

Highlights on contraceptive management

By Melanie Deal, MSN, WHNP-BC, FNP-BC, and Heidi Collins Fantasia, PhD, RN, WHNP-BC, FNAP



Faculty: Melanie Deal, MSN, WHNP-BC, FNP-BC, is a nurse practitioner and supervisor at University Health Services at the University of California in Berkeley, California.

Heidi Collins Fantasia, PhD, WHNP-BC, FNAP, is Associate Professor and Department Chair at Solomont School of Nursing, Zuckerman College of Health Sciences, at the University of Massachusetts in Lowell, Massachusetts.

Intended audience: This continuing education (CE) activity has been designed to meet the educational needs of nurse practitioners and other clinicians who provide reproductive healthcare.

CE approval period: Now through April 30, 2024

Estimated time to complete this activity: 1 hour

CE approval hours: 1.0 contact hour of CE credit including 1.0 contact hour of pharmacology content

Goal statement: Nurse practitioners and other clinicians who provide reproductive healthcare will increase their knowledge about assessment and management of contraception for individuals with preexisting medical conditions as well as counseling for safety, effectiveness, and user satisfaction.

Needs assessment: Knowledge about how medical conditions can affect pregnancy outcomes, how pregnancy can affect medical conditions, and how medical conditions can affect the safety of contraceptive methods is imperative for the clinician providing reproductive healthcare. The individual or couple's satisfaction with a contraceptive method is influenced by their confidence in use of the method and understanding about common side effects. Expert contraceptive assessment and counseling skills are needed to ensure contraceptive safety, effectiveness, and user satisfaction.

Educational objectives: At the conclusion of this educational activity, participants should be able to:

1. Discuss the use of available guidelines to facilitate safe and effective contraception use.

2. Describe considerations for contraceptive use by individuals with preexisting medical conditions.

3. Identify factors that influence satisfaction and effective use of contraceptive methods.

Accreditation statement: This activity has been evaluated and approved by the Continuing Education Approval Program of the National Association of Nurse Practitioners in Women's Health (NPWH) and has been approved for 1 contact hour CE credit, including 1.0 hour of pharmacology credit.

Faculty disclosures: NPWH policy requires all faculty to disclose any affiliation or relationship with a commercial interest that may cause potential, real, or apparent conflict of interest with the content of a CE program. NPWH does not imply that affiliation or relationship will affect the content of the CE program. Disclosure provides participants with information that may be important to their evaluation of an activity.

Melanie Deal, MSN, WHNP-BC, FNP-BC, has no actual or potential conflicts of interest in relation to the contents of this article.

Heidi Collins Fantasia, PhD, WHNP-BC, FNAP, has no actual or potential conflicts of interest in relation to the contents of this article.

Disclosure of unlabeled/unapproved use: NPWH policy requires authors to disclose to participants when they are presenting information about an unlabeled use of a commercial product or device or investigational use of a drug or device not yet approved for any use.

Disclaimer: Participating faculty members determine the editorial content of the CE activity; this content does not necessarily represent the views of NPWH or Bayer Healthcare Pharmaceuticals. This content has undergone a blinded peer review process for validation of clinical content. Although every effort has been made to ensure that the information is accurate, clinicians are responsible for evaluating this information in relation to generally

To participate in this CE program, click [here](#)^A.

accepted standards in their own communities and integrating the information in this activity with that of established recommendations of other authorities, national guidelines, and FDA-approved package inserts, and individual patient characteristics.

Successful completion of the activity: Successful completion of this activity, J-22-02, requires participants to do the following:

1. "Sign in" at the top right-hand corner of the page pathlms.com/npwh/courses/40999# if you have an NPWH account. You must be signed in to receive credit for this course. If you do not remember your username or password, please follow the "Forgot Password" link and instructions on the sign-in page. If you do not have an account, please click on the "Create an Account."*
2. Read the learning objectives, disclosures, and disclaimers on the next page and then click on the "Continue" button.

3. Study the material in the learning activity during the approval period (now through April 30, 2024).
4. Complete the post-test and evaluation. You must earn a score of 70% or higher on the post-test to receive CE credit.
5. Print out the CE certificate after you have successfully passed the post-test and completed the evaluation.

*If you are an NPWH member, were once a member, or have completed CE activities with NPWH in the past, you have a username and password in our system. Please do not create a new account. Creation of multiple accounts could result in loss of CE credits as well as other NPWH services. If you do not remember your username or password, either click on the "Forgot Username" or "Forgot Password" link or call the NPWH office at (202) 543-9693, ext. 1.

Commercial support: This activity is supported by an educational grant from Bayer Healthcare Pharmaceuticals.

Before reading the article, click [here^A](#) to take the pretest.

Knowledge about how medical conditions can affect pregnancy outcomes, how pregnancy can affect medical conditions, and how medical conditions can affect the safety of contraceptive methods is imperative for the clinician providing reproductive healthcare. Contraceptive method satisfaction is influenced by the individual or couple's confidence in correct use of the method, understanding about common side effects, and knowing they can always connect with the clinician about any questions, concerns, or desire to change their method. Evidence-based tools are available to guide the clinician. Expert contraceptive assessment and counseling skills ensure contraceptive safety, effectiveness, and user satisfaction.

KEY WORDS: contraception, contraception in women with medical conditions, contraception satisfaction

Individuals and couples making decisions about what contraceptive method to choose must navigate what is most important to them, which can include efficacy, safety, and lifestyle considerations. Clinicians who provide reproductive healthcare can assist in this navigation so that each individual or couple can make an informed decision about what contraceptive method will work best for them. Clinicians also promote safety, effective use, satisfaction with, and adherence to a method through patient education and counseling. Attention contin-

ues through follow-up to ensure that concerns and side effects are addressed and that individuals can change their mind and switch to a different method if desired. Thus clinicians are charged with being knowledgeable about all methods, knowing how to assess safety levels with regard to individual patient factors, as well as having expert contraceptive counseling skills to facilitate shared decision making and manage common contraceptive issues and concerns.

This article provides highlights from the contraception update

presentation at the 2021 Annual NPWH Premier Women's Healthcare Conference. Topics include the use of clinical guidelines for providing contraception, contraceptive choice considerations for individuals with preexisting medical conditions, and an evidence-based approach to addressing two common concerns for combination oral contraception (COC) users.

Clinical guidelines for providing contraception

Two important clinical guidelines for providing contraception have been developed by the Centers for Disease Control and Prevention. The first is the US Medical Eligibility Criteria (US MEC) for Contraceptive Use that provides a 4-category safety rating of each contraceptive method for over 60 medical conditions (eg, gynecologic disorders, cardiovascular disease, endocrine conditions, neurologic conditions, cancer) and characteristics such as age, postpartum and breastfeeding status, and smoking. Potential drug interactions with specific contraceptives are also addressed.¹ A category rating of 1 or 2 means that the benefits of a method outweigh the risks



in general. Clinicians can prescribe the method with confidence about safety, although extra follow-up may be considered for those rated 2 in some situations. A category 3 rating means that the risks of using the method generally outweigh the benefits. Careful clinical judgment, access to clinical services, and follow-up are necessary. Before prescribing a method with this rating, a clinician must review the acceptability of other options with the patient, consider consultation with a specialist providing care for the particular health condition, and then mutually decide with the patient if this is the best choice for them. A category 4 rating means the risks far outweigh any benefits. These are conditions that represent an unacceptable health risk if the method is used. One could consider these categories analogous to a traffic light. A category 1 or 2 is equivalent to a green light, and the clinician can prescribe without undue concern. A category 3 ranking is a yellow light, so the clinician should proceed with caution. A category 4 ranking is like a red light, meaning that the method

should not be prescribed.

The second guideline, the US Selected Practice Recommendations (US SPR) for Contraceptive Use, provides information and recommendations on contraception management issues such as timing for initiation of or switching to another method, examinations or tests that should be completed before providing the method, whether or not a back-up method is needed, routine follow-up, and management of common method concerns. Intrauterine contraception, hormonal contraception, Standard Days method, emergency contraception, and male and female sterilization are covered.² Examples of guidance for common method concerns include how to manage bleeding irregularities while using contraception and how to manage late or missed pills, delayed application or detachment of hormonal patches, and delayed insertion or reinsertion of vaginal rings.

The US MEC and US SPR are invaluable companion resources for facilitating safe and effective contraception use. Both are available

for clinicians in booklet form, online, and as computer or phone apps <https://www.cdc.gov/reproductivehealth/contraception/contraception-app.html>^B.

Contraceptive prescribing for individuals with complex medical conditions

Individuals who have preexisting medical conditions may be at higher risk of complications during pregnancy. Therefore, highly effective contraception is important for those who could become pregnant. Adequate contraception will reduce the risk of an unintended pregnancy and allow individuals to receive prepregnancy counseling and guidance regarding how to best manage these conditions, including the potential need to change or discontinue prescription medication that can pose an increased risk to the fetus. Hypertension, migraine headache, obesity, post-bariatric surgery, epilepsy, systemic lupus erythematosus (SLE), and breast cancer are among these conditions.

Hypertension

In 2017, the American College of Cardiology (ACC) and the American Heart Association (AHA) published updated guidelines for hypertension that lowered the threshold for diagnosis.³ Currently, elevated blood pressure is classified as a systolic blood pressure (SBP) between 120 and 129 mm Hg and a diastolic blood pressure (DBP) greater than 80 mm Hg. Stage 1 hypertension is classified as a SBP between 130 and 139 mm Hg or DBP between 80 and 89 mm Hg. With the new guidelines, the number of those age 20 to 44 years who have been diagnosed with hypertension has doubled.³

According to the US MEC, the

recommendations for use of estrogen-containing contraception with hypertension vary depending on whether the hypertension is adequately controlled, significantly elevated, or other atherosclerotic cardiovascular disease (CVD) risk factors are present.¹ The current US MEC recommendation rates combination hormonal contraception (CHC) as category 3 for individuals with SBP between 140 and 159 mm Hg or DBP between 90 and 99 mm Hg or adequately controlled hypertension and above these parameters as category 4.¹ There is no recommendation concerning blood pressure falling in the new ACC/AHA classification of stage 1 hypertension.

For individuals younger than age 35 years with well-controlled hypertension and no other CVD risk factors who strongly wish to use an estrogen-containing method, a trial of CHC may be considered. The use of oral CHC allows for choosing the lowest dose of estrogen. Blood pressure should be monitored on a more frequent basis and a decision to continue CHC based on response.⁴

All progestin-only methods in general and all nonhormonal contraceptive methods are considered safe for the individual with hypertension. Because of the concern about unfavorable lipoprotein changes that could contribute to CVD risk and prolonged effects for some time after discontinuation, the US MEC categorizes depot medroxyprogesterone acetate (DMPA) as category 3 for those with significantly elevated blood pressure or with other CVD risk factors.¹

Migraine headache

Migraine headaches are a common condition among reproductive-age women. Because some symptoms may overlap, it is important to distinguish a migraine headache from

tension and cluster headaches. Migraine headaches are often unilateral, throbbing, last several hours, and worsen with activity. Nausea, vomiting, and photo- and phonophobia are common. Aura can precede migraine headaches and is defined as focal neurologic symptoms that develop prior to the headache onset and include scotoma, loss of vision, flashing lights, numbness, and tingling.⁵

A history of migraine headaches is a risk factor for ischemic stroke, and migraine with aura further increases that risk. The absolute risk of stroke in young women is very low (5 to 10 per 100,000 women-years), and estrogen-containing contraception is not contraindicated for individuals who have migraine headaches without aura.¹ Estrogen-containing contraception is a category 4 if the individual has migraine headaches with aura based on the US MEC, however, and non-estrogen methods should be used.¹ For those with a remote history of migraine with aura (ie, no headache in the past 5–10 years), there is no recommendation. If a patient with remote history of migraine with aura strongly wishes to use an estrogen-containing method and understands the risks, it is reasonable for the clinician to consider a trial of low-dose (< 30 µg) estrogen-containing contraception and closely monitor. The return of migraines would necessitate a change to a nonestrogen method.

Obesity

In general, obesity is not an absolute contraindication to any method of contraception. Obesity does increase the risk of thrombotic events. Some evidence indicates that use of estrogen-containing contraception may further elevate the risk of venous thromboembolism (VTE) in

women with obesity, although the absolute risk in otherwise healthy women is small.¹ Hormonal and copper intrauterine devices, the subdermal implant, and DMPA are highly effective choices for women with obesity.

A 2016 Cochrane review concluded that among women with obesity, CHC efficacy is not significantly affected but that more research is needed to understand how severe obesity (body mass index [BMI] > 40 kg/m²) affects efficacy.⁶ The clinician may want to consider continuous regimens or those containing 30 to 35 mg ethinyl estradiol if the patient chooses to use COCs, as these may be more effective.⁷

Both transdermal CHC formulations available in the United States have package labeling that notes the potential reduced efficacy for those with a BMI between 25 and 29 kg/m² and a recommendation to avoid use with a BMI of 30 kg/m² or more due to both the increased risk of reduced effectiveness and VTE.^{8,9} This labeling is more restrictive than the US MEC, which places the use of all CHCs by women with obesity as category 2.¹ If patients with obesity have a strong desire to use transdermal contraception, it is important to discuss risks related to VTE, contraceptive failure, and pregnancy.

Bariatric surgery

Contraception is important for individuals who have undergone bariatric surgery, especially during the first 1 to 2 years postoperatively when nutritional deficiencies are more common, and pregnancy should be avoided.¹⁰ Considerations for contraceptive use are related to the type of bariatric surgery. Limited evidence has demonstrated no substantive decrease in the effectiveness of oral contraceptives following restrictive methods such as gastrectomy and



banding. Malabsorptive types of surgery, including biliopancreatic diversion and Roux-en-Y gastric bypass, could possibly result in decreased intestinal absorption of oral progestin-only and CHC.¹¹ Nonoral methods of contraception should be considered for individuals who have had a bariatric procedure that is associated with malabsorption.

Epilepsy

Contraception is important for women with epilepsy due to the possibility of teratogenicity from anticonvulsant medications and increased risk for adverse health events as a result of pregnancy.¹² Anticonvulsants are among the main class of medications that can decrease the effectiveness of oral hormonal contraception (both CHC and progestin-only pills), however, due to the induction of the cytochrome P-450 pathway.^{1,12} It is unclear if transdermal or vaginal CHC is affected.¹

Lamotrigine is an exception to the other anticonvulsants in that hormonal contraception is not affected but the level of lamotrigine is. If oral CHC is initiated, lamotrigine levels can decrease significantly, resulting in a subtherapeutic effect and the increased risk of seizure activity.^{1,13} Lamotrigine levels are not affected by other hormonal contraceptives.

Clinicians need to obtain an accurate and detailed medication history when performing contraceptive counseling as patients may also be prescribed anticonvulsants to treat neuropathic pain and some mental health conditions. The risk of drug interactions varies with the individual person and medication used. Individuals taking anticonvulsants should be counseled regarding alternatives to CHC, including intrauterine contraception, the subdermal implant, and DMPA.

Systemic lupus erythematosus

Systemic lupus erythematosus is a common autoimmune disorder that has a peak incidence during the reproductive years.¹⁴ Disease severity varies and flares, and remissions and relapses are common over the disease trajectory. Contraception is important to avoid unplanned pregnancies because poorer maternal and fetal outcomes have been associated with active SLE and some of the medications used to manage SLE can be teratogenic. Thrombosis risk is elevated, especially in the presence of antiphospholipid syndrome (APS) and highly effective, nonestrogen-containing methods such as intrauterine devices, the subdermal implant, and DMPA should be discussed as first-line options.¹⁴ For those with mild disease, no com-

plications, and negative APS, CHC is at US MEC category 2 and can be considered on an individual basis.¹

Breast cancer

Breast cancer development is linked to the effects of both estrogen and progesterone, and any type of hormonal contraception is contraindicated for those with a current diagnosis or a past 5-year history of breast cancer.^{1,15} For individuals who have a remote history (> 5 years) of breast cancer and no evidence of current disease, hormonal contraception is a US MEC category 3 and can be considered on an individual basis.¹ Consultation with the patient's breast cancer specialist may be useful in these cases.

Evidence supports that the use of hormonal contraception does not increase the risk of breast cancer among those with a family history of breast cancer and is not considered a contraindication for hormonal contraceptive use.^{1,15} Research related to hormonal contraceptive use among individuals at high risk for breast cancer because they have a genetic BRCA 1/2 mutation is less clear. Combination hormonal contraception appears to be protective against ovarian cancer, but it is currently inconclusive as to whether CHC increases the risk of breast cancer in this group.¹⁶ Therefore decisions regarding contraceptive method among those who are genetically at risk for breast cancer will need to be individualized. If CHC is used, it should be a second-line option and reserved for contraception only and not for the control or treatment of noncontraceptive conditions.^{15,16}

Two common patient concerns with combination oral contraceptives

Approximately 65% of US women currently use contraception.¹⁷ Although the interest in long-acting

reversible contraceptives (LARCs) is growing, COCs remain a popular choice.

According to a recent National Survey of Family Growth, the percentage of US women age 15 to 49 years who use COCs is 14%, making COCs the second most common contraceptive method.¹⁷ Female sterilization remains the most common method, and LARCs are third. The popularity of COCs is highest among younger women, with 19.5% of women age 15 to 19 years and 21.6% of women age 20 to 29 years using COCs.¹⁷ Clinicians who provide reproductive healthcare must remain well-versed on all aspects of COCs. This includes being knowledgeable about the evidence base for common concerns among COC users that include weight gain and mood changes.

Combination oral contraception is very effective (99% with perfect use and 92% with typical use).¹⁸ Adherence to correct, consistent use is a major determinant for effectiveness. Continuation of a method and adherence to using it correctly and consistently are, not surprisingly, associated with satisfaction. In one study, 46% discontinued their contraceptive method because of dissatisfaction and also about one third discontinued oral contraceptives because of dissatisfaction.¹⁹ Further, 65% stop because of a side effect or because they are worried about side effects.¹⁹ In a study looking at predictors for switching methods, contraceptive users who reported being very satisfied with and completely confident in correct use were least likely to consider switching methods. This is relevant because individuals considering switching methods often have a gap between stopping one method and starting another, which places them at risk for an unintended pregnancy.²⁰ Even if people do not stop a method completely, inconsistent use of



According to a recent National Survey of Family Growth, the percentage of US women age 15 to 49 years who use COCs is 14%, making COCs the second most common contraceptive method.

COCs is more common among users not completely satisfied with their method.²¹

Clinicians should be familiar with patients' most common concerns about COCs. Counseling about side effects when initiating a method has been associated with improved contraceptive adherence and continuation.²² Counseling may include brief explanations about potential concerns that are not evidence based such as weight gain and mood changes. When patients report these concerns after COC initiation, the clinician should be prepared to listen, provide evidence, and support the patient in weighing the pros and cons of continuing or changing their method.

Between 30% and 75% of COC users report weight gain, a leading reason for discontinuation of the

method among US women.²³ Many COC users who stop for this reason switch to a less effective method or no method. There is a lack of evidence for a causal relationship and only a theoretical mechanism of possible fluid retention secondary to mineralocorticoid and/or renin-angiotensin-aldosterone activation and/or an increase in subcutaneous fat secondary to a hormonally induced increase in appetite and food intake. There are data to counter an association between weight gain and COC use. A 2014 Cochrane database review found that in four trials with a placebo or no intervention group, no evidence existed to support a causal association between COCs or the combination transdermal patch and weight change.²⁴ Most comparisons of different CHCs

A recent meta-analysis of the literature revealed a minimal if any effect of hormonal contraception on the development of depression. Findings are variable for those with preexisting mood disorders, with some studies finding increased symptoms of depression and others showing improvement with COC use.

showed no substantial difference in weight.²⁴

The most likely reason for weight gain in any individual is a combination of genetic, environmental, and lifestyle factors.²³ Yet concerns about weight gain caused by COC use persist. For whatever reason or reasons women typically gain weight if it coincides with the initiation of COCs, it provides an anchor point for the patient and can therefore be perceived to be the root cause.²³ Although it is important to share what we know about COC use and weight gain, it is equally or perhaps more important to listen to the patient and what is of most concern to that patient. Shared decision making might include discussion of healthy food and exercise choices and the pros and cons of switching to another method.

Adverse mood changes are another reported reason for discontinuing COCs. Approximately 25% of individuals report mood changes with the use of COCs, and about 5% discontinue use for this reason.²⁵ Receptors for progesterone and estrogen are present in multiple areas of the brain. Progestin metabolites increase monoamine oxidase, which decreases serotonin levels that in

turn can depress mood. Estrogen may increase serotonin synthesis and decrease its degradation leading to enhanced mood. Some individuals may be more sensitive to fluctuations in hormone levels. However, the relationships are complex, multifactorial, and not well understood.^{25,26}

A recent meta-analysis of the literature revealed a minimal if any effect of hormonal contraception on the development of depression.²⁵ Findings are variable for those with preexisting mood disorders, with some studies finding increased symptoms of depression and others showing improvement with COC use.^{25,26} Further, limited evidence shows no consistent associations between CHC or progestin-only contraception use and incidence of postpartum depression.²⁷ The US MEC provides a category 1 rating for CHC use in individuals with depressive disorders.¹ The clinician should review with the patient any history of mood disorders, menstrual-related mood changes, and previous hormonal contraception-related mood change side effects prior to the initiation of COCs. Definitive conclusions cannot be made from

available studies, but there is some evidence to suggest that monophasic COCs used continuously and transdermal and vaginal CHCs with a more continuous release may have fewer mood-related side effects. It also has been postulated that COCs containing less androgenic progestins may have more beneficial effects on mood. As well, continuous COC regimens can improve premenstrual mood changes.^{25,26}

Conclusion

Clinicians providing reproductive healthcare have evidence-based tools with the US MEC and US SPR to guide them in ensuring that individuals and couples are able to choose safe, effective contraceptive methods with which they will be satisfied. Knowledge about how medical conditions can affect pregnancy outcomes, pregnancy can affect medical conditions, and medical conditions can affect the safety of contraceptive methods is imperative. Prepregnancy counseling and carefully planned pregnancies can improve outcomes.

Contraceptive method satisfaction is influenced by the individual or couple's confidence in correct use of the method, evidence-based understanding about common side effects, and knowing that they can always connect with the clinician if they have questions, concerns, or desire to change their method. The clinician who possesses expert contraceptive counseling skills uses shared decision making to ensure contraceptive safety, effectiveness, and satisfaction.

References

1. Curtis KM, Tepper NK, Jatlaoui TC, et al. U.S. Medical Eligibility Criteria for Contraceptive Use, 2016. *MMWR Recomm Rep*. 2016;65(3):1-103.
2. Curtis KM, Jatlaoui TC, Tepper NK, et al. U.S. Selected Practice Recommen-

- dations for Contraceptive Use, 2016. *MMWR Recomm Rep*. 2016;65(4):1-66.
3. Shufelt C, LeVee A. Hormonal contraception in women with hypertension. *JAMA*. 2020;324(14):1451-1452.
 4. American College of Obstetricians and Gynecologists. ACOG Practice Bulletin No. 206: Use of hormonal contraception in women with coexisting medical conditions. *Obstet Gynecol*. 2019;133(2):e128-e150.
 5. Tepper NK, Whiteman MK, Zapata LB, et al. Safety of hormonal contraceptives among women with migraine: a systematic review. *Contraception*. 2016;94(6):630-640.
 6. Lopez LM, Bernholm A, Chen M, et al. Hormonal contraceptives for contraception in overweight and obese women. *Cochrane Database Syst Rev*. 2016;(8):CD008452.
 7. Edelman AB, Cherala G, Munar MY, et al. Correcting contraceptive pharmacokinetic alterations due to obesity: a randomized controlled trial. *Contraception*. 2014;90(5):550-556.
 8. Agile Therapeutics, Inc. Levonorgestrel and ethinyl estradiol transdermal system [Twirla]. Highlights of prescribing information. 2020. <https://agiletherapeutics.com/wp-content/uploads/2020/03/USPI-FI-NAL-Feb-2020.pdf>.
 9. Mylan Pharmaceuticals. Norelgestromin and ethinyl estradiol transdermal system [Xulane]. Highlights of prescribing information. 2021. https://www.xulane.com/-/media/xulanecom/files/neets-r12_exhibit-pdf.
 10. Shawe J, Ceulemans D, Akhter Z, et al. Pregnancy after bariatric surgery: consensus recommendations for preconception, antenatal and postnatal care. *Obes Rev*. 2019;20(11):1507-1522.
 11. Paulen ME, Zapata LB, Cansino C, et al. Contraceptive use among women with a history of bariatric surgery: a systematic review. *Contraception*. 2010;82(1):86-94.
 12. Stephen LJ, Harden C, Tomson T, Brodie MJ. Management of epilepsy in women. *Lancet Neurol*. 2019;18(5):481-491.
 13. Marnach ML, Gave CJ, Casey PM. Contraceptive challenges in women with common medical conditions. *Mayo Clin Proc*. 2020;95(11):2525-2534.
 14. Sammaritano LR. Contraception and preconception counseling in women with autoimmune disease. *Best Pract Res Clin Obstet Gynaecol*. 2020;64:11-23.
 15. Alipour S, Eskandari A. Prescribing oral contraceptives in women with breast diseases: a matter of concern for the gynecologist. *Arch Breast Cancer*. 2019;6(2):55-66.
 16. Schrijver LH, Olsson H, Phillips KA, et al. Oral contraceptive use and breast cancer risk: retrospective and prospective analyses from a BRCA1 and BRCA2 mutation carrier cohort study. *JNCI Cancer Spectr*. 2018;2(2):pky023.
 17. Daniels K, Abma JC. Current contraceptive status among women aged 15–49: United States, 2017–2019. NCHS Data Brief No. 388, October 2020. <https://www.cdc.gov/nchs/products/databriefs/db388.htm>.
 18. Trussell J. Contraceptive failure in the United States. *Contraception*. 2011;83(5):397-404.
 19. Moreau C, Cleland K, Trussell J. Contraceptive discontinuation attributed to method dissatisfaction in the United States. *Contraception*. 2007;76(4):267-272.
 20. Steinberg JR, Marthey D, Xie L, Boudreaux M. Contraceptive method type and satisfaction, confidence in use, and switching intentions. *Contraception*. 2021;104(2):176-182.
 21. Frost JJ, Darroch JE. Factors associated with contraceptive choice and inconsistent method use, United States, 2004. *Perspect Sex Reprod Health*. 2008;40(2):94-104.
 22. Craig AD, Steinauer J, Kuppermann M, et al. Pill, patch or ring? A mixed methods analysis of provider counseling about combined hormonal contraception. *Contraception*. 2019;99(2):104-110.
 23. Simmons KB, Edelman AB. Hormonal contraception and obesity. *Fertil Steril*. 2016;106(6):1282-1288.
 24. Gallo MF, Lopez LM, Grimes DA, et al. Combination contraceptives: effects on weight. *Cochrane Database Syst Rev*. 2014;(1):CD003987.
 25. Hsu Roe A, Kumar-Kaparaboyana P, Nathan M, Dutton C. Effects of hormonal contraception on mood. [German] *Curr Ob Gyn Rep*. 2020;9:112-119.
 26. Schaffir J, Worly BL, Gur TL. Combined hormonal contraception and its effect on mood: a critical review. *Eur J Contracept Reprod Health Care*. 2016;21(5):347-355.
 27. Ti A, Curtis KM. Postpartum hormonal contraception use and incidence of postpartum depression: a systematic review. *Eur J Contracept Reprod Health Care*. 2019;24(2):109-116.

Web resource

A. pathlms.com/npwh/courses/40999#