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HIV Basics: common clinical scenarios

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HIV Basics: common clinical scenarios

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USAID PEER/Liberia ID Lecture Series

22 October 2020

Goals

- Review some (not all) clinical scenarios involving advanced HIV infection
- Consider some (not all) opportunistic infection (OI) scenarios
- Discuss OI prophylaxis
- Discuss alternative HIV regimens
- Briefly review most pertinent data regarding TB/HIV coinfection

who.int/hiv/pub/en/

Health Topics | Countries | Newsroom | Emergencies | Data | About Us

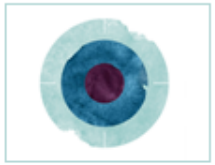
HIV/AIDS

who.int/hiv/pub/en

- HIV
- News and events
- Topics
- Publications
- Data and statistics
- About us
- World AIDS Day

Publications on HIV

Guidelines on HIV testing services for a changing epidemic



Global strategy progress report

Key populations

- Men who have sex with men
- People in prisons and other closed settings
- People who inject drugs
- Sex workers
- Transgender people

Strategic information

Prevention

- Mother-to-child transmission of HIV
- Male circumcision for HIV prevention
- Pre-exposure prophylaxis (PrEP)

Testing

- HIV testing services
- HIV self-testing
- Access to AIDS medicines and

Latest publications

Preventing HIV through safe voluntary medical male circumcision for adolescent boys and men in generalized HIV epidemics: recommendations and key considerations
Guidelines and policy brief - August 2020

Surveillance of antiretroviral toxicity: global HIV, hepatitis and STIs programme: what's new in person-centred HIV patient and antiretroviral drug toxicity monitoring
Technical documentation - July 2020

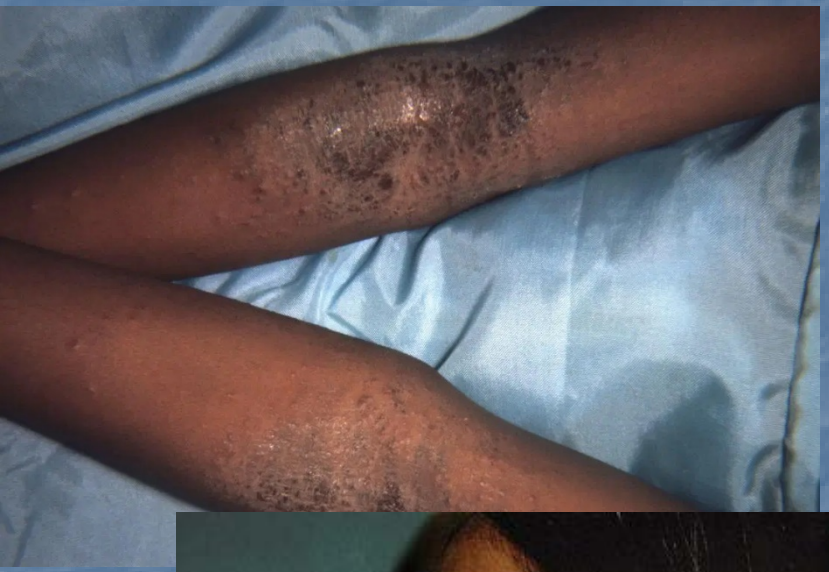
HIV strategic information: accelerating progress on HIV testing and treatment for children and adolescents through improved strategic information
Policy brief - July 2020

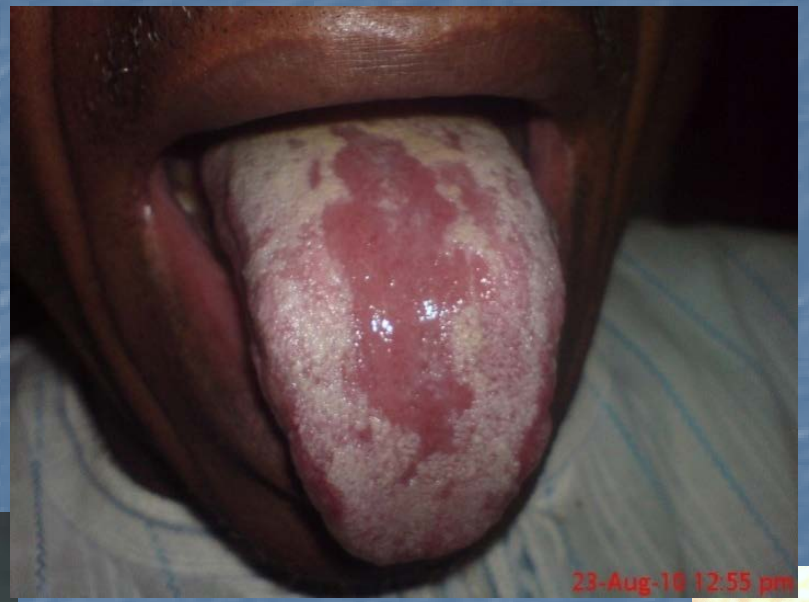
Governance guidance for the validation of elimination of mother-to-child transmission of HIV and syphilis: an overview of validation structures and responsibilities at national, regional and global levels

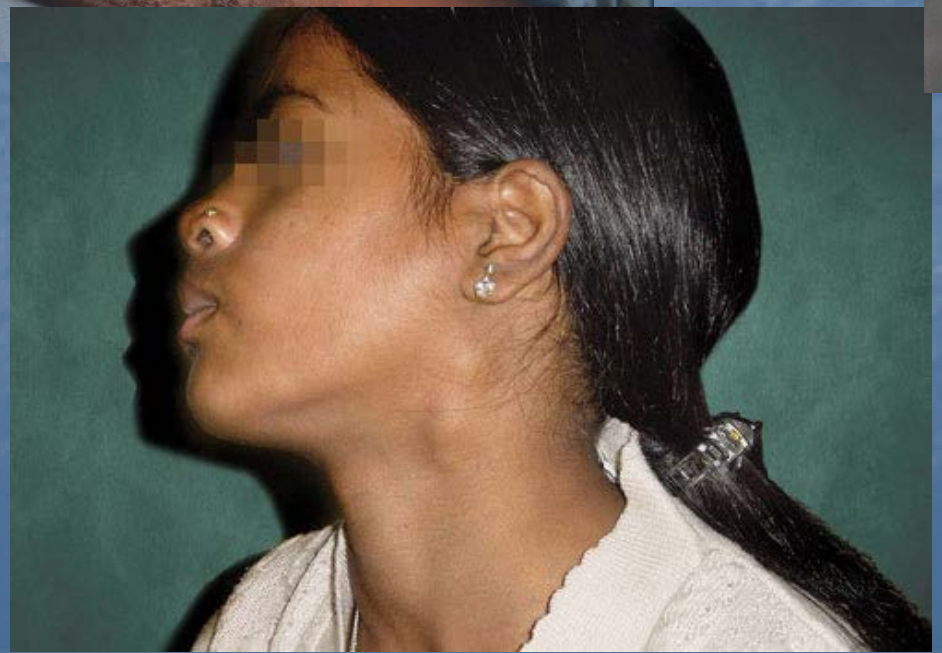
34 yo F with shortness of breath

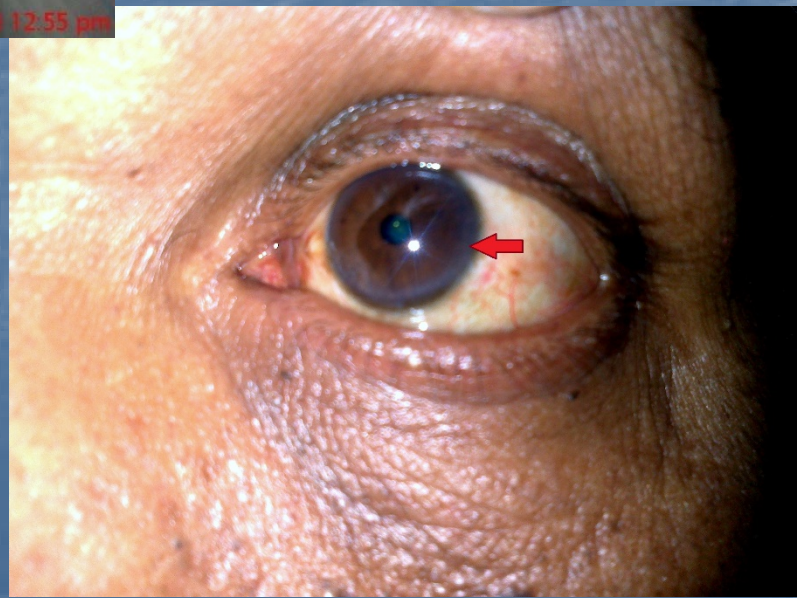
- Sx worsening over last week
- Dry cough
- Fevers and drenching night sweats
- Wt loss ~ 10 lbs
- Vitals: 100.5 F; HR 106; RR 24; O2 sats 95% room air
- Exam: chest & heart auscultation unremarkable
- CBC: WBC 2.2; Hct 29.6; Plt 114
- In ED, O2 sats begin to fluctuate to 84-88%

Which of the following physical findings can help you in your diagnosis?



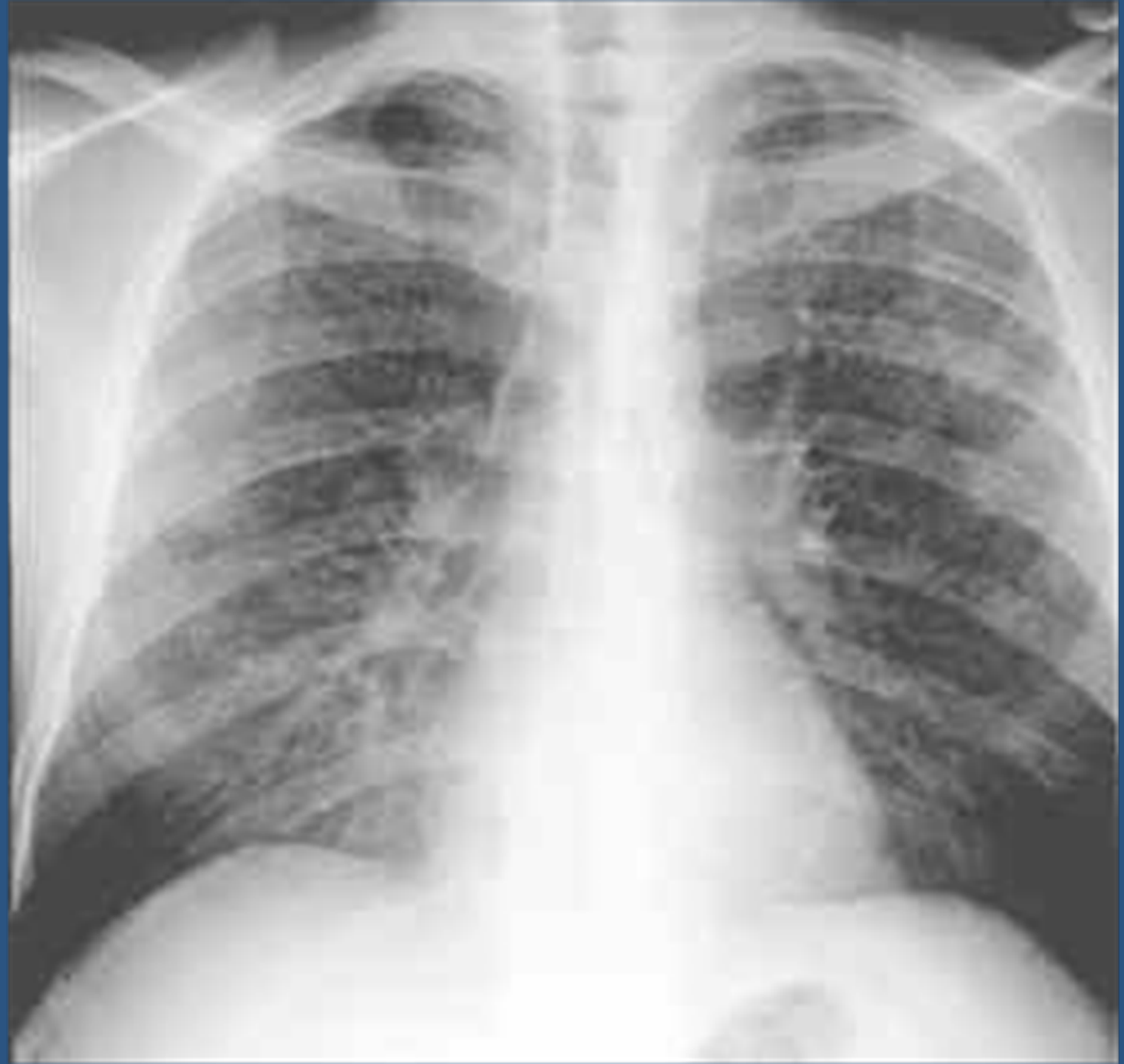






Next steps in management include?

- A. Obtaining HIV test
- B. Blood cultures
- C. Chest X-ray
- D. Pt may be discharged home with clinic follow-up



What is the optimal next step in therapy?

- 1. Ceftriaxone 2 grams daily
- 2. Gentamicin 6 mg/kg daily
- 3. Augmentin IV
- 4. TMP/SMX 15-20/75-100 mg/kg/day divided in 3 doses for 5 days
- 5. TMP/SMX 5-10/50 mg/kg/day twice daily x 14 days
- 6. TMP/SMX 15-20/75-100 mg/kg/day divided in 3 doses for 21 days

Pneumocystis Pneumonia
PCP (*Pneumocystis jirovecii)*

- Initial infection occurs in childhood
- Disease occurs as new infection or reactivation in an immunocompromised host
- In the early years of the epidemic, PCP was the most common cause of death prior to prevention with trimethoprim-sulfamethoxazole (USA data)
- 90% of disease occurs when CD4 <200 or <14%, so ***some cases of PCP can occur if CD4 is >200!***

The HIV test is positive. Do you start ART?

- 1. No; ART should be started in 8 weeks so she can clear the PCP.
- 2. No; ART should be started in 2 weeks after she clears.
- 3. Yes; ART should be started immediately.
- 4. Yes; ART can be started any time between now and 2 weeks from now.

You choose to start meds immediately. Which regimen do you choose?

- 1. Emtricitabine, Tenofovir, Abacavir
- 2. Lamivudine, Atazanavir, Dolutegravir
- 3. Atazanavir, Dolutegravir, Efavirenz
- 4. Emtricitabine, Tenofovir, Dolutegravir
- 5. Stavudine, Emtricitabine, Tenofovir

aidsinfo.nih.gov

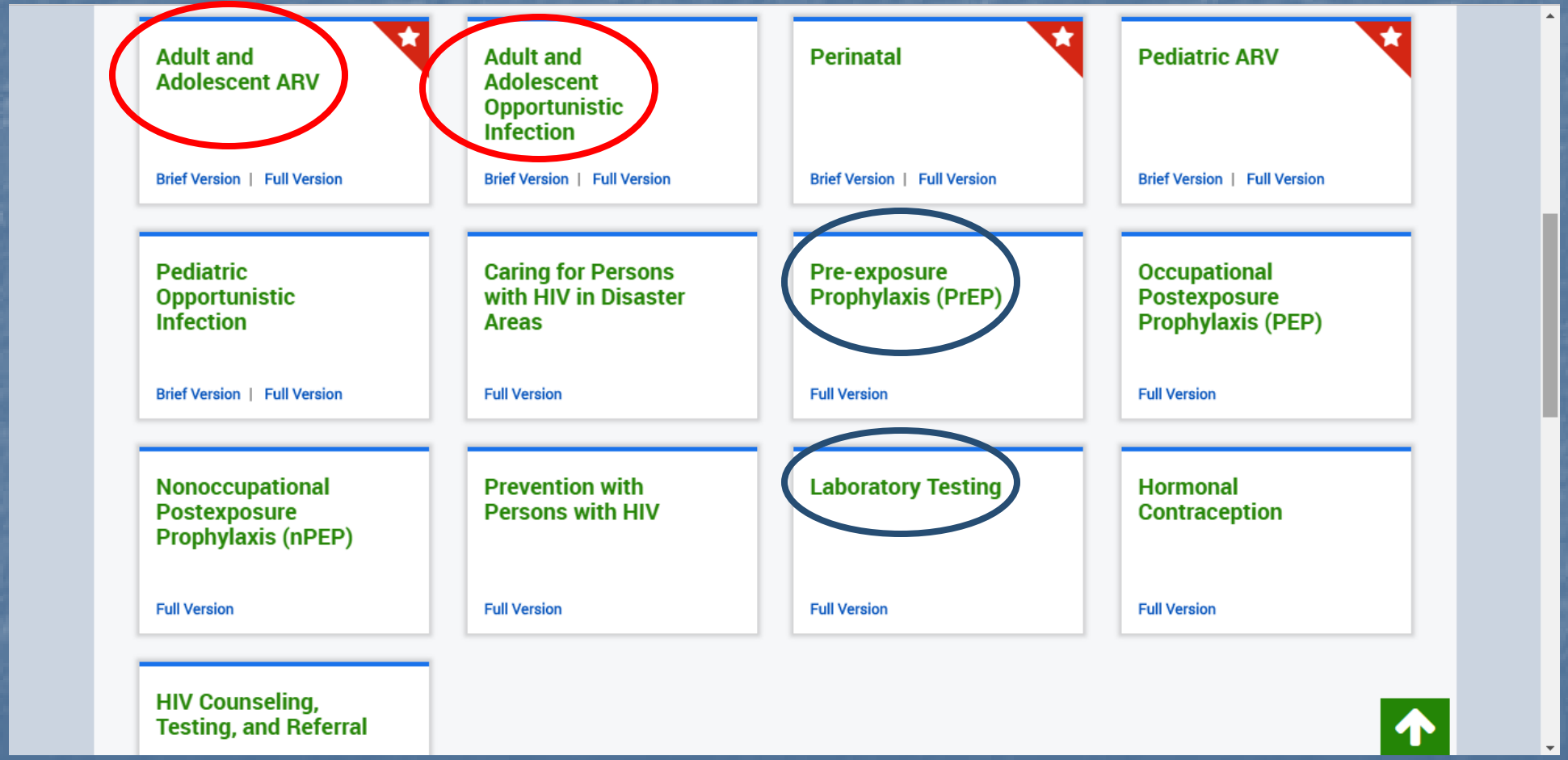


Table 6

https://aidsinfo.nih.gov/contentfiles/lvguidelines/AA_Tables.pdf

Recommended Initial Regimens for Most People with HIV

Recommended regimens are those with demonstrated durable virologic efficacy, favorable tolerability and toxicity profiles, and ease of use.

INSTI + 2 NRTIs:

- DTG/ABC/3TC[a] **(AI)**—if HLA-B*5701 negative
- DTG + tenofovir[b]/FTC[a] (**AI** for both TAF/FTC and TDF/FTC)
- EVG/c/tenofovir[b]/FTC (**AI** for both TAF/FTC and TDF/FTC)
- RAL[c] + tenofovir[b]/FTC[a] (**AI** for TDF/FTC, **AII** for TAF/FTC)

Recommended Initial Regimens in Certain Clinical Situations

These regimens are effective and tolerable, but have some disadvantages when compared with the regimens listed above, or have less supporting data from randomized clinical trials. However, in certain clinical situations, one of these regimens may be preferred (see Table 7 for examples).

Boosted PI + 2 NRTIs: (In general, boosted DRV is preferred over boosted ATV)

- (DRV/c or DRV/r) + tenofovir[b]/FTC[a] (**AI** for DRV/r and AII for DRV/c)
- (ATV/c or ATV/r) + tenofovir[b]/FTC[a] **(BI)**
- (DRV/c or DRV/r) + ABC/3TC[a] **—if HLA-B*5701–negative (BII)**
- (ATV/c or ATV/r) + ABC/3TC[a] **—if HLA-B*5701–negative and HIV RNA <100,000 copies/mL** (**CI** for ATV/r and **CIII** for ATV/c)

NNRTI + 2 NRTIs:

- EFV + tenofovir[b]/FTC[a] (**BI** for EFV/TDF/FTC and **BII** for EFV + TAF/FTC)
- RPV/tenofovir[b]/FTC[a] **(BI)—if HIV RNA <100,000 copies/mL and CD4 >200 cells/mm^3**

INSTI + 2 NRTIs:

- RAL[c] + ABC/3TC[a] **(CII)—if HLA-B*5701–negative and HIV RNA < 100,000 copies/mL**

Regimens to Consider when ABC, TAF, and TDF Cannot be Used:[d]

- DRV/r + RAL (BID) **(CI)—if HIV RNA <100,000 copies/mL and CD4 >200 cells/mm^3**
- LPV/r + 3TC[a] (BID)[e] **(CI)**

Treatment options as of 2020 by class

Reverse Transcriptase Inhibitors (NRTI, "Nukes")

3TC (lamivudine)
FTC (emtricitabine)
TDF/TAF (tenofovir)

d4T (stavudine)
AZT (zidovudine)
ABC (abacavir)*

Integrase Inhibitors

DTG (dolutegravir)

RAL (raltegravir)*

Protease Inhibitors

ATV (atazanavir)
DRV (darunavir)*

LPV/r (lopinavir)

Reverse Transcriptase Inhibitors (NNRTI, or "Non-Nukes")

EFV (efavirenz)
RPV (rilpiverine)*

NVP (nevirapine)

Recall: "backbone" of standard treatment: 2 NRTIs + EITHER Int Inhbitor or PI, or (second line) 2 NRTIs + EFV (NNRTI)

FACT SHEET

HIV TREATMENT AND CARE

WHAT'S NEW IN HIV TREATMENT

NOVEMBER 2015

World Health Organization

WHO recommends initiation of ART for all people living with HIV at any CD4 cell count

Fixed dose combinations (FDCs) containing TDF/XTC/EFV remain the preferred first line regimen for adults, adolescents and older children

For the first time, DTG and EFV400 have been included as alternative

To support simplification of HIV treatment, WHO recommends a limited formulary of preferred treatment options. As well as giving priority to antiretroviral drugs (ARVs) with superior efficacy and tolerability, WHO prioritizes choices based on:

- convenience,
- availability as fixed dose combinations (FDCs),
- compatibility with treatment of common co-morbidities, and
- potential to use across all populations.

First-line regimens

- In 2015 WHO maintains the 2013 recommendation of **TDF + 3TC (or FTC) + EFV at standard doses** (600 mg/day) as the preferred first-line regimen for

- **AZT and NVP are ma… alternative drug opt…** 400mg/day are not lik… unti… beyond 2016 (see…

Table 1.

WHAT TO USE IN FIRST-LINE THERAPY IN ADULTS	ARV REGIMEN[1,2]
Preferred Option	TDF+XTC[3]+EFV$_{600}$
Alternative Options	AZT+3TC+EFV$_{600}$
	AZT+3TC+NVP
	TDF+XTC[3]+NVP
	TDF+XTC[3]+DTG[4] NEW
	TDF+XTC3+EFV$_{400}$[4] NEW

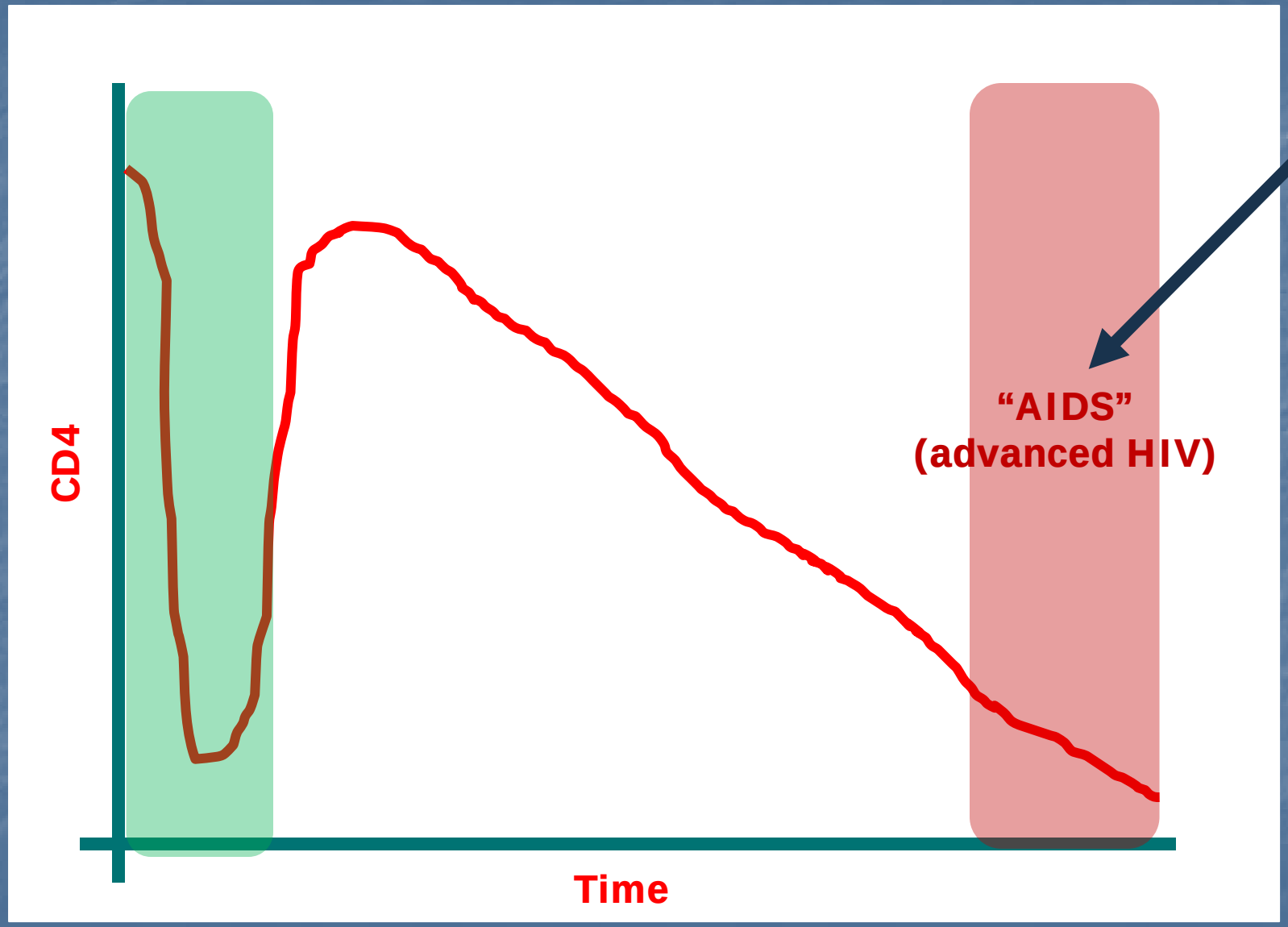
1 FDCs are the preferred approach

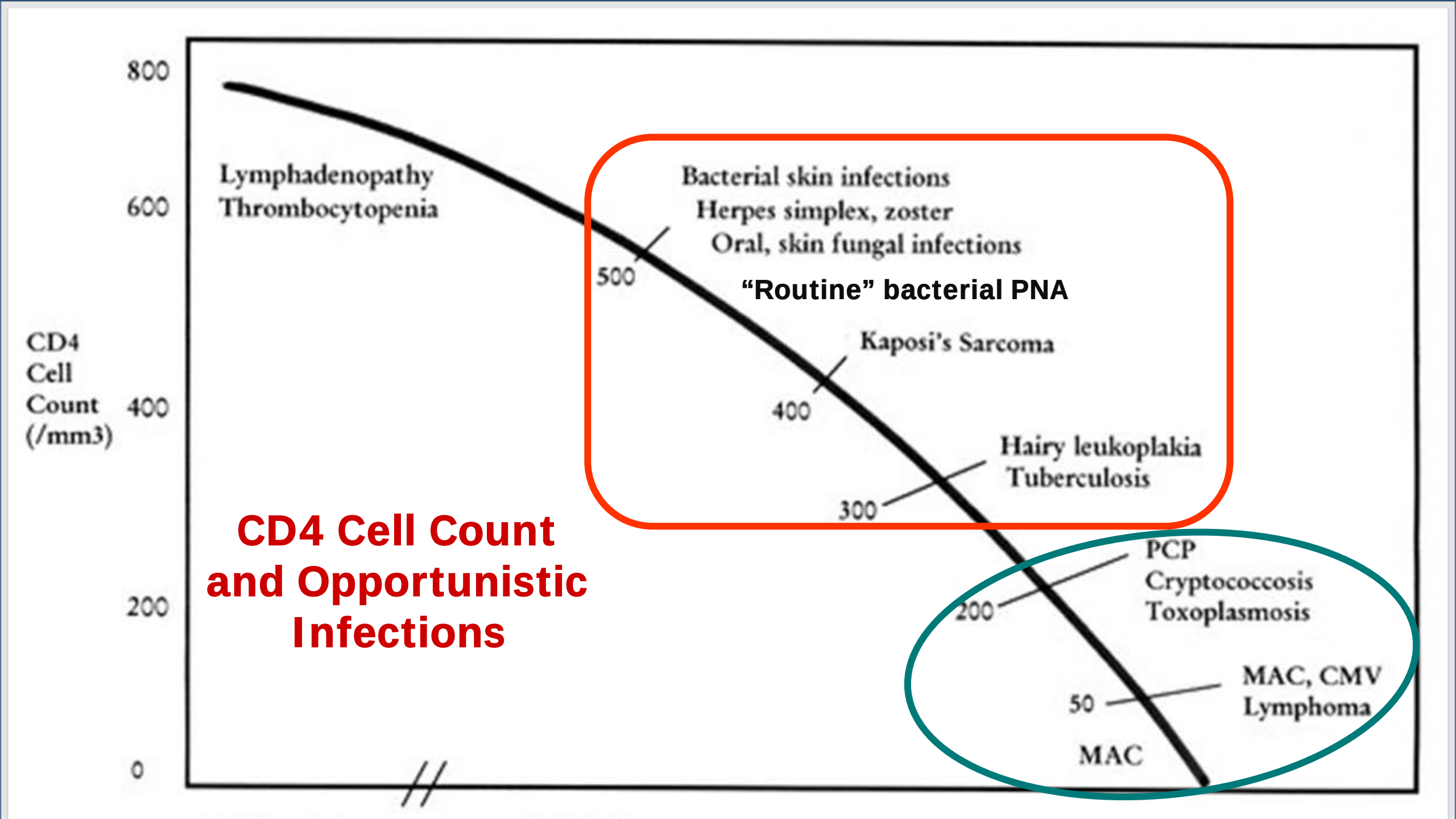
2 Countries should discontinue d4T use in first-line regimens due to well-recognized metabolic toxicities.

She responds to treatment and is feeling better at six months follow-up. When can you stop PCP prophylaxis?

- A. When her CD4 count is > 50
- B. When her CD4 count is > 100
- C. When her CD4 count is > 200
- D. When her CD4 count is > 300
- E. When her CD4 count is >100 ***and*** her viral load is undetectable for 3-6 months

Acute Retroviral Syndrome (~1-3 months)




800
600
400
200
0
CD4 Cell Count (/mm3)
Lymphadenopathy
Thrombocytopenia
Bacterial skin infections
Herpes simplex, zoster
Oral, skin fungal infections
500
"Routine" bacterial PNA
Kaposi's Sarcoma
400
Hairy leukoplakia
Tuberculosis
300
PCP
Cryptococcosis
Toxoplasmosis
200
MAC, CMV
Lymphoma
50
MAC
CD4 Cell Count and Opportunistic Infections

Opportunistic Infection Prophylaxis

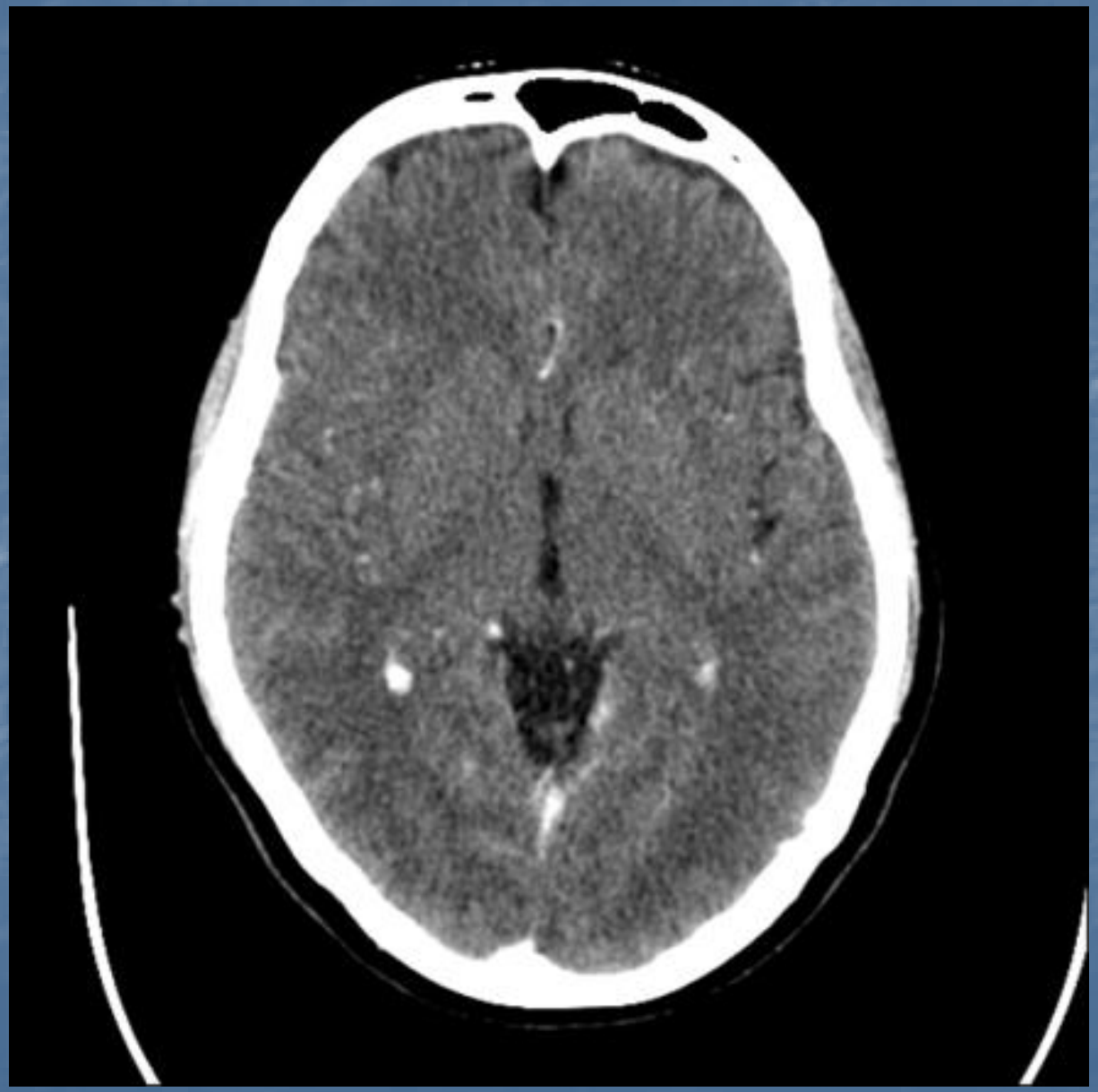
- CD4 < 50: Azithromycin 500 mg twice weekly (MAC)
- CD4 < 100 Septra DS one tab daily (toxoplasmosis)
- CD4 < 100 Fluconazole 100 mg daily
- CD4 < 200 Septra SS one tab daily (PCP)
- *Any* CD4 count: isoniazid 300 mg daily with pyridoxine 25 mg daily (TB—***if*** no evidence of active TB infection)

- (SS = 80/400 TMP/SMX; DS = 160/800 mg)

40 yo M with headaches

- 3 weeks of intense HA sometimes w photophobia
- Has been somnolent lately. A friend noticed confusion and brought him to the ER
- Vitals: Temp 100.2; HR 90; BP: 90/70; eyes closed most of the time, sleepy
- Known HIV but may not be taking meds
- Meds: emtricitabine/tenofovir/dolutegravir; TMP/SMX

CT Head



- CSF:
- 110 WBC (90% Lymph)
- 4 RBC
- Opening pressure 33 cm
- Protein 75
- Glucose 40

Which of the following is true?

- A. this is a space-occupying lesion that will improve with resuming his emtricitabine/tenofovir/dolutegravir
- B. this is a space-occupying lesion that will improve with changing to stavudine (d4T)/AZT/atazanavir
- C. he may require daily spinal taps
- D. this is an opportunistic organism that will respond to treatment with pyrimethamine/sulfadiazine
- E. this is an opportunistic organism that will respond to treatment with Septra

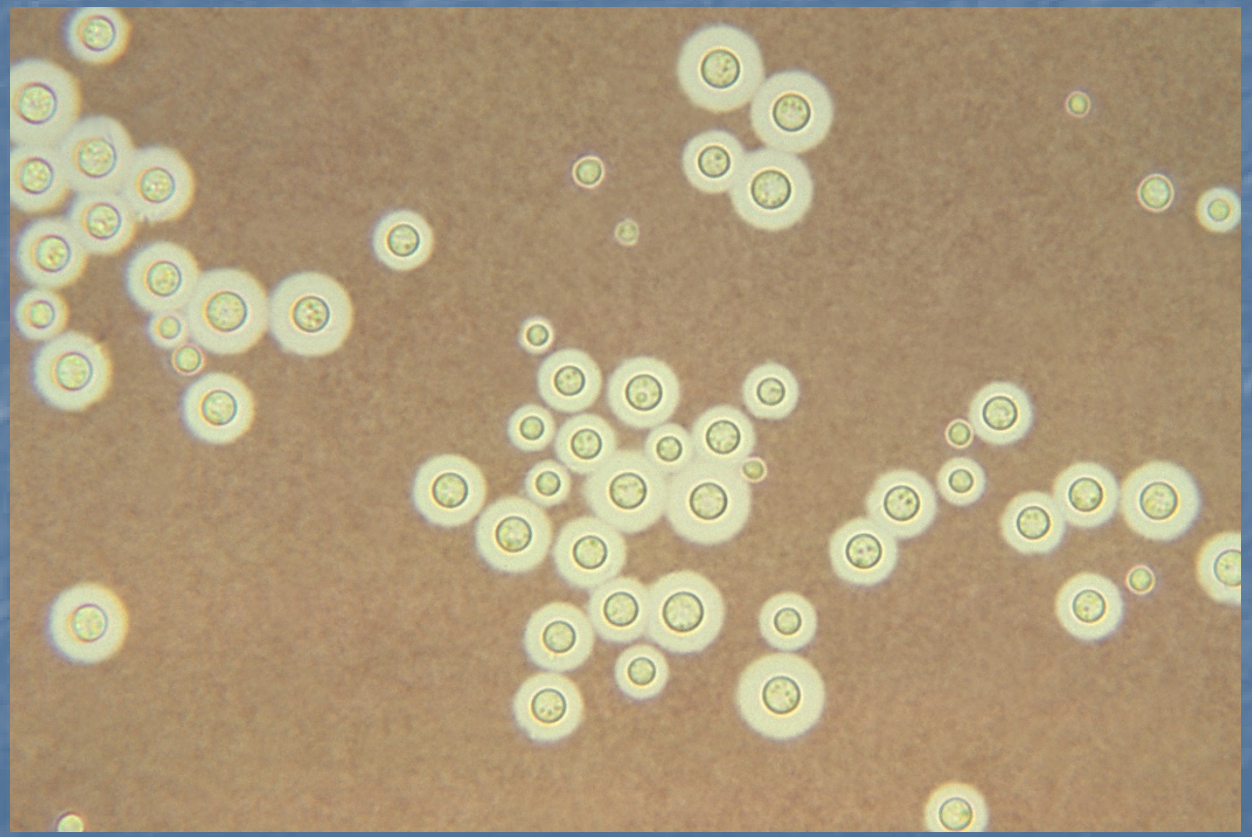
Which of the following is the best medication to treat this infection?

- A. Fluconazole
- B. Augmentin
- C. Ceftriaxone
- D. Acyclovir
- E. Albendazole

Cryptococcosis

- Highly prevalent in African pts with CD4 < 100 (~10%)
- Clinical: fever, HA, memory loss, altered mentation, lethargy
- "Classic" CSF: lymphocytic pleocytosis, mildly elevated protein, ***high opening pressure***, crypto Ag +
- ***BUT*** CSF can appear unremarkable as well

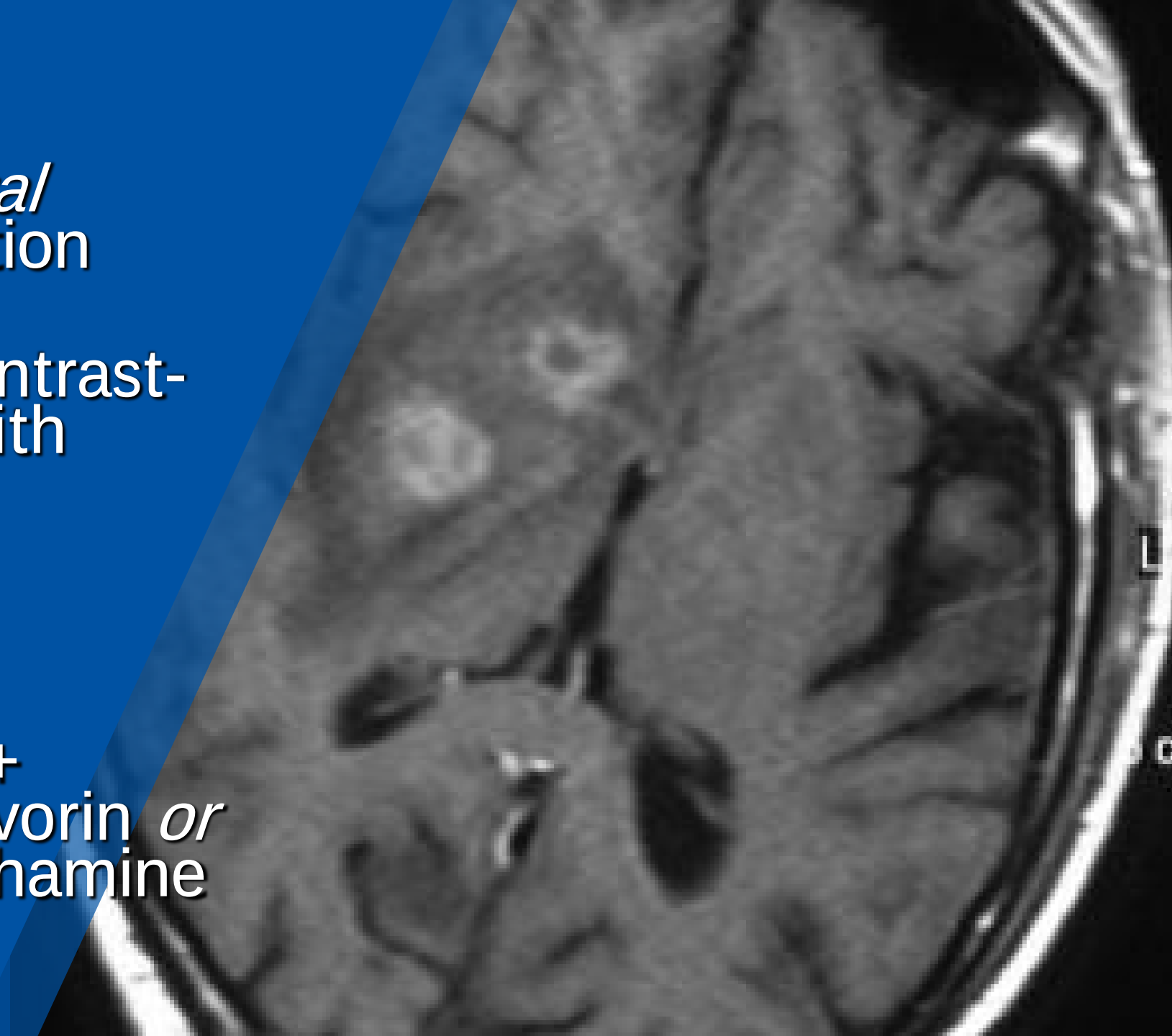
Treatment Considerations



- (amphotericin B + flucytosine)
- Fluconazole ~1200 mg daily x 2 wks; 800 mg x 8 wks
- If ongoing HA or visual changes, ***repeat spinal tap(s)***

Toxoplasmosis

- Often with more *focal* neurologic presentation compared to crypto
- CT: typically mult contrast-enhancing lesions with edema
- Seen with PNA and retinochoroiditis
- Toxo serology IgG +
- Tx: pyrimethamine + sulfadiazine + leucovorin *or* clindamycin/pyrimethamine

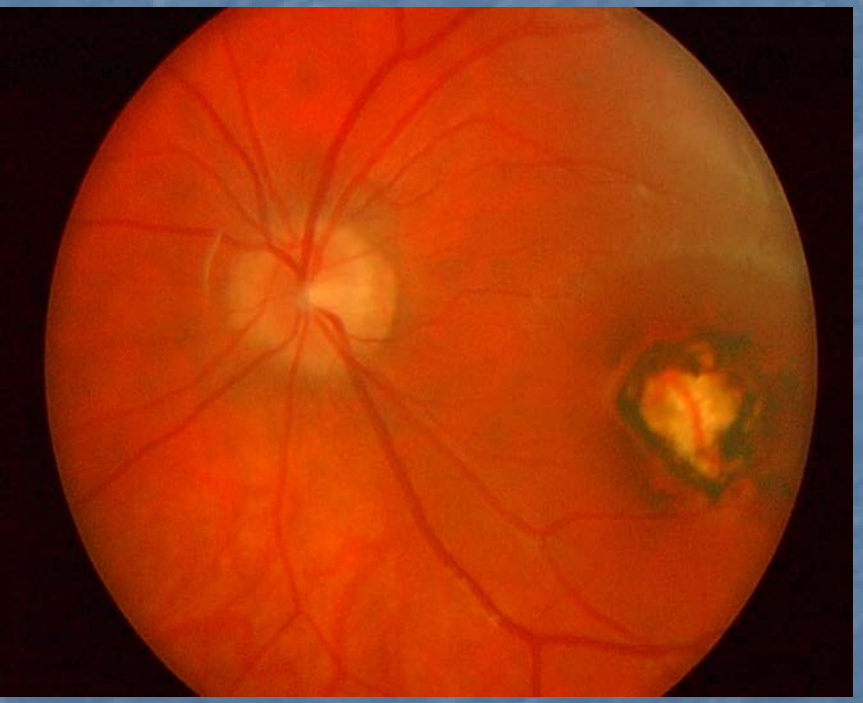


CNS infections in HIV patients

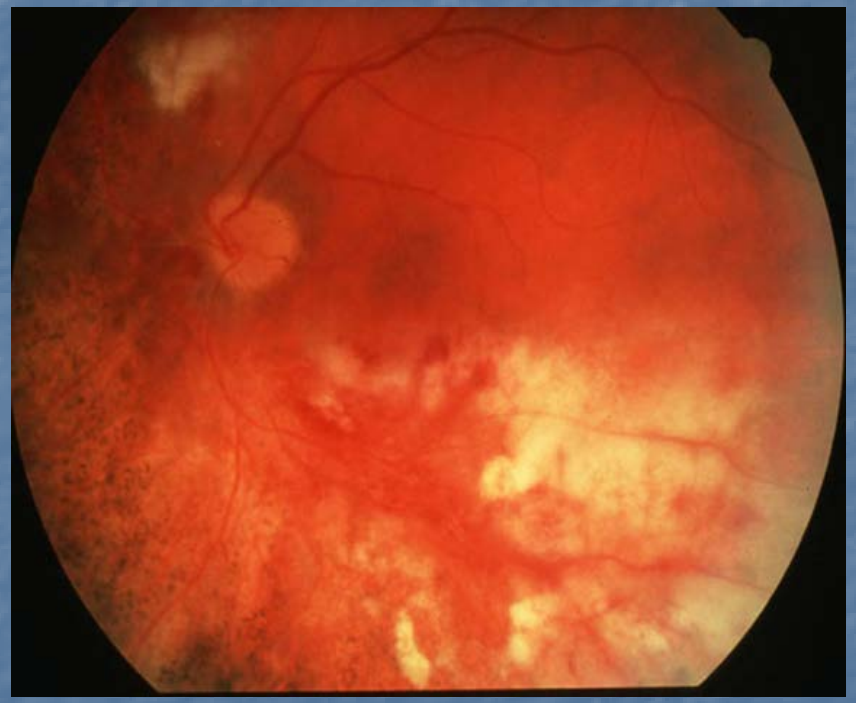
- Cryptococcosis (usu when CD4 <100)
- Toxoplasmosis (usu when CD4 <100)
- CNS Lymphoma (usu when CD4 <50)
- Progressive Multifocal Leukoencephalopathy (usu when CD4 <50)
- Tuberculosis (*any* CD4 count)
- AIDS dementia (progressive nonspecific CNS changes when CD4 <200)

Your eye exam skills can be useful

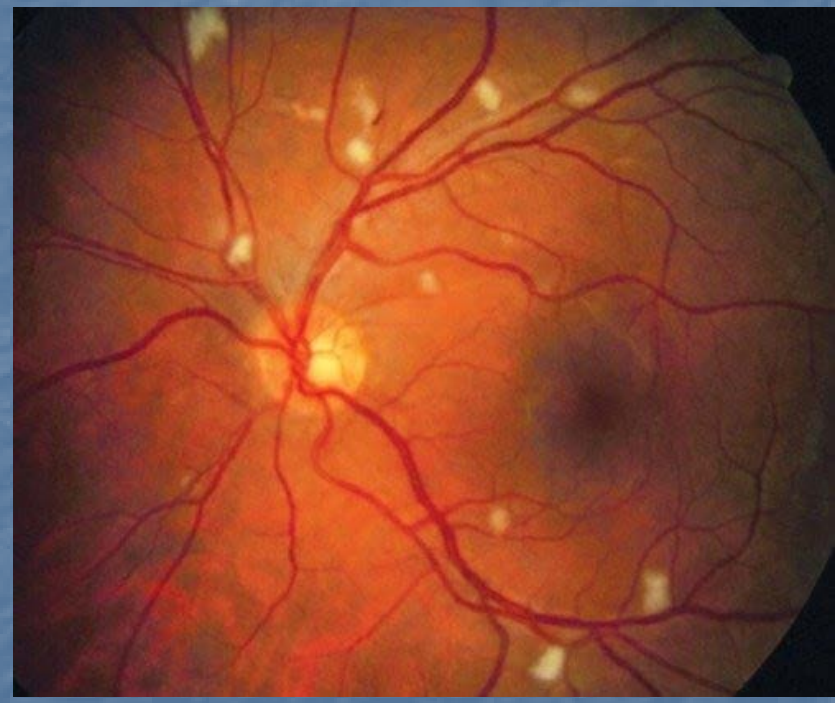
Toxoplasma



CMV retinitis



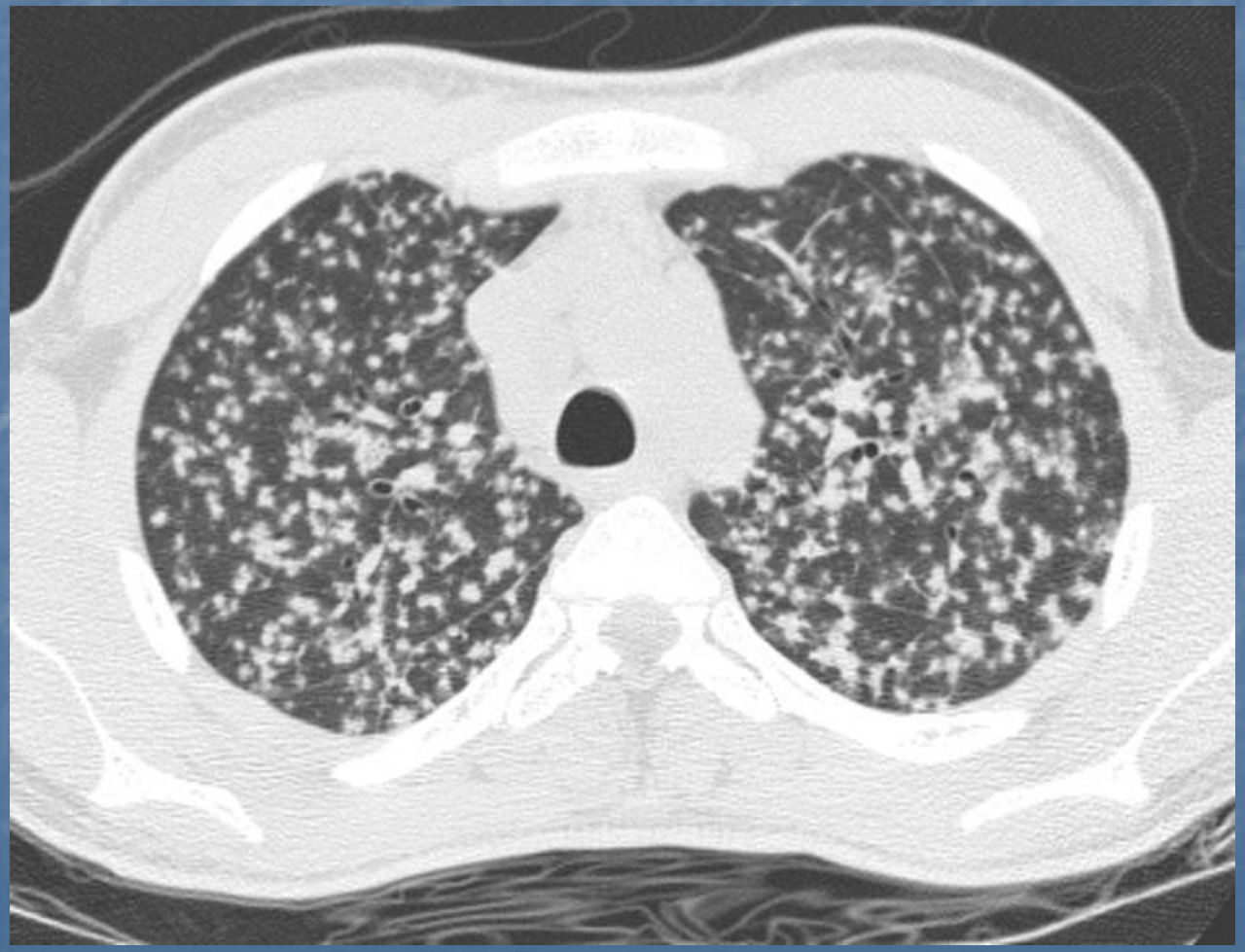
HIV retinopathy

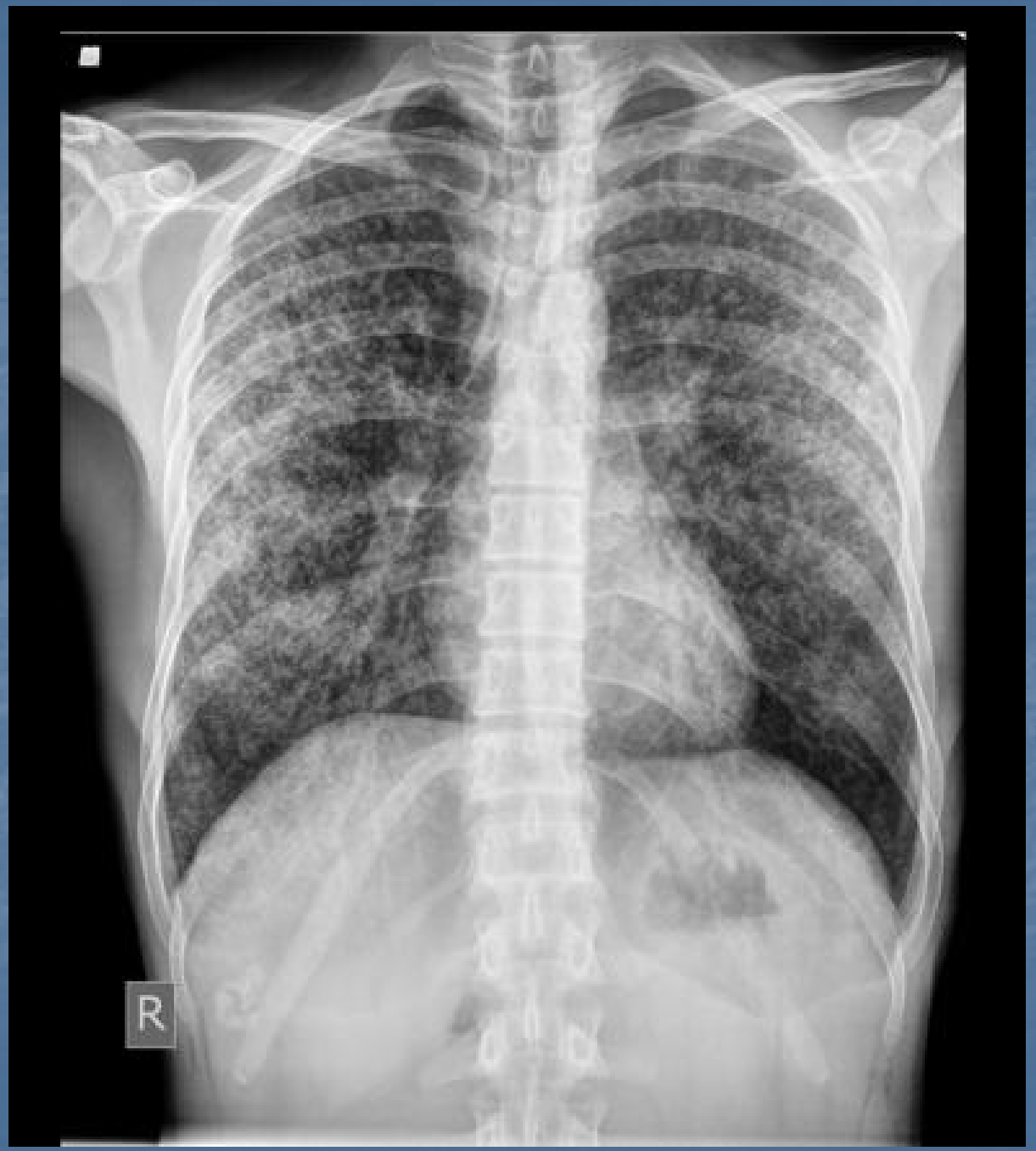


A 20 yo man with fevers x several weeks

- Nonspecific malaise
- Dry cough
- T 102 F; HR 120; BP 100/72; O2 Sats 90%
- Exam: cachectic; systolic murmur across precordium; faint diffuse crackles
- CBC: WBC 1.8; Hct 27.8; Plt 214
- Chem: Cr 1.2; Alk Phos 422; Bili 0.7
- HIV spot positive; CD4 returns @ 156

Radiography





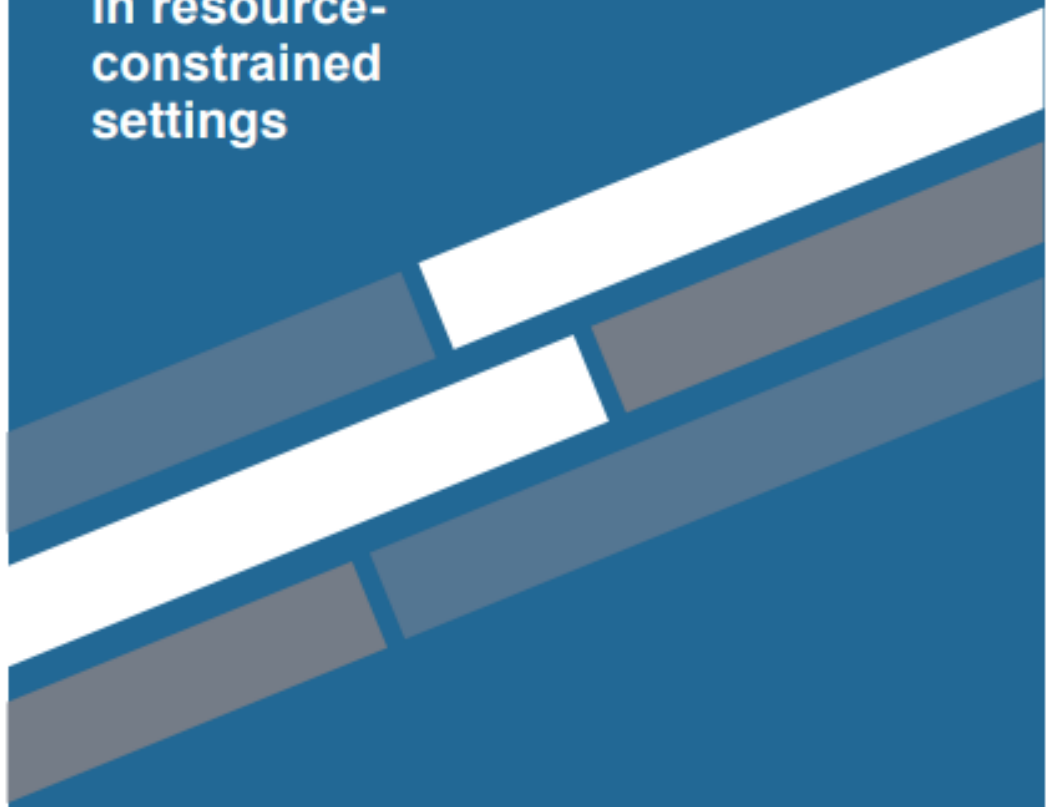
Which of the following is true?

- A. He can have only one opportunistic infection, and that infection is PCP.
- B. He can have only one opportunistic infection, and that is tuberculosis.
- C. He must be treated for TB and complete a six-month course before beginning HIV ART.
- D. He should begin HIV ART shortly after starting RIPE therapy.
- E. He does not require TMP/SMX while on TB therapy.

TB

- TB can occur @ any stage of HIV
- Increased risk of non-pulmonary presentations (TB meningitis; scrofula; Pott's; peritoneal TB; etc.)
- Start HIV tx *within 8 weeks* of starting TB tx
- If CD4 < 50, start HIV tx within *two* weeks
- If TST status in HIV pt is not known and no active TB, give INH/pyridoxine for 36 months

Guidelines for intensified tuberculosis case-finding and isoniazid preventive therapy for people living with HIV in resource-constrained settings



World Health Organization

HIV TB

Not covered today but critically important

- Non-mycobacterial TB
- Oral and oesophageal candidiasis
- CMV
- HIV-related cancers
- HIV-associated nephropathy (HIVAN)
- How to assess treatment failure
- IRIS
- Much to learn...