



Report of the Consensus Meeting on Sexually Transmitted Infections

**Hosted by
Association of Reproductive Health Professionals**

February 25, 2013

**Stewart Center
Washington, DC**

BACKGROUND AND EXPECTED OUTCOMES

The Association of Reproductive Health Professionals (ARHP) convened an inter-professional consensus meeting in Washington, DC, on February 25, 2013, to discuss emerging issues in women's health and current gaps in practice related to screening, diagnosis, treatment, prevention, and counseling for sexually transmitted infections (STIs).

Goals of the Consensus Meeting

The goals of the meeting were defined as follows:

- To further the understanding of emerging health issues and current practice gaps regarding screening, treatment, counseling, and prevention of STIs
- To inform the development of a case-based curriculum in the form of a slide set with talking points for continuing medical education (CME) presentations, including webinars, the ARHP annual meeting, and one other national meeting
- To inform the development of an ARHP *Quick Reference Guide for Clinicians* and two *Clinical Minutes* on STIs

The format of the meeting was based on seven case presentations made by the meeting participants. For each case study, the following questions were addressed:

1. What are the clinical management guidelines or standards that are relevant to the case presented? What are clinicians actually doing, and how does this differ from the clinical guidelines or standards? Why do these differences or gaps in clinical practice exist?
2. What are the tests used to screen for and diagnose each of these STIs? Why would one test be used over another?
3. What are the major challenges or barriers that clinicians currently face with regard to screening, treatment, and counseling of patients who present with risk factors for STIs?
4. What are the key take-away points from these cases? (Summarize what clinicians need to know about screening, treatment, and counseling for STIs.)
5. What types of resources might clinicians need to be better able to properly screen and manage a patient presenting with STIs?

Open discussion followed each case presentation to further elucidate pertinent issues. The agenda for the meeting and the list of clinical experts and staff who participated are included as Appendices.

Rationale for Topic and Case Selection

The STI topics chosen for discussion at the consensus meeting included trichomoniasis and bacterial vaginosis, genital herpes, and gonorrhea and chlamydia. These topics were selected based on the educational needs within the reproductive health field, determined by interviews conducted in December 2012 and January 2013 with STI experts in the US. Case presentations were developed by meeting participants that focused on the basis of factors specific to each STI being discussed.

- Trichomoniasis and bacterial vaginosis:
 - Trichomoniasis is greatly underdiagnosed due to the low sensitivity of the most commonly used test (point-of-care [POC] microscopy) and the non-use of more sensitive available diagnostic tests.

- Partners of patients with trichomoniasis are often not treated for this infection.
- Practice guidelines for screening during pregnancy are unclear.
- There are important clinical considerations that are not addressed in guidelines from the Centers for Disease Control and Prevention (CDC).
- Underappreciated clinical issues related to the prevention, diagnosis, and management of chronic or recurrent bacterial vaginosis may complicate the clinical presentation.
- Emerging resistance to standard treatment is a clinically relevant issue.
- Genital herpes:
 - Appropriate and timely management of initial genital herpes virus (HSV) infection is of crucial importance to personal and public health.
 - Recurrent herpes infections in patients with atypical symptoms is often underdiagnosed.
 - It is critical to distinguish between HSV type 1 (HSV-1) and HSV-2 to provide appropriate management and counseling.
 - The indications for various tests for HSV (including culture, nucleic acid amplification testing [NAAT], and serology) can be controversial, and selection may vary by type of practice and locality as well as patient demographics.
- Gonorrhea and chlamydia:
 - Screening guidelines for gonorrhea among women outside of the typical CDC categories for age and relationship status (i.e., women over age 25 and partner status) is changing or has changed.
 - Specimen collection approaches, as well as testing modalities (culture, NAAT, POC microscopy) are continually evolving.
 - Testing and treatment decisions may be affected by extragenital exposure to certain infections.
 - The increasing prevalence of antibiotic-resistant gonorrhea is a public health crisis.
 - Clinicians must be aware of revised treatment options and be able to describe the appropriate approach to management in penicillin-allergic patients.
 - Indications for performing a “test of cure” need to be clarified.
 - The importance of retesting three months after therapy, which is not often done, needs to be reinforced.

Acknowledgement of Educational Grant

The consensus meeting and the subsequent materials to be developed are supported by an independent educational grant from Hologic Inc. All aspects of the meeting were planned in accordance with the Accreditation Council for Continuing Medical Education’s Standards for Commercial Support to ensure independence in the resulting CME activities.

CASE 1

DIAGNOSING AND MANAGING TREATMENT-RESISTANT TRICHOMONIASIS Presented by Charlotte Gaydos, MS, MPH, DrPH

Trichomoniasis is the most common treatable STI; an estimated 7.4 million cases are diagnosed annually in the United States, and medical costs are estimated at \$375 million. The estimated prevalence of trichomoniasis is 2–3% in the general female population, 50–60% in female prison inmates and commercial sex workers, and 18–50% in females with vaginal symptoms. Prevalent and incident infections share similar risk factors, including older age (>35 years), black race, concurrent chlamydial infection, sexual activity with

multiple partners, and exchange of sex for drugs or money (“transactional sex”). Vaginal discharge is also frequently reported.

Presentation: Medical, Sexual, and Social History

A 38-year-old black woman, gravida 3 (G3) para 3 (P3), presents with profuse vaginal discharge. She reports that she has had multiple sex partners in the last year.

Physical Examination, Differential Diagnosis, and Diagnostic Tests

You perform a vaginal wet-preparation microscopy that is positive for motile trichomonads. Results of tests for chlamydia, gonorrhea, HSV, and human immunodeficiency virus (HIV), as well as rapid plasma reagin (RPR) testing for syphilis, are all negative.

Treatment

The patient’s treatment course began with a 2-g dose of metronidazole, but at follow-up a wet preparation was again positive for trichomonads. She was then administered metronidazole, 500 mg orally twice daily for seven days; her partner was treated, and they were advised to not have intercourse until treatment was completed. However, a follow-up wet preparation was still positive. At this point, samples were sent to CDC for *Trichomonas* culture and susceptibility tests.

Background

If treatment failure occurs with a 2-g single dose of metronidazole and reinfection is excluded, the patient can be treated with metronidazole, 500 mg orally twice daily for seven days. For patients in whom this regimen fails, treatment with either tinidazole or metronidazole, 2 g orally for five days, should be considered. If these therapies are not effective, further management should be discussed with a specialist. The consultation should ideally include determination of the susceptibility of *T. vaginalis* to metronidazole and tinidazole. Consultation and *T. vaginalis* susceptibility testing is available from CDC; the phone number is (404) 718-4141 and Web site is www.cdc.gov/std.

Tinidazole is a second-generation 5-nitromidazole that offers excellent potency for anaerobes and protozoa. Its plasma half-life is twice that of metronidazole (12–14 hours versus 6–7 hours). In addition, minimum inhibitory concentrations (MICs) are two times lower and minimum lethal concentrations (MLCs) are four times lower than those of metronidazole. Tinidazole has fewer adverse effects than metronidazole, but its cost is very high. Alternative treatment options include paromomycin, furazolidone, and nitazoxanide. Additional information about these agents can be found in the CDC’s *STD Treatment Guidelines*, available at www.cdc.gov/std/treatment/2010/.

Clinical Pearls

- Symptomatic and asymptomatic trichomoniasis can have adverse health outcomes.
 - A high percentage of individuals are affected by asymptomatic incident infection.
 - Trichomoniasis is associated with preterm birth and low birth weight.
 - Prevalent and incident infections share similar risk factors, including older age (>35 years), black race, concurrent chlamydial infection, and transactional sex.
- Know which diagnostic tests are available from your clinic’s laboratory.
- Bring all patients back for follow-up.
- Be aware of treatment-resistant trichomoniasis.

- Microscopic evaluation of vaginal secretions has a sensitivity of only 50% but a specificity of almost 100% and offers the advantage of immediate evaluation.
- The APTIMA test, an assay for *T. vaginalis* that was approved by the U.S. Food and Drug Administration (FDA) in late 2012, has a sensitivity of 98% and a specificity of >99%.
- POC tests have an approximate sensitivity of 83% and an approximate specificity of 97%. These tests include:
 - The OSOM *Trichomonas* Rapid Test (an immunochromatographic capillary-flow enzyme immunoassay dipstick test): approximately 83% compared with amplified testing
 - Xenostrip: 70–90% sensitivity versus culture but much lower than amplified testing
 - Affirm VPIII (*T. vaginalis*, bacterial vaginosis, *Candida albicans*): 80% sensitivity versus culture but much lower than amplified testing
 - Culture (Diamond's and/or InPouch TV culture media) with sensitivity testing may be necessary in cases of high-level resistance.
- Treatment failure is characterized by a failure to resolve symptoms and/or organism persistence by diagnostic testing after completion of standard recommended regimens.
 - Reasons for failure include host factors, noncompliance, and drug resistance.
 - Because there is no national *T. vaginalis* surveillance program, the true rate of metronidazole resistance is not known.
 - Current estimates suggest that 5–10% of isolates in the United States are drug resistant. However, most cases are not associated with treatment failure.
- Metronidazole-resistant trichomoniasis can usually be managed with increasing dose and duration of treatment with nitroimidazoles.
- Intolerance to treatment regimens, such as gastrointestinal side effects and hypersensitivity reactions, may present obstacles to effective treatment.
- Clinical failure is sometimes observed when the aerobic MCL is >25 µg/mL and is commonly observed when the MLC is >100 µg/mL (assay can be performed at CDC).

CASE 2

SCREENING AND TREATING TRICHOMONIASIS IN PREGNANCY

Presented by Mark Hathaway, MD, MPH

Presentation: Medical, Sexual, and Social History

A 28-year-old woman, G3P2, who is 30 weeks pregnant, presents at her routine prenatal visit reporting that she has been having vaginal discharge. She describes the discharge as thin and malodorous. Her pregnancy has been uncomplicated to date, and all prenatal laboratory tests have been normal. She is now experiencing very mild occasional contractions and good fetal movement. She had intercourse last night.

Her obstetric history includes nonsurgical vaginal deliveries of a full-term female infant, 6 pounds, 11 ounces (3.0 kg), seven years ago, and a preterm delivery at 34 weeks of a male infant, 4 pounds, 11 ounces (2.1 kg), three years ago. She reports that she has had no abnormal Pap tests; her last Pap test was performed 10 years ago. She reports that she has no history of STIs except for trichomoniasis two years ago. Prior to her current pregnancy, she used oral contraceptives but desires Copper T intrauterine device (IUD) postpartum.

She lives with her current partner of two years and her two children. She is employed part-time as a waitress. She reports that she stopped smoking when she found out she was pregnant and that she does not use alcohol or substances of abuse.

Medical history is negative. Surgical history is negative. She has no known drug allergies. Her current medications include only prenatal vitamins. Her family history is non-contributory.

Physical Examination, Differential Diagnosis, and Diagnostic Tests

You perform a sterile speculum examination with vaginal pH, microscopic ferning check, fetal fibronectin, and a microscopic check for yeast, clue cells, and *T. vaginalis*. Your differential diagnosis could include preterm premature rupture of membranes, yeast infection, trichomoniasis, bacterial vaginosis, or normal vaginal discharge associated with pregnancy. You must rule out preterm labor and preterm premature rupture of membranes, as these have dire consequences.

Treatment

Your working diagnosis is trichomoniasis, and you prescribe metronidazole orally. Test and treat if patient is symptomatic and treat partner.

Clinical Pearls

- Women at low risk for preterm delivery should not be screened for bacterial vaginosis. Current evidence is insufficient to assess the balance of benefits and harms of screening for bacterial vaginosis in pregnant women who are not at high risk for preterm delivery.
- Because bacterial vaginosis and trichomoniasis have been shown to increase the risk of preterm labor, screening of at-risk and symptomatic women is recommended.
- Oral metronidazole is safe to use during pregnancy for the treatment of trichomoniasis.

CASE 3

DIAGNOSING AND TREATING CHRONIC BACTERIAL VAGINOSIS

Presented by Mimi Secor, NP

Presentation: Medical, Sexual, and Social History

A 26-year-old black woman, G0P0, with a two-year history of chronic recurrent bacterial vaginosis presents with typical symptoms of increased malodorous vaginal discharge that has been present for several weeks. She reports that the odor is especially noticeable after intercourse when condoms are not used. Her last treatment was two months ago and involved metronidazole vaginal gel (as in the past) for five days, which relieved her symptoms. She was advised to return if her symptoms recurred. Based on her Internet research, the patient asks whether taking probiotics would help. She is very frustrated and urgently wants to resolve the problem.

The patient reports that she has no current symptoms of urinary tract infection (UTI) but that she has experienced frequent UTIs over the past two years. She reports that she has had no symptoms of incontinence or history of interstitial cystitis. She urinates after intercourse, which she states seems to reduce her risk of bacterial vaginosis. She also reports that she has no symptoms of abdominal pain, fever, chills, nausea, vomiting, bowel changes, or other unusual genitourinary or gastrointestinal symptoms.

She reports that she does not have a history of STIs. Tests for gonorrhea and chlamydia were both negative one month ago. She has been in a monogamous relationship for two years with a circumcised male partner. They use condoms about 25% of the time during vaginal sex and also have unprotected oral sex. She reports that she does not engage in anal intercourse. The date of her last sexual activity was three days ago, and she noted odor after intercourse (without condoms). A Copper T IUD was inserted three years ago; she has no complaints and would like to continue this method. Her last normal menstrual period was two weeks ago and her period has been moderately heavy since the IUD was inserted, but she tolerates this well.

She does not take calcium, vitamin D supplements, or other daily vitamins. She reports that she does not use vaginal douches.

Her last preventive primary care exam was one month ago. Her Pap test result showed atypical squamous cells of undetermined significance (ASCUS) and was positive for high-risk subtypes of human papillomavirus (HPV). All Pap tests prior to this have been negative. Aside from the Pap test, she states that "everything was fine," although she is not sure what other tests were done. She has no known drug allergies and currently takes no medications.

Her medical/surgical history is otherwise unremarkable. She reports one sister who also has a history of recurrent vaginal infections.

Physical Examination, Differential Diagnosis, and Diagnostic Tests

Your working diagnosis is recurrent bacterial vaginosis for two years with onset associated with new partner. Her family history of recurrent vaginitis also contributes to this diagnosis.

Your differential diagnosis must include yeast infection, trichomoniasis, mixed infections, HPV colpitis (normal-appearing discharge but excessive amount and/or leukorrhea that resolves as HPV clears, usually within 12 months), and other STIs such as genital herpes and cervicitis.

You perform a vaginal pH test, amine/potassium hydroxide (KOH)/whiff test, and vaginal microscopy (checking for clue cells, trichomoniasis, yeast, white blood cells, lactobacilli, and maturation of cells). If available, consider polymerase chain reaction (PCR) testing for various bacterial vaginosis organisms, such as *Atopobium*, *Mobiluncus*, *Gardnerella*, and others. You may want to rule out HPV low-risk subtypes linked to possible vaginal HPV colpitis; these can also be tested with PCR. Rule out genital herpes with immunoglobulin G (IgG) type 2-specific serology test (this may increase the risk of bacterial vaginosis). Also test for HIV, hepatitis B, hepatitis C, and other STIs, including *Mycoplasma genitalium* and *Ureaplasma*. If she is positive for *M. genitalium*, you will treat with azithromycin, 1 g stat, and prescribe the same treatment for her partner. Assess vitamin D level or rely on empirical treatment. Thyroid disease and diabetes are also possible diagnoses.

All of the above tests are negative, so you know she has chronic, possibly treatment-resistant, bacterial vaginosis. She has had multiple failed courses of therapy with metronidazole. Consequently, you will treat with a different agent and then conduct a "test of cure" to ensure response, regardless of symptom status.

You consider alternatives to metronidazole, because recurrent bacterial vaginosis is associated with a high rate of resistance to metronidazole.

Treatment

For this patient's chronic recurrent bacterial vaginosis, a longer duration of therapy with a negative test of cure, to be followed by suppressive therapy, is selected, as follows:

1. You prescribe metronidazole orally or vaginally for 10 days, then conduct test of cure in 2-4 weeks, regardless of symptom status.
2. Assuming successful initial treatment, you follow the antibiotic regimen with a course of boric acid suppositories, 600 mg vaginally at bedtime for three weeks.
3. Initiate suppressive therapy with metronidazole gel vaginally twice weekly for four to six months. Note: As antifungal prophylaxis (fluconazole 150 mg weekly to prevent secondary vulvovaginal candidiasis) is also offered, her effective contraception (Copper T IUD) is reassuring.

Alternative agents for bacterial vaginosis can include the following:

- Tinidazole, 1 g orally daily for five days or 2 g orally for three days, may achieve greater tissue penetration. It has not been determined that tinidazole is more effective than metronidazole, and its safety in pregnancy has not been established.
- Boric acid vaginal suppositories, 600 mg at bedtime for 14 days, may also be used for primary treatment (a twice-daily regimen is also an option but has been associated with higher risk of vulvar irritation). This offers the advantage of treating both bacterial vaginosis and yeast infection with a single agent.
- A boric acid regimen may be supplemented with azithromycin, 1 g orally stat. Treat partner with the same regimen for *M. genitalium*.

Counseling

You encourage the use of condoms 100% of the time, especially during treatment. Use of condoms 100% of the time is associated with a 50% higher cure rate. You recommend that the patient try to reduce her stress levels and increase her sleep.

Clinical Pearls

- For patients with history of persistent chronic bacterial vaginosis, rule out organisms such as *M. genitalium*, mixed infections, and HPV.
- Chronic bacterial vaginosis is often due to antibiotic resistance, so other agents such as clindamycin and tinidazole are alternative treatments.
- Some patients frequently develop yeast infections with multiple doses of metronidazole; in these cases, consider planning to prevent possible secondary vulvovaginal candidiasis by prescribing fluconazole, 150 mg orally weekly to twice weekly.
- If there is little to no risk of pregnancy, treat with fluconazole, 150 mg orally weekly; if there is a moderate to high risk of pregnancy, treat with topical antifungal vaginally twice weekly.
- In patients with a long history of chronic bacterial vaginosis, low efficacy of treatment, and high risk of recurrence, consider test of cure at 10–14 days posttreatment and then begin suppressive therapy.

Discussion

Barriers and knowledge gaps were identified as follows:

- Need for increased awareness of new diagnostic tests, which range from simple visual detection by microscopy to NAATs
- Lack of clear information about tests and resources while facing a pressing need to balance costs and benefits
 - NAATs are increasingly available, but expensive. Clinicians are confronted by a lack of clear information about tests and resources while facing a pressing need to balance costs and benefits.
- Research on the natural history of trichomoniasis and bacterial vaginosis
- Whether routine screening for trichomoniasis is efficacious
- Possible role of IUDs in the etiology of bacterial vaginosis
- Inadequate evidence to support the treatment of partners of women with bacterial vaginosis
- Lack of information about treatment with boric acid
- Optimal duration of therapy for bacterial vaginosis
- Accurate data on estimates of resistance to current treatments
- Value of continued treatment for asymptomatic recurrences
- Need for patient education to improve recognition of symptoms and reinforce the importance of using condoms or refraining from intercourse to improve response to treatment and prevent recurrence
- Potential for adverse vaginal effects associated with vitamin D deficiency

CASE 4

IDENTIFYING AND TREATING INITIAL CASE OF GENITAL HERPES

Presented by Beth Kruse, MS, CNM, ARNP

Presentation: Medical, Sexual, and Social History

A 20-year-old, single mother, G2P1, reports mild, external vulvar itching and “red bumps” accompanied by whitish-yellow, thick, nonodorous discharge that began about five days ago, three days following her last sexual exposure. She routinely shaves her entire genital area. She also describes mild, intermittent, external dysuria with frequency and small amounts voided, without urgency or sensation of incomplete emptying. She reports that she has not had dyspareunia, abdominal pain, out-of-cycle bleeding, other lesions or itching, fever, chills, flank or back pain, nausea, vomiting, constipation, or diarrhea.

She last had sexual intercourse eight days ago with her daughter’s father. She indicates that they do not use condoms, and she does not know whether he has any current STI symptoms or is having sex with anyone else. He is the only sex partner she has had in the last two months. She had one other partner in the last 12 months, and she acknowledges a total of six lifetime partners. In the last 12 months, she has engaged in both vaginal and oral sex (the latter, both giving and receiving). She is exclusively heterosexual, and to her knowledge, none of her lifetime partners have engaged in sex with other men or have used intravenous drugs, although several partners have been in prison.

She had a chlamydial infection identified and treated three years ago. She reports that she has no history of gonorrhea, herpes, genital warts, syphilis, yeast infections, or HIV. To her knowledge, she has never had a sex partner with any of these infections. She has been treated for bacterial vaginosis on several occasions over the last few years. She has never

had oral herpes or cold sores and does not remember ever seeing oral herpes or cold sores on the mouth of any previous partner.

Her last menstrual period was 25 days ago. Her menses are typically every 25–30 days. Currently, she is not using any contraception. Her last health care evaluation was one year ago, and she presumes that tests for gonorrhea and chlamydia were negative. To her knowledge, she has never had a Pap test. She reports that she does not use douches or hygiene sprays, but she does use treated tampons (tampons containing lactic and citric acid to reduce vaginal pH) and moistened wipes when she has her period. She uses whatever bath soaps and laundry detergents are on sale.

She has a history of asthma and reports last using an inhaler over a year ago. She reports no other significant illnesses. Currently, she takes no medications, does not have allergies to any medications or to latex, and reports no sensitivities to medications.

A review of her family medical history is unremarkable. She and her daughter live with her mother, and she works part-time at a second-hand clothing store. She denies any recreational drug use other than social use of alcohol and cigarettes, and she also reports that she has no history of intravenous drug use or transactional sex.

Physical Examination, Differential Diagnosis, and Diagnostic Tests

On physical exam, there is no cervical or inguinal lymphadenopathy, with the exception of a single, nontender, superficial right inguinal node. No lesions are noted on the skin of the trunk or extremities. The genital exam is remarkable for several exquisitely tender, 1–3-mm-diameter, ulcerated lesions on either side of the fourchette and several intact pustules below the inferior margins of the labia minora bilaterally. The entire inferior vulva appears slightly reddened and edematous. Vaginal discharge is copious, mucoid, and slightly yellowish, without odor. The cervix is free of lesions. There is clear mucus at the cervical os and a large area of cervical ectopy that appears edematous. A small amount of bright-red bleeding is seen at the superior margin of the squamocolumnar junction. The bimanual exam is deferred.

Based on findings from the physical exam, the clinical impression is initial genital herpes infection (primary versus non-primary) with probable herpetic cervicitis. It will be necessary to rule out UTI and pregnancy. Possible differential diagnoses include syphilis, vaginal infections (yeast, bacterial vaginosis, and trichomoniasis), chlamydial infection, gonorrhea, and nongonococcal cervicitis. Chemical or allergic reaction is also possible; uncommon and rare causes would include fixed drug eruption and Behçet's disease.

The following diagnostic tests are performed:

- HSV culture or PCR of lesions and cervix (separate swabs pooled into a single specimen vial), with a specific request to determine HSV type
- Vaginal swab NAAT for gonorrhea and chlamydia
- pH, amine, wet mount, and KOH prep of vaginal discharge
- Serologies for HSV, HIV, syphilis (RPR)
- Dipstick urinalysis, with culture if indicated by nitrite or leukocyte esterase
- Urine pregnancy test

Urine pregnancy and dipstick tests are negative. Wet mount is positive for leukorrhea. After three days, the laboratory reports a preliminary positive culture result for HSV. This is subsequently confirmed as HSV-1. The serologies are negative for both HSV-1 and HSV-2.

Gonorrhea, chlamydia, HIV, and RPR tests are all negative. The diagnosis is primary genital herpes due to HSV-1.

Treatment

You prescribe valacyclovir, 1 g twice daily for 10 days. Alternatives could include acyclovir, 400 mg twice daily for 10 days, or famciclovir, 250 mg twice daily for 10 days. A nonsteroidal anti-inflammatory drug such as ibuprofen and a topical anesthetic (e.g., Xylocaine 2% gel) may be helpful for pain control. The patient schedules a follow-up appointment in four to five days for clinical reassessment and counseling. You encourage her to return sooner if she does not notice a significant improvement in her symptoms. The patient also schedules a three-month follow-up visit for repeat HSV serology.

Counseling: Initial and Follow-up

Your initial counseling efforts may be limited pending confirmation of a diagnosis. However, you provide education about the natural history, incidence, and transmission of HSV and explain that there should be a rapid improvement in symptoms with treatment and complete healing over one to two weeks. You review the importance of careful hygiene, especially hand cleansing (including use of disinfectant gels), to prevent autoinoculation, especially to eyes. Information about treatment options for symptom relief, including local hygiene, topical anesthetics, nonsteroidal anti-inflammatory drugs, and sitz baths is also appropriate.

Additional counseling when the patient returns for her follow-up appointment focuses on the confirmation of a diagnosis of primary genital herpes due to HSV-1. You explain that her current partner presumably also has HSV-1, although he may not have been the initial source of her infection. It is not known whether he has HSV-2. You encourage her to have her current partner arrange for evaluation and offer resources. Although they cannot re-infect one another with HSV-1, the patient remains susceptible to HSV-2. You ensure that she understands that HSV-1 and -2 refer to the virus rather than the clinical syndrome and clarify that genital herpes and "type 2 herpes" are not synonymous.

You provide role modeling and practice to assist the patient with disclosure of her history of HSV to partners. You review the importance of careful and consistent condom use to prevent transmission and avoidance of sexual contact during outbreaks, from prodrome to resolution, explaining that abstinence for up to three weeks may be needed for primary HSV. You explain that condoms are 70– 90% effective for prevention of HSV sexual transmission from any single exposure, but only about 50% effective for the prevention of transmission over time. You explain that, in the event of a future pregnancy, the patient should inform her prenatal care provider of her history of herpes, while reassuring her that the risk of perinatal transmission is very low (approximately one case of neonatal HSV per 4,000 women seropositive for HSV-1).

You discuss the potential for recurrent outbreaks, including higher or lower risk depending on HSV type, and provide reassurance that recurrent outbreaks will not be as severe as the current episode. You discuss identification of recurrences, including variations in prodrome and symptoms, particularly since recurrent episodes are typically milder than the initial infection and can be effectively treated or prevented. You also review ongoing treatment options, including episodic and suppressive therapy (there is generally a lesser need for either with genital HSV-1 compared with HSV-2). You also explain that there is minimal, if any, risk of nonsexual transmission in the household, noting that her daughter is at much higher risk for HSV-1 from playmates. You emphasize the use of good hygiene during the

current episode and in the event of any recurrent episodes to reduce the risk of transmission.

Clinical Pearls

It is important to distinguish between the four types of HSV episodes, including (1) true primary, (2) nonprimary first episode, (3) recurrent episode, and (4) asymptomatic shedding.

- Many initial or primary HSV infections are asymptomatic, and/or symptoms may be atypical, such as itching.
- It is estimated that only about 50% of people presenting with a true primary HSV episode will have both systemic and local symptoms.
- Most genital HSV transmission occurs with partners who are asymptomatic at the time of exposure and often are unaware that they are infected with HSV.
- HSV-1 accounts for 50– 60% of initial genital herpes in the United States; a rising trend has been noted in recent decades.
- PCR for HSV is increasingly available at a reasonable cost, is substantially more sensitive than a culture, and has fewer false-negative results, especially if the timing of culture collection or transport is suboptimal.
- An initial serology should be drawn as a baseline in the event that the culture or PCR is nondiagnostic; follow-up serology should be performed to document seroconversion, although this is optional if HSV and type are documented by culture or PCR.

CASE 5

RECURRING GENITAL HERPES

Presented by H. Hunter Handsfield, MD

HSV is a very common condition, affecting 20% of the general population in the United States. A higher risk has been noted for women than for men. Blacks are at higher risk than are whites and Asians. Men who have sex with men (MSM) are at greater risk than are heterosexual men and women. The prevalence of HSV-1 ranges from 40% to 70% in the United States. It is generally oral (primarily acquired in childhood), but a significant minority of seropositives reflect genital infection. Most seropositives for either HSV-1 or HSV-2 are entirely asymptomatic or have unrecognized (usually mild) symptoms.

Presentation: Medical, Sexual, and Social History

A 28-year-old single bank teller, G1P0, presents for her annual reproductive health check-up and renewal of her oral contraceptive prescription. She has no current complaints. However, when questioned after your initial examination reveals a vulvar skin lesion, she acknowledges itching and slight soreness that has been present for “three or four days” in the area of the lesion. She further recalls similar itching and irritation “from time to time” in more or less the same area of the vulva “for maybe a couple of years.”

She has been sexually active since age 16 and reports “15 or 20” lifetime male sex partners, as well as “a couple of flings” with female partners, mostly before age 22. Her only pregnancy, at age 18, was electively terminated. There have been three male partners in the past two years, all of which were ongoing dating relationships. For the past six months, her only partner has been her current boyfriend. They engage three to four times a week in vaginal intercourse, fellatio, and cunnilingus. She reports that they used condoms for vaginal sex “the first few times,” but currently they do not use condoms. The most

recent sexual exposure was last night. She states that her partner is outwardly healthy and has no known STIs. She believes that he is strictly heterosexual and has not had sex with other partners since their relationship began.

During the patient's late teens and early 20s, she had several genital infections. She had an abnormal Pap smear attributed to HPV, which cleared without treatment. All subsequent Pap tests have been normal. A male partner was treated for chlamydia, but her test was negative. She reports that she was treated with a single dose of "big white pills." She has had several episodes of vaginal discharge and/or vulvar itching, variously attributed either by health providers or self-diagnosis to yeast infections and bacterial vaginosis. Aside from the periodic vulvar itching, she states that she has not had any unexplained infections or genital symptoms in the past five years.

Her current medications include combined oral birth control pills for contraception, occasional acetaminophen or ibuprofen for headache or menstrual cramping, and intermittent orlistat (Alli) for weight control. She reports no medication or latex allergies.

Physical Examination, Differential Diagnosis, and Diagnostic Tests

A single, irregularly shaped, 0.5 x 1.0-cm genital ulcer, partly encrusted and with signs suggesting excoriation, is observed on the inner aspect of the left labia major. The remainder of the genital and pelvic examination is normal, including the vulva, introitus, vaginal mucosa, cervix, and bimanual examination. Scant pooled vaginal secretions are white, floccular, and odor free. The general physical examination, including skin, is normal; there is no inguinal lymphadenopathy.

Your clinical impression is a genital ulcer, perhaps recurrent. In considering a differential diagnosis, you think of genital herpes, syphilis, excoriated scabies, idiopathic vulvar pruritus with excoriation, and fixed drug eruption (possibly to ibuprofen). Keep an open mind about uncommon and rare causes, e.g., chemical, allergic, fixed drug eruption (although this would be unusual for such an isolated lesion as this), or Behçet's disease.

The following diagnostic tests are performed:

- HSV culture (or PCR, if available) of lesion
- Vaginal swab NAAT for gonorrhea and chlamydia
- pH, amine, wet mount, and KOH preparation of vaginal discharge
- Serologies for HSV, HIV, and syphilis (RPR)

Recurrent genital herpes is a distinct possibility, but confirmation awaits test results. No treatment is prescribed, and you schedule a follow-up visit when the laboratory results are anticipated, in seven to 10 days.

Test results indicate negative culture for HSV; HSV serology is positive for HSV-2 (enzyme-linked immunosorbent assay [ELISA] index 4.4, cutoff 1.1) and negative for HSV-1. Negative results are reported for pH, amine odor, saline microscopy, KOH preparation, gonorrhea, chlamydia, and RPR. Your diagnosis is probable recurrent genital herpes due to HSV-2.

Treatment

You initiate suppressive therapy, such as valacyclovir, 0.5–1.0 g orally daily, or acyclovir, 400 mg orally twice daily. You also provide a prescription for self-initiation of episodic

therapy for subsequent recurrences, e.g., valacyclovir, 500 mg orally twice daily for three days or acyclovir, 800 mg orally three times daily for two days.

Counseling

You provide information to ensure that the patient is familiar with symptoms associated with even mild recurrences. You recommend that, at the next suspected episode, the patient perform self-examination and return for clinical confirmation and optional lesion testing. The duration and source of the HSV-2 infection cannot be determined with the information that is currently available. However, her current partner needs to be informed and should consider testing for HSV-2. Her partner's serological status will determine whether he is infected or susceptible and whether preventive precautions are necessary.

Counseling should also be provided regarding prevention of sexual transmission. You explain to your patient that she is potentially infectious to new or previously uninfected partners, all of whom should be notified of the risk of transmission. You advise her to avoid sex from the onset of prodrome until the resolution of outbreaks. You also explain that condoms are probably 70–90% effective for the prevention of transmission during any single exposure, but only about 50% effective in the long term. Suppressive therapy with valacyclovir reduces transmission by about 50%. You discuss the prevention of neonatal herpes, despite evidence that transmission from mothers with longstanding HSV is rare. You inform the patient that, in the event of pregnancy, she should inform her obstetrician of her history of HSV-2. You also explain that she is at elevated risk of HIV if she is sexually exposed to the virus. You provide reassurance about the absence of transmission risk in households, by fomites, and non-intimate personal contact. You also reassure her that, properly managed, HSV-2 need not be a serious impediment to romance, commitment, and sexual fulfillment.

Clinical Pearls

- Test all genital ulcers for HSV and determine the virus type. The results of this testing provide information about what to expect regarding clinical outbreaks and the risk of transmission. Asymptomatic viral shedding, the potential for sexual transmission, and recurrences are more common with HSV-2. Symptomatic outbreaks typically occur three to eight times per year for HSV-2 and fewer than once per year for HSV-1. Approximately 40% of individuals with initial HSV-1 never have a second outbreak. Most outbreaks occur in the same general area of the body, plus or minus 2–3 cm. The risk of asymptomatic viral shedding and transmission is lower for HSV-1 than HSV-2. Suppressive therapy is less likely to be necessary or helpful in HSV-1 compared with HSV-2.
- The HSV PCR test is more sensitive and is the test of choice when it is available.
- All genital ulcers should be tested, including those that seem atypical for herpes, unless an alternative diagnosis is certain.
- Serological tests for HSV are diagnostically useful in patients with suspected genital herpes when PCR and culture are unavailable or impractical. They are also useful for the evaluation of the sex partners of infected patients. Seroconversion occurs in approximately 80% of persons with a new HSV-2 infection within six weeks, but 10–20% of patients require four months before seroconversion. As many as 2–3% never become seropositive, and anecdotal reports suggest that early antiviral therapy can delay or prevent seroconversion.

- Screening asymptomatic patients is controversial. If screening is done, it should be limited to patients with a high prior probability of infection. Up to 20% of persons infected with HSV-1 remain seronegative.

Discussion

The CDC has invested tremendous resources in the development of evidence-based guidelines for the management of HSV, which should probably be considered the ultimate resource for “best practices.” Additional guidelines have been issued by other organizations in an effort to provide quick reference tools without an overload of information; it is important for clinicians to be alert to any differences between guidelines. If a summary of differences between guidelines is too detailed, it is not likely to be useful to the target audience of practicing clinicians.

Barriers and gaps were identified as follows:

- Need for clarification of testing and interpretation of diagnostic test results and their interpretation
 - Clinicians need to understand the strengths and limitations of the many tests at their disposal, which include PCR, NAAT, IgG, IgM, ELISA, and OPTIMA, among others.
 - There is also the issue of which specific diagnostic tests to substantiate the diagnosis (culture versus serology).
- Clinicians are often unaware of which tests their laboratory runs for HSV diagnosis.
- Distinction between diagnostic testing and screening:
 - If the probability of prior HSV is high due to risk factors, diagnostic evaluation with serologic testing is very useful. However, it does not perform well as an asymptomatic screening method.
 - clinicians should do a combination of serologic and biologic testing (either by PCR or culture) to determine virus type
- Need for clinicians to provide patients with more information about both STIs and other (environmental, idiopathic, etc.) causes of common symptoms
- Counseling information should be tailored to the individual situation and patient’s ability to receive and understand information
- Need to help patients to understand asymptomatic transmission, as most HSV is transmitted during asymptomatic or subclinical viral shedding

CASE 6

ASYMPTOMATIC GONORRHEA

Presented by Khalil Ghanem, MD, PhD

Presentation: Medical, Sexual, and Social History

A 22-year-old woman, G0P0, presents to your clinic for a routine gynecologic appointment. She is asymptomatic and doing well. She has been taking a combined oral contraceptive pill for two years with no breakthrough bleeding or spotting. Her last menstrual period was two weeks ago and was normal. She has had three male sex partners in the preceding two months. She notes “occasional” unprotected vaginal and oral (receptive and giving) exposures but no anal exposures. She was diagnosed and treated for *Chlamydia trachomatis* three years ago. Subsequent annual testing for *C. trachomatis* was negative. She has had a Pap test that was normal.

She reports that she does not use tobacco or illicit drugs and that she has three to four mixed drinks on occasion. Her mother has type 2 diabetes mellitus, and her father died of alcohol-related complications.

Her current medications include the combined oral contraceptive and occasional acetaminophen for headaches. She takes no vitamins or supplements. She reports a penicillin allergy as a child. Her mother told her that she had experienced difficulty breathing after a "penicillin shot." She states that she has never been prescribed cephalosporins.

Physical Examination, Differential Diagnosis, and Diagnostic Tests

The patient is normotensive and afebrile. Oropharyngeal, breast, skin, abdominal, and bimanual examinations are unremarkable. You perform the following tests:

- *C. trachomatis* vaginal swab for NAAT
- *Neisseria gonorrhoeae* vaginal and pharyngeal swabs for NAAT
- HIV enzyme immunoassay

You may also consider the following tests:

- Serological testing for syphilis
- Serological testing for HSV

Results of the *C. trachomatis* vaginal swab for NAAT are negative. However, the *N. gonorrhoeae* vaginal swab for NAAT is positive, and the pharyngeal swabs are negative. The Pap test is normal, the HIV enzyme immunoassay is negative, and the RPR test is nonreactive. Your working diagnosis is asymptomatic gonococcal infection. You note her history of penicillin allergy and possible at-risk alcohol use.

Treatment

Treatment options include azithromycin, 2 g orally in a single dose, and observe for vomiting. You advise the patient that she should return to the clinic in one week for test-of-cure (vaginal NAAT) and again in three months for repeat testing to rule out reinfection (NAAT at sites of exposure). You consider referral for penicillin skin testing to confirm history of allergy. The patient is at high risk for reinfection, and given the limited treatment options, this approach may be useful. You also advise the patient that all sex partners in the preceding 60 days should be referred for treatment.

In the future, possible antimicrobial combinations may include gentamicin, macrolides, newer-generation fluoroquinolones, and/or carbapenems, with studies ongoing.

Counseling

Discuss possible breakthrough bleeding or increased pregnancy risk with antibiotic use, although this is a rare occurrence. Provide safe sex counseling messages, including 100% condom use. Given the patient's current history of alcohol use and her family history, she needs further assessment of alcohol use patterns (e.g., the CAGE questionnaire) and counseling.

Clinical Pearls

- Screen at-risk women for gonorrhea; a patient's young age and unprotected sex with multiple partners increase her risk of acquiring gonorrhea.
- Gonococcal infections in women, including extragenital infections, may be asymptomatic.
- Consider screening for gonorrhea at all sites of exposure in high-risk women.
- Vaginal swabs (self-collected or clinician-collected) for NAAT testing are the preferred specimens in women (although urine and endocervical swabs are acceptable); NAAT is preferred over culture for pharyngeal and rectal testing because of higher sensitivity. Although none of the NAAT methods are approved by the FDA for extragenital testing, most large laboratories routinely offer this service.
- Dual therapy with ceftriaxone, 250 mg intramuscularly, and azithromycin, 1 g orally, is the preferred treatment for gonorrhea. Alternatively, one week of doxycycline, 100 mg orally twice daily, is the only first-line regimen for treating gonorrhea. Alternate regimens include:
 - Cefixime, 400 mg orally, and azithromycin, 1 g orally, or doxycycline, 100 mg orally twice daily for 1 week
 - Azithromycin, 2 g orally, as single agent
- If any alternative regimen is used, the patient must return for a test-of-cure within two weeks to ensure resolution of infection. False-positive NAAT for gonorrhea is unlikely after two weeks of appropriate therapy. Resistance to macrolides and oral cephalosporins has been reported in the United States. In addition, gonococcal MICs to injectable cephalosporins are increasing, and resistance to injectable cephalosporins has been reported in Europe and the Far East.
- Cross-reactivity between penicillins and cephalosporins has been found to be 0–3%. The risk of penicillin cross-reactivity between most second- generation and all third- and fourth- generation cephalosporins is negligible. Two grams of oral azithromycin may be used to treat gonorrhea in patients with an IgE-mediated reaction to penicillin and no history of cephalosporin use.
- Retesting at three months after therapy is recommended for all patients with gonorrhea because of a high risk for reinfection.

CASE 7

ASYMPTOMATIC CHLAMYDIA

Presented by Anne Cavett, FNP

Presentation: Medical, Sexual, and Social History

A 20-year-old Hispanic female, G1P1, presents on time for a repeat contraceptive injection. She has been using Depo-Provera for the last year without complaint and continues to have normal monthly menses. Her last menstrual period was three weeks ago. She has had one male sex partner and reports that she has had vaginal intercourse but no oral or anal intercourse. She states that she and her partner "rarely" use condoms.

The patient is obese (body mass index, 31.2) and has had a 9-pound (4-kg) weight gain since starting Depo-Provera. She has no history of surgeries, and her only hospitalization was for childbirth. She was screened for hepatitis during pregnancy approximately two years ago; the results were immune hepatitis A and B, and negative hepatitis C. Prior HIV and RPR tests during pregnancy were also negative. She reports one full-term vaginal delivery without complications. She was diagnosed and treated for *C. trachomatis* three years ago, just prior to her pregnancy, and repeat testing was negative. Her most recent test for *C. trachomatis* was 14 months ago and was negative. She has never had a Pap test.

She reports that she moved to the United States from El Salvador at age 13. She reports having one glass of wine or one beer on occasion (less than once per month) and that she does not use tobacco or illegal drugs. She is not married but has been with same partner for four years and reports one lifetime partner. She works as a server in a restaurant and does not exercise. Her current medications include Depo-Provera and occasional use of ibuprofen for muscle aches and headaches. She takes no vitamins or supplements. She has no known drug allergies.

Physical Examination, Differential Diagnosis, and Diagnostic Tests

On physical examination, she is an obese, afebrile, normotensive, well-appearing female with normal affect and no signs of depression, anxiety, or psychosis.

Diagnostic tests include:

- Urine pregnancy test
- *C. trachomatis* vaginal swab for NAAT (collected by provider or patient) or first-catch urine NAAT
- *N. gonorrhoeae* vaginal swab or first-catch urine for NAAT
- Diabetes and lipid screening

You may also consider:

- HIV screening
- Serological testing for syphilis

Test results are negative for pregnancy, *N. gonorrhoeae*, HIV, and RPR. The test for *C. trachomatis* is positive. Her hemoglobin A_{1C} is 5.9%, total cholesterol is 199, with triglycerides 147, low-density lipoprotein 98, and high-density lipoprotein 38. Your working diagnoses include:

- Asymptomatic *C. trachomatis*
- Impaired fasting glucose and obesity

Treatment

You treat the patient for chlamydia with azithromycin, 1 g single-dose therapy observed in clinic, or doxycycline, 100 mg twice daily for seven days. You refer her partner for treatment or consider expedited partner therapy. You schedule the patient to return to the clinic in three months for repeat screening to test for re-infection. You also screen for HIV, syphilis, and hepatitis B (if nonimmune). She continues to use Depo-Provera for contraception and starts 1,200 mg of calcium supplementation daily.

Counseling

You provide the patient with safer sex counseling, including 100% condom use, and advise her not to engage in sex until seven days after her partner has received and completed treatment. You also provide counseling about long-acting reversible contraceptive methods that do not contribute to weight gain and discuss exercise and diet and/or nutrition to promote therapeutic lifestyle changes.

Clinical Pearls

- NAAT is the only recommended test type for chlamydia.
- NAAT of vaginal swab is the preferred method for screening women with possible chlamydia infection, and self-collection is effective.
- First-catch urine with NAAT is an acceptable alternative screening test for men or women, and NAAT of endocervical swab is also acceptable for women.
- Currently, there is a shortage of doxycycline in the United States. The CDC advises 1 g of azithromycin orally in a single dose to treat *C. trachomatis* infection.
- The U.S. Preventive Services Task Force (USPSTF) recommends yearly screening for chlamydia in all sexually active women 24 years of age and younger and older women at increased risk. These can include women who have new or multiple sex partners, who have prior or current STIs, and who are inconsistent users of condoms.
- The CDC recommendations are the same as those of the USPSTF, with the exception of screening for chlamydial infection in sexually active women through age 25.
- MSM should be screened annually at anatomical sites of exposure. Repeat testing should be performed three months after treatment for re-infection rather than for “test of cure.”
- NAAT of rectal specimens should be performed when screening patients who engage in receptive anal intercourse.
- Pharyngeal testing is not currently recommended for *C. trachomatis*; however, most NAAT methods provide results for both gonorrhea and chlamydia.
- Patients with positive results for chlamydia should be treated.

Discussion

Barriers and practice gaps were identified as follows:

- There is a significant practice gap regarding screening guidelines and clinical practice among women over 25, individuals of either gender (or age) initiating sex with a new partner, and older women initiating sex with a new partner.
- Regarding chlamydia, the CDC and USPSTF guidelines for screening vary on the age of women to stop testing at 26 and 25, respectively. The CDC guidelines recommend screening after this if risk factors are present but this includes a very broad group of women, such as inconsistent use of barrier contraceptive methods or a history of an STI. Screening on the basis of risk factors is not helpful for clinicians.
- Although the latest CDC STD guidelines state that the preferred test is a clinician- or patient-obtained vaginal swab rather than a urine test or cervical swab for women, many clinicians are reluctant to ask women to insert anything in to their vagina to obtain a vaginal swab.
- Clinicians generally lack information about the correct type of testing regarding urine tests and vaginal versus cervical swab.
- Any opportunity to do pregnancy testing should be considered an opportunity to test for STIs.
- Partner treatment is a very large practice gap.
- Clinicians should treat with caution if there is a remote childhood history of a penicillin allergy.
- Use of NAAT may show that the prevalence and transmissibility of pharyngeal infections is higher than previously estimated, and this particular infection may be associated with resistant gonorrhea or chlamydia.
- A good sexual history is essential to guide clinicians’ decisions regarding extragenital testing. Pharyngeal testing for gonorrhea will probably detect a reservoir of

undetected, asymptomatic cases (even in heterosexual women), but it is not likely that testing and treating these patients will affect either transmission or the patients' clinical outcomes.

OVERVIEW OF PRACTICE GAPS AND ISSUES IN TREATMENT AND COUNSELING TO INFORM CURRICULUM DEVELOPMENT

The meeting concluded with a discussion of the clinical practice and research gaps identified by the panel of clinical experts following review of the case studies. These gaps guided the panel's identification of next steps to be taken in the development of an educational curriculum that will be integrated into ARHP's follow up STI CME activities.

CROSS-CUTTING ISSUES

- When is it cost-effective and appropriate to test asymptomatic patients for any of these infections? This issue could be addressed by adding an additional case, such as a young woman coming in for contraception to discuss the issue of screening for STIs or a 40-year-old woman presenting for an annual exam.
- What are the diagnostic tests that are optimal from a performance standpoint?
- What is the next best step if access to these tests not available?
- Optimize treatment by knowing the correct guidelines and available resources, as well as how to ensure or optimize patient and partner notification and treatment, Expedited Partner Therapy (EPT; see <http://www.cdc.gov/std/ept/default.htm> for additional information).
- Address the issue of when and whom to rescreen.
- Prevention should also be included and incorporated into all topics.
- Patient education is essential because all STIs are primarily transmitted by asymptomatic individuals or those who are unaware that they are infected. It would be very helpful to include a patient information page or points of information and/or messages, including links in other languages. Each module should include such a patient information page or link.

It would be helpful to include an explanation for why bacterial vaginosis is included. Both bacterial vaginosis and yeast are reproductive health infections. Sometimes bacterial vaginosis is associated with sex, and it is one of the most common conditions (similar to pelvic inflammatory disease) that is seen by clinicians as a reproductive health syndrome or infection. Bacterial vaginosis and yeast can be markers for herpes and HIV. The group suggested including bacterial vaginosis and yeast in the *Quick Reference Guide for Clinicians* but not in the curriculum and making it part of an introduction to the curriculum to increase awareness of the relationship between vaginal discharge and reproductive health.

It will be very important to address partner notification, testing, and treatment. It is important to reinforce the point that transmission of all STIs is primarily due to individuals who do not know that they are infected and/or to those who are asymptomatic. Screening, diagnosis, and treatment of STIs should involve both the patient and the partner. Having the same provider care for the patient and the partner can be particularly helpful in preventing further transmission or re-infection.

Suggested curriculum sections might include asymptomatic testing, diagnostic testing, treatment, and prevention (including counseling and patient information points). It was also recommended to include rescreening and its relationship with prevention (with specific information about what should be rescreened and when). The curriculum will also need to clarify the intersection between treatment and test of cure (e.g., which test to use at what

point and how good the test is). Use of incorrect testing methods may result in missed diagnoses.

It will also be necessary to distinguish between screening tests for asymptomatic patients versus diagnostic testing in symptomatic patients. This could be accomplished by including two cases, such as a younger (16-year-old), asymptomatic woman receiving IUD and an older (≥ 40 -year-old) woman who is divorced and is starting to date and become sexually active. The importance of providing counseling, as well as how to obtain a good sexual history, should be incorporated into the cases; other resources can then be referred to for additional information. The curriculum should identify two or three questions to ask without making it overly complicated for clinicians. Case studies are very effective strategies to teach clinicians how to obtain a good sexual history.

Partner violence and future plans for pregnancy are important topics to include in both the sexual history and prevention topics. In addition, it was noted that clinicians perform services if they are reimbursable. The Centers for Medicare and Medicaid Services reimburses for high-intensity behavioral counseling to prevent STIs; and clinicians should be aware of this fact, as well as of the Current Procedural Terminology (CPT) codes for other services associated with screening, diagnosis, prevention, counseling, and treatment of STIs.

The information included in the curriculum should not be presented in a linear fashion. Rather, it should be case based, like the spokes of a wheel, and made as comprehensive as possible. Case studies open up discussions with colleagues via the interactive webinars. Therefore, it will be important to build the issues that need to be covered into each of the cases. ARHP should not reinvent the wheel but should use available resources provided by committee members and *Contraceptive Technology*, e.g., the glossary and the wet-prep video from other resources. The curriculum should include links that are easy to access to obtain additional information about specific topics; clinicians do not need another list of resources.

There was some discussion about the development of applications that are easy for clinicians to access on their phone or tablet (iPad or Android). Case studies work well for webinars, but may not work as well as a smartphone app. The audience for this curriculum and the case studies are primary care providers who are addressing sexual and reproductive health issues. The curriculum must lend itself to ease of access and information that informs clinicians about the ways to proceed in specific clinical situations regarding sexual reproductive health. Clinicians like to be shown the way to the information they need, especially primary care providers who do not have expertise in STIs.

The ARHP *Clinical Minutes* provide clinicians with mini-bites of information about what to do in specific situations. Each *Clinical Minute* activity takes about 15 minutes for the participant to complete. Clinicians should have access to the full content through ARHP's slide share and Curriculum Organizer for Reproductive Health Education (CORE). It was noted that the ARHP webinars are useful and can prompt clinicians to use the computer to quickly access information about which test to use, find Fast Facts, identify risk factors, etc. However, many clinicians will not access webinars because they are not convenient with their schedules. It would be helpful if the webinars could be searchable ("point and click" or Google) for specific points to ease access to practical clinical information that clinicians need when their time is limited (e.g., how do a do a scraping, what test should be used for asymptomatic screening or for pharyngeal testing). This might lend itself to presenting the information as Frequently Asked Questions.

It was recommended that the curriculum should focus on the full breadth of sexual health. A partnership with American Sexual Health Association (ASHA) can facilitate this focus. This effort should normalize the conversation around sexual health and bring information to both clinicians and patients. It was also suggested that the ARHP might want to promote the concept of sexual reproductive health or wellness, while distinguishing this from sexual pleasure.

Gail Bolan noted that CDC will convene a meeting on the STI treatment guidelines from April 30 to May 2, 2013. Subject matter experts will write “straw man” documents based on reviews of the entire literature published since the last CDC guidelines were issued. Updated treatment guidelines are expected to be published by April 2014 (STD Awareness Month). ARHP will participate in this review process.

SUMMARY

- The findings from this meeting will guide the development of a curriculum, *Clinical Minutes*, and the *Quick Reference Guide for Clinicians*.
- Webinars will be conducted at the end of May and the beginning of June.
- The *Quick Reference Guide for Clinicians* will be a comprehensive resource that will cover all STIs.

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APPENDIX A
February 25, 2013 Consensus Meeting Agenda

- 10:30 – 10:45 **Welcome, goals, introductions, review of full agenda**
Geoffrey Knox, Chair
- 10:45 – 11:45 **Case study 1, 2, and 3: trichomoniasis/bacterial vaginosis**
Charlotte Gaydos, Mark Hathaway, Mimi Secor
- 11:45 – 12:45 **Case study 4 and 5: genital herpes**
Beth Kruse, H. Hunter Handsfield
- 12:45 – 1:15 Lunch
- 1:15 – 2:15 **Case study 6 and 7: gonorrhea/chlamydia**
Khalil Ghanem, Anne Cavett
- 2:15 – 3:15 **Overview of practice gaps and issues in treatment and counseling
to inform curriculum development**
All
- 3:15 – 3:30 **Next Steps**
All
- 3:30 Adjourn

APPENDIX B
February 25, 2013 Consensus Meeting Participant List
and Disclosures

Clinical Experts

Lynn Barclay

American Sexual Health Association
Research Triangle Park, NC
Ms. Barclay has nothing to disclose.

Gail Bolan, MD

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Dr. Bolan has nothing to disclose.

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Dr. Gaydos is a speaker for Hologic Inc., Becton Dickinson and Company, Abbott Laboratories, and Cepheid. She has received research funds from Hologic Inc., Becton Dickinson and Company, Abbott Laboratories, Cepheid, and Roche.

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Dr. Hathaway is a consultant for Bayer HealthCare Pharmaceuticals and speaker for Merck & Co., Inc.

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Ms. Kruse has nothing to disclose.

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Dr. Marrazzo has nothing to disclose.

R. Mimi Secor, MS, MEd, APRN, FNP-BC, FAANP

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Ms. Secor is a speaker for GenPath Diagnostic.

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Ms. Horn Kennedy has nothing to disclose.

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Mr. Knox has nothing to disclose.

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Dr. Mynett has nothing to disclose.

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Ms. Swann has nothing to disclose.