

Adolescent and Young Adult Male Health: A Review

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KEY WORDS

adolescent health, young adult, male, sexual and reproductive health, gender

ABBREVIATIONS

AAP—American Academy of Pediatrics

CDC—Centers for Disease Control and Prevention

MSM—men who have sex with men

STI—sexually transmitted infections

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This is the first article in our series on Adolescent Health.

abstract

Adolescent and young adult male health receives little attention, despite the potential for positive effects on adult quality and length of life and reduction of health disparities and social inequalities. Pediatric providers, as the medical home for adolescents, are well positioned to address young men's health needs. This review has 2 primary objectives. The first is to review the literature on young men's health, focusing on morbidity and mortality in key areas of health and well-being. The second is to provide a clinically relevant review of the best practices in young men's health. This review covers male health issues related to health care access and the Centers for Disease Control and Prevention's Healthy 2020 objectives for adolescents and young adults, focusing on the objectives for chronic illness, mortality, unintentional injury and violence, mental health and substance use, and reproductive and sexual health. We focus, in particular, on gender-specific issues, particularly in reproductive and sexual health. The review provides recommendations for the overall care of adolescent and young adult males. *Pediatrics* 2013;132:535–546

INTRODUCTION

Adolescence is a key time period during which risk and protective behaviors are initiated that will influence overall health in adulthood. Failure to adequately address adolescent health can jeopardize earlier investments in child health and lead to deleterious effects on adult health, health disparities, and social inequality.¹ Adolescent and young adult males are a group of particular concern. Compared with females, adolescent males have higher mortality, less engagement in primary care, and high levels of unmet health care needs.² This review has 2 primary objectives. The first is to review the literature on young men's health, focusing on morbidity and mortality in key areas of health and well-being. The second is to provide a clinically relevant review of the best practices in young men's health.

Review Structure

This review begins with health care access, then describes young men's health in terms of the selected Centers for Disease Control and Prevention's (CDC) Healthy 2020 objectives relevant to adolescents and young adults in a clinical setting (Table 1). These objectives address chronic illness, mortality, unintentional injury, violence, mental health and substance use, and sexual and reproductive health.³ The discussion of the current state of adolescent male health is followed by a brief set of recommendations and references that position the reader to learn more about best practices for adolescent care. For male sexuality and reproductive health, there are marked gender differences and less emphasis on training programs. Therefore, a more detailed review of best practices is provided.

Methodology

Using selected CDC health objectives, this review relies primarily on peer-reviewed articles and evidence-based guidelines, such as the United States

TABLE 1 Selected Healthy 2020 Objectives

Objective #	Objective
General	
AH-1	Increase the proportion of adolescents who have had a wellness checkup in the past 12 mo
Injury and violence prevention	
IVP-1	Reduce fatal injuries
IVP-13	Reduce motor vehicle crash-related deaths
IVP-19	Reduce homicides
IVP-34	Reduce physical fighting among adolescents
IVP-35	Reduce bullying among adolescents
MHMS-1	Reduce the suicide rate
Chronic disease	
Tobacco use	
TU-2	Reduce tobacco use by adolescents
TU-10	Increase tobacco cessation counseling in health care settings
Heart disease and stroke	
HDS-5.2	Reduce the proportion of children and adolescents with hypertension
Weight status	
NWS-5	Increase the proportion of primary care physicians who regularly measure the BMI of their patients
NWS-10	Reduce the proportion of children and adolescents who are considered obese
NWS-11	Prevent inappropriate weight gain in youth and adults
Mental health and substance use	
MHMD-11	Increase depression screening in primary care providers
SA-2	Increase the proportion of adolescents never using substances
SA-9	Increase the number of primary care settings that implement evidence-based alcohol screening and brief intervention
SA-13	Reduce past-month use of illicit substances
SA-14	Reduce the proportion of persons engaging in binge drinking of alcoholic beverages
SA-18	Reduce steroid use among adolescents
Sexual and reproductive health	
FP-9	Increase the proportion of adolescents aged 17 yr and under who have never had sexual intercourse
FP-9.2	Increase the proportion of male adolescents aged 15 to 17 yr who have never had sexual intercourse
FP-9.4	Increase the proportion of male adolescents aged 15 yr and under who have never had sexual intercourse
FP-10	Increase the proportion of sexually active persons aged 15 to 19 yr who use condoms to both effectively prevent pregnancy and provide barrier protection against disease
FP-11	Increase the proportion of sexually active persons aged 15 to 19 yr who use condoms and hormonal or intrauterine contraception to both effectively prevent pregnancy and provide barrier protection against disease
FP-13	Increase the proportion of adolescents who talked to a parent or guardian about reproductive health topics before they were 18 yr old

Preventative Services Task Force and the American Academy of Pediatrics (AAP) practice guidelines for key information and recommendations. We recognize that, in some areas, best practices consist of expert opinion. We also note that adolescent male health must be understood in the context of the adolescent's social and physical

environment.¹ For adolescent males, 2 key influences are development and gender. These guidelines are supplemented by social science research on development, focusing on the transitions inherent in adolescence, and on gender, focusing on the role of masculinity in health access and health status across the CDC's critical health objectives.

Development

For this review, we consider both the adolescent and “emerging” or young adult population. Adolescents can be defined by age, development, and social roles.⁴ The AAP defines adolescence as up to 21 years of age.⁵ However, there is increasing attention to 20- to 24-year-olds as “emerging adults” in American society whose developmental challenges, transitional roles, and threats to health and well-being are similar to those of adolescents.⁶ Supporting the incorporation of the young adult population, the National Initiative to Improve Adolescent Health identifies 10 to 24 years of age as their target population.⁷ Over 64 million 10- to 24-year-olds live in the United States, representing roughly 21% of the population.⁸ Males comprise half of this population.

Masculinity

Masculinity can be defined as a set of shared social beliefs about how men should present themselves. Masculinity includes the beliefs that young men should be self-reliant, physically tough, not show emotion, dominant and sure of themselves, and ready for sex.^{9,10} Homophobia can be an important part of enacting masculinity.^{9,10} Among adults, masculine beliefs are associated with poor health outcomes across a variety of areas, from cardiovascular disease to care seeking.^{11,12} Among adolescents and young adult males, masculine beliefs have not only been associated with poor sexual health outcomes, but also poorer mental health outcomes and lower levels of engagement with health services.^{13–16} Thus masculinity has implications for both engaging young men in health care and for maximizing their health status.

Health Care Access

Gender and age disparities exist in access to health care, with adolescent and young adult males with particularly

limited access to care. Less than half of 12- to 17-year-olds (both males and females) receive the recommended yearly preventive care visit.¹⁷ (See Table 2 for a summary of recommended preventive visits.) Compared with females, young adult males are less likely to have a usual source of health care (63% vs 78%), are less likely to have visited a doctor in the past 12 months (59% vs 81%), and are less likely to have had an emergency department visit in the past 12 months (19% vs 27%).^{18,19} Access is closely related to ability to pay for health care. Although expansions in Medicaid and the State Children’s Health Insurance Plans have increased coverage for adolescents 18 years and younger, young adults have the lowest rates of health insurance among all age groups, and young adult males have lower rates than young adult females.^{18–20} Between 2005 and 2011, only 63% of 18- to 25-year-old males had any type of insurance coverage.²⁰ The expansion of dependent coverage under the Affordable Care Act, starting in 2011, has led to gains (as high as 8% between 2011 and 2013) for young adult males.²⁰ Even with the expansion, young adult males continue to have unacceptably low coverage rates. Care-seeking and access also vary as a function of adherence to conventional masculine values, with less care-seeking and lower access among young men with stronger masculine values.^{14,15}

Chronic Illness

Adolescence is an important time for prevention and early recognition of adult chronic illnesses. The CDC identifies reduced tobacco use, reduced rates of obesity, and increased physical activity as 3 primary goals in chronic disease prevention. Marked gender, age, and ethnic disparities exist. For tobacco use, the prevalence of having ever smoked cigarettes was higher among male than female high school students (46% vs 43%), higher among

older students than younger students, and higher among white students compared with African Americans and Latinos.²¹ Compared with females, male students were also more likely to have started smoking before 13 years of age (12% vs 8%), to be a daily smoker (11% vs 9%), and to smoke more than 10 cigarettes a day (9% vs 6%).²¹

Gender-related disparities exist in cardiovascular risk factors. In contrast to adults, adolescent males have a higher prevalence of obesity than females (20% for male 12- to 19-year-olds, compared with 17% for females), and, whereas rates of obesity have not significantly changed for females, rates of obesity for males have increased from 1999–2000 to 2009–2010.²² Among obese adolescents, over half had insulin resistance.²³ A smaller regional study found that 4% of obese adolescents had type II diabetes mellitus with marked racial and ethnic variation.²⁴ In a nationally representative sample, 12% of all 18- to 24-year-olds had a systolic blood pressure >140 mm Hg, with male gender and obesity being 2 key predictors.²⁵

Prevention data are more promising. Physical activity is higher in males compared with females, with 38.3% of high school males reporting 60 minutes of daily exercise, compared with 18.5% of females.²⁶

Guidelines exist for screening adolescents for blood pressure, BMI, diabetes, and lipids. These are compared and summarized in Table 2.

Mortality, Injury, and Violence

Mortality increases rapidly across adolescence. Although males have seen marked improvements over the past 20 years, their mortality remains unacceptably high, with the United States having the sixth highest adolescent male mortality among high-income countries.²⁷ Compared with females, males in high-income countries such as the United States are more likely to

die of all major causes of mortality, including unintentional injuries, suicide, and homicide.²⁸ Unintentional injury alone, which includes motor vehicle injuries, unintentional poisoning, drowning, and unintentional discharge of a firearm, account for 75% of all mortality.²⁷ Marked gender differences also exist in violence-related mortality, with adolescent and young adult males over twice as likely to die of violence as females.²⁹

Morbidity from intentional/violence-related and unintentional injury (without mortality) is similarly more

common in males. Adolescents were 11 times more likely to be treated for intentional injury/violence in emergency departments than younger children, and males were more likely to be treated than females.³⁰ Behaviors leading to violence and injury, such as fighting and weapon carrying, are more common in males, with over 25% of high school males reporting weapon carrying in the past 30 days and 9% gun carrying, a four- to sixfold increase over females.²¹ Important causes of intentional injury among adolescents are drunk driving and texting while

driving. Among high school students, boys were less likely than girls to ride with a driver who had been drinking (23% vs 25%), but more likely to drive themselves after drinking (10% vs 7%) and text while driving (35% vs 30%).²¹ Witness to violence has negative health effects, including post-traumatic stress disorder, depression and anxiety, distress, aggression, and externalizing behaviors.³¹ In a national survey, approximately half of all 13- to 17-year-olds witnessed violence in the previous year, with nearly 10% witnessing family assault, 42% witnessing an assault in their community, 1.3% witnessing murder, 10% witnessing a shooting, and 2% witnessing war.³² Exposure is significantly more common in males, urban youth, ethnic minorities, and lower income youth. Across studies of urban, low-income youth, ~25% have witnessed murder.³¹

TABLE 2 Male Health Guidelines (86–107)

	Specialty Organizations							
	Bright Futures	Other AAP	USPSTF	AMA GAPS	CDC	CR	ACS	ADA
Adolescent well visit								
Preventative care visits (frequency)	Yearly	Yearly		Yearly				
Strengths-based approaches	X	X						
Confidentiality	X	X		X				
Chronic illness/cardiovascular								
BP	X	X	X ^a	X				
BMI	X	X	X ^b	X	X			
Diabetes screening (fasting glucose, HbA1c, frequency)		X						X
Lipid screening (frequency)	X	X	X ^c	X	X			X ^d
Tobacco use	X	X		X				
Substance use and mental health								
Depression screening	X		X	X				
Alcohol and other substance use	X		X	X				
Violence and injury								
Screening and counseling on violence	X		X ^e	X				
Seat belt and drinking while driving counseling	X		X ^e	X				
Sexual health								
<i>Chlamydia trachomatis</i>	X	X ^b	X ^{e,g}	X	X ^{g,h}			
Gonorrhea	X	X ^b	f	X	X ^h			
<i>Trichomonas vaginalis</i>			f	X	X ^h			
HIV	X	X	X ^f	X	X ^h			
Syphilis	X		f	X	X ^h			
Testicular self-examination	i		X ^c			X ^c		i
Testicular cancer screening	i		X ^c			X ^c		X

AMA, American Medical Association; BF, Bright Futures; USPSTF, US Preventive Services Task Force; CR, Cochrane Reviews; ACS, American Cancer Society; ADA, American Diabetes Association; X, recommendations available.

^a Recommendations only for adults 18 yr and older.

^b Recommendation to measure BMI, but no recommendation for interval for screening.

^c Recommendation against routine screening owing to lack of evidence-based benefit in children.

^d Recommendations specifically for children/adolescents with diabetes mellitus.

^e Insufficient evidence or benefits of screening are unknown.

^f Recommendations for behavioral counseling to prevent STIs.

^g No recommendation to perform routine screening for *C. trachomatis* in sexually active young men owing to lack of evidence of efficacy and cost-effectiveness. However, screening of sexually active young men should be considered in clinical settings associated with high prevalence of *C. trachomatis*.

^h Specific recommendations for MSM.

ⁱ Refers to other agencies guidelines: CDC and/or USPTF.

Relationship and Gender-Related Violence

Relationship and gender-related violence is a problem for both genders. Although males are often thought of as perpetrators, they are also frequently victims. In 2011, 4.5% of high school males reported forced intercourse (compared with 11.8% of females); in other forms of dating violence, rates are similar between males and females, with 9.5% of high school males and 9.3% of females reporting that their partner hit, slapped, or physically hurt them.²¹ Compared with their heterosexual youth, sexual minority males (gay, transgendered youth) report higher rates of verbal, physical, and sexual harassment and violence. Most sexual minority and gender nonconforming males have heard homophobic comments at school and/or felt unsafe at school; many report being threatened with a weapon or attacked at school.^{33,34} Together these findings support screening adolescent males, particularly

gender nonconforming and sexual minority males, for relationship and gender-related violence.

Mental Health and Substance Use

Depression and Suicide

Depressive symptoms and depression are common in adolescent males, with 19% of high school males reporting feeling sad or hopeless,²¹ and 4.6% of 13- to 18-year-old boys having depression.³⁵ Males are more likely to die of suicide than females, and sexual minority males have increased risk for suicidal attempts and ideation compared with heterosexual males.³⁶ This is believed to be attributable to stigma and lack of social support.³⁶

Substance Abuse

Alcohol and drug use are also more common among males. Among high school males, 39.5% report any alcohol use in the past 30 days, and 23.8% report consuming >5 drinks.²¹ Drug use is common, with 25.9% reporting marijuana use in the past 30 days, 10.5% inhalant use, 9.8% ecstasy use, and 21.5% prescription drug use (such as oxycodone, hydrocodone, benzodiazepines, etc).²¹ Early use (before age 13 years) is common (23.3% of males reporting early alcohol use and 10.4% early marijuana use), with risk factors including low supervision and parental monitoring.^{21,37} Higher rates of substance use have been reported among sexual minority youth.³⁴

Overview of Sexual and Reproductive Health

Genital Exams

Only 37% of males 15 to 44 years old had a testicular examination in the past year.³⁸ Although current guidelines do not support clinician examination or teaching males self-testicular examinations for the purposes of testicular cancer screening, testicular examinations are an important part of assessment of

normal growth and development, and the Society for Adolescent Health and Medicine recommends that male genital examinations be a part of adolescent primary care.^{39,40} To that end, a clinician must be familiar with normal male genital development, be able to reassure patients and parents about normal physical examination findings, and recognize, treat, and, if appropriate, refer abnormal findings. Normalization is an important part of adolescent primary care, given the wide variation in onset of puberty and adolescent males' concerns, and frequently unrealistic beliefs, about normal penis size and shape. A European cohort study described the median onset of puberty as 11 years of age with significant variation of genital growth and development.⁴¹ For example, 14-year-olds had a mean penile length of 8 cm, with a range of 5.6 cm to 10 cm, and a mean testicular volume of 10 mL, with a range from 5 mL to 20 mL.⁴¹ There is no predictable relationship between size of flaccid and erect penis length.⁴² Other common normal pubertal concerns include wet dreams, erections, pubertal gynecomastia, pearly penile papules, and sebaceous cysts. Common abnormal male genital concerns include phimosis and paraphimosis, scrotal masses including hernias, hydroceles, varicoceles, spermatoceles, orchitis, and testicular neoplasms, and causes of testicular pain including torsion, torsion of a testicular or epididymal appendage, and epididymitis. Table 3 describes these findings and describes initial primary care management.

Circumcision is an area of relative controversy. Evidence from countries with high HIV prevalence suggests circumcision is protective against acquiring HIV and other sexually transmitted infections (STIs).^{43,44} It is controversial whether the same benefits exist in low prevalence countries. Recently the AAP has recommended that the benefits

outweigh the risks of newborn circumcision⁴⁵; circumcision later in childhood in the United States has not been addressed.

Sexual Health

Sexual health incorporates sexual behavior disease prevention, healthy relationships, and sexuality, and includes skills such as the capacity to appreciate one's body, express love and intimacy in appropriate ways, and to enjoy and express one's sexuality.⁴⁶

Many adolescent males choose to delay sex, with only 28% of 15- to 17-year-olds and 64% of 18- to 19-year-olds reporting ever having intercourse.⁴⁷ Particularly for younger adolescents, sex is often infrequent and sporadic. Only 12.1% of 15- to 17-year-olds and 36.5% of 18- to 19-year-olds report having had sex in the past month.⁴⁷ Among high-risk males, such as juvenile justice or STI clinic attendees, the proportion who are sexually experienced is much higher.^{48–50} Although not all sexual behavior is problematic, a young age of onset is associated with increased rates of sexual coercion, STIs, and early fatherhood.⁵¹

Adolescent and young adult males bear a disproportionate share of STIs relative to other age groups. In a national sample of 18- to 22-year-olds, 3.7% were infected with *Chlamydia*, 1.7% with *Trichomonas*, and 0.4% with gonorrhea.^{52,53} Early fatherhood is common, with 15% fathering a child before age 20 years.⁴⁷

These sexual health morbidities are related not just to sexual practices, but to partners, pregnancy, and STI prevention behavior. Among all 15- to 19-year-old males, 85.4% reported any method of contraception, including 79.6% condom use and 16.2% dual contraceptive use with a hormonal method and condoms.⁴⁷ Although a small minority (4.5%) of sexually experienced adolescent males report 4 or more partners, the majority

TABLE 3 Normal and Abnormal Reproductive and Sexual Health Concerns in Adolescent Males (108–117)

	Description/Management
Normal Concerns	
Pubertal gynecomastia	Breast development in the pubertal male adolescent owing to an imbalance of estrogen stimulatory effects relative to androgen inhibitory effects at the level of the breast tissue. Affects up to 60% to 70% of adolescent boys. Can be unilateral or bilateral. No treatment is necessary in general. For most, spontaneously resolves in 1 to 2 yr. 25% have persistence for ≥ 2 yr (persistent pubertal gynecomastia). Evaluate if gynecomastia is prepubertal or postpubertal.
Pearly penile papules	Found in 15% to 20% of adolescents. 1- to 3-mm papules along the corona of the penis. Treatment is reassurance.
Abnormal Concerns	
Phimosis	Constriction of the prepuce orifice that prevents the foreskin from being withdrawn to reveal the glans penis. Occurs when the foreskin experiences small amounts of inflammation such as normal erections or from poor hygiene. Treatment is conservative with the use of vitamin E creams and topical steroids to soften the phimotic ring. If resistant to conservative treatment, will need referral for ring excision or conventional circumcision.
Paraphimosis	Retraction of the foreskin behind the glans penis with the inability to reposition over the glans penis. Medical emergency, needs urgent surgical reduction and usually circumcision. If untreated, the edema can cause constriction of the lymphatic and venous flow, leading to distal penile ischemia.
Inguinal hernia	Most are congenital abnormalities in the tunica vaginalis where the small intestine, omentum, bladder, or genital contents may be found. Presents as firm scrotal swelling that does not transilluminate. Main complication is incarceration of bowel. Surgical repair is best if done electively before incarceration.
Hydrocele	Fluid in the tunica vaginalis. May occur secondary to other primary processes such as trauma, infection, testicular torsion, or neoplasm. Present as supple, scrotal masses that transilluminate and are often an incidental finding. No treatment is necessary for asymptomatic cases in general. However, if the diagnosis is in question or underlying pathology cannot be excluded, operative exploration is warranted.
Varicocele	Dilation of the pampiniform venous plexus within the scrotum. 15% prevalence in the 10- to 20-yr age group. 90% left sided, 3% bilateral. Unilateral right-sided varicoceles can be associated with abdominal tumors and should be investigated. Most are asymptomatic, but can present with a dull ache or heaviness after long periods of standing or running. Palpation feels like a “bag of worms” within the scrotum. Examine the patient standing, to determine the presence of a varicocele. If present, examine the patient lying down to help distinguish reducible varicoceles from nonreducible (ie, pathologic) varicoceles. No treatment is necessary in general. Surgical repair should be offered to adolescents who show testicular asymmetry (2.5-cm difference between the testicles) or abnormal semen analysis, or who experience symptoms. Controversy around the clinical relevance of varicoceles and subsequent risk of infertility.
Spermatoceles	Accumulation of sperm within the head of the epididymis. Examination shows a soft, smooth, transilluminating cyst found on the superior pole of the testicle. No treatment is necessary in general unless symptomatic. Treatment is surgical removal.
Orchitis	Inflammation of the testis; most commonly occurs in pubertal males. Infectious causes include mumps, coxsackievirus, echovirus, adenovirus, varicella, tuberculosis, or contiguous spread of bacterial infection. Mumps is the most common etiology and usually follows parotitis by 4 to 8 d (but can present up to 6 wk). Presentation variable – can be unilateral or bilateral, and the pain can be insidious or abrupt onset. Viral orchitis is treated symptomatically with rest and analgesics. Bacterial orchitis is treated with an antibiotic in addition to supportive care. The prognosis is usually good; rare complication: infertility.
Testicular neoplasms	Most commonly occur between 15 and 35 yr of age and account for 1% to 2% of neoplasms in males. Increased risk in males with a history of cryptorchidism. Testicular masses are malignant until proven otherwise. Germ cell tumors, most commonly seminomas, account for 95% of cases. Presents as a painless intratesticular solid mass of gradual onset. Pain is not common and if present may represent hemorrhage or necrosis. Ultrasound aids accurate and timely diagnosis. Treatment is determined by staging and histology. Overall survival rate is greater than 95% in stage I or II.

TABLE 3 Continued

	Description/Management
Testicular torsion	<p>Peak incidence at 15 to 16 yr of age; 2/3 of cases occur between age 12 and 18 yr.</p> <p>“Bell clapper” deformity often results in a horizontal lie of the testis. This deformity is implicated in many cases. Some will refer adolescents with clear “bell clapper” deformities for urology evaluation.</p> <p>Abrupt onset of scrotal pain.</p> <p>Cremasteric reflex is almost always absent.</p> <p>The diagnosis can be made by physical examination with or without the use of Doppler ultrasound.</p> <p>Surgical emergency, as viability of the testes is best within the first 6 to 8 h and declines to 0% after 24 h.</p>
Torsion of testicular or epididymal appendage	<p>Appendages are embryonal remnants of the Wolffian and Müllerian duct system on the testes and epididymis.</p> <p>Most common among 7- to 12-yr-olds.</p> <p>Present with pain, nausea, and vomiting.</p> <p>Tenderness over the superior or inferior pole of the testis with or without a palpable mass. Cremasteric reflex usually present.</p> <p>“Blue dot” sign, a tender blue or black spot beneath the skin of the testis or epididymis when present indicates an infarcted appendage.</p> <p>Diagnosis is usually made clinically. If testicular torsion cannot be differentiated, then color flow Doppler ultrasound is warranted.</p> <p>Supportive treatment is recommended and includes analgesics, antiinflammatory agents, and elevation of the scrotum. If the pain persists for longer than 5 days, refer to pediatric urology.</p>
Epididymitis	<p>Inflammatory process of the epididymis, commonly secondary to STIs, such as <i>Chlamydia trachomatis</i> and <i>Neisseria gonorrhoeae</i>.</p> <p>Uncommon in prepubertal males and non-sexually active males without a history of genitourinary tract abnormalities.</p> <p>Present with gradual onset of scrotal pain and swelling, often with nausea, fever, abdominal or flank pain, and urethral discharge.</p> <p>Epididymis is tender to palpation.</p> <p>Prehn sign (improvement in pain with elevation of scrotum) may help distinguish it from testicular torsion.</p> <p>Bilateral involvement has an increased risk for sterility.</p> <p>The treatment includes the use of antibiotics directed at the most common STI etiologies, partner referral for treatment, and reevaluation for the possibility of an abscess with an ultrasound if symptoms fail to improve over 72 h.</p>

of 15- to 17-year-olds (56.5%) and a sizeable minority of 18- to 19-year-old males (37.1%) have had only 1 to 2 lifetime female partners.⁴⁷

Relationships

Adolescent males' early sexual experiences are generally situated within romantic relationships. Among 15- to 19-year-olds, 58% reported first sex with a steady romantic partner, and 12% with someone they were going out with once in a while.⁴⁷ Particularly for younger adolescent males, curiosity, uncertainty, lower levels of relationship power (ie, who makes decisions and determines relationship activities), and a desire for friendship, intimacy, and closeness characterize these early relationships.^{54–56} Among very young adolescents, both males and females described a high degree of curiosity about sex,⁵⁷ and concerns about “readiness” for sex.^{57,58} Among 14-year-olds, males reported high uncertainty and lower power in relationships, and multiple studies describe

adolescent males' desires for love and emotional attachment.^{54,55,58} Although males were more likely than females to describe first intercourse as “wanted,” approximately one third reported mixed feelings, and 5% of males reported first intercourse as unwanted.⁴⁷ Most adolescent males would not prefer to make a partner pregnant; only 15% of 15- to 19-year-olds would have been pleased if they caused a pregnancy.⁴⁷

Sexual Minority and Young Men Who Have Sex With Men

An important aspect of adolescent males' sexuality is the development and expression of sexual orientation and sexual identity. Sexual orientation is a multidimensional concept referring to an enduring pattern of emotional, romantic, and/or sexual attractions to females, males, or both sexes.³⁴ Sexual identity is an individual's conception of his own sexuality and may not always be congruent with his sexual orientation or sexual behavior.³⁴ Current best estimates of sexual orientation in youth

are 3% of males identify as homosexual or bisexual and 2% report same-sex sexual attractions.⁵⁹ Although sexual orientation is often categorized as gay, straight, bisexual, or questioning, orientation and sexual identity operate along a continuum.

Although sexual health risk is linked to sexual behavior with same-gender partners, same-gender sexual behavior is not the same as sexual orientation. It may indicate sexual orientation; it may also represent experimentation and/or exploration. Among 15- to 17-year-olds, 1.7% reported same-gender sexual behavior; among 18- to 19-year-olds, that percentage increases to 3.8%, and among 20- to 24-year-olds, 5.6%.⁵⁹ Compared with men who have sex with women, rates of HIV and STIs are higher among young men who have sex with men (MSM).^{60,61} Young MSM of color have the highest rates of HIV and STIs.⁶² MSM account for the largest numbers of new HIV infections. In 2009 young MSM accounted for 69% of new HIV infections and 44% among all MSM.

From 2006 to 2009, HIV infections among young black/African American gay and bisexual men increased 48%.⁶³ In 2006, 64% of the reported primary and secondary syphilis cases were among MSM.⁶⁴ Gay and bisexual identified young men report higher levels of risk behaviors, including delinquency, aggression, and substance use. These differences, however, are moderated by individual, relationship, and environmental factors, such as attitudes toward risk-taking, peer victimization, parental relationships, and substance availability.⁶⁵

Stigma arises from environments and individuals who are dismissive, openly rejecting, and occasionally hostile toward sexual orientation. Stigma is a particularly important moderating factor in the disparities in physical, mental, and sexual health outcomes observed in sexual minority youth.^{34,66,67} These health disparities range from increased rates of depression, suicide, and disordered eating to substance abuse, HIV, and STI acquisition. Supportive family, friend, and school networks can mediate these associations, for example, decreasing suicide risk.^{34,68}

RECOMMENDATIONS

Pediatric health providers can be important resources for sexual health for adolescent males. Below are recommendations on an approach to adolescent and young adult males, grounded in data and best practices. These recommendations are fundamentally based on positive youth development models and a “strength-based” approach.

Positive youth development is a growing field promoting the healthy development and positive outcomes of young people versus focusing solely on traditional problem-focused views of youth.⁶⁹ Clinical care often focuses on risk behaviors, which often define young males.⁷⁰ A positive youth development approach changes the focus to acknowledge and

promote their strengths.^{71,72} In a psychosocial history, the positive youth development model suggests that clinicians begin with questions that identify strengths and assets.^{69,73} This contributes to a relationship that nurtures, empathizes, and builds a more positive self for the young man, which influences behavior changes and decreases risk.⁷⁰ As part of a strength-based approach, clinicians can acknowledge gender role stereotypes and the conflicting role expectations that males are taught.⁷⁰ This can result in an opportunity for the young man to share any concerns in a confidential setting.

General^{74–76,*}

1. Engage male youth in care. Assess and build upon strengths.
2. Provide time and a safe space for confidential conversations about sensitive topics.
3. Approach sensitive topics in respectful 2-way conversations, rather than in a lecture style. Motivational-interviewing–based approaches are recommended for engaging with all adolescents, despite the focus of its use with specific risk behaviors.
4. Involve parents; they can support healthy adolescent development.

Chronic Diseases^{77–79}

1. Screen for tobacco use.
2. Recommend smoking cessation.
3. Screen for obesity, using BMI-for-age.
4. Screen for diabetes for adolescent males who are overweight and have 2 risk factors.
5. Screen for hyperlipidemia.
6. Recommend healthy lifestyles.

Mortality, Violence, and Unintentional Injuries^{80–82}

*References listed in this section are suggested readings

1. Screen for weapon ownership.
 2. Screen for interpersonal violence and domestic violence.
 3. Screen for suicide.
 4. Discuss driving safety with parents and teens: seat belt use, risks of having passengers in the car, and night driving.
 5. Know whether your state has a Graduated Licensing Program.
- Mental Health and Substance Use^{83,84}

1. Screen for depression and suicide.
 - a. With positive screen, treat and/or refer for treatment.
2. Screen for alcohol use and binge drinking.
3. Screen for substance use, particularly marijuana and steroid use.

Sexual and Reproductive Health⁸⁵

1. Screen for sexual activity.
 - a. Promote abstinence for adolescents age 17 years and younger.
 - b. Assess personal assumptions about boys and masculinity, particularly around care-seeking and relationships.
 - c. Engage adolescents in conversations about healthy relationships and safer sexual behaviors, beyond simple messages about abstinence and condom use.
 - d. Encourage the adolescent to adopt a definition of masculinity that allows and promotes health and respectful relationships and genuine communication. Use gender-neutral language and do not assume heterosexuality.
 - e. However, ask about gender of sexual partners and the gender of those whom they are sexually attracted to.
2. Discuss and appropriately screen for STIs.

- a. Screen based on the adolescent's sexual behavior according to CDC guidelines, not according to the adolescent's sexual orientation or identity.
 - b. Include Hepatitis A, Hepatitis B, and human papilloma virus vaccinations as primary prevention efforts for males.
3. Promote condom use. Advise males to sample and choose the condom that feels and fits best rather than propose that 1 size fits and functions for all.
 4. Educate males about emergency contraception.
 5. Educate and promote dual contraception with males; educate and dispel myths about hormonal methods and long-acting contraceptive methods.
- Specific Recommendations for Working With Transgender and Sexual Minority Youth
1. If one does not feel comfortable providing high-quality care to sexual minorities or transgender youth, one should refer the youth to a health care provider in their community who can.
 2. Be prepared to respond to questions or concerns about disclosing or "coming out" to family and/or friends. Discuss the timing and approach to disclosure as well as the potential repercussions. Be a support for both the parents and the adolescent.
 3. Evaluate or refer for evaluation gender nonconforming youth, inclusive of the possibility of transitioning to the desired gender.

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YET ANOTHER REASON TO AVOID TICKS: *In Vermont, ticks have a bad reputation. The most recent data suggest that Vermont has the second highest incidence of Lyme disease in the country only lagging behind Delaware. It turns out that Vermonters (at least those living in the southern part of the state) may have to worry about yet another complication of tick bites: red meat allergy. As reported in The Wall Street Journal (Health Journal: June 14, 2013), this odd allergy is on the rise. The culprit is not Ixodes scapularis but Amblyomma americanum, the Lone Star Tick. Some individuals bitten by the tick develop allergy to different meat products. Unlike allergies associated with bee stings, the symptoms tend to develop hours after ingestion of the food – and weeks and months after the tick bite. While symptoms range from vomiting, diarrhea, and abdominal cramps to hives and shortness of breath, no deaths have been reported. Given the interval between the tick bite and the food ingestion, making a connection between the two can be difficult. Patients often report the symptoms initially follow ingestion of a specific meat product, but then may follow ingestion of other meats as well. The association between tick bites and red meat allergy was found by chance when studying cancer patients with an allergy to a specific monoclonal antibody, cetuximab. Further research showed that patients with IgE antibody to the mammalian oligosaccharide epitope, galactose-alpha-1,3-galactose (alpha-gal) could develop either immediate anaphylaxis to intravenous cetuximab or delayed onset anaphylaxis three to six hours after ingestion of meats. The presumed reason for the delay in symptoms following meat ingestion is that alpha-gal is concentrated in fat and it takes time for the fat to break down. Only patients in the distribution of the Lone Star Tick had the antibody to alpha-gal. Unfortunately, the Lone Star Tick continues to expand its habitat, so more people may be at risk. As for me, this is yet another reason to wear long-sleeved clothing while hiking, and using plenty of repellants or insecticides while outside.*

Noted by WVR, MD

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