

Recommendations for Incorporating Human Immunodeficiency Virus (HIV) Prevention into the Medical Care of Persons Living with HIV

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The estimated number of annual new human immunodeficiency virus (HIV) infections in the United States has remained at 40,000 for >10 years. Reducing the rate of transmission will require new strategies, including emphasis on prevention of transmission by HIV-infected persons. Medical care providers can affect HIV transmission by screening HIV-infected patients for risk behaviors, communicating prevention messages, discussing sexual and drug-use behaviors, reinforcing changes to safer behavior, referring patients for services such as substance abuse treatment, facilitating partner counseling and referral, and identifying and treating other sexually transmitted diseases. The Centers for Disease Control and Prevention (CDC), the Health Resources and Services Administration (HRSA), the National Institutes of Health (NIH), and the HIV Medicine Association (HIVMA) of the Infectious Diseases Society of America (IDSA) have recently collaborated to develop evidence-based recommendations for incorporating HIV prevention into the medical care of persons living with HIV. This article summarizes key aspects of the recommendations.

The estimated number of annual new HIV infections in the United States has remained at 40,000 for over 10 years [1]. Reducing the rate of HIV transmission will require new strategies, including increased emphasis on preventing transmission by persons living with HIV [2, 3]. Clinicians providing medical care to HIV-infected persons can play a key role in helping their patients reduce risk behaviors and maintain safer sexual and drug-using practices and can do so with a feasible level of effort, even in constrained practice settings. The Centers for Disease Control and Prevention (CDC), the Health Resources and Services Administration (HRSA), the National Institutes of Health (NIH), and the HIV Medicine Association (HIVMA) of the Infectious Diseases Society of America (IDSA) have recently collaborated to develop recommendations for incorpo-

rating HIV prevention into the medical care of persons living with HIV [4]. The recommendations were developed using an evidence-based approach (table 1). The strength of each recommendation is indicated on a scale of A (strongest recommendation for) to E (recommendation against); the quality of available evidence supporting the recommendation is indicated on a scale of I (strongest evidence for) to III (weakest evidence for), and the outcome for which the recommendation is rated is provided. The recommendations are categorized into 3 major components: (1) screening for HIV transmission risk behaviors and sexually transmitted diseases (STDs); (2) providing, and referring for, behavioral risk-reduction interventions and related services; and (3) facilitating notification, counseling, and testing of infected persons' partners. This article summarizes key aspects of the recommendations for readers of this journal.

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RISK SCREENING

Risk screening, a brief assessment of behavioral and clinical factors associated with transmission of HIV and other STDs, can be used to identify patients who should receive more in-depth risk assessment, HIV risk-reduction counseling, other

Table 1. Rating systems for strength of recommendations and quality of evidence supporting the recommendations.

Category, rating	Definition
Strength of recommendation	
A	Should always be offered. Both strong evidence of efficacy and substantial benefit support a recommendation for use.
B	Should generally be offered. Moderate evidence for efficacy—or strong evidence for efficacy but only limited benefit—supports a recommendation for use.
C	Optional. Evidence for efficacy is insufficient to support a recommendation for use.
D	Should generally not be offered. Moderate evidence for lack of efficacy or for adverse outcome supports a recommendation against use.
E	Should never be offered. Good evidence for lack of efficacy or for adverse outcome supports a recommendation against use.
Quality of evidence supporting the recommendation	
I	Evidence from at least 1 properly randomized, controlled trial.
II	Evidence from at least 1 well-designed clinical trial without randomization, from cohort or case-controlled analytic studies (preferably from >1 center), or from multiple time-series studies; or dramatic results from uncontrolled experiments.
III	Evidence from opinions of respected authorities based on clinical experience, descriptive studies, or reports of expert committees.

NOTE. Source: [4].

risk-reduction interventions, or referral for other services (e.g., substance abuse treatment) (table 2). Screening methods include asking patients about behaviors associated with transmission of HIV and other STDs, eliciting patient reports of symptoms of other STDs, and laboratory testing for other STDs.

Behavioral risk screening should address both sex-related and

injection drug-related behaviors (table 3). Screening can be done with brief, self-administered, written questionnaires; computer-, audio-, and video-assisted questionnaires; structured face-to-face interviews; and personalized discussions [5–16]. Screening questions can be either open-ended or closed (directed) (table 4). Open-ended questions avoid simple “yes” or

Table 2. Recommendations for screening human immunodeficiency virus (HIV)-infected persons for HIV transmission risk.

Recommendation	Rating
1. HIV-infected patients should be screened for behaviors associated with HIV transmission by using a straightforward, nonjudgmental approach. This should be done at the initial visit and subsequent routine visits, or periodically, as the clinician feels necessary, but at a minimum of yearly. Any indication of risky behavior should prompt a more thorough assessment of HIV transmission risks.	A-II (for identifying transmission risk)
2. At the initial and each subsequent routine visit, HIV-infected patients should be questioned about symptoms of STDs (e.g., urethral or vaginal discharge; dysuria; intermenstrual bleeding; genital or anal lesions; anal pruritis, burning, or discharge; and, for women, lower abdominal pain, with or without fever). Regardless of reported sexual behavior or other epidemiologic risk information, the presence of such signs or symptoms should always prompt diagnostic testing and, when appropriate, treatment.	A-I (for identifying and treating STDs)
3. At the initial visit: All HIV-infected women and men should be screened for laboratory evidence of syphilis. Women should also be screened for trichomoniasis. Sexually active women aged ≤ 25 years and other women at increased risk, even if asymptomatic, should be screened for cervical chlamydial infection.	A-II (for identifying STDs)
4. At the initial visit consideration should be given to screening all HIV-infected men and women for gonorrhea and chlamydial infections. However, because of the cost of screening and the variability of prevalence of these infections, decisions about routine screening for these infections should be based on epidemiologic factors (including prevalence of infection in the community or the population being served), availability of tests, and cost. (Some HIV specialists also recommend type-specific serologic testing for herpes simplex virus type 2 for both men and women.)	B-II (for identifying STDs)
5. Screening for STDs should be repeated periodically (i.e., at least annually) if the patient is sexually active or if earlier screening revealed STDs. Screening should be done more frequently (e.g., at 3-month to 6-month intervals) for asymptomatic persons at higher risk (see table 5).	B-III (for identifying STDs)
6. At the initial and each subsequent routine visit, HIV-infected women of childbearing age should be questioned to identify possible current pregnancy, interest in future pregnancy, or sexual activity without reliable contraception. They should be referred for appropriate counseling, reproductive health care, or prenatal care, as indicated. Women should be asked whether they suspect pregnancy or have missed their menses and, if so, should be tested for pregnancy.	A-I (for preventing perinatal HIV transmission)

NOTE. Source: [4].

Table 3. Sex-related and injection-drug-related behaviors to address in behavioral risk screening.

Sex-related behaviors

- Whether the patient has been engaging in sex
- Number and sex of partners
- Partners' HIV serostatus (infected, not infected, or unknown)
- Types of sexual activity (insertive or receptive; oral, vaginal, or anal)
- Whether condoms are used
- Barriers to abstinence or correct condom use (e.g., difficulty talking with partners about or disclosing HIV serostatus, alcohol and other drug use before or during sex)
- Whether women of childbearing age may be pregnant, are interested in becoming pregnant, or are not specifically considering pregnancy but are sexually active and not using reliable contraception

Injection-drug related behaviors

- Whether the patient has been injecting drugs
- Whether the patient has been sharing needles and syringes or other injection equipment
- Number of persons with whom the patient has shared needles
- HIV serostatus of needle-sharing partners (infected, not infected, or unknown)
- Whether the patient has been using new or sterilized needles, syringes, and other injection equipment
- Barriers to ceasing illicit drug use or, failing that, to safer injection practices (e.g., lack of access to sterile needles and syringes)

NOTE. Women who are unable to become pregnant because of elective sterilization, hysterectomy, salpingo-oophorectomy, or other medical reasons may be less likely to use condoms because of a lack of concern for contraception; these women should be counseled on the need for use of condoms to prevent transmission of HIV.

Patients who wish to conceive and whose partner is not infected might engage in risky behavior. Patients interested in pregnancy, for themselves or their partner, should be referred to a reproductive health specialist.

“no” responses and encourage patients to discuss personal risks and the circumstances in which risks occur [6, 17, 18]. Clinicians who receive training are more likely to perform effective behavioral risk screening [8–11]. Screening for behavioral risks can be done by ancillary staff before the patient is seen by the clinician or by the clinician during the medical encounter. Provider reminder systems (e.g., computerized reminders) increase the likelihood that recommended screening is done regularly [19].

The presence of new STDs often suggests recent or ongoing sexual behaviors that may result in HIV transmission. Also, substantial evidence suggests that many STDs enhance risk for HIV transmission or acquisition [20–24]; therefore, early detection and treatment of bacterial STDs may reduce risk for HIV transmission [25]. Clinicians should routinely ask patients about STD symptoms; the presence of such symptoms should always prompt diagnostic testing and, when appropriate, treatment. However, clinical symptoms are not sensitive for identifying many infections, because most STDs are asymptomatic [26–33]; therefore, laboratory screening (i.e., testing on the basis of risk estimation, regardless of clinical indications for testing) of HIV-infected persons is a cornerstone of identifying persons at risk for transmitting HIV and other STDs to others (tables 5 and 6) [34–37].

Women of childbearing age should be questioned during routine visits about the possibility of pregnancy. Women who suspect pregnancy or have missed their menses should be tested for pregnancy. Early pregnancy diagnosis would benefit even women not receiving antiretroviral treatment, because they

could be offered treatment to decrease risk for perinatal HIV transmission.

BEHAVIORAL INTERVENTIONS

Behavioral interventions are strategies designed to change the knowledge, attitudes, behaviors, or practices of individuals to reduce their personal health risks or their risk of transmitting HIV to others (table 7). Behavioral change can be facilitated by environmental cues in the clinic or office, messages delivered to patients by clinicians or other qualified staff on-site, or referral to other persons or organizations providing prevention services.

Clinic or office environments can be structured to support prevention. All patients should receive printed information about HIV transmission risks and preventing transmission of HIV to others. Information can be conveyed throughout the clinic; for example, posters and other visual cues containing prevention messages can be displayed in examination rooms and waiting rooms. These materials usually can be obtained through health department HIV/AIDS and STD programs or from the National Prevention Information Network (NPIN) (telephone: 1-800-458-5231; Web site: <http://www.cdcnpin.org>).

All HIV-infected patients can benefit from brief prevention messages emphasizing the need for safer behaviors to protect their own health and that of their sex or needle-sharing partners. Such messages include discussion of the patient's responsibility for appropriate disclosure of HIV serostatus to sex

Table 4. Examples of screening strategies to elicit patient-reported risk for human immunodeficiency virus (HIV) transmission.

Open-ended question by clinician, similar to one of the following:

"What are you doing now that you think may be a risk for transmitting HIV to a partner?"

"Tell me about the people you've had sex with recently."

"Tell me about your sex life."

Directed (closed) questions (i.e., a checklist) for use with a self-administered questionnaire; computer-, audio-, or video-assisted questionnaire; or a face-to-face interview^{a,b}:

"Since your last checkup here," or, if first visit, "Since you found out you were infected with HIV,":

—"Have you been sexually active; that is, have you had vaginal, anal, or oral sex with anyone?"

If yes

"Have you had vaginal or anal intercourse without a condom with anyone?"

If yes

"Were any of these people HIV-negative, or are you unsure about their HIV status?"

—"Have you had oral sex with anyone?"

If yes (for a male patient)

"Did you ejaculate into your partner's mouth?"

—"Have you had a genital sore or discharge, discomfort when you urinate, or anal burning or itching?"

—"Have you been diagnosed or treated for a sexually transmitted disease (STD), such as syphilis, gonorrhea, chlamydia, or herpes; or do you know if any of your sex partners have been diagnosed or treated for an STD?"

—"Have you injected any drugs?"

If yes

"Have you shared drug-injection equipment (needles, syringes, cottons, cookers, water) with anyone?"

If yes

"Did you use the drug-injection equipment before anyone?"

"Were any of these people HIV-negative, or are you unsure about their HIV status?"

NOTE. Source: adapted from [6].

^a This checklist can be self-administered by the patient or administered by the clinician.

^b A positive response to any of the screening questions should cue the clinician to have a more in-depth discussion to ensure that specific risks are clearly understood.

and needle-sharing partners. These messages can be delivered by clinicians, nurses, social workers, case managers, or health educators. Many patients have inadequate information about factors influencing HIV transmission and methods for preventing transmission. They should understand that the most effective methods for preventing HIV transmission remain those that protect noninfected persons against exposure to HIV. For sexual transmission, the only certain means for HIV-infected persons to prevent transmission to noninfected persons are sexual abstinence or sex only with a partner known to be already infected with HIV. However, restricting sex to partners of the same serostatus does not protect against transmission of other STDs or the possibility of HIV superinfection unless condoms of latex, polyurethane, or other synthetic materials are consistently and correctly used. For injection-related transmission, the only certain means for HIV-infected persons to prevent transmission to noninfected persons are abstaining from injection drug use or refraining from sharing injection equipment (e.g., syringes, needles, cookers, cottons, and water).

Some sexual behaviors have a lower average per-act risk for transmission than others [38–52], and replacing a higher risk behavior with a relatively lower risk behavior may reduce the likelihood that HIV transmission will occur (table 8) [44, 53,

54]. However, risk for HIV transmission is affected by numerous biological and behavioral factors [44, 54, 55], and estimates of the *absolute* per-episode risk for transmission associated with different activities may be misleading when applied to a specific patient or situation [49, 52]. High viral load is an important risk factor for HIV transmission (table 9) [56–65]. By lowering viral load, antiretroviral therapy may reduce risk for HIV transmission. However, since HIV can be detected in the semen, rectal secretions, female genital secretions, and pharynx of HIV-infected patients with undetectable plasma viral loads [66–70], all patients receiving therapy, even those with undetectable plasma HIV levels, should understand that they may still be able to transmit HIV. Few data are available on efficacy of postexposure prophylaxis for nonoccupational exposure [71–77]; thus, the potential availability of postexposure prophylaxis should not be used to justify risky behavior.

Interventions tailored to individual patients' risks can be delivered to patients at highest risk for transmitting HIV infection and for acquiring new STDs. This includes patients whose risk screening indicates current behaviors that may lead to transmission, who have a current or recent STD, or who mention issues of concern in discussions with the clinician [78,

Table 5. Examples of laboratory screening strategies to detect asymptomatic sexually transmitted diseases.

First visit

For all patients

Test for syphilis: nontreponemal serologic test (e.g., RPR or VDRL test).

Consider testing for urogenital gonorrhea: urethral (men) or cervical (women) specimen for culture, or urethral/cervical specimen or first-catch urine^a (men and women) specimen for NAAT for *Neisseria gonorrhoeae*.^b

Consider testing for urogenital chlamydial infection: urethral (men) or cervical (women) specimen or first-catch urine^a (men and women) specimen for NAAT for *Chlamydia trachomatis*.^b

For women

Test for trichomoniasis: wet mount or culture of vaginal secretions for *Trichomonas vaginalis*.

Test for urogenital chlamydial infection: cervical specimen for NAAT for *C. trachomatis*^b for all sexually active women aged ≤ 25 years and other women at increased risk, even if asymptomatic.

For patients reporting receptive anal sex

Test for rectal gonorrhea: anal swab culture for *N. gonorrhoeae*.^b

Test for rectal chlamydial infection: anal swab culture for *C. trachomatis*,^b if available.

For patients reporting receptive oral sex

Test for pharyngeal gonococcal infection: culture for *N. gonorrhoeae*.^b

Subsequent routine visits

The tests described here should be repeated periodically (i.e., at least annually) for all patients who are sexually active. More frequent periodic screening (e.g., at 3-month to 6-month intervals) may be indicated for asymptomatic persons at higher risk. Presence of any of the following factors may support more frequent than annual periodic screening: (a) multiple or anonymous sex partners; (b) past history of any STD; (c) identification of other behaviors associated with transmission of HIV and other STDs; (d) sex or needle-sharing partner(s) with any of the above-mentioned risks; (e) developmental changes in life that may lead to behavioral change with increased risky behaviors (e.g., dissolution of a relationship); or (f) high prevalence of STDs in the area or in the patient population.

NOTE. Source: [4]. NAAT, nucleic acid amplification test; RPR, rapid plasma reagin; VDRL, Venereal Disease Research Laboratory.

These recommendations apply to persons without symptoms or signs of STDs. Patients with symptoms (e.g., urethral or vaginal discharge; dysuria; intermenstrual bleeding; genital or anal lesions; anal pruritis, burning, or discharge; and, for women, lower abdominal pain, with or without fever) or known exposure should have appropriate diagnostic testing regardless of reported sexual behavior or other risk factors.

Testing or vaccination for hepatitis, pneumococcal disease, influenza, and other infectious diseases (e.g., screening pregnant women for syphilis, gonorrhea, chlamydial infection, and hepatitis B) should be incorporated into the routine care of HIV-infected persons.

Symptomatic and asymptomatic herpes simplex virus (HSV) infection, especially with HSV type 2, is prevalent among HIV-infected persons and might increase risk for transmitting HIV. Therefore, some HIV specialists recommend routine, type-specific serologic testing for HSV-2. Patients with positive results should be informed of the increased risk for transmitting HIV and counseled regarding recognition of associated symptoms. Only tests for detection of HSV glycoprotein G are truly type-specific and suitable for HSV-2 serologic screening.

Local and state health departments have reporting requirements for HIV and other STDs, which vary among states. Clinicians should be aware of and comply with requirements for the areas in which they practice; information on reporting requirements can be obtained from health departments.

^a First-catch urine (i.e., the first 10–30 mL of urine voided after initiating the stream) should be used.

^b The yield of testing for *N. gonorrhoeae* and *C. trachomatis* is likely to vary. Screening for these pathogens (other than testing for urogenital chlamydial infection in sexually active women aged ≤ 25 years and other women at increased risk, even if asymptomatic) should be based on consideration of patient's risk behaviors, local epidemiology of infection with these pathogens, availability of tests (e.g., culture for *C. trachomatis*), and cost.

79]. Any positive results of screening for behavioral risks or STDs should be addressed in more detail with the patient so a more thorough risk assessment can be done and an appropriate risk-reduction plan discussed and agreed upon. At a minimum, an appropriate referral should be made (table 10) and the patient should be informed of risks involved in continuing the behavior. HIV-infected persons who remain sexually active should understand that the only certain means for preventing transmission to noninfected persons is to restrict sex to HIV-infected partners. For mutually consensual sex with persons of unknown or discordant serostatus, consistent and correct use of condoms made of latex, polyurethane, or other synthetic materials can significantly reduce risk for HIV transmission. HIV-infected patients who continue injection drug use should understand the risks of sharing needles and be provided information regarding substance abuse treatment and access to clean needles (table 11) [80–82]. Examples of targeted moti-

ational messages on condom use and needle sharing are provided (figures 1 and 2).

Prevention messages can be reinforced by subsequent longer or more intensive interventions in clinic or office environments by nurses, social workers, or health educators, if feasible [6, 83–108]. Many patients have underlying issues that impede adoption of safer behaviors, and achieving behavioral change is often dependent on addressing such issues. Clinicians will usually not have time or resources to fully address these issues, many of which can best be addressed through referrals for services such as intensive HIV prevention interventions (e.g., multisession risk-reduction counseling) [109–126], medical services (e.g., family planning and contraceptive counseling, substance abuse treatment), mental health services (e.g., treatment for sexual compulsivity), and social services (e.g., housing, protection from domestic violence) (table 10). Patients who have difficulty initiating or sustaining behaviors that reduce or

Table 6. Available diagnostic testing for detection of sexually transmitted diseases (STDs).

STD, body site	Diagnostic test(s) ^a
Syphilis	Dark-field examination or direct fluorescent antibody test of exudate of lesion Serum nontreponemal tests (RPR or VDRL) for screening, followed by serum treponemal tests (e.g., FTA-ABS or TP-PA) for confirmation
Trichomoniasis	Microscopic examination of wet mount or culture of vaginal secretions
Herpes	Viral culture of genital or other mucocutaneous ulcers Herpes simplex virus type-specific serologic tests
Gonorrhea	
Female GU tract	Culture of endocervical swab specimen NAAT of endocervical swab specimen NAAT of urine ^b
Male GU tract	Culture of intraurethral swab specimen NAAT of intraurethral swab specimen NAAT of urine ^b
Rectum/pharynx	Culture of rectal or pharyngeal swab specimen with selective medium
Chlamydia	
Female GU tract	NAAT of endocervical swab specimen NAAT of urine ^b Unamplified nucleic acid hybridization test, enzyme immunoassay, or direct fluorescent antibody test of endocervical swab specimen Culture of endocervical swab specimen
Male GU tract	NAAT of intraurethral swab specimen NAAT of urine ^b Non-NAAT or culture of intraurethral swab specimen
Rectum/pharynx	Culture of rectal or pharyngeal swab specimen ^c Direct fluorescent antibody test performed on rectal or pharyngeal swab specimen ^c

NOTE. Sources: [35] and [37]. FTA-ABS, fluorescent treponemal antibody absorbed; GU, genitourinary; NAAT, nucleic acid amplification test; RPR, rapid plasma reagin; TP-PA, *Treponema pallidum* particle agglutination; VDRL, Venereal Disease Research Laboratory.

^a Diagnostic tests are listed in order of preference for recommendation, with the most highly recommended test listed first. Alternative tests should be performed if a specimen cannot be obtained or if the preferred test is not available.

^b NAAT of urine is less sensitive than that of an endocervical or intraurethral swab specimen.

^c *Chlamydia trachomatis*-major outer membrane protein (MOMP)—specific stain should be used.

prevent HIV transmission may benefit from prevention case management (PCM). PCM provides intensive, client-centered risk assessment; prevention counseling; and assistance accessing other services to address issues that affect patients' health and ability to change risk-taking behavior.

For IDUs, ceasing injection drug use is the only reliable way to eliminate risk for injection-associated HIV transmission; however, many IDUs are unable to sustain abstinence without substance abuse treatment. Early entry and maintenance in substance abuse treatment programs and sustained abstinence from injecting are important for reducing risk for HIV transmission from infected IDUs [127–143]. Some IDUs are not able or willing to stop injecting drugs; for these persons, once-only use of sterile syringes can significantly reduce risk for injection-related HIV transmission [144–153]. Information on access to sterile syringes and safe syringe disposal may be obtained through health departments or HIV/AIDS prevention programs.

Referrals that match the patient's self-identified priorities are

more likely to be successful than those that do not. Discussion with the patient can identify factors that may make it difficult for the patient to complete the referral (e.g., lack of transportation). Patients need specific information to successfully access referral services and may need assistance (e.g., scheduling appointments) to complete referrals. When a clinician does not have the capacity to make all appropriate referrals, or when needs are complex, a case manager can help make referrals and coordinate care. Referral guides and other information usually can be obtained from health department HIV/AIDS prevention and care programs (table 12).

Clinicians can prepare to deliver HIV prevention messages and behavioral interventions by developing strategies for incorporating risk-reduction interventions into patients' clinic visits [154], obtaining training [155–158], becoming familiar with interventions that have demonstrated effectiveness [159], and becoming familiar with community resources. Training on risk screening and prevention can be obtained at CDC-funded STD/HIV Prevention Training Centers (<http://depts>

Table 7. Recommendations for behavioral interventions to reduce human immunodeficiency virus (HIV) transmission risk.

Recommendation	Rating
1. Clinics or office environments where patients with HIV infection receive care should be structured to support and enhance HIV prevention.	B-III (for enhancing patient recall of prevention messages)
2. Within the context of care, brief general HIV prevention messages should be regularly provided to HIV-infected patients at each visit, or periodically, as determined by the clinician, and at a minimum of twice yearly. These messages should emphasize the need for safer behaviors to protect their own health and the health of their sex or needle-sharing partners, regardless of perceived risk. Messages should be tailored to the patient's needs and circumstances.	A-III (for efficacy in promoting safer behaviors)
3. Patients should have adequate, accurate information regarding factors that influence HIV transmission and methods for reducing the risk for transmission to others, emphasizing that the most effective methods for preventing transmission are those that protect noninfected persons against exposure to HIV (e.g., sexual abstinence; consistent and correct use of condoms made of latex, polyurethane, or other synthetic materials; and sex only with a partner of the same HIV status). HIV-infected patients who engage in high-risk sexual practices (i.e., capable of resulting in HIV transmission) with persons of unknown or negative HIV serostatus should be counseled to use condoms consistently and correctly.	A-III (for using brief clinician-delivered messages to influence patient behavior)
4. Patient's misconceptions regarding HIV transmission and methods for reducing risk for transmission should be identified and corrected. For example, ensure that patients know that (a) per-act estimates of HIV transmission risk for an individual vary according to behavioral, biologic, and viral factors; (b) highly active antiretroviral therapy (HAART) cannot be relied upon to eliminate the risk of transmitting HIV to others; and (c) nonoccupational postexposure prophylaxis is of uncertain effectiveness for preventing infection in HIV-exposed partners.	A-III (for using brief clinician-delivered messages to influence patient behavior)
5. Tailored HIV prevention interventions using a risk-reduction approach should be delivered to patients at highest risk for transmitting HIV.	A-III (for efficacy in promoting safer behaviors)
6. After initial prevention messages are delivered, subsequent longer or more intensive interventions in the clinic or office should be delivered, if feasible.	A-I (for efficacy of multisession, clinic-based interventions in promoting safer behaviors)
7. HIV-infected patients should be referred to appropriate services for issues related to HIV transmission that cannot be adequately addressed during the clinic visit.	A-I (for efficacy of HIV prevention interventions conducted in nonclinic settings)
8. Persons who inject illicit drugs should be strongly encouraged to cease injecting and enter into substance abuse treatment programs (e.g., methadone maintenance) and should be provided referrals to such programs.	A-II (for reducing risky drug use and associated sexual behaviors)
9. Persons who continue to inject drugs should be advised to always use sterile injection equipment and to never reuse or share needles, syringes, or other injection equipment and should be provided information regarding how to obtain new, sterile, syringes and needles (e.g., syringe exchange program).	A-II (for reducing risk for HIV transmission)

NOTE. Source: [4].

.washington.edu/nnptc) and HRSA-funded AIDS Education and Training Centers (<http://www.aids-ed.org>). Additional information related to behavioral interventions is available through many health department HIV/AIDS programs. A complete listing of state AIDS directors is available from the National Alliance of State and Territorial AIDS Directors (NAS-TAD) (<http://www.nastad.org>). Examples of case scenarios for prevention counseling are provided in tables 13–16.

PARTNER COUNSELING AND REFERRAL SERVICES, INCLUDING PARTNER NOTIFICATION

Many HIV-infected persons are not aware of their infection; thus, they cannot benefit from early medical care and do not know they may be transmitting HIV to others. Reaching such persons as early after infection as possible is important for their health and for reducing HIV transmission. Partner counseling and referral services (PCRS), including partner notification, are intended to address these problems by (1) providing services to HIV-infected persons and their sex and needle-sharing partners so the partners can take steps to avoid becoming infected

or infecting others, and (2) helping infected partners gain earlier access to medical care and other services (table 17) [160].

A key element of PCRS involves informing current and past partners that they have been exposed to HIV and advising them to have HIV counseling and testing [161–164]. PCRS is confidential and voluntary. Partners can be reached and informed of their exposure by the infected person, clinicians in the private sector, or health department staff. Notification by the health department appears to be substantially more effective than notification by the infected person [96]. Also, one observational study suggested health department specialists were more successful than physicians in interviewing patients and locating partners [165]. Health departments have staff who are trained to do partner notification and skilled at providing this free, confidential service. These specialists can work closely with public and private sector clinicians who treat persons with HIV and other STDs. Most states and some cities or localities have laws and regulations related to informing partners they have been exposed to HIV. Clinicians should know and comply with such requirements. Additional information related to PCRS is available through health department HIV/AIDS programs.

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Table 8. Estimated per-act relative risk (RR) for a person without human immunodeficiency virus (HIV) infection acquiring HIV infection, based on sex act and condom use.

Risk factor	RR for a person without HIV infection acquiring HIV infection
Sex act	
Insertive fellatio ^a	1
Receptive fellatio ^a	2
Insertive vaginal sex ^b	10
Receptive vaginal sex ^b	20
Insertive anal sex ^b	13
Receptive anal sex ^b	100
Condom use	
Yes ^c	1
No ^c	20

NOTE. Source: [53]. This table quantifies the RR for HIV transmission in a way that can help compare the effects of a person's choices of sex act and condom use. It is presented from the point of view of a person without HIV infection and should be used to educate the HIV-infected patient regarding risks for transmission to partners who are not HIV infected or have unknown HIV serostatus. These risks are estimated from available data. Risks can vary depending on several factors, including presence of STDs in either partner and the HIV-infected partner's viral load. In addition, the relative frequency of performance of higher- and lower-risk sex acts will affect risk for transmission.

The risks of these choices are multiplicative. Compared with the lowest RR (performing insertive fellatio using a condom; referent group, RR = 1), the overall RR increases to 2000 when performing receptive anal sex (RR = 100) without a condom (RR = 20).

Data regarding risk for transmission from sharing drug injection equipment are too limited to be included in this table.

^a Best guess estimate, from [53].

^b Source: [44].

^c Source: [54].

Table 9. Adjusted rate ratios of the risk for transmission and acquisition of human immunodeficiency virus type 1 (HIV-1) among discordant partners.

Serum viral load of HIV-infected partners, copies/mL ^a	Risk for transmission to partners not infected with HIV, adjusted rate ratio (95% CI)
<3500	Referent
3500–9999	5.80 (2.26–17.80)
10,000–49,999	6.91 (2.96–20.15)
>50,000	11.87 (5.02–34.88)
Per log increment viral load	2.45 (1.85–3.26)

NOTE. Source: [65]

^a Patients in this study did not receive antiretroviral medications, and those with low viral loads might have been long-term nonprogressors. Risks might not be equivalent for treated persons with low viral loads. Viral load in the blood may not be predictive of viral load in the genital tract; therefore, risks may vary with genital tract viral load.

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Table 10. Examples of which concerns to address and which to refer.

Topics that can be successfully addressed by clinicians and clinic support staff:

- Lack of knowledge about HIV transmission risks
- Misconceptions about risk of specific types of sexual and drug-use practices
- Misconceptions about viral load and transmission of HIV
- How to disclose HIV-seropositive status to a sex partner, family member, or friend
- Importance of using condoms and not exchanging fluids
- Ways to reduce number of sex or drug partners
- Ways to keep condoms accessible
- Ways to remember to use condoms
- How to persuade a sex partner to use a condom
- Ways to obtain support (e.g., emotional, financial) from family, friends, and lovers
- Ways to clean/disinfect injection equipment
- Ways to obtain clean needles
- Ways to avoid sharing injection equipment
- Ways to deal with mild psychological distress stemming from situational circumstances

Issues that might need referral to outside agencies:

- Need for intensive HIV prevention intervention
- Excessive use of alcohol or recreational drug use
- Drug addiction, including injection drug use
- Depression, anger, guilt, fear, or other mental health needs
- Need for social support
- Sexual compulsivity
- Sexual or physical abuse (victim or perpetrator)
- Desire to have children, contraceptive counseling
- Housing or transportation needs
- Nutritional needs
- Financial emergencies
- Child custody, parole, or other legal matters
- Insurance coverage

NOTE. Source: [4].

Table 11. Examples of messages that should be communicated to drug users who continue to inject.

Persons who inject drugs should be regularly counseled to do the following:

- Stop using and injecting drugs
- Enter and complete substance abuse treatment, including relapse prevention
- Take the following steps to reduce personal and public health risks, if they continue to inject drugs:
 - Never reuse or share syringes, water, or drug preparation equipment
 - Use only syringes obtained from a reliable source (e.g., pharmacies)
 - Use a new, sterile syringe to prepare and inject drugs^a
 - If possible, use sterile water to prepare drugs; otherwise, use clean water from a reliable source (such as fresh tap water)
 - Use a new or disinfected container (cooker) and a new filter (cotton) to prepare drugs
 - Clean the injection site with a new alcohol swab before injection
 - Safely dispose of syringes after one use

In addition, drug users should be provided information regarding how to prevent HIV transmission through sexual contact and, for women, information regarding reducing the risk of mother-to-infant HIV transmission.

NOTE. Source: [80].

^a If new, sterile syringes and other drug preparation and injection equipment are not available, previously used equipment should be boiled or disinfected with bleach by using the methods recommended by the Centers for Disease Control and Prevention [82].

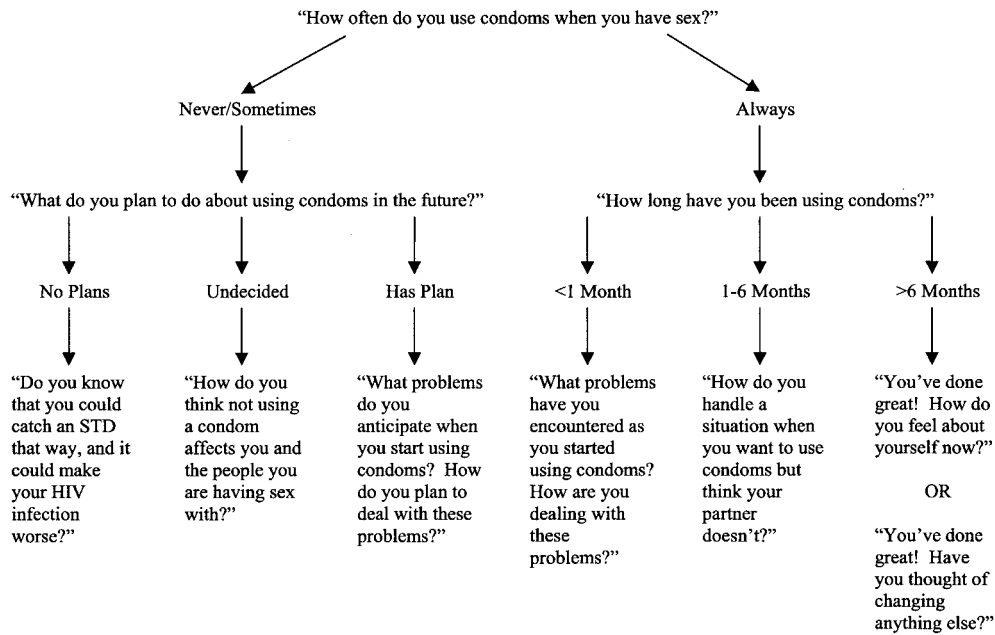


Figure 1. Examples of tailoring messages regarding condom use for sexually active, HIV-infected persons. This is not a comprehensive list of all questions that could be asked.

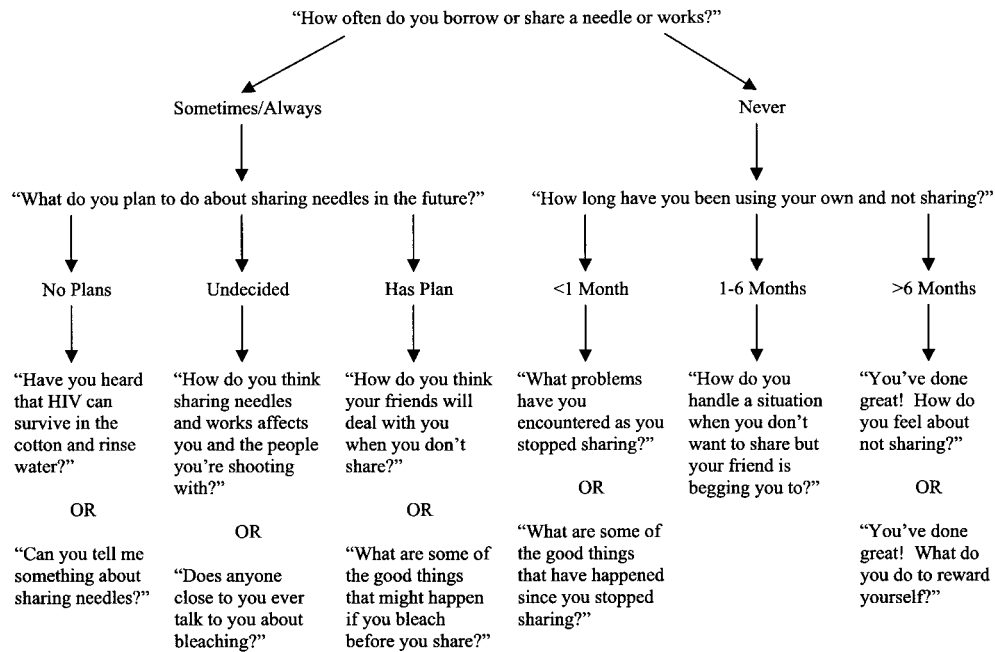


Figure 2. Examples of tailoring messages regarding needle sharing for HIV-infected persons who continue to inject drugs. This is not a comprehensive list of all questions that could be asked.

Table 12. Suggested contents for referral resource guide.

For each resource, the referral resource guide should specify the following:

Name of provider or agency
 Range of services provided
 Target population(s)
 Service area(s)
 Contact names, telephone and fax numbers, street addresses, and e-mail addresses
 Hours of operation
 Location
 Competence in providing services appropriate to the patient's culture, language, sex, sexual orientation, age, and developmental level
 Cost for services
 Eligibility
 Application materials
 Admissions policies and procedures
 Directions, transportation information, and accessibility to public transportation
 Patient satisfaction with services

NOTE. Source: [6].

Table 13. Case scenario 1.

Scenario

A patient with newly-diagnosed HIV infection comes to your office for initial evaluation. Of the many things that must be addressed during this initial visit (e.g., any emergent medical or psychiatric problems, education about HIV, history, physical examination, initial laboratory tests [if not already done]) how does one address prevention? What is the minimum that should be done, and how can it be incorporated into this visit?

Discussion

Assuming no emergent issues preclude a complete history and physical examination during this visit, the following should be done:

During the history, question how the patient might have acquired HIV, current risk behaviors, current partners and whether they have been notified and tested for HIV, and current or past STDs.

During the physical examination, include genital and rectal examinations, evaluation and treatment of any current STD, or, if asymptomatic, appropriate screening for STDs.

Discuss current risk behavior, at least briefly. Emphasize the importance of using condoms; address active injection drug use.

Discuss the need for disclosure of HIV serostatus to sex and needle-sharing partners, and discuss potential barriers to disclosure.

Note issues that will require follow-up: e.g., risk behavior that will require continuing counseling and referral and partners who will need to be notified by either the patient or a health department.

NOTE. Source: [4]. STD, sexually transmitted disease.

Table 14. Case scenario 2.**Scenario**

A patient with chronic, stable HIV comes to you with a new STD. What prevention considerations should be covered in this visit?

Discussion

For the patient who has had a stable course of disease, a new STD can be a sign of emerging social, emotional, or substance abuse problems. These potential problems should be addressed in addition to the STD.

During the history, cover topics related to acquisition of the new STD—number of new partners, number of episodes of unsafe sex, and types of unsafe sex.

Address the personal risks associated with high-risk behavior (e.g., viral superinfection and HIV/STD interactions).

Address personal or social problems (including substance abuse and domestic violence) that might have led to a change in behavior resulting in the acquisition of the new STD; refer to social services, if necessary.

Address other issues (e.g., adherence to HAART) that may be affected by personal or social problems. Check viral load if nonadherence is evident or is suspected.

During the physical examination, include a careful genital and rectal examination and screen for additional STDs, such as syphilis, trichomoniasis (women), chlamydial infection (for sexually active women aged ≤ 25 years and selected populations of men and women), and gonorrhea (for selected populations of men and women).

Discuss the need for partner notification and referral for counseling and testing.

Note in the medical record that risk behavior should be addressed in future visits and that tailored counseling may be needed for the patient.

NOTE. Source: [4]. STD, sexually transmitted disease.

Table 15. Case scenario 3.**Scenario**

A patient with chronic, stable HIV has been seen regularly in a health-care setting. What should be included in this patient's routine clinical care?

Discussion

Discussion of sexual and needle-sharing practices should be integrated into a routine part of clinical care.

Periodically (e.g., annually) screen for STDs. STDs to be included in screening should be determined by the patient's sex, history of high-risk behavior, and local epidemiology of selected STDs.

Reiterate general prevention messages and patient education regarding partner notification, high-risk behaviors associated with transmission, prevention of transmission, or condom use, as deemed appropriate by the clinician.

NOTE. Source: [4]. STD, sexually transmitted disease.

Table 16. Case scenario 4.**Scenario**

A patient who has been treated with HAART for 2 years comes to you. At the time of treatment initiation, the CD4⁺ count was 200 cells/ μ L and the viral load was 50,000 copies/mL. The response to therapy was prompt; the CD4⁺ count increased to 500 cells/ μ L, and the viral load has been undetectable since soon after treatment began. The patient now has mildly elevated cholesterol, some mild lipodystrophy, and facial wasting. He states that he would like to stop HAART because of the side effects. What should you tell this patient?

Discussion

Inform the patient that, upon stopping HAART, the CD4⁺ cell count and viral load will likely return to pretreatment levels, with risk for opportunistic infections and progression of immune deficiency.

Inform the patient that the increase in viral load to pretreatment levels will likely result in increased infectiousness and risk for transmitting HIV to sex or needle-sharing partners.

Counsel the patient regarding the option of changing the HAART regimen to limit progression of the metabolic side effects.

NOTE. Source: [4].

Table 17. Recommendations for partner counseling and referral services, including partner notification.

Recommendation	Rating
In health care settings, all applicable requirements for reporting sex and needle-sharing partners of HIV-infected patients to the appropriate health department should be followed.	A-III (for identifying patients who should be referred for PCRS)
At the initial visit, patients should be asked if all their sex and needle-sharing partners have been informed of their exposure to HIV.	A-III (for identifying patients who should be referred for PCRS)
At routine follow-up visits, patients should be asked if they have had any new sex or needle-sharing partners who have not been informed of their exposure to HIV.	A-III (for identifying patients who should be referred for PCRS)
All patients should be referred to the appropriate health department to discuss sex and needle-sharing partners who have not been informed of their exposure and to arrange for their notification and referral for HIV testing.	A-I (for increasing partner counseling and referral and voluntary testing of partners)
In HIV health-care settings, access to available community partner counseling and referral resources should be established.	A-III (for establishing a working relationship and increasing understanding about partner counseling and referral procedures)

NOTE. Source: [4]. PCRS, partner counseling and referral services.

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