

---

# **What Every HIV Expert Should Know About Primary Care**

**Judith A. Aberg, MD**

**Associate Professor of Medicine  
New York University Medical Center  
New York, New York**

---

# Expert Care

---

- An HIV expert is not necessarily an ID specialist
- An ID specialist is not necessarily an HIV expert
- HIV expertise generally defined by
  - Experience (number of patients managed)
  - Continuing medical education
- Models for expert care
  - The HIV expert as primary care physician
  - Co-management with a primary care physician
  - Periodic consultation by an HIV expert

# **Primary Care Guidelines for the Management of Persons Infected with Human Immunodeficiency Virus: Recommendations of the HIV Medicine Association of the Infectious Diseases Society of America**

---

**Judith A. Aberg,<sup>1</sup> Joel E. Gallant,<sup>2</sup> Jean Anderson,<sup>2</sup> James M. Oleske,<sup>3</sup> Howard Libman,<sup>4</sup> Judith S. Currier,<sup>6</sup> Valerie E. Stone,<sup>5</sup> and Jonathan E. Kaplan<sup>7</sup>**

*<sup>1</sup>New York University, New York; <sup>2</sup>Johns Hopkins University, Baltimore, Maryland; <sup>3</sup>University of Medicine and Dentistry of New Jersey, Newark; <sup>4</sup>Beth Israel Deaconess Medical Center and <sup>5</sup>Massachusetts General Hospital, Boston; <sup>6</sup>University of California at Los Angeles, Los Angeles; and <sup>7</sup>Centers for Disease Control and Prevention, Atlanta, Georgia*

# Executive Summary

---

The purpose of these guidelines is to assist health care providers in the primary care management of persons infected with HIV, with emphasis on:

- Transmission of HIV infections
- HIV diagnosis (testing and counseling)
- Risk screening
- Management

# Case 1

---

47 yo WM ped/MVA found unresponsive. Emergently went to OR. CD4 count was obtained for “HIV” and noted to be 94 cells. Pt’s hospital course unremarkable. Started on SMX/TMP prophylaxis. Referred to you for routine care.

# Please Vote

## On initial visit, you

---

1. You inform patient he has AIDS and begin to discuss ART options
2. Repeat CD4 and check HIV VL
3. Order HIV VL and Genotype
4. Confirm HIV status

# Testing for HIV – A Few Comments

---

- Don't use surrogate tests (e.g. CD4 count)
- Don't report or record test result unless ELISA confirmed by western blot
- Testing must be accompanied by pre- and post-test counseling according to State Law
- Don't take someone's word that they are HIV positive or negative – get documentation

---

# Initial Evaluation of the HIV Infected Patient



# GOALS OF THE INITIAL EVALUATION - I

---

- Confirm HIV infection.
- Identify acute problems requiring immediate intervention to prevent morbidity.
- Assure that the patient understands how to avoid transmitting HIV.
- Identify chronic medical problems and troubling symptoms.
- Identify problems requiring referral (medical, housing, psychological, social, legal, or financial).
- Establish stage/prognosis of HIV disease.

# The Initial History: Key Components

---

- HPI:
  - Estimation of time of infection, including likelihood of infection with resistant virus
  - HIV-associated symptoms
  - HIV-specific history: prior treatment, nadir CD4, VL
- PMH:
  - Prior STDs, hepatitis
  - TB exposure, PPD results
  - h/o chicken pox or shingles
  - Vaccination status
  - Travel history: exposure to endemic pathogens

# Other Medical History

---

Pertinent history as for any primary care patient

- Employment and occupational history
- Family history: DM, CHD
- Allergies, adverse reactions to medication
- Review of systems
- Medication history

# Physical Examination Goals

---

- Screening for active problems
- Clues to disease stage
- Documenting baseline for later comparison

# The Initial Physical Examination: Key Components

---

- Overall: body habitus, vital signs
- Skin: fungal infections (periungual, feet, groin, axilla), edema, pigmented lesions (Kaposi's sarcoma), nodules, molluscum, folliculitis, psoriasis, condylomata
- HEENT: Careful eye and oral examination (thrush, OHL, ulcers, gingivitis)
- Lymphatics: generalized vs. focal lymphadenopathy
- Abdomen: hepatosplenomegaly
- Anogenital: warts, STDs, ulcerations
- Neurologic: mental status, peripheral neuropathy ( ↓ LE vibratory sensation, absent ankle jerks)

# Baseline Tests

---

## Tests to Evaluate Patient's HIV Infection

- **HIV antibody test**
  - do if HIV infection not clearly documented
- **CD4+ T lymphocyte cell count and percent**
  - estimates stage of HIV disease
  - urgency of anti-HIV therapy
- **Plasma HIV RNA (viral load)**
  - estimates risk of progression
- **Genotype**

# Case 2

---

33 yo AAF admitted to hospital for pneumonia. Pt denies any prior illness. Has h/o unprotected sex with 5 partners. Denies any recreational drug use or excessive alcohol use. Smokes 1ppd x 19 years. During the hospitalization, she accepts HIV testing but results are not back at time of discharge.

She is contacted by the HIV Counseling service and is informed she has HIV. A CD4 and VL are obtained. CD4 267 and VL 78,000. She comes to clinic for f/u of pneumonia and HIV care. She feels well and ROS is essentially negative

# Please Vote

## Baseline tests

---

All of the following should be obtained  
*except:*

1. CMV IgG
2. G6PD
3. Hepatitis B and C
4. Cryptococcal Antigen
5. Toxoplasma IgG



# Baseline Laboratory Evaluation: Routine

---

- CBC with differential
  - Rule out anemia, leukopenia, thrombocytopenia
  - Establish pre-therapy baseline
- Comprehensive chemistry panel
  - AST, ALT, Alk Phos, Bili: liver injury
  - BUN, creat, Cr Cl: renal impairment, malnutrition
  - Albumin: nutritional status
  - Glucose : IGT, DM

# Baseline Laboratory Tests

---

- G-6-PD:
  - Obtain in patients at risk (African Americans, Mediterranean descent)
  - Avoid oxidant drugs if deficient (dapsons, sulfonamides, primaquine)
- Fasting lipid profile: Establish pre-treatment baseline
- Urinalysis: Baseline testing for renal toxicity, especially in African-Americans (risk for HIVAN)

# Baseline Laboratory Evaluation: Viral Hepatitis Assessment

---

- HBsAb and total core Ab: Assess need for vaccination
- HBsAg: chronic hepatitis B
- Anti-HCV: chronic hepatitis
  - Follow with HCV RNA if seropositive or if seronegative but high risk or abnormal transaminases
  - Order HCV genotype in those with chronic HCV, as determined by HCV RNA
- Total anti-HAV antibody: Assess need for vaccination

## Case 3

---

47 yo WM recently diagnosed HIV+, CD4 560 and VL 23,000 referred for “Chickenpox vaccination.”

He reports never having chickenpox as a child, no history of shingles. Of note, his referring physician ordered a VZV IgG which was negative.

# Please Vote

## You advise

---

1. Vaccination with VZV
2. Suggest he get exposed to child with chickenpox so he can develop natural immunity
3. Nothing
4. Contact his provider immediately if any exposure so he can receive VZIG

# Baseline Laboratory Tests: Other Serologies

---

- Anti-*Toxoplasma* IgG:
  - If positive, use *Toxoplasma* prophylaxis if CD4 <100
  - If negative, counsel about avoidance of
    - cat feces
    - undercooked meat
- Anti-CMV IgG
  - If negative, patient should receive CMV-negative blood products
- Anti-varicella IgG:
  - Consider in patients who can't give a history of chickenpox
  - If negative, give VZIG after varicella exposure
- Anti-HSV IgG: not indicated

# Baseline Evaluation: TST with PPD

---

- Tuberculin skin test:
  - $\geq 5$  mm = positive: obtain CXR and if abnormal, obtain sputum
  - Anergy testing not indicated
  - Repeat yearly for those at risk
  - Repeat after immune reconstitution on ART if negative at baseline
  - Do not repeat if known previous positive TST
- CXR:
  - Consider baseline CXR, especially in:
    - Patients at risk for TB
    - IDUs (interstitial markings may mimic PCP)

# Baseline Laboratory Evaluation: Tests for Sexually Transmitted Infections

---

- Non-treponemal syphilis test: with confirmatory FTA-ABS if positive
- Screening tests for GC and *Chlamydia*
- Pap smears in women
  - Follow abnormal with colposcopy
- *Consider* anal Pap smears in men, especially MSM, h/o HPV, women with abn. cervical PAP
  - Follow abnormal with high-resolution anoscopy



# Baseline Tests of Questionable Value

---

## **Radiology – ? Chest radiograph**

- Many experienced clinicians want a recent, baseline chest radiograph for all patients. Others obtain one only if there is a history of abnormalities, past pulmonary disease, or active chronic pulmonary problems

## **Electrocardiogram**

- Obtain if signs or symptoms of cardiac disease

# Of No Value in Initial Evaluation

---

## **Anergy testing**

- The USPHS and most experts feel anergy testing gives inconsistent results and is not useful in guiding clinical management, or as routine controls for PPD screening.

## **Serum lactic dehydrogenase (LD, LDH)**

- Elevations suggest pulmonary process or lymphoma, but other indicators usually provide clues.

## **Erythrocyte sedimentation rate (ESR)**

# Baseline Laboratory Tests: Tests for Symptomatic Patients Only

---

- Cryptococcal antigen: Fever or headache, CD4 <100
- Blood cultures for AFB: Fever or constitutional symptoms, CD4 <50
- Testosterone level (AM free and total):
  - Weight loss or muscle wasting, fatigue, loss of libido, depression

# Case 4

---

You receive a call from your colleague regarding a 41 yo HM HIV + who needs HBV vaccination.

HBV serologies: HBV S Ag negative, Core Ab Negative and S Ab negative.

# Please vote

## You advise

---

1. HBV vaccination only if CD4 >200
2. HBV vaccination only if VL suppressed
3. HBV vaccination regardless of CD4 and VL

# Immunizations for HIV Infected Adults

---

## General

- avoid live vaccines (BCG, VZV, MMR, oral polio)
- administer when CD4 > 200 cells/cu mm
- if possible administer when on antiretroviral therapy

## Specific

- hepatitis A, B vaccines
- pneumovax q 5 years
- offer influenza yearly
- offer diphtheria, tetanus as for non-HIV
- marginal benefit for Haemophilus influenza for adults

# Follow-up and Periodic Evaluation

---

- Formulate, discuss, and agree on long term management plan
- Assure contact for emergencies, refills, questions
- Schedule follow up visits in 1, 2, 4 weeks
  - discuss test results, adherence, clinical trial eligibility, education, psychosocial issues, birth control
  - Routine evaluation q 3-4 months
  - frequency of f/u depends on disease stage, stability, and problems

# Follow-up and Periodic Evaluation

---

- Refer for dental and ophthalmology evaluations
- Consider carefully pharmacokinetic interactions between drugs
- Pap q 6 mos. X 2, then yearly if normal
- Annually
  - TB screening, serologies as appropriate
  - Offer influenza vaccine
- OI prophylaxis as indicated
- Antiretroviral therapy as appropriate and agreed upon with patient



# Schedule of Evaluations for Care in Pediatrics

---

- Pediatric patients:
  - HIV-exposed newborns should be observed for signs and symptoms of HIV infection, for co-morbid conditions, and for confirmatory laboratory diagnosis.
- Older perinatally infected infants and children are observed every 3 months but more frequently if ill.
  - Vaccination against chickenpox should be given to only asymptomatic, non-immunosuppressed children.
  - Children with severe immunosuppression shouldn't receive MMR vaccine.
  - All HIV-infected children should be vaccinated against pneumococcal disease and influenza.

# Case 5

---

61 yo AAM dx HIV CD4 + 92. briefly on AZT/3TC/IDV but did not stay on because too many pills and interfered with his eating habits. Admitted with PCP: complicated course in ICU req intubation, Staph line related sepsis and now on ward awaiting transfer to rehab. Has marked thrush despite being on FCZ 200 mg. Willing to start ART if “easy”. Pt agrees to a fixed dose combination of TDF/FTC with EFV.

# Please Vote

---

Before starting ART, the TDF dose should be determined by

1. Creatinine
2. Calculated creatinine clearance by MDRD
3. Calculated creatinine clearance by Cockcroft-Gault equation

# Calculations

- National Kidney Foundation  
([http://www.kidney.org/kls/patients/gfr\\_calculator.cfm](http://www.kidney.org/kls/patients/gfr_calculator.cfm))  
and the Nephron Information Center (<http://nephron.com/> )

- MDRD:  
$$\text{GFR} = 170 [\text{Pcr}]^{-0.999} \times [\text{Age}]^{-0.176} \times$$
$$[0.762 \text{ if patient is female}] \times$$
$$[1.180 \text{ if patient is black}] \times [\text{SUN}]^{-0.170} \times [\text{Alb}]^{0.318}$$

- Cockcroft-Gault equation:  
Estimated creatinine clearance (Cl cr) (mL/min):

$$\text{Male} = \frac{(140 - \text{age}) \times \text{BW (kg)}}{72 \times \text{S cr}}$$

$$\text{Female} = \text{male} \times 0.85$$

# Case 5

---

10 days after starting ART, he develops fever, chills and noted to have pus at old RIJ TLC site. Gram stain positive for yeast. Pt is empirically started on Amphotericin B.

# Please Vote

---

TDF should be stopped in anticipation of worsening GFR

1. Strongly agree
2. Agree
3. Neutral
4. Disagree
5. Strongly Disagree

# Please Vote

TDF should be dose adjusted

---

1. Strongly Agree
2. Agree
3. Neutral
4. Disagree
5. Strongly disagree

# 3 studies

---

- Tenofovir appears to contribute to kidney dysfunction in the setting of pre-existing kidney impairment whether it be secondary to advancing age, advanced HIV disease, other disease states and/or use of concomitant nephrotoxic medications.
- Unlikely in individuals who do have normal kidney function and do not have other risk factors for kidney disease
- Usually reversible



# Please Vote

---

Choice of nucleosides with kidney disease. All of the following need to be dose adjusted for ESRD *except*

1. Zidovudine
2. Lamivudine
3. Abacavir
4. Stavudine
5. Didanosine

---

Blood cultures and neck wd growing *Candida albicans*.  
Repeat blood cultures after 500 mg amphotericin B remain positive for yeast despite I+D of wound.  
Doppler + DVT EJ and evidence of abscess by CT.  
Pt undergoes further surgical intervention.  
Creat increased to 2.7 mg/dL.  
Thrush resolved but switched to caspofungin given expected prolonged course of antifungal therapy.

- 
- His creatinine now returns to 1.2 mg/dL
  - His TDF/FTC was changed to ABC/3TC while on amphotericin B.
  - He completed 6 weeks of caspofungin.
  - F/U: VL <50 copies/ml