

# Health Promotion Across the Lifespan

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## Introduction

Health promotion is the process of enabling individuals to increase control over and improve their health. Providing a person with the tools necessary to maintain optimal health is the essence of health promotion, and is done primarily through counseling, education, and shared decision making within a therapeutic relationship. Maintaining optimal health also requires the conduct of specific screening at various intervals throughout life to ensure early detection of the onset of disease states. This chapter provides information about primary and secondary health promotion and disease prevention services that aid in promoting and maintaining health for women across the lifespan. Reproductive life planning includes both primary and secondary prevention strategies and, therefore, is included in a final section. Education and counseling that are recommended for a preconception care visit are reviewed in [Appendix 5A](#).

## The Midwife's Role in Health Promotion

Health promotion is an essential component of midwifery practice. The International Confederation of Midwives' (ICM) *International Definition of the Midwife* articulates the key role that midwives play in health education and counseling for women, their families, and the community.<sup>1</sup> Similarly, the American College of Nurse-Midwives (ACNM) has identified that wellness counseling, health promotion, and disease prevention are part of the scope of practice of certified nurse-midwives (CNMs) and certified midwives (CMs).<sup>2</sup> Both ACNM and ICM address elements of health promotion and disease prevention in their

essential/core competencies for entry-level midwifery practice,<sup>3,4</sup> and ACNM recognizes health promotion, disease prevention, and health education as hallmarks of the art and science of midwifery.<sup>3</sup>

One of the roles of the midwife is to help individuals in becoming empowered to be active participants in maintaining their health.<sup>3,4</sup> Furthermore, aiding women to become empowered to maintain their health and the health of their families, within the context of the communities in which women live, requires that midwives remain aware of the health status of the communities and advocate for policies that promote healthy communities.

## Definition of Terms

Participating in health promotion and health maintenance first requires an understanding of key concepts and terms.

*Health* is defined in a number of ways, based largely on the context in which it is used. The World Health Organization (WHO) defines *health* as “a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity.”<sup>5</sup> The Centers for Disease Control and Prevention (CDC) defines *health* as “a human condition with physical, social, and psychological dimensions, each characterized on a continuum with positive and negative poles. Positive health is associated with a capacity to enjoy life and withstand challenges; it is not merely the absence of disease. Negative health is associated with illness, and in the extreme, with premature death.”<sup>6</sup> If health is conceptualized as occurring along a continuum, the goal of the midwife in health promotion is to identify each individual's

health status and provide the preventive services necessary to keep that status moving in a positive direction.

*Disease*, for the purpose of this chapter, is defined as any disruption in the physical, emotional, or social functioning of a human being that interferes with that person's capacity to maintain optimal physical, emotional, or social health.

*Primary prevention* refers to the delivery of health-care services that focus on preventing disease from occurring in a given population and in individuals.<sup>7</sup> Examples of primary preventive services include immunizations, counseling, and education. At the population/community level, primary preventive services include the implementation of policies that promote clean air, clean water, and workplace safety.

*Secondary prevention* refers to the delivery of healthcare services aimed at early detection of disease states as well as interventions that limit severity and resulting morbidity.<sup>7</sup> Identification of risk factors through a thorough health history and the conduct of regular screening tests at appropriate intervals in a woman's life are perhaps the most powerful secondary preventive services provided by midwives.

*Tertiary prevention* refers to the delivery of healthcare services that restore optimal function, improve health status, and limit long-term disability following the identification of disease.<sup>7</sup> Although midwives are involved in the delivery of tertiary preventive services (the treatment of women with diseases), this chapter focuses on the midwife's role in the provision of primary and secondary preventive services for individual women. Delivery of tertiary preventive services is addressed in other chapters throughout this text.

*Screen* is a term that can be used as a noun or a verb. As a verb, midwives **screen** women for certain disease states as a component of secondary prevention. As a noun, it is the **screen** that is evaluated during testing. Readers will see mention of **screening tests** and **diagnostic tests** throughout this text. In general, *screening tests* are laboratory (or other) tests conducted on asymptomatic, healthy women for the purpose of early detection of health problems. *Diagnostic tests* are laboratory (or other) tests conducted to confirm a diagnosis, often following a positive screen.

## Health Promotion: Primary Prevention

Preventing the onset of chronic disease through primary preventive strategies is the leading goal of health promotion. The United States spends more money on health care than any country in the world.<sup>8</sup> In 2015, an average of \$9990 per person was spent on

health care, representing approximately 18% of the U.S. gross domestic product.<sup>9</sup> Despite the fact that healthcare spending in the United States far exceeds that of other nations, the United States has poorer health outcomes on most measures than any other developed nation.<sup>8</sup> Reasons for the rapid growth in U.S. healthcare spending are multifaceted, although research suggests that the costs associated with the treatment of individuals with chronic diseases are a key contributor.<sup>8-10</sup>

The causes of poor health outcomes in the United States are equally complex. Public health leaders have identified the lack of attention paid to health promotion as a primary contributor.<sup>8,9</sup> Chronic diseases, many of which are preventable, are currently the leading cause of death and disability for adults in the United States. An estimated 50% of adults living in the United States have one or more chronic health problem.<sup>11</sup> Rising rates of chronic disease include conditions that are largely consequences of modifiable health risk behaviors such as poor nutrition and sedentary lifestyle.<sup>11</sup> Associated conditions such as type 2 diabetes, hypertension, and heart disease place a financial burden on healthcare delivery systems and increase the risk of decreased quality of life and premature death for the individual.<sup>8-11</sup> A substantial body of evidence demonstrates that increasing preventive health services to improve population health can lead to reduced healthcare spending,<sup>8,9</sup> increased productivity, and improvements in quality of life.<sup>8-11</sup>

## Education and Counseling

The leading causes of death in women—which include heart disease, cancer, stroke, chronic respiratory disease, and diabetes<sup>12</sup>—are strongly associated with lifestyle-related behaviors. In turn, modifying behaviors such as inactivity, poor dietary habits, and tobacco use can often reduce a woman's risk for disease-related morbidity and early death. To achieve this goal, midwives and other healthcare providers use counseling and education aimed at improving personal health practices as tools for health promotion.<sup>13</sup> It is important to implement these interventions in such a way that the counseling and education are meaningful to each individual.<sup>14</sup> An individualized education and counseling plan is based primarily on the findings of a thorough health history and physical examination during which the midwife identifies the health risks that need to be addressed.

## Learning Theory

Most persons are unlikely to benefit from provider-driven teaching, in which the midwife decides what the

individual needs to know and when that person needs the information. Instead, all persons are more likely to understand and implement the information provided during a teaching/counseling session when the learning is person centered—in other words, when that person has identified a need to know and demonstrates a readiness to learn, and when the learning builds on prior experience(s).

The principles of adult learning provide a framework within which health education can be customized to meet each woman's needs. The primary goal of adult learners is to acquire skills and resources that can be applied in their daily lives, rather than simply to acquire information. Adolescents who have begun to take responsibility for making their lifestyle decisions will also benefit from the self-directed learning that may be facilitated using the principles of adult learning, as summarized in **Table 5-1**.<sup>15</sup> For adults, learning is a process for which the “teacher” becomes a facilitator.

Recognizing the external motivators for adult learners is an important first step in establishing a health promotion plan. By investigating *why* the person wants to change behavior—that is, what she or he deems to be the benefit of behavior change—the midwife gains valuable insight into *which types* of interventions will be most effective in helping someone achieve their goals. The person's talents and skills, combined with their existing beliefs, can be incorporated into the approach used to achieve behavior change. For example, when establishing a plan to increase physical

activity, it is important to understand that adolescents may be interested in skill acquisition, helping others, making friends, or physical appearance. Women of all ages may view physical activity as an outlet for stress; as a way to lose weight, prevent weight gain, and tone muscles; as a way to maintain or increase physical strength; as a means by which to meet new friends; or as the best prevention for diseases such as diabetes or hypertension. Within the parameters of these motivations, the midwife can work with each individual to identify types of exercise or activity that are likely to be incorporated into that person's life.

An important component of any teaching and counseling plan is the provision of anticipatory guidance. The advent of the Internet and today's ready access to multiple sources of health information have led to a wide range of personal knowledge about health. Some individuals will be well informed but others do not have access to health information. It is, therefore, incumbent upon the midwife to anticipate the healthcare needs of each person (based on risk factors) and provide individualized counseling about appropriate health services across the lifespan.

### **Content to Address During Counseling and Education**

After determining how to present the information, the next important step is to identify which content to address during a given clinical encounter. Again, using the principles of adult learning, this step is completed with the individual and the midwife acting in partnership. Women often present to a clinical encounter with specific questions for their healthcare providers. In those instances, it is easy to design a teaching plan based on the explicitly expressed needs of the woman. Whether the woman presents for a lengthy appointment for a full physical examination or for a brief appointment and targeted examination for a specific concern, it is important for the midwife to honor (and respond to) the learning needs that are identified by the woman, especially when the time spent with the woman is limited.

Time is a precious commodity in a busy practice setting. When designing a teaching/counseling plan, only information about topics for which evidence of effectiveness exists should be included. Spending time on the delivery of care or services that are not evidence based means that less time can be devoted to care and services for which there is evidence of effectiveness. Moreover, in 2003, the Institute of Medicine issued a report recommending that all health professionals be educated to deliver patient-centered care with an emphasis on evidence-based practice.<sup>16</sup>

**Table 5-1 Principles of Adult Learning Theory**

<p>Adults need to know why they need to learn something before learning it.</p> <p>The self-concept of adults is heavily dependent upon a move toward self-direction.</p> <p>Prior experiences of the learner provide a rich resource for learning.</p> <p>Adults typically become ready to learn when they experience a need to cope with a life situation or perform a task.</p> <p>Adults' orientation to learning is life centered; education is a process of developing increased competency levels to achieve their full potential.</p> <p>The motivation for adult learners is internal rather than external.</p>
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Based on Knowles MS, Holton EF, Swanson RA. *The Adult Learner: The Definitive Classic in Adult Education and Human Resource Development*. 8th ed. New York, NY: Routledge; 2015.<sup>15</sup>

## Evidence-Based Counseling Interventions

For the past 2 decades, healthcare providers have been strongly encouraged to participate in evidence-based practice (EBP), referring to the delivery of evidence-based care. One of the earliest definitions of evidence-based practice was “the conscientious, explicit, and judicious use of current best evidence in making decisions about the care of individual patients. The practice of evidence-based medicine means integrating individual clinical expertise with the best available clinical evidence from systematic research.”<sup>17</sup> ACNM has recognized the importance of providing care based on scientific knowledge of best practices and defines evidence-based practice as “the integration of the best research evidence with clinical expertise and client values.”<sup>18</sup> Values and preferences include anything that makes an individual woman unique, such as religious and cultural beliefs, literacy level, and the woman’s prior experience and knowledge.

### U.S. Preventive Services Task Force

Professional organizations such as the American Congress of Obstetricians and Gynecologists and the American Cancer Society have been advancing recommendations regarding preventive services for several decades. However, it was not until the 1989 publication of *Guide to Clinical Preventive Services* by the U.S. Preventive Services Task Force (USPSTF) that healthcare professionals were provided with recommendations that were based on an unbiased review of scientific evidence. The mission of the USPSTF is “to improve the health of all Americans by making evidence-based recommendations about clinical preventive services and health promotion. These recommendations, which are developed for primary care clinicians are grounded in science, include screening tests, counseling about healthful behaviors, and preventive medications.”<sup>19</sup> The recommendations of the USPSTF are considered the “gold standard” for clinical preventive services.<sup>19</sup>

Adopting evidence-based practices is not always easy. One of the fundamental ethical principles upon which healthcare delivery is based is the principle of nonmaleficence, or “doing no intentional harm.” Consequently, accepting new evidence that suggests a previously accepted clinical practice may be harmful can be challenging. For example, in 2009, the USPSTF published new recommendations for breast cancer screening, which included a recommendation *against* teaching women without known risk factors for breast cancer to do breast self-examination: The scientific

evidence revealed moderate certainty that the harms associated with teaching breast self-examination outweigh the benefits in this population.<sup>20</sup> Many midwives have been teaching breast self-examination since they began clinical practice and can cite examples of women who were adamant that their lives were saved because they found a mass during self-examination. However, implementing evidence-based preventive services requires that midwives establish individualized plans for health promotion that are based on best evidence rather than what they “believe” is best practice. At best, time spent teaching breast self-examination is an inefficient use of time that could have otherwise been spent on the delivery of care that is evidence based; at worst, time spent teaching breast self-examination may actually be harmful.

To aid clinicians in selecting evidence-based approaches, the USPSTF provides recommendations for clinical preventive services, including counseling interventions. The USPSTF recommendations reflect the strength of the available evidence and the magnitude of net benefit from the intervention (i.e., benefit minus harms). Professionals may find minor differences in the grading of evidence by the USPSTF based on the year in which the recommendations were made. Recommendations from 2012 to the present (**Table 5-2**) are based on categories that were slightly modified from the pre-2007 scale.<sup>21</sup> Grades A and B remain interventions that should be offered to women. **Table 5-3** identifies the level of certainty regarding the net benefits associated with healthcare practices.<sup>21</sup> Both the grading scale and level of certainty are used to evaluate specific therapeutic interventions or techniques.

Although the USPSTF has provided many recommendations to implement preventive services that are evidence based (A and B grade services), there remain some services for which there is insufficient evidence to make a recommendation (I grade) and some services for which there is a moderate degree of certainty that the net benefit is small (C grade). Decisions to use those services are reached through shared decision making, in which the midwife and the individual decide together whether to use a given service. When these services are used, the recipient of care should be informed about the lack of available evidence (or conflicting evidence) that supports use of the service.

The USPSTF recommendations are frequently updated. As new evidence regarding preventive health services emerges, recommendations are modified to reflect the current body of evidence. Presented in this chapter are the major counseling interventions recommended by the USPSTF, at the time of this



Table 5-2 U.S. Preventive Services Task Force Grade Definitions After July 2012

Grade	Definition	Suggestions for Practice
A	The USPSTF recommends the service. There is high certainty that the net benefit is substantial.	Offer or provide this service.
B	The USPSTF recommends the service. There is high certainty that the net benefit is moderate or there is moderate certainty that the net benefit is moderate to substantial.	Offer or provide this service.
C	The USPSTF recommends selectively offering or providing this service to individual patients based on professional judgment and patient preferences. There is at least moderate certainty that the net benefit is small.	Offer or provide this service for selected patients depending on individual circumstances.
D	The USPSTF recommends against the service. There is moderate or high certainty that the service has no net benefit or that the harms outweigh the benefits.	Discourage the use of this service.
I Statement	The USPSTF concludes that the current evidence is insufficient to assess the balance of benefits and harms of the service. Evidence is lacking, of poor quality, or conflicting, and the balance of benefits and harms cannot be determined.	Read the clinical considerations section of USPSTF Recommendation Statement. If the service is offered, patients should understand the uncertainty about the balance of benefits and harms.

Abbreviation: USPSTF, U.S. Preventive Services Task Force.

Reproduced with permission from U.S. Preventive Services Task Force. Grade definitions. 2016. Available at: <https://www.uspreventiveservicestaskforce.org/Page/Name/grade-definitions>. Accessed June 5, 2017.<sup>21</sup>

text's publication. Readers are advised to regularly review the USPSTF website for updates to these recommendations, and for the addition of new recommendations for preventive services. Links to this website are provided in the Resources list at the end of the chapter.

### Behavioral Counseling Interventions

*Behavioral counseling interventions* include education, counseling, and other interventions provided in primary care settings that are focused on assisting individuals to adopt new behaviors, change existing behaviors that lead to poor health outcomes, and maintain behaviors that improve health status.<sup>22</sup> Most of the counseling interventions that are recommended for women involve the implementation of some type of lifestyle change or avoidance of risky behaviors.

### Alcohol Misuse

Alcohol is the third leading cause of preventable deaths in the United States,<sup>23</sup> and diseases caused by alcohol misuse, including fetal alcohol syndrome, are preventable. Risks associated with excessive alcohol use in women include liver disease, heart disease, brain damage, some forms of cancer, sexual assault, unintended pregnancy and sexually transmitted

infections, accidental injury, and premature death. According to the CDC, 53.6% of nonpregnant women and 10.2% of pregnant women use alcohol.<sup>24</sup> An estimated 18.2% of nonpregnant women and 3.1% of pregnant women report participating in episodic (binge) drinking, which the CDC defines as the consumption of more than three alcoholic beverages on one occasion (for women).<sup>24</sup> For women who are not pregnant, an occasional drink is generally considered safe. However, no level of alcohol use is considered safe during pregnancy. Complete abstinence from consuming alcohol is recommended for women who are pregnant or trying to become pregnant.<sup>24,25</sup> For pregnant women, any consumption of alcohol may cause fetal alcohol syndrome, other disorders along the fetal alcohol spectrum, and/or other adverse fetal/neonatal outcomes.<sup>24,25</sup>

The USPSTF uses the term "alcohol misuse" to describe a range of behaviors that includes risky or hazardous drinking, harmful alcohol use, alcohol abuse and alcohol dependence.<sup>24</sup> Screening for alcohol misuse and provision of counseling interventions to reduce alcohol misuse is recommended for all adults in all primary care settings. To date, the USPSTF has found insufficient evidence to recommend for or against screening and counseling interventions for adolescents.<sup>24</sup>

Table 5-3 Levels of Certainty Regarding Evidence of Net Benefit

Level of Certainty <sup>a</sup>	Description
High	The available evidence usually includes consistent results from well-designed, well-conducted studies in representative primary care populations. These studies assess the effects of the preventive service on health outcomes. This conclusion is therefore unlikely to be strongly affected by the results of future studies.
Moderate	The available evidence is sufficient to determine the effects of the preventive service on health outcomes, but confidence in the estimate is constrained by such factors as: <ul style="list-style-type: none"> <li>The number, size, or quality of individual studies.</li> <li>Inconsistency of findings across individual studies.</li> <li>Limited generalizability of findings to routine primary care practice.</li> <li>Lack of coherence in the chain of evidence.</li> </ul> As more information becomes available, the magnitude or direction of the observed effect could change, and this change may be large enough to alter the conclusion.
Low	The available evidence is insufficient to assess effects on health outcomes. Evidence is insufficient because of: <ul style="list-style-type: none"> <li>The limited number or size of studies.</li> <li>Important flaws in study design or methods.</li> <li>Inconsistency of findings across individual studies.</li> <li>Gaps in the chain of evidence.</li> <li>Findings not generalizable to routine primary care practice.</li> <li>Lack of information on important health outcomes.</li> </ul> More information may allow estimation of effects on health outcomes.

<sup>a</sup> The USPSTF defines certainty as “likelihood that the USPSTF assessment of the net benefit of a preventive service is correct.” The net benefit is defined as benefit minus harm of the preventive service as implemented in a general, primary care population. The USPSTF assigns a certainty level based on the nature of the overall evidence available to assess the net benefit of a preventive service.

Reproduced with permission from U.S. Preventive Services Task Force. Grade definitions. 2016. Available at: <https://www.uspreventiveservicestaskforce.org/Page/Name/grade-definitions>. Accessed June 5, 2017.<sup>21</sup>

Levels of drinking behavior are also defined by various groups or organizations. For example, the *Dietary Guidelines for Americans* (developed by the U.S. Department of Health and Human Services and the U.S. Department of Agriculture) define moderate drinking as “up to 1 drink per day for women and up to 2 drinks per day for men.”<sup>25</sup> Binge drinking is defined by the National Institute on Alcohol Abuse and Alcoholism as alcohol consumption that results in a blood alcohol concentration to 0.08 g/dL, which typically happens after consumption of 5 drinks for men and 4 drinks for women over a 2-hour time period.<sup>25</sup>

These definitions also illustrate the difference between screening and assessment: The purpose of *screening* is to identify persons who may have a problem with alcohol misuse based on their level of drinking behavior, while the purpose of *assessment* is to identify the extent of the alcohol problem for persons who have a positive screen.<sup>26</sup> As primary care providers, the recommendation for midwives is

to periodically screen all clients and provide a brief intervention to reduce alcohol misuse; women who continue to misuse alcohol may be alcohol dependent and may need to be referred for further assessment and treatment.<sup>24,26</sup>

Ideally, screening for alcohol misuse should take place in settings that allow for assessment and follow-up of persons with a positive screen. Midwives who work in settings without resources for follow-up care will need to identify healthcare providers in the community (or surrounding area) to whom individuals with a positive screen can be referred.

Screening for alcohol misuse begins by asking the woman how much alcohol she drinks. If the woman indicates that she never consumes any alcohol, the screen is complete. Documentation in the medical record should include the finding of a negative screen for alcohol misuse and a plan to rescreen in one year. If the woman indicates that she consumes any alcohol, the screen continues using a reliable screening instrument.

The USPSTF recommends using the Alcohol Use Disorders Identification Test (AUDIT), Alcohol Use Disorders Identification Test—Consumption (AUDIT-C), or a single-question screen to assess for alcohol misuse in primary care settings.<sup>23</sup> The easiest of these instruments to administer is the single-question screen, in which the midwife simply asks a woman

about how many times during the past year she consumed 4 or more drinks in one day; a response of one or more times in the last year is considered a positive screen and signals the need to complete the full AUDIT.<sup>27</sup> The full AUDIT screen is presented in **Table 5-4**.<sup>28</sup> The AUDIT-C (**Table 5-5**<sup>29</sup>) is an abbreviated version of the AUDIT and takes just 1 to 2 minutes

**Table 5-4 The Alcohol Use Disorders Identification Test (AUDIT)**

- |   |   |
|---|---|
| <p>1. How often do you have a drink containing alcohol?</p> <ul style="list-style-type: none"> <li>(0) Never (Skip to Questions 9–10)</li> <li>(1) Monthly or less</li> <li>(2) 2 to 4 times a month</li> <li>(3) 2 to 3 times a week</li> <li>(4) 4 or more times a week</li> </ul> <p>2. How many drinks containing alcohol do you have on a typical day when you are drinking?</p> <ul style="list-style-type: none"> <li>(0) 1 or 2</li> <li>(1) 3 or 4</li> <li>(2) 5 or 6</li> <li>(3) 7, 8, or 9</li> <li>(4) 10 or more</li> </ul> <p>3. How often do you have six or more drinks on one occasion?</p> <ul style="list-style-type: none"> <li>(0) Never</li> <li>(1) Less than monthly</li> <li>(2) Monthly</li> <li>(3) Weekly</li> <li>(4) Daily or almost daily</li> </ul> <p>4. How often during the last year have you found that you were not able to stop drinking once you had started?</p> <ul style="list-style-type: none"> <li>(0) Never</li> <li>(1) Less than monthly</li> <li>(2) Monthly</li> <li>(3) Weekly</li> <li>(4) Daily or almost daily</li> </ul> <p>5. How often during the last year have you failed to do what was normally expected from you because of drinking?</p> <ul style="list-style-type: none"> <li>(0) Never</li> <li>(1) Less than monthly</li> <li>(2) Monthly</li> <li>(3) Weekly</li> <li>(4) Daily or almost daily</li> </ul> | <p>6. How often during the last year have you been unable to remember what happened the night before because you had been drinking?</p> <ul style="list-style-type: none"> <li>(0) Never</li> <li>(1) Less than monthly</li> <li>(2) Monthly</li> <li>(3) Weekly</li> <li>(4) Daily or almost daily</li> </ul> <p>7. How often during the last year have you needed an alcoholic drink first thing in the morning to get yourself going after a night of heavy drinking?</p> <ul style="list-style-type: none"> <li>(0) Never</li> <li>(1) Less than monthly</li> <li>(2) Monthly</li> <li>(3) Weekly</li> <li>(4) Daily or almost daily</li> </ul> <p>8. How often during the last year have you had a feeling of guilt or remorse after drinking?</p> <ul style="list-style-type: none"> <li>(0) Never</li> <li>(1) Less than monthly</li> <li>(2) Monthly</li> <li>(3) Weekly</li> <li>(4) Daily or almost daily</li> </ul> <p>9. Have you or someone else been injured as a result of your drinking?</p> <ul style="list-style-type: none"> <li>(0) No</li> <li>(2) Yes, but not in the last year</li> <li>(4) Yes, during the last year</li> </ul> <p>10. Has a relative, friend, doctor, or another health professional expressed concern about your drinking or suggested you cut down?</p> <ul style="list-style-type: none"> <li>(0) No</li> <li>(2) Yes, but not in the last year</li> <li>(4) Yes, during the last year</li> </ul> |
|---|---|

Add up the points associated with answers. A total score of 8 or more indicates harmful drinking behavior (a positive screen).

**Table 5-5** AUDIT-C Questionnaire

1. How often do you have a drink containing alcohol?
  - a. Never
  - b. Monthly or less
  - c. 2 to 4 times a month
  - d. 2 to 3 times a week
  - e. 4 or more times a week
2. How many standard drinks containing alcohol do you have on a typical day?
  - a. 1 or 2
  - b. 3 or 4
  - c. 5 or 6
  - d. 7 to 9
  - e. 10 or more
3. How often do you have six or more drinks on one occasion?
  - a. Never
  - b. Less than monthly
  - c. Monthly
  - d. Weekly
  - e. Daily or almost daily

**The AUDIT-C is scored on a scale of 0–12. For each question, a = 0 points; b = 1 point; c = 2 points; d = 3 points; e = 4 points.**

In women, a score of  $\geq 3$  is considered a positive screen.

Reproduced with permission from Substance Abuse and Mental Health Services Administration, HRSA Center for Integrated Health Solutions. AUDIT-C Overview. 2014. Available at: <http://www.integration.samhsa.gov/clinical-practice/screening-tools#drugs>. Accessed June 8, 2017.<sup>29</sup> Scoring matrix modified with permission from Substance Abuse and Mental Health Services Administration.

to complete. After assuring the woman that the information she shares will remain confidential, the midwife can administer any of these instruments during the collection of a complete health history or separately for a brief assessment of alcohol misuse. As is true for the entire health history, it is important to remain nonjudgmental when asking questions about sensitive topics such as alcohol use.

Most women who use alcohol do so within the limits that are considered safe. For these women, the goal of behavioral counseling is to prevent the onset of risky or hazardous drinking. Counseling should include reminders about safe use limits and recommendations for abstinence when necessary (such as

**Table 5-6** 5 A's for Alcohol Misuse

**Assess** or ask the person about alcohol use and desire to change behavior.

**Advise** the person to change risky behavior using a personalized approach that includes information about the harmful effects of alcohol use and benefits of changing behavior.

**Agree upon** treatment goals and approaches to changing behavior.

**Assist** the person in achieving agreed-upon goals by providing education, support and encouragement, and formal counseling when necessary. This may include helping the individual identify sources of social support for change.

**Arrange** follow-up visits for ongoing assistance with behavioral change and referral to treatment when necessary.

Note: Although these questions have been developed to conduct a brief intervention for alcohol misuse, they can be modified for use with brief interventions to aid women with other behavioral changes such as tobacco use or weight loss.

Based on Whitlock EP, Orleans CT, Pender N, Allan J. Evaluating primary care behavioral counseling interventions: an evidence-based approach. *Am J Prev Med.* 2002;22(4): 267-284.<sup>30</sup>

when pregnant or planning a pregnancy, or when medication use or other health conditions warrant abstinence).<sup>26</sup> Documentation in the health record should include the finding of a negative screen for alcohol misuse and plans to rescreen in one year.

The USPSTF recommends behavioral counseling interventions for women with a positive screen for risky or hazardous drinking and referral for further assessment and treatment for women in whom alcohol abuse or dependence is suspected.<sup>23</sup> For women with a positive screen, several counseling interventions are available that are designed for use in primary care settings. The brief intervention recommended by the National Institute on Alcohol Abuse and Alcoholism<sup>26</sup> is based on the 5 A's construct (assess, advise, agree, assist, arrange), as outlined in **Table 5-6**.<sup>30</sup> The same approach may also be of value when identifying the use of other substances separate from or in addition to alcohol. Additional resources for clinicians who conduct brief interventions in clinical settings are provided in the Resources list at the end of this chapter.

Informing a woman about the finding of a positive screen and the need for referral must be done with sensitivity. The best approach is to tell the woman that her responses to the screening questions raise



a concern that her alcohol use may be harmful and that she would benefit from meeting with a provider who specializes in alcohol counseling. For example, the midwife might address the referral in the following way:

*One of the things we know about alcohol is that it can cause serious health problems for women who drink more than what is considered safe. For women, having more than seven drinks per week or more than three drinks on one occasion is considered “risky or hazardous” drinking.<sup>23,26</sup> Based on your response to the questions I asked about alcohol use, your use of alcohol may fall into the “harmful” category. It may be that this is not the case, but just to be sure, I would like you to see one of my colleagues who is very skilled at assessing alcohol use and at helping women make changes in their alcohol use before it has a negative effect on their health.*

Documentation in the woman’s health record includes the finding of a positive screen for alcohol misuse, a description of the behavioral counseling intervention that was provided and/or referrals that were made, and the plan for return visits for ongoing support.

### **Breastfeeding**

The benefits of breastfeeding for women and infants are well documented. Although breastfeeding rates are increasing,<sup>31</sup> the United States has not yet met the *Healthy People 2020* goals for infant feeding, which include increasing the proportion of infants who are ever breastfed to 81.9%, the number of infants breastfed at 6 months to 60.6%, and the number of infants breastfed at 1 year to 34.1%.<sup>32</sup>

Interventions in primary care settings to promote breastfeeding result in increased rates of breastfeeding initiation as well as increased duration of breastfeeding. Therefore, the USPSTF recommends interventions during pregnancy and the postpartum period to promote breastfeeding and provide ongoing support for women who choose to breastfeed.<sup>33</sup> The most effective interventions use combined approaches to breastfeeding support, such as promoting the benefits of breastfeeding, providing practical advice and formal education for women and families, direct support, health professional training in breastfeeding support, and peer support and counseling.<sup>33</sup> Breastfeeding education and counseling is reviewed in the *Prenatal Care* and *Breastfeeding and the Mother–Newborn Dyad* chapters.

### **Dental Health**

Dental health is often not considered by primary care providers, yet dental disease can have profound adverse effects on health such as increasing risk of cardiovascular disease among all individuals and increasing the risk of preterm birth for women who are pregnant. The last USPSTF recommendations for counseling interventions to prevent dental disease were established in 1996. Those recommendations were to counsel individuals to floss and brush their teeth daily with a fluoride-containing toothpaste and to regularly see a dental provider.<sup>34</sup> Since that time, there has been no new evidence regarding the primary provider’s role in promoting oral health, so the USPSTF has elected to maintain the 1996 recommendation and not modify it.<sup>35</sup> Recommendations of the CDC aimed at maintaining good oral health include drinking fluoridated water, brushing teeth with fluoridated toothpaste and flossing, visiting the dentist regularly, not using tobacco, limiting alcoholic beverages, maintaining control of diabetes and other chronic diseases, avoiding medications that cause dry mouth, and drinking plenty of water if dry mouth cannot be avoided.<sup>36</sup>

### **Dietary Counseling**

The benefits of healthy eating and the risks associated with an unhealthy diet are well documented. Of the 10 leading causes of death in women, four are related to diet—namely, heart disease, certain forms of cancer, stroke, and diabetes.<sup>12</sup> Assessing the dietary counseling needs of individual women first requires the collection of a 24- to 48-hour recall diet history to evaluate nutritional and caloric intake, determination of height and weight for calculation of body mass index (BMI), and obtaining a health history for identification of risk factors that may be related to diet.

A BMI of less than 18.5 is considered “underweight”; a BMI in the range 18.5–24.9 is considered “normal”; a BMI in the range 25–29.9 is considered “overweight”; and a BMI of 30 or higher is considered “obese.”<sup>37</sup> Women whose weight is categorized as underweight, overweight, or obese are at increased risk for weight-related morbidity and mortality. Poor dietary intake is a modifiable risk factor for several diseases, including certain forms of cancer and coronary artery disease. As such, improving dietary intake can result in improvements in overall health status, especially for women with additional risk factors (e.g., hypertension, dyslipidemia, impaired fasting glucose, metabolic syndrome, and family history) for diet-related diseases.<sup>38</sup> The USPSTF also recommends

screening all women for obesity (using BMI) and offering women with a BMI of 30 or higher intensive, multicomponent behavioral interventions.<sup>39</sup> Intensive behavioral counseling interventions that address diet and physical activity are also recommended for adults who are overweight or obese and who have additional risk factors for cardiovascular disease.<sup>38</sup> The decision to offer diet counseling to women who are not obese and do not have risk factors for coronary artery disease should be made on an individual basis based on the healthcare needs of the woman.<sup>39</sup>

The *Nutrition* chapter contains a detailed description of dietary recommendations and healthy eating. Similar to the brief intervention for alcohol misuse, the 5 A's construct can provide a framework for behavioral counseling interventions for women who are overweight or obese.<sup>40</sup> The 5 A's for alcohol misuse can be modified for use with women who are overweight or obese. Midwives may also consider referral to programs or clinicians who specialize in intensive, counseling interventions.<sup>38</sup> Documentation in the health record should include findings of the dietary assessment, health risk assessment, BMI, and a description of the counseling and/or referral that was provided.

### **Genetic Assessment for Cancer Risk**

Breast cancer is a leading cause of death for women in the United States. In 2014, nearly 237,000 women were diagnosed with breast cancer in the United States, and more than 41,000 women died from breast cancer in that same year.<sup>41</sup> The two most influential risk factors for breast cancer are gender and age; most breast cancers are discovered in women who are 50 years or older. Another important risk factor for breast cancer is a harmful mutation of the breast cancer susceptibility genes (*BRCA1* or *BRCA2*).<sup>41</sup> Mutations of the *BRCA1* and *BRCA2* genes are primarily associated with significant increases in risk for breast, ovarian, and fallopian tube cancers, but are also related to other forms of cancer.<sup>42</sup>

Collection of a complete health history should include a thorough assessment of a woman's family history, including her family's history of cancer. More specifically, a thorough family history includes identification and documentation of which family members were affected, the specific type of cancer and cancer site, age at diagnosis and gender of affected family members, and any family members with more than one type of cancer.<sup>42</sup> Seven findings in a family history are associated with an increased likelihood of harmful BRCA mutations. Findings associated with an increased risk for BRCA mutation include a family

history of (1) breast and ovarian cancer, (2) breast cancer diagnosis prior to age 50 years, (3) bilateral breast cancer, (4) multiple cases of breast cancer in the family, (5) breast cancer in one or more male family members, (6) one or more family members with two types of BRCA-related cancer, and (7) Ashkenazi Jewish ethnicity.<sup>42</sup> Women whose family history includes one or more of these findings should be offered additional screening for genetic risks.

One of several familial risk stratification tools that can reliably detect women who should be offered genetic counseling can be used.<sup>42</sup> Previously validated screening tools include the Ontario Family History Assessment Tool, Manchester Scoring System, Referral Screening Tool, Pedigree Assessment Tool, and the Family History Screen—7 (FHS-7). The easiest of these instruments to use in primary care settings are the Referral Screening Tool and the FHS-7.<sup>42</sup> Both tools can be found online, and the links are included in the Resources list at the end of this chapter. The USPSTF further recommends that women with a positive screen be referred to a healthcare provider who is trained to conduct genetic counseling for additional assessment and counseling and genetic testing if indicated and if the woman chooses to obtain genetic testing.<sup>42</sup>

Midwives can initiate the process of screening and counseling as part of the well-women history and physical examination. Counseling should include reassurance that the findings of the health history provide a basic screen for cancer risk, and that although most women have one or more risk factors, most women do not develop cancer.<sup>41</sup> Documentation in the health record should include findings related to the family history and, if used, findings from the validated screening tool as well as a description of the counseling and referral that was provided for women with a positive screen. A detailed discussion about BRCA screening can be found in the *Breast Conditions* chapter.

One of the challenges in the many steps of screening and counseling about BRCA-related mutations can be the (lack of) availability of trained genetic counselors. Furthermore, even when genetic counseling is available, this service may not be covered by insurance and may present a significant cost for women whose initial screening indicates the need for referral. Midwives are advised to familiarize themselves with the availability and costs associated with genetic counseling services. These services include those available in the woman's community and surrounding areas as well as genetic counseling services available by telephone and online, which are recommended for women who

would otherwise lack access to genetic counseling services.<sup>42</sup> A link to genetic counseling resources can be found in the Resources list at the end of this chapter.

### Injury Prevention

Unintentional injury is the sixth leading cause of death in women in the United States.<sup>12</sup> Injuries related to motor vehicle crashes are the leading cause of death for individuals age 1–54 years.<sup>43</sup> Although such injuries are usually related to accidents and, therefore, are difficult to control, the USPSTF recognizes several interventions that can effectively limit the risk for unintentional injury. There is insufficient evidence to assess the balance of benefits and harms of counseling individuals about proper use of seat belts and child safety seats, however.<sup>43</sup>

One reason for this equivocation is that legislative action and community-based intervention, combined with counseling in the primary care setting, have already led to substantial increases in the number of persons in the United States who properly use motor vehicle restraints.<sup>44</sup> Approximately 87% of front-seat occupants now use seat belts, and the rate of seat belt use for rear-seat occupants is estimated at 78%.<sup>44</sup> Whether regularly counseling women in primary care settings would increase proper use rates even further is largely unknown. Nevertheless, the USPSTF and the CDC recognize that harms from

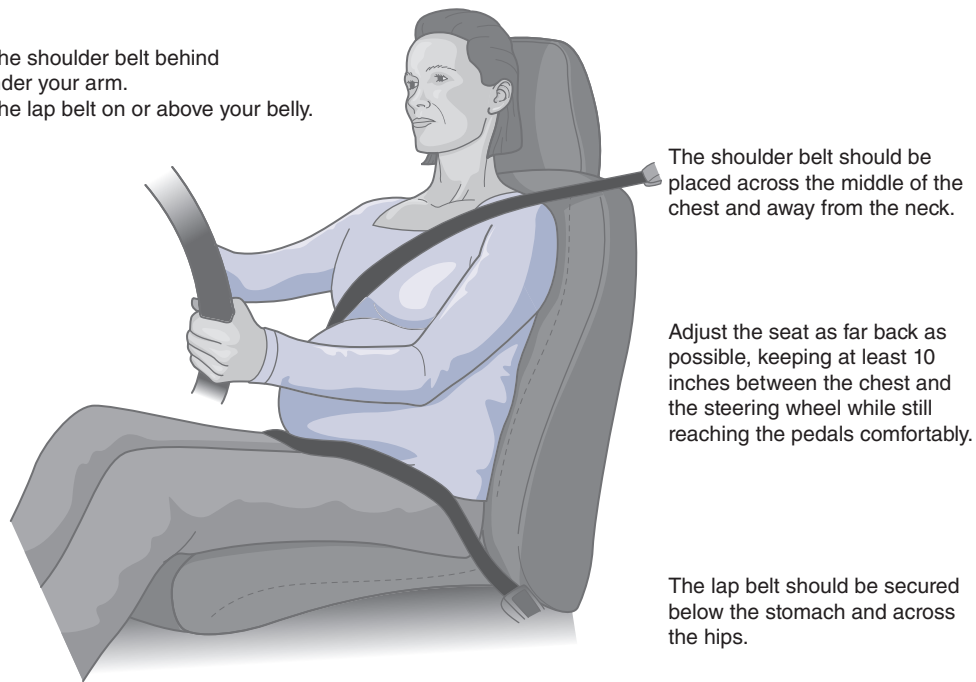
counseling about proper motor vehicle safety restraints are minimal to absent.<sup>45</sup>

Improved seat belt use and reduced rates of alcohol-impaired driving would likely have the greatest effect in lowering rates of motor vehicle fatalities.<sup>44</sup> Therefore, counseling women to use motor vehicle restraints properly is likely to cause no harm and may lead to further reductions in motor vehicle–related injury and death. The CDC recommends that healthcare providers counsel parents and caregivers of children about the importance of using age- and weight-appropriate car seats and restraints at all times. The CDC also recommends providing resources about safe teen driving for parents of teenagers.<sup>43</sup>

Proper use of adult restraints includes wearing the seat belt at all times and making sure that the lap and shoulder belts are properly positioned across the pelvis and ribcage. The shoulder belt should be placed across the middle of the chest and away from the neck; the lap belt should be secured below the stomach and across the hips.<sup>46</sup> Women who are pregnant should be advised to wear a seat belt with the shoulder strap laying across the chest (between the breasts) and away from the neck. The lap belt should be secured below the abdomen so that it fits snugly across the hips and pelvic bone, as illustrated in [Figure 5-1](#). Pregnant women should be further advised to adjust the seat as far back as possible, such that the foot pedals can be comfortably operated and at

#### Warnings:

- NEVER place the shoulder belt behind your back or under your arm.
- NEVER place the lap belt on or above your belly.



**Figure 5-1** Proper placement of seat belt for women during pregnancy.

least 10 inches is maintained between the chest and the steering wheel.<sup>47</sup>

One third of automobile accident–related deaths in the United States involve drunk driving, and there are no identified harms associated with counseling about driving and drinking.<sup>43</sup> Counseling to reduce the incidence of driving under the influence of alcohol or other drugs is similar to counseling about the use of motor vehicle safety restraints. One approach is to include information about “drinking and driving” in behavioral counseling interventions for individuals who screen positive for alcohol misuse.<sup>24</sup> Counseling should include a discussion about determining a designated driver and establishing a plan for alternative transportation when in the company of an impaired driver.

Distracted driving is a relatively newly identified phenomenon, and interventions to prevent morbidity and mortality related to this practice have not been evaluated by the USPSTF. *Distracted driving* refers to driving while doing other things—most specifically, talking on a cell phone and sending/reading text messages. In 2015, nearly 3500 persons were killed and 391,000 persons were injured in the United States in motor vehicle accidents caused by distracted driving.<sup>48</sup> As is true for counseling about the dangers associated with drinking and driving, counseling about the dangers associated with distracted driving, with strong recommendations to refrain from talking on hand-held cell phones and sending/reading text messages, may result in fewer distracted driving–related automobile accidents.

For women age 65 years and older, falls are the leading cause of injury-related death and the most common cause of nonfatal injuries and trauma-related hospitalization.<sup>49</sup> The USPSTF recommends regular exercise or physical therapy and vitamin D supplementation for falls prevention in women age 65 years and older who are at increased risk for falls.<sup>50</sup> One way to assess a woman’s fall risk is to ask her three questions:

1. Have you fallen in the past year?
2. Do you feel unsteady when standing or walking?
3. Do you worry about falling?

A “yes” response to one or more of the questions signals a positive screen.<sup>51</sup>

Recommendations for exercise include participation in weight-bearing exercises, leg-strengthening exercises, and exercises that improve balance (such as Tai Chi) at home or in group exercise classes.<sup>50</sup> The recommended dose of supplemental vitamin D for individuals at increased risk for falls is 800 IU per day.<sup>50</sup> Additional recommendations to reduce falls in women age 65 years and older include the identification of, and warning women about, medications that cause dizziness or drowsiness; reducing tripping hazards in the home, along with the addition of grab bars and

improved lighting; and yearly eye examination with update of corrective lenses as needed.<sup>51</sup>

### Physical Activity

Adequate physical activity is a factor in the prevention of heart disease, type 2 diabetes, obesity, infertility, some cancers, osteoporosis, osteoarthritis, falls, anxiety and depression, and premature death for both women and men.<sup>52</sup> During the collection of a complete health history, specific questions about activity interests and motivation can facilitate discussion about types of activities in which a person regularly participates. The midwife is then able to compile a comprehensive picture of nutrition status, activity levels, and lifestyle choices, as well as risk factors for certain diseases that may be minimized with physical activity.

Recommendations for counseling about physical activity are primarily based on risk factors. Intensive behavioral counseling interventions that include physical activity and diet are recommended for persons who are overweight or obese and who have additional risk factors for cardiovascular disease.<sup>38</sup>

Multicomponent recommendations for women with a BMI of 30 or higher and women who are overweight and have risk factors for cardiovascular disease include several behavioral management activities, such as goal setting, individual and group counseling and/or exercise sessions, making dietary and physical activity changes, recognizing and addressing barriers to change, and long-range planning to maintain lifestyle changes.<sup>39</sup> Although much of the counseling aimed at improving physical activity can begin with the primary care provider, the most effective interventions are delivered by specially trained professionals such as exercise professionals, physical therapists, or health educators.<sup>39</sup>

For women who are not obese and who do not have risk factors for cardiovascular disease, the USPSTF found a positive but small net benefit from exercise counseling conducted by primary care providers.<sup>40</sup> In the absence of risk factors for cardiovascular disease, the decision to provide exercise counseling is based on the individual woman’s healthcare needs. Women who are ready to make behavioral changes are most likely to benefit from such counseling.<sup>40</sup>

To help women increase their physical activity level, it is necessary to know about the resources available in the community and to think creatively about ways to encourage effective physical activity. While some women may have access to gyms or exercise studios with certified fitness professionals, many other women will prefer to use resources available in their neighborhood. Walking or running in the local neighborhood, along with participating in community, school, or workplace activity groups, may



be among the most effective methods of increasing physical activity for most women. It is important that midwives understand the safety parameters of the communities in which they live and work so that they will be prepared to recommend safe spaces for women to exercise. When helping women with special needs (e.g., acute or chronic illnesses), knowledge of group exercise programs designed for individuals with specific health conditions can be invaluable.

For a woman with an established exercise routine, the goal is to support and encourage her participation in a beneficial exercise regimen. For women who participate in little or no physical activity, the challenge is to help them make small, incremental steps toward a more active lifestyle. Physical activity recommendations for women across the lifespan are presented in **Table 5-7**.<sup>52</sup> The CDC has additional information about various forms of physical activity, such as aerobic versus strength training, and ways to measure the intensity of physical activity.<sup>53</sup>

Documentation in the health record should include findings of the health history, health risk assessment, and BMI. Documentation should also include a description of the counseling and/or referral that was provided and plans for follow-up.

**Sexually Transmitted Infections and Risk for Unplanned Pregnancy**

Sexually transmitted infections (STIs) are a preventable cause of morbidity and mortality in the United States, with an estimated 20 million new STIs diagnosed each year, almost half of which are diagnosed among individuals age 15–24 years.<sup>54</sup> Recognizing that all sexually active adolescents are at risk for STIs, the USPSTF recommends intensive behavioral counseling for STI prevention for all sexually active adolescents<sup>54</sup> and for all adults at increased risk for STIs. Women at risk for STIs include those with a current STI or an infection within the past year, women who have multiple sexual partners, women who do

<b>Table 5-7 Physical Activity Recommendations for Women Across the Lifespan</b>	
<b>Age</b>	<b>Recommendation</b>
Adolescents (age 17 years and younger)	<p>≥ 60 minutes of moderate or vigorous aerobic activity each day</p> <p>Include muscle strengthening activities in the 60 minutes at least 3 days per week</p> <p>Include bone strengthening activities in the 60 minutes at least 3 days per week</p>
Adults (age 18–64 years)	<p>150 minutes<sup>a</sup> of moderate-intensity aerobic activity each week and muscle-strengthening activities that work all major muscle groups on ≥ 2 days per week</p> <p>OR</p> <p>75 minutes<sup>a</sup> of vigorous-intensity aerobic activity each week and muscle-strengthening activities on ≥ 2 days per week</p> <p>OR</p> <p>An equivalent mix of moderate- and vigorous-intensity aerobic activity each week and muscle-strengthening activities that work all major muscle groups on ≥ 2 days per week</p>
Older adults (age 65 years and older) <sup>b</sup>	<p>150 minutes<sup>a</sup> of moderate-intensity aerobic activity each week and muscle-strengthening activities that work all major muscle groups on ≥ 2 days per week</p> <p>OR</p> <p>75 minutes<sup>a</sup> of vigorous-intensity aerobic activity each week and muscle-strengthening activities on ≥ 2 days per week</p> <p>OR</p> <p>An equivalent mix of moderate- and vigorous-intensity aerobic activity each week and muscle-strengthening activities that work all major muscle groups on ≥ 2 days per week</p>
Pregnant and postpartum women	<p>150 minutes<sup>a</sup> of moderate-intensity aerobic activity per week</p> <p>Healthy women who participate in vigorous-intensity aerobic activity prior to pregnancy may continue to do so during and after pregnancy as long as they stay healthy and discuss their exercise activity with their healthcare provider.</p>

<sup>a</sup> May be broken into increments as small as 10 minutes at a time.

<sup>b</sup> Who have no limiting health conditions and are generally fit.

Based on Centers for Disease Control and Prevention. Physical activity basics. 2015. Available at: <https://www.cdc.gov/physicalactivity/basics/index.htm>. Accessed July 11, 2017.<sup>52</sup>



not consistently use condoms, and women who live in communities with high prevalence rates of any STI.<sup>54</sup>

The most effective counseling interventions are those that are delivered over the course of 2 or more hours, although sessions as brief as 30 minutes can be effective. Effective counseling sessions can be provided in group or individual settings, and delivered over single or multiple sessions. The most effective counseling interventions provide information about STIs and their transmission, assessment of STI transmission risk, and training in essential skills such as condom use, talking about safer sex, goal setting and problem solving.<sup>54</sup> The *Reproductive Tract and Sexually Transmitted Infections* chapter contains a detailed discussion of STIs and STI prevention.

The USPSTF has not made recommendations or addressed the prevention of unplanned pregnancy. However, the most recent data indicate that 45% of pregnancies in the United States are unintended, down from 51% in 2008.<sup>55</sup> To meet the *Healthy People 2020* goal of decreasing the rate of unintended pregnancy to 44%,<sup>56</sup> it is likely that some form of intervention in the primary care setting will be necessary. Prior to initiating a discussion about pregnancy prevention, the midwife asks the woman about her plans regarding pregnancy. A review of contraceptive options is conducted for women who are not planning a pregnancy. A detailed discussion of contraceptive methods is presented in the *Family Planning* chapter. For women who are planning a pregnancy, the midwife completes the implementation of the health promotion plan as described in this chapter with a focus on topics of particular import for pregnant women as reviewed in Appendix 5A. Documentation in the health record should include findings of the sexual health history and a description of the counseling and/or referral that was provided.

### **Skin Cancer Prevention**

Skin cancer is the most common cancer in the United States. Basal and squamous cell carcinomas, which are the two most common forms, are highly curable.<sup>57</sup> By comparison, melanomas, most of which are caused by ultraviolet (UV) light exposure,<sup>57</sup> result in more than 9000 deaths in the United States each year.<sup>58</sup> Fair-skinned adolescents and young adults through the age of 24 years should be counseled about minimizing their risk for skin cancer by decreasing exposure to UV light.<sup>59</sup> Because the lifetime risk for skin cancer is strongly linked to UV exposure early in life, the USPSTF was unable to determine the net effect of counseling individuals older than 24 years. However, it found little harm associated with such counseling and recommends that decisions to provide counseling about UV exposure be made based on risk factors.<sup>59</sup>

In addition to reviewing the risks for skin cancer associated with UV exposure and avoiding sun exposure between the hours of 10:00 A.M. and 4:00 P.M., use of a broad-spectrum sunscreen with a sun-protection factor (SPF) of 15 or more and use of protective clothing, a wide-brimmed hat, and sunglasses are recommended. All persons should also be counseled to avoid using indoor tanning facilities.<sup>59,60</sup>

### **Tobacco Use**

The top four leading causes of death in women—heart disease, cancer, chronic respiratory disease, and stroke—can all be linked to tobacco use.<sup>12</sup> Although tobacco use among both women and men has declined over the past several decades, smoking remains the leading cause of preventable death in the United States.<sup>61</sup> Surpassing breast cancer in 1987, lung cancer is now the leading cause of cancer death in women in the United States.<sup>61</sup> In addition to lung and several other forms of cancer, the health risks associated with tobacco use include cardiovascular disease; diseases related to the endocrine system, including diabetes; menstrual dysfunction, including early menopause; osteopenia/osteoporosis; and premature death.<sup>61</sup>

Women who smoke during pregnancy are at increased risk for ectopic pregnancy and spontaneous abortion, preterm labor and birth, preterm premature rupture of membranes, placental abruption, placenta previa, intrauterine growth restriction, and perinatal mortality.<sup>62-64</sup> Infants born to women who smoke during pregnancy are at increased risk for neonatal death, sudden infant death syndrome (SIDS), and low birth weight.<sup>62-64</sup> Finally, environmental exposure to cigarette smoke on the part of nonsmokers—a phenomenon characterized as *secondhand* or *passive smoke*—contributes to early death in almost 41,000 nonsmoking adults and 400 infant deaths each year.<sup>65</sup> Some authorities are studying smoke retained in cars, rooms, and clothing, termed *thirdhand smoke*, to ascertain whether risks exist in those situations.

Smoking cessation at any age is associated with reductions in smoking-related disease and early death, and women who stop smoking before or during pregnancy can significantly reduce their risk for adverse pregnancy outcomes.<sup>64</sup> Therefore, primary preventive strategies focus on assisting current smokers to stop and reducing the number of individuals who have ever smoked.

Healthcare providers should ask all patients, including pregnant women, about tobacco use. Individuals who use tobacco are advised to stop and provided with behavioral interventions aimed at cessation of tobacco use.<sup>64</sup> It is also recommended that pharmacotherapy approved by the U.S. Food

and Drug Administration (FDA) be provided for all nonpregnant women and men who use tobacco. There is insufficient evidence to assess the balance of benefits and harms related to pharmacotherapy for smoking cessation in pregnant women.<sup>64</sup>

One of the most effective and efficient behavioral counseling interventions for women who use tobacco is based on the 5 A's construct (ask, advise, assess, assist, arrange), as shown in **Table 5-8**.<sup>66</sup> Convincing evidence indicates that even brief counseling interventions (lasting 3 to 10 minutes), either alone or in combination with pharmacotherapy, can effectively increase the number of smokers who quit and remain abstinent for one year.<sup>64</sup> Pharmacotherapy for smoking cessation includes nicotine replacement therapy (found in gums and lozenges) as well as the medications bupropion (Wellbutrin) and varenicline (Chantix). The effectiveness of and harms associated with these agents during pregnancy is not well documented.<sup>62,63</sup>

Smoking cessation interventions may be briefly reviewed in midwifery education programs. One survey of CNMs and CMs found that approximately 50% of the respondents were aware of the USPSTF guidelines and 5 A's intervention.<sup>67,68</sup> However, a recent pilot study found that midwife-delivered 5 A's smoking cessation was effective in decreasing the number of cigarettes smoked per day and increasing the number of women who stopped smoking during pregnancy.<sup>69</sup> Although this was a small pilot study, the findings indicate that use of the modified 5 A's

smoking cessation program can be incorporated into midwifery practice.<sup>62,68</sup> In addition, it is essential to conduct this kind of counseling in a nonjudgmental way, to individualize counseling interventions during pregnancy, and to include information about health risks for both the woman and her child.<sup>64</sup>

Most women who smoke are fully aware of the health risks associated with smoking and experience feelings of guilt and shame about continuing the unhealthy behavior. These feelings are especially prevalent among women who smoke during pregnancy and among women who relapse after a cessation attempt. Counseling interventions for women are most effective when the relationship between the midwife and the woman is based on mutual trust and respect and when the intervention is woman centered. Rather than attempting to manipulate pregnant women to stop smoking by instilling feelings of guilt and fear about the fetal effects of smoking, a more effective approach is to engage women in an open and respectful dialogue, where the primary focus of the discussion is on maintaining and promoting the personal health of the woman. Documentation in the health record should include findings of the health history regarding tobacco use, a description of the counseling and/or referral that was provided, and plans for follow-up.

### Immunizations

Immunization against several disease states is a primary preventive strategy for women across the lifespan.<sup>70,71</sup> General immunization recommendations from the CDC for adolescents, women of childbearing age, and women of perimenopausal/menopausal age are summarized in **Table 5-9**.<sup>70</sup> However, it is important to understand that these recommendations are frequently updated so that timing and doses may change. Among the changes in the revised 2018 recommendations will be additional information about vaccines in pregnancy. Readers are advised to consult the CDC website frequently for the current recommendations. A link to the CDC immunization schedules can be found in the Resources at the end of this chapter. An app is available for clinicians who need this information at their fingertips. Midwives who administer immunizations are also encouraged to consult the relevant Advisory Committee on Immunization Practices (ACIP) statements, available on the CDC's website, for recommendation updates, special recommendations for women with immunocompromising conditions, and guidelines for vaccinations for healthcare workers, and travelers. Adverse events following vaccination should be reported to the Vaccine Adverse Event Reporting System (800-822-7967).

Table 5-8	Modified 5 A's for Smoking Cessation
<p><b>Ask</b> every woman about tobacco use.</p> <p><b>Advise</b> every woman who smokes to stop smoking and provide information about the risks associated with continued use.</p> <p><b>Assess</b> every woman's readiness and/or willingness to stop smoking. This includes identifying barriers and motivating factors to stop smoking.</p> <p><b>Assist</b> women to stop smoking. This includes setting goals to cut down/quit, providing support, identifying sources of social support, and dealing with motivational barriers.</p> <p><b>Arrange</b> for regular follow-up visits with the midwife and/or refer to additional healthcare providers for more intensive treatment if necessary.</p>	

Based on Agency for Healthcare Research and Quality. Five major steps to intervention (the "5 A's"). 2017. Available at: <https://www.ahrq.gov/professionals/clinicians-providers/guidelines-recommendations/tobacco/5steps.html>. Accessed June 11, 2017.<sup>66</sup>

Immunization Schedule for Women Across the Lifespan <sup>a</sup>					
Vaccine	Adolescents	Women Age 19–41 Years	Pregnant Women	Women Age ≥ 41 Years	Dose/Series, Timing and Other Considerations
Hib ( <i>Haemophilus influenzae</i> type b conjugate vaccine)	Recommended only for adolescents with anatomic or functional asplenia (including sickle cell disease) or HIV infection who have not been previously immunized	Recommended only for women with certain immunocompromising conditions	Recommended only for women with certain immunocompromising conditions	1 or 3 doses depending on the indication for vaccination	See CDC guidelines for additional information.
HepA (hepatitis A) <sup>b</sup>	Recommended only for adolescents who live in areas with vaccination programs targeting older children, adolescents at increased risk for hepatitis A, and for adolescents for whom immunity is desired	Only women who have not been previously immunized and who are at increased risk for infection or desire protection <sup>b</sup>		Only women who have not been previously immunized and who are at increased risk for infection or desire protection <sup>b</sup>	Single antigen hepatitis A vaccine (HepA; Havrix) given as a two-dose series with 6–12 months between doses (Havrix) or a two-dose series with 6–18 months between doses (VAQTA). Alternatively, a three-dose series of combined hepatitis A and hepatitis B vaccine (HepA–HepB) may be used; the second dose is given 1 month following the first dose and the third dose is given 6 months following the first dose.
HepB (hepatitis B)	All adolescents not previously immunized	Only women who have not been previously immunized and who are at increased risk for infection or desire protection (see CDC guidelines)		Only women who have not been previously immunized and who are at increased risk for infection or desire protection (see CDC guidelines)	Complete vaccination requires a three-dose series: second dose given 4 weeks following the first dose; third dose given 8 weeks after the second dose (and at least 16 weeks after the first dose). Two-dose series (separated by 4 months) of adult formulation <i>Recombivax HB</i> may be used in girls 11–15 years.
Herpes zoster vaccine	NA	NA	NA	All women ≥ 60 years	One-time dose; no need for revaccination. <b>Contraindicated for persons with certain medical conditions</b> (see CDC guidelines).

HPV (human papillomavirus) vaccines: <sup>c</sup> Gardasil (4vHPV) Gardasil 9 (9vHPV)	All adolescents 11 or 12 years Women 13–26 years if not previously immunized	All women < 26 years if not previously immunized	HPV vaccines are not recommended in pregnancy, though there is no evidence that the vaccine poses harm. If pregnancy is discovered after the first dose is given, completion of the series should be postponed until the woman is no longer pregnant; no additional intervention is necessary	Complete vaccination requires a two-dose series: second dose given 6–12 months following the first dose. Adolescents initiating the vaccine at ≥ 15 years should receive three doses; administer the second dose 1–2 months after the first dose and the third dose 6 months after the first dose.
Influenza IIV (inactivated influenza)	All girls ≥ 9 years LAIV is not recommended for individuals < 18 years	All adults, including pregnant women, can receive IIV	All women	Inactivated influenza vaccine comes in two formulations: inactivated influenza and recombinant influenza. Both are safe to use for all ages and during pregnancy. A single dose is administered each year, just prior to (or following) the start of the flu season. Contraindicated for persons with severe allergy to vaccine components, history of Guillain-Barré syndrome within 6 weeks of receipt of vaccine, or severe illness with fever (delay until illness is resolved). LAIV is a nasal spray and is contraindicated during pregnancy and during some flu seasons. See CDC guidelines.
Influenza: RIV (recombinant influenza vaccine)	All girls ≥ 9 years LAIV is not recommended for individuals < 18 years	Contraindicated in pregnant women and in girls with asthma or underlying conditions that predispose them to influenza complications	All women	Recombinant influenza vaccine. Complete vaccination requires a three-dose series: second dose given 4 weeks following the first dose; third dose given 4 weeks after the second dose.
IPV (inactivated poliovirus)	Recommended only for girls < 18 years if not previously immunized	NA	NA	

(continues)

**Table 5-9 Immunization Schedule for Women Across the Lifespan<sup>a</sup> (continued)**

Vaccine	Adolescents	Women Age 19–41 Years	Pregnant Women	Women Age ≥ 41 Years	Dose/Series, Timing and Other Considerations
M/MR (measles, mumps, and rubella)	Recommended only for girls not previously immunized	Regardless of birth year, women of childbearing age should have laboratory-confirmed rubella immunity Women who are not considered immune should receive the vaccine Vaccinate nonpregnant women during menses when nonpregnant status is certain	Contraindicated in pregnancy and for individuals who are immunocompromised Pregnant women without evidence of laboratory-confirmed immunity should be vaccinated immediately postpartum or following pregnancy termination	Women who are not considered immune	Complete vaccination requires administration of two doses separated by at least 4 weeks. Second dose is necessary only for women who are college students, women who work in a healthcare facility, and women who plan to travel internationally. Women who received inactivated measles vaccine or vaccine of unknown type from 1963 to 1967 should be re-vaccinated with two doses of MMR.
Meningococcal vaccines	Menactra or Menveo 11–12 years, with booster at age 16 years Catch-up vaccine given at 13–18 years if not previously immunized	MenACWY, MPSV4 Women who are first-year college students through age 21 years who live in residence halls and who were not previously vaccinated on or after their 16th birthday, HIV-positive, traveling to a country where the disease is prevalent or living in an area of outbreak, and military recruits	May be used if at risk for serogroup A, C, W, or Y	MenACWY, MPSV4 If not previously vaccinated or had disease	If first dose is received at ≥ 16 years, no booster is required. One-time single dose. Revaccination 5 years following first dose is necessary only for women who remain at increased risk for infection. There are several different meningococcal vaccines based on serotypes. Indications for each vaccine are different. See the CDC guidelines for additional information and scheduling recommendations for women with immunocompromising conditions and other risk factors for infection.
PCV (pneumococcal conjugate) or PPSV (pneumococcal polysaccharide)	NA	NA	Women < 65 years only if they smoke, live in long-term care facilities, or have chronic lung disease, chronic cardiovascular disease, diabetes mellitus, chronic liver disease, alcoholism, cochlear implants, cerebrospinal fluid leaks, immunocompromising conditions, or functional anatomic asplenia (including sickle cell disease)	Women vaccinated before 65 years should be revaccinated at 65 years	Recommended vaccine types and interval spacing vary based on the indication for early vaccination. See the CDC guidelines for additional information and scheduling recommendations for women with immunocompromising and other serious medical conditions.



Tdap (tetanus diphtheria, and acellular pertussis)	All girls 11–12 years; 18 years if not previously immunized	Single dose recommended for all pregnant women at 27–36 weeks' gestation during each pregnancy (regardless of number of years since last Td or Tdap vaccination)	Recommended for all adults. Substitute Tdap for Td once, then every 10 years	Administer one dose with each pregnancy. A three-dose series is recommended for all adults with unknown or incomplete vaccination history: first two doses administered at least 4 weeks apart; third dose administered 6–12 months after the second dose.
VAR (varicella)	Only girls without evidence of immunity <sup>d</sup>	Contraindicated during pregnancy Pregnant women should be evaluated for laboratory-confirmed varicella immunity. Those without evidence of immunity should begin the two-dose vaccination series <i>immediately postpartum</i> or following pregnancy termination	Women without evidence of immunity only	Complete vaccination requires administration of two doses separated by at least 4 weeks for girls $\geq$ 13 years. For girls 7–12 years, the doses should be separated by 3 months. Evidence of immunity includes documentation of previous vaccination with two doses at least 4 weeks apart, history of herpes zoster diagnosed by a healthcare provider, history of varicella diagnosed by a healthcare provider, or laboratory confirmation of immunity. Laboratory confirmation should be obtained for women who report having had a mild or atypical case of varicella.

Abbreviations: CDC, Centers for Disease Control and Prevention; HAV, hepatitis A virus; HIV, human immunodeficiency virus; LAIV, live attenuated influenza vaccine; NA, not applicable; Td, tetanus and diphtheria toxoids.

<sup>a</sup> See CDC guidelines for current immunization schedule.  
<sup>b</sup> Women for whom hepatitis A vaccination is recommended include those who (1) use illicit drugs, (2) work with HAV-infected primates or HAV in laboratory settings, (3) have chronic liver disease, (4) receive clotting factor concentrates, (5) travel or work in countries with high or intermediate rates of hepatitis A, or (6) anticipate close contact with children from countries with high or intermediate rates of hepatitis A during the first 60 days after arrival in the United States (childcare providers or adoptive parents).  
<sup>c</sup> HPV vaccination recommendations apply to male and female adolescents.

<sup>d</sup> Evidence of immunity = documented previous immunization or laboratory-confirmed evidence of immunity.  
 Based on Centers for Disease Control and Prevention. Recommended immunization schedules for adults aged 19 years or older—United States, 2017. 2017. Available at: <https://www.cdc.gov/vaccines/schedules/hcp/adult.html>. Accessed June 23, 2017.<sup>70</sup>

Links to vaccine-related resources, including vaccine schedule apps, are provided in the Resources list at the end of this chapter.

## Health Maintenance: Secondary Prevention

In addition to primary preventive services to promote health and prevent the onset of disease, midwives provide secondary preventive services aimed at maintaining health through early detection and treatment of several disease states across the lifespan.

### Routine Screening Across the Lifespan

After completing the health history and physical examination, additional screening information is obtained with the collection of laboratory tests.

Recommendations for these tests are based on the existence of identified individual risk factors such as gender and age. Screening tests for asymptomatic women for which there is sufficient evidence to recommend are summarized in [Table 5-10](#).<sup>72</sup> Screening test recommendations for pregnant women are presented in the *Prenatal Care* chapter.<sup>72</sup> These recommendations are reviewed regularly and are revised based on the findings of new evidence; readers are therefore encouraged to become familiar with and regularly access updated recommendations at the USPSTF website. Links to resources for preventive health services, including an electronic preventive services selector tool (ePSS), are found in the Resources table at the end of this chapter.

In addition to the recommendations made by the USPSTF, other groups such as the American College of Obstetricians and Gynecologists and the American

**Table 5-10** Recommended Routine Screening Tests<sup>a</sup>

Disorder	Adolescents Age < 18 Years	Women Age ≥ 18 Years	Test Used	Screening Recommendation
Abnormal glucose and type 2 diabetes mellitus	Not indicated unless risk evident on history or physical examination	Women age 40–70 years who are overweight or obese	HbA1c or fasting plasma glucose or oral glucose tolerance test	Screening frequency is unknown, but every 3 years is suggested. Refer women with abnormal blood glucose for intensive counseling interventions to promote a healthy diet and increased physical activity.
Alcohol misuse	Insufficient evidence	Age ≥ 18 years	AUDIT, AUDIT-C, or single question screen	No evidence for screening frequency.
Breast cancer	NA	≥ 50 years, and screening at age 40 years made on an individual basis	Screening mammogram	Every 2 years until age 75 years. Insufficient evidence to recommend for or against screening for women age ≥ 75 years. Women with a family history of breast or ovarian cancer should be referred for genetic counseling and possible BRCA testing (see counseling recommendations described earlier in this chapter).
Cervical cancer	USPSTF recommends against screening women < 21 years unless at high risk	≥ 21 years	Cytology (Pap test)	Every 3 years until age 65 years. HPV testing combined with cytology (co-testing) every 5 years is acceptable for women age ≥ 30–64 years who prefer less frequent screening. Screening not recommended for women ≥ 65 years if adequately screened and not at high risk, or with history of hysterectomy without history of precancer or cervical cancer.

Disorder	Adolescents Age < 18 Years	Women Age ≥ 18 Years	Test Used	Screening Recommendation
Colorectal cancer	NA	50 years Earlier if history of first-degree relative with early-onset colorectal disease	Fecal occult blood or DNA testing, sigmoidoscopy, CT colonography, or colonoscopy	Recommendations for appropriate screening intervals are controversial and should be made based on clinical findings. The decision to screen women age 76–85 years is made on an individual basis.  Colonoscopy has greatest sensitivity and specificity for colorectal cancer screening. USPSTF found no studies that demonstrated greater effectiveness of any screening tool.
Chlamydia	All sexually active adolescents Recommended frequency depends on new or persistent risk factors since the last negative screen	All sexually active women ≤ 24 years Older women who are at increased risk for infection	Nucleic acid amplification tests	Nucleic acid amplification tests can be used with urine and vaginal swabs if a pelvic examination is not performed.
Depression	All adolescents age 12–18 years	18 years	PHQ-A or BDI-PC for adolescents Any reliable screening tool for adults	USPSTF also recommends ensuring that systems are in place to ensure accurate diagnosis, treatment, and follow-up. See the <i>Mental Health Conditions</i> chapter for a review of reliable screening tools, screening frequencies, and management of a positive screen.
Gonorrhea	All sexually active adolescents	All sexually active women ≤ 24 years and older women who are at increased risk for infection	Nucleic acid amplification tests	Recommended frequency depends on new or persistent risk factors since the last negative screen. Nucleic acid amplification tests can be used with urine and vaginal swabs if a pelvic examination is not performed.
Hepatitis B	Screen all adolescents and young adults at increased risk for infection, including those who have been vaccinated	All women at risk for infection	HBsAG	Anti-HBs and anti-HBc tests are done as part of a panel to distinguish between immunity and infection.
Hepatitis C	Screen all women at risk for infection	Offer screening to all women born between 1945 and 1965 Rescreen women at continued risk periodically	Anti-HCV antibody test; confirm with polymerase chain reaction testing	The most significant risk factor is past or current illicit IV drug use. Receiving a blood transfusion before 1992, long-term hemodialysis, incarceration, intranasal drug use, being born to a woman infected with hepatitis C, and getting a tattoo from an unregulated vendor are also risk factors.  Women born between 1945 and 1965 have higher rates of hepatitis C than other women.

(continues)

<b>Disorder</b>	<b>Adolescents Age &lt; 18 Years</b>	<b>Women Age ≥ 18 Years</b>	<b>Test Used</b>	<b>Screening Recommendation</b>
Human immunodeficiency virus (HIV)	All adolescents age ≥ 15 years	Unknown; suggested one-time screen for all women age 15–65 years, with repeat screens based on risk factors	Repeatedly reactive immunoassay and confirmation with Western blot	See the <i>Reproductive Tract and Sexually Transmitted Infections</i> chapter for review of risk factors and management of a positive screen.
Hypertension	Not indicated for routine screening	Yearly for women ≥ 40 years and for younger women with risk factors for hypertension  Every 3–5 years for women age 18–39 years without a history of or risk factors for high blood pressure	Blood pressure measured with sphygmomanometer	USPSTF has found insufficient evidence to recommend for or against routine blood pressure measurements in children.  Blood pressures should be taken with the woman seated at least 5 minutes after entering the examination room. Ensure use of a proper-size cuff and placement of the woman's arm at the level of the heart. Use the mean of two measurements taken at a single visit; confirm diagnosis with measurements take outside of the clinical setting.
Intimate-partner violence (IPV)	All adolescents 14–17 years	All women of childbearing age	Any reliable screening tool	Screening tools with high sensitivity and specificity for IPV identification include: Hurt, Insult, Threaten, Scream (HITS); Ongoing Abuse Screen/Ongoing Violence Assessment Tool (OAS/OVAT); Slapped, Threatened and Throw (STaT); Humiliation, Afraid, Rape, Kick (HARK); Modified Childhood Trauma Questionnaire—Short Form (CTQ-SF); and Woman Abuse Screen Tool (WAST).  All women are at risk for IPV, and women age 14–46 years are at greatest risk.  There is insufficient evidence to recommend for or against screening of younger girls and older women. Therefore, USPSTF makes no recommendation for or against screening girls < 14 years or women > age 46 years.
Latent tuberculosis infection	Yearly if at risk	Unknown; one-time screen may be sufficient with yearly screening for those at continued risk	Mantoux tuberculin skin tests or interferon-gamma release assays	Women at increased risk for latent tuberculosis infection include those who were born or lived in countries with high prevalence rates and those who live in high-risk settings (such as homeless shelters and correctional facilities). Consult local health departments to determine populations at risk in their community.

Disorder	Adolescents Age < 18 Years	Women Age ≥ 18 Years	Test Used	Screening Recommendation
Lipid disorders	Insufficient evidence to recommend for or against screening for individuals < 40 years	40–75 years Frequency is every 5 years via expert opinion	Nonfasting or fasting total cholesterol, LDL-C, and HDL-C	These recommendations for cholesterol testing are part of a recommendation for the use of statins in adults with increased risk for CVD. Determining CVD risk requires assessment of cholesterol levels as recommended here.
Lung cancer	NA	55 years, then annually for women with a history of smoking	Low-dose computed tomography	Screen all women age 55–80 years who have a 30-pack-year smoking history and currently smoke or quit smoking in the past 15 years. Screening may be discontinued 15 years after the woman quits smoking.
Obesity	All	All	BMI	Those who are obese or overweight should be referred for intensive behavioral interventions to improve weight status. See the counseling interventions in this chapter.
Osteoporosis	NA	65 years	DXA scan of the hip and lumbar spine	Earlier screening is recommended for women with fracture risk ≥ that of white women age 65 years without risk factors. Rescreening should not occur sooner than 2 years following initial screening.  Risk factors include Caucasian race, smoking, daily alcohol use, BMI < 21, and parental history of fracture.
Syphilis	Only those at increased risk for infection	Adults at increased risk for infection	VDRL or RPR—confirmed with FTA-ABS or TP-PA	Women at risk include those with HIV, commercial sex workers, certain racial and ethnic groups, and those who live in high-prevalence areas.
Tobacco use	All	All	Health history	Screen all adolescents. See the screening and counseling recommendations in this chapter.

Abbreviations: Anti-HBc, hepatitis B core total antibodies; anti-HBs, hepatitis B surface antibody; AUDIT, alcohol use disorders identification test; AUDIT-C, alcohol use disorders identification test—consumption; BDI-PC, Beck Depression Inventory for Primary Care; BMI, body mass index; CT, computed tomography; CVD, cardiovascular disease; DXA, dual-energy X-ray absorptiometry; FTA-ABS, fluorescent treponemal antibody-absorption test; HbA1c, hemoglobin A1C; HBsAG, hepatitis B surface antigen; HCV, hepatitis C virus; HDL-C, high-density lipoprotein cholesterol; LDL-C, low-density lipoprotein cholesterol; NA, not applicable; PHQ-A, Patient Health Questionnaire for Adolescents; RPR, rapid plasma reagin; TP-PA, treponemal pallidum particle agglutination assay; USPSTF, U.S. Preventive Services Task Force; VDRL, Venereal Disease Research Laboratory test.

<sup>a</sup> Unless otherwise indicated, these are the screening recommendations for healthy adolescents and women who are not at increased risk for infection or disease. Adolescents and adults with risk factors may require more frequent screening or screening with the use of additional tests and/or procedures.

Based on U.S. Preventive Services Task Force. Published recommendations. 2017. Available at: <https://www.uspreventiveservicestaskforce.org/BrowseRec/Index/browse-recommendations>. Accessed July 4, 2017.<sup>72</sup>



Cancer Society have made recommendations for screening that are often slightly different than the USPSTF recommendations. Healthcare facilities may adopt guidelines from different sources when establishing their institutional policies and procedures. Individual communities may also have “community standards” based on these recommendations. Therefore, it is essential that midwives remain aware of the recommendations of other groups and recommendations made based on community standards.

## Reproductive Life Planning and Preconception Care

Reproductive life planning refers to a woman designing a set of personal reproductive goals and a plan for how to achieve those goals. Preconception care is a set of interventions that aim to identify and modify biomedical, behavioral, and social risks to the woman’s health and her subsequent pregnancy outcomes through prevention and management. Preconception care is addressed separately from the rest of health promotion across the lifespan for two reasons: (1) Some health promotion interventions can directly influence perinatal outcomes, and (2) preconception care includes both primary and secondary health promotion activities.

### Reproductive Life Planning

The CDC and other public health organizations have recommended reproductive life planning and preconception care,<sup>73,74</sup> though the evidence supporting preconception care as a package of services is sparse. Although strong evidence supports the value of specific healthcare services such as folic acid supplementation,<sup>75</sup> only a small number of women currently receive preconception care; in addition, health outcomes following preconception care as a package of services have not yet been well validated in research studies. The lack of positive evidence for preconception care may be at least partly related

to women’s lack of access to the multidisciplinary support and continuum of services that are the most effective interventions.

One of the critiques of preconception care is that this set of primary and secondary prevention strategies has value for women across the lifespan, not just during the time prior to childbearing. One of the dangers of viewing health care for women in such a way that prioritizes healthcare delivery based on plans for a future pregnancy rather than the general wellbeing of women is the presumption that every woman will attempt or want a pregnancy in the future. Moreover, given that approximately 45% of all pregnancies are not planned,<sup>76</sup> some experts in this field argue that a broader focus on optimal health behaviors for all women of reproductive age will be of greater benefit. The ACNM takes the position that “the health of a woman is a primary goal, independent of her reproductive life plan.”<sup>77</sup>

Putting aside the controversy over these issues, it is clear that some adverse perinatal outcomes can be prevented via preconception identification of risks and use of risk-reduction strategies. Chronic diseases that are associated with adverse pregnancy outcomes are common among women of childbearing age.<sup>76</sup> In addition, reproductive life planning for women who do not want to become pregnant could help these women identify acceptable methods of contraception and improve spacing of births.

This section reviews the components of health promotion that relate specifically to pregnancy outcomes. The content included in a preconception care visit is presented in Appendix 5A. A woman-centered approach to initiating a discussion about reproductive goals is presented in **Table 5-11**.<sup>78</sup>

The initial *one key question* will help direct the conversation. If a woman indicates that she is not planning a pregnancy in the near future, the next step is to determine whether she is at risk for becoming pregnant (i.e., engaging in heterosexual vaginal sex and possibly fertile), and if so, her desire to avoid pregnancy. A thorough review of contraceptive

**Table 5-11** Screening Strategies That Facilitate Reproductive Goals Counseling

Strategy	Question(s) Included In Strategy
One Key Question	Would you like to become pregnant in the next year?
Pregnancy Attitudes, Timing, and How important is prevention (PATH)	<ol style="list-style-type: none"> <li>1. Do you think you might like to have (more) children at some point?</li> <li>2. If you are considering becoming a parent in the future, when do you think that might be?</li> <li>3. How important is it to you to prevent pregnancy (until then)?</li> </ol>

Based on Callegari LS, Aiken AR, Dehlendorf C, Cason P, Borrero S. Addressing potential pitfalls of reproductive life planning with patient-centered counseling. *Am J Obstet Gynecol.* 2017;216(2):129-134.<sup>78</sup>

options and contraceptive counseling can be found in the *Family Planning* chapter. If a woman wants to become pregnant in the near future, the midwife continues with preconception care evaluation as presented in Appendix 5A.

### Conclusion

Health promotion is an essential component of care provided by midwives, which is accomplished through the delivery of primary and secondary preventive

services. Primary preventive services, which include counseling/education and vaccination, are provided to healthy individuals as a means to prevent the onset of disease. Secondary preventive services, which include evidence-based screening and early intervention, are provided to limit morbidity and mortality related to disease. As primary care providers who often see clients at regular intervals across the lifespan, midwives are well positioned to provide the preventive services described in this chapter and to offer individuals the tools necessary to become active participants in their own health maintenance and to achieve optimal levels of wellness.

### Resources

Organization	Description	Webpage
Centers for Disease Control and Prevention (CDC)	Information about child safety seats for clinicians and women	<a href="https://www.cdc.gov/Motorvehiclesafety/Child_Passenger_Safety/index.html">https://www.cdc.gov/Motorvehiclesafety/Child_Passenger_Safety/index.html</a>
	Vaccine Schedules App	<a href="https://www.cdc.gov/vaccines/schedules/hcp/schedule-app.html">https://www.cdc.gov/vaccines/schedules/hcp/schedule-app.html</a>
	Vaccine Schedules webpage	<a href="https://www.cdc.gov/vaccines/schedules/hcp/adult.html">https://www.cdc.gov/vaccines/schedules/hcp/adult.html</a>
	Health insurance marketplace: list of clinical preventive services covered under the Affordable Care Act	<a href="https://www.cdc.gov/aca/marketplace/clinical-preventive-services.html">https://www.cdc.gov/aca/marketplace/clinical-preventive-services.html</a>
	Manual for clinicians planning to implement a brief intervention for risky alcohol use	<a href="https://www.cdc.gov/ncbddd/fasd/documents/alcoholsbiimplementationguide.pdf">https://www.cdc.gov/ncbddd/fasd/documents/alcoholsbiimplementationguide.pdf</a>
	Physical activity guidelines for individuals across the lifespan: resources for clinicians and women	<a href="https://www.cdc.gov/physicalactivity/basics/index.htm">https://www.cdc.gov/physicalactivity/basics/index.htm</a>
March of Dimes	Comprehensive interactive resources for women considering a pregnancy	<a href="http://www.marchofdimes.org/pregnancy/before-pregnancy.aspx">http://www.marchofdimes.org/pregnancy/before-pregnancy.aspx</a>
Georgia Breast cancer genomic consortium	B-RST screening tool to detect risks for hereditary breast and ovarian cancer	<a href="https://www.breastcancergenescreen.org">https://www.breastcancergenescreen.org</a>
National Institutes of Health (NIH), National Human Genome Research Institute (NHGRI)	Genetic counseling services and resources for clinicians and women	<a href="https://www.genome.gov/11510370/">https://www.genome.gov/11510370/</a>
U.S. Department of Health and Human Services (DHHS)	<i>Smoke-Free Women</i> : smoking-cessation resources for women	<a href="https://women.smokefree.gov">https://women.smokefree.gov</a>
National Highway Traffic Safety Administration (NHTSA)	Seat-belt recommendations during pregnancy	<a href="https://www.nhtsa.gov/sites/nhtsa.dot.gov/files/documents/pregnant-seat-belt-use.pdf">https://www.nhtsa.gov/sites/nhtsa.dot.gov/files/documents/pregnant-seat-belt-use.pdf</a>
U.S. Food and Drug Administration (FDA)	Food safety resources for clinicians and women	<a href="https://www.fda.gov/food/foodborne-illnesscontaminants/peopleatrisk/ucm081785.htm">https://www.fda.gov/food/foodborne-illnesscontaminants/peopleatrisk/ucm081785.htm</a>
U.S. Preventive Services Task Force (USPSTF)	Preventive health services information for health professionals	<a href="https://www.uspreventiveservicestaskforce.org/Page/Name/tools-and-resources-for-better-preventive-care">https://www.uspreventiveservicestaskforce.org/Page/Name/tools-and-resources-for-better-preventive-care</a>
	Widget: electronic preventive services selector (ePSS)	<a href="http://epss.ahrq.gov/PDA/widget.jsp">http://epss.ahrq.gov/PDA/widget.jsp</a>

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# 5A

## Preconception Care Visit

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### Introduction

Preconception care is founded on the basic principle that healthy women tend to have healthy offspring. The period of time before a woman is pregnant can be critical to promote and maintain her health during pregnancy. Targeted care during the preconception period can lead to identification and modification of risks that can influence not only a woman's health, but the health of her future child and society as a whole.<sup>1</sup> **Table 5A-1** defines terms commonly encountered in this area.<sup>2-6</sup>

The clarion call to action for preconception care was first sounded more than 30 years ago.<sup>7</sup> Since then, various controversies have arisen, predominantly focused on the strategies surrounding preconception care. For example, some groups have advocated an *Every Woman, Every Visit* approach, in which nonpregnant women are screened at every clinical encounter. Unfortunately, this strategy can be interpreted as a requirement to provide intensive health counseling and rigorous education about pregnancy for all women, raising concerns that such an approach could be viewed as pronatalism because it ignores the fact that some women may never desire to be pregnant.<sup>8</sup> Other healthcare professionals have expressed concerns that time spent with women not intending to become pregnant within the near future may be too narrowly focused and has a vocabulary that may disengage women.<sup>9</sup> None of these concerns questions the utility of preconception care, and a new approach to the concept addresses these issues.

### Preconception Care

Today's approach to preconception care is to ask any individual who is of reproductive age *One Key*

*Question.* This question is most commonly phrased as follows: *Would you like to become pregnant in the next year?* The key question is a critical part of a *reproductive life plan (RLP)*.<sup>4</sup> The answer should be documented in the woman's health record and the question regularly revisited because the woman may change the answer as their circumstances change. The key question is neutrally phrased and enables the professional to target health education, and thus, time during the healthcare visit, to the needs of the individual. **Figure 5A-1** provides an algorithm for use in providing care to reproductive-age women.

A midwife is most likely to meet women who provide one of three answers to the key question. For all of these women, health promotion—as discussed in the *Health Promotion Across the Lifespan* chapter—is an essential component of care.

For women who answer “1” (does not plan to get pregnant in the next year) who are at risk for pregnancy, time with the midwife can be best focused on identifying a reliable contraceptive method that she desires and can use consistently and correctly, as described in the *Family Planning* chapter.

Individuals who answer the key question with “2” (uncertain about whether or not they are planning a pregnancy in the next year) can be helped to reflect and develop a reproductive life plan. Although ultimately a woman will determine that she does or does not plan a pregnancy in the coming year, many women will choose contraception while they ponder how to design their reproductive life plan.

Women who respond that they wish to become pregnant in the next year (answer 3 to the key question) are the women for whom this appendix is written. These women are planning a pregnancy within the next 6 months or 1 year. More information about use of the key question and details about preconception

<b>Term</b>	<b>Definition</b>
Preconception care	Multiple definitions exist, but in all cases the goal is to provide care to reproductive-age women that promotes a woman's health and identifies and modifies her risks to promote a healthy pregnancy if or when it ensues.
Preconception period	The time before or between pregnancies. Some publications focusing on care of the pregnant woman have also called this span the <i>prepregnancy period</i> or <i>interconception period</i> .
One Key Question	A screening strategy using one question to promote efficient identification of an individual's intentions regarding pregnancy.
Reproductive life plan (RLP)	An individual's plan that reflects future intentions for reproduction. It should not be assumed that an RLP means that a pregnancy is planned; the RLP should be accepted at face value without judgment.

Based on American Academy of Pediatrics, American College of Obstetricians and Gynecologists. Prepregnancy care. In: *Guidelines for Perinatal Care*. 8th ed. Elk Grove Village, IL: American Academy of Pediatrics; 2017:131-148<sup>2</sup>; Burgess CK, Henning PA, Norman WV, Manze MG, Jones HE. A systematic review of the effect of reproductive intention screening in primary care settings on reproductive health outcomes. *Fam Pract*. September 8, 2017. [Epub ahead of print]. doi:10.1093/fampra/cmz086<sup>3</sup>; Files JA, Frey KA, David PS, Hunt KS, Noble BN, Mayer AP. Developing a reproductive life plan. *J Midwifery Womens Health*. 2011;56(5):468-474<sup>4</sup>; Lang AY, Boyle JA, Fitzgerald G, et al. Optimising preconception health in women of reproductive age. *Minerva Ginecol*. 2018;70(1):99-119<sup>5</sup>; Nypaver C, Arbour M, Niederegger E. Preconception care: improving the health of women and families. *J Midwifery Womens Health*. 2016;61(3):356-364.<sup>6</sup>

care can be obtained from the National Preconception Health and Health Care Initiative (PCHHC), a public/private partnership of more than 70 organizations. Its website, *Before, Between & Beyond*, is an extensive and credible source of information about individuals in the preconception period and is included in the Resources table at the end of this appendix.<sup>10</sup>

## General Health Promotion and Preconception Care

All women can profit from health promotion, as discussed in the *Health Promotion Across the Lifespan* chapter. However, women who are planning pregnancy within the near future merit a review of some topics that can impact the course of pregnancy.

### Substance Use

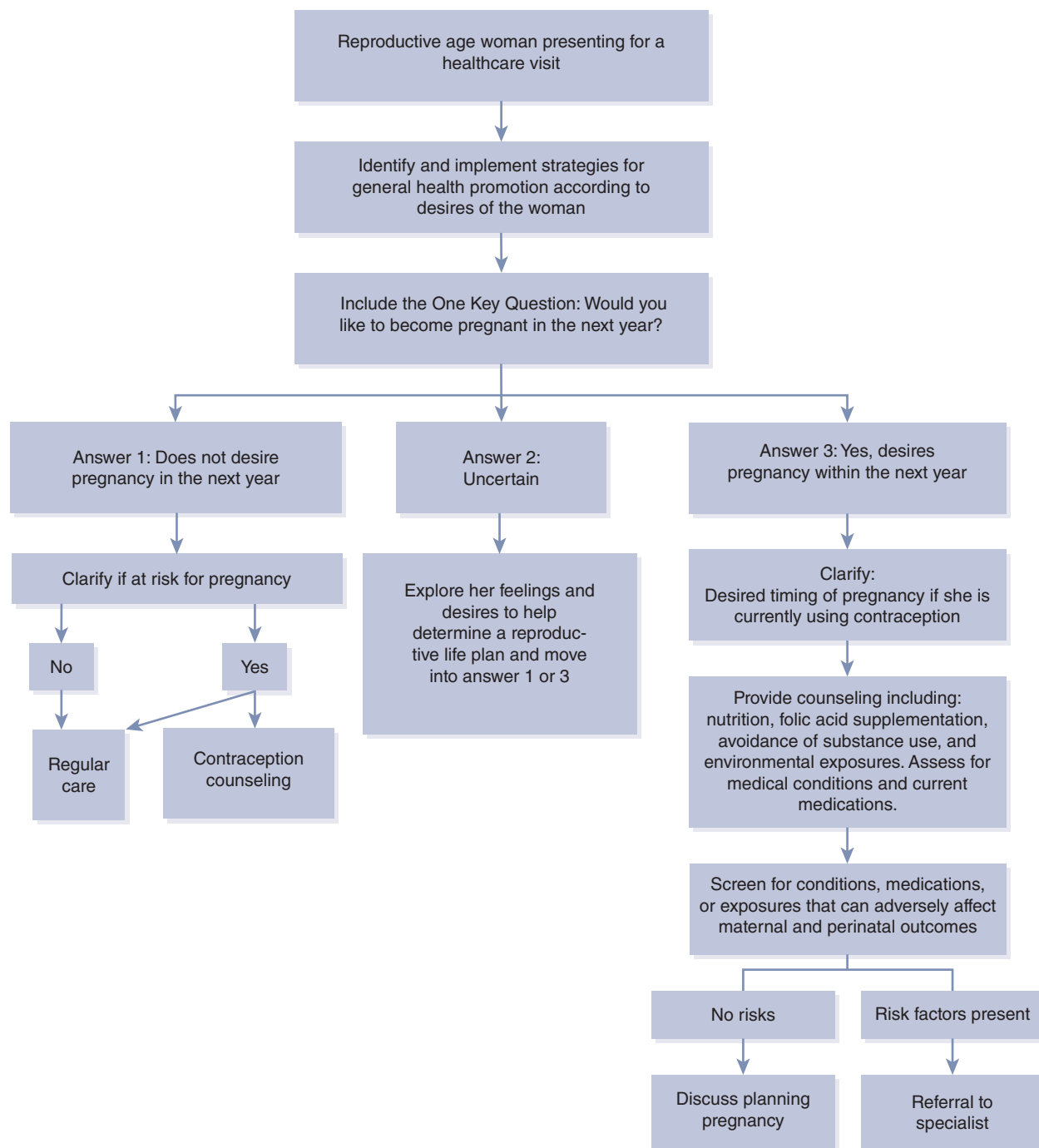
Counseling that is particularly important during a preconception visit includes recommendations regarding substance use. Women who use alcohol during pregnancy run the risk that their child will develop a fetal alcohol spectrum disorder, including fetal alcohol syndrome, the most severe form. Smoking or other tobacco use remains the leading preventable cause of premature death for women in the United States, despite the declining rate of use over the last few years. Tobacco is fetotoxic and is associated with an increased incidence of low birth weight in newborns

who were exposed in utero. Particular attention also should be paid to the increasing number of women dealing with opioid use: Opioid use is harmful to the woman and also associated with neonatal abstinence syndrome. The preconception period represents an opportunity for women to seek help in changing their patterns of use and misuse of these substances, particularly since it usually takes time and sometimes several attempts to quit successfully.<sup>2</sup>

Several myths exist regarding oral health in pregnancy. Some women may have heard that loss of teeth is inherently associated with pregnancy and, therefore, may not seek dental care while pregnant. Other women may avoid such care due to fear of risk of X rays. In any case, research has demonstrated an increased risk of preterm birth when women have significant periodontal disease during pregnancy.<sup>11</sup> This increase in the incidence of preterm birth in conjunction with periodontal disease is likely linked to the inflammatory process. Ideally, dental work necessary to correct periodontal disease or dental caries should be completed prior to pregnancy.

### Immunizations

Evidence exists that several vaccines are effective interventions to promote healthy pregnancies when administered prior to pregnancy in women without immunity.<sup>12</sup> All women of reproductive age should have their immunization status for tetanus–diphtheria–acellular



**Figure 5A-1** Algorithm illustrating the use of One Key Question.

pertussis toxoid (Tdap); measles, mumps, and rubella (MMR); hepatitis B; and varicella reviewed annually. If immunity is lacking, these immunizations should be offered. Current recommendations are to give one dose of Tdap to every pregnant woman during every pregnancy (27–36 weeks) regardless of the duration of time since the last Tdap vaccination. This is true for all pregnant women, even those vaccinated pre-conceptionally. Women at risk for acquiring hepatitis B

or who have not received the vaccine should be offered the immunization series prior to pregnancy.

Rubella is a known teratogen, causing congenital rubella syndrome when nonimmune women are infected during the first 16 weeks of pregnancy. Women who receive the rubella immunization should be counseled to avoid pregnancy for 1 month, based on a theoretical risk of passing rubella to a developing embryo. However, there are no reports of

teratogenicity secondary to receiving rubella vaccine in early pregnancy; thus, pregnancy termination is not recommended for women who are inadvertently vaccinated for rubella within 4 weeks of becoming pregnant or when they are pregnant.<sup>13</sup>

### **Nutrition: Dietary Counseling and Folic Acid Supplementation**

All women should be counseled to avoid vitamins or multivitamin preparations that exceed the current recommended daily allowances because of the potential adverse effects associated with higher doses. For example, vitamin A is associated with fetal malformations if very high doses of supplements are consumed in the first trimester. In addition, some nutritional supplements can adversely interact with absorption of foods or medications, so it is important to review and educate women about all medication use when taking multivitamins.

Most women in the United States do not consume the recommended amounts of folate from diet alone. All professional organizations recommend that women planning a pregnancy or capable of becoming pregnant take a supplement that has 400 to 800 micrograms of folic acid per day to reduce the risk of having a fetus with a neural tube defect.<sup>15</sup> Most over-the-counter multivitamins contain 400 micrograms (0.4 milligrams) of folic acid, and generic preparations are appropriate.

Vitamin D deficiency is widespread, yet data is still emerging with regard to the value of vitamin D supplementation. At present, regular screening of pregnant women for vitamin D deficiency and supplementation of vitamin D during pregnancy (beyond the amount included in a multivitamin) are not recommended. However, clinicians may consider screening women at increased risk of vitamin D deficiency, such as those who live in cold climates and along northern latitudes, those who wear sunscreen regularly, and those who belong to a racial/ethnic group with dark skin.<sup>16</sup> When a deficiency is identified, ingestion of 1000-4000 IU/day is considered to be reasonable and safe by most experts.<sup>16</sup>

### **Decreasing Environmental Risks**

The most common environmental toxins in the United States and their known health effects are listed in **Table 5A-2**. The adverse effects of environmental toxins is the subject of a great deal of research and new knowledge is rapidly emerging.<sup>17-24</sup> No woman can totally avoid exposure to toxins. Naturally occurring substances, such as lead and cadmium, are not toxic at low levels; however, human activity has resulted in concentrated levels and increased

exposure to these substances. Even though lead has been banned from fuel mixes in the United States for several decades, lead from automobile exhaust continues to contaminate soil and water, especially in the land near busy highways. Lead-based paint continues to present exposure risks in older homes and playgrounds that were constructed before these paints were banned.

The most prevalent environmental toxins are manufactured chemicals, including pesticides, polychlorinated biphenyls, and perfluorochemicals. Most of these chemicals degrade slowly and are absorbed by humans through ingestion of contaminated food and water or inhalation of particles. Environmental toxins have broad deleterious effects on reproductive health, including decreased sperm quality, congenital anomalies, increased spontaneous miscarriage, stillbirth, low birth weight, and preterm labor. Many environmental toxins also cross the placenta and have been found in cord blood and fetal tissue as well as breast milk.

An important first step in decreasing exposure to environmental toxins is risk identification through the collection of a thorough history of occupational, recreational, residential, or dietary exposures. Counseling should include sources of environmental toxins and approaches used to limit exposure. To conduct this kind of counseling, midwives need a working knowledge of local and regional environmental pollutants, including soil contaminated by past and present industry and agricultural pesticides. Midwives can also provide guidance to reduce exposure to toxins for all women, including recommendations to rinse fruits and vegetables to remove pesticide residue and to avoid consuming contaminated foods.

### **Special Considerations**

A complete history may reveal reproductive problems including extremes of age, genetic conditions of the woman or family, and chronic illnesses and treatments. In these situations, preconception care can be invaluable.

### **Risk for Genetic Disorders**

Knowledge about genetic inheritance, screening, and counseling has exploded during this century. Collection of a three-generation history is needed to identify genetic conditions. If a specific risk factor is identified or if the future parents have concerns, referral to a genetic specialist is required.<sup>2</sup> Population genetics suggest that some screening can be focused by ethnic or racial backgrounds. For example, Ashkenazi Jews



Table 5A-2 Environmental Toxins with General and Reproductive Effects																
Agent/Source of Exposure	General Effects										Reproductive Effects					
	Cancer	Increased BMI	Neurologic Impairment	Thyroid Dysfunction	Genomic Methylation	Alterations	Spontaneous Abortion	Preterm Birth	Stillbirth	Decreased Birth Weight	Impaired Fetal Growth	Impaired Neurologic Development <sup>a</sup>	Congenital Malformations	Reduced Sperm Quality	Post-Term Birth	Breastfeeding Effects When Known
<b>Lead:</b> Battery manufacture, smelting, soldering, firearm manufacture, lead-based paints, lead pipes, ceramics, jewelry, folk medicines, hair dyes, contaminated soil			X		X						X					Most common heavy metal found in breast milk
<b>Mercury:</b> Coal-fired plants, contaminated fish			X								X					Found in breast milk
<b>Arsenic:</b> Wood preservative, mining, manufacturing	X															Found in breast milk
<b>Cadmium:</b> Mining, industrial pollution	X															Least common heavy metal found in breast milk
<b>Pesticides, organophosphates, organochlorines, organohalogens:</b> Agriculture, landscaping, pest control	X		X							X	X			X		Levels decreasing in breast milk samples during 2000s
<b>Solvents (benzene, toluene, xylene, styrene, bromopropanes, perchloroethylene):</b> Plastics, synthetic fibers, dyes, detergents, lubricants, printing, insulation, leather tanning, cleaning products, fiberglass, carpet backing									X			X				
<b>Phthalates:</b> Medical devices, building materials, cosmetics, pharmaceuticals, food processing, toys									X							
<b>Polychlorinated biphenyls:</b> Industrial insulators and lubricants	X	X								X	X			X		May be present in breast milk

<b>Perchlorate:</b> Rocket fuel, fireworks, bleach, fertilizers	X								May be present in breast milk
<b>Perfluorochemicals, Perfluorooctane sulfonate (PFOS):</b> Nonstick cookware, water-resistant packaging, food containers, manufacturing	X		X	X	X			X	Present in breast milk samples of women from many countries; effect unknown
<b>Polybrominated diphenyl ethers:</b> Flame retardant, furniture, textiles, carpeting, electronics			X	X	X				Levels increasing in breast milk samples during 2000s
<b>Bisphenol A:</b> Plastics, resins, packaging		X						X	
<b>Formaldehyde:</b> Wood adhesives, abrasive agents, clinical laboratory preservative, embalming		X			X				
<b>Antineoplastic drugs:</b> Chemotherapy		X			X				
<b>Anesthetic gases:</b> Human and veterinary surgery		X			X			X	
<b>Ethylene oxide:</b> Sterilizing gas for heat-sensitive medical items and surgical instruments		X			X				
<b>Ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, lead, particulate matter:</b> Air pollution				X	X			X	
<b>Cigarette smoke</b>		X		X	X				X

<sup>a</sup> Impaired neurologic development includes abnormal brain development, mental disability, lowered IQ, aggressive behavior, attention-deficit disorder, hyperactivity, and executive function deficits.

Based on American College of Obstetricians and Gynecologists Committee on Health Care for Underserved Women, American Society for Reproductive Medicine Practice Committee, The University of California, San Francisco. Program on Reproductive Health and the Environment. *Exposure to Toxic Environmental Agents*. Washington, DC: American College of Obstetricians and Gynecologists; 2013<sup>17</sup>; Di Renzo GC, Conry JA, Blake J, et al. International Federation of Gynecology and Obstetrics opinion on reproductive health impacts of exposure to toxic environmental chemicals. *Int J Gynaecol Obstet*. 2015;131(3):219-225<sup>18</sup>; Furst P. Dioxins, polychlorinated biphenyls and other organohalogen compounds in human milk: levels, correlations, trends and exposure through breastfeeding. *Mol Nutr Food Res*. 2006;50(10):922-933<sup>19</sup>; Gao Y, Chen H, Xiao X, et al. Perfluorooctanesulfonate (PFOS)-induced Sertoli cell injury through a disruption of F-actin and microtubule organization is mediated by Akt1/2. *Sci Rep*. 2017;7(1):1110<sup>20</sup>; Project TENDR. Project TENDR: Targeting Environmental Neuro-Developmental Risk. The TENDR consensus statement. *Environ Health Perspect*. 2016;124(7):A118-A122<sup>21</sup>; Rebelo FM, Caldas ED. Arsenic, lead, mercury and cadmium: toxicity, levels in breast milk and the risks for breastfed infants. *Environ Res*. 2016;151:671-688<sup>22</sup>; Solomon GM, Weiss PM. Chemical contaminants in breast milk: time trends and regional variability. *Environ Health Perspect*. 2002;110(6):A339-A347<sup>23</sup>; Woodruff TJ, Zota AR, Schwartz JM. Environmental chemicals in pregnant women in the United States: NHANES 2003-2004. *Environ Health Perspect*. 2011;119(6):878-885.<sup>24</sup>

have a higher risk of Tay–Sachs disease than other groups. Sickle cell disease is more common among African Americans, while cystic fibrosis has a higher incidence among Northern Europeans.

When a woman has been identified as a carrier for a condition, her reproductive partner should also be offered screening. In the event that a referral for genetic counseling is necessary, midwives must remain sensitive to the costs and insurance coverage of genetic counseling services and provide women with affordable options. A detailed discussion of this entire subject is found in the *Genetics* chapter.

### Reproductive History

Previous adverse pregnancy outcomes suggest the need for additional attention in the preconception period. For example, women who have had a previous pregnancy complicated by complications such as preterm birth or fetal growth restriction are at risk for similar outcomes in a subsequent pregnancy. If the etiology of a previous adverse perinatal outcome is known, further assessment and therapies may be instituted preconceptionally to mitigate recurrence risks.<sup>25,26</sup> Health education about birth spacing, nutrition, and healthy habits often are useful in improving outcomes.

### Effect of Maternal Age on Reproductive Outcomes

Declines in fertility and adverse reproductive outcomes are more likely as women become older—specifically, after age 35 years.<sup>2</sup> In addition, as women age, their risks for diabetes, hypertension, and other chronic diseases increase. These chronic conditions independently increase the risk for poor perinatal outcomes. Thus, it is often difficult to distinguish the risks that are secondary to age from those that are secondary to a combination of age and a chronic condition.

The effects of age on reproductive outcomes form a continuum. Although 35 years is often used as a cut-off for identifying women at increased risk, most of these risks increase incrementally over time. Based on a woman's reproductive life plan discussion with women approaching this age may consider a variety of options related to fertility and pregnancy, including egg banking and other aspects of reproductive artificial technology—topics beyond the scope of this appendix.<sup>27</sup>

### Medical Conditions

Women who have medical conditions that can adversely affect pregnancy (e.g., diabetes, hypertension, epilepsy, autoimmune disorders) should be referred for care by a specialist prior to attempting pregnancy. **Table 5A-3** lists selected chronic health conditions that

can adversely affect the course of pregnancy, though it is not all-inclusive.<sup>25,28-34</sup> Several of these conditions have risks associated with the disease; others require treatments that may be teratogenic or fetotoxic.

### Medications

Medications used by the woman, including herbal preparations, botanicals, and over-the-counter agents, should be evaluated for potential teratogenic effects, and the continuing need for the medication should be assessed. Women should not be automatically counseled to discontinue medications because they are considering pregnancy, as this may negatively affect their medical or mental health. Ideally, a plan should be in place for use of any specific medication in the preconception period and during the early stages of organogenesis. When a woman reports taking a medication that has identified risks during pregnancy, the midwife should discuss the implications with the woman and recommend safer alternative medications as available.

### Preparing for Pregnancy

The decision to seek pregnancy is unique to each woman. A preconception visit enables her to optimize her health. Health is more than the mere absence of disease, and exploration about a woman's level of stress, socioeconomic stability, family dynamics, support networks, and other social determinants of health can also be explored during this time.<sup>35</sup> Short interpregnancy spacing, as defined as 6 months or less, has been found to be an independent risk factor for adverse perinatal outcomes, and that information may influence a woman's timing of pregnancy.<sup>36</sup>

The preconception period is also an ideal time for women and/or couples to consider their access to and availability of health care. An essential question to consider at a preconception visit is whether the woman wishes to see a midwife, obstetrician-gynecologist, family practice physician, or maternal–fetal medicine specialist when pregnant. Place of birth and provider options may be controlled by the woman's insurance carrier and subject to certain limitations. If couples investigate these options early, they may be able to make the arrangements for the birth provider and the environment they need and prefer.

While most midwives provide little care for men, male partners of a woman planning a pregnancy should also be encouraged to develop a reproductive life plan. Should they have a history of personal or family health conditions, they should also obtain an evaluation of their health and potentially genetic counseling.

**Table 5A-3 Preconception Care Interventions for Chronic Medical Conditions**

Medical Condition	Evidence-Based Interventions
Asthma	Inhaled corticosteroid therapy for asthma control may be associated with low birth weight, gastroschisis, and increased risk of preeclampsia. Women with asthma should be evaluated, the condition optimally stabilized, and medications carefully chosen before a woman becomes pregnant.
Autoimmune conditions (e.g., rheumatoid arthritis, systemic lupus erythematosus)	Some medications commonly used to treat autoimmune conditions, such as methotrexate (Trexall), are teratogens. Use of nonsteroidal anti-inflammatory drugs (NSAIDs) in the first trimester does not appear to be associated with fetal anomalies; however, NSAIDs are contraindicated later in pregnancy due to their effect in keeping the ductus arteriosus open.
Cardiovascular disease	Perinatal outcomes are closely associated with the severity of the heart disease (e.g., minimal risks exist associated with mitral valve prolapse; pulmonary hypertension is potentially life threatening). Warfarin (Coumadin) use in pregnancy is associated with embryopathy.
Diabetes	Good glycemic control (i.e., HbA1c < 6.0%) at the time of conception lowers the risk of miscarriage and congenital anomalies that are associated with hyperglycemia.
Hypertension	Use of ACE inhibitors and ARBs is associated with increased risks of fetal malformation, oligohydramnios, fetal growth restriction, and fetal death. Women with long-standing hypertension may have silent ventricular hypertrophy, retinopathy, and renal disease, requiring evaluation by a specialist prior to pregnancy.
IPV	IPV has been associated with preterm birth, low birth weight, postpartum depression, and even maternal mortality. Interventions before pregnancy can focus on helping the woman find a safe environment.
Mental health conditions	Although debate continues regarding the potential teratogenic effects of some psychotropic agents, there is a general consensus that the benefits associated with treatment generally outweigh the risks because mental health disorders in pregnancy are associated with poor obstetric outcomes, higher risk of postpartum psychiatric illnesses, increased rates of substance abuse, lower participation in prenatal care, and adverse infant outcomes.
Obesity	Considered the most common of the chronic diseases, obesity during pregnancy increases maternal risks of hypertensive disorders and gestational diabetes as well as preterm birth, birth defects, and perinatal death. Education and counseling during the preconception period can assist a woman in losing weight in a healthy manner before attempting pregnancy. Weight-loss drugs should be avoided, as they may be associated with increased risk of congenital anomalies when used in pregnancy.
Renal disease	Because women who have severe renal disease are likely to experience a worsening of the condition during pregnancy, including severe associated conditions such as hypertension, these women should be carefully counseled by a specialist and their medications evaluated prior to becoming pregnant.
Seizure disorders	Many anticonvulsants are known teratogens but based on the woman's seizure pattern may be prescribed because their risks can be outweighed by their benefits. Preconception counseling for women affected by seizure disorders has been shown to increase the likelihood of successful withdrawal to monotherapy and to positively impact birth outcomes.

(continues)

**Table 5A-3 Preconception Care Interventions for Chronic Medical Conditions (continued)**

Medical Condition	Evidence-Based Interventions
Thyroid disorders	Medications for hyperthyroidism may be associated with congenital anomalies. The general recommendation is to avoid pregnancy for 6 months after receiving radioactive treatment.  Overt hypothyroidism during a woman's first trimester of pregnancy is associated with dwarfism and intellectual impairment. Other pregnancy complications associated with hypothyroidism include miscarriage, preterm birth, preeclampsia, placental abnormalities, and low birth weight.

Abbreviations: ACE, angiotensin-converting enzyme; ARBs, angiotensin II receptor blockers; HbA1c, hemoglobin A1C; IPV, intimate-partner violence.

Based on American Academy of Pediatrics, American College of Obstetricians and Gynecologists. Medical and obstetric complications. In: *Guidelines for Perinatal Care*. 8th ed. Elk Grove Village, IL: American Academy of Pediatrics; 2017:301-346<sup>25</sup>; Bramham K, Lightstone L. Pre-pregnancy counseling for women with chronic kidney disease. *J Nephrol*. 2012;25(4):450-459<sup>28</sup>; Centers for Disease Control and Prevention. Preconception health and healthcare: medical conditions. Available at: <https://www.cdc.gov/preconception/careforwomen/conditions.html>. Accessed October 9, 2017<sup>29</sup>; Lassi ZS, Imam AM, Dean SV, Bhutta ZA. Preconception care: screening and management of chronic disease and promoting psychological health. *Reprod Health*. 2014;11(suppl 3):S5<sup>30</sup>; Marchi J, Berg M, Dencker A, Olander EK, Begley C. Risks associated with obesity in pregnancy, for the mother and baby: a systematic review of reviews. *Obes Rev*. 2015;16(8):621-638<sup>31</sup>; Coonrod DV, Jack BW, Stubblefield PG, et al. The clinical content of preconception care: infectious diseases in preconception care. *Am J Obstet Gynecol*. 2008;199(6 suppl 2):S296-S309<sup>32</sup>; Dunlop AL, Gardiner PM, Shellhaas CS, Menard MK, McDiarmid MA. The clinical content of preconception care: the use of medications and supplements among women of reproductive age. *Am J Obstet Gynecol*. 2008;199(6 suppl 2):S367-S372<sup>33</sup>; Frieder A, Dunlop AL, Culpepper L, Bernstein PS. The clinical content of preconception care: women with psychiatric conditions. *Am J Obstet Gynecol*. 2008;199(6 suppl 2):S328-S332.<sup>34</sup>

Although many providers recommend using a barrier method for a set period of time before discontinuing contraception completely, this recommendation is based on the convenience of establishing a normal menstrual period that can be used to determine an estimated date for birth rather than evidence that pregnancy outcomes are improved if conception is delayed. After using a hormonal method of contraception, the first menses may be anovulatory or ovulation may occur quickly. When ovulation does occur quickly, a woman might conceive prior to having a menstrual period, which makes gestational dating by last menstrual period less reliable. Women should be reassured that conceiving prior to the first menstrual period is not associated with an increased risk of spontaneous abortion or congenital anomalies.

As a general guideline, a woman who is seeking pregnancy, engaging in regular intercourse, and not using any contraceptive method will usually become pregnant within a year. If pregnancy does not ensue

after 12 months, an infertility evaluation for the woman and her partner can be initiated. Alternatively, some women age 35 years or older may wish to seek infertility care after only 6 months of failing to become pregnant because fertility wanes with increasing age.

## Conclusion

Preconception is an important topic for healthcare providers and women alike. A healthy woman is more likely to have a healthy newborn. Health care during the preconception period verifies that a woman is healthy; provides an opportunity to treat a woman who has a disorder; and promotes health education, counseling, and habits that are congruent with a healthy pregnancy, and birth. Preconception care does not need to be pronatalistic or cost unnecessary time in the clinical area. By using the One Key Question, care can be focused appropriately on the care of the woman during the clinical encounter.

## Resources

Organization	Description	Webpage
Centers for Disease Control and Prevention (CDC)	U.S. government site with specific information regarding preconception care. Includes download of the free consumer-oriented app <i>Show Your Love</i> to help women maintain healthy habits, chart ovulation, and plan for pregnancy.	<a href="https://www.cdc.gov/preconception/index.html">https://www.cdc.gov/preconception/index.html</a>
National Preconception Health and Health Care Initiative Website	Partnership among more than 70 public and private organizations to promote preconception health care. Source of extensive materials and information.	<a href="https://beforeandbeyond.org">https://beforeandbeyond.org</a>



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