

# HIV 101. Clinical Manifestations of HIV: Prevention, Diagnosis, and Management

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## Learning Objectives

After attending this presentation, learners will be able to describe:

- The natural course of HIV-related disease
- Principles of diagnosis of most common clinical presentations
- Principles of prevention of disease
- Best resources for prevention and management of HIV related disease.

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## Three Decades of Treatment Issues

- **1980s:** AIDS described, PCP kills 90% of pts., clinicians develop skills in diagnosing, treating and preventing complications.
- **1990s:** First effective treatments, patients respond, death rates drop.
- **2000s:** New toxicities arise, resistance is critical, adherence issues emerge, limitations of therapy become apparent.
- **2007:** Second round of effective antiretroviral agents-integrase and CCR5 inhibitors.
- **2013:** Serious talk of "cure".
- **2015:** PREP



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## Three Decades of Treatment Issues

- **1980s:** AIDS described, PCP kills 90% of pts., clinicians develop skills in diagnosing, treating, and preventing complications.
- **1990s:** First effective drugs, but resistance rates drop.
- **2000s:** New toxic drugs, but resistance issues emerge, limitations of the first generation of drugs.
- **2007:** Second round of drugs, but resistance issues emerge, CCR5 inhibitors.
- **2013:** Serious talk of "cure".
- **2015:** PREP

The most effective way to prevent HIV related disease is to control the virus.

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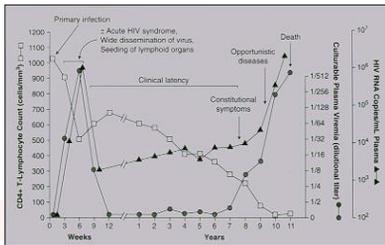
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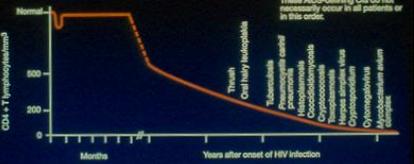
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## Opportunistic Infections in HIV Disease




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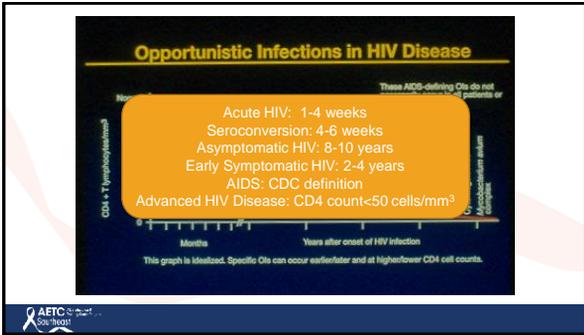
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**Rachel**

- A 22-year-old woman presents to clinic to establish care. She feels well.
- She tested HIV positive at a health fair 3 months ago. Had never been tested before.
- PE is unremarkable. Labs were drawn 2 months ago and are wnl. STI screens are negative
- Pertinent labs: 623 cells/mm<sup>3</sup>-34%; HIV-1 RNA is 46,232 copies/ml.

AETC  
 Case Report

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She asks if she is more likely to get sick now.

AETC  
 Case Report

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### ARS Question 1: You tell her:

1. She is at increased risk to "catch" infections from other people and needs to take some precautions when in crowds etc.
2. Her immune system is healthy, and she is at no increased risk for any problems at this time.
3. She is relatively well immunologically but is at increased risk for some infections.
4. She may be at risk for many of the AIDS related illnesses since we have only one CD4 count and do not know her current immune status.



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### Rachel

- Rachel is in the asymptomatic stage of HIV infection.
- Her "virologic setpoint" will be set and remain relatively stable over time.
- Her CD4 count will decline about 50-100 cells/mm<sup>3</sup>/year.
- Her risk for some infections may be slightly increased compared to HIV – age matched controls:
  - MTB: increased risk of infection and active disease
  - VZV: increased risk and may have higher incidence in younger patients



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### Jason

- 41 year old man diagnosed with HIV infection 4 years ago. He was initially started on HAART, did well for a while then fell out of care.
  - Returned to re-establish care 4 months ago and missed follow up appointment.
  - Labs at that time revealed a CD4 count of 304 cells/mm<sup>3</sup> and 17% and a HIV-1 RNA PCR of 234,211 copies/ml.
- He calls the service complaining of increased fatigue, some weight loss and chills. He reports "feeling terrible".



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## ARS Question 2: Jason...

Your next step would be:

1. Have case management contact patient to set up an appointment to re-establish care and get back on HAART.
2. Suggest the patient present to a walk-in clinic for evaluation.
3. Send the patient to the ED for an emergent work up of AIDS-related illnesses.
4. Have the patient come into the clinic and evaluate clinically; repeat HIV labs and follow up.



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## ARS Question 2: Jason

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Although all of Jason's complaints can be related to untreated HIV infection. His CD4 count (stage) will determine risk of other, potentially life threatening complications.



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## Jason

CD4 count  $>200$  cells/mm<sup>3</sup>; % $>14$

- Goals: reassure patient that he is not currently at great risk for ADEs.
- Evaluate for non-HIV related illnesses.
- Initiate HAART if ready and all lab data is available.

CD4 count  $<200$  cells/mm<sup>3</sup>; % $<14$

- Focused clinical visit looking for localized signs or symptoms.
- Aggressive OI work up based on symptoms and signs.
- May need emergent hospital based evaluation.



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## Preventing Disease

In addition to maintaining immune competence with effective antiretroviral therapy, prophylaxis and vaccination are essential components of HIV management.



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## Anthony

- 44-year-old male construction worker living in Memphis TN who is now enrolling in care. He was diagnosed 6 years ago, had been on meds in the past but none for about 2 years. He feels well with no specific complaints.
- Labs reveal a CD4 count of 134 cells/mm<sup>3</sup> (8%). HIV 1 RNA PCR 311,232 copies/ml. HAV serology +, anti-HBc +, Toxoplasma IgG+



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## ARS Question 3: Anthony...

Assuming no history of adult immunizations and no significant drug allergies, what would you do?

1. Start prophylaxis for PCP, MAC;
2. Start prophylaxis for PCP, histoplasma;
3. Start prophylaxis for all of the above and CMV;
4. Start prophylaxis for PCP only.



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## ARS Question 4: Anthony...

Assuming no history of adult immunizations and no significant drug allergies; what would you do?

1. Initiate vaccination schedule to include HAV, HBV, S. pneumonia, VZV, HPV;
2. Defer all vaccinations until immune reconstitution above 200 cells/mm<sup>3</sup>;
3. Initiate vaccination schedule for HAV, one dose HBV, S. pneumonia;
4. Vaccinate for HAV, defer others until immune reconstitution.




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## Preventing disease

- Recommendations for prevention of first episode of OIs are specific to HIV disease stage, prior vaccination status and geographic location.
- Recommendations for treatment of AIDS-related OIs include recs for secondary prophylaxis and maintenance therapy.
- Recommendations for discontinuing prophylaxis and restarting prophylaxis and maintenance therapy are listed separately.
  - *Tables 1, 2 and 4 Guidelines for the prevention and treatment of Opportunistic Infections in HIV-Infected Adults and Adolescents.*




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| Opportunistic Infection | Indication                  | Comments                       |
|-------------------------|-----------------------------|--------------------------------|
| PCP                     | CD4 <200 or 14%             | Multiple options               |
| Toxoplasmosis           | + serology, CD4 < 100       | Multiple options               |
| MTB                     | + LTBI screen or contact    | Per Protocols                  |
| MAC                     | <50 CD4 cells, no active dz | Multiple options               |
| S. Pneumoniae           | All patients                | Timing different for CD4 count |
| Influenza A and B       | All patients                | Inactivated                    |
| Syphilis                | Sexual exposure             | W/190 days                     |
| Histoplasmosis          | CD4 < 150, high risk        | Itraconazole has high DDI      |
| Coccidioidomycosis      | + serology, CD4 < 250 cells | fluconazole                    |
| VZV                     | CD4 > 200 cells             | Recombinant vaccine*           |
| HPV                     | Up to 45 years of age*      | New recommendations            |
| HAV                     | - serology                  | Epidemic considerations        |
| HBV                     | - serology                  | +Anti-HBc, one dose            |
| Malaria                 | Travel specific             | Same as HIV - travelers        |
| Penicilliosis           | CD4 < 100 cells, endemic    | Rural SE Asia                  |




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## Setting up the patient for successful care.

- Effective Linkage:
  - HIV 101, materials and time to talk;
  - Initial labs with rapid provider follow up;
    - Labs: UA, HAV, HBV, HCV, Toxoplasma, Treponemal Ab serologies; MTB screen, urine GC/Chlamydia screen, HLA B5701, HIV 1 Genotype, CD4 count/%, HIV-1 RNA PCR.
- Retention in care:
  - Rapid initiation of HAART;
  - Patient intake navigation;
  - Follow up on missed appointments;
  - Multiple access points for clinical care.



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## Resources

- Guidelines for Prevention and Treatment of Opportunistic Infections in HIV-Infected Adults and Adolescents  
<https://aidsinfo.nih.gov/guidelines>
- Regional AETCs: SEAETC.com
- HIV Essentials Paul Sax (2017)



Resources for the National HIV/AIDS Strategy  
at [www.aidsinfo.nih.gov](http://www.aidsinfo.nih.gov)



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## Question-and-Answer



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