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Recommended Curriculum Guidelines for Family Medicine Residents

HIV Infection/AIDS

This document was endorsed by the American Academy of Family Physicians (AAFP).

Introduction

This Curriculum Guideline defines a recommended training strategy for family medicine residents. Topic competencies, attitudes, knowledge, and skills that are critical to family medicine should be attained through longitudinal experience that promotes educational competencies defined by the Accreditation Council for Graduate Medical Education (ACGME) www.acgme.org. The curriculum must include structured experience in several specified areas. Most of the resident's knowledge will be gained by caring for ambulatory patients who visit the family medicine center. Structured didactic lectures, conferences, journal clubs, and workshops must be included in the curriculum, with an emphasis on outcomes-oriented, evidence-based studies that delineate common and chronic diseases affecting patients of all ages. Targeted techniques of health promotion and disease prevention are hallmarks of family medicine. Appropriate referral patterns and provision of cost-effective care should also be part of the curriculum.

Program requirements specific to family medicine residencies may be found on the ACGME website. Current AAFP Curriculum Guidelines may be found online at www.aafp.org/cg. These guidelines are periodically updated and endorsed by the AAFP and, in many instances, other specialty societies, as indicated on each guideline.

Each residency program is responsible for its own curriculum. ***This guideline provides a useful strategy to help residency programs form their curricula for educating family physicians.***

Preamble

The pandemic of human immunodeficiency virus (HIV) infection is of vital concern to family physicians and the diverse populations they serve. Family physicians are well suited to counsel patients about HIV prevention and to care for those who are infected, which includes provision of antiretroviral therapy when the family physician is sufficiently trained. The basic tenets of family medicine emphasize a compassionate, whole-person approach to patient care; the application of specific knowledge and skills to a wide variety of disease entities; and a comprehensive and continuous commitment to patients and their families. Drawing on these core tenets, family physicians have an important role to play in the care of individuals who are infected with HIV, especially as the care of HIV-positive individuals has evolved into a chronic disease model for the majority of patients. Family physicians should be knowledgeable about the numerous issues related to the care of patients who have HIV and AIDS. They must develop skills to stay abreast of new developments in the treatment of patients who have HIV infection.

These guidelines are intended to assist in the development of an HIV/AIDS curriculum for family medicine residencies. Because the knowledge base and technology related to HIV/AIDS often change rapidly, family physicians must also be aware of available resources so they can access updated information and maintain their skills.

Competencies

At the completion of residency training, a family medicine resident should be able to:

- Recognize HIV risk factors, and counsel patients about primary and secondary HIV prevention, risk reduction, testing, diagnosis, and management (Medical Knowledge)
- Counsel all patients—even those not identified as at risk for HIV—about the importance of one-time screening for HIV for all individuals ages 13 to 64, as recommended by the Centers for Disease Control and Prevention (CDC) and the U.S. Preventive Services Task Force (USPSTF) (Patient Care, Interpersonal and Communication Skills)
- Recognize the symptoms of and know how to diagnose acute or early HIV infection (Medical Knowledge)
- Disclose an HIV diagnosis to a patient and immediately link the patient to ongoing care; this includes knowing the barriers to connecting to and staying in care that are faced by HIV patients (Patient Care, Interpersonal and Communication Skills, Systems-Based Practice)
- Synthesize an appropriate management plan for conditions associated with HIV infection (Patient Care, Medical Knowledge)
- Perform recommended screening, primary prevention, early diagnosis, baseline testing, and management of other chronic comorbid conditions in HIV patients (Patient Care)

- Create a treatment plan based on HIV care guidelines from reputable governmental and non-governmental agencies that have been adapted to local resources and constraints (Medical Knowledge)
- Communicate effectively with patients to ensure a clear understanding of the HIV diagnosis and the ensuing plan of care (Interpersonal and Communication Skills)
- Recognize one's own practice limitations, and seek consultation from other health care professionals and access additional resources as needed to provide optimal patient care (Professionalism, Systems-based Practice)
- Understand the legal, ethical, and social contexts of HIV and their impact on the care of special populations. It is especially important for residents to understand forms of HIV stigma that exist in the community in which they are working and the lack of knowledge about HIV/AIDS, even among other health care professionals. (Professionalism)
- Recognize preventive care, including health screening and counseling, that is required for HIV-positive patients and how this care may differ from recommended preventive care for the general population (Medical Knowledge)

Attitudes

The resident should develop attitudes that encompass:

- Awareness of the importance of the physician's own attitudes about sexuality, injection drug use, cultural differences, communicable diseases, suffering, and death
- Willingness to obtain thorough sexual, alcohol, and drug histories
- Compassion, objectivity, and an understanding of the importance of quality-of-life issues when dealing with patients who have a chronic and potentially life-threatening illness
- Recognition of one's professional abilities and when specialist consultation is needed
- Willingness to coordinate medical and non-medical services and embrace the role of patient advocate
- Recognition of the importance of support for the patient from family members and others
- Acceptance of the physician's ongoing responsibility to support the patient and family throughout all stages of the illness
- Awareness of the importance of setting a positive example for other health care professionals and the community by caring for patients who may be stigmatized
- Awareness of community and cultural attitudes about HIV and the need for confidentiality, as well as the ability to help with HIV disclosure if it is requested by the patient

Knowledge

In the appropriate setting, the resident should demonstrate the ability to apply knowledge of:

1. General considerations
    a. Scientific background
        i. HIV virology and pathophysiology
        ii. Immunodeficiency manifestations and complications
        iii. Epidemiology
            1) Local, regional, national, and global prevalence and incidence
            2) Disproportionate prevalence in minorities, adolescents, women, and people living in poverty in the U.S. epidemic
            3) National shift toward heterosexual contact-driven epidemic
            4) Impact of co-infection with other sexually transmitted infections (STIs) and hepatitis C
        iv. Modes of transmission
            1) Unprotected sexual contact
            2) Intravenous drug use
            3) Vertical transmission from mother to child (e.g., intrauterine, intrapartum, postpartum, breastfeeding)
            4) Other exposure to human body fluids (e.g., exposure to blood and blood products, needlesticks), including occupational (i.e., health care setting) and non-occupational exposures to HIV
    b. Definitions
        i. Centers for Disease Control and Prevention (CDC) HIV classification
        ii. World Health Organization (WHO) HIV classification
    c. Laboratory testing
        i. Type of test
            1) 3rd generation enzyme-linked immunosorbent assay (ELISA) and 4th generation antibody/antigen chemiluminescent assay (CIA) done via traditional venipuncture, and rapid testing (blood spot and oral swab)
            2) Confirmatory tests: western blot, HIV RNA PCR (for acute infection only)
            3) CD4 + lymphocyte counts
            4) Viral load (HIV RNA PCR or bDNA)
            5) The role and types of resistance testing
                a) Genotype analysis (nucleoside reverse transcriptase inhibitor [NRTI], non-nucleoside reverse transcriptase inhibitor [NNRTI], protease inhibitor [PI], and integrase inhibitor testing)
                b) Phenotype analysis
                c) Virtual phenotype
                d) Viral tropism assay (R5 versus X4 virus)
        ii. Indications for HIV testing
            1) Risk assessment and recommendations for voluntary testing
                a) Universal prenatal testing recommendations per CDC and U.S. Preventive Services Task Force (USPSTF)
                b) Universal testing recommendations for all patients ages 13 to 64

2) Clinical assessment
    a) Acute HIV infection
    b) Asymptomatic chronic HIV infection
    c) Symptomatic chronic HIV infection
    d) Non-life-threatening infections and symptoms suggestive of HIV infection
    e) AIDS-defining illnesses
3) Public health surveillance/reporting to local and state health departments
4) Mandatory testing regulations

iii. Test results and counseling
1) CDC recommendations for universal “opt-out” consent policy
2) Appropriate pre- and post-test counseling, including verbal or written informed consent (which may be required by state law)
3) Confidentiality issues
4) Public health case reporting
5) Mandatory reporting regulations (which exist in most states)
6) Partner notification

d. “Test and treat” model: importance of linkage to care and retention in care

e. Prevention of transmission
i. Importance of condom use, and safer sex and injection practices
ii. Decreased transmission with undetectable viral load
iii. Availability of and indications for pre-exposure prophylaxis (PrEP)
iv. Counseling for post-exposure prophylaxis (PEP) regarding indications, limitations, and side effects

f. Quality improvement strategies in HIV care

2. Clinical manifestations

a. HIV as a chronic disease
i. Role of chronic inflammation due to HIV infection and the increased risk for non-HIV-associated malignancies and cardiovascular, renal, bone, and HIV-associated neurologic disease
ii. Caring for other chronic health conditions in individuals living with HIV (i.e., diabetes, asthma, chronic obstructive pulmonary disease [COPD], hypertension, mental illness)

b. Hepatitis A (higher risk for men who have sex with men [MSM]), B, and C (also higher risk for MSM and faster disease progression in patients who have HIV)

c. Other STIs

d. Opportunistic infections (focus on familiarity with presenting features): oral, esophageal, and cutaneous candidiasis; *Pneumocystis jiroveci* pneumonia (PJP); cryptococcosis; cryptosporidiosis; histoplasmosis; cytomegalovirus (CMV) infections; herpes simplex and herpes zoster; *Mycobacterium avium* complex (MAC); *Mycobacterium tuberculosis*; toxoplasmosis; recurrent bacterial infections; progressive multifocal leukoencephalopathy (PML)

e. AIDS-defining malignancies (e.g., cervical cancer, Kaposi sarcoma, and non-Hodgkin lymphoma) and HIV-associated malignancies (e.g., vulvar, vaginal, and anal dysplasia and neoplasia)

f. Other HIV syndromes (focus on familiarity with presenting features): HIV encephalopathies; HIV-associated dementia; HIV/AIDS-associated diarrhea; HIV-associated nephropathy; anemia; leukopenia; pancytopenia; immune thrombocytopenic purpura; thrombotic thrombocytopenic purpura; HIV wasting syndrome; hypogonadism; peripheral neuropathy; acute and chronic inflammatory demyelinating polyneuropathies; lipodystrophy; lipoatrophy; metabolic syndrome

g. Special presentations in children (focus on familiarity with presenting features): failure to thrive; abnormal milestones; lymphoid interstitial pneumonia; *Pneumocystis carinii* pneumonia (PCP); encephalopathies; CMV; recurrent bacterial infections; candidal esophagitis

3. Treatment and patient care issues

   a. Pharmacologic management (focus on basic principles of antiretroviral management). Selection of HIV antiretroviral medications should be done by or in consultation with someone trained to manage HIV independently. Guidance for establishing this competency can be found on the HIV Medicine Association (HIVMA) website (see www.hivma.org/Home.aspx) and the American Academy of HIV Medicine (AAHIVM) website (see www.aahivm.org/).
      i. Assessment of viral load, baseline resistance, and immune function
      ii. Antiretroviral drug classes
      iii. Initiation of antiretroviral therapy
      iv. Antiretroviral adherence counseling
      v. Familiarity with preferred antiretroviral regimens per the U.S. Department of Health and Human Services (DHHS) guidelines (see https://aidsinfo.nih.gov/)
      vi. Review of all patient medication lists for antiretroviral drug-drug interactions
      vii. Monitoring of regimen effectiveness, side effects, and toxicity, and understanding of how to define treatment failure or success
      viii. Understanding of when and how to ask for help to change the care plan after treatment failure, which may or may not include a different antiretroviral regimen
      ix. Assessment of adherence barriers and understanding of how to work with the patient and the rest of the care team to overcome these barriers

   b. Range and limitations of services available in ambulatory and inpatient care

   c. Local resources for short- and long-term rehabilitation, alternative care, and housing support services

   d. Close collaborative relationships with consultants (HIV specialists and others) needed for the care of individual patients

   e. Preventive health care maintenance and recommended vaccinations

   f. Prophylaxis against common opportunistic infections

   g. Discontinuation of primary and secondary prophylactic therapy after immune reconstitution

   h. Understanding of and familiarity with manifestations of immune reconstitution inflammatory syndrome (IRIS)

i. Treatment recommendations during pregnancy (peripartum and postpartum periods)

j. Availability of non-U.S. Food and Drug Administration (FDA)-approved treatments and clinical trials

4. Psychosocial and ethical issues
   a. Physician responsibility and patient abandonment
   b. Death and dying
   c. "Do not resuscitate" and “Comfort care only” orders versus more sophisticated advance directives (e.g., physician orders for life-sustaining treatment [POLST] or medical orders for life-sustaining treatment [MOLST] forms)
   d. Individual rights versus societal rights
   e. Confidentiality and documentation
   f. Substance abuse; psychiatric comorbidities
   g. Sexual practices and orientation; gender identification
   h. Patient competency determination, conservatorship, and durable power of attorney, including power of attorney for health care decisions
   i. Family resources and contributions
   j. Impact on family
   k. Stigma; disclosure

5. Legal issues
   a. Confidentiality of medical records (Health Insurance Portability and Accountability Act [HIPAA] protections)
   b. Disclosure of HIV status to third parties
   c. Federal requirements
   d. State laws regarding HIV disclosure
   e. Testing by employers and health insurers

6. Financial considerations
   a. Eligibility criteria for Medicare, Medicaid, Social Security, and other services
   b. Available funding for health care and medications
      i. Ryan White title funding, including AIDS drug assistance programs (ADAP)
      ii. Coverage for individuals with private insurance
      iii. Available pharmaceutical patient assistance programs (PAPs)

7. Special considerations for health care professionals
   a. Occupational risks and occupational post-exposure prophylaxis (PEP) for exposure to HIV
   b. Specific psychosocial and ethical issues
   c. Impairment and work-related disability

d. Post-exposure prophylactic protocols and treatment recommendations

Skills

In the appropriate setting, the resident should demonstrate the ability to independently perform or appropriately refer the following:

1. Evaluate
   a. Take a patient's sexual and substance use history and perform risk factor assessment
   b. Perform a comprehensive physical examination
   c. Select appropriate diagnostic procedures
   d. Interpret the results of HIV testing (rapid and serologic)
   e. Set appropriate priorities with patient, family, and friends
   f. Investigate common symptoms (e.g., fever, cough, diarrhea)
   g. Recognize life-threatening conditions (e.g., severe hypoxia, cytomegalovirus retinitis, drug overdose)
   h. Recommend the baseline tests needed for HIV patients (e.g., complete blood count [CBC] with differential; electrolytes liver function test; lipid panel; toxoplasmosis IgG; cytomegalovirus (CMV) IgG; hepatitis A, B, and C screen; tuberculosis screen; gonorrhea; chlamydia; syphilis; cervical pap smear; anal pap smear, as indicated; pregnancy test; urinalysis; HIV RNA quantification (viral load); HIV genotype; CD4 lymphocyte count)
   i. Articulate the frequency of monitoring for routine tests based on current guidelines
2. Prevent
   a. Provide health education and prevention counseling
   b. Perform screening on adolescents and adults per current guidelines
   c. Counsel HIV-positive individuals and contacts regarding risk of virus transmission
   d. Consult with community groups and lead group discussions about risks of HIV transmission
   e. Perform prenatal HIV testing for all women
   f. Provide HIV prevention counseling and testing to high-risk groups
   g. Collaborate with public health departments to facilitate screenings, and ensure notification of and follow-up with HIV-positive patients
   h. Comply with institutional protocols for the protection of employees
   i. Recognize pre-exposure prophylaxis (PrEP) and post-exposure prophylaxis (PEP) indications and treatments, and counsel patients about options
3. Manage

a. Formulate a problem list and prioritize a management plan
b. Provide antiretroviral therapy in consultation with an HIV specialist
c. Utilize and coordinate appropriate consultants and resources
d. Coordinate ambulatory, inpatient, and long-term care
e. Counsel patients and significant others appropriately about testing and test results, therapeutic modalities, and prognosis
f. Provide competent palliative/end-of-life care
g. Manage occupational and non-occupational HIV exposure per U.S. Public Health Service (USPHS) guidelines

4. Involve the community
   a. Interact with and assume leadership in medical, social, and political communities
   b. Provide education about HIV infection and AIDS in medical, social, and political settings (including middle schools, high schools, colleges, and churches)

5. Use online resources to obtain current HIV/AIDS treatment guidelines

Implementation

Within the capabilities of the residency program, the implementation of these curriculum guidelines is best achieved with the use of outside resources, when necessary. Residents should have basic knowledge and skills to care for their own patients appropriately and to serve as a community resource for information about HIV-related issues. Any training efforts must also maintain an up-to-date curriculum that includes recent medical advances.

Precise details of implementation may vary among residency programs, depending on interest levels and the frequency of contact with HIV-positive patients.

Resources

Test Positive Aware Network (TPAN). The 19th annual HIV drug guide. *Positively Aware*. March-April 2015. http://www.positivelyaware.com/sites/default/files/issue-files/POSITIVELY%20AWARE%202015%20HIV%20Drug%20Guide.pdf. Accessed June 17, 2015.

Test Positive Aware Network (TPAN). HIV 101: A practical guide to living healthier with HIV. *Positively Aware*. September-October 2011. http://www.positivelyaware.com/archives/2011/11_06/pdfs/11_06.pdf. Accessed June 17, 2015.

Website Resources

AIDS Education and Training Center (AETC) National Resource Center. www.aidsetc.org

AIDS*info*. www.aidsinfo.nih.gov

AIDSMEDS. www.aidsmeds.com

American Academy of Family Physicians. www.aafp.org

American Academy of HIV Medicine. http://aahivm.org

American Medical Association. www.ama-assn.org

Centers for Disease Control and Prevention. www.cdc.gov

HIV Medicine Association (HIVMA). http://hivma.org

HIVQUAL-US. http://hivqualus.org

International Antiviral Society–USA (IAS-USA). www.iasusa.org

National Prevention Information Network (NPIN). HIV/AIDS. www.cdcnpin.org/scripts/hiv

National Quality Center (NQC). www.nationalqualitycenter.org

Stanford University. HIV Drug Resistance Database. http://hivdb.stanford.edu

Test Positive Aware Network (TPAN). www.tpan.com

University of California, San Francisco Clinician Consultation Center. www.nccc.ucsf.edu

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