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INSIDE

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No Substantial Difference in Risk of Acquiring HIV in IUD, Implant, Injection Users

Study Provides Reassuring Evidence on HIV Risk, Contraceptives

Results from a large, randomized trial among African women found no substantial difference in HIV risk using the copper intrauterine device (IUD), the levonorgestrel implant, and the depot medroxyprogesterone acetate (DMPA) injection.[1] The data counter research that suggested a potential association between some types of contraceptives and risk of acquiring HIV.

> "THE RESULTS CAN HELP WOMEN MAKE INFORMED CHOICES ABOUT HOW TO PROTECT THEMSELVES FROM HIV AND UNINTENDED PREGNANCY."

According to the World Health Organization (WHO), more than 150 million women worldwide use various hormonal contraceptives, including progestin-only contraceptives such as injectables, for family planning. In sub-Saharan Africa, progestin-only injectable contraceptives are the most commonly used method.

As the HIV epidemic took hold in many countries over the last 25 years, observational studies began to explore whether hormonal methods affected the risk of HIV. Evidence from 13 observational studies of DMPA, norethisterone enanthate, or nonspecified progestin-only injectables suggested some association between use of progestin-only injectables and risk of HIV acquisition; however, it was unclear whether results stemmed from a

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AUTHOR: Rebecca Bowers
EDITOR: Jill Drachenberg
ASSOCIATE EDITOR: Journey Roberts
EDITORIAL GROUP MANAGER: Leslie Coplin
ACCREDITATIONS MANAGER: Amy M. Johnson, MSN, RN, CPN

causal relationship or methodological limitations.[2]

The Evidence for Contraceptive Options and HIV Outcomes (ECHO) study investigated the comparative HIV risks and pregnancy prevention benefits associated with the use of hormonal contraceptives. It included results from 7,829 women ages 16-35 years in East and Southern Africa. The research consortium was led by Durham, NC-based FHI 360, the University of Washington, Wits Reproductive Health and HIV Institute in Johannesburg, South Africa, and the WHO. Results were presented at the June 2019 South African AIDS Conference in Durban, South Africa.

"The ECHO Study has successfully addressed a long-standing public health question, providing high-quality evidence on the relative risk of HIV acquisition with use of three effective contraceptive methods," says **Timothy Mastro**, MD, FACP, DTM&H, Chief Science Officer at FHI 360, and ECHO management committee member. "The results support continued access to the three contraceptives studied."

The study addressed "deep concerns" that DMPA, in particular, was associated with higher transmission rates for HIV, says **Anita Nelson**, MD, professor and chair of the obstetrics and gynecology department at Western University of Health Sciences in Pomona, CA.

The findings are important, especially in resource-poor areas like sub-Saharan Africa, where DMPA is the most effective available option for birth control, notes Nelson.

Look at Study Design

The ECHO study began enrollment in December 2015, following 7,829 sexually active, HIV-negative women ages 16-35 years across 12 clinical trial sites in Eswatini, Kenya, South Africa, and Zambia. While women were randomly assigned to use one of the three methods, they could choose to switch methods or stop using contraception at any time. High-quality research standards were achieved, note investigators; retention was 93.6% through to the final study visit, and participants used their assigned contraceptive methods for 91.9% of follow-up time.

Women who participated in the trial desired reliable contraception.

EXECUTIVE SUMMARY

Results from a large, randomized trial among African women found no substantial difference in HIV risk using the copper intrauterine device (IUD), the levonorgestrel implant, and the depot medroxyprogesterone acetate (DMPA) injection.

- The data counter research that suggested a potential association between some types of contraceptives and risk of acquiring HIV.
- The World Health Organization (WHO)'s Guideline Development Group will consider the most recent research on contraception and HIV risk, and determine whether any changes are needed for the WHO's Medical Eligibility Criteria, which serves as global guidance on contraceptive use.

The only risk factor was living in an area with high HIV prevalence. All participants received counseling, condoms, and other HIV prevention services during every study visit. Despite these measures, HIV incidence was high: 397 HIV infections occurred, or 3.81% per year.

Study investigators designed the trial to detect a 50% increase in new HIV infections for each of the three contraceptive methods compared to other methods. The study did not include a control group, as it would have been unethical to administer a placebo or no method; its design focused on the comparative risks and benefits of several contraceptive options.

Of the 397 HIV infections that occurred during the trial, 143 were recorded among women in the DMPA group, 138 were in the copper IUD group, and 116 were in the implant group. HIV incidence per year by group was 4.19%, 3.94%, and 3.31%, respectively. The trial did not find a substantial difference in HIV risk among the methods evaluated; no method showed a 50% increase in HIV risk compared to the other two.

All three study methods showed high contraceptive effectiveness, with pregnancy rates of about 1% or less per year in analyses that excluded time off method. Seven percent of women experienced complications or side effects resulting in method discontinuation.[1]

Push Is On for HIV Prevention

The "alarmingly high" HIV incidence among study participants spotlights the need for more aggressive efforts to prevent HIV, as well as for integration of HIV prevention, including pre-exposure prophylaxis (PrEP), into contraceptive services, says ECHO management committee member **Jared Baeten**, MD, PhD, professor and vice chair of the Department of Global Health at the University of Washington Schools of Medicine and Public Health.

"Our results can help contraceptive providers and policymakers deliver high-quality, integrated, rights-based care," Baeten notes. "Even more important, the results can help women make informed choices about how to protect themselves from HIV and unintended pregnancy, but only if they have the information they need and the means to act on it."

"The women in this trial are our sisters and daughters and mothers who were simply seeking contraception," adds **Lillian Mworeko**, executive director of the International Community of Women Living with HIV/AIDS Eastern Africa and co-chair with AVAC, of the Civil Society HC-HIV Advocacy working group, an Africa-based network of women and allies working on HIV and sexual and reproductive health and rights. "It is a wake-up call to put HIV prevention onsite at every family planning clinic, including PrEP and female condoms with peer support and trained providers."

Investigators from the New York City-based Population Council are looking at several ways to develop and expand improved contraceptive and HIV prevention methods. Scientists are researching an oral contraceptive and HIV-prevention method in a single pill, combining the two drugs now currently used in oral PrEP with a widely available combined oral contraceptive. The Population Council also is expanding contraceptive options with the newly approved Annovera, a segesterone acetate and ethinyl estradiol vaginal ring that provides an entire year of protection against unintended pregnancy while fully under a woman's control.

What Is the Next Step?

The WHO Guideline Development Group was set to convene at the end of July 2019 to consider the most recent research on contraception and HIV risk, including the ECHO trial results. The group will determine whether any changes are needed for the WHO's Medical Eligibility Criteria, which serve as global guidance on contraceptive use. Recommendations were scheduled to be released at the end of August 2019.

Such updated guidance may soon be reflected in the U.S. Medical Eligibility Criteria for Contraceptive Use. In 2017, the CDC revised its recommendation on DMPA by women at high risk for HIV from Category 1 (no restriction) to Category 2 (benefits outweigh theoretical or proven risks).[3] The guidance called for continued access to the contraceptive shot for women at high risk for HIV, but they should be counseled about a possible, but uncertain, increased risk of acquiring HIV and how to reduce their risk.[3] ■

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ACIP Recommends HPV Vaccination for Older Men and Women

The Advisory Committee on Immunization Practices (ACIP) recently approved use of the 9-valent HPV vaccine for persons ages 27-45 years. The recommendation to expand use of the vaccine comes as findings from a large meta-analysis indicate that the HPV vaccine has substantially reduced infections and precancerous lesions.[1]

ACIP's recommendation is for men and women in the noted age range who have not previously received an HPV vaccine series and who are at risk for acquisition of HPV. The shot is most effective when administered during the recommended ages of 11-12 years.

Providers are encouraged to discuss the potential benefits of HPV vaccination with patients in the mid-age category, addressing the reduced efficacy compared to vaccination within the younger target age range, as well as the reduced risk of high-grade disease and cervical cancer, notes **Christopher Zahn**, MD, vice president of practice activities at the American College of Obstetricians and Gynecologists.

"Women's decisions will also likely consider their individual circumstances, preferences, and concerns, and the role of the obstetrician-gynecologist is to provide unbiased information in a balanced, thorough way in order to aid that decision-making," Zahn said in a statement. *(The statement can be found at: https://bit.ly/2Z4me7f.)*

EXECUTIVE SUMMARY

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- ACIP's recommendation is for men and women in the noted age range who have not previously received an HPV vaccine series and who are at risk of acquiring HPV. The shot is most effective when given during the recommended ages of 11-12 years.
- The FDA approved the use of the 9-valent HPV vaccine in women and men ages 27-45 years in October 2018. However, ACIP's recent recommendation is an important move, since insurance reimbursement often is based on the committee's guidance.

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Data are growing in support of the effectiveness of the HPV vaccine. The authors of a 2015 study noted that the prevalence of HPV 16/18 in lesions decreased from 53.6% to 28.4% among women who received at least one dose of the HPV vaccine, with no significant statistical difference among unvaccinated women or those with unknown vaccination status.[2]

In a recent study, researchers examined health data on 1,580 women ages 13-26 years from hospital-based or community health clinics. Data were collected in four waves between 2006 and 2017. The analysis shows HPV vaccination rates rose from 0% to 84.3%, with almost all vaccinated women receiving the earlier quadrivalent vaccine. Data indicate that among vaccinated women, 4-valent type HPV infections decreased 81% from 35% to 6.7%. Compared to the first 2006-2007 wave, vaccine effectiveness was 90% in the 2013-2014 third wave, and 80% in the 2016-2017 fourth wave.[3]

The effect of the HPV vaccine

is further magnified with results from the new meta-analysis, which included 60 million individuals in 14 countries. The report authors note significant decreases in HPV infections, anogenital wart diagnoses, and precancerous cervical lesions (cervical squamous intraepithelial neoplasia 2, or CIN2+) over eight to nine years after administering girls-only HPV vaccination.[1]

The study authors reviewed 65 studies in 14 countries that established HPV vaccine programs in the last 10 years. Investigators examined the frequency of HPV infections, anogenital warts, and precancerous cervical lesions before and after such programs were initiated.

Findings indicate that infections dropped by 83% among girls ages 13-19 years, and 66% among women ages 20-24 years. In the case of anogenital warts, numbers fell 67% among teen females ages 15-19 years, 54% in women ages 20-24 years, and 31% for those ages 25-29 years. Levels of precancerous cervical lesions also decreased 51% among teens ages 15-19 years, and 31% among women ages 20-24 years.

Vaccination of young women also is producing herd protection for young men, according to the report. Anogenital warts among males have decreased 48% for those in the ages 15 to 19 years bracket, and 32% for those ages 20-24 years.[1]

While HPV vaccination still is too recent to directly measure its effects on cervical cancer, the recent analysis indicates that vaccination is producing substantial reductions in the infections that cause cervical cancer and precancerous lesions, says co-author **Mélanie Drolet**, PhD, an epidemiologist and senior research associate in epidemiology at Université Laval in Québec City. The decreases are a first sign that vaccination could eventually lead to the elimination of cervical cancer as a public health problem, she states.

"We are now trying to determine when elimination could be achieved and which vaccination and screening programs could help us achieve it faster," Drolet said in a statement. *(The statement can be found online at: https://bit.ly/2Z4oag1.)* ■

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Medicaid Reimbursement Change Increases Interbirth Intervals Among Teens

By changing its Medicaid policy change to provide reimbursement for immediate postpartum long-acting reversible contraception (LARC) separate from the global labor and delivery payment, South Carolina saw an increase in immediate postpartum LARC initiation and increased birth spacing among young women.[1]

While the rate of teen births has decreased in recent years, results of a 2017 analysis shows that that many teens still have repeat births. While most adolescent mothers are taking steps to prevent another pregnancy, one in three is using either a least-effective method or no contraception at all, data indicate.[2]

Repeat teen births, defined as two or more live births before age 20, can have multiple effects on both mother and baby. Repeat births can impede an teen mother's access to work and educational opportunities.[3] Babies who are born of repeat teen pregnancies are more likely to be preterm or of low birth weight than first teen births.[4]

Insertion of LARC methods, such as an intrauterine device (IUD) or implant, in the immediate postpartum period has traditionally been wrapped into the Medicaid maternity care payment. If the state does not have a specific Medicaid policy for immediate postpartum placement, providers are not specifically reimbursed for such insertions. South Carolina's Medicaid program changed its reimbursement practices in 2012 to include separate payments.

Maria Steenland, a postdoctoral fellow in population studies at Brown University, and colleagues examined some 243,000 Medicaid childbirth hospitalizations from 2010 to 2017.

EXECUTIVE SUMMARY

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- While the rate of teen births has decreased in recent years, results of a 2017 analysis show that many teens continue to have repeat births. While most adolescent mothers are taking steps to prevent another pregnancy, one in three is using either a least-effective method or no contraception at all, data indicate.
- Repeat teen births, defined as two or more live births before age 20, can have multiple effects on both mother and baby. Repeat births can impede an adolescent mother's ability to take advantage of educational and workforce opportunities.

Their analysis suggests that following the reimbursement change, more women received LARCs immediately after childbirth, increasing from 0.07% for adults and teenagers in 2010 to 5.65% for adults and 10.48% for teenagers by December 2017.

The rate of adolescent short-interval births (defined as subsequent childbirth within 21 months), which had been on the rise before the reimbursement change, flattened and was about 5.3% lower than the projected rate. In contrast, there were no significant changes in short-interval birth rates among adults, researchers report.[1]

Pushing for Change

Medicaid covers more than 70% of family planning services for low-income Americans and pays for nearly half of all U.S. births.[5] By increasing access to contraceptives for Medicaid enrollees, states can improve health outcomes and reduce costs.

Currently, 37 states have changed their Medicaid policies to reimburse immediate postpartum LARC separately from the global fee for delivery. While some states have implemented changes to include Medicaid reimbursement policies for immediate postpartum LARC, not all hospitals have adopted such services due to challenges of managing supply chain and revenue cycle issues, training providers how to offer LARC in a patient-centered way, and revising billing and claims processing mechanisms.

The American College of Obstetricians and Gynecologists (ACOG) LARC Program created the Postpartum Contraceptive Access Initiative to provide training for immediate postpartum LARC implementation. *(Information is available at: https://bit.ly/2YpLDLJ.)*

Immediate postpartum LARC insertion is recognized by ACOG as a best practice for its prevention of rapid repeat and unintended pregnancy.[6-8] Immediate postpartum is particularly favorable for IUD or implant insertion.

Placing an IUD within 10 minutes after delivery or inserting a contraceptive implant prior to discharge home after a birth has many benefits for the woman. Recent research indicates that postpartum insertion of a hormonal IUD does not affect a woman's ability to lactate and breastfeed.[9] ■

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Research Continues Toward Potential Herpes Vaccine

More than one out of every six people ages 14-49 years has genital herpes, according to the CDC.[1] While treatment exists to prevent or shorten outbreaks, there is no cure for the sexually transmitted infection (STI).

After promising research for a potential herpes vaccine stalled in 2018, scientists are investigating new paths. Recently published research by Yale University investigators may offer clues to an effective vaccine.[2]

Researchers conducted several experiments in mice vaccinated against the herpes simplex virus 2 (HSV-2). Results suggest that the HSV-2 antibody the body produces in response to vaccination is not present in the vaginal cavity where it is most needed to protect against infection. Also, researchers found that specialized immune cells, known as memory B cells, are physically drawn to the genital area, where they produce and insert the antibody in the inner vaginal tissue. Investigators concluded that having the HSV-2 antibody circulating in the blood alone is not enough to protect against genital herpes infection. A different strategy is needed to deliver the protective antibody in the future, researchers state.[2]

INVESTIGATORS CONCLUDED THAT HAVING THE HSV-2 ANTIBODY CIRCULATING IN THE BLOOD ALONE IS NOT ENOUGH TO PROTECT AGAINST GENITAL HERPES INFECTION.

HSV-1 and HSV-2 are two of the most common herpes viruses. While both viruses appear similar on a clinical level and are sensitive to the same drug, acyclovir, they are genetically different. HSV-1 most commonly affects the mouth, while HSV-2 usually causes genital lesions. New research found evidence for ongoing recombination between HSV-1 and HSV-2 in humans today, as genital herpes due to HSV-1 is becoming increasingly common.[3] Earlier research indicates an increasing proportion of anogenital herpetic infections attributed to HSV-1 infection, which is especially prominent among young women and men seeking sex with other men.[4-6]

"This could have important implications for HSV vaccine development because it means a live HSV-2 vaccine could recombine with circulating HSV-1 strains, thereby forming an infectious virus," says **Amanda Casto,** MD, PhD, lead study author and a senior fellow in infectious diseases at the University of Washington School of Medicine.

Both HSV-1 and HSV-2 can cause incurable, lifelong infections. While both infections can be completely asymptomatic or lead to intermittent symptoms, not much progress has been made in preventing herpes.

"Herpes is one of the most

EXECUTIVE SUMMARY

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- More than one out of every six people ages 14-49 years has genital herpes. While treatment exists, there is no cure for the sexually transmitted infection.
- Antiviral medications can help to prevent or shorten outbreaks while the person takes the medication. Daily suppressive therapy for herpes can lower the risk of transmission to partners.

stigmatized diseases out there, and yet it affects billions of people," notes co-author **Alex Greninger**, MD, PhD, assistant professor of laboratory medicine at the University of Washington School of Medicine and assistant director of the UW Medicine Clinical Virology Laboratory. "We really need more work to combat this virus."

Check Treatment Options

While there is no cure for genital herpes, antiviral medications can help to prevent or shorten outbreaks while the person takes the medication. Daily suppressive therapy for herpes can lower the risk of transmission to partners.

Randomized trials have indicated that three antiviral medications provide clinical benefit for genital herpes: acyclovir, valacyclovir, and famciclovir.[7-10] While these medications may provide symptomatic relief from outbreaks, they do not cure HSV infection. Although the treatments can partially control the signs and symptoms of genital herpes when used to treat first clinical and recurrent episodes or when used as daily suppressive therapy, none can eradicate latent virus or affect the risk, frequency, or severity of recurrences after the drug is discontinued.

German drug maker AiCuris received fast track-status in August 2017 from the FDA to determine the safety and efficacy of oral pritelivir, the company's lead candidate for the treatment of acyclovir-resistant mucocutaneous herpes simplex virus infections in immunocompromised adults. *(*Contraceptive Technology Update *reported on pritelivir in its March 2017 article, "Task Force Recommends Against Genital Herpes Screening," available at: http://bit.ly/2FSAU2U.)* ■

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Study Examines Effect of Vitamin D, Estradiol Deficiency on Metabolic Syndrome

Menopause is associated with an increased risk for metabolic syndrome, a cluster of risk factors for cardiovascular disease and diabetes. New research indicates that vitamin D and estradiol may help protect against these conditions.[1]

Risk factors for metabolic syndrome include visceral adiposity, atherogenic dyslipidemia, elevated blood pressure, and insulin resistance, all of which increase the risk of cardiovascular disease.[2] The prevalence of metabolic syndrome in the United States is higher in women compared with men (35.6% vs. 30.3%), affecting more than half of women age 60 years or older.[3]

Abdominal obesity and heart disease that lead to metabolic syndrome increase significantly as women age, and have been linked with estrogen loss in postmenopausal women.[4] Based on these findings, researchers have looked at estradiol treatment for women who are fewer than six years postmenopausal as a means of preventing heart disease.[5]

Similar results have been linked to vitamin D, which has been associated with such metabolic syndrome markers as obesity, hyperglycemia, insulin resistance, and type 2 diabetes mellitus.[6]

In recognizing these synergistic effects, Chinese researchers looked for similar interactions on metabolic syndrome. In the cross-sectional study, researchers enrolled 616 postmenopausal women ages 49-86 years who were not taking estrogen and vitamin D/calcium supplements at the beginning of the study.

Findings suggest that higher levels of vitamin D were associated with a favorable lipid profile, blood pressure, and glucose level. Estradiol was negatively associated with cholesterol, triglycerides, and blood pressure. The results suggest that vitamin D and estradiol work together to decrease the risk of metabolic syndrome in postmenopausal women.[1]

JoAnn Pinkerton, MD, NCMP, executive director of the North American Menopause Society, notes that the Endocrine Society recommends vitamin D levels of 30 ng/mL for postmenopausal women.

"Whether adequate levels of vitamin D improve nonskeletal cardiovascular or cognitive benefits remains the subject of debate, and answers await randomized clinical trial data," she states.

Patients facing menopause may be dealing with conditions associated with metabolic syndrome. Offer the following strategies on how to effectively deal with such issues:

• **Reduce calories.** Advise patients that women usually need fewer calories than men, especially as they age. On average, adult women need between 1,600 and 2,400 calories a day. Also, as women age, fewer calories are needed to maintain the same weight.

Encourage increased physical activity and talk about ways to decrease portion sizes, such as splitting meals or ordering lighter portions. Counsel on use of a high-fiber diet that includes flaxseeds, which may improve insulin sensitivity.

• **Get active.** Strength training can help women to improve body composition, increase strength, and build and maintain lean muscle. Regular physical activity helps to keep bones strong, prevent hip fracture, and reduce arthritis pain.

• **Rest and relieve stress.** Talk with women about the importance of getting enough sleep in order to keep hormones and appetite under control. Relaxation techniques can help patients to learn to handle stress without the use of food. Non-food stress relievers, such as walking or deep breathing, can help patients find healthy ways to combat stress.

Other heart-healthy practices include smoking cessation, blood pressure control, cholesterol and triglycerides control, and diabetes prevention.

Talk to patients about the increased risk for cardiovascular disease as they age. Cardiovascular disease is the number one cause of death for women ages 65 years and older, and the second leading cause of death among women ages 45-64 years in the United States and Canada.[7]

For women, a heart attack often has different signs than in men, which can lead to delays in treatment and a higher death rate. Tell patients to seek immediate medical care if they experience the following symptoms:

• Chest pain or pressure;

• Pain in the, arms, back, or neck;

• Extreme fatigue;

• Shortness of breath, nausea, and dizziness;

• Unusual sweating;

• Pain in the upper stomach.[7]

The most common heart attack symptom is chest pain or discomfort. However, women are

somewhat more likely than men to experience some of the other common symptoms. ■

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TEEN TOPICS

Focus on Integrative Approaches to Pain, Anxiety Management During Adolescent IUD Insertion

*By **Anita Brakman**, MS*
Senior Director of Education, Research, and Training
Physicians for Reproductive Health
New York City

***Taylor Rose Ellsworth**, MPH*
Director, Education, Research, and Training
Physicians for Reproductive Health
New York City

***Melanie Gold**, DO, DABMA, MQT, FAAP, FACOP*
Medical Director, School-Based Health Centers
New York-Presbyterian Hospital Columbia University Medical Center
New York City

On Jan. 1, 2018, The Joint Commission implemented new and revised pain assessment and management standards for accredited hospitals. The additions and revisions require hospitals to "provide at least one non-pharmacological pain treatment modality."[1] There are several non-pharmacologic approaches to offer adolescents to help manage anxiety and pain related to intrauterine device (IUD) insertions. The ones we have found to be especially helpful are hypnotic language, music, heat therapy, social support ("IUD doula"), acupressure, and aromatherapy.

Hypnotic language can relieve adolescents' anxiety and increase comfort prior to, during, and after IUD insertions. Before the procedure, it is helpful to inquire about past experiences with gynecologic exams or procedures as well as prior experiences of sexual abuse or assault, and issues around control. It can be helpful to suggest: "You can listen to what I am saying … and at the same time tune out and go to a place where you feel relaxed, comfortable, and in control." One way to incorporate hypnotic imagery into the IUD procedure is to ask the patient to imagine being in her favorite place, performing an activity she enjoys. Suggest that she notice all five senses that are associated with that place and activity.

Give verbal suggestions for feeling comfort and control, such as "now you might notice the feeling of the bed supporting your back, the crinkling sound of the clean white paper," and "you may find it helpful to place your hand on your own abdomen and feel that deep breath into your belly as you breathe in comfort, and breathe out tension or discomfort." Rather than telling the patient what she will feel, use open-ended statements such as, "you may feel something now." Allowing for patients' widely varying responses to stimuli creates an expectation that is less likely to invoke a nocebo reaction.[2]

Offer statements like "now you may notice a different feeling, it may be like pressure, or pulling, or stretching, or like you have to pee, but if it bothers you, let me know." Avoid using language that sets up an expectation of pain, such as, "this next part will be painful." At the conclusion of the procedure, suggest positive expectations by saying, "it

may surprise you to notice how much easier each future gynecologic exam may be now that you know how to help yourself relax with your breathing." Suggest, "you can practice slow, deep breathing whenever you want to help yourself feel calmer and more relaxed."

Playing ambient music in the room can be therapeutic as well; it is calming, distracting, and appears to reduce anxiety and pain. Nilsson recommends that music be non-lyrical, slow (fewer than 80 beats per minute), low in volume (fewer than 60 decibels), last for at least 30 minutes, and be chosen by the patient with informed support from the provider.[3] Although there is little literature on the use of music specifically for IUD procedures, it is common practice to play soothing music during IUD insertions. When played in the room, rather than by headphones, music has the capacity to reduce the anxiety of everyone present.

Likewise, although there currently are no high-quality research trials assessing the relationship between heat therapy and IUD-related discomfort, we have found adolescents undergoing IUD insertions like heat therapy in the form of a heat pack for relief of pelvic cramping after IUD insertions.

In addition, we have found social support, such as hand-holding and verbal assurance during the IUD insertion by a nurse, medical assistant, or friend of the patient, can be helpful. It is useful to instruct the support person to give the patient two fingers to "squeeze and put all the bothersome or nervous feelings into those fingers." It is now our standard of care to include a medical assistant or a supportive peer to serve as a support or "IUD doula."

We also incorporate acupressure into our IUD provision practice. Acupoints, which are points on the body where energy flows, can be stimulated in a variety of ways. We have incorporated acupressure, a cost-free and non-invasive technique, into the standard of care for adolescents receiving IUD insertions at New York-Presbyterian Hospital's School-Based Health Centers (NYC SBHCs) since February 2018. Pressing bilaterally for 2-3 minutes on the acupoint called Spleen 6, also known as San Yin Jiao, located four fingers above the top of the inner ankle bone (medial malleolus), has been found to alleviate uterine pain and related stress in a safe manner.[4-6]

We also offer aromatherapy to assist with anxiety and pain management. Two studies assessed the effect of aromatherapy on IUD-related pain and anxiety. Both studies involved inhalation of lavender essential oil by female participants in Iran. The studies produced contradictory results; one found a significant decrease in anxiety for the experimental group, but no significant difference in reported pain between the experimental group and control group (which inhaled diluted milk).[7] The second study found the experimental group had significantly less post-procedural pain compared to the placebo group (which inhaled sesame oil) and the control group (which did not inhale anything).[8] More studies on aromatherapy to manage IUD-related pain are necessary in order to make definitive statements about its efficacy as a non-pharmacological treatment option.[9]

Non-pharmacologic modalities for pain and anxiety prevention and management related to IUD insertion have the potential to support adolescents in combination with pharmacologic modalities, or alone when pharmacologic modalities are contraindicated or fail to be effective. Our clinical experience is that these nonpharmacologic approaches are useful, and we recommend them as we await the outcome of more high-quality trials. ■

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CONTRACEPTIVE TECHNOLOGY UPDATE®

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1. **According to a 2017 revision to the U.S. Medical Eligibility Criteria for Contraceptive Use, what is the recommendation on use of depot medroxyprogesterone acetate by women at high risk for HIV?**

   a. Category 1
   b. Category 2
   c. Category 3
   d. Category 4

2. **The Advisory Committee on Immunization Practices has just approved use of the 9-valent HPV vaccine for persons in what age bracket?**

   a. Ages 27-35 years
   b. Ages 27-40 years
   c. Ages 27-45 years
   d. Ages 27-50 years

3. **Which three antiviral medications provide clinical benefit for genital herpes?**

   a. Acyclovir, valacyclovir, and tenofovir
   b. Valacyclovir, famciclovir, and efavirenz
   c. Famciclovir, cobicistat, and tenofovir
   d. Acyclovir, valacyclovir, and famciclovir

4. **The U.S. Preventive Services Task Force has issued final recommendations that providers screen for HIV in persons in what age bracket?**

   a. Ages 10-65 years
   b. Ages 15-65 years
   c. Ages 18-65 years
   d. Ages 21-65 years

CME/CE OBJECTIVES

After reading *Contraceptive Technology Update*, the participant will be able to:

1. identify clinical, legal, or scientific issues related to development and provisions of contraceptive technology or other reproductive services;
2. describe how those issues affect services and patient care;
3. integrate practical solutions to problems and information into daily practices, according to advice from nationally recognized family planning experts;
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A SUPPLEMENT TO CONTRACEPTIVE TECHNOLOGY UPDATE

HIV Screening, PrEP Receive USPSTF Recommendation

The U.S. Preventive Services Task Force (USPSTF) has issued final recommendations that providers screen for HIV in everyone ages 15-65 years, and all pregnant women as well as younger adolescents and older adults at increased risk for HIV.[1-3] Pre-exposure prophylaxis (PrEP) also should be offered to people at high risk of HIV, USPSTF recommends.[4,5]

"Clinicians can make a real difference toward reducing the burden of HIV in the United States," **Douglas Owens**, MD, MS, USPSTF chair and Henry J. Kaiser, Jr. professor of medicine at Stanford University, said in a statement. "HIV screening and HIV prevention work to reduce new HIV infections and ultimately save lives." *(View the statement online at: https://bit.ly/2GqUCC7.)*

Since 2006, the CDC has recommended universal HIV screening at least once for people ages 13-64 years, with annual or more frequent rescreenings for persons at increased risk. However, new data indicate that such recommendations have not been fully implemented.[6]

The report authors examined 2016-2017 data from a national population-based survey. Findings indicated that less than 40% of people have undergone an HIV test. Less than 30% of at-risk people were tested in the past year.[6]

Thirty-five percent of people recommended for HIV testing in 50 jurisdictions where more than half of HIV diagnoses occur received testing in the past year, the report states. In rural areas that are particularly affected by HIV, 26% of people recommended for annual HIV testing were tested in the past year.[6]

FINDINGS INDICATED THAT LESS THAN 40% OF PEOPLE HAVE UNDERGONE AN HIV TEST. LESS THAN 30% OF AT-RISK PEOPLE WERE TESTED IN THE PAST YEAR.

While all teens and adults ages 15-65 years should be screened for HIV, there are a number of risk factors, according to the USPSTF guidance:

- The majority of new HIV diagnoses are attributed to male-to-male sexual contact.[7]
- Injection drug use also is linked to HIV infection; the prevalence of infection among those who inject drugs is estimated at 1.9%.[8]
- According to 2017 statistics, males ages 13 years and older represented 81% of new HIV diagnoses.[9] While the majority of these new diagnoses were attributed to male-to-male sexual contact, about 10% were attributed to heterosexual contact, 4% to injection drug use, and 4% to both male-to-male sexual contact and injection drug use.[9]
- In adolescent females ages 13 and above, 87% of all new diagnoses were attributed to heterosexual contact, and 12% to injection drug use.[9]

Other risk factors include anal intercourse without a condom, performing vaginal intercourse without a condom and with more than one partner whose HIV status is unknown, exchanging sex for drugs or money, diagnosis of other sexually transmitted infections (STIs) or a sex partner with an STI, and a sex partner who is living with HIV or is in a high-risk category.[1]

PrEP consists of the anti-HIV drugs emtricitabine

and tenofovir disoproxil fumarate (Truvada). In its analysis of current evidence, USPSTF found that PrEP is highly effective at preventing HIV, if taken daily.[5] PrEP is not for everyone, USPSTF advises; it is for people who do not have HIV, but are at high risk of infection.

Which Patients Are PrEP Candidates?

Patients who have a sex partner who is living with HIV, have sex without a condom with a partner whose HIV status is unknown and who is at high risk for HIV, or share injection drug equipment are definite PrEP candidates.

"Clinicians have the opportunity to protect patients at high risk for HIV by offering PrEP," **Seth Landefeld**, MD, USPSTF member and chairman of the department of medicine and the Spencer chair in medical science leadership at the University of Alabama at Birmingham School of Medicine, said in a statement.

"To know which patients are good candidates for PrEP, clinicians need to ask all patients about their sexual history and injection drug use in an open and nonjudgmental way."

When PrEP is offered, clinicians should provide support to patients to help them follow the daily regimen for maximum protection. (*View the statement online at: https://bit.ly/2GqUCC7. Check out the CDC's Act Against AIDS clinician resources at: https://bit.ly/2AmNJiB.)*

"TO KNOW WHICH PATIENTS ARE GOOD CANDIDATES FOR PREP, CLINICIANS NEED TO ASK ALL PATIENTS ABOUT THEIR SEXUAL HISTORY AND INJECTION DRUG USE IN AN OPEN AND NONJUDGMENTAL WAY."

The USPSTF recommendations come at a pivotal time, as a national plan has just been proposed to end the HIV epidemic. The U.S. Department of Health and Human Services is seeking funding for the "Ending the HIV Epidemic: A Plan for America" initiative to end the epidemic in the United States within 10 years. The plan, if funded, will focus first on the geographic areas with the greatest HIV burden.

Strategies to End the Epidemic

The plan includes the following four strategies:

- Early diagnosis of HIV;
- Rapid and effective treatment to achieve sustained viral suppression;
- Prevention approaches as PrEP for at-risk populations;
- Rapid response to HIV clusters to stop new infections.

"Getting tested for HIV is quicker and easier than ever before — and when you take the test, you take control," according to a press statement from **Eugene McCray**, MD, director of CDC's Division of HIV/AIDS Prevention. "It's my hope that through the initiative to end the HIV epidemic, we will increase testing and early diagnosis, speed linkages to care, and help ensure rapid treatment is available to help save lives and prevent new HIV infections." *(View the statement at: https://bit.ly/2NswPrh.)* ■

EXECUTIVE SUMMARY

The U.S. Preventive Services Task Force (USPSTF) has issued final recommendations that providers screen for HIV in everyone ages 15-65 years and all pregnant women, as well as younger adolescents and older adults at increased risk for HIV.

- Pre-exposure prophylaxis (PrEP) also should be offered to people at high risk of HIV, according to USPSTF.
- Risk factors include male-to-male sexual contact, injection drug use, anal intercourse without a condom, performing vaginal intercourse without a condom and with more than one partner whose HIV status is unknown, exchanging sex for drugs or money, having other sexually transmitted infections or a sex partner with an STI, and a having sex partner who is living with HIV or is in a high-risk category.

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New Target May Lead to Chlamydia Treatment Options

Reproductive health providers battle against chlamydia every day, as it is the most commonly reported sexually transmitted infection (STI) in the U.S. According to data from the CDC, more than 1.7 million cases were diagnosed in 2017, with 45% among females ages 15-24 years.[1] New research has identified a potential target for drug treatment that may help develop alternate approaches to stem infections.[2]

Tryptophan is essential to *Chlamydia trachomatis* (CT) bacteria for survival; the bacteria looks to its host cells for the necessary amino acid. To avoid tryptophan starvation, genital CT strains conditionally create a enzyme known as tryptophan synthase, allowing CT strains to use a molecule known as indole to make tryptophan.

Ocular CT create an inactive version of tryptophan synthase or have lost the gene for the enzyme entirely, according to scientists. Researchers at the Louisiana State University (LSU) Health Sciences Center in New Orleans set out to determine why ocular strains of CT no longer make an active tryptophan synthase.

Ashok Aiyar, PhD, associate professor of microbiology, immunology and parasitology at LSU Health New Orleans School of Medicine, says the investigative team's work demonstrates that small molecules known as trp operon de-repressors, which are produced by the gut microbiome and carried by the circulation to other parts of the body, are key to the process. These molecules force CT to make tryptophan synthase; however, activation of tryptophan synthase in the absence of indole generates ammonia, which rapidly kills CT.[2]

"As such, our findings provide new leads for therapeutics against chlamydia infections that leverage products made by the gut microbiome," states Aiyar.

Previous research indicates that trp de-repressors fight such pathogenic bacteria as *Legionella pneumophila*

EXECUTIVE SUMMARY

New research has identified a potential target for drug treatment of chlamydia, which may help develop alternate approaches to stem infections.

- Chlamydia is the most commonly reported sexually transmitted infection in the U.S. More than 1.7 million cases were diagnosed in 2017, with 45% of diagnoses among females ages 15-24 years.
- The Aptima Combo 2 Assay and the Xpert CT/NG are the first lab tests that have been approved for extragenital diagnostic testing of *Chlamydia trachomatis* and *Neisseria gonorrhoeae* infections via the throat and rectum; previously, these tests were only cleared for testing urine, vaginal, and endocervical samples.

and *Mycobacterium tuberculosis* via unknown mechanisms. The mechanism described for CT may extend to these bacteria as well, says Aiyar. The LSU investigative team plans to research mechanisms to restrict the availability of indole in cells in the genital area, which should annihilate CT strains.

FDA Clears New Tests

In May 2019, the FDA approved two new tests that can detect CT and *Neisseria gonorrhoeae* through diagnostic testing of extragenital specimens. The Aptima Combo 2 Assay and the Xpert CT/NG are the first tests approved for extragenital diagnostic testing of these infections via the throat and rectum. Previously, these tests were only cleared for testing urine, vaginal, and endocervical samples.

"It is best for patients if both of these sexually transmitted infections are caught and treated right away, as significant complications can occur if left untreated," **Tim Stenzel**, MD, PhD, director of the Office of In Vitro Diagnostics and Radiological Health in the FDA's Center for Devices and Radiological Health, said in a statement. "[These] clearances provide a mechanism for more easily diagnosing these infections." *(Read the FDA statement online at: https://bit.ly/2Wk4LtE.)*

Approval for the tests was based on study results performed by the Antibacterial Resistance Leadership Group, a research consortium funded by the National Institute of Allergy and Infectious Diseases. The study was designed to determine how well the two tests detected these infections in extragenital samples.[3] Investigators used a master protocol study design, allowing tests of multiple diagnostics from different manufacturers on each sample.

"IT IS BEST FOR PATIENTS IF BOTH OF THESE SEXUALLY TRANSMITTED INFECTIONS ARE CAUGHT AND TREATED RIGHT AWAY, AS SIGNIFICANT COMPLICATIONS CAN OCCUR IF LEFT UNTREATED."

The study enrolled nearly 2,600 adults seeking STI testing at nine clinics across the United States. Both symptomatic and asymptomatic participants enrolled in the trial. Clinicians collected pharynx and rectal swabs from consenting participants, with investigators testing the samples with each diagnostic. Study results indicate the two tests accurately identified extragenital chlamydia and gonorrhea infections.[3]

Development of the master protocol trial design may have a broad effect on diagnostic development, according to researchers. By testing several products using samples from the same patient, efficiency is increased and clinical study costs are reduced. By streamlining the process, development of new and improved diagnostics may be expedited not only for STIs, but also other infectious diseases such as pneumonia, urinary tract infections, and bloodstream infections. ■

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