Question 1: 2007 Question 73: B

A vaginal discharge in a prepubertal girl frequently is accompanied by vulvitis. The evaluation of

vaginal discharge or vulvovaginitis in a prepubertal girl is guided by clues from the history and

findings on physical examination. The clinician must inquire about a history of sexual molestation or activity, including instrumentation, in all girls who have a vaginal discharge with or without genital pain, regardless of their age or pubertal status. Although less commonly encountered, clinicians evaluating males must remember that instrumentation of the penis may cause genital pain or urethral discharge. Documentation of a recent history of oral broad-spectrum antibiotic use is important because it increases the risk of candidal vulvovaginitis. The character of the discharge may suggest a specific cause: a green discharge with *Neisseria gonorrhoeae* and group A betastreptococcal infection; a malodorous discharge with a retained foreign body; and a bloody discharge with trauma, foreign body, and *Shigella* or group A beta*-*hemolytic streptococcal infections. Other important historical information includes recent infections, hygiene habits, masturbation, use of skin products, previous occurrences of vulvovaginitis, and prior treatments. Often no specific cause of vulvovaginitis is found for prepubertal girls, and the condition is attributed to poor hygiene. Causes of a specific vulvovaginitis in prepubertal girls include infections (respiratory and enteric pathogens, *Candida*, sexually transmitted diseases, and pinworms), foreign body, vulvar skin diseases (eg, lichen sclerosus, seborrhea, psoriasis, atopic dermatitis, contact dermatitis), and trauma (eg, excessive cleaning or masturbation).

Less common causes include systemic illnesses such as varicella and genitourinary

malformations such as an ectopic ureter that may cause perineal wetness. The physical examination of prepubertal girls who have vulvovaginitis should include an inspection of the external genitalia, including the perineum and anus. A speculum examination usually is not necessary; samples of vaginal fluid can be obtained with a saline-moistened swab through the hymenal opening, avoiding contact with the sensitive hymenal edges, or a vaginal wash for a wet preparation, potassium hydroxide preparation, and cultures. The knee-chest position in a cooperative child often allows adequate visualization of the vaginal canal for the discovery of retained foreign bodies. If a foreign body is found, removal followed by sitz baths to clear residual symptoms is adequate treatment. Culture of the discharge for respiratory pathogens is not necessary. A perianal adhesive tape test is performed if a pinworm infestation is suspected as cause of vulvovaginitis associated with pruritus or excoriations. Sitz baths and application of an estrogen cream may be prescribed for persistent nonspecific vulvovaginitis, but would not be appropriate for a patient who has a foul-smelling discharge that is suggestive of a foreign body without inspection of the vaginal canal. Vulvovaginitis that is not associated with other signs or symptoms to implicate the urinary system is an unlikely presentation of a urinary tract infection, so obtaining a urine specimen for culture and sensitivity is not appropriate.

Question 2: 2010 Question 88: A

Vaginitis in the adolescent, unlike the prepubertal child, usually has a specific cause. A vaginal discharge may be the presenting symptom for cervicitis or a vaginitis and usually is related to a sexually transmitted infectious agent. The characteristics of the discharge for the patient described in the vignette and the results of the microscopic examination of vaginal secretions suggest that she has a *Trichomonas vaginalis* infection. A physiologic discharge, which is the result of increasing estrogen concentrations during puberty, is whitish and mucoid and occurs without other symptoms. The characteristics of the discharge change during the menstrual cycle, becoming more copious and watery at mid-cycle and stickier and scantier in the second half of the cycle. *T vaginalis* causes a white or yellow frothy discharge and, occasionally, punctuate hemorrhages on the cervix. It may be associated with pruritus. *Candida* vaginitis results in a milky-to-curdy discharge that also is associated with pruritus. Bacterial vaginosis, which may not be sexually transmitted, results in a malodorous, grayish discharge. Rarely, a foreign body, such as a retained tampon, may be the cause of a discharge that is foul-smelling and bloody. Cervicitis results in a visible discharge at the external cervical os and typically is caused by *Neisseria gonorrhoeae, Chlamydia trachomatis,* or herpes simplex virus. Because most of these conditions are sexually transmitted, an important part of the treatment plan is the need to treat the patient's partner. Many sexually transmitted infections, including *Chlamydia*, gonorrhea, and syphilis, require notification of the local public health department when the laboratory results are obtained, but this is not universally so for *T vaginalis*. The practice of douching should be discouraged because it alters the vaginal pH and the normal flora, increasing the risk of acquiring infections. Pelvic ultrasonography may help in the staging of pelvic inflammatory disease, but it is not otherwise helpful for diagnosing vaginitis or cervicitis. A change in vaginal pH and the presence of clue cells are two of the diagnostic criteria for bacterial vaginosis. The presence of white blood cells indicates an infection and is common with a trichomonal infection; hyphae indicate a candidal infection. Cystitis is common after the onset of sexual activity. One previous infection, however, does not warrant a follow-up culture.

Question 3: 2009 Question 56: D

Although the proportion of teenagers reporting sexual activity has dropped and adolescent

pregnancy rates have declined in recent years, the US still has the highest adolescent

birth rate among comparable developed countries. Most adolescent pregnancies occur among

older adolescents (ie, 18 and 19 year olds), and young women in this age group have a lower

risk of medical complications involving the mother or child than those younger than 17 years of

age. The adverse consequences of adolescent pregnancy are myriad, including school

interruption, persistent poverty, limited vocational opportunities, separation from the father of the

baby, divorce, and repeat pregnancy. Poverty is an important factor correlated with adolescent

pregnancy, with as many as 83% of adolescents who gave birth and 61% of adolescents who

had abortions coming from poor or low-income homes compared with 38% of nonpregnant

adolescent females. Adolescent fathers have been shown to have similar outcomes to

adolescent mothers, with a higher likelihood of having poor academic performance, higher

school drop-out rates, and decreased income potential compared with their peers who are not

fathers. In an attempt to decrease adolescent child-bearing rates as well as unsafe sexual practices, every pediatrician should integrate sexuality education into clinical practice with children from early childhood through adolescence. Pediatricians also should consider participating in development and implementation of sexuality education curricula for schools or public efforts.

Question 4: 2006 Question 123: C

The presentation and the ultrasonographic finding of the girl described in the vignette are very suspicious for ovarian torsion. Laparoscopic examination can confirm the diagnosis expeditiously and exclude other surgical conditions. The torsed fallopian tube/ovary can be untwisted laparoscopically to prevent necrosis of the ovary. An oophorectomy also can be performed laparoscopically if the ovary cannot be salvaged. Doppler flow ultrasonography can be helpful, especially if the history and examination findings are equivocal; absence of unilateral blood flow is consistent with ovarian torsion. However, valuable time should not be lost obtaining additional tests, including computed tomography (CT) and magnetic resonance imaging (MRI). CT, like ultrasonography, may identify an ovarian mass, but it cannot confirm the diagnosis of torsion. An MRI also may be effective, but is more costly, time-consuming, and generally less available on an emergent basis. CT and MRI are useful in the further evaluation of a solid mass. Although free fluid in the pelvis might be observed on ultrasonography, culdocentesis to analyze this fluid would not confirm the diagnosis of ovarian torsion. Surgical removal of the ovary may be necessary if it has become necrotic, but untwisting of the fallopian tubes almost always should be attempted. Other gynecologic causes of acute abdominal pain include ruptured ovarian cysts and hemorrhage from or into a tumor or cyst. However, ovarian cysts or tumors in prepubertal girls often present as asymptomatic masses or an increase in abdominal size. Ectopic pregnancy, pelvic inflammatory disease (PID), endometriosis, endometritis, and threatened or spontaneous abortion are other gynecologic causes of acute abdominal pain in the pubertal girl. A pregnancy test is an essential part of the evaluation of acute abdominal pain. PID usually presents with an associated vaginal discharge in sexually active adolescents. Fitz-Hugh-Curtis syndrome (perihepatitis) is a cause of upper right quadrant abdominal pain associated with the sexually transmitted infections of Neisseria gonorrhoeae and Chlamydia trachomatis that may occur with or without lower abdominal pain. Gynecologic causes of chronic abdominal pain include ovarian tumors or cysts, endometriosis, and the sequelae of PID (tubo-ovarian abscess/complex). Outflow tract obstruction caused by congenital anomalies (eg, imperforate hymen, transverse vaginal septum, bicornuate uterus with an obstructed horn) may present with cyclic or chronic pain. Primary dysmenorrhea is cyclic, recurrent abdominal pain associated with menses. Endometriosis presents as an increasing severity of chronic pelvic pain that may be cyclic or acyclic. Mittelschmerz associated with ovulation is mid-menstrual cycle pain that often is recurrent.

Question 5: 2006 Question 155: A

The patient described in the vignette may have a newly acquired infection with Chlamydia trachomatis or persistence of the prior infection due to lack of adherence to a 7-day course of doxycycline. Regardless, regimens for the treatment of chlamydia infection recommended by the Centers for Disease Control and Prevention (CDC) apply to this patient. Recommended regimens from the 2002 CDC Sexually Transmitted Disease (STD) Treatment Guidelines are: azithromycin l g orally in a single dose or doxycycline 100 mg orally twice a day for 7 days.

Alternative regimens are: erythromycin base 500 mg orally four times daily for 7 days, erythromycin ethylsuccinate 800 mg orally four times a day for 7 days, ofloxacin 300 mg orally twice a day for 7 days, or levofloxacin 500 mg orally once daily for 7 days. Azithromycin and doxycycline are equally efficacious, but azithromycin is more expensive. The single-dose treatment with azithromycin, however, is appealing, especially if the medication can be administered to the patient during a medical care visit. Erythromycin is not as efficacious as

azithromycin, and common gastrointestinal adverse effects and the dosage schedule of four times a day for 7 days hinder patient adherence. Ofloxacin and pharmacologically similar levofloxacin also are expensive and require 7 days of treatment. Ciprofloxacin 500 mg orally in a single dose is a recommended regimen for uncomplicated gonococcal infections of the cervix, urethra, and rectum; it is not effective against chlamydia. Repeat treatment with doxycycline is an acceptable choice, although the recommended duration of therapy remains at 7 days. The alternative regimens of erythromycin require a dosage schedule of four times a day. All of the alternative regimens, including ofloxacin, require a 7-day duration of treatment, not 14 days. In addition to specific therapy, the patient’s sexual contacts during the 60 days preceding the onset of symptoms or diagnosis should be evaluated and treated. The STD Treatment Guidelines and updates are available online at the CDC website.

Question 6: 2009 Question 88: A

Urethritis can have infectious and noninfectious causes. Symptoms include mucopurulent or

purulent discharge, dysuria, and urethral pruritus. Several organisms, including *Neisseria*

*gonorrhoeae* and *Chlamydia trachomatis*, cause urethritis. *Ureaplasma urealyticum*,

*Mycoplasma genitalium*, *Gardnerella vaginalis*, herpes simplex virus, adenovirus, and

*Trichomonas vaginalis* are implicated in nonchlamydial, nongonococcal urethritis (NGU), but

they are more difficult to detect than *N gonorrhoeae* and *C trachomatis*.

The constellation of conjunctivitis, urethritis, and arthritis reported for the young man in the

vignette represents the classic symptoms of a form of reactive arthritis once called Reiter

syndrome. The term reactive arthritis refers to rheumatic disorders that appear after an

infection, but in which the responsible pathogen is not detected in the affected joint. *C*

*trachomatis* is the only genital pathogen commonly accepted to be a cause of reactive arthritis.

*N gonorrhoeae* can cause septic arthritis or disseminated gonococcal infection (ie, a rash and

tenosynovitis) but does not produce reactive arthritis. Although *T vaginalis* and *G vaginalis* may

cause urethritis, they do not produce the other symptoms exhibited by the boy described in the

vignette. Syphilis, caused by infection with *Treponema pallidum*, may affect bones congenitally

(osteochondritis) or in late stages of the disease (with gummas, granulomatous lesions that

involve bones as well as soft tissue or viscera) but does not produce urethral discharge or

conjunctivitis. Reactive arthritis caused by *C trachomatis* is treated with a single 1-g oral dose of

azithromycin or with 100 mg doxycycline orally twice a day for 7 days, after testing for both *N*

*gonorrhoeae* and *C trachomatis* is completed. This is also the recommended regimen for all

NGUs. First-line treatment of uncomplicated gonococcal urethritis is accomplished with

ceftriaxone 125 mg intramuscularly or cefixime 400 mg orally, both in a single dose.

Question 7: 2010 Question 168: D

An increased serum alkaline phosphatase (SAP) value on a liver function test panel in an adolescent, as reported for the boy in the vignette, often is the result of rapid bone growth during the pubertal growth spurt. Therefore, it is important to correlate the value with the Sexual Maturity Rating (SMR) rather than with chronologic age. The highest mean SAP concentrations in girls occur at SMR 2 and in boys at SMR 3, coinciding in each instance with peak height velocity and presumed maximum osteoblastic activity. Osteoblasts, by creating a local environment of alkalinity via alkaline phosphatase, help build bone. With increasing SMR or age, the SAP values in both sexes decrease markedly. During some growth spurts, concentrations can be as high as 500 international units (IU)/L. Although the normal range for alkaline phosphatase in adults is approximately 20 to 140 international units/L, the normal range for children and adolescents varies with age, sex, sexual maturity, and reference laboratory. Thus, it is important to consult with your laboratory regarding normal values. The isoenzyme test can reveal whether an elevation of SAP is from bone or liver, but this test is not widely available.  
Pathologic causes of increased SAP include diseases of the liver or bile duct, gallbladder dysfunction, pregnancy, drugs (eg, phenytoin), skeletal disease, or endocrine disorders such as hyperparathyroidism. Normal concentrations of liver enzymes suggest a nonhepatic cause of SAP elevation and rule out infectious hepatitis and inflammatory bowel disease with hepatic involvement. Bone pathology (eg, osteosarcoma) presents with higher SAP values than reported for this boy along with other symptoms (eg, limb pain) and signs (eg, swelling). Elevated SAP concentrations do not occur in viral gastroenteritis.

Question 8: 2010 Question 152: E

Hormonal methods of contraception are associated with health benefits beyond pregnancy prevention. An understanding of the noncontraceptive benefits of these birth control methods can increase compliance and continuation of use, thus decreasing unplanned pregnancy. The noncontraceptive benefits include a decrease in ovarian cyst formation as well as ovarian, endometrial, and colorectal cancer. They offer some protection against salpingitis and ectopic pregnancies and decrease benign breast disease and acne. They also decrease dysmenorrhea and menorrhagia, reduce iron deficiency anemia and osteoporosis, and decrease the symptoms of polycystic ovarian syndrome. Accordingly, the girl described in the vignette may experience relief of her dysmenorrhea and some improvement in her acne with oral hormonal contraception. Diuretics have been used for the treatment of bloating and weight gain associated with menstruation. Spironolactone, a potassium-sparing diuretic and androgen receptor blocker, has achieved the greatest popularity, largely as a result of specific properties that make this agent uniquely suited to hormonally based disorders. Other diuretics have been tried for treatment of premenstrual syndrome, with variable success in alleviating water retention symptoms. However, diuretics are not effective in the management of dysmenorrhea.  
Acetaminophen does not target the prostaglandins causing menstrual cramps. Early evidence suggested possible benefits of fish oil/omega-3 fatty acids for women who have dysmenorrhea, but further studies are required to confirm these findings. Isotretinoin is indicated for nodular acne or severe acne that is unresponsive to conventional therapies but would not improve dysmenorrhea.

Question 9: 2010 Question 72: D

Contraceptive efficacy usually is expressed as the percentage of women experiencing an unintended pregnancy during the first year of use. Among couples who initiate use of a method (not necessarily for the first time) and who use it *perfectly* (both consistently and correctly), effectiveness is expressed by the percentage who experience an accidental pregnancy during the first year if they do not stop use for any other reason. The effectiveness with typical use usually is lower than for perfect use for most methods. In addition to nonadherence to a recommended regimen, a number of women discontinue a method within the first year. The use of intrauterine devices (IUDs) in adolescents has been re-evaluated, and the newer IUDS are considered effective and safe (without increased risk of pelvic inflammatory disease or infertility). Their effectiveness (0.2%) approaches that of sterilization. Another effective (0.05%) long-acting method is the single-rod progesterone-only device for subcutaneous implantation. Although the initial cost for these two methods is high, when averaged over the 5 years of effectiveness for IUDs and 3 years for the implantable device, the cost is lower than other hormonal methods. In addition to the initial cost, the other disadvantage is an initial period of irregular bleeding that can last for a few months with both the IUD and the single rod device.  
Combined hormonal contraception is available in various delivery forms: pills, a patch, and an intravaginal ring. They are all highly effective with perfect use (0.3%), but difficulties with adherence and continuation make them less effective in typical use (8%). For example, only 68% of women, on average, are still using these methods 1 year after initiation. Depomedroxyprogesterone acetate (DMPA) injection every 3 months is as effective as combined hormonal methods with perfect use (0.3%) but has higher effectiveness with typical use (3%). Compliance only requires that the adolescent return to the office four times a year for an injection. A new approach to increasing effectiveness of DMPA and combined hormonal contraceptives is to begin the use of these methods at the time of the office visit. Previously, users were instructed to wait for their menstrual periods to begin using the pill to be sure they were not pregnant. Studies indicate that this is not necessary if the pregnancy test result is negative and the patient is asymptomatic at the time of the visit. One study among DMPA users demonstrated that this approach was associated with a decrease in the unintended pregnancy rate. Female and male condoms are less effective than hormonal methods when used as sole methods of contraception with both perfect use (5% and 2%, respectively) and typical use (21% and 15%, respectively). However, adjunctive condom use should be encouraged to prevent sexually transmitted infections.

Question 10: 2010 Question 120: A

The patient described in the vignette has bacterial vaginosis, based on the presence of three of the four Amstel diagnostic criteria. The four criteria are: a thin, homogenous, gray-white discharge uniformly adherent to the vaginal walls; a vaginal pH greater than 4.5; a positive whiff test (fishy or amine odor on addition of 10% potassium hydroxide); and more than 20% clue cells on microscopic examination. Clue cells are epithelial cells that are coated with bacteria, creating a granular appearance. The presence of three or more of the criteria indicates the presence of bacterial vaginosis. Bacterial vaginosis is not sexually transmitted, although it is associated with sexual activity. Because it is not inflammatory, no white blood cells are seen on microscopy. It is caused by overgrowth of several anaerobic bacterial species (eg, *Mobiluncus* and *Gardnerella vaginalis*) and a decrease in hydrogen peroxide-producing *Lactobacillus*. Although often asymptomatic, affected patients may complain of a malodorous discharge. Douching may increase the risk of bacterial vaginosis by causing changes in the vaginal flora and disturbing the vaginal protective systems, which are based on hydrogen peroxide-producing lactobacilli. Such disruption of the vaginal microbiology permits overgrowth of the anaerobic and aerobic bacteria responsible for bacterial vaginosis. Because bacterial vaginosis has been linked to the acquisition of human immunodeficiency virus, preterm delivery, pelvic inflammatory disease, and other adverse effects, douching could play an important role in multiple health problems among sexually active women. When examining a patient who complains of a vaginal discharge, it is important to view the cervix. Purulent discharge at the cervical os and easy bleeding of the cervix when swabbed (friability) suggests cervicitis rather than vaginitis. Cervicitis is caused by *Chlamydia trachomatis, Neisseria gonorrhoeae,* and herpes simplex virus. Vaginal candidiasis usually presents as a pruritic, thick, white or milky discharge. Physiologic discharge, (leucorrhea) is asymptomatic and associated with normal findings on microscopy. Contact of the vaginal mucosa with certain chemicals (eg, soaps or bubble baths) may result in complaints of vaginal burning or swelling. These symptoms also may be related to an allergic reaction (eg, to latex) or to irritation as with tight clothing. On inspection, there may be slight redness of the vaginal mucosa, with an increase in normal discharge.

Question 11: 2006 Question 251: B

The World Health Organization (WHO) has developed guidelines to help determine medical eligibility for the use of hormonal contraceptives for patients who have coexisting medical conditions. Recommendations for the use of different groups of contraceptives are divided into four categories:

Category One: No restrictions

Category Two: Advantages usually outweigh disadvantages and indicate general use

Category Three: Use usually is contraindicated unless there are no other contraceptive options available or acceptable

Category Four: The method should not be used Medical conditions that are classified as WHO CategoryFour (absolute contraindications) for the use of combined estrogen-progestin oral contraceptives (COC), the patch, or ring contraceptives by adolescents include:

* Breastfeeding and less than 6 weeks postpartum
* Severe hypertension (systolic >160 or diastolic >100 mm Hg)
* Deep vein thrombosis
* Pulmonary embolism
* Surgery with prolonged immobilization
* Known thrombogenic mutations (eg, factor V Leiden, protein S, protein C, antithrombin deficiencies)
* Stroke
* Vascular disease
* Ischemic heart disease
* Complicated valvular heart disease
* Migraine with aura
* Breast cancer
* Complicated diabetes (eg, nephropathy, vascular disease)
* Active viral hepatitis
* Liver tumors

Diabetes, with or without a history of ketoacidosis, is not an absolute contraindication for the use of COCs, the patch, or ring contraceptives. However, women who have serious complications of diabetes, such as nephropathy or vascular complications, or other WHO Category Four coexisting conditions are not candidates for use. The presence of benign breast disease, including fibroadenoma, is a WHO Category One medical condition, and use is not restricted. Although a seizure disorder is not an absolute contraindication, certain antiepileptic drugs may reduce the efficacy of COCs, the patch, and ring contraceptives. Treatment with phenytoin,

carbamazepine, barbiturates, primidone, topiramate, and oxcarbazepine is classified as WHO Category Three in which use generally is contraindicated. Of note, valproate, ethosuximide, vigabatrin, and lamotrigine do not affect efficacy. COCs are not contraindicated in dysmenorrhea and, in fact, may be beneficial for this condition. The use of COCs is

not applicable if an adolescent is pregnant; inadvertent use during pregnancy has no known harm to the mother, the pregnancy, or the fetus. Although unexplained vaginal bleeding should be evaluated appropriately, the initiation of COC is not contraindicated.

Question 12: 2007 Question 201: A

Pediatricians should be aware that some adolescents may have concerns about their sexual

orientation or that of siblings, friends, parents, or other relatives. Likewise, parents may have

questions or concerns about the sexual orientation of their children. The term “sexual

orientation” refers to an individual’s pattern of physical and emotional arousal toward other

persons. Homosexual individuals are attracted to persons of the same sex. Gender identity is

the knowledge of oneself as being male or female. Sexual orientation is not synonymous with

sexual activity or sexual behavior. Homosexual individuals may engage in sexual

activities/behaviors with persons of the same or opposite sex. Sexual orientation, which is

biologically based, is not determined by any one factor, but by a combination of genetic,

hormonal, and environmental influences. Theories that adverse life events (eg, abnormal

parenting, sexual abuse) influence sexual orientation have not been substantiated. Homosexual

youth are at a higher risk of school drop-out, homelessness, and substance abuse. They also

are more likely to be threatened at school. Homosexual males are more likely to attempt suicide

than heterosexual males. Although sexual orientation is believed to be established in early childhood, a time when homosexual individuals experience a sense of being different, a self-awareness of homosexual identity develops during the adolescent years. Cultural taboos or social intolerance may inhibit homosexual disclosure and behavior, but same-sex experimentation in early adolescence is not uncommon and is not a marker for homosexuality. Sexual behavior/activity is a choice; sexual orientation is inherent and is not a choice.

Sexuality education should be an integrated component of comprehensive health care and

the longitudinal relationship that pediatricians develop with children, adolescents, and their

families. During the early adolescent years, both adolescents and their parents will have

questions about puberty and sexuality that offer counseling opportunities. Important points for

pediatricians who are counseling parents about their adolescent’s emerging sexuality are listed

in Item C201A.

Parents should be encouraged to allow their fifth and sixth grade children to participate in

school sexual health education programs that provide information about puberty and balance

abstinence messages with decision making, including contraception and sexually transmitted

disease prevention strategies. Successful programs provide opportunities for young

adolescents to practice communication and negotiation skills and include information about

access to services.

Question 13: 2009 Question 72: A

Candidal vulvovaginitis is a common problem for young women and usually is caused by

*Candida albicans*, although other candidal species also may be involved. Typical symptoms of

vulvovaginal candidiasis include a thick, white, creamy vaginal discharge; pruritus; vaginal

discomfort; dyspareunia; and external dysuria. The diagnosis is suggested clinically by the

previously noted symptoms and the presence of vulvar swelling, erythema, and fissures or

erosions, as described for the girl in the vignette. The diagnosis may be confirmed by a wet

preparation or Gram stain showing pseudohyphae or yeasts (Item C72A) or by culture.

*Chlamydia trachomatis* and *Neisseria gonorrhoeae*, both of which may present with

abnormal vaginal discharge, produce cervical, not vaginal infections. *C trachomatis* and *N*

*gonorrhoeae* infections can be asymptomatic, but they often present with a yellowish purulent or

mucopurulent endocervical discharge, friability of the endocervix, and cervical motion

tenderness; vulvar inflammation does not occur. Group A *Streptococcus* (S pyogenes) is a

respiratory pathogen that can cause vaginitis in prepubertal girls, but rarely causes vaginal

discharge in the adolescent. Infection with *Trichomonas vaginalis* usually causes a diffuse,

malodorous, yellow-green vaginal discharge (Item C72B) with vulvar irritation, although some

affected women can have minimal or no symptoms.

Question 14: 2007 Question 57: D

Fitz-Hugh-Curtis syndrome, a perihepatitis, is a complication of pelvic inflammatory disease

(PID) associated with chlamydial or, less commonly, gonococcal infections. The perihepatitis

involves the liver capsule and surrounding peritoneum and presents as right upper quadrant

pain, as described for the girl in the vignette. The diagnosis of Fitz-Hugh-Curtis syndrome initially may be overlooked because of the absence of associated lower abdominal symptoms. Right upper quadrant pain coupled with a high index of suspicion, evidence of PID, and lack of

evidence for hepatitis, gallbladder disease, or pancreatitis form the basis for diagnosing Fitz-

Hugh-Curtis syndrome. For the patient in the vignette, the most appropriate next step in

evaluation of the pain is a pelvic examination for signs of salpingitis or PID (eg, cervical motion

tenderness, adnexal tenderness, vaginal discharge).

Although rarely necessary, in challenging cases, laparoscopic visualization of the liver can

provide a definitive diagnosis of Fitz-Hugh-Curtis syndrome. Grayish granular exudates on the

anterior surfaces of the liver and adjacent peritoneum are characteristic of an acute

inflammatory process, and “violin stringlike” adhesions are characteristic of a chronic response

associated with Fitz-Hugh-Curtis syndrome. Treatment is with the same regimens

recommended for PID, and a significant improvement of the right upper quadrant pain is

expected within 24 to 48 hours. A hydrogen breath test is particularly useful for the evaluation of lactose intolerance in adolescents who have recurrent abdominal pain. Computed tomography scan of the liver is useful for detecting discrete lesions such as tumors, abscesses, and cysts, which are not likely causes of the adolescent’s pain. Hepatobiliary scintography (study of radionuclide uptake in the liver and excretion in the bile) is particularly helpful for differentiating intrahepatic cholestasis from extrahepatic obstruction in infants. After a pelvic examination has established the absence of signs or symptoms of PID, ultrasonography of the abdomen often is indicated to investigate other causes of right upper quadrant pain (subphrenic abscess, renal stones, and appendicitis).

Question 15: 2010 Question 248: D

Pelvic inflammatory disease (PID) is difficult to diagnose because of the spectrum of symptoms and signs. Many women have mild or nonspecific symptoms or signs. Laparoscopic examination is the most precise method to make the diagnosis but is invasive and not indicated for most patients. In a woman complaining of lower abdominal pain, the minimum criterion to make the diagnosis on pelvic examination is cervical motion tenderness, uterine tenderness, or adnexal tenderness. The girl described in the vignette meets the criterion for PID. Additional criteria used to support the diagnosis include an oral temperature greater than 38.4°C, mucopurulent cervical discharge, presence of numerous white blood cells on saline microscopy of vaginal secretions, an elevated erythrocyte sedimentation rate, elevated C-reactive protein value, and laboratory documentation of cervical infection with *Neisseria gonorrhoeae* or *Chlamydia trachomatis*.To reduce damage to the reproductive tract, empiric treatment for PID should be initiated in sexually active young women at risk for sexually transmitted infections if they are experiencing pelvic or lower abdominal pain, no cause of the illness other than PID can be identified, and they have the minimum criteria outlined previously. The identification of *N gonorrhoeae* or *C trachomatis* from a cervical specimen would support the diagnosis of PID in the girl described in the vignette. Newer tests, employing nucleic acid amplification of DNA or RNA from these organisms, are more sensitive than cultures and are specific. In addition to cervical swab specimens, these tests can be performed on urine and vaginal swab specimens. Transcription-mediated amplification also can be used to test self-obtained vaginal swabs for *C trachomatis* and *N gonorrhoeae*. Findings on complete blood count and erythrocyte sedimentation rate are nonspecific. Pelvic ultrasonography generally is performed if the diagnosis of PID is in question or a complication is suspected. Ultrasonography may yield normal findings, particularly early in the disease process, or reveal thickened or fluid-filled fallopian tubes, with or without free fluid in the pouch of Douglas. Pelvic ultrasonography also can identify a tubo-ovarian complex, suggesting pelvic infection. Gram stain of cervical discharge to detect gonococcal infection provides nonspecific information because gram-negative diplococci may represent *N vaginalis*, part of the normal flora. Urine and blood cultures are only helpful to rule out other diagnoses.

Question 16: 2010 Question 205: A

The patient described in the vignette has acute infectious mononucleosis (IM), the most common cause of which is Epstein-Barr virus (EBV), a herpesvirus. Humans are the only source of EBV, and close personal contact is needed for transmission. The spectrum of disease manifestations is wide, ranging from asymptomatic to fatal infection. Infections frequently are unrecognized in infants and young children. Classic IM is an acute illness characterized by the clinical findings of exudative tonsillopharyngitis, fever, lymphadenopathy, and hepatosplenomegaly. Anorexia, malaise, myalgias, and fatigue are common associated symptoms. Nonspecific tests for heterophile antibodies frequently are used for diagnosis. The heterophile antibody response is a transient immunoglobulin M response that is present in about 85% to 90% of cases of EBV IM in adolescents and adults. The antibody appears during the first 2 weeks of illness and gradually disappears over a 6-month period. The results of heterophile antibody tests are often negative in children 4 years of age and younger. Serologic testing is used routinely for the detection and diagnosis of EBV infection.

Treatment of IM is primarily supportive. The patient's level of activity is tailored to what he or she can tolerate comfortably. Bed rest may be needed, but there is no specific recommendation for its use and little evidence to support that this shortens the course of disease or prevents complications. Contact sports should be avoided until the patient is fully recovered and the spleen no longer is palpable. Neither ampicillin nor amoxicillin should be given to patients who have suspected mononucleosis because their use is associated with the development of a nonallergic morbilliform rash in a large proportion of patients, leading to an incorrect suspicion of allergy. Most importantly, antibiotics do not treat the infection. The routine use of corticosteroids in patients who have IM is not recommended. A short-course of corticosteroids may be considered only for those who have marked tonsillar inflammation with impending airway obstruction, massive splenomegaly, myocarditis, hemolytic anemia, or hemophagocytic syndrome. Even though acyclovir has in vitro antiviral activity against EBV, this agent has no proven value in the treatment of IM.

Question 17: 2006 Question 43: D

The 15-year-old girl described in the vignette presents with signs and symptoms consistent with a clinical diagnosis of pelvic inflammatory disease (PID). Adolescents have the highest rates of PID, a polymicrobial infection in which sexually transmitted organisms, particularly Chlamydia

trachomatis and Neisseria gonorrhoeae, often are implicated. Treatment should be initiated as soon as a presumptive diagnosis is reached. A pregnancy test needs to be performed, as was done for the girl described in the vignette, because PID during pregnancy is an indication for hospital admission, and an ectopic pregnancy can mimic PID. An examination and testing for other sexually transmitted diseases (STDs) is important because of the high risk of having a coinfection. This would include a careful physical examination that may disclose lesions of other STDs (eg, human papillomavirus [HPV] and herpes simplex virus [HSV]), microscopic examination of the discharge for evidence of trichomoniasis and bacterial vaginosis, and screening tests for human immunodeficiency virus infection and syphilis (eg, reactive

plasma reagin). Blood cultures are not useful in the evaluation of patients who have the classic clinical picture of PID. The infection involves the upper genital tract and may be complicated by a tubo-ovarian abscess, pyosalpinx, or perihepatitis rather than by sepsis. An HPV nucleic acid test is not indicated in the evaluation of this patient; visual inspection is adequate to diagnose external genital warts in most circumstances. However, HPV typing may be appropriate if results of a Papanicolaou smear are abnormal. Laparoscopic examination is not recommended routinely for the diagnosis of PID. Laparoscopy may be required for the evaluation of atypical

presentations, treatment failures, and surgical emergencies. Nonspecific serum antibodies to HSV would not be helpful in the evaluation of this patient. The diagnosis of genital herpes

infection (HSV-2) is based on the clinical finding of vesicular or ulcerative lesions and confirmed by culture or type-specific glycoprotein G2 antibodies.

Question 18: 2010 Question 56: A

Adolescence is a time of exploration and risk-taking, especially during the middle adolescent stage of psychological development. Certain risky behaviors may result in fatal consequences. The three leading causes of death in the 11- to 21-year-old age group are vehicular injuries, homicide, and suicide. The word "injury" is preferred over "accidents" because the word accident implies that the event is not preventable. Health-care professionals should direct their anticipatory guidance for adolescents to encouraging behaviors that promote safety and injury prevention. In the area of automobile safety, parents should be encouraged to enforce a policy of not drinking or using drugs while driving and avoiding distractions, such as the use of cell phones. In addition, they should familiarize themselves with the Graduated Driver License Law, if any, in their state and require their children to adhere to the law when they are either a driver or passenger in a motor vehicle. Exposure to violence increases the risk for homicide, aggressive behaviors, and mental health issues. All adolescents should be screened for violence exposure to identify those in need of further intervention. Clinicians should ask parents and adolescents about the presence of firearms in the home and discuss measures to enhance safe storage. Preventing injuries during sports activities is the shared responsibility of adolescents, parents, physical education teachers, and coaches. Using protective equipment (eg, bicycle helmets), limiting the duration of repetitive activities, setting an appropriate pace, and refraining from the use of ergogenic aids are all important issues to address.

Question 19: 2009 Question 104: D

Confidentiality and consent issues related to adolescents are often complex and problematic.

Confidentiality is defined as an agreement between the patient and clinician that medical

information will not be shared without the patient's explicit permission. For the girl described in

the vignette, confidentiality must be breached with parental notification due to the serious nature

of her threat to herself. Such breaching of confidentiality also would be necessary if she posed a

threat to others. Parental notification is not necessary for billing purposes. However, confidentiality may be breached inadvertently by billing procedures, such as parents receiving an explanation of benefits document. The physician should explain such possible breaches and work with the adolescent to avoid them. Informed consent has the vital components of being given voluntarily, the patient having all of the information necessary to make an informed decision, and the individual being capable of making a decision based on the information provided. All states require parental consent for medical care for minors, with some notable exceptions, including emergency care; care for the "emancipated minor"; and care related to certain conditions such as pregnancy, sexually transmitted infections, contraception, substance abuse, and mental illness. The exceptions vary by state. An emancipated minor is a legal status existing for minors who are living apart from parents and are financially independent, but this designation varies among states, and some states do not have this legal designation. Marriage, parenthood, military service, and living independently are common criteria for the emancipated status. Generally, this status allows a minor to consent for all health care. A "mature minor" is one who is deemed by a physician as capable of giving the same degree of consent for treatment as an adult, provided the treatment is low-risk. The mature minor rule may be used in states where no state law regarding minor consent exists. The girl described in the vignette is not financially independent from her parents and, as a result, cannot be considered emancipated. Because her condition and treatment are not low-risk, the mature minor principle would not apply. The Health Insurance Portability and Accountability Act (HIPAA) of 1996 protects the confidentiality of adolescents who are considered minors under some circumstances. Parents and guardians have control over health information access for nonemancipated minors, except in situations in which minors are able to consent to their own health care. HIPAA defers to state laws that allow or prohibit disclosure of confidential information to parents. HIPAA allows a physician to disclose information to a parent if a state law requires the physician to do so. If the state law permits, but does not require, disclosure to a parent, HIPAA allows the physician discretion to disclose. If state law prohibits the disclosure of information to a parent, disclosure must not be made without the minor's permission. If there is no state law in place, the physician has discretion to disclose or not to a parent. For the girl described in the vignette, disclosure is necessary due to the health threat, not by any HIPAA regulation. The Center for Adolescent Health and the Law has published a compendium of state laws that addresses confidentiality and consent and allows clinicians to determine the specifics of the law in their own state of practice.

Question 20: 2010 Question 8: B

Both the American Medical Association's Guidelines for Adolescent Preventive Services and Bright Futures recommend that all adolescents should be asked annually about involvement in sexual behaviors that may result in unintended pregnancy and sexually transmitted infections (STIs), including human immunodeficiency virus infection. In addition to annual screening, the possibility of a pregnancy or an STI should be considered at every visit with an adolescent, and the last menstrual period should be documented.  
The laboratory results for this girl rule out hepatitis, including that caused by mononucleosis, and biliary tract obstruction. Fitz-Hugh-Curtis syndrome or perihepatitis presents as right upper quadrant pain that results from inflammation of the liver capsule from ascending pelvic infection. Although typically associated with salpingitis, it can exist without other signs of pelvic inflammatory disease and may mimic other abdominal emergencies. The absence of fever and the location of pain for this girl make pyelonephritis unlikely. Pyuria raises the possibility of urethritis, which commonly occurs with *Neisseria gonorrhoeae* and *Chlamydia trachomatis* infections. *C trachomatis* can cause inflammation of the genital tract without the classic symptoms and signs of pelvic inflammatory disease. Often, heavier menstrual flow may be the only symptom.