Reproductive History

- Pregnancy history should be obtained from all women of reproductive age:
  - **Prior Preterm or Low Birth Weight Infant**: Those with a history of delivery of a preterm or low birth weight infant should be evaluated for remediable causes and contributing factors (e.g., maternal prepregnancy weight < 50 kg or body mass index < 19.8 kg/m², cigarette smoking, illicit substance abuse, interpregnancy interval of < 18 months, and poorly controlled maternal vascular disease such as hypertension, diabetes mellitus, renal insufficiency, and collagen vascular diseases) that could be addressed before a subsequent pregnancy. Women with a previous preterm or low birth weight infant should be informed of the risk of recurrence in a subsequent pregnancy and the potential benefit of treatment with progesterone in a subsequent pregnancy. **Strength of recommendation: A; Quality of the evidence: I-a.**
  - **Prior Stillbirth Infant**: Those with a history of delivery of a stillborn infant should undergo a workup to define the etiology of the previous stillbirth, if not done as part of the initial workup. The workup should include a detailed review of the mother’s medical and obstetrical history; the prenatal course; physical examination of the fetus with weight, head circumference and length; photographs of the infant and placenta; placental pathology and fetal karyotype; and whole body X-ray and autopsy, if possible. Women with a previous stillbirth should be counseled about the increased risk of adverse outcomes in a subsequent pregnancy. The management of the subsequent pregnancy should be individualized based on the circumstances of the previous stillbirth. **Strength of recommendation: B; Quality of evidence: III.**
  - **Prior Miscarriage (Spontaneous Abortion)**: Women with sporadic early pregnancy loss (< 20 weeks) should be reassured of a low likelihood of recurrence in a subsequent pregnancy and offered routine preconception care. Those with 3 or more early losses should be offered a work-up to identify a cause. For those with no identified cause, the prognosis is favorable with supportive care. **Strength of recommendation: A; Quality of evidence: I-a.**

- Assessment Tool: ‘Reproductive Health Questions’ (Lavender page in pull out section)

Family History

- **Family and Genetic History**: All women considering pregnancy should have a screening history as part of preconception care. Providers should ask about risks to pregnancy based on maternal age, maternal and paternal medical conditions, obstetrical history, and family history. Ideally, a three-generation family medical history should be obtained for both members of the couple with the goal of identifying known genetic disorders, congenital malformations, developmental delay/mental retardation, and ethnicity. If the screening history indicates the possibility of a genetic disorder, specific counseling should be given, which may include referral to a genetic counselor or clinical geneticist. **Strength of recommendations: A; Quality of evidence: III (varies by condition).**

- Assessment Tool: ‘Reproductive Health Questions’ (Lavender page in pull out section)

- **Couples with ethnicity-based genetic risk factors**: In couples in which at least one member is of African, Mediterranean, or southeast Asian ancestry, screening for hemoglobinopathies should be performed via complete blood count, to include mean corpuscular volume (MCV), and hemoglobin (Hb) electrophoresis if the MCV is < 80 fL. If at least one member of the couple is of African descent, screening for sickle cell anemia carrier status should be performed via hemoglobin electrophoresis. If at least one member of a couple is of Caucasian ancestry, screening for cystic fibrosis mutations should be offered. Tay-Sachs screening, via a hexosaminidase A assay, should be offered to couples with French Canadian or Cajun ancestry. See Table 2 for a summary. Couples at risk for any of the above conditions should be offered preconception counseling about the risks of that condition to future pregnancies, which may require referral to a genetic counselor.

<table>
<thead>
<tr>
<th>Ethnicity/Origin</th>
<th>Condition</th>
<th>Carrier Frequency</th>
<th>Screening Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>African American</td>
<td>Sickle cell anemia</td>
<td>1 in 10</td>
<td>Hb electrophoresis</td>
</tr>
<tr>
<td></td>
<td>Beta-thalassemia</td>
<td>1 in 75</td>
<td>MCV &gt; 80, Hb electrophoresis</td>
</tr>
<tr>
<td>Southeast Asian</td>
<td>Alpha-thalassemia</td>
<td>1 in 20</td>
<td>MCV &gt; 80, Hb electrophoresis</td>
</tr>
<tr>
<td></td>
<td>Beta-thalassemia</td>
<td>1 in 50</td>
<td>MCV &gt; 80, Hb electrophoresis</td>
</tr>
<tr>
<td>Northern European</td>
<td>Cystic fibrosis</td>
<td>1 in 25</td>
<td>CF gene mutation</td>
</tr>
<tr>
<td>French Canadian</td>
<td>Tay Sachs</td>
<td>1 in 30</td>
<td>Hexosaminidase A</td>
</tr>
<tr>
<td>or Cajun</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hispanic</td>
<td>Cystic fibrosis</td>
<td>1 in 46</td>
<td>CF gene mutation</td>
</tr>
<tr>
<td></td>
<td>Beta-thalassemia</td>
<td>1 in 50</td>
<td>MCV &gt; 80, Hb electrophoresis</td>
</tr>
<tr>
<td>Mediterranean</td>
<td>Beta-thalassemia</td>
<td>1 in 25</td>
<td>MCV &gt; 80, Hb electrophoresis</td>
</tr>
<tr>
<td></td>
<td>Cystic fibrosis</td>
<td>1 in 29</td>
<td>CF gene mutation</td>
</tr>
<tr>
<td></td>
<td>Sickle cell anemia</td>
<td>1 in 30</td>
<td>Hb electrophoresis</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Information from: March of Dimes. Genetics and Primary Care: Cystic fibrosis and ethnicity based carrier screening. Available at: mchneighborhood.ihcp.org/MOD_Carrier_Screen.pptU1

- **Couples with genetic risk factors based on specific family history**: If at least one member of a couple has a family history of developmental delay, congenital anomalies, or other possible genetic conditions, they should be referred to a qualified health care provider for appropriate counseling and, potentially, testing. A family history of a known genetic condition such as cystic fibrosis, Tay-Sachs, or genetic deafness should prompt offering of testing for at least the person with affected relatives; sex selection should be discussed if there is a family history of an X-linked condition such as hemophilia. **Strength of recommendation: B; Quality of evidence: II-3.**

- **Couples with genetic risk factors based on specific personal medical history**: Individuals affected by a known genetic disorder should be offered genetic counseling and testing. If at least one member of a couple has a known chromosomal anomaly, assisted reproductive technology (ART) should be discussed, as pre-implantation genetic diagnosis can reduce the risk of spontaneous abortion and affected fetuses. **Strength of recommendation: B; Quality of evidence: II-3.**
C. Interventions for Women with Chronic Health Conditions

Preconception care includes the achievement of optimal control of chronic health conditions prior to pregnancy. There are several conditions for which both a link to adverse pregnancy outcomes for women and their offspring, AND evidence that the effect can be impacted by preconception care, as detailed below. Since avoiding, delaying, or achieving optimal timing of a pregnancy is often an important component of the preconception care of women with medical conditions, contraceptive considerations particular to the medical conditions, if applicable, are summarized.

- **Diabetes.** All women of reproductive age with diabetes should be counseled about the importance of diabetes control before pregnancy. Important preconception counseling topics include maximizing glucose control, self-monitoring of blood glucose, maintaining optimal weight, evaluation for vascular complications, modification of drug treatment if conception is planned or likely, a regular exercise program, tobacco, alcohol, and substance abuse cessation, and social support to assist during the pregnancy. In the months before pregnancy, these women should demonstrate as near-normal glycosylated hemoglobin as possible for the purpose of decreasing the rate of congenital anomalies and spontaneous abortion. Those with suboptimal control of their diabetes should be encouraged to use effective birth control. **Strength of recommendation: A; Quality of evidence: I.** Testing to detect pre-diabetes and type 2 diabetes in asymptomatic women should be considered in adults who are overweight or obese (BMI ≥ 25 kg/m²) and who have one or more additional risk factors for diabetes including a history of gestational diabetes mellitus. **Strength of recommendation: B.** Women with gestational diabetes mellitus should be re-screened 6-12 weeks post partum. **Strength of recommendation: E.**

- **Contraceptive considerations:** There is a theoretical concern that hormonal contraceptives may increase insulin resistance in women who are diabetic. The WHO suggests that the advantages of contraception — including low-dose combination contraceptives (oral, injectable, vaginal ring, or skin patch formulations) — outweigh the risks of insulin resistance in diabetic women, except for those with vascular disease or diabetes for more than 20 years. FDA labeling on the Copper T380A intrauterine device lists diabetes as a contraindication for use due to compromised immunity, however, the WHO lists the Copper T380A as a recommended method for women with diabetes, with a caution that a woman with diabetes on insulin may be at higher risk of method failure. **Relevant clinical practice guideline:** Available from the American Diabetes Association.*

- **Hypertension.** Women of reproductive age with chronic hypertension should be counseled about the risks associated with hypertension during pregnancy for both the woman and her offspring, and the possible need to change the antihypertensive regimen when she is planning a pregnancy. Those with hypertension for several years should be assessed for ventricular hypertrophy, retinopathy, and renal disease prior to pregnancy. Angiotensin-converting enzyme inhibitors and angiotensin-receptor blockers are contraindicated during pregnancy; women who could become pregnant while taking these medications should be counseled about their adverse fetal effects and should be offered contraception if they are not planning a pregnancy. Women who are planning a pregnancy should discontinue these medications prior to pregnancy. **Strength of recommendation: A (because of medications); Quality of evidence: II-2.**

### Table 1. Sources of exposures for known reproductive health and pregnancy hazards.

<table>
<thead>
<tr>
<th>Hazard</th>
<th>Types</th>
<th>Associated Outcome</th>
<th>Sources of exposures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metals</td>
<td>Lead</td>
<td>Abnormal sperm</td>
<td>Solder</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Menstrual disorders</td>
<td>Lead pipes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Miscarriage</td>
<td>Batteries</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Stillbirths</td>
<td>Leaded paints</td>
</tr>
<tr>
<td></td>
<td>Mercury</td>
<td>Mental retardation</td>
<td>Ceramics</td>
</tr>
<tr>
<td></td>
<td>Mercury</td>
<td>Impaired fetal motor and mental development</td>
<td>Risk from contaminated waters</td>
</tr>
<tr>
<td>Solvents</td>
<td>Trichloroethylene</td>
<td>Birth defects</td>
<td>Pesticides</td>
</tr>
<tr>
<td></td>
<td>Chloroform</td>
<td></td>
<td>Thermometers</td>
</tr>
<tr>
<td></td>
<td>Benzene, toluene</td>
<td></td>
<td>Mirror coatings</td>
</tr>
<tr>
<td>Pollutants</td>
<td>Polychlorinated and polybrominated biphenyls</td>
<td>Low birth weight</td>
<td>Rubber chemicals</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Stillbirths</td>
<td>Electronics industry</td>
</tr>
<tr>
<td>Pesticides</td>
<td>2,4,5-T and 2,4-D organophosphates</td>
<td>Miscarriages</td>
<td>Insect sprays</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Low birth weight</td>
<td>Wood treatments</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Birth defects</td>
<td></td>
</tr>
<tr>
<td>Gases</td>
<td>Carbon monoxide</td>
<td>Low birth weight</td>
<td>Cigarette smoke</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Stillbirths</td>
<td>Auto exhaust</td>
</tr>
<tr>
<td>Anesthetic gases</td>
<td></td>
<td>Decreased fertility</td>
<td>Kerosene heaters</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Miscarriages</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Birth defects</td>
<td></td>
</tr>
<tr>
<td>Radiation</td>
<td>Radiographs</td>
<td>Chromosomal aberrations</td>
<td>Dental offices</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Birth defects</td>
<td>Operating rooms</td>
</tr>
<tr>
<td>Teratogenic treatments</td>
<td>Antineoplastic agents</td>
<td>Decreased fertility</td>
<td>Chemical industry</td>
</tr>
<tr>
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<td></td>
<td>Chromosomal aberrations</td>
<td>Medical and dental offices</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Miscarriage</td>
<td>Electronics industry</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Birth defects</td>
<td></td>
</tr>
</tbody>
</table>

Adapted with permission from "Preconception health promotion." In: Cefalo RC, Moos MK, eds. Preconceptional health care: a practical guide. 2d ed. Copyright © 1999 Mosby. All rights reserved.
Home and Work Environments

- Intimate Partner Violence and Sexual Violence: All women of reproductive age should be asked about experiences of physical, sexual, or emotional violence from any source. For those who are being abused, or have been in the recent past, the provider should express concern and willingness to assist in correcting the abusive situation. Appropriate evaluation, counseling and treatment for physical injuries, sexually transmitted infections, unintended pregnancy, and psychological trauma should be offered, including the provision of emergency contraception and empiric antimicrobial therapy in the case of sexual assault. Women should be offered information about community agencies that specialize in abuse for counseling, contraception, and other services. Every clinician who sees women should have a list of such agencies easily available. Strength of recommendation: C; Level of evidence: III.16
  - Assessment Tool: ‘Reproductive Health Interview’ (Blue page in pull out section)
  - Counseling Tools: ‘A Prevention Primer for Domestic Violence’ (page 21)
  - ‘Georgia Coalition Against Domestic Violence’ materials (page 21)

- Jobs and hobbies: Women of reproductive age should be asked about the types of work and the hobbies they do and their home and work environments. If potential exposures to known hazards are identified (see Table 1), consultation with an occupational medicine specialist may assist with a more detailed investigation regarding recommendations for work modification. Strength of recommendation: B; Quality of evidence: III.17
  - Assessment Tool: ‘Reproductive Health Questions’ (Lavender page in pull out section)

- Contraceptive considerations: Patients with mild or well-controlled hypertension (<140-159/<90-99) may be considered for low-dose combination contraceptives (oral, injectable, vaginal ring, or skin patch formulations) or progestin-only methods (oral, injectable, implantable formulations), particularly in the absence of other risk factors such as smoking, diabetes, hyperlipidemia, or obesity. Combination pills are not recommended in moderate to severe hypertension (>160/>100) or if blood pressure cannot be monitored. The WHO lists the Copper T380A as a recommended method of contraception for women with mild or moderate to severe hypertension or if blood pressure cannot be monitored.

  - Cardiovascular disease. Women of reproductive age with cardiovascular disease should be counseled about the risks pregnancy presents to their health as well as the risks of the cardiac condition, and any medications needed to treat the condition (e.g., warfarin), on pregnancy-related outcomes. Those who are considering or planning a pregnancy should be counseled to achieve optimum control of the condition prior to conception, and should be offered a suitable contraceptive method to achieve optimum timing of the pregnancy. Those whose treatment regimen involves warfarin should be counseled about its teratogenic nature and, whenever possible, should be changed to a less teratogenic anticoagulant prior to conception. Those with a congenital cardiac condition should be offered preconception genetic counseling. Those who do not desire a pregnancy should be offered a suitable form of contraception. Strength of recommendation: B; Quality of evidence: II-3.18
    - Contraceptive considerations: Sterilization of the male partner carries the least risk for the woman with cardiac disease who is in a monogamous relationship and who does not desire children. Barrier methods and the Copper T380A are also safe. Those patients who have right to left shunts, ischemic heart disease, or a history of stroke or who have multiple risk factors for cardiovascular disease (e.g., age >35 years, smoker, diabetes, uncontrolled hypertension) should not use combination contraceptives of any formulation. Progestin-only oral contraceptives, intrauterine devices, and implantables may be used by women with cardiovascular disease; however, the injectable depot medroxyprogesterone acetate (DMPA) should not be used as it may increase the risk of heart disease.
    - Relevant clinical practice guideline: Available from the American Heart Association and the American College of Cardiology Foundation.5

- Renal Disease. Women of reproductive age with renal disease should be counseled about the likelihood of progression of renal disease during pregnancy and irrespective of pregnancy, the increased risk of adverse pregnancy outcomes for the woman and offspring, and the importance of achievement or maintenance of normal blood pressure prior to conception. While fertility is substantially reduced in women with end-stage renal disease, maternal and fetal outcomes are particularly poor for those with end-stage renal disease who do become pregnant, thus, counseling about these risks and contraception should be offered. Angiotensin-converting enzyme inhibitors and angiotensin-receptor blockers are contraindicated during pregnancy; women who could become pregnant while taking these medications should be counseled about their adverse fetal effects and should be offered contraception if they are not planning a pregnancy. Women who are planning a pregnancy should discontinue these medications prior to pregnancy in favor of a safer regimen, whenever possible. Women who do not desire pregnancy should be offered an appropriate method of contraception. Strength of recommendation: B; Quality of evidence: II-2.19
Seizure disorders.

Phenylketonuria.

Thrombophilia. Providers may consider screening women of reproductive age for a personal or family history of venous thrombotic events or recurrent or severe adverse pregnancy outcomes. Women with a personal or family history suggestive of thrombophilia may then be offered counseling and testing for thrombophilias. Screening for thrombophilias with laboratory testing in routine care is not recommended. Women of reproductive age with a known genetic thrombophilia should be offered preconception genetic counseling to address the risk of the condition to the offspring. Strength of recommendation: C; Quality of evidence: III. Women of reproductive age with a thrombophilia whose treatment regimen involves warfarin should be counseled about its teratogenic nature and, whenever possible, should be changed to a less teratogenic anticoagulant prior to conception. Strength of recommendation: B; Quality of evidence: II-3.19

Contraceptive considerations: As estrogens promote hypercoagulable states, combination contraceptives (oral, injectable, vaginal ring, or skin patch formulations) are contraindicated for women with thrombophilias. There are no contraindications to progestin-only methods, intrauterine devices, or barrier methods.

Clinical practice guidelines: Guide to warfarin therapy available from the American Heart Association and the American College of Cardiology Foundation.5

Phenylketonuria. Women of reproductive age with phenylketonuria should be counseled about the importance of maintaining a low phenylalanine during their childbearing years, and should be encouraged to resume a low phenylalanine diet, particularly when they are planning to become pregnant, in order to avoid adverse outcomes for the offspring. Women of reproductive age with phenylketonuria should be counseled about the risks of increased seizure frequency in pregnancy, the risk of seizures and anticonvulsant medications on pregnancy outcomes, and the need to plan their pregnancies with a health care provider well in advance of a planned conception. Those taking liver enzyme-inducing anticonvulsants should be counseled about the increased risk of hormonal contraceptive failure. Whenever possible, women of reproductive age should be placed on anticonvulsant monotherapy with the lowest effective dose to control seizures. Those who are planning a pregnancy should be fully evaluated by a neurologist for consideration of alteration or withdrawal of the anticonvulsant regimen prior to conception, and should initiate folic acid supplementation of 4 mg per day for at least one month prior to conception and until the end of the first trimester to prevent neural tube defects. Strength of recommendation: A; Quality of evidence: II-1.19

Contraceptive considerations: There are no considerations for the various contraceptive methods particular to phenylketonuria.

Seizure disorders. Women of reproductive age with seizure disorders should be counseled about the risks of increased seizure frequency in pregnancy, the risk of seizures and anticonvulsant medications on pregnancy outcomes, and the need to plan their pregnancies with a health care provider well in advance of a planned conception. Those taking liver enzyme-inducing anticonvulsants should be counseled about the increased risk of hormonal contraceptive failure. Whenever possible, women of reproductive age should be placed on anticonvulsant monotherapy with the lowest effective dose to control seizures. Those who are planning a pregnancy should be fully evaluated by a neurologist for consideration of alteration or withdrawal of the anticonvulsant regimen prior to conception, and should initiate folic acid supplementation of 4 mg per day for at least one month prior to conception and until the end of the first trimester to prevent neural tube defects. Strength of recommendation: A; Quality of evidence: II-2.10

Contraceptive considerations: All contraceptive methods are acceptable for women with seizure disorders; however, the efficacy of oral contraceptives is impaired by

Overweight and obesity

Calculated the BMI for all women of reproductive age at least annually:

- Those with BMI ≥ 26 kg/m² should be counseled about the risks of overweight to their own health, the additional risks for being obese (≥ 30 kg/m²), and pregnancy risks associated with being overweight and obese including infertility, birth defects, stillbirth, and preterm delivery. These women should be offered specific behavioral strategies to decrease caloric intake and increase physical activity, and be encouraged to consider enrolling in structured weight loss programs. Strength of recommendation: A; Quality of evidence: III.3

- Those with BMI ≤ 19.8 kg/m² should be counseled about the short- and long-term risks to the own health and the risks to future pregnancies, including infertility. Those with a low BMI should be assessed for eating disorders and distortions of body image. Women unwilling to consider and achieve weight gain may require referral for further evaluation of eating disorders. Strength of recommendation: A; Quality of evidence: III.3

Assessment and Counseling Tool: U.S. Preventive Services Task Force Recommendations on Screening for Obesity in Adults (page 21)

Depression

Providers should screen and be vigilant for depression among all women of reproductive age, as identifying and treating depression prior to pregnancy may help prevent negative pregnancy and family outcomes. Women of reproductive age with a depressive disorder who are planning a pregnancy or who could become pregnant should be informed about the potential risks of untreated depression during the pregnancy and about the risks and benefits of various treatments during pregnancy. Strength of recommendation: B; Quality of evidence: III.13

Assessment Tool: ‘Reproductive Health Interview’ (Blue page in pull out section)

Treatment Recommendations: For recommendations for the preconception care of women with depression, refer to page 17 of this monograph or, for a full discussion, the Preconception Care Supplement of the American Journal of Obstetrics and Gynecology.13

Periodontal Disease

Routine screening and treatment of periodontal disease as part of preconception care is of considerable benefit to the mother, but cannot be definitively recommended as having benefit for the offspring at this time because there are no studies that have evaluated the role of preconception or interconception screening and treatment of periodontal disease and its effect on reproductive outcomes. A recent meta-analysis of randomized controlled trials to determine whether periodontal disease treatment with scaling and/or root planing during pregnancy finds that treatment results in a significant reduction in preterm births and a reduction in low birth weight births that is of borderline significance. Strength of recommendation: C; Quality of evidence: I-b.13

Resource Link: Contact the ‘Georgia Healthy Mothers, Healthy Babies’ Powerline (800-822-2539) to identify local dentists and resources.
Substance Use (tobacco, alcohol, Illicit substances)

- **Tobacco Use:** All women of reproductive age should be screened for tobacco use. Brief interventions should be provided to all tobacco users, including brief counseling that describes the benefits of not smoking before, during, and after pregnancy, discussion of medication, and referral to more intensive services (individual, group, or telephone counseling) if the woman is willing to use these services. For pregnant women, augmented counseling interventions should be used. *Strength of Recommendation: A; Quality of Evidence: 1-a.*
  - **Assessment Tool:** ‘Reproductive Health Interview’ (Blue page in pull out section)
  - **Counseling Tools:** ‘Smoke-free Families 5 A’s Counseling Guide’ (page 21)
  - **Resource Link:** ‘Georgia Tobacco Quit Line’ materials (page 21)

- **Alcohol Use:** All women of reproductive age should be screened for alcohol use at least annually and brief interventions should be provided in primary care settings including advice regarding the potential for adverse health outcomes. Brief interventions should include accurate information about the consequences of alcohol consumption including the effects of drinking during pregnancy, that effects begin early during the first trimester, and that no safe level of consumption has been established. Those women who show signs of alcohol dependence should be educated as to the risks of alcohol consumption, and for women interested in modifying their alcohol use patterns, efforts should be made to identify programs that would assist them to achieve cessation and long-term abstinence. Contraception consultation and services should be offered and pregnancy delayed until it can be an alcohol-free pregnancy. *Strength of Recommendation: B; Quality of Evidence: 1-a.*
  - **Assessment Tool:** ‘Reproductive Health Interview’ (Blue page in pull out section)
  - **Counseling Tools:** ‘Guidelines for Substance Abuse in Pregnancy’ (page 21)
  - **Resource Link:** Contact the ‘Georgia Healthy Mothers, Healthy Babies Powerline’ (800-822-2539) and the ‘Georgia Drug Abuse Hotline’ (800-338-6745) to identify local resources.

- **Illicit Substance Use:** A careful history should be obtained to identify use of illicit substances as part of the preconception risk assessment. Women of reproductive age should be counseled on the risks of using illicit drugs before and during pregnancy and offered information on counseling and treatment programs that support abstinence and rehabilitation. Contraception services should be offered and pregnancy should be delayed until individuals are drug free. *Strength of Recommendation: C; Quality of Evidence III.*
  - **Assessment Tool:** ‘Reproductive Health Interview’ (Blue page in pull out section)
  - **Counseling Tools:** ‘Guidelines for Substance Abuse in Pregnancy’ (page 21)
  - **Resource Link:** Contact the ‘Georgia Healthy Mothers, Healthy Babies Powerline’ (800-822-2539) and the ‘Georgia Drug Abuse Hotline’ (800-338-6745) to identify local resources.

concomitant use of anticonvulsants that induce liver enzymes (e.g., phenytoin, carbamazepine, barbiturates, topiramate, and tiagabine). For women without seizures, the failure rate of combined oral contraceptives with high estrogen dose (≥ 50 micrograms) is 0.7/100 woman-years, while the rate increases to 3.1/100 woman-years in those receiving liver enzyme-inducing anticonvulsants. Failure rates are higher for combined oral contraceptives with lower doses of estrogen (≤ 35 micrograms). Progestin-only methods also have a higher failure rate.

- **Clinical practice guidelines:** Available from the Quality Standards Subcommittee of the American Academy of Neurology.

- **Hypothyroidism.** Women of reproductive age with hypothyroidism should be counseled about the risks of the condition on pregnancy-related outcomes for the woman and the offspring, and the importance of achieving optimal replacement therapy prior to conception. All women with symptoms of hypothyroidism should be screened for thyroid disease, and if hypothyroid, they should be adequately replaced. *Strength of recommendation: A; Quality of evidence: II-1.*
  - **Contraceptive considerations:** There are no considerations for the various contraceptive methods particular to hypothyroidism.
  - **Clinical practice guidelines:** Available from the American Association of Clinical Endocrinologists.

- **Systemic lupus erythematosus.** Women of reproductive age with SLE should be counseled about the risks associated with SLE during pregnancy for both the woman and her offspring, the importance of optimizing disease control prior to pregnancy, the possible need to change the medication regimen close to conception or early in pregnancy, and the importance of specialized prenatal care once pregnant. Those whose treatment regimen involves cyclophosphamide should be advised of its teratogenic nature and, whenever possible, should be changed to a safer regimen prior to conception and offered contraception if they are not planning a pregnancy. *Strength of recommendation: B; Quality of evidence: II-2.*
  - **Contraceptive considerations:** Case reports associate estrogen-containing contraceptives with exacerbations of SLE, but retrospective studies have failed to find such an association. However, there is some evidence that the risk of thromboembolism related to combined oral contraceptives may be higher in SLE patients, especially those with positive antiphospholipid antibodies. Progestin-only contraceptives may be a good choice for those patients with antiphospholipid antibodies or those with risk factors for thromboembolic disease (age ≥ 35 years, obesity, smoking, hypertension). Intrauterine contraceptive devices are associated with an increased risk of infection among SLE patients, especially those who are on immunosuppressive therapy.

- **Asthma.** Women of reproductive age with asthma should be counseled about the potential for their asthma control to worsen with pregnancy and the importance of achieving asthma control prior to a pregnancy through appropriate medical management and avoidance of triggers. Women with asthma who are planning to become pregnant or who could become pregnant should be treated with pharmacologic step therapy for their chronic asthma based on the ACAAI-ACOG Recommendations for the Pharmacologic Step Therapy of Chronic Asthma During Pregnancy. Those with poor control of their asthma should be encouraged to use effective birth control until symptom control is achieved. *Strength of recommendation: B; Quality of evidence: II-3.*
Contraceptive considerations: There are no considerations for the various contraceptive methods particular to asthma.

Depression and Anxiety Disorders

- Women of reproductive age with depressive and anxiety disorders who are planning a pregnancy or who could become pregnant should be informed about the potential risks of an untreated illness during pregnancy and about the risks and benefits of various treatments during pregnancy. Strength of recommendation: B; Quality of evidence: III.15

Contraceptive considerations: The WHO Medical Eligibility Criteria for Contraceptive Use15 specifies that there is no need for restriction on use of hormonal contraceptives for women with depression as a variety of studies have found no increase in symptoms among depressed women using combined or progestin-only contraceptives.

C. Medication Usage

- All women of reproductive age should be screened for the use of teratogenic medications and should receive counseling about the potential impact of medications and chronic health conditions on pregnancy outcomes for mother and child. Whenever possible, potentially teratogenic medications should be switched to safer medications prior to conception. For women with chronic conditions with serious morbidity (to mother and infant), the fewest number and lowest dosages of essential medications that control maternal disease should be used. For women not desiring pregnancy, a plan for contraception should be addressed and initiated. Strength of recommendation: A; Quality of evidence: II-2. 21

- Refer to Table 3 (next page) for known teratogenic (Class X) medications

Preconception considerations for screening and/or intervention for particular STI’s are found below:

- Chlamydia: All sexually active women aged 25 and younger and all women at increased risk for infection with Chlamydia (including women with a history of STI, new or multiple sexual partners, inconsistent condom use, sex work, and drug use) should be screened annually at encounters before pregnancy. Strength of recommendation: A; Quality of evidence: I-a, II-2. 13

- Gonorrhea: High-risk women should be screened for gonorrhea during a preconception visit and those infected should be treated. Screening should also occur early during pregnancy and be repeated in high-risk women. Strength of recommendation: B; Quality of evidence: II-2. 13

- HIV: All men and women should be encouraged to know their HIV status before pregnancy and should be counseled about safe sexual practices. Those women testing positive must be informed of the risks of vertical transmission to the infant and the associated morbidity and mortality. These women should be offered contraception. Those choosing pregnancy should be counseled about the availability of treatment to prevent vertical transmission and that treatment should begin before pregnancy. Strength of recommendation: A; Quality of evidence: I-b. 13

- Hepatitis C: There are no data that preconception screening for Hepatitis C in low-risk women will improve perinatal outcomes. Screening for high risk women is recommended. Women who are positive for hepatitis C and desire pregnancy should be counseled regarding the uncertain infectivity, the link between viral load and neonatal transmission, the importance of avoiding hepatotoxic drugs, and the risk of chronic liver disease. Women being treated for Hepatitis C should have their reproductive plans reviewed and use adequate contraception while on therapy. Strength of recommendation: C; Quality of evidence: III. 13

- Herpes simplex virus: During a preconception visit, women with a history of genital herpes should be counseled about the risk of vertical transmission to the fetus and newborn child and those with no history should be counseled about asymptomatic disease and acquisition of infection. While universal serologic screening is not recommended in the general population, type-specific serologic testing of asymptomatic partners of persons with genital herpes is recommended. Strength of recommendation: B; Quality of evidence: II-1. 13

- Syphilis: High-risk women should be screened for syphilis during a preconception visit and those infected should be treated. As the U.S. Preventive Services Task Force and the CDC recommend screening all women during pregnancy for syphilis, screening for syphilis immediately before conception is recommended. Strength of recommendation: A; Quality of evidence: II-1. 13
B. Screenings for All Women of Reproductive Age & Interventions for Identified Risks

As part of preconception care, all women of reproductive age should be screened for the following, and receive an appropriate intervention if screening identifies a condition or concern:

Reproductive Plans and Risk for Unintended Pregnancy

- Routine health promotion activities for all women of reproductive age should begin with screening women for their intentions to become or not become pregnant in the short- and long-term, and their risk of conceiving (whether intended or not). Providers should encourage patients (women, men, and couples) to consider a reproductive life plan and educate patients about how their reproductive life plan impacts contraceptive and medical decision-making. Every woman of reproductive age should receive information and counseling about all forms of contraception from abstinence to permanent sterilization as well as the use of emergency contraception consistent with their reproductive life plan and risk of pregnancy. Strength of recommendation: A; Quality of evidence: III.
  - Assessment Tool: ‘Your Reproductive Plans’ (Pink page in pull out section)
  - Counseling Tool:
    - “Which Contraceptive Method Meets Your Needs?” (page 21)
    - “Which Contraceptive Method is Right for You?” (page 21)

Risk for Sexually-transmitted Infections (STIs)

- Regularly and routinely obtain a sexual history from all women of reproductive age to identify risk factors and specific risk practices for transmitting and acquiring STIs. Deliver client-centered education and counseling directed at a patient’s identified risks, the situations in which risks occur, and the use of goal-setting strategies around specific actions that reduce the risk for STI transmission, including abstinence, monogamy or reduction in sexual partners, utilization of male latex condoms (or female condoms when male condoms are not possible), and pre-exposure vaccination. For those with latex allergy, recommend male condoms made from other synthetic materials. Education around condom use should include instruction in the consistent and proper utilization of condoms. Strength of recommendation: A; Quality of evidence: III.
  - Assessment Tool: ‘Reproductive Health Questions’ (Lavender page in pull out section)
  - Counseling Tool: ‘Clinical Prevention Guidelines for Sexually-transmitted infections’ (page 21)

---

Table 3. Medications Contraindicated (Class X) in Pregnancy

<table>
<thead>
<tr>
<th>Agent</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Angiotensin converting enzyme inhibitors</td>
<td>May cause kidney abnormalities in fetus when used in 2nd or 3rd trimesters.</td>
</tr>
<tr>
<td>Angiotensin II receptor blockers</td>
<td></td>
</tr>
<tr>
<td>HMG-CoA reductase inhibitors</td>
<td>A range of abnormalities has been reported for exposures during the 4th - 9th week of gestation.</td>
</tr>
<tr>
<td>Androgens and testosterone derivatives</td>
<td>Cause masculinization of female fetus.</td>
</tr>
<tr>
<td>Carbamazepine</td>
<td>Risk of fetal death, mental retardation, and malformed hearts, genitals, cleft palates, and arteries. Should be switched to another, less teratogenic agent prior to conception whenever possible. Use should be reserved only for cases where benefit outweighs risk.</td>
</tr>
<tr>
<td>Coumadin derivatives</td>
<td>Risk of bone and cartilage deformities, mental retardation, and vision problems. Should be switched to heparin prior to conception whenever possible.</td>
</tr>
<tr>
<td>Ergotamine</td>
<td>May cause fetal toxicity or teratogenicity that is due to maternal and/or fetal vascular disruption.</td>
</tr>
<tr>
<td>Diethylstilbestrol and some progestogens (norethindrone, norethynodrel, norgestrel)</td>
<td>Children exposed in utero to diethylstilbestrol have increased risk for infertility (males) as well as malformations of the lower and upper Mullerian tracts and vagina (females). Progestational agents may increase the risk of malformations and hypospadias.</td>
</tr>
<tr>
<td>Folic acid antagonists</td>
<td>Risk of spontaneous abortion and malformations.</td>
</tr>
<tr>
<td>Isotretinoin, known as Accutane</td>
<td>Elevated risk of spontaneous abortion and many anomalies.</td>
</tr>
<tr>
<td>Leflunomide, thalidomide</td>
<td>Risk of limb deformities. Use only with strict pregnancy prevention protocols.</td>
</tr>
<tr>
<td>Lithium</td>
<td>Associated with increased risk of cardiovascular anomalies.</td>
</tr>
<tr>
<td>Misoprostol</td>
<td>Abortifacient early in pregnancy. Congenital malformations are associated with therapeutic use.</td>
</tr>
<tr>
<td>Phenytoin</td>
<td>Risk of fetal hydantoin syndrome, including intratuterine growth restriction with small head circumference, dysmorphic facies, orofacial clefts, cardiac defects, and distal digital hypoplasia. Use should be reserved only for when benefit outweighs risks.</td>
</tr>
<tr>
<td>Streptomyacin and kanamycin</td>
<td>Risk of ototoxicity.</td>
</tr>
<tr>
<td>Tetracycline</td>
<td>Risk to developing bones and teeth causing discoloration of teeth and skeletal abnormalities.</td>
</tr>
<tr>
<td>Valproic acid</td>
<td>Risk of central nervous system dysfunction, spina bifida, development delay, growth restriction and cardiac anomalies. Should be switched to another, less teratogenic agent prior to conception whenever possible. If benefit of use outweighs risk, should be administered in 3-4 divided doses and should not be combined with carbamazepine and phenobarbital.</td>
</tr>
</tbody>
</table>

III. TOOLS FOR DELIVERING RECOMMENDED PRECONCEPTION PRACTICES

A. Patient assessment tools

The following tools are designed to facilitate the providers’ assessment of key recognized preconception risk factors for women of reproductive age. The patient assessment tools are made available to you in this toolkit in a separate pull-out section such that you can easily photocopy them for use in your practice if you choose.

1. Reproductive plans assessment tool = ‘Your Reproductive Plans’
   - Purpose: To identify women who are planning a pregnancy within the next year or who could become pregnant (regardless of plans/intentions), and to facilitate identification of an appropriate contraceptive method for those who are NOT planning or desiring to become pregnant.
   - How to Administer: Patient- or nurse/provider-administered
   - Available: Pink page in pull-out section of this toolkit

2. Reproductive risks assessment tool = ‘Reproductive Health Questions’ and ‘Reproductive Health Interview’
   - Purpose: To facilitate the identification of modifiable and non-modifiable risk factors for adverse reproductive outcomes in order to link modifiable risks to specific strategies and non-modifiable risks with health education.
   - How to Administer: Patient-administered (questions), Nurse/provider-administered (interview)
   - Available: Lavender and Blue pages in pull-out section of this toolkit

B. Patient counseling and educational tools

The following tools are designed to facilitate linkage of appropriate counseling and health education with risks identified via the risk assessment process. The guide to counseling tools is found on the next page of this toolkit, and the patient education brochures (in English and Spanish) are found in the right-hand pocket of this toolkit, where you can access them to easily photocopy for use in your practice if you choose.

1. Guide to patient counseling resources tool
   - Purpose: To facilitate providers’ access to evidence-based resources
   - How to Utilize: Keep as quick reference guide accessible to providers; consider accessing the recommended materials and keeping copies of each as a ready-reference guide during patient encounters.
   - Available: Use web links in the counseling guide (page 21) to access source materials.

Immunizations

- Ensure that women of reproductive age are immunized against infections with known consequences to reproductive health and/or pregnancy outcomes, including those enumerated below:

1. ***Hepatitis B***: All high-risk women (household and sexual contacts of Hepatitis B carriers, injection drug users, women with sexually-transmitted diseases or other high-risk behaviors including multiple sex partners, international travelers, prisoners, and workers in health care, public safety, and institutions) who have not been previously vaccinated should receive Hepatitis B vaccine before pregnancy; those who are chronic carriers should be instructed on ways to prevent transmission to close contacts and how to prevent vertical transmission to their babies. **Strength of recommendation: A; Quality of evidence: III.**

2. ***Human papillomavirus***: Women and girls age 9-26 years should receive the human papillomavirus vaccine for the purpose of decreasing the incidence of cervical abnormalities and cancer. By avoiding the need for procedures on the cervix due to abnormalities caused by human papillomavirus, the vaccine could help decrease the proportion of pregnancies ending in preterm birth related to cervical incompetence. **Strength of recommendation: B; Quality of evidence: II-2.**

3. ***Measles/mumps/rubella***: All women of reproductive age should be screened for rubella immunity. Measles/mumps/rubella vaccination should be offered to those who have not been vaccinated or who are non-immune and who are not pregnant. Since it is a live vaccine, women should be counseled not to become pregnant for three months after receiving the vaccination. **Strength of recommendation: A; Quality of evidence: II-3.**

4. ***Varicella***: Because the varicella vaccine is contraindicated during pregnancy, screening for varicella immunity (by either a history of prior vaccination, prior varicella infection verified by a health care provider, or laboratory evidence of immunity) should be done as part of a preconception visit. All non-pregnant women of childbearing age who do not have evidence of varicella immunity should be vaccinated against varicella. **Strength of recommendation: B; Quality of evidence: III.**

5. ***Tetanus and pertussis***: Women of reproductive age should be up-to-date for tetanus toxoid, as passive immunity is probably protective against neonatal tetanus. The Tdap vaccine is recommended for women who might become pregnant or immediately postpartum to avoid complications of pertussis in the newborn. **Strength of recommendation: B; Quality of evidence: III.**

6. ***Influenza***: Influenza vaccination is recommended for women who will be pregnant during influenza season and for any woman with increased risk for influenza-related complications, such as cardiopulmonary disease or metabolic disorders, before influenza season begins. **Strength of recommendation: C; Quality of evidence: III.**

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2. Adapted from the Preconception Screening and Assessment Project, funded by the HRSA Maternal and Child Health Bureau.
II. RECOMMENDATIONS FOR PRECONCEPTION CARE

A. Health Promotion Strategies for All Women of Reproductive Age

Nutrient Supplementation

- Ensure that women of reproductive age are consuming adequate amounts of the following nutrients daily:

  1. **Folic Acid**: All women of reproductive age should be advised to ingest 0.4 mg (400 micrograms) of synthetic folic acid daily, obtained from fortified foods (e.g., breakfast cereals) and/or supplements. In addition, all women should be advised to consume a balanced, healthy diet that includes folate-rich foods, such as dark-green leafy vegetables, legumes and peas, and fresh fruits daily. **Strength of Recommendation**: A; **Quality of Evidence**: I-a.9

  2. **Calcium**: All women of reproductive age should be advised to ingest 1000-1200 mg of calcium daily through diet, supplements, or a combination. **Strength of Recommendation**: A; **Quality of Evidence**: I-b.9

  3. **Vitamin D**: All women of reproductive age should be advised to consume 400-800 IU of vitamin D daily through diet, supplements, or a combination. Consider screening those at elevated risk for vitamin D deficiency (poor intake, limited exposure to sunlight, darkly pigmented skin) by obtaining a serum 25-hydroxy-vitamin D level; provide adequate supplementation to those with low levels of 25-hydroxy-vitamin D. **Strength of Recommendation**: B; **Quality of Evidence**: I-b.9

Diet and Physical Activity

- Encourage women of reproductive age to take steps towards improving their diet. Specifically, women of reproductive age should be encouraged to eat iron-rich or iron-fortified foods (meat or meat alternatives, fortified grains); to include vitamin C-rich foods to enhance iron absorption; to eat folate-rich foods daily; and to consume a well-balanced diet, including 3 to 3.5 cups of fruits and vegetables per day, 3 servings of milk or calcium-rich foods per day, as well as protein-containing foods such as lean meats, fish, eggs, legumes (beans and lentils); and limited amounts of foods high in fat or sugar. **Strength of recommendation**: C; **Quality of evidence**: III.11

- Women of reproductive age who may become pregnant should avoid consumption of shark, swordfish, King mackerel, and tile fish. Other fish consumption (such as tuna) should also be limited but is allowed in up to two meals of three ounces each per week. Many state government agencies issue fish advisories and bans relating to mercury concentration in locally caught fish. **Strength of recommendation**: B; **Quality of evidence**: III.12

- All women should be assessed regarding weight-bearing and cardiovascular exercise and offered recommendations appropriate to their physical abilities. **Strength of recommendation**: C; **Quality of evidence**: II-2.9

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† Note: It is important to read nutrition labels to determine whether a breakfast cereal is folate-fortified, and if so, whether it is fortified at 100 micrograms or 400 micrograms per serving.
For Alcohol & Drug Use

- Try the following resources:
  1. World Health Organization ‘Medical Eligibility Criteria for Contraception’
     Website: www.who.int/reproductive-health/publications/mec/mec.pdf
  2. World Health Organization ‘Which Contraceptive Method Meets Your Needs?’
     Website: www.who.int/reproductivehealth/publications/dmt/21appendices.ppt#5
  3. Association of Reproductive Health Professionals ‘Which Contraceptive is Right for You?’
     Website: http://www.arhp.org/files/ContraceptiveChoicesPoster.pdf

When should Preconception Care be delivered?

- Preconception care should take place in an on-going manner over the course of a woman’s reproductive years. Preconception care is more than a single pre-pregnancy visit.
- For women who seek regular health care for preventive or chronic illness care, an assessment of reproductive plans (i.e., the number, if any, and desired spacing of children along with contraceptive practices) and risks to reproductive health should be done at least annually along with preconception health promotion and counseling/interventions for identified risks.
- For women who seek sporadic care, an assessment of reproductive plans and reproductive health risks along with targeted preconception health promotion and counseling/interventions for identified risks may have to be done as part of every health care encounter.

What can YOU do?

Incorporate recommendations for preconception health care into the care you deliver to women of reproductive age... Every woman, Every time...

- The Clinical Work Group of the Select Panel on Preconception Care synthesized clinical recommendations for preconception health care. The recommendations in this monograph are excerpted from their review, which is published as a series of papers and is available online as a resource for more complete information. For each recommendation a ‘strength of recommendation’ and ‘quality of evidence’, as adapted from the US Preventive Services Task Force Guide to Clinical Preventive Services, is given.

- Previously, the Centers for Disease Control and Prevention together with the Select Panel on Preconception Care issued recommendations for the preconception care of women with conditions for which established recommendations existed. 4-8

<table>
<thead>
<tr>
<th>Strength of Recommendations</th>
<th>Quality of the Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>A There is good evidence to support the recommendations that the condition be made on other grounds</td>
<td>I-a Evidence obtained from at least one properly conducted RCT done before pregnancy.</td>
</tr>
<tr>
<td>B There is fair evidence to support the recommendations that the condition be specifically considered in a preconception care evaluation.</td>
<td>I-b Evidence obtained from at least one properly conducted RCT not necessarily done before pregnancy.</td>
</tr>
<tr>
<td>C There is insufficient evidence to recommend for or against the inclusion of the condition in a preconception care evaluation, but recommendations to include or exclude may be made on other grounds</td>
<td>II-1 Evidence obtained from well-designed controlled trials without randomizations.</td>
</tr>
<tr>
<td>D There is fair evidence to support the recommendations that the condition be included in a preconception care evaluation.</td>
<td>II-2 Evidence obtained from well-designed cohort or case-control analytic studies, preferably from more than one center or research group.</td>
</tr>
<tr>
<td>E There is good evidence to support the recommendations that the condition be included in a preconception care evaluation.</td>
<td>II-3 Evidence obtained from multiple time series with or without the intervention. Dramatic results in uncontrolled experiments could also be regarded as this type of evidence.</td>
</tr>
</tbody>
</table>

Try the following resource:

1. U.S. Preventive Services Task Force Recommendations on Screening for Obesity in Adults
   Website: www.ahrq.gov/clinic/3rduspstf/obesity/obesr.htm#ref2

Try the following resources:

- Center for Disease Control and Prevention Clinical Prevention Guidelines for Sexually-transmitted Infections
  Website: www.cdc.gov/std/treatment/2006/clinical.htm

- U.S. Public Health Service Packet for Treating Tobacco Use and Dependence
  Website: www.surgeongeneral.gov/tobacco/tobaqrg.pdf

- National Center for Education in Maternal and Child Health Guidelines for Screening and Treating Substance Abuse in Pregnancy
  Website: aia.berkeley.edu/media/pdf/wa_sen_screening_guidelines.pdf

- Georgia Healthy Mothers, Healthy Babies Powerline to link with local resources
  Website: http://www.hmbhga.org/programs/powerline.html

- Georgia Tobacco Quit Line
  Quit line: 1-877-270-7867
  Website: http://www.livehealthygeorgia.org/quitLine/healthcareProviders.shtml for printed prescription pads, counseling guides, and referral forms to fax to the Quit Line

- Smoke-free Families 5 A’s Counseling Guide
  Website: www.helppregnantsmokersquit.org/channels/providers.aspx

For Domestic Violence - Try the following resources:

1. A Prevention Primer for Domestic Violence
   Website: www.vawnet.org

2. Georgia Coalition Against Domestic Violence
   Website: http://www.gcadv.org/

For Obesity - Try the following resource:

1. U.S. Preventive Services Task Force Recommendations on Screening for Obesity in Adults
   Website: www.ahrq.gov/clinic/3rduspstf/obesity/obesr.htm#ref2
I. OVERVIEW OF PRECONCEPTION CARE

What is Preconception Care?

- Preconception care is the primary prevention of maternal and perinatal morbidity and mortality, and presents the opportunity to improve women's overall health as well as that of tomorrow's children.
- Preconception care aims to improve reproductive health and pregnancy outcomes by promoting the health of a woman prior to conception, whether it is her first or a subsequent pregnancy.
- Preconception care consists of health promotion, screening for known risks, and interventions to reduce biomedical, behavioral, and social risks that may affect the health of the woman and her future pregnancy outcomes.
- Interconception care is preconception care provided from the birth of one child through a subsequent pregnancy, and provides a unique opportunity to address specific risk factors that may have contributed to a previous poor pregnancy outcome.

Why do we need Preconception Care?

To reduce infant mortality and morbidity:

- Over the 20th century, the infant mortality rate declined significantly. In recent years, however, progress has slowed, and in 2003, infant mortality increased.
- Improvements in birth outcomes have not been equally shared among those of all races and ethnicities. For example, in Georgia, the infant mortality rate for black infants remains more than twice that for white infants.
- Birth defects - some of which are preventable - are a leading cause of infant morbidity and mortality. Folic acid supplementation has been shown to reduce the occurrence of neural tube defects and other birth defects. Some birth defects are caused by exposure to known teratogens, including particular medications, early in pregnancy. Also, poorly-controlled chronic health conditions of the mother can increase the risk of birth defects for the baby.

To reduce maternal mortality and morbidity and improve women's overall health:

- Maternal mortality decreased by 99% in the 20th century. However, black women are still delivered at a higher rate, and in 2003, maternal mortality increased.
- Pre-existing chronic, infectious, and mental health conditions can become aggravated during pregnancy and contribute to maternal mortality and morbidity.
- Poorly-controlled diabetes, hypertension, and other chronic medical conditions can increase the risk of maternal and fetal complications.
- Reducing maternal mortality and morbidity, unintended pregnancies, chronic and infectious diseases, mental illnesses, and substance use in women are national health goals.

Because prenatal care alone is not enough:

- Despite broader access to prenatal care and improvements in the content of prenatal care over the last few decades, the percent of preterm births continues to rise and significant racial and ethnic disparities in birth outcomes and maternal mortality and morbidity persist.
- Many interventions to prevent poor pregnancy outcomes are most effective when they are delivered before or during the first few weeks of pregnancy – when a woman may not realize she is pregnant.
- Effective preconception care interventions are critical for improving maternal and infant health outcomes.

IV. SUMMARY OF PRECONCEPTION CARE PRACTICE RECOMMENDATIONS

Table 4. Recommended Preconception Care Practices

<table>
<thead>
<tr>
<th>Reputative life plan, Sexual practices, and Contraceptive behaviors</th>
<th>Assess women's intentions to become pregnant and support patients in making a reproductive life plan. Assess STI risks regularly and routinely, and counsel and offer immunizations in STI prevention. Counsel and educate about all forms of contraception consistent with reproductive life plan and STI risks.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nutritional Status</td>
<td>Advise folic acid ingestion of 0.4 mg daily from supplements or fortified foods. Advise calcium intake of 1000-1200 mg daily from supplements or dietary sources. Advise vitamin D intake of 400-800 IU daily from supplements or fortified foods; consider measuring 25-hydroxy-vitamin D levels for those at risk for deficiency (poor intake, limited sun exposure, darkly pigmented skin) and appropriate supplementation based upon levels. Calculate BMI at least annually. Counsel women who are overweight (BMI ≥ 26 kg/m²) and underweight (BMI ≤ 19.8 kg/m²) about the risks to their own health and the risks to fertility and future pregnancies. For women with BMI ≥ 26 kg/m²: offer behavioral strategies to decrease caloric intake and increase physical activity, and consider enrolling in structured weight loss program. For women with BMI ≥ 19.8 kg/m²; assess for eating disorders and consider referral for further evaluation and treatment.</td>
</tr>
<tr>
<td>Immunizations</td>
<td>Screen for rubella and varicella immunity, and immunize those who are non-immune. Ensure that tetanus and pertussis are up-to-date and administer Tdap as needed. Provide girls and women 9-26 years human papillomavirus vaccine. Provide Hepatitis B vaccine to high-risk women and instruct chronic carriers on how to prevent transmission to close contacts and vertical transmission to their offspring. Offer seasonal influenza vaccine to women who will be pregnant during influenza season or any women with increased risk for influenza-related complications.</td>
</tr>
<tr>
<td>Infections</td>
<td>Assess STI risks regularly and routinely, and counsel and offer immunizations in STI prevention. Screen sexually active women ≤ 25 years or at increased risk for STIs for Chlamydia at least annually. Provide indicated STI (including HIV) testing and treatment. Counsel those who are positive about the prevention of vertical transmission.</td>
</tr>
<tr>
<td>Medical conditions</td>
<td>Counsel women with chronic medical conditions including diabetes, hypertension, cardiovascular and renal disease, thrombophilies, seizure disorder, thyroid disease, lupus, asthma, and depression about the risks a pregnancy may pose to the woman's health and the risks the health condition may pose to the pregnancy, the need to achieve optimum disease control prior to pregnancy, and the possible need to modify the medication regimen before pregnancy.</td>
</tr>
<tr>
<td>Medications</td>
<td>Assess the use of teratogenic medications, over-the-counter medications, and dietary supplements and assess the need to modify the regimen before pregnancy.</td>
</tr>
<tr>
<td>Substance use</td>
<td>Screen for tobacco use; counsel those who smoke using the 5 A’s counseling technique. Screen for alcohol use patterns and risky drinking behaviors; counsel and refer those with risky drinking behaviors and advise all women that no safe level of consumption has been established. Screen for illicit drug use; counsel and refer those who use illicit drugs.</td>
</tr>
<tr>
<td>Home and work environments</td>
<td>Ask about physical, sexual, and emotional violence. Express concern and willingness to help those in abusive situations. Offer information about appropriate community agencies. Assess household and occupational exposures and modify exposures as needed.</td>
</tr>
<tr>
<td>Reproductive history</td>
<td>Assess history of preterm, low birth weight, and still born deliveries and evaluate for remediable causes. Assess history of miscarriage(s), and if ≥ 3 offer work-up to identify remediable causes and contributors.</td>
</tr>
<tr>
<td>Family history</td>
<td>Acquire a 3-generation family medical history for both members of the couple to identify known genetic disorders, congenital malformations, developmental delay/mental retardation, and ethnicity.</td>
</tr>
</tbody>
</table>
To accomplish the recommended practices (above), you need only the tools made available to you in the right-hand pocket of this toolkit, as described below.

Table 5. Guide to Tools for Accomplishing Recommended Preconception Care Practices

<table>
<thead>
<tr>
<th>Tool Available in Toolkit</th>
<th>To Be Done</th>
<th>Accomplishes This Recommended Practice</th>
</tr>
</thead>
</table>
| Your Reproductive Plan  | Every encounter | Screen ALL women of reproductive age for:  
  (pink page)  
  • Pregnancy intentions  
  • Risk of unintended pregnancy  
  • Risk of STI's  
  • Contraceptive method concerns |
| Reproductive Health Questions & Interview | At least annually | Screen ALL women of reproductive age for known risks to pregnancy outcomes and deliver evidence-based interventions based upon risk assessment:  
  (lavender & blue pages)  
  • Chronic medical conditions  
  • Medications  
  • Pregnancy & gynecologic history  
  • Immunization history  
  • Family history, ethnicity, origin  
  • Jobs and hobbies  
  • Diet and nutrition  
  • Sexual practices |
| Preconception Checklist  | At least annually | Deliver preconception care strategies to ALL women of reproductive age based upon their risk assessment and reproductive plans.  
  (yellow page) |
| Patient Brochures  | At least annually | Deliver appropriate women’s and preconception health promotion messages to ALL women of reproductive age.  
  (folded pages) |

KEY RESOURCES FOR MORE INFORMATION ABOUT PRECONCEPTION CARE

  o Website: www.ajog.org

- For a complete overview of preconception care and on-line CME modules, access the National Preconception Curriculum and Resources Guide for Clinicians:  
  o Website: www.mombaby.org/beforeandbeyond/

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