

Stand By

You will hear silence until the presentation begins

- The HIV/STD/TB/Hepatitis Program in the Division of Disease Control conducts Lunch and Learn Webinars for health-care professionals.
- Each month a new topic will be held from 12:00 p.m. to 1:00 p.m. CST on the fourth Wednesday of the month, with exceptions during holidays.
- Next month's L&L:
 - TB in the Institutions
 - January 28th, 2014Register: <http://www.ndhealth.gov/HIV/events.htm>

- Please complete the post-test to receive CEU's for this presentation. You must score at least 70% to receive credit.
- You will also need to fill out a participation form that will be emailed to you after the presentation.

This presentation will be archived and available for review on:
www.ndhealth.gov/HIV/Resources/resources.htm

For questions or comments contact:
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gcokrljic@nd.gov

CURRENT HIV CARE

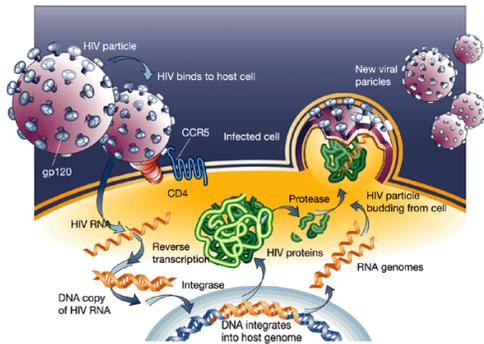
Paul Mariani, M.D.
ND AIDS EDUCATION TRAINING CENTER

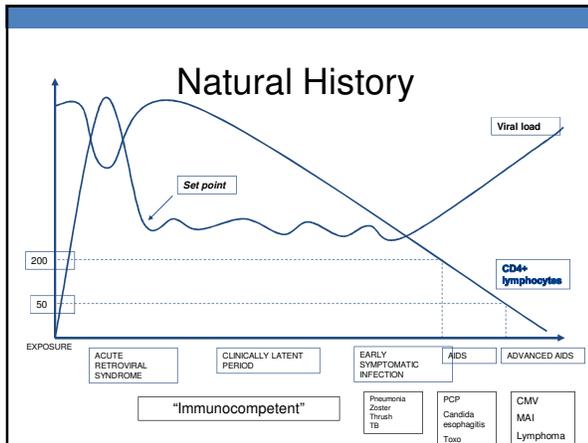


Objectives

- HIV Virology and screening
- Linkage into care
- Preventive strategies
- Latest news

HIV Replication Cycle





Which of the following people should **NOT** be tested for HIV?

1. 24 year old pregnant woman
2. 58 yo man monogamous man married 37 years
3. 17 yo who reports strict use of condoms during every sexual encounter
4. 16 yo who has only had oral sex / no intercourse

Who Should Get Tested?

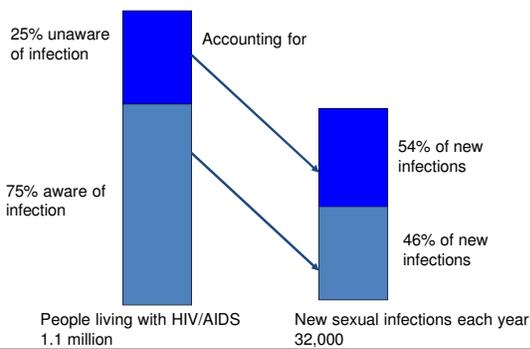
- Voluntary for all persons 13 – 64 not based on risk factors
- Repeat annual testing for those with risk factors
- Opt-out HIV screening

HIV Transmission

- Sexual / Mucosal
 - straws used to sniff cocaine
- Parenteral
 - testosterone injection in athletes
 - "cookers" in IVDA
 - body piercing / tattooing
- Vertical



HIV Transmission



Take Home Point

- CDC study of 4000 pts, 45% pts had diagnosis of advanced HIV.
- Interestingly, that group had median of 4 encounters with healthcare system within 2 years and had not been tested for HIV.

Centers for Disease Control and Prevention. Late versus early testing of HIV-1 virus. US, 2000-2003. JAMA. 2003;290:455-457.
Branson BM, Handsfield HL, Lampe MA, et al. Centers for Disease Control and Prevention. Revised recommendations for HIV testing of adults, adolescents, and pregnant women in health-care settings. MMWR. 2006;55(RR-14):1-17.

Late Diagnosis

- Delayed diagnosis of HIV
 - older males
 - transmission through heterosexual contact
- Increased health care costs
- More opportunistic infections
- Higher transmission rates

HIGHER MORTALITY

Delayed Diagnosis of HIV Infection in a Multicenter Cohort: Prevalence, Risk Factors, Response to HAART and Impact on Mortality. Sobrinho-Vargas et al. Current HIV Research, 2009, 7, 284-290
The late diagnosis and consequent short-term mortality of HIV-infected heterosexuals. Chadborn et al. AIDS 2006 Nov 28;20(18):2371-9.

Case

A 33 yo M recently returned from vacation in Peru.

Presented with 1 week history of fever, sore throat.
In ED noted to have thrombocytopenia admitted.
HIV test -ve, EBV / CMV / Dengue / Malaria /
Blood cultures -ve.

Case



Over the next week he feels much better. Thrombocytopenia and fever resolve. What if anything needs to be done?

1. EBV serology
2. HIV ELISA in 2 weeks
3. HIV PCR
4. No further testing is required

Acute retroviral syndrome

- Onset of illness 1-6 weeks after exposure
- Protean manifestations
 - Fever 96%
 - Adenopathy 74%
 - Pharyngitis 70%
 - Rash 70%
 - Myalgia 54%
 - Thrombocytopenia 45%
 - Diarrhea 32%
 - Elevated liver enzymes 21%
 - Hepatosplenomegaly 14%
 - Thrush 12%

Acute Retroviral Syndrome

- HIV serology (ELISA) is negative in 50%
- HIV RNA PCR (NAT) is positive
- Antiretroviral therapy is offered
- Symptoms are self-limited

Pitfalls in Diagnosis

- Infrequently made in clinical practice
 - Diagnosis of HIV infection considered in only 26% who sought care from primary care physicians, ER, walk-in clinics
- Symptoms are non-specific, and resolve spontaneously
- Clinicians uncomfortable/too busy with social history
- Patients do not perceive themselves to be at risk

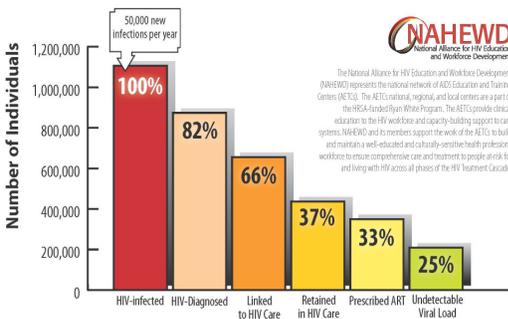
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The U.S. HIV Treatment Cascade^{1,2,3}



Options

- Educate persons at time of HIV diagnosis
 - Benefits
 - Prevention HIV
- Establish the infrastructure and services
 - start HIV medical care shortly after a positive HIV test
 - support long-term retention in HIV medical care
 - re-engage into HIV medical care persons if they have dropped out of care.
- Offer services that promote linkage care
 - HIV testing providers
 - community-based HIV prevention providers
 - HIV care providers
 - case managers and health departments.

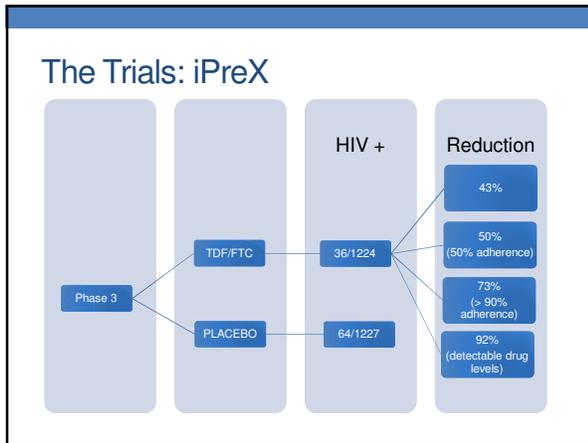
Common HIV medications

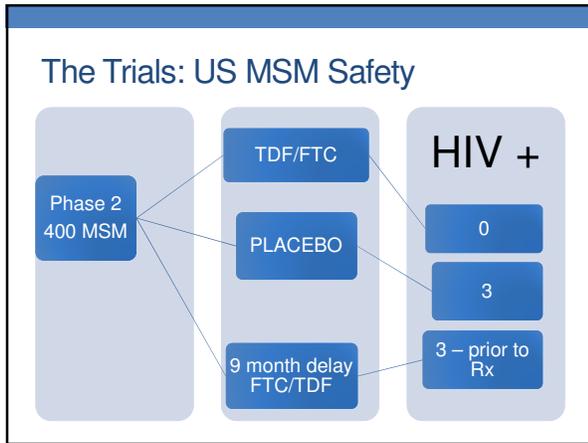
NRTI	NNRTI	PI	Integrase I	Entry-I
Tenofovir	efavirenz	darunavir	raltegravir	maraviroc
FTC	etravirine	atazanavir	dolutegravir	enfuvirtide
ABC	rilpivirine	fosamprenavir		
3TC	nevirapine	Lopinavir / r		
AZT		ritonavir		

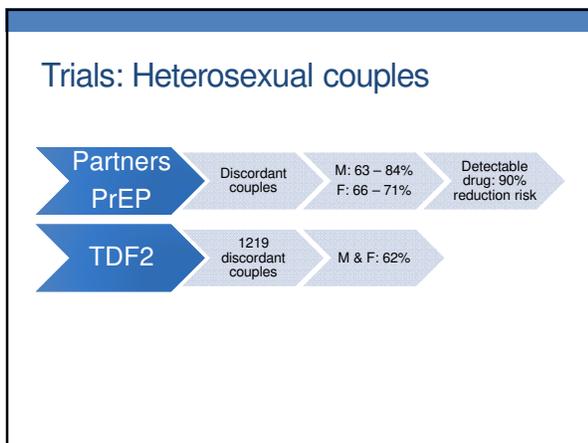
- A 31 yo M presents to clinic after routine STI panel + RPR 1:4. He endorses no symptoms. He is treated with IM penicillin x 3 doses.
- He reports MSM and inconsistent use of condoms.

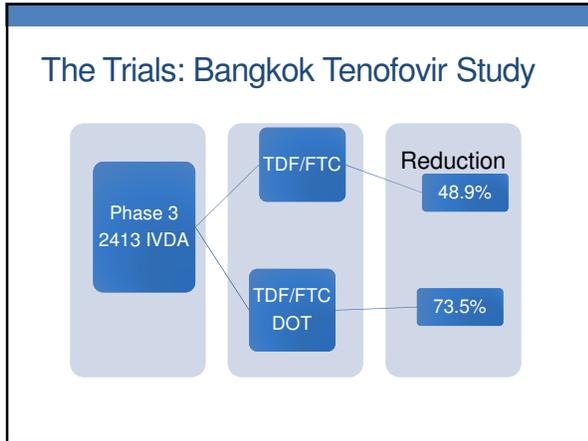
What else should be discussed with this patient?











	MSM	Heterosexual	Injection Drug Use
Risk	<ul style="list-style-type: none"> HIV + partner Recent STI High # partners Inconsistent / no condom use Commercial sex worker 	<ul style="list-style-type: none"> Not monogamous Behaviorally bisexual Infrequent condoms with partners at risk HIV (MSM/IDU) 	<ul style="list-style-type: none"> HIV + injecting partner Sharing paraphernalia Recent drug tx (but currently injecting)
Eligibility	<ul style="list-style-type: none"> Documented negative HIV test No signs of acute HIV infection Normal renal functions Documented HBV infection / vaccination status 		
Prescription	TDF/FTC (Truvada) daily, continuous, < 90 day supply		
Services	Every 3 months follow up with: <ul style="list-style-type: none"> HIV test, medication adherence, risk reduction No signs / symptoms of acute HIV infection STI assessment q3 months then q6 months 		
	STI testing	Pregnancy test / intent q-3 mos	Access to clean needles Drug rx services

FAQs

- Common Side effects:
 - Nausea
 - Dizziness
 - Back pain
- When will I be protected?
 - No consensus
- Can I stop PRoP?

FAQs

- I'm nauseated with TDF/FTC, can I take something else ?
- Can I take it after having sex only?
- My partner is also at risk, can you prescribe PrEP as expedited partner therapy ?

Summary

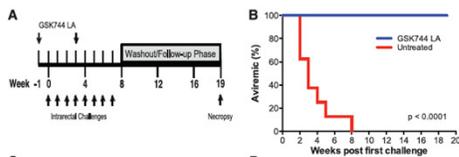
- Promising news but adherence tends to be poor...



Long-Acting Integrase Inhibitor Protects Macaques from Intra-rectal Simian/Human Immunodeficiency Virus

Chastity D. Andrews,¹ William R. Spreen,² Hiroshi Mohri,¹ Lee Moss,² Susan Ford,² Agnieszka Gettko,² Kasi Russell-Lodrigue,² Rudolf P. Bohm,² Cecilia Cheng-Mayer,¹ Zhi Hong,² Martin Markowitz,² David D. Ho^{1*}

- GSK744- LA injectable



Science, 2014 Mar 7;343(6175):1151-4.

31 yo F seen in ED following sexual assault by male of unknown HIV status 15 hours prior to presentation. Which of the following best describes current recommendations:

- Low risk exposure – case by case evaluation
- Due to time delay (> 12 hours) no PEP
- Start zidovudine / lamivudine / lopinavir + ritonavir
- Start tenofovir / emtricitabine / raltegravir

Recommendations

Risk of Exposure	Timing: within 36 hours
Recommended	<ul style="list-style-type: none"> Receptive / insertive vaginal or anal intercourse Needle sharing Injuries with exposure to blood / infected fluids (HIV + or unknown)
Lower Risk Case-by-case	<ul style="list-style-type: none"> Oral-vaginal Oral-anal Oral-penile (with or without ejaculation)
	Consider with increased risk: <ul style="list-style-type: none"> Source HIV + Non-intact oral mucosa Genital ulcers
No Risk	<ul style="list-style-type: none"> Kissing Mouth-mouth resuscitation Human bites (not blood) Solid-bore needles / sharps with no blood

A 24 yo M presents to ED 40 hours after unprotected receptive intercourse with HIV positive male. You inform him recommendations are to start within 36 hours, yet he insists on starting PEP. At this time you recommend:

- Do not start PEP
- Start modified PEP with TDF/FTC
- Start PEP TDF/FTC/RAL
- Defer to ID clinic to start PEP in next 24-48 hours

nPEP Regimens

Preferred Regimen	Comments
Tenofovir + Emtricitabine + Raltegravir	Adjust for CrCl < 50 mL/min

Alternative Regimens	Comments
TDF/FTC + Darunavir (or ATV or fAMP) + r	Potential for drug interactions, extensive P450 interactions
TDF/FTC + lopinavir + ritonavir	
TDF/FTC + zidovudine	

TREAT ALL PATIENTS FOR 28 DAYS

Case

- A 25 yo female student presents 12 hours following unprotected vaginal intercourse with a bisexual man. She doesn't know HIV serostatus and is started on appropriate nPEP.
- 20 days later she convinces the partner to come in to the clinic for testing. He tests negative for HIV.
- She would like to finish additional 8 days of therapy. What would you recommend ?

FAQs

- Duration of PEP
 - 28 days
 - If source tests negative PEP can be discontinued

	Baseline	Wk 1	Wk 2	Wk 3	Wk 4	Wk 12
Visit	X	X	X	X	X	
	Or telephone					
Preg Test	X					
CMP	X		X		X	
HIV	X		X		X	X
STI	X		Consider			

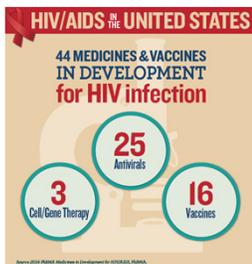
FAQs

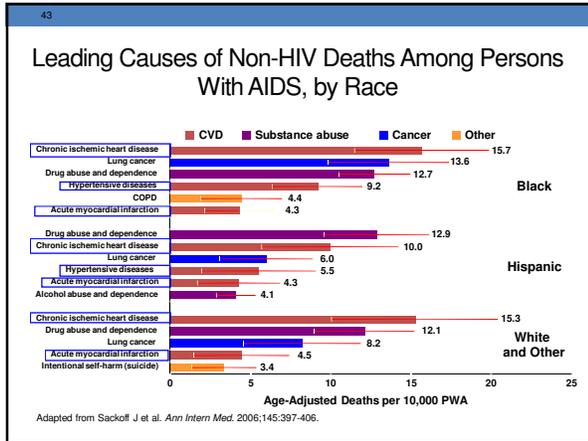
- Following exposure, when will seroconversion occur?
 - 2 – 4 weeks
- Pt refuses to take combination drugs, should I stop altogether?
- Pt is breastfeeding, completed 4 weeks of nPEP. Source unknown status. Can breastfeeding resume post nPEP?

What's my risk?

Type of Exposure	Risk per 10,000 Exposures
Blood transfusion	9,000
Needle-sharing (IVDA)	67
Percutaneous	30
Receptive anal	50
Receptive penile-vaginal	10
Insertive anal	6.5
Insertive penile – vaginal	5
Oral intercourse	Low

Updates on HIV





AIDS Conference Highlights

- 54% of those with HIV are unaware (worldwide)
- 70% new infections in sub-Saharan Africa

Global Pandemic

Region	Change in Infections
Caribbean	49% decline
Europe / North America	8% increase
Middle East / North Africa	7% increase
Eastern Europe / Central Asia	5%

Evidence of H.I.V. Found in a Child Said to Be Cured

- “Mississippi Baby” once thought cured of HIV in 2013
- Born to HIV + mother on no ARV. Baby given atypically aggressive HIV tx 30 hours after birth. Later lost to follow up. Returned to medical care at 18 months and no HIV found, kept off ARV. Almost 4 years old, repeat blood work viral load in 16K – resumed ARV.

HIV returns in two patients after bone marrow transplant

New single tablet

- First single tablet not containing tenofovir.
- Abacavir + Lamivudine + Dolutegravir
- Check HLA*B5701 prior to rx



CRUI 2014 21st Conference on Retroviruses and Opportunistic Infections

- PARTNER study: 1110 discordant couples / 40% MSM
- Inclusions:
 - Having sex without condoms some of the time
 - No PEP / PrEP
 - HIV + on ART and VL < 200
- Interim analysis:
 - 16,400 occasions of sex in MSM
 - 28,000 occasions in heterosexual couples
 - No transmission from those encounters
 - "some transmissions" but not genetically from partners
- "Statistical analysis shows maximum likelihood of transmission was 1% / year"

Towards a Vaccine

- Inactivated SIV / BCG, then iSIV + Lactobacillus (orally)
- Results:
 - Vaginal / rectal preparations: not effective
 - 15 monkeys vaccinated
 - 1 breakthrough infection
 - 7 monkeys injected with SIV developed sx's then signs disappeared
- Two safety trials planned in humans

Andrieu J M et al. Mucosal SIV vaccines comprising inactivated virus particles and bacterial adjuvants induce CD4+ T regulatory cells that suppress SIV positive CD4+ T cell activation and prevent SIV re-infection in the macaque model. *Frontiers in Immunology*. 5:207. doi: 10.3389/fimmu.2014.00207. 2014.

Questions
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