



The American College of
Obstetricians and Gynecologists
WOMEN'S HEALTH CARE PHYSICIANS



Prepregnancy counseling

Committee Opinion No. 762

American Society for Reproductive Medicine and American College of Obstetricians and Gynecologists'
Committee on Gynecologic Practice

American Society for Reproductive Medicine, Birmingham, Alabama; and American College of Obstetricians and Gynecologists, Washington, D.C.

The goal of prepregnancy care is to reduce the risk of adverse health effects for the woman, fetus, and neonate by working with the woman to optimize health, address modifiable risk factors, and provide education about healthy pregnancy. All those planning to initiate a pregnancy should be counseled, including heterosexual, lesbian, gay, bisexual, transgender, queer, intersex, asexual, and gender nonconforming individuals. Counseling can begin with the following question: “*Would you like to become pregnant in the next year?*” Prepregnancy counseling is appropriate whether the reproductive-aged patient is currently using contraception or planning pregnancy. Because health status and risk factors can change over time, prepregnancy counseling should occur several times during a woman’s reproductive lifespan, increasing her opportunity for education and potentially maximizing her reproductive and pregnancy outcomes. Many chronic medical conditions such as diabetes, hypertension, psychiatric illness, and thyroid disease have implications for pregnancy outcomes and should be optimally managed before pregnancy. Counseling patients about optimal intervals between pregnancies may be helpful to reduce future complications. Assessment of the need for sexually transmitted infection screening should be performed at the time of prepregnancy counseling. Women who present for prepregnancy counseling should be offered screening for the same genetic conditions as recommended for pregnant women. All patients should be routinely asked about their use of alcohol, nicotine products, and drugs, including prescription opioids and other medications used for nonmedical reasons. Screening for intimate partner violence should occur during prepregnancy counseling. Female prepregnancy folic acid supplementation should be encouraged to reduce the risk of neural tube defects. (Fertil Steril® 2019;111:32–42. ©2018 by the American College of Obstetricians and Gynecologists.)

ACOG COMMITTEE OPINION NUMBER 762

Committee on Gynecologic Practice

American Society for Reproductive Medicine

*This information is designed as an
educational resource to aid clinicians*

*in providing obstetric and gynecologic
care, and use of this information is
voluntary. This information should
not be considered as inclusive of all
proper treatments or methods of care
or as a statement of the standard of
care. It is not intended to substitute
for the independent professional judg-
ment of the treating clinician. Varia-*

*tions in practice may be warranted
when, in the reasonable judgment of
the treating clinician, such course of
action is indicated by the condition of
the patient, limitations of available re-
sources, or advances in knowledge or
technology. The American College of
Obstetricians and Gynecologists re-
views its publications regularly; how-
ever, its publications may not reflect
the most recent evidence. Any updates
to this document can be found on
www.acog.org or by calling the ACOG
Resource Center.*

*While ACOG makes every effort to
present accurate and reliable informa-
tion, this publication is provided “as
is” without any warranty of accuracy,
reliability, or otherwise, either express
or implied. ACOG does not guarantee,
warrant, or endorse the products or
services of any firm, organization, or
person. Neither ACOG nor its officers,*

This Committee Opinion was developed jointly by the American College of Obstetricians and Gynecologists’ Committee on Gynecologic Practice and the American Society for Reproductive Medicine in collaboration with committee member Daniel M. Breitkopf, MD and ASRM member Micah Hill, DO.

Requests for authorization to make photocopies should be directed to Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923, (978) 750-8400.

Published online on December 20, 2018.

Published concurrently in the January 2019 issue of *Obstetrics & Gynecology*.

Prepregnancy counseling. ACOG Committee Opinion No. 762. American College of Obstetricians and Gynecologists. *Obstet Gynecol* 2019;133:e78–89.

Correspondence: American College of Obstetricians and Gynecologists, 409 12th Street, SW, PO Box 96920, Washington, DC 20090-6920.

Fertility and Sterility® Vol. 111, No. 1, January 2019 0015-0282/\$36.00

Copyright 2018 by the American College of Obstetricians and Gynecologists. All rights reserved.

No part of this publication may be reproduced, stored in a retrieval system, posted on the Internet, or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without prior written permission from the publisher.

<https://doi.org/10.1016/j.fertnstert.2018.12.003>

directors, members, employees, or agents will be liable for any loss, damage, or claim with respect to any liabilities, including direct, special, indirect, or consequential damages, incurred in connection with this publication or reliance on the information presented.

All ACOG committee members and authors have submitted a conflict of interest disclosure statement related to this published product. Any potential conflicts have been considered and managed in accordance with ACOG's Conflict of Interest Disclosure Policy. The ACOG policies can be found on acog.org. For products jointly developed with other organizations, conflict of interest disclosures by representatives of the other organizations are addressed by those organizations. The American College of Obstetricians and Gynecologists has neither solicited nor accepted any commercial involvement in the development of the content of this published product.

RECOMMENDATIONS AND CONCLUSIONS

The American College of Obstetricians and Gynecologists (ACOG) and the American Society for Reproductive Medicine (ASRM) make the following recommendations and conclusions:

- Any patient encounter with nonpregnant women or men with reproductive potential (eg, not posthysterectomy or poststerilization) is an opportunity to counsel about wellness and healthy habits, which may improve reproductive and obstetric outcomes should they choose to reproduce.
- Counseling can begin with the following question: “*Would you like to become pregnant in the next year?*”
- The goal of prepregnancy care is to reduce the risk of adverse health effects for the woman, fetus, and neonate by working with the woman to optimize health, address modifiable risk factors, and provide education about healthy pregnancy.
- Women should be counseled to seek medical care before attempting to become pregnant or as soon as they believe they are pregnant to aid in correct dating and to be monitored for any medical conditions in which treatment should be modified during pregnancy.
- Many chronic medical conditions such as diabetes, hypertension, psychiatric illness, and thyroid disease have implications for pregnancy outcomes and should be optimally managed before pregnancy.
- All prescription and nonprescription medications should be reviewed during prepregnancy counseling. This review also should include nutritional supplements and herbal products that patients may not consider to be medication use but could affect reproduction and pregnancy.
- Women who present for prepregnancy counseling should be offered screening for the same genetic conditions as recommended for pregnant women.
- Women of reproductive age should have their immunization status assessed annually for tetanus toxoid, reduced diphtheria toxoid, and acellular pertussis (Tdap); measles-mumps-rubella; hepatitis B; and varicella.
- All patients should receive an annual influenza vaccination; those women who are or will be pregnant during influenza season will have additional benefits.
- Assessment of the need for sexually transmitted infection (STI) screening should be performed at the time of prepregnancy counseling.
- Patients with potential exposure to certain infectious diseases, such as the Zika virus, should be counseled regarding travel restrictions and appropriate waiting time before attempting pregnancy.
- All patients should be routinely asked about their use of alcohol, nicotine products, and drugs, including prescription opioids and other medications used for nonmedical reasons.
- Screening for intimate partner violence should occur during prepregnancy counseling.
- Female prepregnancy folic acid supplementation should be encouraged to reduce the risk of neural tube defects (NTDs).
- Patients should be screened regarding their diet and vitamin supplements to confirm they are meeting recommended daily allowances for calcium, iron, vitamin A, vitamin B₁₂, vitamin B, vitamin D, and other nutrients.
- Patients should be encouraged to try to attain a body mass index (BMI) in the normal range before attempting pregnancy, because abnormal high or low BMI is associated with infertility and maternal and fetal pregnancy complications.

INTRODUCTION

Obstetrician–gynecologists have a prime opportunity to improve maternal and fetal outcomes through prepregnancy counseling. Like a well-woman visit, the prepregnancy visit (when the patient presents to discuss a potential future pregnancy) provides an excellent opportunity to counsel patients about maintaining a healthy lifestyle and minimizing health risks (1). The goal of prepregnancy care is to reduce the risk of adverse health effects for the woman, fetus, and neonate by working with the woman to optimize health, address modifiable risk factors, and provide education about healthy pregnancy. Prepregnancy counseling should include a review of a patient's immunizations, an assessment for immunity, and other screenings and tests, as appropriate. All those planning to initiate a pregnancy should be counseled, including heterosexual, lesbian, gay, bisexual, transgender, queer, intersex, asexual, and gender nonconforming individuals. Pregnancy complications may be reduced by appropriate identification and mitigation of risk factors, while genetic screening may allow a couple to make informed decisions regarding family planning. Management of preexisting medical conditions may be optimized during the prepregnancy period, reducing the chances of pregnancy-related complications. Additionally, understanding aspects of patients' social context during prepregnancy counseling may identify ways to help improve prenatal care usage, including understanding barriers that patients may face when accessing health care.

TIMING OF PREPREGNANCY COUNSELING

Direct screening for a patient's pregnancy intentions, as stated in the “One Key Question Initiative,” is a core component of high-quality, primary preventive care services (2).

Any patient encounter with nonpregnant women or men with reproductive potential (eg, not posthysterectomy or poststerilization) is an opportunity to counsel about wellness and healthy habits, which may improve reproductive and obstetric outcomes should they choose to reproduce. Counseling can begin with the following question: “*Would you like to become pregnant in the next year?*” Prepregnancy counseling is appropriate whether the reproductive-aged patient is currently using contraception or planning pregnancy. Because health status and risk factors can change over time, prepregnancy counseling should occur several times during a woman’s reproductive lifespan, increasing her opportunity for education and potentially maximizing her reproductive and pregnancy outcomes. Additionally, prepregnancy counseling can be performed by the obstetrician–gynecologist of an infertile patient before referral to a reproductive endocrinologist, further streamlining patient education. The American College of Obstetricians and Gynecologists and ASRM support coverage for and access to recommended prepregnancy counseling and services as a core component of women’s health care.

FAMILY PLANNING AND PREGNANCY SPACING

Family planning is a foundational aspect of prepregnancy counseling. Approximately 45% of the pregnancies in the United States are unintended, and unintended pregnancy increases the risk of pregnancy complications (3). Education and enhanced awareness of the effect of age on fertility (4) and planning for family size are essential in counseling the patient who desires pregnancy. Counseling patients about optimal intervals between pregnancies may be helpful to reduce future complications. Women should be advised to avoid interpregnancy intervals shorter than 6 months and should be counseled about the risks and benefits of repeat pregnancy sooner than 18 months (5, 6). Short interpregnancy intervals also are associated with reduced vaginal birth after cesarean success for women undergoing labor after cesarean (also referred to as trial of labor after cesarean) (7). The Centers for Disease Control and Prevention’s (CDC) *U.S. Medical Eligibility Criteria for Contraceptive Use* and *U.S. Selected Practice Recommendations for Contraceptive Use* (8, 9) can be used to facilitate evidence-based contraception counseling to meet an individual patient’s family planning and pregnancy spacing needs. For infertile women planning to use assisted reproductive technology to become pregnant, a pregnancy interval less than 18 months but greater than 6 months may be advisable (10).

An ovulatory woman who is younger than 35 years who desires pregnancy and who does not have a clearly identifiable risk factor for infertility should be expeditiously evaluated if she has not become pregnant after 12 months of unprotected intercourse. A woman who is 36 years and older should be evaluated after 6 months. A comprehensive evaluation should be conducted and treatment initiated by a health care provider with adequate training and expertise. For anovulatory women and those with a clearly identifiable

risk factor for infertility, strong consideration should be given to evaluation and treatment upon presentation.

Referral to a fertility specialist for males and females may be considered at any point if the infertility etiology, indicated treatment, or attempted treatment failures exceeds the expertise of the obstetrician–gynecologist. Monthly ovulation is likely in women with regular and predictable menses with no greater than 2–3-day variance within a range of 25–35 days. For example, a woman with cycles every 26–28 days is likely ovulatory, while a woman with cycles of 25, 34, 26, then 35 days is likely not ovulatory. Patients desiring pregnancy should be counseled that the fertile window is having sexual intercourse in the 3–4 days before ovulation and that intercourse every 1–2 days yields the highest pregnancy rates (11). Patients may inquire about ovulation predictor kits or electronic apps for fertility. These tools vary in quality, and data on their usefulness are limited (12).

REVIEW OF MEDICAL, SURGICAL, AND PSYCHIATRIC HISTORIES

Many chronic medical conditions such as diabetes, hypertension, psychiatric illness, and thyroid disease have implications for pregnancy outcomes and should be optimally managed before pregnancy (Table 1). Consideration may be given to referral to a maternal–fetal medicine specialist. Data are insufficient to recommend for or against universal screening for subclinical thyroid disease; however, screening may be appropriate for patients with risk factors (eg, age greater than 30 years, morbid obesity, history of pregnancy loss, preterm delivery, or infertility) (13).

REVIEW OF CURRENT MEDICATIONS

All prescription and nonprescription medications should be reviewed during prepregnancy counseling. This review also should include nutritional supplements and herbal products that patients may not consider to be medication use but could affect reproduction and pregnancy. The pregnancy safety of each medication and supplement should be discussed. Medications with potential teratogenicity should be reviewed and the specific risks of each individual medication discussed in detail. The importance of reliable contraception should be emphasized when a patient is taking potentially teratogenic medications. For a patient who desires pregnancy, potentially teratogenic medication should be adjusted in collaboration with the prescribing health care provider before the patient discontinues contraception. The lowest effective doses of the safest medications should be used whenever it is medically reasonable to do so. For information on the effects of medications used to manage depression during pregnancy, see *The Management of Depression During Pregnancy*, a report jointly developed by ACOG and the American Psychiatric Association (14). Male partners should be screened for the use of androgens, such as testosterone. Androgen use is associated with azoospermia and infertility in males, which may be reversible in some cases with cessation (15, 16).

TABLE 1

Major medical conditions that affect pregnancy.

Condition	Associated risks	Treatment	Goals
Pregestational diabetes mellitus	Congenital anomalies and pregnancy-related complications	The importance of euglycemic control before and during pregnancy should be emphasized. Optimal weight management also should be discussed in the context of managing blood sugars. Consideration should be given to testing for underlying vasculopathy with retinal examination, 24-hour urine protein testing, and electrocardiography. Thyroid dysfunction is common in women with pregestational diabetes; therefore, screening for thyroid function should be performed.	HbA _{1C} <6.5% (48 mmol/mol), to reduce the risk of congenital anomalies*
Chronic hypertension	Preeclampsia and intrauterine growth restriction	Assessment of the teratogenic risk of hypertensive medications should be performed. Angiotensin converting enzyme inhibitors and angiotensin receptor blockers are contraindicated in pregnancy. Consideration should be given to testing for ventricular hypertrophy, retinopathy, and renal disease for women with longstanding or uncontrolled hypertension. [†]	–
Hypothyroidism (untreated)	Spontaneous abortion, preeclampsia, preterm birth, placental abruption, and fetal death	Screening based on risk factors, rather than universal screening, should be considered for patients who are planning pregnancy. ^{†,‡}	Treat if thyrotropin (previously thyroid-stimulating hormone) is above the upper level of normal.
Bariatric surgery	A period of rapid weight loss typically occurs in the first 12–24 months postoperatively. During this period, pregnancy is less desirable because of potential effects on fetal growth.	Contraceptive counseling during the postoperative period is important because the risk of oral contraceptive failure in patients who have bariatric surgery with a malabsorptive component is increased. Counseling regarding the benefits of nonoral contraceptive or LARC methods is recommended. [§]	–
Mood disorders	Impaired maternal infant bonding, risk of maternal self-harm, or neglect. Antidepressants and antipsychotic medications increase anovulation and decrease fecundability. ^{,¶}	Women with established depression or anxiety should be counseled regarding the risks of these conditions in pregnancy and the risks and benefits of treatment. The risk of relapse for bipolar disorder is higher in pregnancy, thus women with this condition should establish a strategy for managing relapse while planning for a pregnancy. Women with schizophrenia should receive counseling regarding the risks of the condition on pregnancy and the importance of establishing a plan for managing the condition during pregnancy.	–

ASRM and ACOG. Prepregnancy counseling. *Fertil Steril* 2019.

TABLE 1

Continued.

Condition	Associated risks	Treatment	Goals
Human immunodeficiency virus (HIV)	Vertical transmission	<p>Women with HIV should receive prepregnancy counseling, including a discussion of interventions to reduce vertical transmission, methods for optimizing long-term health, and the few potential effects of antiretroviral medications on the fetus.[#] Antiretroviral therapy should be instituted before pregnancy and continued during pregnancy. Medications should not be discontinued during the first trimester.</p> <p>Women should continue seeing their HIV health care providers.</p> <p>Serodiscordant couples should receive information about the risk of sexual and perinatal transmission and about safer methods for achieving pregnancy.^{**}</p> <p>Women at the highest risk of acquiring HIV infection (eg, a woman not infected with HIV with a male sexual partner who is known to be infected with HIV) should be considered candidates for preexposure prophylaxis. The use of daily oral preexposure prophylaxis during pregnancy and lactation for women without HIV with HIV-infected partners has had limited study; however, the drug combination of tenofovir and emtricitabine is commonly used during pregnancy and has a reassuring safety profile.^{††}</p>	Viral load should be undetectable and patients should be co-managed with an HIV health care provider.
Thrombophilia	DVT or PE during pregnancy or in the postpartum period	Consider and plan for thromboprophylaxis during pregnancy. ^{‡‡}	—
Previous pregnancy complications	Recurrence in future pregnancies	Assess and counsel on risk of recurrence.	—

Abbreviations: DVT, deep vein thrombosis; HbA_{1c}, hemoglobin A_{1c}; HIV, human immunodeficiency virus; LARC, long-acting reversible contraception; PE, pulmonary embolism.

* Management of diabetes in pregnancy: standards of medical care in diabetes—2018. American Diabetes Association. *Diabetes Care* 2018;41:S137–S43.

† Garber JR, Cobin RH, Gharib H, Hennessey JV, Klein I, Mechanick JL, et al. Clinical practice guidelines for hypothyroidism in adults: cosponsored by the American Association of Clinical Endocrinologists and the American Thyroid Association. American Association of Clinical Endocrinologists and American Thyroid Association Taskforce on Hypothyroidism in Adults. [published errata appear in *Thyroid* 2013;23:251; *Thyroid* 2013;23:129]. *Thyroid* 2012;22:1200–35.

‡ Subclinical hypothyroidism in the infertile female population: a guideline. Practice Committee of the American Society for Reproductive Medicine. *Fertil Steril* 2015;104:545–53.

§ Bariatric surgery and pregnancy. ACOG Practice Bulletin No. 105. American College of Obstetricians and Gynecologists. *Obstet Gynecol* 2009;113:1405–13.

|| Casilla-Lennon MM, Meltzer-Brody S, Steiner AZ. The effect of antidepressants on fertility. *Am J Obstet Gynecol* 2016;215:314.e1–5.

¶ Besnard I, Auclair V, Callery G, Gabriel-Bordenave C, Roberge C. Antipsychotic-drug-induced hyperprolactinemia: physiopathology, clinical features and guidance. *Encephale* 2014;40:86–94.

Gynecologic care for women and adolescents with human immunodeficiency virus. Practice Bulletin No. 167. American College of Obstetricians and Gynecologists. *Obstet Gynecol* 2016;128:e89–110.

** Recommendations for reducing the risk of viral transmission during fertility treatment with the use of autologous gametes: a committee opinion. Practice Committee of American Society for Reproductive Medicine. *Fertil Steril* 2013;99:340–6.

†† Preexposure prophylaxis for the prevention of human immunodeficiency virus. Committee Opinion No. 595. American College of Obstetricians and Gynecologists. *Obstet Gynecol* 2014;123:1133–6.

‡‡ Inherited thrombophilias in pregnancy. Practice Bulletin No. 138. American College of Obstetricians and Gynecologists. *Obstet Gynecol* 2013;122:706–17.

ASRM and ACOG. *Prepregnancy counseling*. *Fertil Steril* 2019.

REVIEW OF FAMILY AND GENETIC HISTORY

A genetic and family history of the patient and her partner should be obtained (17–20). This may include family history of genetic disorders, birth defects, mental disorders, and breast, ovarian, uterine, and colon cancer. When any genetic disease carrier status is diagnosed in one or both

partners, full medical records review and genetic counseling are recommended to educate the patient on the effects of the disease and the potential options for prepregnancy and early pregnancy screening of offspring. Women who present for prepregnancy counseling should be offered screening for the same genetic conditions as recommended

for pregnant women, though insurance coverage for screening may be lacking and may be a barrier for some patients. Screening in the prepregnancy period offers the additional advantages of identifying, before pregnancy, couples at risk of having children with genetic diseases and offering appropriate testing to optimize patient education, counseling, and options for achieving pregnancy. Couples at risk of having children with specific genetic diseases can be counseled about the disease inheritance and course and offered referral for potential interventions, such as preimplantation genetic testing. See [Table 2](#) for counseling and screening recommendations.

IMMUNIZATIONS

Women of reproductive age should have their immunization status assessed annually for Tdap, measles–mumps–rubella, hepatitis B, and varicella. All patients should receive an annual influenza vaccination; those women who are or will be pregnant during influenza season will have additional benefits (21). Adult women who have never received a dose of Tdap or whose Tdap vaccination status is unknown should receive a single dose, as recommended for nonpregnant adults by the CDC. Additionally, Tdap vaccine should be given to all women during each pregnancy between 27–36 weeks regardless of prepregnancy immunization history. Human papillomavirus vaccination (HPV) and cervical cancer screening should be performed in accordance with current guidelines. The HPV vaccination currently is not recommended during

pregnancy but should not be avoided or delayed because a woman may want to become pregnant or may be actively trying to become pregnant. If the HPV vaccine series is started and a patient then becomes pregnant, completion of the vaccine series should be delayed until that pregnancy is completed (22, 23). Vaccinations for rubella and varicella should be given at least 28 days before pregnancy, or in the postpartum period if not previously given. Because two doses of the varicella vaccine are recommended, and the CDC recommends that women not become pregnant for 1 month after being vaccinated, a woman who desires pregnancy should begin vaccination 2 months before attempting pregnancy (24). Some advanced-reproductive-age patients may wish to reproduce, and those age 50 years and older should also be vaccinated against herpes zoster (25). The need for other immunizations should be assessed during a prepregnancy visit by reviewing health, lifestyle, and occupational risks of other infections and administering required doses as indicated (26). The CDC's Advisory Committee on Immunization Practice immunization schedules provide the most current information on immunization recommendations (27).

INFECTIOUS DISEASE SCREENING

Assessment of the need for STI screening should be performed at the time of prepregnancy counseling. Guidance on recommended STI screening is available from the CDC (28) and ASRM (29). Gonorrhea, chlamydial infection, syphilis, and

TABLE 2

Family and genetic history counseling and screening recommendations.

Condition	Who to Counsel	Considerations
Canavan disease	Carrier screening for those of Ashkenazi Jewish descent. When only one partner is of Ashkenazi Jewish descent, that individual should be offered screening first. If it is determined that this individual is a carrier, the other partner should be offered screening.*	–
Cystic fibrosis	All women who are considering pregnancy*	–
Familial dysautonomia	Carrier screening for those of Ashkenazi Jewish descent. When only one partner is of Ashkenazi Jewish descent, that individual should be offered screening first. If it is determined that this individual is a carrier, the other partner should be offered screening.*	–
Fragile X	Any woman with a family history of fragile X-related disorders or intellectual disability suggestive of fragile X syndrome and any woman younger than the age of 40 with unexplained ovarian insufficiency.*	Women without risk factors who request fragile X screening may be tested after informed consent.
Hemoglobinopathies	Couples at risk of having a child with thalassemia or sickle cell disease should be offered genetic counseling to review prenatal testing and reproduction options.†	–
Spinal muscular atrophy Tay–Sachs disease	All women who are considering pregnancy If either member of the couple is of Ashkenazi Jewish, French-Canadian, or Cajun descent; those with a family history consistent with Tay-Sachs disease also should be offered screening.*	– Biochemical testing can be altered in women who are pregnant or using oral contraceptive pills, so leukocyte testing must be used in these patients.*

* Carrier screening for genetic conditions. Committee Opinion No. 691. American College of Obstetricians and Gynecologists. *Obstet Gynecol* 2017;129:e41–55.

† Hemoglobinopathies in pregnancy. Practice Bulletin No. 78. American College of Obstetricians and Gynecologists. *Obstet Gynecol* 2007;109:229–37.

ASRM and ACOG. *Prepregnancy counseling*. *Fertil Steril* 2019.

human immunodeficiency virus (HIV) should be screened for based on age and risk factors. Counseling to reduce STI risk should be provided (26). For current guidance on hepatitis C screening for nonpregnant women, see the CDC's recommendations (30). Those at high risk of tuberculosis should be screened and treated appropriately before pregnancy (26). Exposure to toxoplasmosis should be assessed and avoidance counseled. Much attention has been given to educational programs to reduce maternal *Toxoplasma gondii* infection and, thus, congenital toxoplasmosis. However, despite the successes demonstrated in some observational studies, several reviews (including a Cochrane review) suggest that weaknesses in study design prevent the conclusion that such strategies effectively reduce congenital toxoplasmosis (31). Patients with potential exposure to certain infectious diseases, such as the Zika virus, should be counseled regarding travel restrictions and appropriate waiting time before attempting pregnancy. Obstetrician-gynecologists may ask the patient about recent or upcoming travel history for herself and her partner. The CDC offers up-to-date guidance on Zika precautions (32) and other infectious diseases (33). Information and guidance on the Zika virus also is available from ACOG (34) and ASRM (35).

INDIVIDUALS WITH HUMAN IMMUNODEFICIENCY VIRUS

All reproductive-aged patients living with HIV should receive prepregnancy counseling if considering pregnancy (36). Prepregnancy counseling should include a detailed discussion of interventions to reduce the risk of perinatal transmission, ways to optimize long-term health, and the possible effects of antiretroviral medications on the fetus. Any HIV-infected patients who are contemplating pregnancy should be counseled that they should be receiving treatment with antiretroviral therapy, with the goal of a plasma viral load suppressed to an undetectable level before achieving pregnancy. Artificial insemination is the safest way for an HIV-infected couple to become pregnant while minimizing the risk of HIV transmission to an HIV-negative partner (37). Prepregnancy administration of antiretroviral preexposure prophylaxis for HIV-uninfected partners may offer an additional tool to reduce the risk of sexual transmission (38). A non-HIV-infected woman with an HIV-infected male partner with whom she wants to achieve pregnancy should be offered a referral to a subspecialist with the requisite training and experience in infectious disease or reproductive endocrinology and infertility for counseling. Like prepregnancy counseling for non-HIV-infected women, the goals for HIV-infected women are to improve the health of the women before pregnancy and to identify risk factors for adverse maternal and fetal outcomes. Safe sex practices and avoidance of STIs should be discussed, and both partners should be screened for STIs, which should be treated if present. The choice of antiretroviral therapy in women of childbearing capacity should take into consideration the regimen's effectiveness, the women's hepatitis B status, the teratogenic potential of the medications, potential drug interactions, and possible maternal and fetal adverse outcomes (37). See

ACOG's Practice Bulletin No. 167, *Gynecologic Care for Women and Adolescents With Human Immunodeficiency Virus*, for more information.

SUBSTANCE USE ASSESSMENT

All patients should be routinely asked about their use of alcohol, nicotine products, and drugs, including prescription opioids and other medications used for nonmedical reasons (39, 40). Adverse effects associated with smoking during pregnancy include intrauterine growth restriction, placenta previa, abruptio placentae, decreased maternal thyroid function (41, 42), preterm prelabor rupture of membranes (also referred to as premature rupture of membranes) (43, 44), low birth weight, perinatal mortality (41), and ectopic pregnancy (41). Children born to women who smoke during pregnancy are at an increased risk of asthma, infantile colic, and childhood obesity (45–47). Pregnancy appears to motivate women to stop smoking; 46% of prepregnancy smokers quit smoking directly before or during pregnancy (48); however, women who are unable to quit during pregnancy likely have a tobacco use disorder (49). Effective strategies for tobacco cessation should be employed, such as the 5A's intervention model (40).

Alcohol use patterns should be determined and patients counseled that there is no safe level or type of alcohol use during pregnancy. Fetal alcohol spectrum disorders are the most severe result of prenatal drinking and are associated with central nervous system abnormalities, growth defects, and facial dysmorphism. Alcohol-related birth defects include growth deformities, facial abnormalities, central nervous system impairment, behavioral disorders, and impaired intellectual development (50). Alcohol can affect a fetus at any stage of pregnancy, and the cognitive defects and behavioral problems that result from prenatal alcohol exposure are lifelong. Brief behavioral counseling interventions can reduce the risk of alcohol-exposed pregnancies (50–52).

Marijuana is used by an estimated 2–5% of pregnant women. Several states have recently legalized marijuana for recreational use or medicinal purposes. Marijuana may have harmful effects on reproduction and the effect of smoking marijuana during pregnancy may be as harmful as tobacco (53). Patients who are contemplating pregnancy should be encouraged to discontinue marijuana use. Patients contemplating pregnancy should be screened for opioid use and opioid use disorder. See ACOG Committee Opinion No. 711, *Opioid Use and Opioid Use Disorder in Pregnancy*, for validated screening tools, such as questionnaires, including 4Ps, NIDA Quick Screen, and CRAFFT (for women 26 years or younger) (39).

EXPOSURE TO VIOLENCE, INTIMATE PARTNER VIOLENCE, AND REPRODUCTIVE AND SEXUAL COERCION

More than one in three women in the United States have experienced rape, physical violence, or stalking by an intimate partner in their lifetime (54). Screening for intimate partner violence should occur during prepregnancy counseling. The discussion regarding intimate partner violence

should be framed by indicating that all patients in the practice are screened. Assurances of privacy and confidentiality are important components of intimate partner violence screening; however, some state laws place mandatory reporting requirements on health care providers for certain types of injuries or disclosures and for certain groups of patients. Therefore, it also is important to inform patients about what it is necessary, under state laws, for physicians to disclose to authorities. Sample questions to begin the conversation are provided in ACOG Committee Opinion No. 518, *Intimate Partner Violence* (54). Self-administered questionnaires are as effective as a physician interview in screening for intimate partner violence and reproductive coercion. Sexual coercion includes a range of behavior that a partner may use related to sexual decision making to pressure or coerce a person to have sex without using physical force (55). The most common forms of reproductive coercion include sabotage of contraceptive methods, pregnancy coercion, and pregnancy pressure (56). If ongoing abuse is identified, assessment of the immediate safety of the patient and her family should be ascertained and community resources for victims should be provided.

ASSESS NUTRITIONAL STATUS

Fruits, vegetables, and daily multivitamins are good sources of antioxidants and vitamins that may assist in reproductive health for males and females. Female prepregnancy folic acid supplementation should be encouraged to reduce the risk of NTDs. All women of reproductive age (15–45 years) should take folic acid supplementation. For average-risk women, supplementation with 400 micrograms per day is adequate. Women at increased risk of NTDs, including women with a prior pregnancy with an NTD or women with seizure disorders, should be counseled to take 4 mg of folic acid daily (57). Because of the risk of vitamin A toxicity, women who need additional folic acid should not take additional prenatal vitamins; instead, women at higher risk of NTDs should be prescribed additional folic acid supplements. Most prenatal multivitamins contain adequate amounts of folic acid for average-risk-women (58). Prenatal vitamins use also is associated with a lower risk of miscarriage (59). Moderate caffeine consumption (less than 200 mg per day) does not appear to be a major contributing factor in miscarriage or preterm birth (60).

Patients should be screened regarding their diet and vitamin supplements to confirm they are meeting recommended daily allowances for calcium, iron, vitamin A, vitamin B₁₂, vitamin B, vitamin D, and other nutrients. The U.S. Department of Agriculture offers tools for self-dietary assessment (61), and the Office of Disease Prevention and Health Promotion offers clinical guidance (62). Recommended daily allowances are available in *Guidelines for Perinatal Care*, Eighth Edition, from ACOG and the American Academy of Pediatrics (63). Consumption of fish with high mercury levels should be discouraged (64, 65) and the U.S. Food and Drug Administration provides a patient resource for fish to avoid (66). Maternal listeria infection has been associated with preterm delivery and other obstetric and neonatal

complications, and pregnant women should be advised to avoid eating foods with a high risk of listeria contamination. See the CDC guidance for foods to avoid (67). Patients who are at risk of eating disorders should be screened and counseled (63). Patients with malabsorptive gastrointestinal disease, bariatric surgery, or those on a vegan diet may require vitamin and mineral supplementation.

ACHIEVING AND MAINTAINING A HEALTHY BODY WEIGHT

Patients should be encouraged to try to attain a BMI in the normal range before attempting pregnancy because abnormal high or low BMI is associated with infertility and maternal and fetal pregnancy complications (68). The reproductive risks of obesity include, but are not limited to, infertility, miscarriage, birth defects, preterm delivery, gestational diabetes, gestational hypertension, cesarean delivery, and thromboembolic events (69, 70). Obesity also increases the risk of nonreproductive diseases, including stroke, heart disease, certain types of cancer, arthritis, high cholesterol, hypertension, and diabetes (71). Pregnant women with low BMI are at risk of having small-for-gestational-age fetuses and low-birth-weight infants (72). Ideally, weight should be optimized before a woman attempts to becoming pregnant (70), although the health benefits of postponing pregnancy need to be balanced against reduced fecundity with female aging (4, 69).

ASSESS EXERCISE AND PHYSICAL ACTIVITY

Regular physical exercise improves cardiovascular health, reduces obesity and associated medical comorbidities, and improves longevity. Patients should exercise moderately at least 30 minutes a day, 5 days a week, for a minimum of 150 minutes of moderate exercise per week (73). These levels of exercise are recommended prepregnancy, during pregnancy, and in postpartum women. Dietary modifications in concert with exercise produce greater weight loss than exercise alone (73). Compared with their nonathlete peers, competitive athletes require frequent and closer supervision because they tend to maintain a more strenuous training schedule throughout pregnancy and resume high-intensity postpartum training sooner. Competitive athletes should pay particular attention to avoiding hyperthermia, maintaining proper hydration, and sustaining adequate caloric intake to prevent weight loss that may adversely affect fetal growth (73).

ASSESS FOR TERATOGENS AND ENVIRONMENTAL AND OCCUPATIONAL EXPOSURES

Mounting and robust evidence suggests there are reproductive and pregnancy risks associated with environmental pollutants, workplace teratogens, and endocrine disruptors. By the time a woman presents with pregnancy, disruptions of organogenesis may have already occurred. For these reasons, prepregnancy patient history and identification of exposures are encouraged (74). If exposures are identified, patients can be educated regarding the avoidance of exposure to toxic

agents and, when necessary, referred to occupational medicine programs. Exposures can occur both at home (eg, plastics with bisphenol-A, pesticides, lead paint, asbestos) and at work. Employment sectors at particular risk of potentially hazardous exposures during pregnancy include agriculture (pesticides), manufacturing (organic solvents and heavy metals), dry cleaning (solvents), and health care (biologics and radiation) (75). See the [For More Information](#) section for additional resources.

PREGNANCY DATING

Women should be counseled to seek medical care before attempting to become pregnant or as soon as they believe they are pregnant to aid in correct dating and to be monitored for any medical conditions in which treatment should be modified during pregnancy. Correct first-trimester pregnancy dating provides value in managing potential subsequent pregnancy complications and indications for delivery.

FOR MORE INFORMATION

The American College of Obstetricians and Gynecologists has identified additional resources on topics related to this document that may be helpful for ob-gyns, other health care providers, and patients. You may view these resources at www.acog.org/More-Info/PrepregnancyCounseling.

These resources are for information only and are not meant to be comprehensive. Referral to these resources does not imply the American College of Obstetricians and Gynecologists' endorsement of the organization, the organization's website, or the content of the resource. The resources may change without notice.

REFERENCES

- Well-woman visit. ACOG Committee Opinion No. 755. American College of Obstetricians and Gynecologists. *Obstet Gynecol* 2018;132:e181–6.
- Bellanca HK, Hunter MS. ONE KEY QUESTION: preventive reproductive health is part of high quality primary care. *Contraception* 2013;88:3–6.
- Finer LB, Zolna MR. Declines in unintended pregnancy in the United States, 2008–2011. *N Engl J Med* 2016;374:843–52.
- Female age-related fertility decline. Committee Opinion No. 589. American College of Obstetricians and Gynecologists. *Obstet Gynecol* 2014;123:719–21.
- Conde-Agudelo A, Rosas-Bermudez A, Kafury-Goeta AC. Birth spacing and risk of adverse perinatal outcomes: a meta-analysis. *JAMA* 2006;295:1809–23.
- Optimizing postpartum care. ACOG Committee Opinion No. 736. American College of Obstetricians and Gynecologists. *Obstet Gynecol* 2018;131:e140–50.
- Vaginal birth after cesarean delivery. Practice Bulletin No. 184. American College of Obstetricians and Gynecologists. *Obstet Gynecol* 2017;130:e217–33.
- Curtis KM, Tepper NK, Jatlaoui TC, Berry-Bibee E, Horton LG, Zapata LB, et al. U.S. medical eligibility criteria for contraceptive use, 2016. *MMWR Recomm Rep* 2016;65(RR-3):1–104.
- Curtis KM, Jatlaoui TC, Tepper NK, Zapata LB, Horton LG, Jamieson DJ, et al. U.S. selected practice recommendations for contraceptive use, 2016. *MMWR Recomm Rep* 2016;65(RR-4):1–66.
- Quinn MM, Rosen MP, Allen IE, Huddleston HG, Cedars MI, Fujimoto VY. Decreased clinical pregnancy and live birth rates after short interval from delivery to subsequent assisted reproductive treatment cycle. *Hum Reprod* 2018;33:1316–21.
- Optimizing natural fertility: a committee opinion. Practice Committee of the American Society for Reproductive Medicine in collaboration with the Society for Reproductive Endocrinology and Infertility. *Fertil Steril* 2017;107:52–8.
- Setton R, Tierney C, Tsai T. The accuracy of web sites and cellular phone applications in predicting the fertile window. *Obstet Gynecol* 2016;128:58–63.
- Alexander EK, Pearce EN, Brent GA, Brown RS, Chen H, Dosiou C, et al. 2017 guidelines of the American Thyroid Association for the diagnosis and management of thyroid disease during pregnancy and the postpartum. *Thyroid* 2017;27:315–89.
- Yonkers KA, Wisner KL, Stewart DE, Oberlander TF, Dell DL, Stotland N, et al. The management of depression during pregnancy: a report from the American Psychiatric Association and the American College of Obstetricians and Gynecologists. *Obstet Gynecol* 2009;114:703–13.
- Samplaski MK, Loai Y, Wong K, Lo KC, Grober ED, Jarvi KA. Testosterone use in the male infertility population: prescribing patterns and effects on semen and hormonal parameters. *Fertil Steril* 2014;101:64–9.
- American Society for Reproductive Medicine. Choosing wisely: don't prescribe testosterone or testosterone products to men contemplating/attempting to initiate pregnancy. Philadelphia (PA): ABIM Foundation; 2015. Available at: <http://www.choosingwisely.org/clinician-lists/asrm-testosterone-to-initiate-pregnancy>. Accessed August 21, 2018.
- Carrier screening for genetic conditions. Committee Opinion No. 691. American College of Obstetricians and Gynecologists. *Obstet Gynecol* 2017;129:e41–55.
- Family history as a risk assessment tool. Committee Opinion No. 478. American College of Obstetricians and Gynecologists. *Obstet Gynecol* 2011;117:747–50.
- Genetics and molecular diagnostic testing. Technology Assessment in Obstetrics and Gynecology. No. 11. American College of Obstetricians and Gynecologists. *Obstet Gynecol* 2014;123:394–413.
- Wilson RD. Genetic considerations for a woman's pre-conception evaluation. Genetics Committee. *J Obstet Gynaecol Can* 2011;33:57–64.
- Influenza vaccination during pregnancy. ACOG Committee Opinion No. 732. American College of Obstetricians and Gynecologists. *Obstet Gynecol* 2018;131:e109–14.
- Markowitz LE, Dunne EF, Saraiya M, Chesson HW, Curtis CR, Gee J, et al. Human papillomavirus vaccination: recommendations of the Advisory Committee on Immunization Practices (ACIP). Centers for Disease Control and Prevention (CDC) [published erratum appears in *MMWR Recomm Rep* 2014;63:1182]. *MMWR Recomm Rep* 2014;63(RR-05):1–30.
- Human papillomavirus vaccination. Committee Opinion No. 704. American College of Obstetricians and Gynecologists. *Obstet Gynecol* 2017;129:173–8.
- Centers for Disease Control and Prevention. Routine varicella vaccination. Atlanta (GA): CDC; 2016. Available at: <https://www.cdc.gov/vaccines/vpd/varicella/hcp/recommendations.html>. Accessed June 20, 2018.
- Centers for Disease Control and Prevention. Recommended immunization schedule for adults aged 19 years or older, United States, 2018. Atlanta (GA): CDC; 2018. Available at: <https://www.cdc.gov/vaccines/schedules/hcp/imz/adult.html>. Accessed September 5, 2018.
- Jack BW, Atrash H, Coonrod DV, Moos MK, O'Donnell J, Johnson K. The clinical content of preconception care: an overview and preparation of this supplement. *Am J Obstet Gynecol* 2008;199:S266–79.
- Centers for Disease Control and Prevention. Immunization schedules: for health care professionals. Atlanta (GA): CDC; 2016. Available at: www.cdc.gov/vaccines/schedules/hcp/index.html. Accessed June 20, 2018.
- Workowski KA, Bolan GA. Sexually transmitted diseases treatment guidelines, 2015. Centers for Disease Control and Prevention [published erratum appears in *MMWR Recomm Rep* 2015;64:924]. *MMWR Recomm Rep* 2015;64(RR-03):1–137.
- Recommendations for reducing the risk of viral transmission during fertility treatment with the use of autologous gametes: a committee opinion. Practice Committee of American Society for Reproductive Medicine. *Fertil Steril* 2013;99:340–6.
- Centers for Disease Control and Prevention. Testing recommendations for hepatitis C virus infection. Atlanta (GA): CDC; 2015. Available at: <https://www.cdc.gov/hepatitis/hcv/guidelines.htm>. Accessed June 20, 2018.

31. Cytomegalovirus, parvovirus B19, varicella zoster, and toxoplasmosis in pregnancy. Practice Bulletin No. 151. American College of Obstetricians and Gynecologists [published erratum appears in *Obstet Gynecol* 2016; 127:405]. *Obstet Gynecol* 2015;125:1510–25.
32. Centers for Disease Control and Prevention. Women and their partners trying to become pregnant. Atlanta (GA): CDC; 2018. Available at: <https://www.cdc.gov/zika/pregnancy/women-and-their-partners.html>. Accessed June 20, 2018.
33. Centers for Disease Control and Prevention. National Center for Emerging and Zoonotic Infectious Diseases (NCEZID). Atlanta (GA): CDC. Available at: <https://www.cdc.gov/ncezid/whats-new/index.html>. Accessed June 20, 2018.
34. American College of Obstetricians and Gynecologists, Society for Maternal-Fetal Medicine. Practice Advisory interim guidance for care of obstetric patients during a Zika virus outbreak. Washington, DC: ACOG; SMFM; 2018. Available at: <https://www.acog.org/Clinical-Guidance-and-Publications/Practice-Advisories/Practice-Advisory-Interim-Guidance-for-Care-of-Obstetric-Patients-During-a-Zika-Virus-Outbreak>. Accessed September 13, 2018.
35. American Society of Reproductive Medicine. Guidance for providers caring for women and men of reproductive age with possible Zika virus exposure. Birmingham (AL): ASRM; 2017. Available at: http://www.asrm.org/globalassets/asrm/asrm-content/news-and-publications/practice-guidelines-for-non-members/guidance_for_providers_zika_virus_exposure.pdf. Accessed June 20, 2018.
36. Gynecologic care for women and adolescents with human immunodeficiency virus. Practice Bulletin No. 167. American College of Obstetricians and Gynecologists. *Obstet Gynecol* 2016;128:e89–110.
37. Panel on Treatment of Pregnant Women with HIV Infection and Prevention of Perinatal Transmission. Recommendations for use of antiretroviral drugs in transmission in the United States. Rockville (MD). Department of Health and Human Services; 2015. Available at: <https://aidsinfo.nih.gov/content-files/vguidelines/PerinatalGL.pdf>. Accessed June 20, 2018.
38. Centers for Disease Control and Prevention. U.S. Public Health Service: pre-exposure prophylaxis for the prevention of HIV infection in the United States – 2017 update. A clinical practice guideline. Atlanta (GA): CDC; 2017. Available at: <https://www.cdc.gov/hiv/pdf/risk/prep/cdc-hiv-prep-guidelines-2017.pdf>. Accessed June 20, 2018.
39. Opioid use and opioid use disorder in pregnancy. Committee Opinion No. 711. American College of Obstetricians and Gynecologists. *Obstet Gynecol* 2017;130:e81–94.
40. Tobacco use and women's health. Committee Opinion No. 503. American College of Obstetricians and Gynecologists. *Obstet Gynecol* 2011;118:746–50.
41. U.S. Surgeon General. The health consequences of smoking—50 years of progress: a report of the Surgeon General, 2014. Washington, DC: U.S. Department of Health and Human Services; 2014. Available at: <https://www.surgeongeneral.gov/library/reports/50-years-of-progress/index.html>. Accessed June 20, 2018.
42. McDonald SD, Walker MC, Ohlsson A, Murphy KE, Beyene J, Perkins SL. The effect of tobacco exposure on maternal and fetal thyroid function. *Eur J Obstet Gynecol Reprod Biol* 2008;140:38–42.
43. Castles A, Adams EK, Melvin CL, Kelsch C, Boulton ML. Effects of smoking during pregnancy. Five meta-analyses. *Am J Prev Med* 1999;16:208–15.
44. Spinillo A, Nicola S, Piazzi G, Ghazal K, Colonna L, Baltaro F. Epidemiological correlates of preterm premature rupture of membranes. *Int J Gynaecol Obstet* 1994;47:7–15.
45. Li YF, Langholz B, Salam MT, Gilliland FD. Maternal and grandmaternal smoking patterns are associated with early childhood asthma. *Chest* 2005;127:1232–41.
46. Sondergaard C, Henriksen TB, Obel C, Wisborg K. Smoking during pregnancy and infantile colic. *Pediatrics* 2001;108:342–6.
47. von Kries R, Toschke AM, Koletzko B, Slikker W Jr. Maternal smoking during pregnancy and childhood obesity. *Am J Epidemiol* 2002;156:954–61.
48. Colman GJ, Joyce T. Trends in smoking before, during, and after pregnancy in ten states. *Am J Prev Med* 2003;24:29–35.
49. Alcohol abuse and other substance use disorders: ethical issues in obstetric and gynecologic practice. Committee Opinion No. 633. American College of Obstetricians and Gynecologists. *Obstet Gynecol* 2015;125:1529–37.
50. At-risk drinking and alcohol dependence: obstetric and gynecologic implications. Committee Opinion No. 496. American College of Obstetricians and Gynecologists. *Obstet Gynecol* 2011;118:383–8.
51. Carson G, Cox LV, Crane J, Croteau P, Graves L, Kluka S, et al. Alcohol use and pregnancy consensus clinical guidelines. Society of Obstetricians and Gynaecologists of Canada. *J Obstet Gynaecol Can* 2010;32:51–31.
52. O'Connor MJ, Whaley SE. Brief intervention for alcohol use by pregnant women. *Am J Public Health* 2007;97:252–8.
53. Marijuana use during pregnancy and lactation. Committee Opinion No. 722. American College of Obstetricians and Gynecologists. *Obstet Gynecol* 2017;130:e205–9.
54. Intimate partner violence. Committee Opinion No. 518. American College of Obstetricians and Gynecologists. *Obstet Gynecol* 2012;119:412–7.
55. Chamberlain L, Levenson R. Addressing intimate partner violence, reproductive and sexual coercion: a guide for obstetric, gynecologic and reproductive health care settings. 2nd ed. Washington, DC: American College of Obstetricians and Gynecologists; San Francisco (CA): Futures Without Violence; 2012. Available at: https://www.futureswithoutviolence.org/userfiles/file/HealthCare/reproguidelines_low_res_FINAL.pdf. Accessed June 20, 2018.
56. Reproductive and sexual coercion. Committee Opinion No. 554. American College of Obstetricians and Gynecologists. *Obstet Gynecol* 2013;121:411–5.
57. Neural tube defects. Practice Bulletin No. 187. American College of Obstetricians and Gynecologists. *Obstet Gynecol* 2017;130:e279–90.
58. Frayne DJ, Verbiest S, Chelmow D, Clarke H, Dunlop A, Hosmer J, et al. Health care system measures to advance preconception wellness: consensus recommendations of the clinical workgroup of the National Preconception Health and Health Care Initiative. *Obstet Gynecol* 2016; 127:863–72.
59. Buck Louis GM, Sapra KJ, Schisterman EF, Lynch CD, Maisog JM, Grantz KL, et al. Lifestyle and pregnancy loss in a contemporary cohort of women recruited before conception: The LIFE Study. *Fertil Steril* 2016;106:180–8.
60. Moderate caffeine consumption during pregnancy. Committee Opinion No. 462. American College of Obstetricians and Gynecologists. *Obstet Gynecol* 2010;116:467–8.
61. U.S. Department of Agriculture. USDA choosemyplate.gov. Alexandria (VA): USDA; 2018. Available at: <https://www.choosemyplate.gov/>. Accessed June 20, 2018.
62. Office of Disease Prevention and Health Promotion. 2015–2020 dietary guidelines for Americans. 8th ed. Rockville (MD): ODPHP; 2015. Available at: <https://health.gov/dietaryguidelines/2015/resources.asp>. Accessed September 5, 2018.
63. American Academy of Pediatrics, American College of Obstetricians and Gynecologists. Guidelines for perinatal care. 8th ed. Elk Grove Village (IL): AAP; Washington, DC: American College of Obstetricians and Gynecologists; 2017.
64. Starling P, Charlton K, McMahon AT, Lucas C. Fish intake during pregnancy and foetal neurodevelopment—a systematic review of the evidence. *Nutrients* 2015;7:2001–14.
65. American College of Obstetricians and Gynecologists. Update on seafood consumption during pregnancy. ACOG Practice Advisory. Washington, DC: American College of Obstetricians and Gynecologists; 2017. Available at: <https://www.acog.org/Clinical-Guidance-and-Publications/Practice-Advisories/ACOG-Practice-Advisory-Seafood-Consumption-During-Pregnancy>. Accessed June 20, 2018.
66. U.S. Food and Drug Administration. Eating fish: what pregnant women and parents should know. Silver Spring (MD). FDA; 2017. Available at: <https://www.fda.gov/Food/ResourcesForYou/Consumers/ucm393070.htm>. Accessed June 20, 2018.
67. Centers for Disease Control and Prevention. Prevent infections during pregnancy. Atlanta (GA): CDC; 2018. Available at: <https://www.cdc.gov/features/prenatalinfections/index.html>. Accessed June 20, 2018.

68. American Society for Reproductive Medicine. Optimizing male fertility. Fact sheet. Birmingham (AL): ASRM; 2012. Available at: <https://www.fertilityanswers.com/wp-content/uploads/2016/04/optimizing-male-fertility.pdf>. Accessed September 5, 2018.
69. Obesity and reproduction: a committee opinion. Practice Committee of the American Society for Reproductive Medicine. *Fertil Steril* 2015;104:1116–26.
70. Obesity in pregnancy. Practice Bulletin No. 156. American College of Obstetricians and Gynecologists [published erratum appears in *Obstet Gynecol* 2016;128:1450]. *Obstet Gynecol* 2015;126:112–26.
71. Challenges for overweight and obese women. Committee Opinion No. 591. American College of Obstetricians and Gynecologists [published erratum appears in *Obstet Gynecol* 2016;127:166]. *Obstet Gynecol* 2014;123:726–30.
72. Yu Z, Han S, Zhu J, Sun X, Ji C, Guo X. Pre-pregnancy body mass index in relation to infant birth weight and offspring overweight/obesity: a systematic review and meta-analysis. *PLoS One* 2013;8:e61627.
73. Physical activity and exercise during pregnancy and the postpartum period. Committee Opinion No. 650. American College of Obstetricians and Gynecologists. *Obstet Gynecol* 2015;126:135–42.
74. Exposure to toxic environmental agents. Committee Opinion No. 575. American College of Obstetricians and Gynecologists. *Obstet Gynecol* 2013;122:931–5.
75. McDiarmid MA, Gehle K. Preconception brief: occupational/environmental exposures. *Matern Child Health J* 2006;10:123–8.