Welcome to Clinical Minute. Shauna is a twenty-seven-year-old woman, nulligravida, who presents to your office for her annual well-woman visit. She has been in a monogamous heterosexual relationship for three years and is working part-time while in school to become a dental hygienist. She has a strong family history of diabetes. She tells you that three of her grandparents and both her parents were all diagnosed with type 2 diabetes before age 30.

Shauna was diagnosed with type 2 diabetes two years ago. It has been managed with metformin for past year, after an attempt at weight reduction was unsuccessful. She does not smoke. She has no medical history other than the diabetes. She tells you she is worried about having diabetes, after seeing the complications it caused for her family members and other Native Americans on the reservation where she grew up.

How do you begin your exam with Shauna?

You recall a graph you saw online recently regarding ethnic differences in diagnosed diabetes. Data from the Centers for Disease Control and Prevention showed that American Indians and Alaska Natives have the highest prevalence of any ethnic or racial group in the US, about twice that of non-Hispanic white people.

Shauna tells you she uses condoms “most of the time” for contraception. Her menstrual cycle is irregular, with about 6 periods a year, although this has not been a concern to Shauna. She did have a menstrual cycle recently; her last menstrual cycle began 4 days ago.

You check her records and find that Pap, HIV and STI tests a year ago were negative.
On exam, you find that Shauna’s body mass index is 27 and her blood pressure is 120 over 84. Her physical exam, including pelvic exam, is normal. You recall that a BMI of 25 to 30 is considered overweight and greater than 30 is considered obese.

**What questions do you ask Shauna to guide this well-woman visit?**

You ask Shauna about her future plans. *One Key Question* is an initiative launched by the Oregon Foundation for Reproductive Health. The initiative encourages primary care providers to routinely ask women of reproductive age a simple question.

“**Would you like to become pregnant in the next year?**”

You ask Shauna the one key question. She responds, “**No way. I mean, we plan to get married someday but I’m not ready to become a mother.**”

You use open-ended questions to better understand what concerns Shauna has regarding contraceptives, what methods she’s tried, and what she already knows about her options.

Shauna tells you she tried COCs in the past, but frequently forgot to take the pills. She says she wants a contraceptive method that she does not have to remember to use. Given her desire not to become pregnant in the next year and the need for preconception care in women with diabetes, highly effective contraception is especially important. Because Shauna has no diabetes-associated complications, she is a candidate for estrogen-containing, progestin-only, or non-hormonal contraception.

Shauna tells you that her sister has an implant and she’d like to try that method. You review the risks, benefits, possible side effects, and aftercare instructions. You recently completed training on implant insertion and are able to complete the procedure within a few minutes. Because her LMP was within 5 days, she does not need back up contraception. However, you remind her that the implant offers no protection against STIs and reinforce the need to use condoms consistently.

**Preconception Counseling**

The Centers for Disease Control and Prevention defines preconception care as “**a set of interventions that aim to identify and modify biomedical, behavioral, and social risks to a woman’s health or pregnancy outcome through prevention and management.**”

Although Shauna has no intention of becoming pregnant in the next year and now has highly effective contraception, you discuss the importance of preconception counseling with her.
Because many birth defects take place before the first prenatal visit, all women of reproductive age are candidates for preconception counseling, even if not planning to conceive. Generally by the time that a woman learns she is pregnant, much of fetal organ development typically is complete.

**Preconception Care: Women with Pre-existing Health Conditions**

For women with pre-existing health conditions, preconception care is especially important to reduce the risk of these conditions affecting the health outcomes of the woman and her offspring. Pre-existing type 1 and type 2 diabetes have been shown to affect the risk of preeclampsia, miscarriage, congenital malformations, preterm delivery and neonatal mortality.

Obesity prior to conception increases the likelihood of miscarriage, fetal anomalies, preeclampsia, intrauterine fetal demise, macrosomia, neonatal hypoglycemia. Risk modification prior to conception can help improve these outcomes. For example, the three-fold increase in the prevalence of birth defects among infants of women with either type 1 or type 2 diabetes is substantially reduced through proper management of diabetes.

**Preconception Risk Assessment Checklist**

Preconception counseling should include a risk assessment and health education. The risk assessment should include:

- reproductive history
- environmental hazards and toxins
- medications that are known teratogens, such as statins and ACE inhibitors
- nutrition, special diets (e.g., vegan), eating disorder
- folic acid intake
- weight management and physical activity
- genetic conditions
- family history
- substance use, including tobacco and alcohol
- chronic diseases (e.g., diabetes, hypertension, and oral health)
- infectious diseases and vaccinations
- family planning
- mental health concerns
- Social concerns (e.g., social support, domestic violence, and housing)
Key Components of Preconception Counseling

Key components of preconception counseling include:

- Health promotion education and counseling
- Promotion of healthy behaviors, related to alcohol and substance use, reduction of risk of sexually transmitted diseases
- Discussion of family planning and unintended pregnancy prevention
- Counseling about a healthy diet, physical activity, and optimal weight
- Counseling about folic acid supplementation
- Immunization for infectious disease
- Information regarding the importance of early prenatal care, and
- Counseling concerning the availability of social and financial support programs, if relevant

Preconception Counseling for Women with Diabetes

Specific considerations for women with diabetes include education that high blood sugar and teratogenic medications increase the risk of congenital anomalies, and that planning pregnancies allows women to achieve tight control, stop taking teratogens, stabilize comorbidities, and begin folate supplementation prior to conception. Women should also be advised to let their care team know immediately upon conception. Also important is the availability of multidisciplinary support to achieve tight glycemic control. Targets may be individualized, but generally patients should strive for an A1C level goal of 6.5%, without hypoglycemia.

Note that while glycemic control is often easier to achieve in type 2 diabetes than in type 1 diabetes, the risk factors often associated with type 2 translate into a risk in women with type 2 that is as high or higher than the risk in women with type 1. Baseline ophthalmology exam during the first trimester is important with subsequent monitoring every trimester as indicated by degree of retinopathy. It is also important for women to discontinue potential teratogens, including ACE inhibitors, statins, and angiotensin II receptor blockers, or ARBs. Finally, women should receive a prescription for prenatal vitamins. The recommendation for all women is 400 mcg folic acid; women with diabetes are encouraged to take at least 600 mcg per day.
Testing that should be done as part of preconception care for women with diabetes include the following. Note that the four tests marked with an asterix are specific to diabetes preconception testing.

- Routine rubella, rapid plasma reagin
- Hepatitis B virus and HIV testing
- Blood typing
- Hemoglobin A1C*
- Thyroid-stimulating hormone*
- Serum creatinine
- Urine albumin-to-creatinine ratio, and
- Cervical cultures

You review a preconception risk assessment that you’ve asked Shauna to complete. Diabetes and weight management are the two concerns raised by the assessment. You then complete the key components of counseling with Shauna, making sure to ask her for any questions when you’re finished. You review with Shauna the special considerations for women with diabetes, including avoiding teratogenic medications, aiming for tight control of blood glucose levels.

You advise Shauna to notify her care team if she wants a different birth control method, wants to stop birth control and start trying to get pregnant, or if she believes she is pregnant. Although pregnancy is unlikely with the contraceptive implant, educating Shauna to be prepared for pregnancy is an important preventive health intervention.

**Shauna: Overall Risk Prevention**

You ask Shauna if she’s willing to see a nutritionist and a diabetes educator to help her improve her diet and activity level. She agrees. You direct her to the front desk for help making those appointments and to schedule a follow up appointment with you in 3 months. At that time, you can assess her weight, glycemic control, and ask about any side effects or concerns with the contraceptive implant.
References