic tests, and it may be sensible to advise most (low-to-average-risk) patients against performing BSE, aside from noting breast changes (i.e., breast self-awareness) [92]. In 2016, the USPSTF

released updated recommendations on breast cancer screening, but did not update its 2009 recommendations for breast examination. The 2009 recommendations include no requirement for clinicians to teach women how to perform BSE [95; 97].

Clinical Breast Exam

The clinical breast exam (CBE) has been used by experienced health professionals to find abnormalities in breast tissue in younger women. It has also been used as an opportunity to demonstrate and explain the importance of breast self-awareness [91]. The 2009 USPSTF recommendations did not endorse CBE for women older than 40 years of age beyond mammography screening, as there was insufficient evidence to support the practice. This recommendation was not updated in the 2016 version [95; 97]. The ACOG recommends CBE every one to three years for women 25 to 39 years of age and annually for women older than 40 years of age. The ACOG also recommends that CBE be offered in the context of a shared, informed decision-making approach that recognizes the uncertainty of additional benefits and harms of CBE beyond screening mammography [94]. The ACS does not recommend CBE for average-risk women at any age [93].

Mammogram

Most breast lesions are present for several years before they can be palpated. Lumps that cannot yet be felt through BSE or CBE may be detected by mammography, which is a small-dose, soft tissue x-ray of the breast. Mammography has the potential to detect breast cancer at its earliest stage of development and is therefore recommended by the ACS and the ACOG as the sole screening modality for average-risk women beginning at 40 to 50 years of age [93; 94]. The USPSTF recommendations indicate that the decision to begin screening mammography prior to 50 years of age should be an individual one [95]. Although mammograms are not perfect (e.g., they may miss some cancers or indicate things that may not be cancer), their benefits generally outweigh their risks [91].

There is little debate that women with special risk factors should begin routine mammograms and breast examinations by a nurse practitioner or physician at about 35 years of age. Mammograms are not as reliable in young women due to the density of the breast tissue; however, the detection of tumors in younger women with denser breast tissue has increased with digital mammography [93]. Ultrasound of the breast is useful to differentiate a solid or fluid structure (cyst) in the breast.

The ACOG and the ACS have made the following recommendations for mammography screening [93; 94]:

- Annually or biennially for women 40 years of age and older. (Interval to be determined by clinician-patient shared decision making.)
- If at higher-than-average risk, consider earlier initiation, shorter screening intervals, or the addition of other modalities, such as ultrasound or magnetic resonance imaging (MRI). (The ACS finds no evidence to justify these screening methods, except for instances of *BRCA* mutation, when annual MRI screening is recommended as an adjunct to mammography. In its 2015 updated guidelines, the ACS indicated it will review this evidence).
- Women should be counseled about the possibility of false negatives and false positives.

The ACS further recommends that screening decisions be based on a composite of the woman's health status, life expectancy, and the risks and benefits of mammography [93; 98]. Healthcare professionals should periodically perform individualized assessment of risk for breast cancer to help guide women in their decisions about all screening methods.

In 2009 and 2016, the USPSTF revised its recommendations regarding breast cancer screening. Previously, the USPSTF recommendations had mirrored those published by the ACS and the ACOG. However, the USPSTF now recommends that biennial screening mammography be initiated at 50 years of age and continue to 74 years of age [95; 97]. They also recommend against routine mammograms for patients 40 to 49 years of age, taking into account individual patient context. Furthermore, the USPSTF indicates that the evidence is insufficient to assess the benefits and harms of regular BSE, clinical breast exams, and mammography after the age of 74 years [95; 97]. Reactions to these changes from other organizations, including the ACS and the ACOG, have generally been negative [99].

The cause of breast cancer remains essentially unknown, and it continues to elude research investigators. Although some risk factors have been clearly identified, the significance of many is still controversial. The most evidential risk factors are age, gender, and personal and family history of breast cancer [9]. The identification of a gene in familial breast cancer has been a remarkable step in the direction of identifying risk factors for the prevention of breast cancer.

BREAST CANCER TREATMENT OPTIONS

The impact of breast cancer extends beyond the threat of death and includes an altered self-image, role changes, and changes in support systems and family relationships. The many options for treatment contribute to the complexities that the diagnosis of breast cancer brings to the woman, her family, and her friends. The treatment options depend on the stage of the disease and on other factors, including [100; 101; 102]:

- The type of cancer
- Age
- Menopausal status
- Extent of the spread of the cancer
- Lymph node involvement
- The size of the tumor
- Hormonal receptors of the tumor
- Desire to participate in a clinical trial
- General health status

Women diagnosed with breast cancer should discuss treatment plans with their physicians. Family and support persons should also be included in the discussions. Many women want a second physician to review their diagnosis and treatment plan. Health professionals should reassure women that a short delay while a second opinion is sought should not reduce the success of their treatment. Many patients find it useful to record the sessions during which treatment options are discussed, as it may be difficult to remember the overwhelming amount of information discussed [100].

Advances in understanding the biology of cancer have occurred over the last few decades. Treatment is based on the theory that breast cancer is a systemic disease. The hope that the cancer has been fully removed has proven to be only part of the biology of breast cancer, and consideration must be given to the fact that micrometastases could be present with or without nodal involvement. Therefore, treatment choices involve not only the surgical procedure, but adjuvant therapy as well. Adjuvant therapies (i.e., methods that enhance survival and complement surgical effectiveness) include chemotherapy, hormone therapy, and radiation therapy. Before decisions can be made about adjuvant therapy, prognostic information must be obtained. Factors that affect prognosis and that should be considered when making treatment decisions are [27; 102; 103; 104]:

- Nodal status (positive or negative)
- Tumor size
- Hormone receptor status (estrogen receptor and progesterone receptor)
- Histologic type
- Tumor grade
- Growth factors (ERBB2)
- Age

The most important prognostic factor is nodal status. The number of positive axillary nodes has a direct relationship to clinical outcome. For women with negative nodes, tumor size is the most important prognostic factor [103]. The significance of progesterone receptors (PRs) is not as clearly understood as that of estrogen receptors (ERs). About 80% of breast cancers are ER-positive, and about 65% of ER-positive cancers are PR-positive. About 13% of breast cancers are ER-positive and PR-negative. About 2% of breast cancers are ER-negative and PR-positive [105]. Patients with ER-positive breast cancer generally respond favorably to the anti-estrogen agent tamoxifen [106].

ERBB2, a growth factor, is emerging as an important prognostic marker. The ERBB2 protein is expressed at low levels in normal breast tissue, but in about 25% to 30% of women with breast cancer, this protein is overexpressed. This overexpression is correlated with poor disease-free survival [107]. The FDA has approved trastuzumab, a monoclonal antibody, for use in conjunction with paclitaxel to target cells that overexpress ERBB2 [108; 109]. Clinical trials have indicated that women with breast cancer who are overexpressing ERBB2 and who receive chemotherapy in addition to trastuzumab have a higher survival rate [110]. Triple-negative breast cancer (TNBC) is defined as the absence of staining for ERs, PRs, and ERBB2. TNBC is insensitive to some of the most effective therapies available for breast cancer treatment, including HER2-directed therapy (e.g., trastuzumab) and endocrine therapies (e.g., tamoxifen, aromatase inhibitors). Combined chemotherapy is the standard therapy for early-stage TNBC [102]. A 2014 review and meta-analysis of the adjuvant use of platinum agent to treat TNBC showed a three-fold increase in complete response compared to neoadjuvant therapies containing no platinum agent [111]. Immunotherapy is emerging as a novel and promising treatment option for TNBC. Immunotherapeutic approaches that have been developed and tested include the blockade of immune checkpoints using neutralizing or blocking antibodies, induction of cytotoxic T lymphocytes

(CTLs), adoptive cell transfer-based therapy, and modulation of the tumor microenvironment to enhance CTL activity [112; 113; 114].

In 2019, the FDA granted accelerated approval of fam-trastuzumab deruxtecan (Enhertu) for treatment of unresectable or metastatic HER2-positive breast cancer in patients who have received two or more prior anti-HER2-based regimens [115]. Fam-trastuzumab deruxtecan is a HER2-directed antibody and topoisomerase inhibitor conjugate, targeting changes in HER2 that help cancer grow, divide, and spread [29; 115]. The FDA approval was based on results of a clinical trial that enrolled 184 female patients with HER2-positive, unresectable, and/or metastatic breast cancer who had received two or more prior anti-HER2 therapies. These patients were heavily pretreated in the metastatic setting, receiving between 2 and 17 therapies prior to receiving fam-trastuzumab deruxtecan. Patients in the clinical trial received fam-trastuzumab deruxtecan every three weeks and tumor imaging was obtained every six weeks. The overall response rate was 60.3%, which reflects the percentage of patients that had a certain amount of tumor shrinkage with a median duration of response of 14.8 months [115]. Fam-trastuzumab deruxtecan includes a boxed warning advising healthcare professionals and patients about the risk of interstitial lung disease and embryo-fetal toxicity [29; 115].

Until recently, a radical mastectomy was the standard treatment for breast cancer. While surgery remains a primary component of treatment, it often conserves more breast tissue and is combined with other therapies [102]. If the woman has carcinoma in situ, for example, the treatment option might be a modified mastectomy or lumpectomy and radiation therapy, with or without hormonal therapy [102]. Women who have stage I or stage II cancer are often candidates for breast-conserving surgery (e.g., lumpectomy, breast radiation, surgical staging of the axilla) [102]. While not all women are candidates for this approach, it has demonstrated the same survival rate as other surgical techniques while preserving breast tissue [27].

The epidemiology of breast cancer indicates that, in many women, it is a hormonally influenced malignancy. Cancer cells are tested after surgical removal, and hormonal therapy may be used when the cancer is sensitive to estrogen (i.e., ER-positive) [105]. Tamoxifen is a synthetic anti-estrogen that has been found to effectively treat women with ER-positive or ER-unknown breast tumors. The optimal duration of tamoxifen appears to be 5 years; however, there is some evidence that 10 years of tamoxifen may be beneficial [102; 116]. Serious side effects of tamoxifen include blood clots, strokes, uterine cancer, and cataracts; other common side effects include hot flashes, night sweats, and vaginal dryness [102; 117]. Tamoxifen is not recommended in women with a prior history of deep vein thrombosis, pulmonary embolus, stroke, or transient ischemic attack [106].

In summary, the treatment choices for breast cancer include:

Local Treatment

- Surgery: radical, modified radical, or simple
- Mastectomy
- Lumpectomy
- Radiation therapy

Systemic Treatment

- Chemotherapy
- Hormone therapy
- Combination chemotherapy/hormone therapy

CASE STUDIES

The following case studies of women with breast cancer illustrate the range of treatment choices available. They also illustrate the necessity for healthcare providers to have a broad knowledge base from which to communicate information and provide support during this decision-making period. The case studies also provide mental health providers with the opportunity to be supportive from an informed position.

Case Study: A Woman with Postmenopausal Breast Cancer

The patient described her experiences as follows: “My mother had breast cancer when she was 60, so I was more aware of screening. When I was 52, I went to my gynecologist for a routine checkup and discussed everything. I actually said to my physician, ‘By the way, don’t you think I should have a mammogram?’ So I did, and they discovered it. I cannot sing the praises of a mammogram any higher. The cancer could not be felt, and it was discovered as a result of the mammogram. The cancer had not spread to the lymph nodes, so I had a lumpectomy. After the surgery, the surgeon just said, ‘Go home, everything’s great, and you’ll be fine.’ However, I think that fear, once you hear you have any cancer, is awful. Once I found out that it hadn’t gone into the lymph nodes, I did feel a whole lot better.”

This woman’s experiences highlight several key points for health professionals. First, women should act as advocates for themselves if physicians or practitioners do not initiate the topic of breast screenings. Second, this is a good example of breast cancer discovered by a mammogram in its earliest stages, long before the mass was large enough to be palpated. Lastly, the woman’s descriptions of her emotions when diagnosed with cancer should be included when developing her treatment plan. Just because a woman is fortunate enough to be diagnosed early and is a good candidate for breast-conserving treatment, such as lumpectomy, does not mean she does not have emotional adjustments to make as a woman living with breast cancer.

Case Study: A Woman with Premenopausal Breast Cancer

Another patient described her experiences with treatment decisions as follows: “You know, I started backwards because the lump was under my arm first. It took the surgeon about 15 minutes to find the spot in my breast. We discussed my options, and I chose to have a lumpectomy. I opted for this because, being 42, I was pretty young, and I could probably get by with just a lumpectomy. Unfortunately, that didn’t work, because when the report came back, they said

the tissue around the lump was not healthy. So, they left the option to me regarding further surgery, and I had 10 weeks to think about it. During that 10 weeks, I had my chemotherapy. That was a very hard 10 weeks. My husband said it didn't matter to him whether I lost a breast, and he would rather that I was overtreated, but it was a hard decision. I kept thinking: How am I going to look? How am I going to feel? Am I still going to be a woman? It took me a long time, and I finally decided it didn't matter, that I was going to live. It didn't matter what I had to do in order to do it. So, I said okay, and I elected to have the mastectomy done."

This woman's experience also highlights key points for health professionals to understand when working with women with breast cancer. The patient was persistent in seeking care for a lump under her arm. This is a reminder that breast cancer may not always be obvious in the breast. Also, unexpected or borderline test results place the woman and her family in a position where the treatment decisions are not black or white. Health professionals should provide support, information, and a caring attitude as women make decisions that are difficult and emotive.

BREAST RECONSTRUCTION OPTIONS

Breast reconstruction is a plastic surgery that rebuilds and recreates natural-looking breasts for women who have lost theirs to cancer. Reconstruction can be achieved by inserting saline-filled or silicone gel-filled implants beneath the skin and chest muscles. The silicone implants are used less frequently than in the past due to concerns about immune system diseases. However, studies have allayed some of the concern about this risk, and the FDA approved silicone implants again in 2006. Newer types of silicone implants use a thicker "cohesive" gel that reduces the risk of leakage should the implant rupture [118]. Breast reconstruction can also be achieved with tissue flap reconstruction, which uses tissue from another part of the body, such as the buttocks, abdomen, or back [118; 119]. The two most common types of tissue flap reconstruction are the transverse rectus abdominis muscle (TRAM)

flap surgery, which involves constructing a breast from the lower abdominal skin and fatty tissue, and the latissimus dorsi flap, which uses tissue from the upper back. Other flap procedures include the deep inferior epigastric artery perforator (DIEP) procedure and the gluteal free flap. The DIEP procedure is similar to the TRAM, except that it does not use muscle to form the breast mound. The gluteal free procedure (also similar to the TRAM) uses tissue from the gluteal muscle of the buttocks [120]. Nipple reconstruction involves using tissue obtained from the opposite nipple areola complex or tissue from the upper portion of the inner thigh. The reconstructed breast and nipple may not have the same level of sensation during sexual arousal [121; 122]. The transverse upper gracilis flap (TUG flap) is a newer option for women who are either not eligible for or are not interested in the TRAM or DIEP flaps. The TUG flap uses muscle and fatty tissue from along the bottom fold of the buttock extending to the inner thigh. The TUG flap is a good option for women who need a smaller or medium-sized breast [120]. Some physicians have begun using FDA-regulated products made of donated human skin (e.g., AlloDerm, DermaMatrix) or an animal-skin acellular dermal matrix (ADM) (e.g., Strattice). These products are another new option in breast reconstruction; outcome studies are still in progress [123]. In 2021, the FDA issued a safety communication advising that certain ADM products used in breast reconstruction may have a higher chance for complications. Additionally, while some ADMs have been approved for use in certain types of surgeries (e.g., hernia surgery), their use in breast construction is off-label [124].

In the wake of the controversy about silicone gel and saline-filled implants, more women are choosing reconstruction using their own tissue. The TRAM flap approach offers the advantage of creating a softer, more natural-appearing breast mound of autogenous tissue, without the risks associated with manufactured implants [120; 122]. It also produces an abdominal lipectomy, or "tummy tuck," in the donor area, which some women find beneficial.

It is important for healthcare professionals to educate women and their families about the surgical procedures when discussing treatment options. Preoperatively, any woman considering reconstruction should meet with a plastic surgeon to discuss her candidacy for the TRAM procedure. Women with obese abdomens are at much higher risk for flap loss and are poor candidates [121]. Likewise, heavy smokers and diabetics are at risk for consequences of poor flap vasculature due to prolonged healing times and infection. Any previous surgery that transected the abdominis muscle may preclude that particular muscle for the flap [125].

Most experts agree that good results can be obtained with reconstruction when the cancer surgeon and the plastic surgeon plan the surgeries together [121; 125]. In some instances, the reconstruction may be done simultaneously with the mastectomy, with the two surgeons working in concert. However, immediate reconstruction is not possible for some women. Women with advanced cancer, who will need further procedures, may be advised to postpone reconstruction because of its potential to interfere with treatment. Those undergoing radiation may not be good candidates for reconstruction if they have any damage to the skin [121; 125].

Some women who are eligible for immediate reconstruction may delay the procedure to give themselves time to recover from the mastectomy and ensure that the cancer is gone. Some of these women may not want to go through another surgery and do not elect to have the reconstruction. Delaying the procedure gives women time to think about the decision, decreases time under anesthesia, and decreases stress on the body during the mastectomy. A mastectomy alone takes about 1.5 to 3 hours. Reconstruction with saline implants adds another 1.5 hours. A TRAM procedure takes four to eight hours, depending on the type [126].

Reconstruction is a serious procedure, and some women find it difficult to make decisions about it when already dealing with the life-and-death questions regarding their cancer treatment. Women should decide if they want reconstruction in the immediate future, at a later date, or not at all. If they elect to have reconstruction, they should decide which procedure is best for them [125]. A thorough psychosocial assessment of the woman's feelings about reconstruction should also be completed. It is important that the woman feel confident and comfortable with herself, with or without reconstruction. The breast can have a strong impact on body image, sexual attractiveness, and intimacy.

For any woman with breast cancer, with or without reconstruction, rigorous follow-up is needed. The importance of educating the patient and family on the significance of follow-up diagnostic tests and visits cannot be overstated. The woman should perform monthly breast exams, and clinical breast exams with the oncologist or surgeon should be done. Yearly mammograms, or more frequently as deemed necessary, should be completed. These women should be screened carefully for recurrence [127].

ADJUVANT TREATMENTS AND PATIENT MANAGEMENT ISSUES

The goal of adjuvant therapy is to find the most effective therapeutic regimens while minimizing toxicities. Studies have shown that adjuvant therapy may increase the chance of long-term survival by preventing a recurrence [128]. Available treatment options have expanded to include new medications and combinations of medications for the adjuvant management of breast cancer [129]. For example, multiple trials of polychemotherapy have demonstrated that treatment with combination therapy and/or tamoxifen produces a reduction in the risk of relapse and death [129]. Because breast cancer is so common, even a modest improvement in therapy will save many lives.

Adjuvant systemic therapy is an important and essential component of the management of primary breast cancer. Aromatase inhibitors (AIs), such as anastrozole, letrozole, and exemestane, are commonly used in postmenopausal women in both early and advanced breast cancer, either after tamoxifen therapy or instead of tamoxifen therapy [102]. These inhibitors work by blocking production of androgenic precursors, thereby depriving breast cancer cells of estrogen. Anastrozole is generally well tolerated, and clinical trials have indicated that AIs are as effective as tamoxifen, without some of the side effects, such as hot flashes, thromboembolic disease, and increased risk of endometrial cancer. Anastrozole has also demonstrated improved efficacy for five years over tamoxifen alone [130; 131]. Ovarian ablation or suppression to reduce the amount of estrogen produced by the body (either permanently or temporarily) may be recommended for some premenopausal women [132; 133]. However, evidence suggests that ovarian ablation alone is not an effective substitute for other systemic therapies, and the addition of ovarian ablation to chemotherapy and/or tamoxifen has not been found to significantly improve outcomes [134; 135]. The burden on oncologists is to balance the benefits to each individual patient against the potential toxicities that may develop, based on the prognostic risk factors of the particular breast cancer diagnosis.

It is beyond the scope of this course to discuss all the new cytotoxic drugs and their combinations. One exciting area of research is the identification of specific molecular abnormalities of cancer cells. As previously mentioned, trastuzumab, a humanized monoclonal antibody against the ERBB2 oncoprotein, has produced objective responses with ERBB2-overexpressing breast carcinoma and has improved the efficacy of various combinations of cytotoxic drugs [102]. All breast cancer patients should have their ERBB2 status analyzed, including women with either node-positive or node-negative breast cancer. This analysis may help patients and their healthcare providers with the decisions about adjuvant chemotherapy.

Healthcare professionals should stay informed about the latest trends, results of clinical trials, and new standards of adjuvant breast cancer treatment to most effectively inform women and their families about treatment options. After the decisions have been made, it is the responsibility of the health professional to provide the woman with physical and emotional comfort interventions throughout the course of treatment.

CARE OF WOMEN WITH VARIOUS TREATMENT PLANS

Regardless of the type, staging, or treatment for breast cancer, the woman and her support persons will have unique needs. Clinical experience and research findings have indicated that the important health issues for women with breast cancer include [136]:

- Social support
- Ability to nurture physical and emotional well-being
- Need for effective communication and expression of loss and fears
- Sexuality and relationship concerns
- Spiritual support

The following techniques are measures to address the experiences and needs of women as they learn to live with the diagnosis and treatment of breast cancer [117]:

Experience: Confronting the diagnosis of cancer.

- **Need:** Time and space to adjust to the diagnosis
 - **Interaction:** Give only the information needed or asked for.
- **Need:** Expression of thoughts, fears, and uncertainties
 - **Interaction:** Encourage sharing of thoughts and feelings. Explore and clarify misconceptions or unrealistic fears. Encourage networking with other patients with a similar diagnosis or situation.

Experience: Developing strengths in living with diagnosis

- **Need:** Coping mechanisms
 - **Interaction:** Explore which skills and strengths work for this patient and her family. Suggest journaling, music, and imagery.
- **Need:** To fight to keep a positive outlook
 - **Interaction:** Encourage the patient to do what is important to her. Promote self-nurturing activities and positive self-talk.
- **Need:** Humor
 - **Interaction:** Encourage release of energy through playful activities. Encourage distancing from dwelling on cancer through humor and fun activities.

Experience: Maintaining connections with family and friends and spirituality

- **Need:** To interrelate with family, friends, and self and to address spirituality needs
 - **Interaction:** Encourage the woman to ask for help and allow herself to experience others' expressions of support and caring. Offer the resource of a cancer support group. Offer communication and validation of experiences with other patients with cancer. Encourage her to seek support from spouse/partner as well as others. Spouses or partners may not be able to fulfill all the woman's connection needs. The spouse/partner is also dealing with the loss from his or her own perspective. Suggest outlets to connect with herself, such as journaling, poetry, and meditation.

CARDIOVASCULAR HEALTH

GENDER DIFFERENCES IN CARDIAC DISEASE

Cardiovascular diseases are the leading cause of mortality in women [137]. The incidence of cardiovascular disease in women continues to rise markedly in perimenopause and menopause. Research has shown that both natural and surgically induced menopause are associated with changes in serum lipid profiles, with a decline in high-density lipids (HDL) and an increase in low-density lipids (LDL) [138]. These cholesterol changes may be factors in the development of a woman's increased risk of postmenopausal heart disease.

The primary pathologic risk for heart disease is driven by the deposition of cholesterol in plaque-laden arterial walls. Angina pectoris occurs when the patient experiences a deficit of oxygen being infused through the myocardium. The pain sensation is thought to occur due to a state of anaerobic physiology. Myocardial infarction (MI) occurs with a necrosis of the myocardial cells due to an anaerobic insult. These anaerobic conditions may be caused by a clot or spasm or by atherosclerotic plaque in the coronary arteries. The most common cause is atherosclerosis. Contrary to common belief, many women (two out of every three) who die suddenly of coronary heart disease (CHD) have no prior symptoms [139]. This highlights the need for preventive screening with blood pressure monitoring, lipid profiles, weight management, smoking cessation, and prevention and management of diabetes mellitus.

CHD, especially MI, has historically not been thought of as a woman's disease either by practitioners or by women. This may be in part because cardiovascular disease patterns show interesting gender differences. Nurses and other health professionals can play a key role in educating their peers and patients about the facts of heart disease in women.

There are several key gender differences in cardiovascular disease that require consideration for healthcare practice [67; 137; 139; 140; 141; 142; 143; 144]. Between 25 and 35 years of age, men have three times the incidence of CHD as women. Women tend to show signs of cardiovascular disease at a more advanced age than men. Although menopause decreases women's estrogenic protection from heart disease, this biologic advantage persists until 65 to 70 years of age. At older ages, women who have heart attacks are twice as likely as men to die from them within a few weeks. Women represent slightly more than half of all deaths from cardiovascular disease annually in the United States. Overall, the lifetime risk of a woman dying as a result of heart disease is one in three [140].

The signs and symptoms of CHD in women often differ significantly from those in men. Women may have unspecified pain and vague symptoms, which may often lead both the physician and the patient to look for other causes. Healthcare professionals should suspect MI in women just as they would in men. Women should be asked about how their symptoms change in response to exercise, extremes in temperature, and heavy meals. Common indications of CHD and acute MI in women include chest, arm, back, and neck pain, although women are less likely to report chest pain during a heart attack than men [140]. Women with MI have been found to be more than twice as likely as men to present with back pain. Other symptoms include fatigue, chest pain at rest, shortness of breath, and weakness.

The differences in symptomatology in women compared with men may be in part attributed to anatomical and physiologic differences in their cardiovascular systems. Women's hearts are generally smaller, with smaller arteries and a higher resting heart rate. Research has also suggested that women may deposit plaque more diffusely than men. This diffuse distribution of plaque is not as easily visualized using traditional angiograms as the large, obstructive blockages that are more common in men.



The American Heart Association recommends routine assessment of sex-specific risks for ischemic heart disease in screening, history, and physical examination by all primary care providers and gynecologists, and assessment of risk factors for and ways to reduce risk as part of every clinic visit for women.

(<https://www.ahajournals.org/doi/full/10.1161/CIR.0000000000000381>. Last accessed July 9, 2021.)

Level of Evidence: Expert Opinion/Consensus Statement

Diabetes is more prevalent in women than in men and is a major risk factor for cardiovascular disease. Health professionals should emphasize that heart disease is not an inevitable consequence of aging; it is a disease process that can be greatly influenced by lifestyle behaviors, such as diet, exercise, not smoking, maintaining proper weight, and monitoring blood pressure and cholesterol. It can also be influenced by pharmacotherapy, when appropriate. Healthcare providers, women, and the general community should recognize that the years surrounding menopause are accompanied by a higher risk for coronary disease. The major risk factors for heart disease in women are [145]:

- Cigarette smoking
- Hypertension (blood pressure >130/80 mm Hg or on antihypertensive medication)
- High LDL (>100 mg/dL)
- Low HDL (<40 mg/dL)
- Family history of CHD
- Age (>55 years)
- Obesity or body mass index (BMI) >25
- Diabetes
- Large waist-to-hip ratio (abdominal obesity) or a waist circumference >35 inches

The American Heart Association (AHA) reports that women represent only 33% of NIH-funded cardiovascular studies [140]. Approximately 75% of cardiovascular clinical trials do not report sex-specific results, and women are under-represented in studies of FDA-approved medical devices. Gender differences in response to cardiac medications have also been identified. The AHA has encouraged Congress to pass legislation that would help eliminate the cardiovascular health disparities that women face.

PREVENTIVE CARE FOR HEART HEALTH

Patients have combinations of multiple social, psychologic, cultural, physical, and addictive behaviors that contribute to negative lifestyle behaviors. The major modifiable risk factors for CHD are cigarette smoking, hyperlipidemia, hypertension, diabetes, physical inactivity, excessive alcohol consumption, substance abuse, stress, birth control pills, and excessive weight.

There are many steps that women can take to reduce their risk of cardiovascular disease. The first step is to increase awareness of the need to take responsibility at a younger age and develop health behaviors that will decrease her cardiovascular risk as she ages and becomes more prone to heart disease. Childhood is the best time to develop positive health behaviors, but it is never too late.

While MIs are uncommon in premenopausal women, the factors that affect the change after menopause are not exactly clear. Because women present with heart disease at different ages and with different signs and symptoms, they may not be taken as seriously as men. Women are usually diagnosed with heart disease when they are in an older age cohort, more likely to be on other medications, and have other conditions, such as diabetes, hypertension, and osteoporosis.

EXERCISE AND NUTRITION

EXERCISE AND LIFESTYLE CHOICES

Approximately 75% of U.S. adults are either overweight, obese, or extremely obese [146]. Health professionals should respond to this public health epidemic by educating women and by supporting their efforts to change behaviors involving their diet and exercise routines. Regular exercise has many benefits, such as preventing unhealthy weight gain, helping with weight loss, and lowering a woman's risk of heart disease, stroke, and high blood pressure [147]. Exercise has also been shown to affect muscle growth and metabolism [148; 149]. When working with women who continually struggle to maintain weight control, it is important to develop a teaching plan that emphasizes the relationship between diet and exercise.

Metabolic rate is a measure of energy utilization, or how fast one's body burns calories [36]. Many factors affect metabolic rate, including gender, age, heredity, food intake, body composition, activity level, and frequent cycles of weight loss [150; 151]. Frequent weight loss through severe caloric restriction followed by increased caloric intake and weight gain seems to slow metabolic rate in many people. This is commonly called "starvation metabolism," "yo-yo dieting," or "weight cycling." It is as though the body fears starvation and becomes more efficient at conserving and storing energy. This weight loss cycling is harmful to a woman's health, as well as discouraging, and some studies suggest a link to hypertension, gallbladder disease, heart disease, diabetes, and depression [148; 152]. Maintaining a healthy weight is best achieved by combining healthy eating and physical activity [147].

When counseling women who either need or desire to lose weight, it is important to emphasize that regular physical activity provides major health benefits that are generally independent of body weight. Exercise guidelines should take a lifespan approach that emphasizes lifetime physical activity [153]. Nurses and health professionals may suggest the following measures to encourage the habit of lifelong exercise [147; 153; 154]:

- Avoid inactivity. Some physical activity is better than none.
- Choose physical activities that are fun, and vary them to prevent boredom.
- Create activity opportunities (e.g., take the stairs instead of the elevator; take quick walking breaks when at work).
- Exercise with someone else. Women who have exercise partners may feel safer. Also, research has shown that partners help to reinforce consistent exercise patterns.
- A minimum of 150 minutes of moderate-intensity aerobic exercise spread throughout the week provides substantial health benefits. Examples of moderate-intensity activities include brisk walking (3 miles/hour or faster), bicycling slower than 10 miles/hour, water aerobics, and general gardening. Include a five-minute warm-up and cool-down at the beginning and end of each exercise session to prevent injury.
- Include muscle-strengthening activities at least two days per week to realize benefits (i.e., increased bone strength, muscular fitness) not achieved through aerobic exercise alone. Examples of muscle-strengthening activities are resistance (weight) training, push-ups, pull-ups, and working with resistance bands.

NUTRITION

The U.S. Department of Agriculture has developed MyPlate, which offers personalized information designed to help individuals plan, assess, and meet general nutritional needs and make food choices based on sound dietary guidelines [155]. In general, women should select vegetables, fruits, whole grain foods, legumes, fish, poultry, and lean meats low in saturated and trans fats and cholesterol and use methods of cooking such as broiling. While vitamins and minerals are provided in adequate amounts in a balanced diet, special consideration should be given to each woman's history and developmental life events. For example, the menopausal woman should balance cholesterol and calcium needs by consuming low fat dairy products for a daily calcium intake of 1,000–1,200 mg [156]. Losses of iron due to menstruation and increased needs during pregnancy place women at greater risk for iron deficiency anemia. Health professionals should be alert to the following situations [67; 157]:

- Women who have very heavy menstruation
- Women who are dieting (particularly diets less than 1,500 calories per day)
- Pregnant women
- Vegetarians and women who do not eat red meat
- Adolescents

Iron absorption is a complex process that varies with the foods consumed. Eating foods high in vitamin C facilitates the body's absorption of iron. Therefore, vitamin C intake from fruits, fruit juices, or vegetables should be encouraged at meals in combination with the selected iron food source. While moderate amounts of lean meat contribute to iron status, the consumption of meat is not essential for adequate iron. Vegetarians should consume legumes and nuts for iron as well as protein. Choosing breads, cereals, and pasta enriched with iron also supplies a fair amount of iron for women [158]. Groups of women

who are at greater risk for low iron levels include adolescent girls of childbearing age, pregnant women, and female athletes who engage in regular, intense exercise. These women should be screened for iron deficiency and prescribed supplements if needed [158]. Experts no longer simply recommend a diet low in total fat. Instead, there is greater emphasis on awareness of the type of fat and on reducing the intake of saturated fats, cholesterol, and trans fats. All fats are composed of fatty acids, which are the building blocks of fat. The amounts and mixtures of fatty acids determine the attributes of fats. Fatty acids may be saturated, monosaturated, or polyunsaturated, differing in the amount of hydrogen they contain [159]. Saturated fatty acids are mainly found in foods derived from animals, such as meat, poultry, butter, and milk. Polyunsaturated fatty acids are found in plant foods, such as corn and sesame oils, as well as fish and seafood. Monosaturated fatty acids are found in plant foods, such as canola, peanut, and olive oils, as well as nuts and avocados. Trans fats are present in a wide range of foods, including most foods made with partially hydrogenated oils, such as baked goods, fried foods, and some margarine. Through hydrogenation, unsaturated fatty acids can be made more saturated, resulting in the formation of a more stable semisolid form (trans fat) [159]. Health professionals should educate women that fats are essential for health but that moderation in the amount and type of fat consumed is important. Women should be advised to consume a majority of the fat in their diet as polyunsaturated and monosaturated fat, while reducing the amount of saturated and trans fat. The American Heart Association recommends eating at least two servings of fish rich in omega 3 oil, such as salmon, trout, and herring, every week [160]. Portion control is a major component of weight management as is a decrease in consumption of fat and overall calories.

When counseling women about exercise and nutrition, health professionals should begin by obtaining the woman's health history. Inquire about whether she exercises, and document the specifics of her exercise routine, including the type, amount, fre-

quency, and her level of satisfaction with the routine. Encourage her to maintain a diary of eating and exercise patterns. Discuss nutrition concerns such as weight control, lowering cholesterol, and food likes and dislikes. If she is allergic to milk products, discuss other sources of dietary calcium and calcium supplementation. Discuss ways to balance cholesterol and calcium by consuming low-fat yogurt, skim milk, pudding made with skim milk, and low-fat cheese. Ask her to log her fat, iron, and calcium intake for two weeks to increase awareness about her dietary choices. Help her to plan an exercise routine that slowly increases in intensity, and conduct follow-up discussions to evaluate her progress and recommend alternatives, when necessary. Consult with a dietician and physician as needed.

The health provider who does a thorough health and diet history to identify nutritional risks for the various developmental stages of women will be able to adapt the dietary guidelines to meet the additional special dietary needs for that woman. **Table 1** provides an example of a nutrition teaching plan for women.

PREVENTION, SCREENING, AND EARLY DIAGNOSIS OF OBESITY AND DIABETES

With three-quarters of Americans overweight or obese, the rising incidence of the constellation of obesity, dyslipidemia, heart disease, and diabetes in women is a critical public health issue [146]. Diabetes is a major source of morbidity, mortality, and economic burden in the United States, yet it can frequently be prevented by lifestyle changes [163]. Public health education marketed toward women that includes information about weight management, exercise, controlling blood glucose levels, and preventive diabetic health may reduce the incidence of diabetes. In 2021, the FDA approved semaglutide injection for chronic weight management in adults with obesity or overweight with at least one weight-related condition, including high blood pressure, type 2 diabetes, or high cholesterol [164].

EXAMPLE TEACHING PLAN: NUTRITION

Ensure that your diet contains a variety of foods, with the majority being fruits, vegetables, and grain products. The majority of your calories should come from grains, fruits, and vegetables. Limit fat intake to 30% of your daily calories. Monitor the type of fat you consume. Choose foods low in saturated fat, trans fat, and cholesterol. Visit the MyPlate site, at <https://www.myplate.gov>, to determine the recommended daily servings of each of the food groups based on age, sex, and average daily physical activity.

Tips regarding saturated fat, trans fat, and cholesterol intake include:

- Choose vegetable oils rather than solid fats.
- Trim fat from meat and remove skin from poultry.
- Limit intake of processed meats, such as bacon, sausages, salami, and bologna.
- Use egg whites and egg substitutes rather than whole eggs.
- Choose fat-free or low-fat milk, yogurt, and cheese.
- Always check nutrition labels to determine the amount of saturated fat and cholesterol in prepared foods.
- When eating out, choose lean meats, limit intake of creamy sauces, and choose fruit as desserts.
- Read labels on prepared foods, crackers, and breads for types of fats.

Use sugar and salt in moderation. Drink at least eight glasses of water per day. Consume 1,000–1,500 mg of calcium and 400–600 IU of vitamin D per day. Good sources of calcium include:

- Vitamin supplement
- Low-fat, non-fat yogurt
- Low-fat, non-fat milk
- Soy-based beverages with added calcium
- Tofu
- Breakfast cereal with added calcium
- Fruit juice with added calcium
- Dark-green leafy vegetables
- Canned salmon

Consume 400 mcg (0.4 mg) of folate per day. Sources of folate include:

- Vitamin supplement (folic acid)
- Cooked dry beans and peas, peanuts
- Oranges, orange juice
- Dark-green leafy vegetables, such as spinach, mustard greens, and romaine lettuce
- Green peas

Obtain 15 mg of iron per day. Sources of iron include:

- Vitamin supplement
- Shellfish, such as shrimp, clams, mussels, and oysters
- Lean meats; especially beef, liver, and other organ meats
- Cereals with added iron
- Turkey (dark meat with skin removed)
- Sardines
- Spinach
- Cooked dry beans, peas, and lentils
- Enriched and whole grain breads

Consume 20–35 grams of fiber per day. Sources of fiber include:

- Fruits
- Vegetables
- Whole grains
- Cereals
- Dried beans and peas

Source: [155; 159; 160; 161; 162]

Table 1

Semaglutide is approved as an adjunct to diet and exercise to improve glycemic control in adults with type 2 diabetes [29]. It may be administered orally or intravenously. The oral dose is 3 mg once daily for 30 days, after which it is increased to 7 mg once daily. The dose may be increased to 14 mg once daily after the initial 30 days if the 7 mg dose does not achieve glycemic goals [29]. Intravenous administration is 0.25 mg once weekly for four weeks, after which it is increased to 0.5 mg once weekly. It may be increased to 1 mg once weekly after the initial four weeks if glycemic goals are not achieved at the lower dose [29]. Semaglutide is contraindicated in individuals with a family history of medullary thyroid carcinoma and in patients with multiple endocrine neoplasia syndrome type 2. Side effects include abdominal pain, nausea, diarrhea, and vomiting. Use should be discontinued for two or more months prior to a planned pregnancy [29].

There are two main types of diabetes: type 1 and type 2. Type 1 diabetes is caused by autoimmune destruction of the pancreatic islets. Type 2 diabetes, which is more prevalent, is a defect of insulin secretion, actions, and insulin resistance. Risk factors for type 2 diabetes include [163; 165]:

- Hypertension (>130/80 mm Hg in adults on at least two separate occasions and measured in both arms)
- Family history of diabetes (parents or siblings with diabetes)
- Overweight (BMI >25)
- Race/ethnicity (i.e., African Americans, Hispanic Americans, Native Americans, Pacific Islanders)
- Habitual physical inactivity
- HDL cholesterol <40 mg/dL and/or a triglyceride level >250 mg/dL
- History of gestational diabetes or delivery of a baby weighing more than 9 pounds (Women who have had gestational diabetes have a 35% to 60% chance of developing diabetes in the next 10 to 20 years.)
- Polycystic ovary syndrome

Persons presenting with any of the listed risk factors should be screened for diabetes on a yearly basis. Any person presenting with polyuria (frequent urination), polydipsia (extreme thirst), unexplained weight loss, and/or repeated infections should also be screened [163]. Screening consists of a comprehensive history and physical along with blood glucose levels, both fasting and two hours post-prandial. A fasting blood glucose of 99 mg/dL or less is well within the normal range. An elevated blood glucose of 126 mg/dL or greater on more than one occasion supports the medical diagnosis of diabetes [166].

Although genetic susceptibility and environmental factors have a role in the development of type 2 diabetes, the current epidemic can be primarily associated with particular lifestyle behaviors. These behaviors include the lack of regular exercise, consumption of high saturated fat diets, dyslipidemia, obesity, and smoking. Moderate sustained weight loss and regular moderate-to-vigorous exercise can decrease the risk of developing type 2 diabetes.

Education and prevention are of great importance in decreasing the incidence of diabetes in women and promoting self-management practices to reduce complications when it is diagnosed. Self-management decisions and actions are taken by patients in response to their environment and situation in order to improve their health status. Women need the skills, information, and community and financial resources for effective self-management. Healthcare providers should help prevent the onset of the disease, promote early detection, and encourage preventative services to reduce the number of short- and long-term complications. These interventions can improve patient outcomes and ultimately reduce healthcare costs. To accomplish these objectives, a multifaceted management approach should be adopted that consists of patient and family education, promotion of self-management, a well-established communication plan between the healthcare providers and the patient, and regular up-to-date feedback on the patient's outcomes. Early, preventative interventions may reduce the morbidity, mortality, and economic burden of diabetes. **Table 2** provides a quick reference of specific interventions for the prevention of selected long-term complications of diabetes.

AMERICAN DIABETES ASSOCIATION RECOMMENDATIONS

Potential Complications	Recommendations
Cardiovascular disease	Blood pressure every visit; target at <130/80 mm Hg for individuals at high risk of cardiovascular disease; target at <140/90 mm Hg if at lower risk Target to 110 – 135/85 mm Hg for pregnant patients with pre-existing hypertension Orthostatic blood pressure at initial visit Early lifestyle interventions Serum lipids yearly (LDL <100 mg/dL; HDL) Advise all patients not to smoke Smoking cessation counseling
Renal disease	Monitor blood pressure every visit Maintain blood pressure at <130/80 mm Hg Yearly testing for microalbuminuria
Retinopathy	Annual dilated eye exam by ophthalmologist Glasses for sun protection Optimal glycemic control Optimal blood pressure control
Foot ulcers, with high potential for amputations	Yearly comprehensive foot exam by a podiatrist Visual foot inspection every visit Daily skin care Skin examination at every visit Appropriate footwear
Influenza/pneumococcal disease	Yearly flu vaccine Limit exposures during high incidence times Pneumococcal vaccine for adults 19 through 64 years of age with diabetes Pneumococcal vaccine at 65 years or older, without an immunocompromising condition, have shared decision-making discussion with doctor

Source: [163; 167]

Table 2

OSTEOPOROSIS

Osteoporosis is a condition resulting from decreased density, or thinning, of the bone due to aging. It is the most common of all skeletal disorders, and osteoporosis and low bone mass affects 54 million men and women in the United States at an estimated cost of \$19 billion [168; 169]. Women experience the most bone loss during the first 10 years following menopause; they lose 2% to 5% of bone tissue per year immediately before, and for about eight years after, menopause [168; 170; 171]. Because osteoporotic bone is more porous and weaker than normal bone, fractures may occur more easily [172]. More than 1.6 million new osteoporotic fractures were diagnosed in 2015, with more than 70% of these occurring in women [169]. More than 1.6 million

new osteoporotic fractures were diagnosed in 2015, including 272,000 hip fractures, 368,000 vertebral fractures, 208,000 wrist fractures, and more than 656,000 other site fractures [169]. It is estimated that half of all women in the United States 50 years of age and older will have such a fracture [169; 172; 173].



To achieve and maintain maximum bone density, the Institute of Clinical Systems Improvement recommends that, when available, central dual-energy x-ray absorptiometry (DXA) is the preferred method for assessing bone mineral density in patients with suspected osteoporosis.

(<https://www.icsi.org/wp-content/uploads/2019/01/Osteo.pdf>. Last accessed July 9, 2021.)

Strength of Recommendation/Level of Evidence:
Strong/Low

Women are at a higher risk for osteoporosis than men primarily because of differences in bone mass and density. It is important to emphasize the factors that contribute to the development of osteoporosis when educating women about preventive screening practices and positive lifestyle behaviors. The risk factors for osteoporosis are [168; 170; 174]:

- **Family history of osteoporosis.** This is primarily known through health history information, particularly if any female relatives have had a broken wrist or hip or had a dowager's hump.
- **Hysterectomy and/or surgical removal of ovaries before 50 years of age.** Secondary osteoporosis is used to define the reduction of bone mass developing from reasons other than the aging process. Young women who have had their ovaries surgically removed run the same risk of developing osteoporosis as postmenopausal women.
- **Smoking.** Women who smoke increase their odds of developing osteoporosis.
- **Alcohol.** Women who consume excessive amounts of alcohol experience a greater calcium loss, which may result in osteoporosis. Women who drink wine, beer, or other alcoholic beverages daily increase their risk of osteoporosis.
- **Small, thin body frame.** Slender women of European and Asian descent have a higher incidence of osteoporosis than African American women, largely as a result of differences in peak bone mass and density.
- **Soft drinks and coffee.** Women who drink soft drinks or more than a few cups of coffee daily increase their chance of developing osteoporosis due to a loss of calcium.
- **Inactivity.** Women who do not exercise at least one hour a week with weight-bearing activities, such as walking, jogging, or low impact aerobics, are at increased risk for developing osteoporosis.
- **Strenuous exercise causing amenorrhea.** Exercising so strenuously that the woman has irregular periods or no periods at all is as harmful to bone health as inactivity. A balanced diet and a sound exercise program are key health promotion habits for the prevention of osteoporosis.
- **Low dietary calcium intake.** Many background factors contribute to a woman's dietary intake of calcium. Women should be interviewed during the health history to determine any milk allergies or lactose intolerance, eating disorders, such as bulimia or anorexia nervosa, or continued dieting for weight management that often excludes dairy products. Most women do not consume adequate calcium levels in their young adult years to achieve peak bone mass.

Because postmenopausal women are at high risk for osteoporosis, health professionals should teach preventive health measures, such as [168; 170; 174]:

- Increasing calcium intake
- Taking vitamin D supplements
- Avoiding excessive caffeine, soft drinks, and alcohol
- Not smoking
- Increasing physical activity, including weight-bearing exercises
- Completing bone density screening, if at risk for osteoporosis

Calcium needs vary with age. The NIH recommendations for the daily needs of girls and women are [156]:

- 9 to 18 years of age: 1,300 mg/day
- 19 to 50 years of age: 1,000 mg/day
- 51 years of age and older: 1,200 mg/day
- 14 to 18 years of age, pregnant or lactating: 1,300 mg/day
- 19 to 50 years of age, pregnant or lactating: 1,000 mg/day

Dairy products account for the majority of the calcium in the average American diet. However, it is thought that the average daily calcium intake for women from dietary sources is only about half of the recommended amount. Dietary calcium sources include milk products, calcium fortified foods (e.g., orange and grapefruit juice, cereals, breads, soy beverages), fish (e.g., salmon, sardines), and shellfish. Nonfat and low-fat versions of dairy foods can help balance calories and cholesterol. Three 10-ounce glasses of milk supplies 1,000 mg of calcium. Women requiring dietary calcium may also choose to take supplements.

Daily calcium intake should not exceed 2,000 mg, including dietary sources and supplements. Most commercial preparations of calcium supplements come in 200–500 mg pills. A woman taking three 500 mg pills of a calcium supplement may take the pills in divided doses during the day or in a single bedtime dose. Gastrointestinal upset is the most common side effect. Constipation, flatulence, gastric distension, and nausea may be experienced.

An inadequate supply of calcium over a lifetime contributes to the development of osteoporosis, with the body's greatest need for calcium occurring during childhood and adolescence [174]. Dietary instruction about the importance of adequate calcium intake is of special importance when developing a teaching plan for girls and women, because peak bone mass may be enhanced by optimum calcium intake and exercise, especially during the growth years. Osteoporosis is often called the "silent disease" because there are no symptoms during the early stages [174]. An early prediction of who may be at risk is helpful.

Because vitamin D is needed for proper calcium absorption, one preventive measure is to ensure a daily intake of at least 600 IU up to 70 years of age and 800 IU after 70 years of age [168; 175]. The Institute of Medicine (IOM) has identified the tolerable upper intake level of vitamin D as 4,000 IU. At least one study suggests that 600–800 IU per day (and even 4,000 IU per day) may be much too low, particularly for overweight and obese patients, who require 1.5 times and two to three times the recommended dose, respectively [176]. Unlike the

IOM, the Endocrine Society supports these levels of additional supplementation for overweight/obese individuals [176]. Certain researchers also maintain that the optimal human serum 25-hydroxyvitamin D level is 115 nmol/L, which would require a dietary daily vitamin D intake of 10,000 IU in the absence of adequate sunlight exposure [176]. Hypercalcemia, a possible risk factor of excessive vitamin D intake, was not seen in study participants taking 20,000 IU supplementation.

A 2011 Cochrane review concluded that supplementation with cholecalciferol (vitamin D3) reduces mortality in elderly women, but that supplementation with ergocalciferol (vitamin D2) or active forms of vitamin D (i.e., alfacalcidol and calcitriol) does not [177]. The review looked at data from 50 randomized trials with nearly 100,000 participants. Whereas alfacalcidol and calcitriol caused hypercalcemia, cholecalciferol did not. There was an increased risk of kidney stones with cholecalciferol supplementation at higher doses, though it is possible that coadministration of vitamin C could negate this effect [177]. A 2014 Cochrane review of 159 studies reaffirmed the conclusions of the 2011 review [178]. Based on these data, providers should recommend or prescribe vitamin D3 over other forms, but perhaps not in patients at risk for nephrolithiasis [177; 178].

Exposure to sunlight is also a source of vitamin D but has drawbacks, including skin damage and increased cancer risk. Levels of UV available from the sun fluctuate throughout the year depending on latitude and vary based on time of day; additionally, skin color (measured by the Fitzpatrick scale) affects rates of vitamin D synthesis [179]. It is estimated that individuals with Fitzpatrick type III skin (creamy white, sometimes burns, though tans evenly) with 25% of skin exposed can synthesize about 400 IU of vitamin D at higher latitudes (e.g., Boston) at noon between April to October in approximately three to eight minutes. In southern latitudes (e.g., Miami), these individuals can synthesize the same amount of vitamin D any time of the year in about three to six minutes [179]. These times are extended in individuals with darker skin pigmentation, at times of the day/year with less UV intensity, and if sunscreen is used on all exposed skin.

Vitamins and minerals are essential for life, and they will be provided when a woman consumes a balanced, nutritious diet. However, because women do not always have the time, education, or finances to consume a balanced diet, it is essential to understand the common mineral deficiencies in women.

PHARMACOLOGIC MANAGEMENT OF OSTEOPOROSIS: RISKS, BENEFITS, AND SIDE EFFECTS

Pharmacologic management of osteoporosis offers an opportunity to increase bone density and decrease the incidence of fracture and the accompanying debilitating symptoms. Women and their families should be informed that [168; 170]:

- Taking medication to prevent or treat osteopenia and osteoporosis does not mean that intake of calcium and vitamin D is no longer needed.
- Moderate weight-bearing exercise is still encouraged.
- When placed on a new medication, follow-up should occur within two weeks to one month.
- An annual bone density test to evaluate treatment effectiveness is suggested.

Alendronate

Alendronate is a bisphosphonate with proven results in building bone mineral density. It may be taken in either a 10 mg dosage daily or a 70 mg dose once weekly [29]. The once-weekly dosing is convenient, making the drug more appealing. Due to the potential for esophageal burning and erosion, patients should take the medication upon arising with 6–8 ounces of water and remain upright with no other oral intake for 30 minutes [29]. All food and beverages interfere with absorption, and it is essential that no other intake, including coffee, is ingested for at least 30 minutes after administration. Reported side effects include bone, joint, or muscle pain, and hypocalcemia [29].

Risedronate

Risedronate is also a bisphosphonate, and it may also be prescribed for the treatment of osteoporosis. Dosage is generally 5 mg once daily, 35 mg taken once a week, or 150 mg once a month. The benefits and side effects are similar to those seen with alendronate, and the same precautions when taking the medication apply, including remaining upright and avoiding food and drink intake for 30 minutes [29].

Ibandronate

Ibandronate is another bisphosphonate that may be prescribed for the prevention and treatment of osteoporosis. Ibandronate has been shown to reduce the incidence of spine fractures by about 50% over three years [180]. Ibandronate is taken orally in a dose of 150 mg once a month [29]. It may also be administered as an intravenous infusion of 3 mg every three months. If the monthly dose is chosen, it should be taken on the same day every month [29]. As with the other bisphosphonates, care should be taken to avoid food and drink, other than water, after taking the medication. After three to five years of treatment, discontinuing ibandronate should be considered in patients at low risk for fracture [29].

Zoledronic Acid

Zoledronic acid is approved for the prevention and treatment of osteoporosis in postmenopausal women. For treatment of osteoporosis, it is administered once a year in a 5-mg IV infusion over 15 minutes [29]. It may also be administered every two years as a preventive measure. An acute reaction (e.g., arthralgia, fever, flu-like symptoms, myalgia) may occur within the first three days following infusion in up to 44% of patients [29]. Symptoms usually resolve within 3 to 4 days of onset but occasionally persist as long as 14 days. After three to five years of treatment, discontinuing zoledronic acid should be considered in patients at low risk for fracture [29].

Note: In 2008, the FDA reviewed the bisphosphonates marketed in the United States in response to study results that had associated their use with an increased incidence of atrial fibrillation. The FDA has found no clear association between atrial fibrillation and the use of bisphosphonates [29]. The FDA is additionally conducting an ongoing review to determine whether use of oral bisphosphonates is associated with an increased risk of esophageal cancer [181]. Another concern with bisphosphonate therapy is osteonecrosis of the jaw, which is typically associated with existing oral infection. Patients should be evaluated by a dentist, and any necessary dental work should be completed prior to initiation of bisphosphonate therapy [29]. The benefits of bisphosphonate therapy are believed to outweigh the potential risks.

Calcitonin

Calcitonin prescribed for osteoporosis is a synthetic salmon calcitonin administered intranasally daily (i.e., one spray of 200 units in one nostril); a 100 unit per day intramuscular or subcutaneous injection preparation is also available [29]. Patients should alternate nostrils to avoid irritation. Side effects include rhinorrhea, headache, back pain, and nosebleed. Calcitonin is contraindicated in women with hypersensitivity to salmon protein [29]. Long-term use of calcitonin should be limited [169].

Raloxifene

Raloxifene is a selective estrogen receptor modulator (SERM), which means that it affects some (but not all) of the same receptors as estrogen, and in some instances, it blocks or antagonizes estrogen. Raloxifene acts like estrogen in building bone and preventing bone loss, and it appears to block some estrogen effects in the breast and uterus [29]. The decrease in estrogen-related adverse effects on the breast should increase compliance and decrease fractures. Raloxifene may be taken orally in doses of 60 mg daily, at any time of the day, and without regard to meals [29]. Raloxifene does not reduce hot flashes. Side effects, though uncommon, include hot flashes, leg cramps, and deep vein thrombosis [29].

Raloxifene should be used with caution in women with coronary heart disease or in women at risk for coronary events.

Teriparatide

Teriparatide is a parathyroid hormone analog that increases gastrointestinal calcium absorption and results in increased bone mineral density, bone mass, and strength. It has been shown to decrease osteoporosis-related fractures in postmenopausal women. Teriparatide is administered subcutaneously in a 20-mcg dose once daily. The patient should be either sitting or lying down during initial administration. Transient hypercalcemia is a common side effect [29]. This medication contains a boxed warning regarding an increase of osteosarcoma in animal studies [29].

Denosumab

Denosumab is a RANK ligand (RANKL) inhibitor/human monoclonal antibody. It binds to RANKL, thereby leading to decreased bone resorption and increased bone mass in osteoporosis. Denosumab is approved for treatment of osteoporosis in postmenopausal women. It is administered subcutaneously in a single 60-mg dose once every six months [29]. A blood test should be performed before each dose to confirm that the patient's blood calcium level is normal. Common side effects include fatigue, headache, dermatitis, hypocalcemia, and nausea [29].

Abaloparatide

Abaloparatide is an analog of human parathyroid hormone related peptide that acts as an agonist at the PTH1 receptor resulting in stimulation of osteoblast function and increased bone mass [29]. Abaloparatide is approved for treatment of osteoporosis in postmenopausal women at high risk for fracture. It is administered subcutaneously in a single 80-mcg dose. Common side effects include erythema at injection site, dizziness, and hypercalciuria [29].

Romosozumab

Romosozumab inhibits sclerostin, a regulatory factor in bone metabolism. It increases bone formation and to a lesser extent, decreases bone resorption [29]. Romosozumab is approved for treatment of osteoporosis in postmenopausal women at high risk of fracture. It is administered in two consecutive injections of 105 mg each for a total dose of 210 mg once monthly. Romosozumab contains a boxed warning regarding potential risk of myocardial infarction, stroke, and cardiovascular death [29]. Underlying hypocalcemia should be corrected prior to initiation of therapy. Arthralgia is the most common side effect [29].

Romosozumab-aqqg

Romosozumab-aqqg is a monoclonal antibody that blocks the effects of the protein sclerostin and works mainly by increasing new bone formation [29; 182]. It is approved for the treatment of osteoporosis in postmenopausal women with a history of osteoporotic fracture, with multiple risk factors for fracture, or those who have failed or are intolerant to other osteoporosis therapies.

One dose consists of two injections, one immediately following the other, given once a month [182]. The bone forming effect wanes after 12 doses, so more than 12 doses should not be used. Romosozumab-aqqg has a boxed warning regarding an increase the risk of heart attack, stroke, and cardiovascular death, and it should not be used in patients who have had a heart attack or stroke within the previous year. Other possible adverse effects include joint pain, headache, and injection site reactions [182].

PSYCHOLOGIC HEALTH

Psychologic health includes the factors in every woman's life related to a balance of work and home, stress, relationships, family issues, and a sense of meaning and healing. Some experts debate that psychologic health, as a concept, focuses on the "well" population. Others feel that mental health promotion includes the plight of the mentally ill and the specific issues related to their environment and conditions. The World Health Organization defines mental health as "a state of well-being in which every individual realizes his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to her or his community" [183].

Psychologic health promotion is a process that facilitates healing by restoring harmony and balance between the mind and the body. Mind-body therapies and complementary therapies may alleviate stress-related health problems. Nursing interventions to promote psychologic health include touching, listening, caring, music, humor, and storytelling.

To maintain psychologic health, women should find time each day to focus on what their body/mind is telling them. They should also take at least 15 minutes a day to do something they find special and relaxing. Other actions that promote psychologic health include:

- **Regular exercise.** Exercise increases endorphins in the body and improves emotional and physical health. The risk of coronary artery disease almost doubles in sedentary individuals.
- **Nutritious diet.** Establishing healthy eating habits early and consuming fruits and vegetables have shown to help reduce the risk of cancer. Women who are overweight have a higher death rate than lean women.

- **Regular screening.** This is an opportunity to be screened for common conditions such as hypertension, breast and cervical cancer, and depression. It is also a time to address health concerns, get answers to any questions, and discuss how to make desired or necessary lifestyle changes.
- **Adequate rest.** Avoid eating, exercising, or stimulating activity right before bedtime. Establish a nightly ritual to develop a relaxed sleeping pattern. Sleep allows individuals to be more equipped to deal with everyday life. It will also help alleviate stress.
- **Smoking cessation (if already smoking).** Smoking does not just affect the lungs but may also affect every organ in the body. Smoking affects and harms the smoker and also those who are exposed to the secondhand smoke.
- **Injury risk reduction,** which includes:
 - Practicing safer sex
 - Avoiding involvement in violence or contact with violent persons
 - Being aware of safety principles at home and when traveling
 - Wearing vehicle seatbelts
 - Never driving under the influence of alcohol or drugs

Women fulfilling multiple roles often need the support of health providers to take care of their own psychologic needs. Health history questions to assess and support a woman's mental health needs include [18; 136]:

- Do you pay attention to your inner feelings?
- How many hours of sleep do you get per night? Do you feel rested?
- Do you engage in activities that help you relax?
- Do you have hobbies?
- Do you take at least 15 minutes for yourself each day?
- Do you have at least one person in whom you can confide?
- Do you have a spiritual outlet?
- What lifts your spirits?

DEPRESSION AND SUICIDE

Depressive disorders are more common in women than in men, and early detection and treatment of depression may be enhanced with screening as a component of the annual exam. Depression may result in physical and psychologic symptoms that cause a significant amount of distress and impairment to the woman and her family, and it may occur in the absence of mania. The risk factors for depression are [18; 184; 185]:

- Family or personal history of depression or postpartum depression
- Poor self-concept or self-esteem
- Unemployment
- Female gender
- Other chronic health conditions
- Substance abuse
- Loss or death
- Stressful life occurrences

Depression may occur as a single occurrence, or it may periodically reoccur, but it remains independent of life events. The woman will either demonstrate a depressed mood, or she will express a lack of interest in all or most of her routine activities. Women with depression experience a constellation of symptoms. According to the fifth edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5), major depressive disorder is diagnosed when five or more of the following symptoms are present for at least two consecutive weeks and represent a change in recent functioning; one of the symptoms must be either loss of interest or pleasure or depressed mood [186]:

- Self-reported or objective depressed mood, most of the time (e.g., sadness, emptiness, hopelessness)
- Significant loss of interest or pleasure in usual activities

- Significant weight loss or gain or alteration in appetite
- Sleep disturbances manifested by insomnia or hypersomnia
- Psychomotor agitation or retardation (objective)
- Fatigue or loss of energy
- Feelings of worthlessness or inappropriate guilt
- Diminished ability to concentrate
- Recurrent thoughts of death

Additionally, the patient must have both [186]:

- Significant distress related to their symptoms or impairment of functioning (e.g., social, work, other).
- No other known medical condition or to which the episode may be attributable, including the psychologic effects of a substance.

Note: The episode should not be considered a depressive disorder if the symptoms are related to a significant loss (e.g., bereavement), as these may be a normal part of the grieving process, for example. The DSM-5 criteria also require that the patient's depression should not be better explained by a psychotic disorder (e.g., schizophrenia, schizoaffective disorder, delusional disorder) and the patient has never had a manic episode or a hypomanic episode [186].

The USPSTF has recommended that adults be screened for depression in clinical practices that have the appropriate systems in place to assure accurate screening, diagnosis, and follow-up [184]. The following screening tools are some of the most widely used with established validity. All positive screening tests should be followed with an extensive interview and health history for a full diagnostic work-up [184; 187]:

- **Beck Depression Inventory:** The most widely used instrument; recognized as the “gold standard” among self-report measures of depression. All 21 items apply to the past two weeks, including the current day. Emphasis is on the cognitive symptoms of depression.
- **Zung Self-Rating Scale:** 20 items, rated by how much time each depressive symptom is present. Zung describes the scale as a “depression thermometer.”
- **Geriatric Depression Scale:** 15 yes/no questions. Takes five to seven minutes to complete; is one page long and easy to understand.
- **Center for Epidemiological Studies Depression Scale (CES-D):** 20 items; emphasis is on depressed mood during the past week, psychomotor retardation and somatic complaints, lack of well-being, and interpersonal difficulties.

Suicide is a major, preventable public health problem and one of the leading causes of death among women (particularly adolescent and young women) in the United States [188]. A previous suicide attempt is one of the strongest predictors of subsequent suicide. Cognitive therapy has been shown to reduce by half the rate of repeated suicide attempt, because it helps those who attempt suicide to focus on alternative actions when thoughts of self-harm arise [189]. The risk factors for suicide may vary with age, gender, or ethnic group. They may occur in combination or change over time and may include [18; 189]:

- Previous attempts at suicide
- Depression
- Dysfunctional family
- Family history of mental disorder, substance abuse, or suicide
- Firearms in the home
- Incarceration

- Abuse (emotional, physical, or sexual)
- Domestic violence
- Alcoholism and other substance abuse
- Chronic illness

Women who die by suicide are frequently found to have seen a primary care provider in the year prior to death. This emphasizes the importance of providers being able to recognize and treat the risk factors to help prevent suicide [189].

ANXIETY DISORDERS

Anxiety disorders affect about 40 million adults in the United States each year, and women are twice as likely as men to have an anxiety disorder in their lifetime [190]. They are characterized by symptoms of physiologic arousal (e.g., palpitations, sweating) with moods of excessive worry that interfere with normal functioning, persist over time, and worsen if not treated [191; 192]. Anxiety disorders are further classified as panic disorder, agoraphobia, phobias, generalized anxiety disorder, separation anxiety disorder, selective mutism, social anxiety disorder, acute stress disorder, anxiety due to medical conditions, and other/unspecified disorders [186]. Women may exhibit several disorders simultaneously. For example, anxiety is common in depression disorders, and depressive symptoms are common in anxiety disorders. The most common risk factors for anxiety include [191]:

- Shyness, or behavioral inhibition, in childhood
- Having few economic resources
- Stressful life situations or crises
- Being divorced or widowed
- Family history of anxiety disorders
- Abuse or domestic violence
- Alcohol or substance abuse

Anxiety disorders are generally treated with medication, psychotherapy, or both. The treatment choice will depend on the type of disorder and on the individual's preference [191].

VIOLENCE AND INTIMATE PARTNER VIOLENCE

Intimate partner violence is control by one partner over another [193]. Abusers physically, sexually, verbally, and/or emotionally abuse their partners and/or destroy their partner's property [192]. Economic control, stalking, and control of social contacts are all forms of violence against women. Experiencing fear in a relationship is characteristic of an abusive situation, regardless of whether there is physical violence. The fear of physical harm is enough to consider the relationship abusive [193].

The USPSTF recommends that clinicians screen women of childbearing age for intimate partner violence using a validated screening tool and provide or refer identified victims to intervention services [194]. Tools that have been studied and found to have high sensitivity and specificity include the HITS (Hurt, Insult, Threaten, and Scream), E-HITS (Extended-Hurt, Insult, Threaten, Scream), PVS (Partner Violence Screen), HARK (Humiliation, Afraid, Rape, Kick), and the Woman Abuse Screening Tool (WAST). Additionally, many major medical organizations and state licensing boards mandate screening for partner violence [194]. Direct questioning has been found to be effective for identifying women experiencing partner violence [195]. To assess women for the risks or presence of domestic violence, healthcare providers should ask, and encourage women to ask themselves, the following questions [192]:

- What stresses do you have in your relationship with your partner?
- How do you handle disagreements?
- Do you feel safe in your relationship with (name spouse/partner)?
- Should I be concerned for your safety?
- Are there situations in which you feel afraid?
- Have you ever been threatened or abused?
- Has your partner forced you to have sexual intercourse that you did not want?

- If positive responses to items above:
Ask, “Are your friends/family aware that this is happening?”
- If negative responses to items above:
Ask, “Do you think you could tell them if it did happen? Would they help you?”
- Do you have a safe place to go in an emergency situation?
- If you are in danger now, would you like me to help you find a shelter?
- Would you like to talk with a social worker/counselor to help you develop a plan?

Any questions answered affirmatively should be followed with additional questions in order to determine the following [192]:

- How and when mistreatment occurs
- Who perpetrates it
- How the woman copes with it
- What she plans to do to protect herself (and her children, if applicable)

The prevalence of violence in American society exceeds all other Western nations. Health professionals should increase awareness about safety, and the specific rules of gun safety, in the home. The American Academy of Pediatrics has recommended that gun safety education be included in each visit to the pediatrician. In 2019, gun violence was the leading cause of death for children 19 years of age and younger, surpassing motor vehicle accidents for the first time. More than 3,300 children and teens were killed with guns—one every 2 hours and 36 minutes. Deaths from firearms reached a 19-year high in 2017 and have remained elevated ever since [196]. In the United States, unintentional firearm-related injuries result in almost nine times as many pediatric fatalities as the next 25 industrialized countries combined [197]. The key points for gun safety education are provided in **Table 3** and **Table 4**.

TEACHING PLAN: GUN SAFETY	
Learn the characteristics of your firearm.	
Treat the firearm as if it was loaded at all times.	
Point the muzzle in a safe direction.	
Keep your finger off the trigger, unless you intend to fire it.	
Never rely on mechanical safety features to protect you or someone else.	
Keep the gun unloaded and the action open until you are ready to shoot.	
Know your target and what is beyond it.	
Use only the correct ammunition for your firearm.	
Know what to do in case of a misfire.	
Wear protective eye and ear equipment.	
Keep the firearm free from obstructions and well maintained.	
Do not modify your firearm.	
Do not mix guns with alcohol, drugs, or fatigue.	
Source: [198]	Table 3

SUBSTANCE ABUSE

Alcohol, drug, and tobacco abuse are prominent public health issues for women and their families. It is estimated that 8.7 million children 17 years of age or younger in the United States live with at least one parent with an active substance use disorder [199]. Consequences of the addictive use of alcohol, drugs, and tobacco are related to liver disease, heart disease, stroke, breast and lung cancer, HIV/AIDS, hepatitis, violence, sexual victimization, and auto accidents. One in four deaths is attributable to alcohol, tobacco, or illicit drug use [200].

Factors that may increase a woman’s risk for substance abuse or dependence include genetic influences, early initiation of smoking and substance use, and victimization. At least part of the increased risk for substance abuse in women as compared to men may be attributed to gender-related differences in metabolism, brain chemistry, or genetic risk factors. Early assessment and treatment are key in increasing awareness and preventing serious consequences for women, their families, and the community.

TEACHING PLAN: GUN SAFETY FOR PATIENTS AND CAREGIVERS

If there is a gun in your home: Teach the child about gun safety when the child starts to ask questions or acts out gun play. Keep your lessons simple, but credible. Repeat, repeat, and repeat.

Teach facts, not fear: The first rule for small children is DO NOT TOUCH. When the child is older, taking them to a gun range may take away the “forbidden fruit” attraction. Consider having them take a gun safety course.

Distinguish between fantasy and reality: Many parents establish their home as a “no gun zone,” meaning no real or pretend guns allowed. If children are allowed to play with pretend guns, teach them the difference between real and pretend. Tell them to always first assume that a gun is real. Toy guns may present an opportunity to teach safe and proper gun handling.

Options for safe storage: Vaults, safes, and locked metal storage boxes. Store ammunition and the firearm in separate safes. Think about gun storage from your child’s point of view. Children will climb up onto areas that you think they cannot reach. Consider using trigger or action-blocking locks for additional safety.

Practice what you preach: Follow the rules you have set for your children. Remember, you are their role model. Do not leave firearms lying around. If your child discovers a gun outside the home or in the home of a friend, they should know the four steps of the Eddie Eagle gun safety program:

STOP!

DO NOT TOUCH.

LEAVE THE AREA.

TELL AN ADULT.

Discuss gun safety with other parents or family members if your child spends time in their homes. It is not enough to assume that if they do have guns in the house, then they have them stored properly.

Source: [198]

Table 4

Women commonly seek help for alcoholism from primary care clinicians; however, few are queried about alcohol or drug use when they visit a primary care physician [201]. Health professionals should assess adolescents and women for alcohol and substance use during the health history [202]. The screening tools available have wide applicability for screening high-risk patients. The CAGE questionnaire (**Table 5**) is a brief tool that uses “have you ever” questions to detect alcoholism in adults and in adolescents older than 16 years of age [203].

CAGE QUESTIONNAIRE

1. Have you ever felt you should Cut down on your drinking?
2. Have people Annoyed you by criticizing your drinking?
3. Have you ever felt Guilty about your drinking?
4. Have you ever had a drink first thing in the morning (Eye-opener) to steady your nerves or get rid of a hangover?

Two or more “yes” answers indicate probable alcoholism. Any one “yes” answer deserves further evaluation.

Source: [206]

Table 5

CRAFT SUBSTANCE ABUSE SCREENING TOOL: TESTED FOR ADOLESCENT CLINIC PATIENTS	
Have you ever ridden in a Car driven by someone (including yourself) who was “high” or had been using alcohol or drugs? Do you ever use alcohol or drugs to Relax, feel better about yourself, or fit in? Do you use alcohol or drugs when you are Alone? Do your family or Friends ever tell you that you should cut down on your drinking or drug use? Do you ever Forget things you did while using alcohol or drugs? Have you gotten into Trouble while using alcohol or drugs? Two or more “yes” answers indicate a significant problem.	
Source: [204]	Table 6

PRIMARY CARE ASSESSMENT FOR ALCOHOL PROBLEMS		
Halt	Bump	Fatal DTs
Do you drink to get High? Do you drink Alone? Do you Look forward to drinking (instead of going to an event)? Has your Tolerance for alcohol increased or decreased?	Have you had Blackouts? Is your drinking Unplanned (you drink when you said you would not or drink more than you thought)? Do you drink Medicinally (when depressed, sad, anxious)? Do you Protect your supply (so that you will always have enough)?	Family history of alcohol problems? Alcoholics anonymous attendance? Thoughts or attempts at suicide? Alcoholism. Ever thought you might have it? Legal problems, such as driving under the influence or assault? Depression, feeling down, low, or sad? Tranquilizer or disulfiram use?
Source: [207]	Table 7	

The CRAFT screening test (**Table 6**) is a two-part test used to screen adolescents for substance-abuse problems and disorders. Part one, which contains six questions, is administered to the youth. Part two contains a list of items to discuss/investigate with the parent [204; 205]. Other screening tools (**Table 7**) may be used based on patient population and time available. Women and girls whose scores indicate a problem should have extensive interviews and medical follow-up. Community resources and referrals should be provided to the women and their families.

Drug abuse prevention programs for adolescents should be adapted to emphasize the points that are meaningful to them (e.g., bad breath or ill-smelling clothes for those who smoke). Prevention programs also should increase academic and social competence with skills such as study habits and academic support, communication, self-efficacy, and assertiveness. The programs should also enhance protective factors (e.g., strong family bonds, parental monitoring, clear rules, training in drug education/information) and reduce or reverse risk factors (e.g., chaotic home environment, ineffective parenting, poor school performance). Research has indicated that many of the same protective/risk factors that apply to substance abuse also apply to youth violence, delinquency, risky sexual behaviors, and teen pregnancies. Early intervention is key [208].

HEALTH DISPARITIES OF WOMEN OF COLOR

According to census data from 2010, 50.8% (157 million) of the 309 million people living in the United States are women, and 36.1% (56.7 million) of these are women of color. The number of women of color is projected to increase to 107 million by 2050 [209]. Socioeconomic factors and cultural beliefs and practices affect the health behaviors of all women, thereby influencing their access to and use of health services; confidence in practitioners and recommended prevention guidelines; and health beliefs in general. Health professionals should assess cultural beliefs, demonstrate respect for diverse belief systems, and understand and recognize the varying patterns of health disparities and health determinants among women of color. The following information summarizes specific areas of concern for women of color, their unique risk factors, and recommended interventions to decrease the gaps in their health status.

BLACK/AFRICAN AMERICAN WOMEN

Heart disease, cancer, and stroke are the first, second, and third leading causes of death, respectively, among black women [188]. They have the highest age-adjusted death rate (724.2 per 100,000 population) of all other women of color and the shortest life expectancy at birth (78.7 years) [137; 209]. While it is projected that by 2060 all women can expect to live longer, black women will continue to have the shortest life expectancy [209]. Black women have more undetected diseases, higher disease and illness rates, and are sicker during their lifetimes and younger when they die than any other racial/ethnic group in the United States, with the exception of American Indian/Alaska Native women [209]. Rates of intimate partner violence are two to three times higher among black women than white women. Pregnancy-associated intimate partner violence homicides are more common among black females than are live births [209].

Only 36% of black women are aware of the fact that heart disease is their biggest health risk, and only 20% believe that they personally are at risk. However, heart disease risk factors (e.g., overweight and obesity, diabetes, hypertension) tend to be more common in black women than in other women and appear to affect black women at a younger age [210; 211]. A study presented to the American College of Cardiology in 2021 found a high prevalence of obesity, elevated blood pressure, and other lifestyle-related factors among black women as early as their 20s and 30s. These factors may put black women at increased risk to develop heart disease at a young age [211]. Targeted educational interventions should address the barriers to awareness about heart disease that have been cited by black women, including confusing media messaging, the belief that health is determined by a higher power, and caretaking responsibilities [212]. Education also should address the disconnect between having knowledge about risk factors and being motivated to take preventive action [212].

Although white women are most likely to be diagnosed with cancer, black women are more likely to die of cancer [209]. The reasons for racial and ethnic differences in cancer risk are not well understood, but they likely result from a complex combination of dietary, lifestyle, environmental, occupational, and genetic factors. Poverty and limited access to preventive measures and screening also likely contribute. Nearly 18% of black women report working full-time but earning poverty-level wages [209]. Poorer overall health among women in poverty also may limit treatment options and decrease cancer survival rates.

Fifty percent of black women have one or more risk factors for stroke, including high blood pressure, obesity, diabetes, high-sodium diet, sickle cell disease, and smoking [213]. Knowledge of stroke symptoms varies significantly among African American women, but tends to be lower among the uninsured and those with lower household income.

The WISEWOMAN (Well-Integrated Screening and Evaluation for WOMen Across the Nation) program, administered by the Centers for Disease Control and Prevention (<https://www.cdc.gov/wisewoman>), serves low-income, uninsured, and underinsured women 40 to 64 years of age by providing free screenings and counseling about heart disease and stroke risk [214].

African American women have the highest rates of overweight or obesity, with approximately 80% of black women being overweight or obese [215]. Obesity is partly related to a sedentary lifestyle, and more than one-half of black women report that they lead sedentary lives [209]. Socioeconomic factors also disproportionately affect the prevalence of obesity and overweight among black women. Additionally, research suggests that black women may be more comfortable with their bodies regardless of medical or mainstream social norms regarding body size. One study assessed body size perception among black women using cultural definitions of body size terms. Of the 69 women included in the study, 86% of overweight women (BMI 25 – 29.9) and 40% of obese women (BMI > 30) did not self-classify as overweight or obese. Among participants with BMI ≥ 35 , 65% did not self-classify as obese and 29% did not self-classify as overweight [216]. BMI in general is not as useful a motivating factor for black woman as a holistic approach to health that considers cultural and psychosocial factors.

The reasons for the health disparities experienced by African American women are varied and include limited access to quality healthcare, influence of the surrounding environment or neighborhood, persistent racial discrimination, individual health behaviors, socioeconomic status, and genetics [217].

To lower the risk of poor health outcomes for black women, knowledge of and attitudes toward their risk for disease should be assessed with the goal of developing effective interventions [218; 219; 220]. Lack of adequate health insurance and access to quality health care has been expressed as an urgent African American health issue [217].

AMERICAN INDIAN OR ALASKA NATIVE WOMEN

AI/AN women represent 2.0% of the 56.7 million women of color living in the United States [209]. Cancer, heart disease, and unintentional injury are the first, second, and third leading causes of death, respectively, among AI/AN women [188; 209]. They have the second highest age-adjusted death rate (641.7 per 100,000) among women of color and the highest prevalence (16%) of diagnosed diabetes [137; 209]. One-third of all AI/AN families are headed by women, and 44% of these households have incomes below the federal poverty level [209]. Reliance on government commodity foods, which are high in fat and calories, and adoption of a sedentary lifestyle has led to an increase in obesity, with 68% of AI/AN women reported to be overweight or obese [209]. A high occurrence of alcohol and substance use disorders, mental health disorders, suicide, and violence is well-documented among AI/AN populations. AI/AN women experience the highest rate (39%) of intimate partner violence in the United States compared to all other racial groups [209].

AI/AN populations speak more than 200 distinct languages, making access to uniform health care a challenge [209]. Due to treaty obligations with the United States, AI/AN women may receive health care from the Indian Health Service (IHS), through clinics and hospitals available to all AI/AN who belong to one of the 574 federally recognized tribes and who live on or near the reservations in the IHS's 12 service areas [209; 221]. These service areas contain the equivalent of county or city health

departments. Some of these are operated by the IHS (mostly in rural areas) and some by AI/AN tribal governments, which provide care for AI/AN who live in urban areas and who, because of where they live, have lost eligibility for IHS care near their reservation. Services in both rural and urban areas often are limited, and long distances between facilities make it difficult for AI/AN women to access prenatal care [209; 221]. Further, while the treaty obligations require the federal government to provide AI/AN with a reasonable level of health care, this level of care is based on the amount of federal funding the IHS receives, which has steadily decreased since 1993 [209].

Poverty and alcohol/substance use disorder additionally interfere with the ability of AI/AN women to seek preventive health care. Perceptions toward and attitudes about disease (e.g., cancer as a punishment), low literacy and reading comprehension, lack of culturally sensitive educational materials, and mistrust of healthcare providers all hinder AI/AN women's willingness and ability to seek effective preventive care [209]. AI/AN women require educational and preventive programs tailored to their needs and cultural beliefs. Incorporating traditional medicine (e.g., talking circles, sweat lodges, medicine wheels) into the provision of healthcare services is viewed as a more holistic approach to treatment than the Western treatment models that focus only on the disease [209].

HISPANIC/LATINA WOMEN

As of 2019, the Hispanic/Latino populations constitute the largest ethnic groups in the United States at 60.5 million [222]. Women comprise more than one-half of the total Latino population [209]. Hispanics, along with African Americans, are more likely than whites to be among the working poor. More than 15% of all Hispanics and 16% of Hispanic women reported working full-time but earning poverty-level wages [209].

Cancer, heart disease, and stroke are the three leading causes of death among Hispanic women [188]. Hispanic women are 40% more likely to be diagnosed with cervical cancer, and 20% more likely to die from it compared with white women, yet Hispanic women undergo significantly fewer Pap tests [223; 224]. Hispanic women who have been in the United States for less than 10 years are less likely to have had a Pap test in the last three years compared with those who have been in the country 10 or more years. Hispanic girls have one of the highest rates of HPV vaccination; however, overall rates remain low [224]. Healthcare providers can help improve these rates by emphasizing the importance of completing the vaccination series [224]. More than one in nine Hispanic women have diabetes, including many who are unaware that they have the disease, and approximately one-half of Hispanic women are obese [213]. Approximately one in four Hispanic women have high blood pressure (a main risk factor for stroke), and nearly one-half do not have it controlled. To help Hispanic women manage stroke risk, healthcare providers should emphasize lifestyle changes, such as healthy eating, getting regular physical activity, and managing other health conditions, particularly diabetes and obesity [213].

Aspects of culture that can influence the health of Hispanic women include religion, folk healing, and family mores. These aspects dictate that Hispanics should first try home remedies, seek the advice of family and friends, or engage folk healers before turning to professional healthcare providers. Even when they engage the help of healthcare providers, Hispanics may continue to complement their care with traditional medicines or alternative therapies [209].

ASIAN AMERICAN WOMEN

Asian Americans include individuals from more than 20 countries, speaking more than 100 different languages, and representing more than 60 different ethnicities [209]. Cancer has been the leading cause of death among Asian American women since 1980 [188; 225]. Cervical cancer disproportionately affects certain subpopulations of Asian American women, yet despite high incidence rates, Asian American women often do not undergo a Pap screening test. This can be attributed, in part, to a lack of knowledge about the risk factors for cervical cancer and recommended screening guidelines. Few Asian American women are aware that HPV is a primary risk factor, and many believe that getting rest, eating right, and avoiding stress can prevent cervical cancer [226]. In one survey, only 62% of Asian American women believed that regular Pap tests could reduce the risk of cervical cancer, and only 61% believed cervical cancer was curable if caught early [227]. The lack of confidence in the importance of cervical cancer screening, combined with concerns about modesty and the pain and discomfort associated with this test, likely contribute to low testing rates [209]. Mammography also is underused by Asian American women. Breast cancer rates among Asian women in their native countries are between 25% and 50% of the rates among Asian American women. With immigration, however, breast cancer rates among Asian American women have increased to reflect the higher overall rates of women in the United States [209].

The health problems of Asian American women are exacerbated by a complex set of cultural, linguistic, structural, and financial barriers to care. A fear of difficulty in communicating, often compounded by shame, guilt, anger, or mental illness, can deter Asian American women from promptly seeking care [209]. These factors, as well as a shortage of health-care providers who possess the necessary cultural and language skills, also limit the ability of nearly 50% of the AA population to access the mental health care system. Additionally, not all English medical and health terminology can be readily translated

into the various Asian languages, nor can many Asian expressions describing physical and mental conditions be directly translated for U.S. healthcare providers [209].

NATIVE HAWAIIAN AND OTHER PACIFIC ISLANDER WOMEN

According to a 2019 U.S. Census Bureau estimate, approximately 1.4 million NH/PI live within the United States, and approximately one-half are women [209; 228]. Breast cancer is the most common cancer among NH/PI women and they have the highest breast cancer incidence of all women in Hawaii [209]. NH/PI women with breast cancer often are fatalistic and may consequently not vigorously battle their disease, turning to medical treatment only when self-care and traditional practices have failed. A cultural emphasis on the preservation of harmony (*lokahi*) may result in a tendency to minimize the significance of illness, meaning NH/PI women often are entering treatment at late stages of disease [228; 229]. Because the experience of cancer sometimes includes shame and guilt for the NH/PI woman, she may be reluctant to use free screening services, particularly if she lacks health insurance [228]. Healthcare providers can address these cultural barriers by incorporating the roles of *ho'omana* (e.g., religion and spirituality) and *haku* (family liaison) into healthcare delivery for NH/PI women [228; 229].

In recent years, there has been more focus on studying cardiovascular disease in diverse racial-ethnic groups and in women. However, significant gaps remain in understanding the cardiometabolic health disparities among NH/PI women [230]. Heart disease is the second leading cause of death among NH/PI women [188]. Yet less than one-half (44%) are aware of their risk for heart disease [230]. A 2019 study sought to improve cardiovascular disease risk awareness among NH/PI women on the island of Oahu by assessing participants' level of awareness of cardiovascular disease as the leading cause of death for this population; implementing a risk-reduction program; and evaluating the program's effectiveness

in decreasing cardiovascular disease risk [230]. The participants included 20 NH/PI women 24 to 69 years of age who had at least one cardiovascular disease risk factor but no diabetes, previous cardiac event, hypertension, or high cholesterol. The authors used a mixed methods approach that included a cardiovascular risk awareness questionnaire (RAQ), a screening process using a matrix compiled by the AHA, and six educational sessions comprising the Wahine Heart Wellness Program (WHWP) [230]. The RAQ inquired about the women's knowledge of recommended levels of exercise, cholesterol, blood pressure, and daily servings of fruits and vegetables and was administered both pre- and post-program completion. The AHA matrix is from the organization's "Life's Simple 7" program, which identifies seven significant predictors of heart health (i.e., physical activity, cholesterol, healthy diet, blood pressure, BMI, blood glucose, smoking) and shows users how to achieve cardiovascular health. In the WHWP, participants received education about modifiable and non-modifiable risk factors for cardiovascular disease and were offered lifestyle intervention classes that included education about nutrition, exercise, hands-only CPR, and cardiovascular disease prevention. It also included behavioral support about barriers to lifestyle changes and problem-solving methods [230]. Discussions about diet included culturally-specific disease management information, including concepts such as *pa'akai*, which are salt traditions in NH cultures. Motivational interviewing techniques were employed to help participants achieve their lifestyle change goals [230]. The authors' goal was to have all participants score 80% or above on the RAQ post-test and to see a 2-point improvement in the participants' Life's Simple 7 scores. At the conclusion of the program, 90% of the participants scored an 80% or above on the RAQ post-test, and 75% of the participants improved their Life's Simple 7 score by 2 points [230].

Health professionals should improve culturally sensitive health education and screening programs to increase health awareness and promote positive health practices among women of color.

COMPLEMENTARY THERAPIES

Complementary therapies are defined as nontraditional therapies that can interface with traditional medicine and surgical therapies. They may also be used as complements to other therapeutic and pharmacologic treatments. Because they are used in addition to, rather than instead of, traditional medicine and surgical therapies, the term complementary therapy is preferable to alternative therapy. Health care has traditionally focused on technology and on the treatment of symptoms that were indicative of pathology. In the holistic model, the emphasis is on achieving maximum body/mind health, and treatment focuses on minimal interventions with appropriate technology and a wide range of noninvasive therapies. Complementary therapies are not a single modality of healing but an array of practices, including diet and clinical nutrition, herbal medicine, hydrotherapy, aromatherapy, guided imagery, therapeutic or healing touch, yoga, and spirituality [231].

Holism and complementary therapies draw from the healing wisdom of many cultures, including Indian, Chinese, Native American, and Greek. Holism is based on a few overarching philosophies: the healing power of nature; treat the cause rather than the effect; first, do no harm; treat the whole person; the health provider is a healer and a teacher; and prevention is the best cure [232].

Women buy the majority of complementary medicinal treatments and have an array of products at their disposal, from vitamins to Chinese herbs. However, no regulatory agency enforces labeling requirements or quality control for these products. Scientific evidence supporting the quality or effectiveness of these products is scant; therefore, it is prudent for both the public and healthcare professionals to continue to support research on complementary therapies. The National Center for Complementary and Integrative Health at the NIH was established by Congress in 1998 to evaluate the effectiveness of these therapies [233].

Menopausal women for whom HRT is contraindicated or who prefer not to use HRT may wish to try herbal remedies. Phytoestrogens are herbal sources that contain estrogen-like substances. Soy protein powder is the phytoestrogen most commonly used for menopausal symptoms. Women usually mix it into fruit juice or milk twice a day. Other examples of phytoestrogens or estrogen-like substances include ginseng, garlic, black cohosh, and red sage [85]. Some women report significant relief from hot flashes and menopausal symptoms with these remedies. Women should be advised, however, that these products are not regulated by the FDA, and that safety and efficacy studies are not available.

Dong quai, a Chinese herb, is an estrogen precursor that may be given either as a tea or placed under the tongue. This herb is said to enhance the body's own production of estrogen [234]. Primrose oil is another product that has been reported by menopausal women to produce a relaxation effect and relieve hot flashes. However, studies have not shown primrose oil to be helpful in treating or managing the potential complications of menopause [235].

Practitioners often recommend that a woman seek complementary therapies from a professional who is experienced and credentialed. For example, a naturopath or traditional Chinese doctor can match the therapy to the woman's needs. The American Holistic Nurses Association (AHNA) has established a core curriculum and offers a course for certification in holistic nursing [236]. Taking time to learn about complementary therapies is becoming essential to providing optimal care for patients. The permitted practice of complementary therapies varies according to each state's regulations and laws. At the very least, it is important for healthcare professionals to act as advocates and teachers for patients interested in learning more about complementary therapies.

AROMATHERAPY

Aromatherapy utilizes the healing properties of essential oils extracted from plants and herbs to induce a certain reaction or feeling [237]. According to some practitioners, the chemical makeup of essential oils gives them a host of useful pharmacologic properties. Aromatherapy may act as an antibacterial, antiviral, or antispasmodic agent, as well as a diuretic, vasoconstrictor, or relaxation agent [237]. Treatments may be administered through inhalation, from candles or steam, or external applications to the skin via baths, massage, or compress. Lavender candles have been noted to be effective as relaxation agents, and a drop of lavender on the pillow at night has been used clinically to induce sleep in patients with insomnia [238]. Again, because aromatherapy products have not been researched by a regulatory agency, it is best to seek expert advice before using them.

GUIDED IMAGERY

Guided imagery is defined as access to the imagination through a mental guide [239]. When a patient uses general healing imagery, she forms an image of an event, such as a healing light, forgiveness, or a specific treatment healing the body. Guided imagery is best known for its direct effect on physiology. Through imagery, an individual attempts to stimulate changes in body functions usually considered inaccessible to conscious influence. Imagery serves as a bridge for connecting body, mind, and spirit. Imagery is noninvasive and cost-effective, and it can be practiced by the patient either alone or with guidance. By definition, imagery involves information from all the senses—hearing, seeing, touching, tasting, and feeling. Visualization involves primarily the visual sense. Visualization may be utilized as part of the body-mind imagery information process. For example, pregnant women are often taught guided imagery and visualization techniques to use during labor contractions. Guiding the mother through a series of images during contractions is intended to soothe, distract, reduce sympathetic nervous stimulation, and enhance relaxation. The image

and visualization is selected by the mother during her pregnancy. The process is intended to allow her to incorporate her personal image to create a dominant parasympathetic response. For example, some women choose climbing a mountain or the rise and fall of the ocean tide to visualize during labor contractions.

Interventions, such as relaxation techniques, imagery, and visualization, work for two main reasons. First, they provide novel stimuli, and the body-mind responds to this information. Second, they facilitate mind modulation of the autonomic, endocrine, immune, and nervous systems. Preliminary studies have demonstrated that imagery may be an effective part of treatment in a wide variety of conditions, from childbirth to cancer [240; 241]. Stress-related conditions, such as headaches, back pain, spastic colon, and fatigue, often respond well to imagery techniques. In addition, the emotional aspects of illness can be eased through imagery, which may encourage both physical and emotional healing.

MEDITATION

Meditation has a long history of use for increasing calmness and physical relaxation, improving psychological balance, coping with illness, and enhancing overall health and well-being [242]. Meditation is a safe, simple, and cost-effective way to balance a person's physical, emotional, mental, and spiritual energy states. It is easy for patients to learn and has been used as a complementary therapy in treating everything from occupational stress to cancer and menopause. It has also been employed as part of an overall therapeutic treatment for hypertension and heart disease [243]. There are many types of meditation, but most have four elements in common: a quiet location with few distractions; a specific, comfortable posture; a focus of attention; and an open attitude [242]. Meditation requires practice but is easy for the patient to master. Patients are encouraged to set time aside each day for the process of concentrating and focusing one's attention while maintaining a passive and unworried attitude. Relaxation makes it possible to retreat mentally from one's surroundings, stresses, and health concerns.

Benefits of meditation and relaxation techniques include decreasing anxiety, easing muscle tension, and providing a period of rest as beneficial as a nap. Meditation is generally considered safe for people in good health. However, those with physical limitations should talk to their healthcare provider prior to beginning a meditative practice [242].

YOGA

The meaning of the word "yoga" is union, or the integration of the physical, mental, and spiritual energies. It began as a spiritual practice but has gained popularity as a secular way of promoting physical and mental well-being [244]. Yoga is among the oldest known systems of health practiced in the world today. Research into yoga has had a strong impact on the fields of stress reduction, mind/body medicine, and cardiovascular disease. The physical posture, breathing exercises, and meditation practices of yoga have been proven to reduce stress, lower blood pressure, and regulate heart beat [243]. Yoga is often best practiced when it is learned from an expert, as it is not as easily taught as are other simple meditation techniques. Women who have access and the financial resources for yoga classes may benefit from the concentration, relaxation, and sense of well-being provided by this ancient physical movement form. Also, given its rise in popularity, there are a variety of online yoga instruction courses, which may be accessed for little to no fee, for those with limited financial resources. While yoga is an overall philosophy as well as an exercise, patients do not need to embrace the philosophy to benefit from the activity. When practiced for relaxation, such as during menopause or cancer therapy, it involves breathing and stretching exercises. Because yoga practices and postures vary from the basic to advanced, starting with the gentle stretches and breathing techniques makes it ideally suited for patients undergoing the demands of chemotherapy or for women who have been sedentary and are attempting to begin an active relaxation and exercise program.

The interactions of movement, exercise, and relaxation are important in complementary therapies. Physical expressions of energy benefit patients by reducing depression, elevating mood, increasing energy levels, assisting in addiction programs for alcohol and smoking, and strengthening the immune system. Movement and exercise also have many physiologic benefits for women, particularly in relation to decreasing the percentage of body fat, increasing bone density, and increasing both glucose sensitivity and glucose tolerance [147]. Health professionals should encourage women to try new expressions of movement, such as yoga, dancing, Tai Chi, or qi gong, which include both meditative elements and physical ones [244].

HEALING OR THERAPEUTIC TOUCH

Healing or therapeutic touch is described as an energy field interaction between two or more people with the intent to rebalance or repattern the energy field in order to facilitate relaxation and self-healing [245]. Healing touch is a collection of noninvasive, energy-based techniques intended to make energy available to the patient [231]. It involves localized and systemic techniques to enhance relaxation and balance energy. Two theories suggest how therapeutic touch works. One suggests that pain (e.g., from infection, injury, difficult relationship) is stored in the cells of the body, which creates a disruption in normal cell function, thereby promoting disease. Therapeutic touch promotes health by restoring normal communication between cells [246]. The second theory is based on the principles of quantum physics. Blood contains iron, and as it circulates throughout the body, it produces an electromagnetic field, or an aura, which was once easily seen by all but is now seen only by those who practice therapeutic touch [246].

Touch or healing therapy includes a broad range of hand techniques that a practitioner may use either on or near the body to support balance and function. The hand may be used to apply pressure and motion on the skin and on the underlying muscle of the patient for purposes of relaxation, improvement of circulation, relief of pain, and other therapeutic effects. Touch as a therapeutic intervention in the United States remained underdeveloped until research demonstrated its benefits in the 1950s [231]. Following this, therapeutic massage became widely used during childbirth in the form of backrubs, abdominal massage over the uterus, and perineal massage at the time of delivery. Research studies have demonstrated that touch helps women cope with labor [231]. Older people are likely to receive the least amount of touch, and less mobile elderly people particularly respond positively to touch.

The process of healing touch involves much more than skin contact. It involves many aspects of being present with the patient and nonverbal interaction and response. Nurses refer to the “hands on” practice of nursing as touch therapy, therapeutic touch, healing touch, and a variety of other terms. Despite the different labels, the intent is to demonstrate care to another through touch. The objectives of these techniques are also the same: to provide relaxation, relieve physical and emotional discomfort, and aid in healing. However, just as not all nurses choose to work with the technology in intensive care, not all will choose to learn therapeutic touch techniques. Courses that teach healing or therapeutic touch are available for healthcare professionals. Generally, nurses know after a few encounters with therapeutic touch technique if this approach works for them as health professionals.

Touch is an ancient practice, and most cultures have developed forms of touch therapy that utilize rubbing, massaging, and holding as manifestations of the desire to heal and care for one another [245]. However, attitudes vary among cultures. One group may view touch as natural, while others view it as taboo. The healthcare provider must be aware of personal and cultural beliefs regarding touch.

SPIRITUALITY

There has been a growing interest in health and whole-person theology within the healthcare profession. It is crucial to emphasize that spirituality and religion are not synonymous. Spirituality may be defined as the unifying force of a person and a source of inner strength [247]. It is expressed and experienced uniquely by each individual through and within connections to a Higher Power, Life Force, the environment, nature, other people, or the self. Religion refers to a belief system and practices of worship. Religion is defined as an individual's beliefs in relation to the supernatural and usually includes a structured community of believers [247]. Religion per se is chosen. Spirituality is not subject to choice but is simply a manifestation of the person's wholeness.

Any approach to discussions of spirituality will depend upon the patient's background and beliefs. Spiritual care may be provided in many ways by healthcare professionals. Many healthcare providers may be uncomfortable with the concept, because they feel that spiritual care is intrusive and do not consider the wide variety of ways to provide spiritual comfort. Spiritual care also includes serving as a therapeutic presence and listening and talking to patients. Other traditional interventions include praying with patients, referring them to chaplains or clergy, and providing them with reading materials. While much is discussed in theory about the spiritual dimension, spiritual care, or spirituality, the practice of such care is infrequently carried out. Suggestions have been made that healthcare leaders and educators work toward increasing the comfort of providers in offering spiritual care by providing resources and education. The healthcare provider should learn to convey openness to the patient's expression of spirituality. Emphasis on spiritual care has declined within the healthcare professions in the pursuit of professionalism, and the trend has been to leave these aspects unattended altogether or strictly left to the clergy.

General guidelines for responding to the spiritual concerns of the patient can initiate from the basic premise that persons are spiritual beings. Healthcare practitioners should encourage patients to share concerns. Patients may need assistance in sharing very difficult aspects of their illness with others. Encouraging the patient to tell stories, show pictures, and connect with important milestones in their life is essential to spiritual expression. A health professional should have a willingness to be present with uncertainty, pain, or suffering, seeking not to "fix" but to be in the mystery with another. It is important for the healthcare provider to make statements to acknowledge the patient's spiritual states. It is also important to clarify with the patient if any specific resources or referrals are needed to help her deal with her concerns.

Experiences of Spirituality for Women with Cancer

Women with breast cancer often focus beyond the immediate context of daily life and use spiritual transcendence to abstract meaning and peace of mind from stressful experiences. Spirituality is a source of strength and meaning for many of them. One premenopausal woman with breast cancer described her experiences: "I believe faith and prayer is what allowed me to accept what was happening...During my chemotherapy treatment I would feel ill. I would lie down for a short while because I felt like I was burning up inside. Then, I would go to church and cry and pray. I never asked God why or to heal my illness. I prayed to God to give me courage to accept what was happening to me."

Another woman with breast cancer described the feeling of calm presence that spirituality gave her. She reported: "When you go through a time like this, you're so much closer to the Lord than you are at any other time. I don't know if it is because of my condition or what, but I could just sit back and see God working in my family's lives and my life, too."

A young woman with cancer shared a personal story of the difference between religious beliefs and spirituality for her. She stated: “I am not a religious person. I mean, I don’t go to church and I don’t pray. During all of my chemotherapy sessions, I felt like I wasn’t alone. I felt like there was somebody there...I know that while I was doing it, I wasn’t by myself. I know that somebody or something was there whether I was praying and asking for help or not.”

These examples illustrate the processes that these women used to consciously pause and pay attention to the spiritual dimension. Healthcare providers can help women by encouraging them to make intentional decisions to pause and take time out for reflection. Unfortunately, with the pace and multiple responsibilities of daily life, women are not always able to take time out for reflection. The provider can assist the patient to be quiet and mindful of what is going on in her health situation. The process of relaxation and imagery facilitates awareness and expression of the spiritual self. It is also important for the healthcare provider to explore situations that facilitate the experience of rest, leisure, and peace of mind. This approach will depend upon the belief system of the individual patient. Although it may be a useful adjunct for healing for many women, it will not apply to all.

SELECTION OF COMPLEMENTARY THERAPIES BY MENOPAUSAL WOMEN

Based on the philosophy that menopause is not an “illness” but a normal life event, there are many complementary therapies that women may find effective during this life transition. Scientific findings remain uncertain about the long-term consequences of untested complementary therapies. It also remains unclear how women weigh the risks and benefits of all the variables, including osteoporosis, coronary disease, breast and endometrial cancer, herbal remedies untested and unapproved by the FDA, cost of therapies or prescriptions, and monitoring adverse events. It is thought that healthcare providers are most interested in disease prevention

and that women are most interested in relief of menopausal symptoms. Women’s decision patterns regarding complementary therapies often fall into these major categories [81; 82; 85]:

- Their decision to take therapies and change health practices is based on the severity of menopausal symptoms, such as hot flashes and insomnia.
- They consider symptoms when making decisions about HRT, but they also consider new research findings that demonstrate increased risk of heart disease and breast cancer.
- They are concerned about the regimen of HRT, because they do not want to be bothered with spotting or menses.
- They consider health risks, particularly the risks of heart disease and breast cancer, to be paramount in their decisions regarding HRT and other complementary therapies.

Healthcare professionals should make an effort to help women maintain a positive attitude toward menopause, seek as much current information as possible regarding both traditional and complementary therapies, and maintain a program of follow-up care to monitor the progress or adverse outcomes of the therapies selected.

Case Study

Patient T is a teacher, 52 years of age, who had Stage 1 breast cancer detected by a screening mammogram seven years ago. At that time, she underwent a lumpectomy and radiation therapy. She chose not to take tamoxifen because it was not recommended as being necessary by her surgeon and she is not a good pill-taker. She adheres to her suggested routine of follow-up care, including BSE, yearly mammogram, and CBE with the surgeon who performed her lumpectomy. She has been in good health since her breast cancer treatment and has had no further incidence of cancer.

Patient T presented to the women's health clinic because she was experiencing hot flashes during the night, which was contributing to sleep deprivation. She was so fatigued that she felt it was interfering with her ability to perform her demanding job. In discussing treatment options, Patient T was well informed of her contraindication for HRT due to her history of breast cancer. Furthermore, she reported that even if she had not had breast cancer, she probably would not adhere to HRT because she did not really believe in taking pills and she was very cautious regarding the risk of cancer. The nurse discussed various complementary therapies, including black cohosh tea, relaxation therapies during the nighttime hot flashes, and the options for her to redirect some work responsibilities. Patient T did find that the tea and relaxation exercises were helpful, and she was able to temporarily reassign some teaching assignments to a student teacher. At her one-month follow-up appointment, Patient T reported that her episodes of hot flashes were becoming less frequent and her sleep patterns had improved. Due to the contraindication for HRT, the issue of osteoporosis was discussed and Patient T had a baseline bone densitometry test. She was given a consultation with a dietician to emphasize dietary and supplemental calcium, vitamin D therapy, and a heart-healthy diet pattern. Patient T also made the choice to maintain a more consistent aerobic exercise program by walking during her lunch hour in the school gym with the purpose of decreasing risk factors for both osteoporosis and heart disease.

HEALTH CARE ACROSS A WOMAN'S LIFESPAN

Health behaviors involve complex variables and decisions. These decisions are best made within a partnership of equity and support from health professionals. The following is a model plan for the woman making health-related decisions or lifestyle changes, regardless of the specific health issue of concern to her and her family. The health professional should focus on a multidisciplinary model to ensure that the woman and her family have referrals to dietitians, counselors, specialists, and community health resources, as needed.

DIAGNOSIS AND INTERVENTIONS FOR LIFESTYLE CHANGES

A diagnosis related to health risk/health-promoting behavior often occurs in women with risk factors and/or symptoms of heart disease, weight gain, osteoporosis, or cancer. Specific health needs for these women include [136]:

- Social support
- Strengths of the woman and her family
- Need for culturally sensitive education and expression of questions
- Sexuality and relationship concerns
- Spirituality and psychologic needs
- Financial needs
- Community resources and collaborative care
- Time and space to adjust to the lifestyle change

Healthcare professionals may intervene in the following ways to ensure that women's health needs are addressed [136]:

- Encourage networking with other women with a similar situation.
- Encourage women to ask for help and to allow themselves to experience others' expressions of support and caring.
- Focus on current strengths in making decisions and lifestyle changes.
- Explore which skills and strengths work for the woman and her family.
- Give the information needed or requested. Offer brochures and Internet resources.
- Encourage sharing of thoughts and feelings on barriers to the lifestyle change.
- Explore and clarify misconceptions or unrealistic fears.
- Educate the patient on any medication regime prescribed for her treatment, including medication, dosage, side effects, and desired benefit. Review any over-the-counter medications or herbal therapies being used.

- Educate the patient regarding risk factors, screening guidelines, and recommended diagnostic or laboratory tests and follow-up plans.
- Encourage the patient to seek support from her spouse/partner as well as others.
- A spouse or partner may not be able to fulfill all of the woman's connection needs. Suggest outlets to connect with herself, such as journaling, poetry, and meditation.
- Discuss the need to fight to keep a positive outlook. Explain that relapse is expected.
- Encourage the woman to do what is important to her. Promote self-nurturing activities and positive self-talk.
- Suggest journaling, music, imagery, and/or yoga for relaxation and to enhance maintenance of health-promoting behaviors.
- Encourage release of energy through humor and playful activities.
- If a woman has a religious background, encourage personal expressions and prayer.
- Discuss behavior changes and treatment options in relation to expense, financial circumstances, and insurance reimbursement.
- Discuss alternative behaviors or treatments when the woman has financial burdens.
- Offer the resource of a support group, counselor, or specialist, as needed.
- Offer community resources and validation of experiences with others in the community.

As health professionals practicing in collaboration with other healthcare and community professionals, it is vital to be knowledgeable regarding proper health screening for women. In educating women and conducting health screenings, health professionals play a key role in the prevention of illness and the optimization of good health. Health professionals and patient advocates have an obligation to help patients truly understand and integrate the need for routine screening as a preventive strategy. Within these general guidelines, and practicing in collaboration with other professionals, it is important to take into account each woman's history and risk factors. **Table 8** summarizes health screening guidelines, laboratory and diagnostic tests, and immunization recommendations to be used for patient education, referral, and clinical practice.

Immunizations are not only recommended for children. Each year, vaccine-preventable diseases have a costly impact, resulting in doctor's visits, hospitalizations, and premature deaths [254]. It is the health professional's responsibility to ensure the well-being of patients by adhering to immunization recommendations. **Table 9** lists the 2021 CDC immunization schedule for women 19 years of age or older [255].

HEALTH SCREENING FOR WOMEN ACROSS THE LIFESPAN				
Screening Tests	Age 18 to 39 Years	Age 40 to 49 Years	Age 50 to 64 Years	Age 65 Years and Older
General health: Full check-up, including height, weight, and BMI	Dependent on risk factors	Yearly		
Blood pressure measurement	At least every two years, if normal; yearly if elevated; discuss treatment if 140/90 mm Hg or higher			
Cholesterol screening	Begin testing at 20 years of age if at high risk for heart disease; discuss need with physician and/or nurse.			
Bone mineral density test	—	—	Dependent on risk factors	At least once at 65 years of age or older
Diabetes (blood glucose test)	If blood pressure is higher than 135/80 mm Hg or if taking antihypertensives			
Mammogram	Discuss with healthcare provider		Every two years	Every two years through age 74
Pap and pelvic exam	Every three years beginning at 21 years of age	Every three years with normal cytology		Discuss with healthcare provider
Chlamydia test	If sexually active or pregnant, yearly until 24 years of age. Continue to perform exam if at high risk.	If at high risk of contracting an STI, this test may be needed.		
Sexually transmitted infections (STIs) tests	Both partners should be tested for STIs, including HIV, before initiating sexual intercourse.			
Colorectal cancer screening (using fecal occult blood testing, sigmoidoscopy, colonoscopy)	Only if symptomatic		Annually	Annually through 75 years of age
Double contrast barium enema (DCBE)	Only if significant risk factors or rectal bleeding		Every 5 to 10 years, only if not having colonoscopy or sigmoidoscopy	
Rectal exam	Only if significant risk factors or rectal bleeding		Every 5 to 10 years	
Vision exam	Every two years			Annually
Hearing test	Every 10 years		Every three years	
Dental exam	One to two times a year, based on risk factors			
Mental health screening	Abuse and depression screen with office visits, based on risk factors and symptoms			
Source: [56; 95; 184; 248; 249; 250; 251; 252; 253]				Table 8

SUMMARY OF ADOLESCENT/ADULT IMMUNIZATION RECOMMENDATIONS			
Agent	Indication	Primary Schedule	Contraindications
Hepatitis B vaccine	Sexually active persons not in long-term, mutually monogamous relationships Persons seeking evaluation or treatment for a STI Persons with occupational risk of exposure to blood or other potentially infectious body fluids Persons with diabetes who are <60 years of age Persons with end-stage renal disease, including hemodialysis patients Persons with chronic liver disease Persons with HIV infection Household contacts Injecting drug users Incarcerated persons Persons with recently acquired STI Travelers to regions where hepatitis B is endemic or epidemic Clients and staff members of institutions for persons with developmental disabilities Pregnancy if at risk for infection or severe outcome from infection during pregnancy (does not include vaccination with Heplisav-B)	Two or three doses, depending on vaccine	Anaphylactic allergy to yeast
Meningococcal vaccine	First-year college students living in dormitories Military recruits Persons with occupational risk of exposure Persons traveling to or residing in areas in which meningococcal disease is hyperendemic or epidemic Asplenic patients Microbiologists who are at risk for exposure HIV-infected persons Anyone with an immune system disorder Anyone exposed during an outbreak	One or more doses Revaccination may be considered after five years if patient remains at increased risk for infection. Two doses at least two months apart for adults with functional asplenia or persistent complement component deficiencies. Two doses for HIV-infected persons.	Hypersensitivity to any component of formulation Persons who are moderately or severely ill
Varicella vaccine	Persons of any age without reliable history of varicella vaccine or disease	Adults who previously received only one dose should receive a second dose.	Anaphylactic allergy to gelatin or neomycin Immunocompromising conditions Pregnancy HIV infection with CD4+ T lymphocyte count of <200 cells/mL
Hepatitis A vaccine	Persons traveling to or working in areas with high or intermediate endemicity of infection Persons with chronic liver disease Persons with clotting factor disorders Illegal drug users Persons through 40 years of age who have recently been exposed to hepatitis A virus	Two doses, 4 to 8 months apart	A history of sensitivity to alum or the preservative 2-phenoxyethanol

Table 9 continues on next page.

SUMMARY OF ADOLESCENT/ADULT IMMUNIZATION RECOMMENDATIONS (*Continued*)

Agent	Indication	Primary Schedule	Contraindications
Tetanus, diphtheria, and acellular pertussis vaccine (Td/Tdap)	Persons of any age without a certain history of Td/Tdap vaccination	Three doses: Second dose at least four weeks after first dose Third dose 6 to 12 months after second Booster: At 10-year intervals throughout life	Neurologic or severe hypersensitivity reaction to prior dose Pregnant women not vaccinated during pregnancy should receive Tdap immediately postpartum
Influenza vaccine	All persons 6 months of age and older	Given annually each fall or winter Persons 6 months of age and older, including pregnant women, can receive the inactivated vaccine (IIV). Adults 18 years of age or older can receive the recombinant influenza vaccine (RIV) if allergic to eggs. Healthy, nonpregnant adults <50 years of age without high-risk medical conditions can receive either intranasally administered live, attenuated influenza vaccine (LAIV), (FluMist), or IIV. Healthcare personnel caring for severely immunocompromised persons should receive IIV or RIV rather than LAIV. Other persons should receive IIV. Intramuscular or intradermal administered IIV are options for adults 18 to 64 years of age Adults 65 years of age and older can receive the standard dose TIV or the high-dose TIV (Fluzone High-Dose).	Anaphylactic allergy to eggs (for IIV) Acute febrile illness Pregnancy (LAIV4) Immunocompromising conditions Asplenia
Pneumococcal polysaccharide vaccine (PPSV)	Adults 65 years of age and older Persons with chronic cardiovascular or pulmonary disorders, splenic dysfunction, renal failure, asthma, hematologic malignancy, immunosuppression, alcoholism, diabetes, cerebrospinal fluid leak, cochlear implant Smokers	One dose for most people. Persons vaccinated prior to 65 years of age should be revaccinated if five years or more have passed since the first dose. A second dose should be given for immunosuppressed, chronic kidney disease, transplant patients, and asplenic patients at least five years after first.	Safety during first trimester of pregnancy has not been evaluated.
Measles, mumps, and rubella vaccine (MMR)	Adults born after 1957 without written documentation of immunization on or after first birthday. Rubella immunity should be determined for women who may become pregnant; they should be vaccinated if not immune and if not currently pregnant.	One or two doses. If a second dose is necessary, administer at least one month after first.	Immunosuppression Anaphylactic allergy to neomycin Pregnancy Immune globulin or blood products in the last 3 to 11 months
Human papillomavirus vaccine	All women 13 to 26 years of age who have not completed the vaccine series at 9 to 12 years of age May be considered for women 27 to 45 years of age	Three doses: Second dose one to two months after first dose Third dose six months after first dose	Pregnancy

Table 9 continues on next page.

SUMMARY OF ADOLESCENT/ADULT IMMUNIZATION RECOMMENDATIONS			
Agent	Indication	Primary Schedule	Contraindications
Herpes zoster vaccine	All adults 60 years or age and older, regardless of whether they have experienced a prior episode of herpes zoster	Two doses, 2 to 6 months apart	Pregnancy Immunocompromising conditions HIV infection with a CD4+ T lymphocyte count of <200 cells/mL
Source: [255; 256; 257]			Table 9

CONCLUSION

Healthcare professionals should provide comprehensive, holistic care that includes every dimension of a woman’s life—emotional, esthetic, physical, spiritual, and experiential—as well as her family and community. Adhering to this philosophy of care allows healthcare professionals to provide women with the means to grow and change. Whether confronting breast cancer, menopause, or everyday decisions about diet and exercise, women should receive support, economical treatment options, and information about community resources from their healthcare providers.

Health professionals should take leadership roles in promoting primary care, primary prevention, and healthy lifestyles for women across the lifespan. Women today lead diverse lives, and the challenges for the women’s health professional are many. Increased funding for women’s health research and new studies on women’s health issues will assist in providing direction to health professionals. Disparity in health outcomes between various racial groups is cause for healthcare education and practice to work toward a community-based response to the health of the public. It is critical that health professionals collaborate with other disciplines and community agencies to improve health outcomes for women and their families. Although there are no “quick-fix” solutions, healthcare providers can make a difference by continuing to progress toward improving women’s health.

Health promotion is an interdisciplinary activity involving the nurse, physician, psychologist, nutritionist, therapist, and social worker, with a focus on the woman’s own perspective. Health professionals should act in partnership with women to promote well-being and healing. Health includes health education, marketing the health message, lifestyle modification, engaging in social and environmental change, and encompassing the patient’s cultural values. In partnership with women, health professionals can support physical and mental health promotion strategies to improve health outcomes for the women, their families, and the community. The major U.S. public health epidemics, including heart disease, obesity, diabetes, substance abuse, and domestic violence, are all amendable to change via health promotion strategies. Nurses and other health professionals are in a position to engage with the patient in motivating and regulating their health-promoting behaviors.

It is an exciting time for women’s health. Women are living longer, and research results and practice strategies hold promise for the prevention and early treatment of health issues. More importantly, women are becoming increasingly informed about health issues.

The key points for health issues distinctive to women across the lifespan are:

- Health is defined in a relational nature between the woman and her environment.

- Health professionals should obtain specific health history data and perform assessment parameters to care for the woman based on her unique health needs, medical history, and risk factors.
- Health issues and risk factors are embedded in cultural beliefs. Health barriers for women of color in the United States have resulted in disparities in quality of care and outcomes.
- Health professionals should conduct physical examinations to identify normal and alterations in normal for women in relation to their stage of the life cycle.
- Interventions for treatment involve collaboration with multidisciplinary professionals to implement recommended traditional and complementary therapies.
- Evidence-based health screening guidelines and immunization recommendations should be implemented in the care of women throughout their lifespan.
- Women's health has evolved into a specialty that focuses on gender-specific care, shared responsibility, and informed treatment options.

The situations highlighted in this course review a few of the major health issues of the contemporary woman. Health professionals are encouraged to utilize further continuing education and other resources to continue their investigation of women's health issues.

Implicit Bias in Health Care

The role of implicit biases on healthcare outcomes has become a concern, as there is some evidence that implicit biases contribute to health disparities, professionals' attitudes toward and interactions with patients, quality of care, diagnoses, and treatment decisions. This may produce differences in help-seeking, diagnoses, and ultimately treatments and interventions. Implicit biases may also unwittingly produce professional behaviors, attitudes, and interactions that reduce patients' trust and comfort with their provider, leading to earlier termination of visits and/or reduced adherence and follow-up. Disadvantaged groups are marginalized in the healthcare system and vulnerable on multiple levels; health professionals' implicit biases can further exacerbate these existing disadvantages.

Interventions or strategies designed to reduce implicit bias may be categorized as change-based or control-based. Change-based interventions focus on reducing or changing cognitive associations underlying implicit biases. These interventions might include challenging stereotypes. Conversely, control-based interventions involve reducing the effects of the implicit bias on the individual's behaviors. These strategies include increasing awareness of biased thoughts and responses. The two types of interventions are not mutually exclusive and may be used synergistically.

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