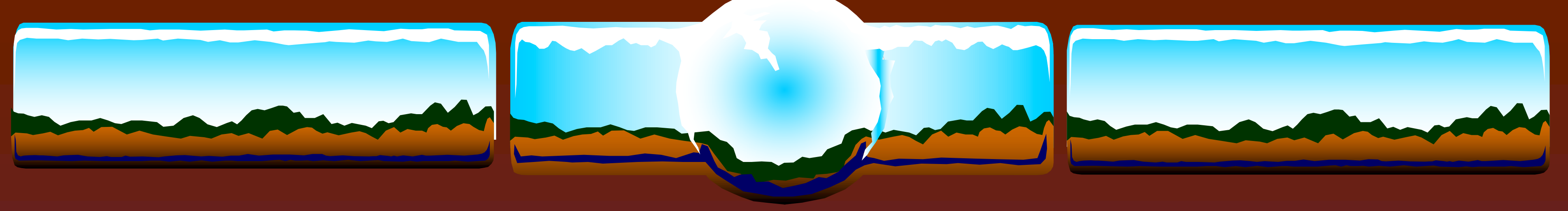

Monitoring HIV
Pre-Exposure Prophylaxis
Part 1

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Monitoring the person on PrEP

- Pre-Exposure Prophylaxis for HIV requires **quarterly** follow-up
  - Schedule the patient for quarterly visits
  - Prescribing and Monitoring can be done by HIV Pharmacist Clinicians
  - Monitoring labs can be done in advance with self testing encouraged

Monitoring the person on PrEP

- Monitoring Goals
  - Evaluate adherence to PrEP
  - Evaluate on-going risk and need for continued PrEP
  - Evaluate for toxicity
  - Ensure that the person has not acquired HIV
  - Make sure there are no new Sexually Transmitted Infections (STIs)

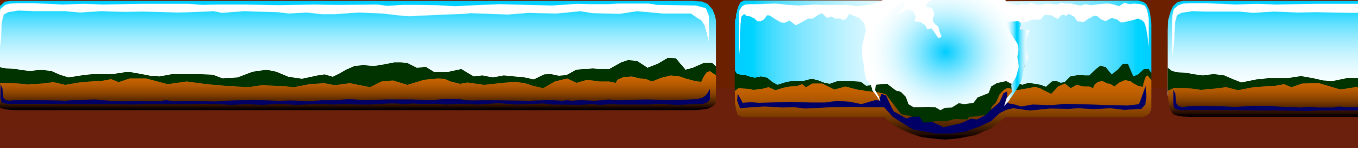
Monitoring the person on PrEP

- Quarterly History Review
  - Adherence to PrEP
    - "Everyone misses some doses. How many times a week do you?"
  - Risk factors for HIV acquisition
    - New Partners, condom use, site of sexual contact
    - Alcohol and Drug use patterns
  - Birth Control
  - Symptoms of Acute HIV Infection
  - Symptoms of Syphilis, Gonorrhea, Chlamydia, and other STIs

Monitoring the person on PrEP-Labs

- Screen at each quarterly visit for the following
  - HIV Fourth Generation Test
  - RPR
  - Gonorrhea and Chlamydia (urine, pharynx,rectum) self testing
  - Pregnancy test for persons of childbearing potential

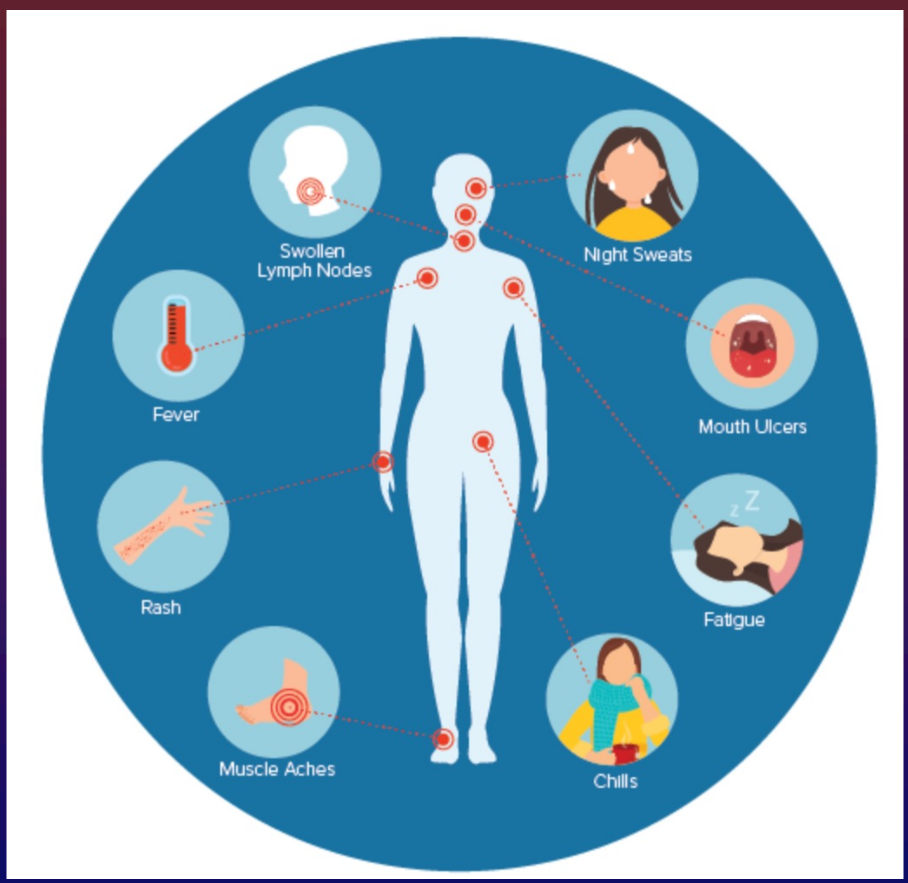
- Screen Creatinine Clearance annually if less than age 50 and eCrCl > 90 or twice a year if CrCl <90 or age >50,
  - BMP to calculate eCrCL (refill OK if $\geq$ 60 ml/min)



Acute HIV Infection

- Background
  - Acute febrile illness occurring 2-4 weeks after HIV exposure
  - 40-90% of persons acquiring HIV experience this syndrome
  - 80% of transmissions occur via mucosal surfaces
  - 20% of transmissions are percutaneous or intravenous

Acute HIV Infection Clinical Manifestations



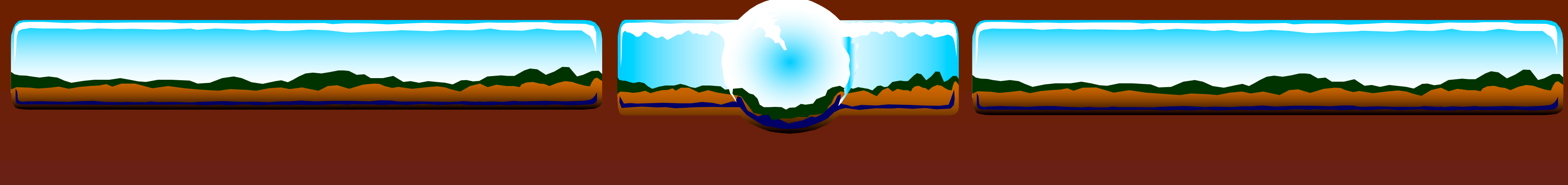
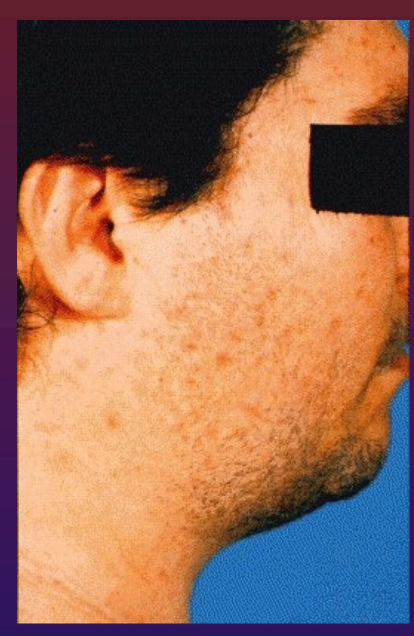
https://www.cdc.gov/hiv/basics/whatishiv.html

Acute HIV Infection Differential Diagnosis

- HIV
- Secondary Syphilis
- EBV
- RMSF
- Measles
- COVID-19
- Hantavirus
- Drug rash
- Lupus

Acute HIV infection Clinical Presentation

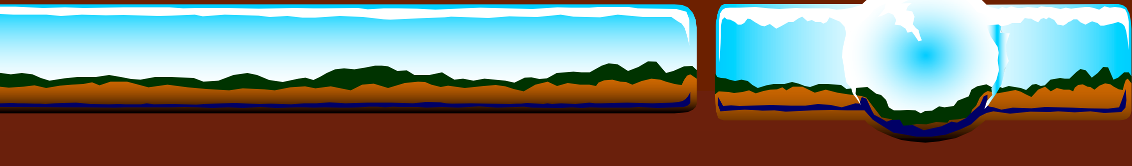
- Symptoms
  - Fever
  - Fatigue
  - Myalgia
  - Rash
  - Headache
  - Pharyngitis
  - Cervical adenopathy
  - Arthralgia
  - Night Sweats
  - Diarrhea

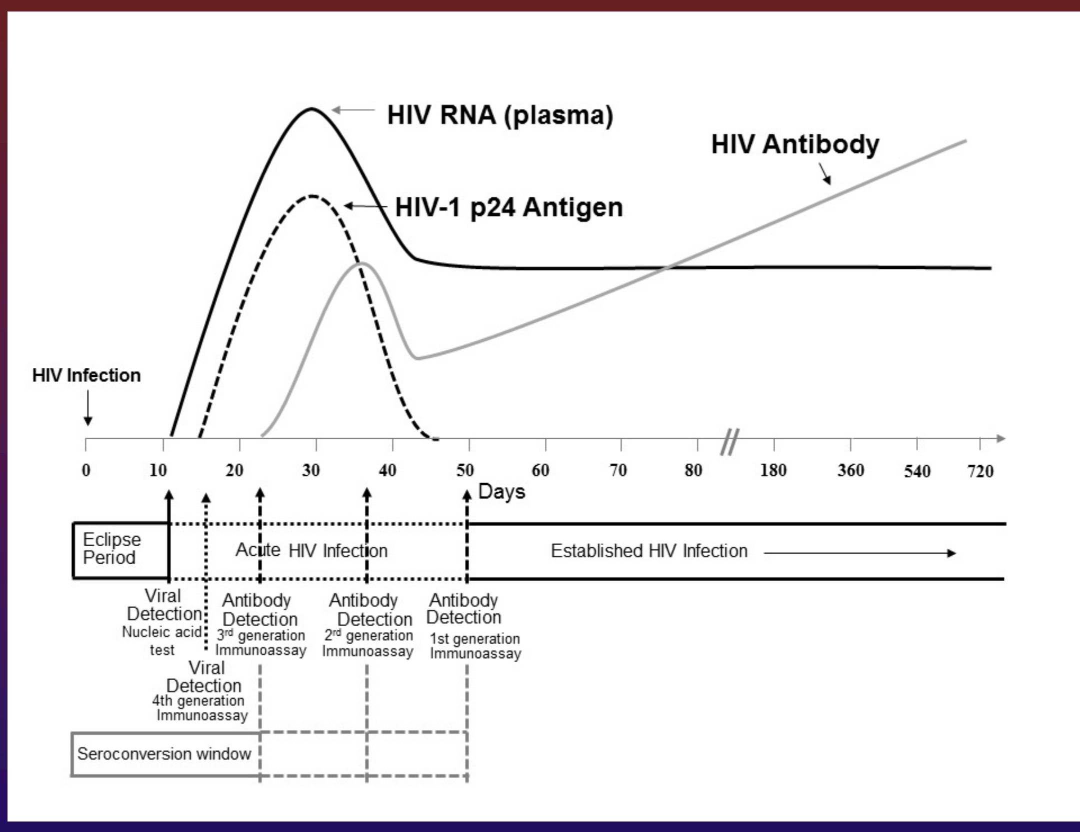



Acute HIV Infection: Diagnosis

- You have to think of it to make the diagnosis
- What to order:
  - Fourth Generation HIV Antigen/Antibody test
    - Screen for Ag and Ab
    - Differentiation assay for HIV 1 vs HIV 2
    - HIV viral load
  - HIV Viral load

Order Both!





HIV RNA (plasma)
HIV Antibody
HIV-1 p24 Antigen
HIV Infection
0
10
20
30
40
50
60
70
80
180
360
540
720
Days
Eclipse Period
Acute HIV Infection
Established HIV Infection
Viral Detection
Nucleic acid test
Antibody Detection
3rd generation Immunoassay
Antibody Detection
2nd generation Immunoassay
Antibody Detection
1st generation Immunoassay
Viral Detection
4th generation Immunoassay
Seroconversion window

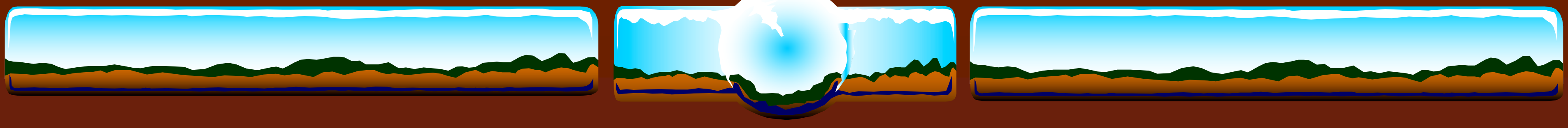
Acute HIV Infection: Treatment

- Treat immediately!
  - Improves symptoms especially if there is meningoencephalitis or neuropathy
  - Makes the biomarkers look good
    - Stops CD4 cell depletion during the initial phase of infection
    - Enhances immune reconstitution
  - Decreases risk of transmission
    - Risk of infection increased 2.5-fold for every 10-fold elevation in viral load

Acute HIV Infection: Treatment

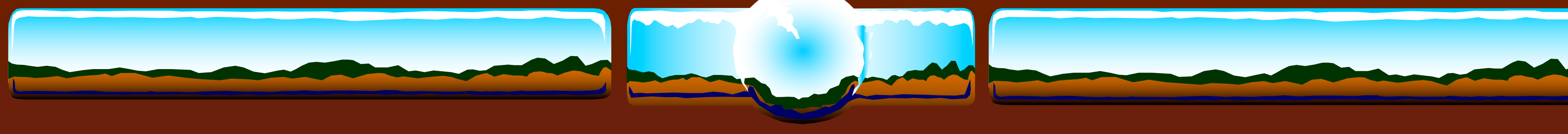
- When to treat
  - Immediately
  - Don’t wait for resistance testing results
- What to treat with
  - TAF/FTC/BIC
  - TAF/FTC plus DTG
- How long to treat
  - Forever!

Modify Rx when resistance test is back



References

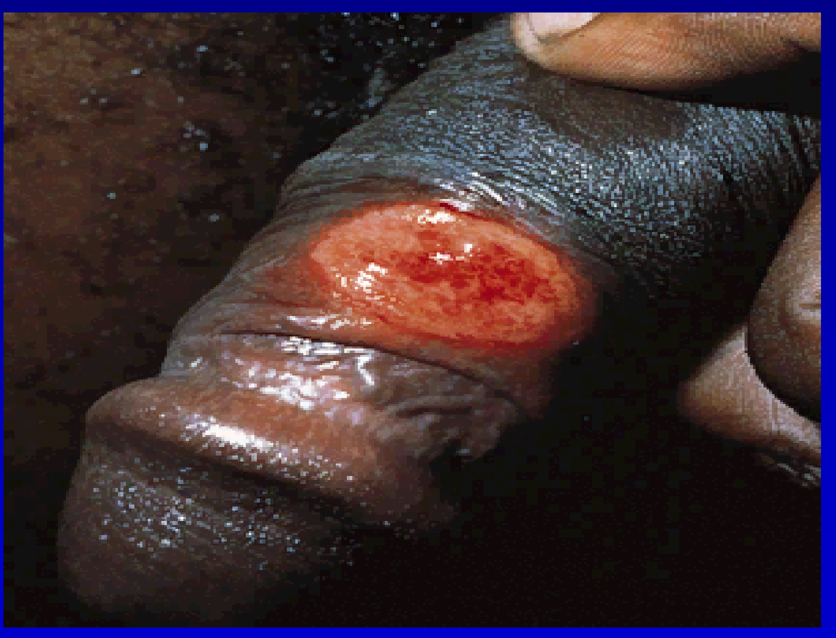
- https://aidsinfo.nih.gov/guidelines/html/1/adult-and-adolescent-arv/20/acute-and-recent--early--hiv-infection



Diagnosing STIs

- Syphilis
- Gonorrhea
- Chlamydia

Syphilis
Primary Chancre, Penile Shaft

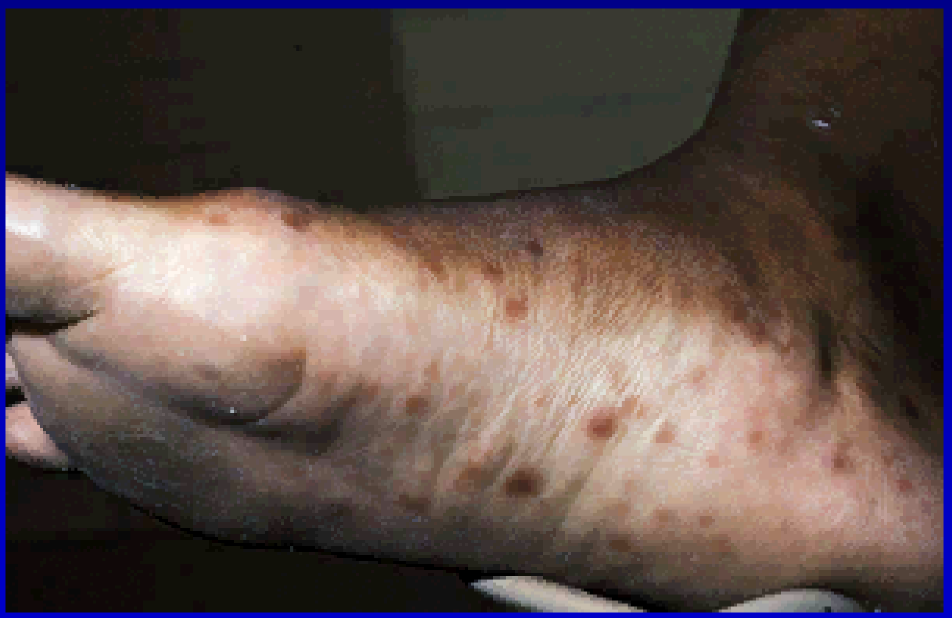


STD Atlas, 1997

Primary Syphilis Findings

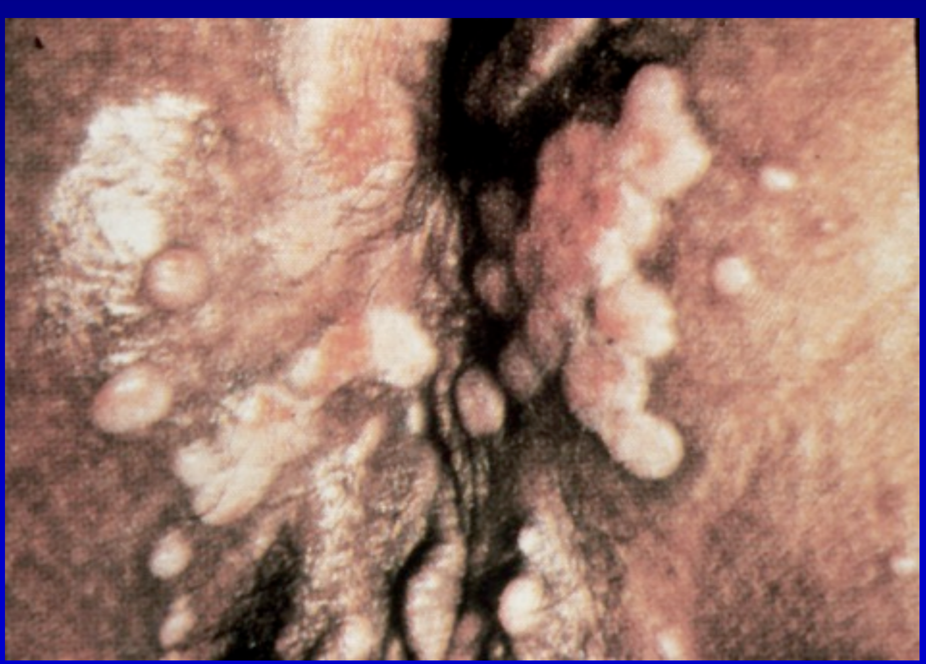
- Primary Syphilis (**21 day incubation)**
  - Chancre (heals 3-6 weeks)
  - Regional lymphadenopathy (starts 1 wk later)
  - RPR/VDRL positive in 78% (74-87% range)

Rash of Secondary Syphilis
Papular Form

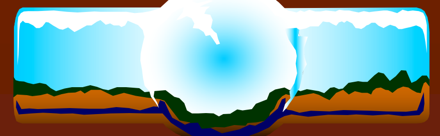


Mosby *STD Atlas, 1997*

Secondary Syphilis
Condyloma Lata



CALIFORNIA STD/HIV
PREVENTION TRAINING CENTER



Syphilis Clinical Stages

- Secondary Syphilis **(2-8 weeks post chancre)**
  - **palmar/plantar rash**
    - **macular, papulosquamous, pustular syphilides**
  - **condylomata lata/mucous patches**
  - **alopecia (alopecia areata)**
  - **Pharyngitis, epitrochlear adenopathy,myalgia, weight loss, aseptic meningitis 1-2%, proteinuria, hepatitis, uveitis**
  - **RPR/VDRL positive in 100% of cases**

Latent Syphilis

Latent syphilis = positive serology with no symptoms or signs

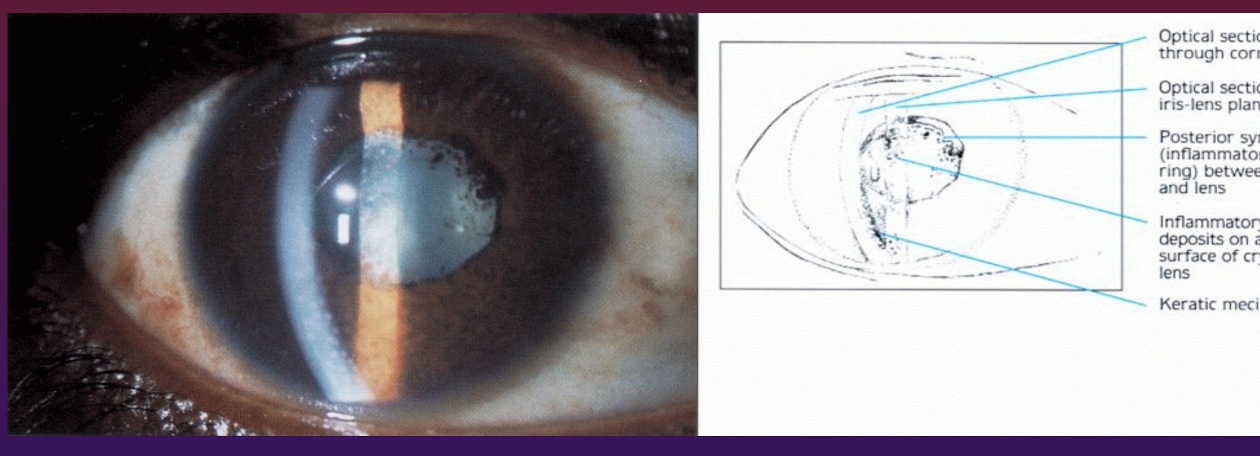
- **Early Latent Syphilis:**
  - **Seroconversion within the last year**
  - **primary or secondary lues within 1 year**
  - **Contact of a primary, secondary or EL case**

- **Late Latent Syphilis:** **present > 1 year**
- **Latent Syphilis of Unknown Duration:** **No prior serology**

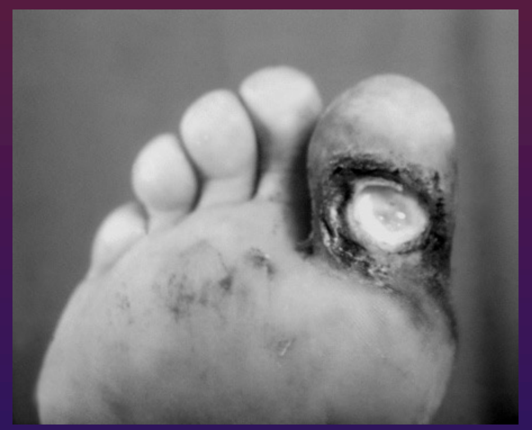
Neurosyphilis

- **Meningovascular (infarction)**
  - **Stroke syndromes (aphasia, hemiparesis, seizures)**
- **Parenchymal (neuron destruction)**
  - **Tabes dorsalis (foot slap, wide based gait, lightning pains, (+) Romberg, Charcot Joints)**
  - **General paresis (Personality, Affect, Reflexes, Eye, Sensorium, Intellect, Speech)**
  - **Other: Gunbarrel sight (optic atrophy), uveitis, CN VII and VIII palsy, syphilitic otitis (deafness and tinnitus)**

Ocular Syphilis

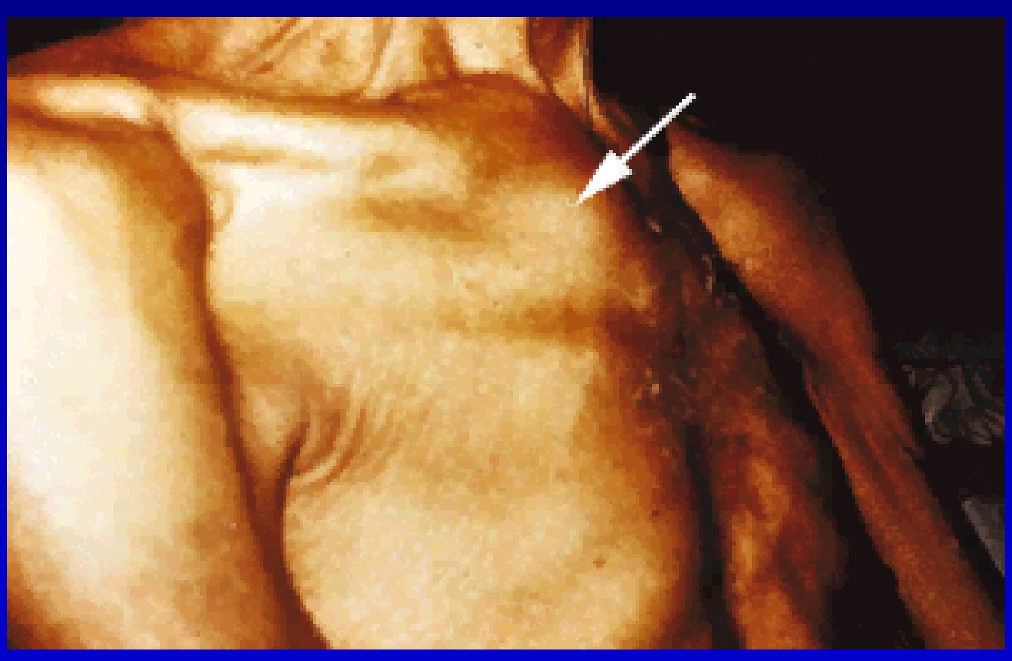


Tabes dorsalis



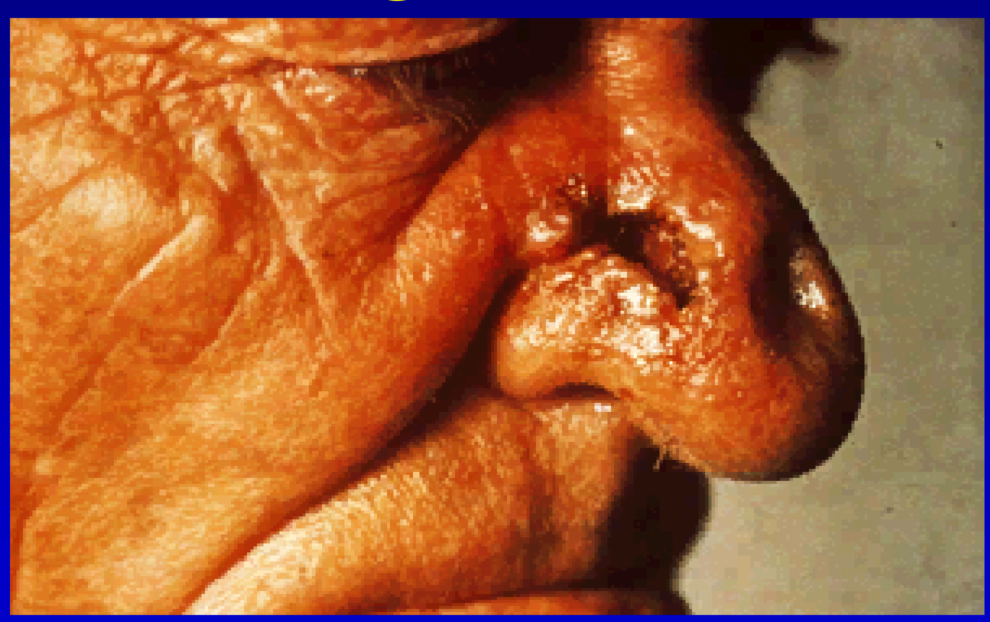
Other Tertiary Syphilis Dx

- Cardiac Syphilis
  - Aortitis-endarteritis obliterans of vasa vasorum
    - **Saccular aortic aneurysm**
  - Secondary aortic insufficiency
  - ***Aortitis may develop more rapidly if HIV (+) but is rare since syphilis is usually diagnosed early in HIV***
- Benign Gummatous Syphilis
  - Develop in 10 years if HIV negative
  - ***Develop in months if HIV positive***



Mosby *STD Atlas, 1997*

Tertiary Syphilis
Ulcerating Facial Gumma



STD Atlas, 1997

Syphilis Management

- Primary and secondary Syphilis
  - Dark-field exam of skin lesions if available
  - Draw RPR and HIV serology
  - Administer Benzathine penicillin 2.4 mU IM x 1
    - Consider giving a second dose 1 week later if pregnant
  - R/O optic/neurosyphilis if symptomatic
  - Check RPR at 6 and 12 months-
    - **if < 4-fold drop at 12 months:**
      - **Offer Lumbar Puncture only if neurologic symptoms develop**
      - **re-check HIV serology**
      - **re-treat with three weekly doses of Benzathine PCN if follow up cannot be ensured and consider LP**

Syphilis Management

- Latent Syphilis
  - Check RPR (reflex MHA TP) and HIV test
  - Careful genital exam
  - LP if symptomatic, tertiary lesion, treatment failure
  - Give Benzathine PCN 2.4 mU IM
    - once if early latent (give second dose in a week if pregnant)
    - weekly x3 if late latent or unknown duration.

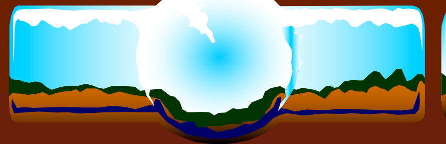
Syphilis Management

- Latent syphilis follow-up
  - RPR at 6, 12 and 24 months
    - **if < 4-fold drop at 24 months:**
      - **Close clinical and serologic follow up**
      - **Offer Lumbar Puncture if neurologic symptoms develop during f/u**
      - **re-check HIV serology**
      - **if follow up cannot be ensured: re-treat three weekly doses of Benzathine PCN and consider LP**

Syphilis Management

- Neurosyphilis:
  - PCN G 18-24 mU IV/day for 10-14 days
  - Procaine 2.4 mU IM/day plus Probenecid 500 mg po QID for 10-24 days.
  - Repeat LP if RPR titer does not drop or who have no clinical response to treatment

- Cardiac or Gummatous syphilis
  - Benzathine PCN 2.4 mU IM q wk x 3



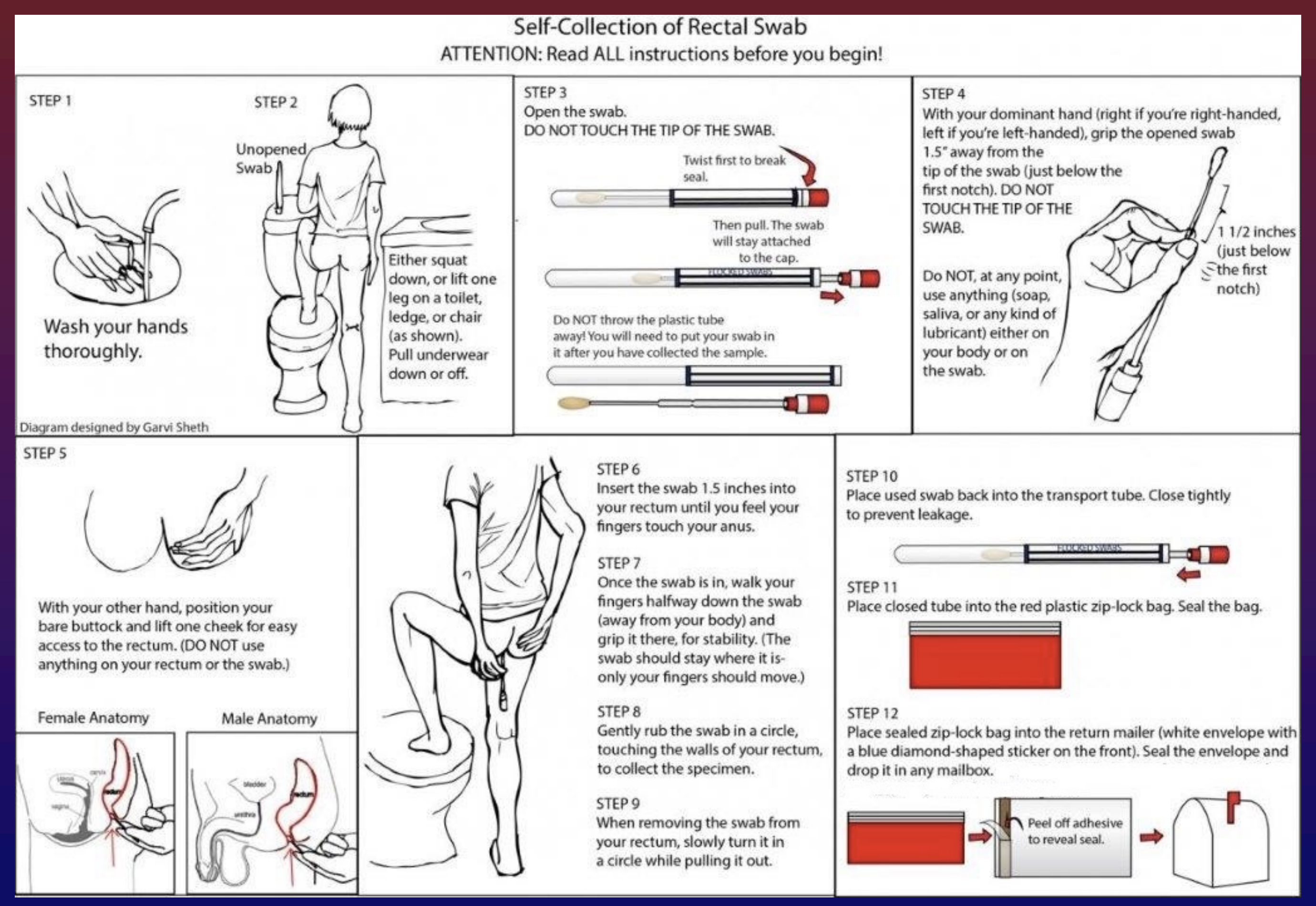
Gonorrhea

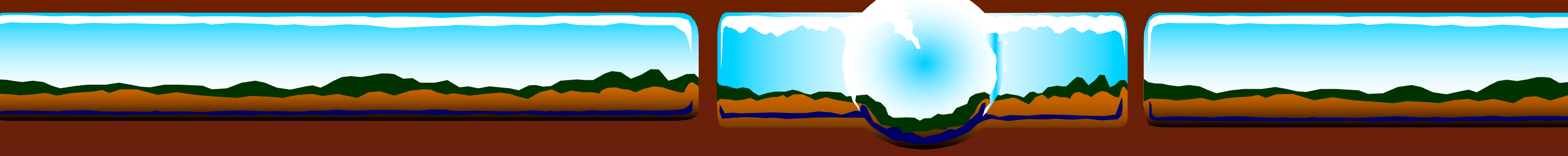
- Symptoms
  - Genital discharge
  - Rectal discharge or pain
  - Sore throat
  - Disseminated rash, often pustular with tenosynovitis/septic arthritis
- Diagnosis:
  - Urine, Pharyngeal, Rectal Nucleic Acid Amplification Test (NAAT)
- Treatment
  - Ceftriaxone 500 mg IM monotherapy for genital/rectal/pharyngeal
  - Ceftriaxone IV daily for 7-14 days for disseminated/joint disease

Chlamydia

- Symptoms
  - Often none
  - Genital discharge, less purulent than gonorrhea
  - Pharyngitis
  - Rectal pain/discharge
- Diagnosis
  - Urine, Pharyngeal, Rectal Nucleic Acid Amplification Test (NAAT)
- Treatment
  - Doxycycline 100 mg po bid for 7 days for Genital/Pharyngeal/Rectal
  - Use Azithromycin 1 gm po x 1 if adherence is an issue or pregnant
  - Doxycycline for 21 days for LGV

Self testing for Gonorrhea and Chlamydia





Summary

- Quarterly PrEP monitoring is easy
- Acute HIV is the "Don't Miss" diagnosis for patients on PrEP
- Screening for asymptomatic STDs is critical in PrEP care

References

- Guideline: CDC. Pre-exposure Prophylaxis for the Prevention of HIV Infection in the United States: 2017 Update, A Clinical Practice Guideline. https://www.cdc.gov/hiv/pdf/risk/prep/cdc-hiv-prep-guidelines-2017.pdf
- Primer on PREP from CDC: www.cdc.gov/hiv/prep
- Acute HIV: https://aidsinfo.nih.gov/guidelines/html/1/adult-and-adolescent-arv/20/acute-and-recent--early--hiv-infection
- STD Guidelines: https://www.cdc.gov/std/treatment-guidelines/STI-Guidelines-2021.pdf
- National STD Curriculum: https://www.std.uw.edu