



# Preconception Health Care

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Because half of all pregnancies in the United States are unplanned, primary care constitutes preconception health care for women ages 15 to 44. Here are recommendations to incorporate into routine visits to improve outcomes of possible pregnancies.

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## LEARNING OBJECTIVES

- Define preconception and interconception health care and explain how these concepts relate to primary care.
- Describe three common clinical presentations in reproductive-age women that have implications for preconception and interconception health care.
- Explain the considerations, in terms of potential pregnancies, when prescribing pharmacologic treatment for reproductive-age women.
- Discuss examples of cultural factors and beliefs that may affect preconception health counseling provided to women of reproductive age.

**T**raditional interventions to improve pregnancy outcomes in the United States have focused on early, consistent prenatal care and on reducing the teenage pregnancy rate. Data indicate that early access to prenatal care has increased and that the teenage pregnancy rate has fallen.<sup>1,2</sup>

But while US rates of preterm births, low-birth-weight infants, and infant mortality have all declined since the mid-2000s,<sup>3</sup> they remain higher than those in many other developed countries.<sup>4-6</sup> Furthermore, there are significant differences in these rates by race and ethnicity.<sup>3</sup>

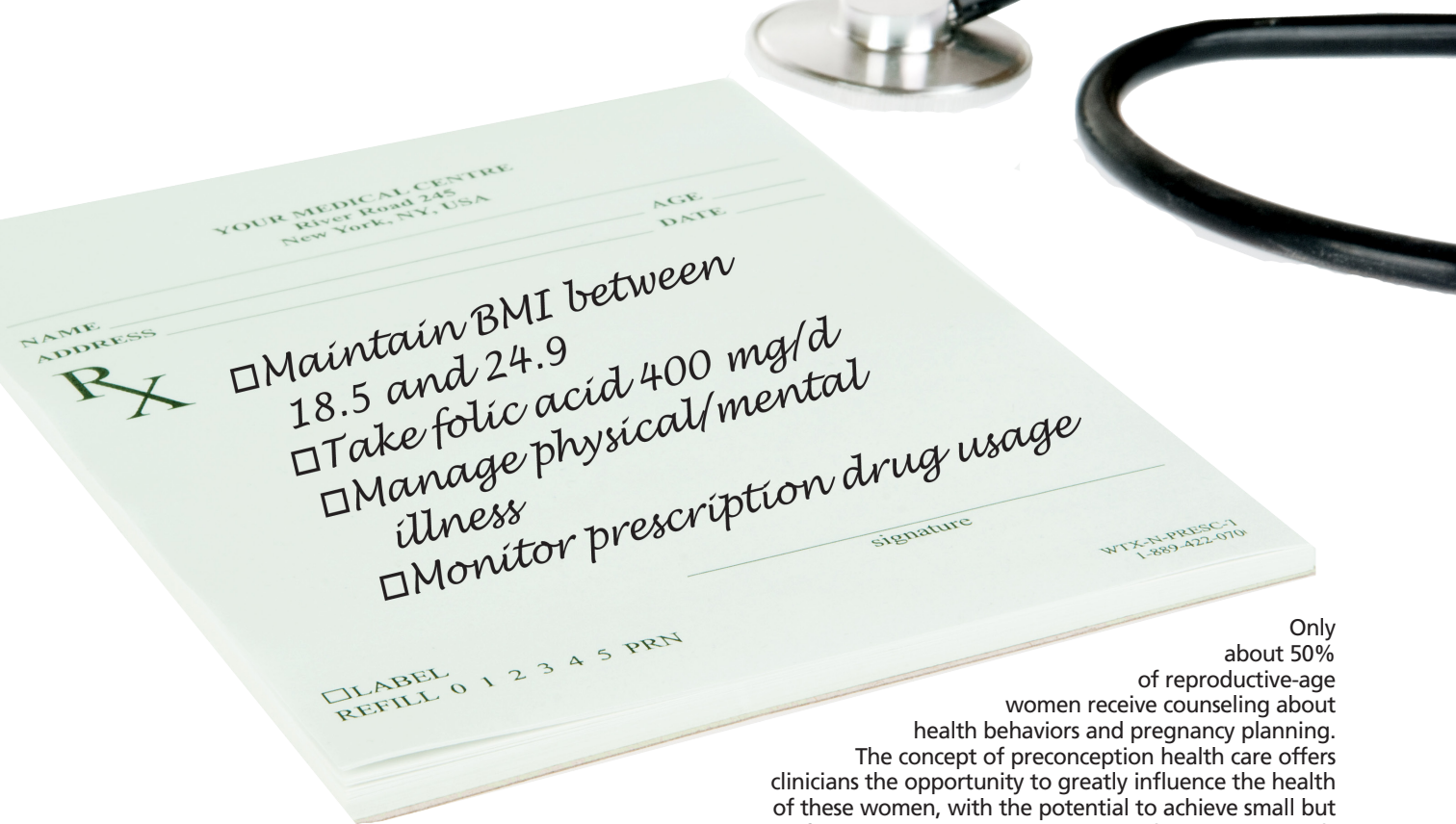
Many experts believe that waiting until a woman is pregnant to address the health needs and behaviors that adversely affect pregnancy outcomes is, at best, an incomplete solution to these problems. A more comprehensive view of women's health care broadens this focus to stress the importance of preconception health care throughout the reproductive years. It is key to the achievement of optimal health, not only for women but also for their potential future children.<sup>7-9</sup>

The CDC defines *preconception health* simply as the health of women and men during their reproductive years. *Preconception health care* is defined as medical care during those years (for women, ages 15 to 44) that focuses on improving aspects of the patient's health or health behaviors that can improve outcomes in the event of a pregnancy.<sup>10</sup> The term *interconception health care* is also applied specifically to health care provided during the time between pregnancies.

This article highlights obesity, depression and other mood disorders, and nutritional deficiencies and reviews potential risk factors, particularly occurring very early in a pregnancy. Recommendations are offered for more effective health coun-

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selling at routine visits, with the goal of improving outcomes of potential pregnancies.

### PRIMARY CARE IS PRECONCEPTION CARE

Researchers have reported that only about 50% of reproductive-age women receive counseling about health behaviors and pregnancy planning<sup>8</sup> and that such counseling is even rarer for adolescent females.<sup>11,12</sup> Because women of childbearing age commonly see both Ob-Gyn and family practice clinicians for health care, primary care providers are well positioned to deliver preconception health care by integrating health counseling, discussion of health behaviors, and primary and secondary prevention into patient care for reproductive-age women (see "Summary of CDC Recommendations to Improve Preconception Health and Health Care," page 43).<sup>6</sup>

### OBESITY

Researchers in both the US and internationally have noted the connection between obesity and pregnancy complications such as gestational diabetes that increase the risk for poor pregnancy outcomes.<sup>13-15</sup> Indeed, pregnancy outcomes can be altered for the better with weight loss in the preconception or interconception period.<sup>16</sup>

Weight loss is complex; it can be difficult to accomplish, and long-term maintenance also presents a challenge. Short-term weight loss is achievable, however, and can produce beneficial metabolic effects, such as a decrease in insulin resistance.<sup>17</sup>

Before weight loss attempts can be initiated, the

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overweight or obese patient's weight must be acknowledged as a health problem. In one 2009 study, Callaway et al found that in their sample of 412 overweight and obese women, only 17% were advised by their health care providers to lose weight.<sup>18</sup>

Regular physical activity can facilitate the achievement and maintenance of a healthy weight. However, physical inactivity is common in nonpregnant women, especially those with higher BMIs. The CDC's Pregnancy Risk Assessment Monitoring System (PRAMS; [www.cdc.gov/prams](http://www.cdc.gov/prams)), widely regarded as an important source of data about women's health behaviors, reveals that nearly 40% of US women do not meet national recommendations for routine physical activity in the three months prior to pregnancy.<sup>19</sup>

Recent obesity guidelines recommend initial weight loss goals of 5% to 10% of baseline weight in six months before pregnancy.<sup>17</sup> Some women may not achieve these goals because they are unaware of the potentially short time period between discontinuation of contraception and conception. Others, especially those older than 30, intentionally plan for short interconception intervals as part of their family planning strategy, which does not allow enough time for safe weight loss.<sup>20</sup>

Primary care clinicians should counsel these patients on the importance of a healthy weight and regular physical activity to the maintenance of optimal health. Particular emphasis should be placed on achieving weight loss slowly and safely and then

maintaining it, at least for the short term. This strategy may be effective in helping a female patient achieve a lower BMI prior to pregnancy.

### Bariatric surgery

Because the number of women undergoing bariatric surgery for morbid obesity is rapidly increasing,<sup>21</sup> it is important to educate them about the specific effects of such procedures on reproductive health. A period of rapid weight loss—such as occurs after bariatric surgery—is not a time to consider pregnancy, despite the improvement in eventual pregnancy outcomes associated with a healthier BMI.

Many of these women may have been anovulatory when morbidly obese and unaware that fertility increases in the postoperative year, after a reduced BMI is achieved. If ovulation and menses have not yet



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normalized, a woman may become pregnant and not know it. This could result in the inadvertent exposure of the developing fetus to such teratogenic risks as alcohol, tobacco, and certain prescription drugs. While a pregnancy may be welcome, better outcomes are likely if pregnancy is avoided for at least 12 months after bariatric surgery.<sup>22</sup> Effective contraception should be used until ovulation cycles stabilize.

Some surgical weight loss procedures, such as the Roux-en-Y gastric bypass, may alter the absorption of medication, including oral contraceptives (OCs), making the use of OCs after such procedures less than ideal. The more reliably absorbed injectable medroxyprogesterone is an option, but women who have undergone bariatric surgery often wish to avoid the associated risk for weight gain. Nonhormonal long-acting contraceptive methods not associated with weight gain, such as the copper intrauterine device, may be preferable for use in the first year post-procedure.<sup>21</sup>

### DEPRESSION AND OTHER MOOD DISORDERS

Mood disorders include depression, bipolar disorder, and anxiety disorders. Selective serotonin reuptake inhibitors (SSRIs, such as paroxetine or ser-

traline) or serotonin and norepinephrine reuptake inhibitors (SNRIs, such as venlafaxine or duloxetine) are often prescribed for primary care management of depression and other mood disorders.

When SSRIs or SNRIs are not fully effective, clinicians may refer patients to mental health specialists for consultation and possible ongoing management. Women of reproductive age who receive specialty care for mood disorders are encouraged to continue their regular visits to primary care clinicians.

### Medication: Risk for birth defects

Anticonvulsants, such as valproate, carbamazepine, and lamotrigine, are commonly used to treat bipolar disorder.<sup>23</sup> When taken during the first trimester of pregnancy, these drugs pose well-documented risks to the rapidly developing fetus. Most evidence relates to the risk for neural tube defects, such as spina bifida, but other evidence suggests a risk for general cognitive impairment after prenatal valproate exposure. While the latter is based primarily on studies of women taking anti-

epileptic drugs for seizure control—not psychiatric diagnoses—first-trimester risks appear to be independent of maternal seizures.<sup>23</sup> Although folic acid supplementation decreases the incidence of neural tube defects (see discussion under “Nutritional Deficiencies”), it is unknown if such supplementation is effective in mitigating the additional risks to the fetus from exposure to anticonvulsants.

Female patients of childbearing age must be advised of the potential effects of these commonly prescribed mood-stabilizing drugs, not only as they relate to the diagnosis being treated but also regarding their possible effects on an early, undiagnosed pregnancy. Unfortunately, evidence indicates that insufficient attention is given to counseling reproductive-age women about the risks and benefits of these drugs as they relate to potential conception, at least in the context of specialty care.<sup>23</sup> Therefore, the primary care clinician and the specialist should utilize a team approach, emphasizing careful reproductive planning to avoid pregnancy while under treatment with these drugs to ensure the best possible outcomes.

In the context of potential pregnancy, the need to manage depression and other mood disorders

effectively is particularly important: Prepregnancy depressive mood has been significantly associated with preterm birth, and at least 14.5% of women experience a new episode of depression during pregnancy.<sup>24</sup> Thus, effective treatment of mood disorders should be a priority, both as part of preconception care and during pregnancy.

Similarly, treatment strategies for postpartum depression—widely estimated to affect 10% to 20% of new mothers—must consider the potential risks of pharmacologic therapy to a fetus should the patient conceive during treatment.

### NUTRITIONAL DEFICIENCIES

While there is widespread public awareness, at least on a basic level, of the importance of good nutrition during pregnancy, what that constitutes is not necessarily clearly understood. Even less well recognized is the importance of a woman's nutritional status at the time of conception, at preimplantation, and during the early weeks of placental development, before pregnancy is known or confirmed. During this crucial time—three to seven weeks after the last menstrual period—an inadequate diet may result in low-birth-weight infants with lifelong health problems.<sup>25</sup> These may include respiratory problems associated with barotrauma from ventilation at birth; neural tube defects; and orofacial clefts.<sup>25</sup>

Because of inadequate intake of fresh fruits and vegetables, many reproductive-age women in the US are deficient in vitamins A, C, B<sub>6</sub>, and E, as well as calcium, iron, zinc, magnesium, and folic acid. Although vitamin and mineral supplements are readily available, little clinical research—with the exception of folic acid—has been done on the efficacy of such supplementation.<sup>26</sup>

Until more is known, intake of these dietary components is best achieved as part of a well-balanced diet; however, this recommendation may need to be modified for African-American women. In a recent retrospective study of almost 2,500 white and African-American women who took a multivitamin supplement consistently during the month before conception, supplementation was associated with increased infant birth weight in the infants born to African-American women but not in those born to white women.<sup>26</sup>

### Folic acid

In the specific case of folic acid, the crucial importance of preconception intake by reproductive-age

## ► Summary of CDC Recommendations to Improve Preconception Health and Health Care

- **Individual responsibility across the lifespan** Each woman, man, and couple should be encouraged to have a reproductive life plan.
- **Consumer awareness** Increase public awareness of the importance of preconception health behaviors and preconception care services by using information and tools appropriate across various ages, literacy, and cultural and linguistic contexts.
- **Preventive visits** As a part of primary care visits, provide risk assessment and educational and health promotion counseling to all women of childbearing age to reduce reproductive risks and improve pregnancy outcomes.
- **Interventions for identified risks** Increase the proportion of women receiving follow-up interventions to preconception risk screening, focusing on high priority interventions.
- **Interconception care** Use the interconception period to provide additional intensive interventions to women who have had a previous pregnancy with an adverse outcome.
- **Pregpregnancy checkup** Offer, as a component of maternity care, one prepregnancy visit for couples and persons planning pregnancy.
- **Health insurance coverage for women with low incomes** Increase awareness of expanded coverage for preconception health care as part of the Affordable Care Act, especially in states with expanded Medicaid eligibility.
- **Public health programs and strategies** Integrate components of preconception health into existing local public health and related programs, including emphasis on interconception interventions for women with previous adverse outcomes.
- **Research** Increase the evidence base and promote the use of the evidence to improve preconception health.
- **Monitoring improvements** Maximize public health surveillance and related research mechanisms to monitor preconception health.

Source: Adapted from Johnson et al. *MMWR Recomm Rep*. 2006.<sup>13</sup>

women is hard to overstate. A well-established body of research supports supplementation to reduce the incidence of neural tube defects that may occur very early in development, before many women are aware of a pregnancy.<sup>25-27</sup> However, it is estimated that only a minority of reproductive-age women take a regular folic acid supplement. This may be particularly true of women who are actively avoiding pregnancy and using regular contraception. Patients need to be educated that, as effective as current contraceptive methods are known to be, each method has a typical user failure rate, meaning that actual effectiveness is lower than theoretical effectiveness.

Considering that half of US pregnancies are unintended, with some occurring as a result of contraceptive method or user failures, the FDA Advisory Committee unanimously endorsed the concept of using OCs as a vehicle for folate supplementation.<sup>27</sup> There are currently two FDA-approved OCs fortified with the equivalent of 0.4 mg of folic acid. Both contain drospirenone and therefore present a somewhat elevated risk for blood clots, especially in the first year of use.<sup>28,29</sup> While this risk is small compared to the incidence of blood clots during pregnancy, a careful history should be taken to avoid prescribing these products to patients already at increased risk for blood clots (eg, obese women, smokers [even light smokers], those with a history of a blood clot after surgery or a motor vehicle accident). For women without risk factors, folic acid-supplemented OCs may be very beneficial should they become pregnant unintentionally or quickly after stopping contraception.

### CULTURAL CONSIDERATIONS

Not all racial, ethnic, and socioeconomic groups consider health and pregnancy in the same cultural context, and nonmedical factors may affect health behaviors and sources of health counseling. Studies of women of different cultural backgrounds are illustrative.

In one study, increasing women's evidence-based knowledge of preconception and interconception health behaviors, using group education and peer support, was shown to produce attitudinal and behavior changes in a sample of reproductive-age rural white women, especially with regard to nutrition and physical activity in the preconception period.<sup>30</sup>

Another study of primarily low-income Latina women with low levels of acculturation revealed that

they had good understanding of the importance of attention to health once pregnancy is confirmed. However, they expressed much less belief in the ability of a woman to control her own preconception general health.<sup>31</sup>

A third study involving a sample of African-American women found that the women saw no clear role for preconception or interconception care through health care visits with primary care clinicians; rather, they looked to their social and cultural communities and families for such support.<sup>32</sup>

These diverse results suggest that both community-wide education and one-to-one health counseling are needed to effect improvements in health behaviors and knowledge. Subtle differences in cultural context must be recognized by health care providers who interact with a broad range of reproductive-age women.

### CONCLUSION

Guidelines from the American Academy of Pediatrics, the American Congress of Obstetricians and Gynecologists, and the CDC all endorse the integration of preconception care into primary care encounters.<sup>33-36</sup> The concept of preconception health care offers clinicians the opportunity to greatly influence the health of reproductive-age women in the primary care setting, with the potential to achieve small but clinically significant changes in health behaviors. Complications of pregnancy and poor pregnancy outcomes may be reduced when the overall health status of women of reproductive age is addressed, with awareness and mitigation of factors known to produce negative pregnancy outcomes.

There is a need, however, for ongoing research to develop effective, evidence-based strategies for use by primary care clinicians in the effort to improve women's preconception health and, ultimately, pregnancy outcomes. **CR**

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## CROSSECTION

- The goal of preconception health care is the achievement of optimal health by women of reproductive age so that, should pregnancy occur, the likelihood of healthy outcomes for both mother and baby are maximized.
- To reduce her own health risks (eg, for diabetes and heart disease) and to avoid the increased risks to both mother and baby in the event of a pregnancy, an overweight or obese woman should be encouraged to achieve and maintain a 5% to 10% weight loss.
- Patient counseling about the potential teratogenic effects of many prescription drugs is crucial. Reproductive-age women need to be aware of these risks because of the possibility that a drug may adversely affect a developing embryo before a pregnancy is known.

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