A CME Satellite Symposium

The Experts Square Off: Debating the Pressing HIV Issues of 2011

Thursday, October 20th, 2011
8:00 PM - 10:00 PM
Boston, MA

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DISCLAIMER

Participants have an implied responsibility to use the newly acquired information to enhance patient outcomes and their own professional development. The information presented in this activity is not meant to serve as a guideline for patient management. Any procedures, medications, or other courses of diagnosis or treatment discussed or suggested in this activity should not be used by clinicians without evaluation of their patient's conditions and possible contraindications on dangers in use, review of any applicable manufacturer's product information, and comparison with recommendations of other authorities.

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The Experts Square Off: Debating the Pressing HIV Issues of 2011

AGENDA

Welcome and Introductions
(John Bartlett, MD and Edwin DeJesus, MD)

Debate 1
When to Start: The Earlier, The Better
(Paul Sax, MD vs. Charles Hicks, MD)

Debate 2
What to Start: Efavirenz/Tenofovir/EmtricitabineTablet Is Still King
(Trevor Hawkins, MD vs. Judith Feinberg, MD

Debate 3
PrEP: The Time Is Now
(Ian Frank, MD vs. David Wohl, MD)

Closing Comments
(John Bartlett, MD and Edwin DeJesus, MD)

Program Note: Each debate will be followed by a rebuttal and discussion by **Calvin Cohen, MD** and **Joseph Eron, MD** and a panel and audience discussion.

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The Experts Square Off: Debating the Pressing HIV Issues of 2011

TARGET AUDIENCE

This activity is intended for physicians, physician assistants, advanced practice nurses, and other health care professionals involved in the treatment and management of patients with HIV infection.

PROGRAM OVERVIEW

The treatment of people with HIV infection is rapidly and constantly progressing as research that is published and presented at major scientific congresses leads to the use of new drugs and clinical strategies. However, clinicians are not always able to keep up with this flood of new information, and some clinical decisions must be made based on research that is open to interpretation. To address this problem, this program will have a panel of experts present and debate the studies and data that support different clinical options and strategies, which will allow the audience to assess the relative merits of various positions.

This meeting will use patient case vignettes to set up debates on the most pressing and controversial issues pertaining to treatment of HIV and show how national thought leaders approach the difficult choices involved. The outcome of this program will be that clinicians who treat patients with HIV infection will have an improved understanding of the various data s upporting different views of complex clinical controversies and the enhanced knowledge and confidence needed to improve care and outcomes in patients with HIV infection.

FEE INFORMATION

There is no fee for this educational activity.

A statement of credit will be issued only upon receipt of a completed activity evaluation form and will be e-mailed to you within 3 weeks.

PROGRAM OBJECTIVES

Upon completion of the program, participants should be able to:

- Explain when it is appropriate to start ARV therapy;
- Discuss various options for initiating ARV therapy in treatment-naïve patients;
- Identify the use of new or novel ARV therapies and regimens;
- Describe sequencing and switching ARVs in various patient scenarios;
- Appraise the use of PrEP to prevent HIV infection in at-risk populations.

ACCREDITATION STATEMENT

This activity has been planned and implemented in accordance with the Essential Areas and policies of the Accreditation Council for Continuing Medical Education through the joint sponsorship of the Postgraduate Institute for Medicine and ViralEd, LLC. The Postgraduate Institute for Medicine is accredited by the ACCME to provide continuing medical education for physicians.

CREDIT DESIGNATION STATEMENT

The Postgraduate Institute for Medicine designates this live activity for a maximum of *2.0 AMA PRA Category 1 Credits*™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

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Consulting Fees: Gilead; Tibotec

Trevor Hawkins, MD:
Contracted Research: Gilead; GlaxoSmithKline; Janssen; Vertex; Salix
Consulting Fees: Gilead; Janssen
Speakers Bureau: BMS; Gilead; Janssen; Merck; Vertex

Charles Hicks, MD:
Contracted Research: Argos; Bristol-Myers Squibb; Gilead; Janssen; Merck; ViiV
Consulting Fees: Bristol-Myers Squibb; Gilead; Janssen; Merck; ViiV

Paul Sax, MD:
Contracted Research: BMS; Gilead; GSK; Merck; Tibotec
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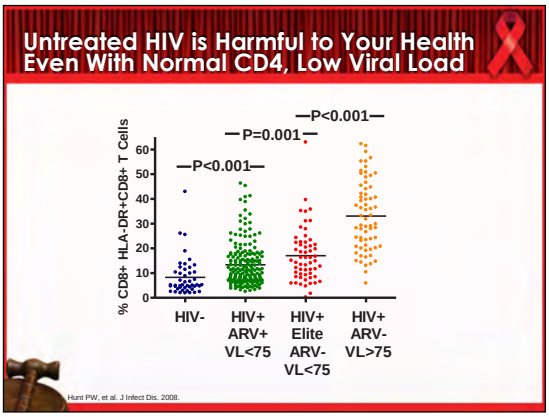
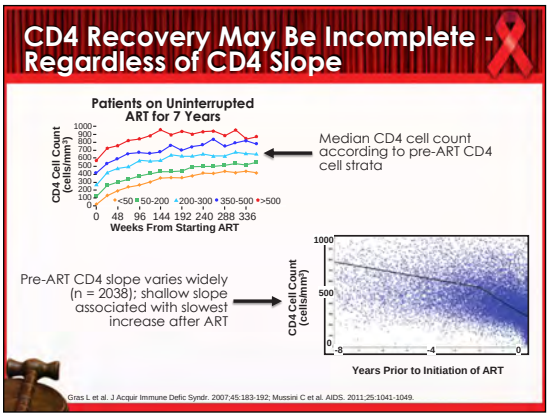
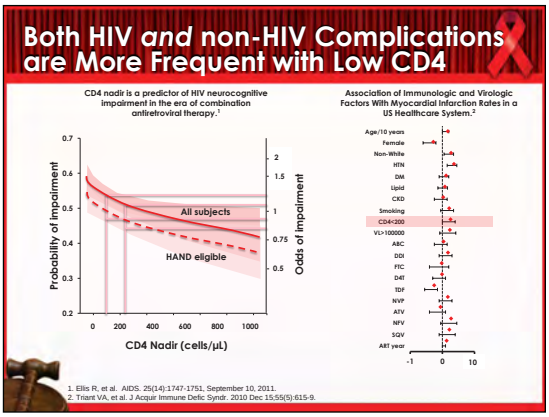
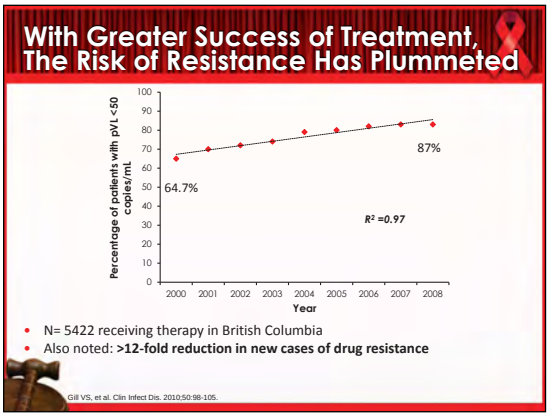
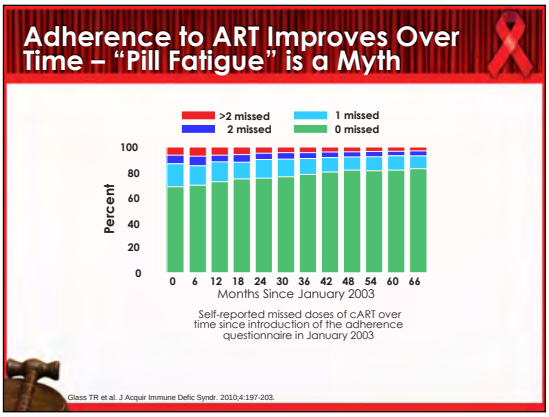
When to Start: The Earlier, The Better – Pro — *Paul Sax, MD*











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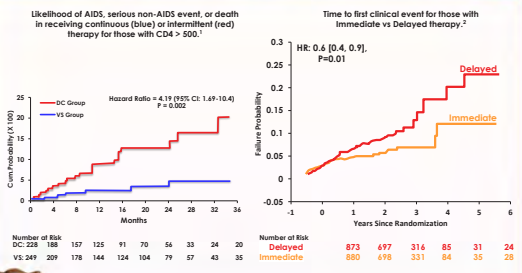
The Experts Square Off: Debating the Pressing HIV Issues of 2011

When to Start: The Earlier, The Better – Pro — *Paul Sax, MD*

Randomized Studies Prove the Clinical Benefits of Early Treatment



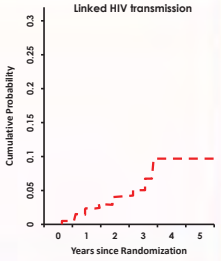
1. Emery et al, JID 2008;197:1133–1144.
2. Cohen MS NEJM 2011.

Treatment Prevents HIV Transmission

- 1,736 serodiscordant, sexually active couples randomized
- HIV-positive partner CD4 cell count between 350 and 550 cells/mm^3

Primary Transmission Endpoint
Virologically-linked transmission events

Primary Clinical Endpoint
WHO stage 4 clinical events, pulmonary tuberculosis, severe bacteria infection and/or death



Cohen MS, et al, NEJM 2011.

When to Start: Conclusions

- Treatment benefits are extensive and proven
- These include:
  - Reduced inflammation and immune activation
  - Improved likelihood of normal CD4
  - Lower risk of HIV and non-HIV complications
  - Lower risk of resistance and adverse effects with current treatments
  - Markedly lower risk of transmission to others

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When to Start: The Earlier, The Better – Con — *Charles Hicks, MD*

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The Experts Square Off:
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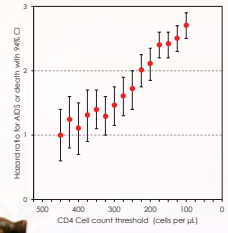
INITIATING ANTIRETROVIRAL THERAPY FOR ALL WHO ARE HIV+

A Strategy Based on Expert Opinion

ART CC: Supports Initiating ART at CD4+ Threshold of 350 cells/mm3

- Analysis of 15 cohorts from US and Europe (ART Cohort Collaboration) (N = 24,444)



Comparison	HR* (95% CI)
1-100 vs 101-200	3.35 (2.99-3.75)
101-200 vs 201-300	2.21 (1.91-2.56)
201-300 vs 301-400	1.34 (1.12-1.61)
251-350 vs 351-450	1.28 (1.04-1.57)
351-450 vs 451-550	0.99 (0.76-1.29)

*Adjusted for lead-time and unobserved events.

When to Start Consortium. Lancet. 2009;373:1352-1363.

Cascade Collaboration: When is the Optimal to Start ARV Treatment?

- Evaluation of clinical benefit of HAART initiation vs. deferral in AIDS-free, HAART-naïve HIV seroconverters with CD4 <800 cells/mm3 (N=9,455)
- After median 4.7 years follow-up, 812 (8.6%) developed AIDS and 544 (5.8%) died

CD4 Count (cells/mm3)	Cum. Risk (%)			
	Defer	Initiate	RD (95%CI)	NNT (95%CI)
0-49	46.6	16.6	-30.0 (-45.1, -15.0)	3 (2, 7)
50-199	20.7	5.7	-15.0 (-19.7, -10.3)	7 (5, 10)
200-349	10.3	5.5	-4.8 (-7.0, -2.6)	21 (14, 38)
350-499	6.3	3.4	-2.9 (-5.0, -0.9)	34 (20, 115)
500-799	4.9	5.2	0.3 (-3.7, 4.2)	∞

- HAART initiation at CD4 <500 cells/mm3 associated with lower risk

RD = cumulative risk difference at 3 years
NNT = number needed to treat to prevent 1 new case of AIDS or death within 3 years
Funk MJ, et al. 18th IAC; Vienna, July 18-23, 2010; Abst. THLBB201

Limitations of Antiretroviral Therapy

- HIV Persists despite suppressive therapy
- Full Life Expectancy is not restored
- Immune Recovery may be incomplete
- Immune Activation and Inflammation persist in many treated patients
- Long term toxicity; known and undiscovered
- Adherence to therapy remains a challenge
- Antiretroviral Drug Resistance
- Failure, as yet, to decrease transmission

non-AIDS events with Increased Frequency in Treated HIV patients

- Cardiovascular disease[1-4]
- Metabolic syndrome and diabetes
- Cancer (non-AIDS)
- Bone fractures/osteopenia[5,6]
- Liver failure[7]
- Renal Disease
- Peripheral neuropathy
- Cognitive decline[8]
- Frailty[9]

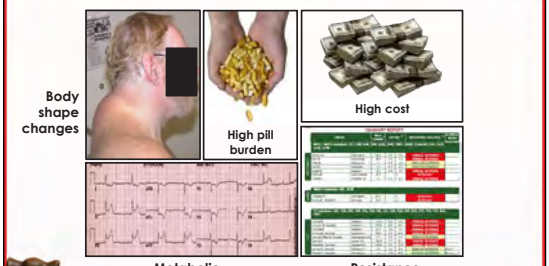
1. Klein D, et al. J Acquir Immune Defic Syndr. 2002;30:471-477
2. Hsue P, et al. Circulation. 2004;109:316-319
3. Mary-Kraus M, et al. AIDS. 2003;17:2479-2486
4. Grinspoon SK, et al. Circulation. 2008;118:198-210
5. Triant V, et al. J Clin Endocrinol Metab. 2008;93:3499-3504
6. Arnsten JH, et al. AIDS. 2007 ;21:617-623
7. Odden MC, et al. Arch Intern Med. 2007;167:2213-2219
8. McCutchan JA, et a. AIDS. 2007 ;21:1109-1117
9. Desquilbet L, et al. J Gerontol A Biol Sci Med Sci. 2007;62:1279-1286

non-AIDS events with Increased Frequency in Treated HIV patients

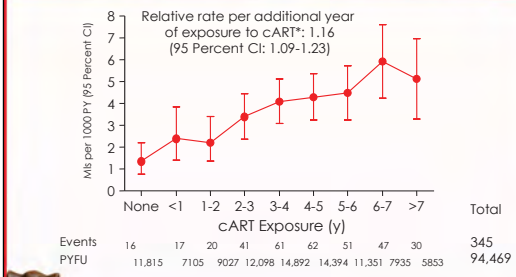
- Caused or exacerbated by antiretroviral therapy?
- Failure of therapy to fully suppress replication or control inflammation and activation?
- Increased classical risk factors in the population?
- Result of long periods of untreated infection?

When to Start: The Earlier, The Better – Con — *Charles Hicks, MD*

Historical Reasons for Deferring Antiretroviral Therapy

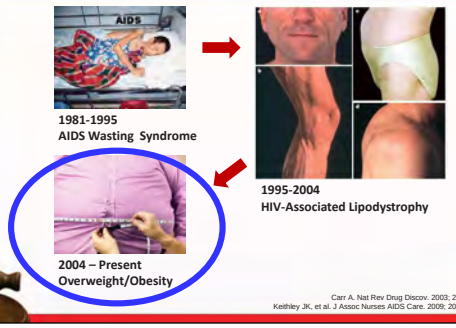


Incidence of Myocardial Infarction as a Function of cART Exposure in the D:A:D Study



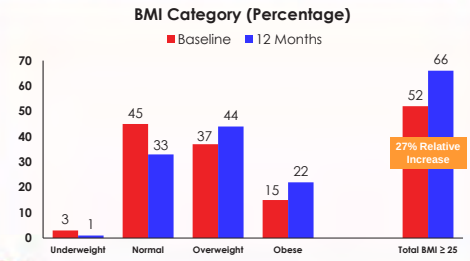
PYFU = person-years of follow-up
*Adjusted for conventional risk factors not influenced by cART.
Friis-Moller N et al. 13th CROI; 2006; Denver, CO. Abstract 144. Slide courtesy of Charles Hicks, M.D.

Body Morphology Changes Associated With HIV/AIDS

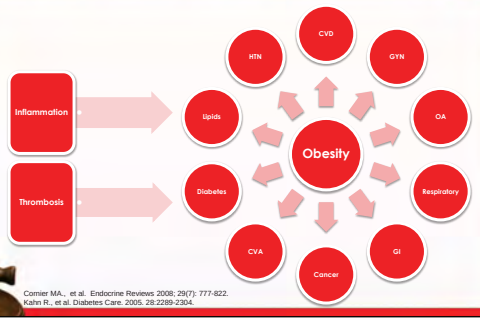


Carr A. Nat Rev Drug Discov. 2003; 2(8):624-634.
Keithley JK, et al. J Assoc Nurses AIDS Care. 2009; 20(4):260-274.

Aim 1 - Results



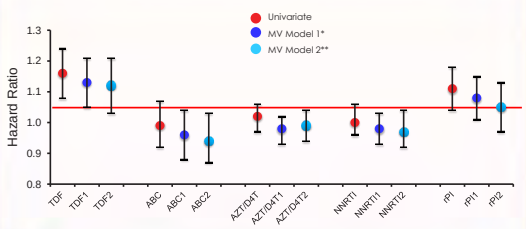
Health Consequences of Obesity



Cornier MA., et al. Endocrine Reviews 2008; 29(7): 777-822.
Kahn R., et al. Diabetes Care. 2005. 28.2289-2304.

Antiretroviral Exposure and Risk of Osteoporotic Fractures

- Large study conducted in the VA healthcare system



*MV Model 1: Controlling for CKD, age, race, tobacco use, diabetes and BMI.
**MV Model 2: Controlling for Model 1 variables + concomitant exposure to other ARVs.
Bedimo R et al. 6th IAS Conference 2011. Abstract MOAB0101.

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When to Start: The Earlier, The Better – Con — *Charles Hicks, MD*

Access to Therapy

Affordability of ART in the U.S.

U.S. National Debt Clock

The Outstanding Public Debt as of 04 Oct 2011 at 05:38:05 PM GMT is:

$14,805,431,890,215.22

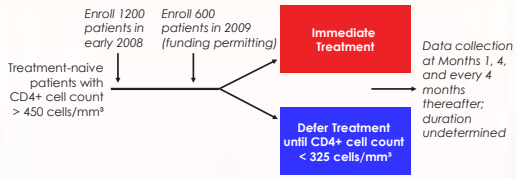
The estimated population of the United States is **311,425,370**

Each citizen's share of this debt is **$47,540.87**

The National Debt has continued to increase an average of **$3.95 billion per day** since September 28, 2007

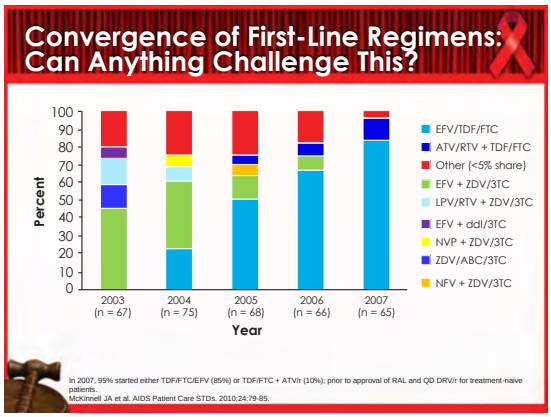
START Study: Proposed Study Design

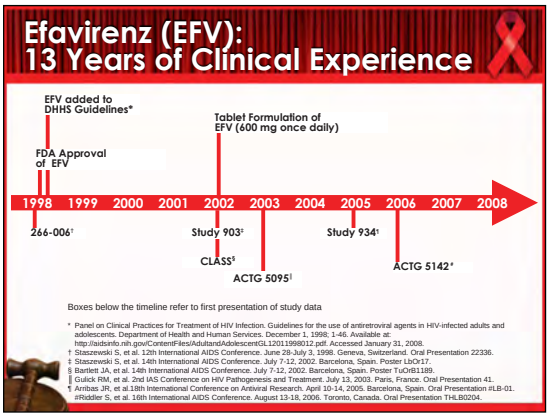
- Early treatment pilot study

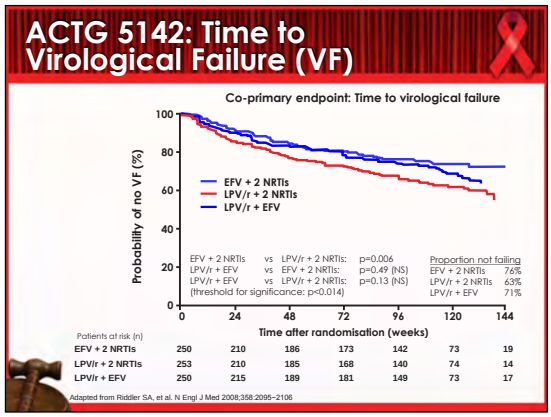


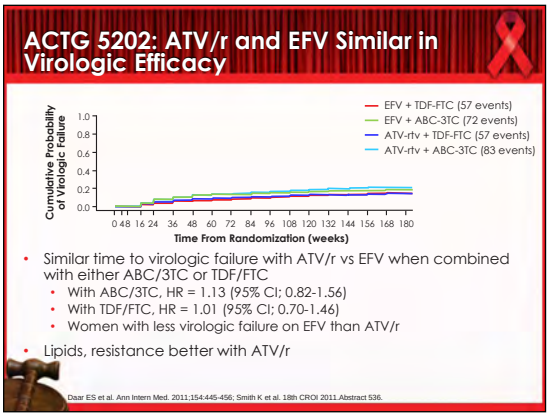
Study endpoints: fatal AIDS or non-fatal serious AIDS events (cardiovascular, liver, renal, and cancer), and non-AIDS–related deaths

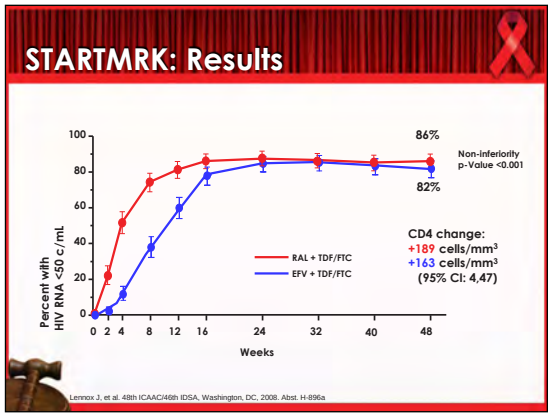
What to Start: Efavirenz/Tenofovir/Emtricitabine Tablet Is Still King – Pro — *Trevor Hawkins, MD*











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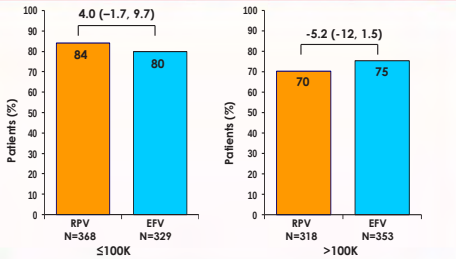
What to Start: Efavirenz/Tenofovir/Emtricitabine Tablet Is Still King – Pro — *Trevor Hawkins, MD*

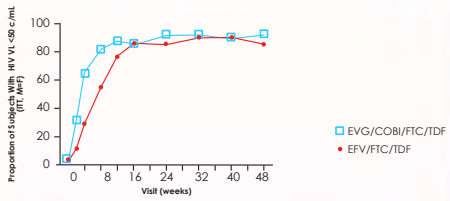
Pooled ECHO and THRIVE – Week 96 Full Dataset ITT-TLOVR Outcome at Week 96 by Baseline VL



- Responses by baseline CD4 cell count were (≥200 cells/mm3): RPV 82% vs. EFV 79%, (50–199 cells/mm3): RPV 71% vs. EFV 75% and (<50 cells/mm3): RPV 56% vs. EFV 69%

Cohen C, et al. IAS 2011; Rome. #TULBPE032

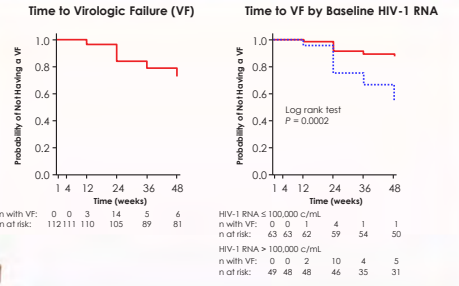
"QUAD" vs TDF/FTC/EFV



- "QUAD": co-formulated tenofovir, emtricitabine, elvitegravir, cobicistat
- Randomized, Phase 2 study; N = 71
- Time to VL <50 c/mL shorter for all QUAD arms than for TDF/FTC/EFV (P<0.05)
- No serious adverse events related to QUAD
- Phase 3 study of QUAD vs TDF/FTC/EFV ongoing

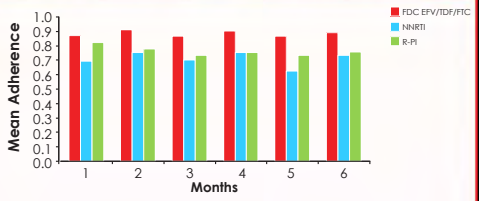
Cohen C et al. AIDS. 2011;25:F7-F12.

DRV/r + RAL: High Rates of Virologic Failure



Taiwo B et al. 18th CROI 2011. Abstract 551.

Single-Tablet Regimen Associated With Better Adherence and Higher Rates of Virologic Suppression



- Observational study of homeless and marginally-housed HIV patients starting ART in San Francisco (n = 118)
- Adherence (figure) and virologic suppression rates (69% vs 47%) significantly better in those receiving EFV/TDF/FTC

FDC = fixed-dose combination.
Bangsberg DR et al. AIDS. 2010;24:2835-2840.

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What to Start: Efavirenz/Tenofovir/Emtricitabine Tablet Is Still King – Con — *Judith Feinberg, MD*

A CME Satellite Symposium

The Experts Square Off:
Debating the Pressing HIV Issues of 2011

WHAT TO START: EFAVIRENZ/TENOFOVIR/EMTRICITABONE TABLET IS STILL KING…NOT!

Judith Feinberg MD

EFZ/TDF/FTC Is Effective Therapy

- Concede

EFZ/TDF/FTC Is Very Effective Therapy

- Concede again

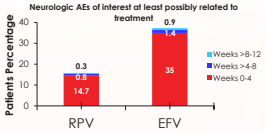
But is it the Best Tolerated, Safest Therapy?

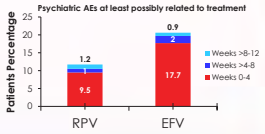
- CNS effects, esp depression
- Teratogenicity
- Nephrotoxicity
- Bone toxicity (likely due to mod-severe proximal tubular dysfunction)

True incidence and extent of these problems is not evident from controlled clinical trials, but is becoming clearer in practice

ECHO and THRIVE (RPV vs EFZ): Development of CNS Adverse Events During First 12 Weeks

- Neurological AEs more common with EFV 35.3% vs. RPV 15.3%, including:
  - Dizziness
  - Somnolence
  - Headache
- Psychiatric AEs also more common with EFV 18.9% vs. RPV 11.1%, including abnormal dreams
- Rash: EFV 8.4% vs. RPV 2.0%





Rashbaum B, et al. 51st ICAAC; Chicago, IL; September 17-20, 2011; Abst. H2-805.

Tenofovir and Renal Toxicity

- Proximal tubulopathy
- Fanconi syndrome, renal tubular acidosis
- Decreased GFR

PrEP: The Time Is Now – Pro — *Ian Frank, MD*

A CME Satellite Symposium

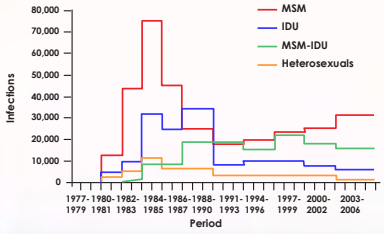
The Experts Square Off:
Debating the Pressing HIV Issues of 2011

PREP: THE TIME IS NOW

Ian Frank, MD
Professor of Medicine
Director, Antiretroviral Clinical Research
University of Pennsylvania

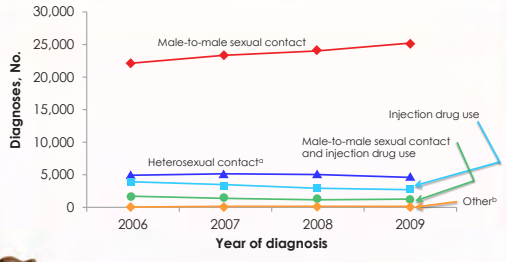
Incidence of HIV infection in the USA

- Estimated new human immunodeficiency virus (HIV) infections by transmission category. Extended risk calculation model, 50 US States and the District of Columbia, 1977-2006



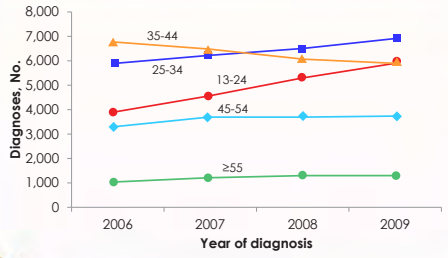
Hall HI, et al. JAMA 2008;300:520–529

Diagnoses of HIV Infection among Adult and Adolescent Males, by Transmission Category, 2006-2009 – 40 States and 5 U.S. Dependent Areas



Note: Data include persons with a diagnosis of HIV infection regardless of stage of disease at diagnosis. All displayed data have been statistically adjusted to account for reporting delays and missing risk-factor information, but not for incomplete reporting.
A Heterosexual contact with a person known to have, or to be at high risk for, HIV infection.
B Includes hemophilia, blood transfusion, perinatal exposure, and risk-factor not reported or identified.

Diagnoses of HIV Infection among Men Who Have Sex with Men, by Age Group, 2006-2009 – 40 States and 5 U.S. Dependent Areas



Note: Data include persons with a diagnosis of HIV infection regardless of stage of disease at diagnosis. All displayed data have been statistically adjusted to account for reporting delays and missing risk-factor information, but not for incomplete reporting. Data exclude men who reported sexual contact with other men and injection drug use.

Efficacy of Daily Oral FTC/TDF PrEP

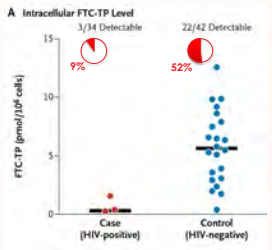
Trial	Pop.	Efficacy	95% CI
iPrEx[1]	MSM	42%	18 to 60%
Partners PrEP[2]	Men	83%	49 to 94%
	Women	62%	19 to 82%
TDF2[3]	Men	80%	25 to 97%
	Women	49%	-22 to 81%
FemPREP[4]	Women	*	

* DSMB recommended discontinuation for futility; drug level testing is in progress.

1. Grant R et al NEJM 363:2587-99 2010;
2. Baeten J, et al. 6th IAS; 2011. Abst. MOAX010;
3. Thigpen MC, et al. 6th IAS;. 2011. Abst. WELBC01.
4. FHI Press Release April 18, 2011

Drug Detection Correlated with HIV Risk In the Active Arm of iPrEx

- Cases matched to controls by site and time on study
- Drug Detection Correlated with Seronegative Status (OR 12.9, P<0.001)
  - 92% reduction in HIV risk
  - 95% CI 71-99%
  - After controlling for Age, Risk Behavior, BMI, Schooling



Grant R et al NEJM 363:2587-99 2010.

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The Experts Square Off: Debating the Pressing HIV Issues of 2011

PrEP: The Time Is Now – Pro — *Ian Frank, MD*

What Factors Predict ARV Adherence in the iPrEX Participants?

- TFV-DP and FTC-TP levels measured in PBMC of 179 HIV- participants at week 24 from 2 US sites, 4 South American sites, and 1 South African site

Factors Associated with Detectable Drug Concentrations

	Variable	% Detectable	Variable	% Detectable
Age	≥25	66	<25	37
Receptive anal sex	Within past 12 wk	71	No Sex	30
Site Location	US	97	Others	50

- Height, weight, creatinine clearance, and race/ethnicity did not independently correlate with detection rate.
- Distribution of drug concentrations similar when taken across groups

Anderson P et al. 18th CROI, 2011. Abs 96LB

No Drug Resistance in iPrEx If HIV Acquired After Enrollment

Genotypic Resistance	HIV Status at Enrollment			
	Infected		Uninfected	
	Placebo N=8	FTC/TDF N=2	Placebo N=83	FTC/TDF N=48
65R	0 (0%)	0 (0%)	0 (0%)	0 (0%)
70E	0 (0%)	0 (0%)	0 (0%)	0 (0%)
184I	0 (0%)	1 (50%)	0 (0%)	0 (0%)
184V	1 (13%)	1 (50%)	0 (0%)	0 (0%)
TDF Resistance	0 (0%)	0 (0%)	0 (0%)	0 (0%)
FTC Resistance	1 (13%)	2 (100%)	0 (0%)	0 (0%)

Grant R et al, 18th CROI 2011. Abs. 92.

But: Condoms Are What We Should Recommend for HIV Prevention
3 Reasons Why Condoms are Not the Answer to All HIV Prevention Needs

1. They can break or slip off
2. HIV can be transmitted by oral sex

RO = receptive oral
IO = insertive oral
RG = receptive genital
IG = Insertive gential
RA = receptive anal
IA = insertive anal

Sexual Activity Leading to HIV Acquisition*

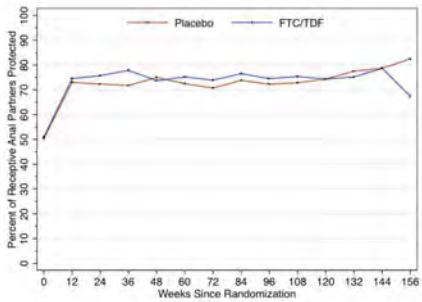
Pt	RO	IO	RG	IG	RA	IA
8	+	-	-	-	-	-
11	?	?	-	-	+	+
13	+	+	-	-	?	?
14	+	+	-	-	+	+
28	+	+	-	-	+	+
38	+	+	-	-	-	-
39	+	+	-	-	-	-
51	+	-	-	+	-	-
64F	-	-	+	-	-	-
68	+	+	-	-	-	-
77	+	+	-	-	+	+
83	+	+	-	-	-	+

Schacker T et al. Ann Intern Med 125:257-264, 1996

But: Condoms Are What We Should Recommend for HIV Prevention
3 Reasons Why Condoms are Not the Answer to All HIV Prevention Needs

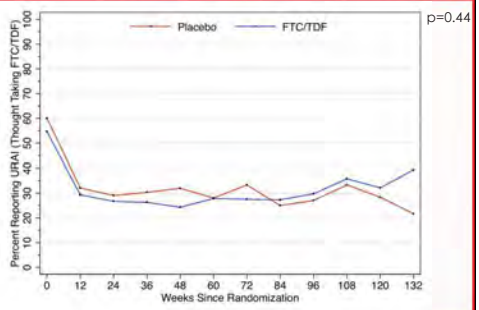
1. They can break or slip off
2. HIV can be transmitted by oral sex
3. This guy is so hot I don't care about condoms

But: Condoms Use Will Decrease If People Take PrEP
Condom Use in iPrEx



Grant R. 51st ICAAC, 2011. Abs 1007.

But: People Will Engage in More High Risk Sex If They're On PrEP Unprotected Receptive Anal Intercourse Those who believed they were taking FTC/TDF in iPrEx



Grant R. 51st ICAAC, 2011. Abs 1007.

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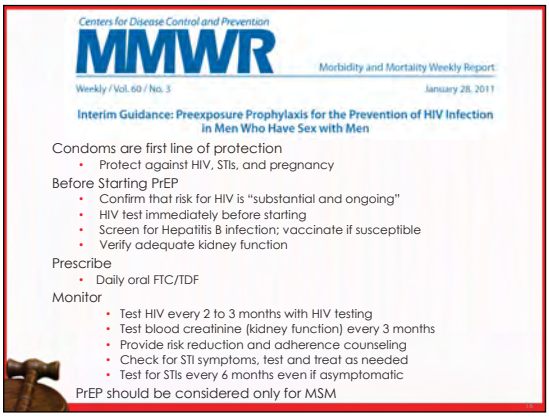
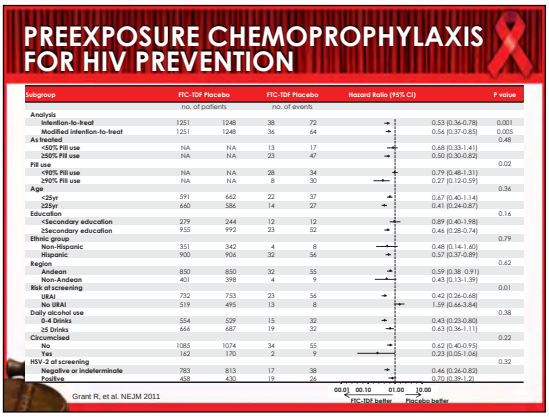
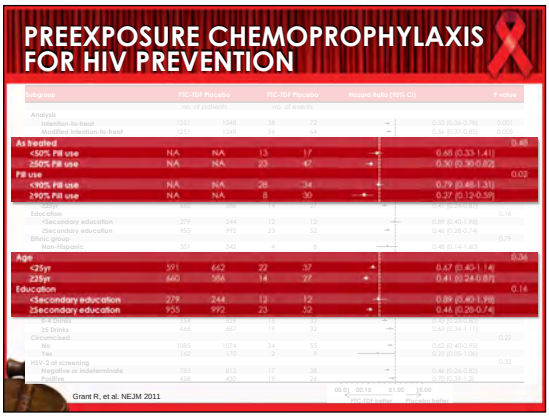
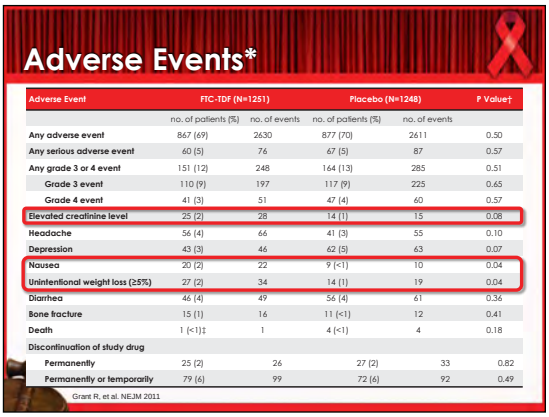
PrEP: The Time Is Now – Pro *Ian Frank, MD*



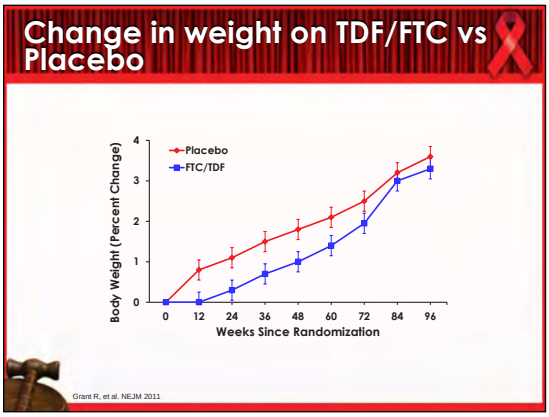
PrEP: The Time Is Now – Con — *David Wohl, MD*

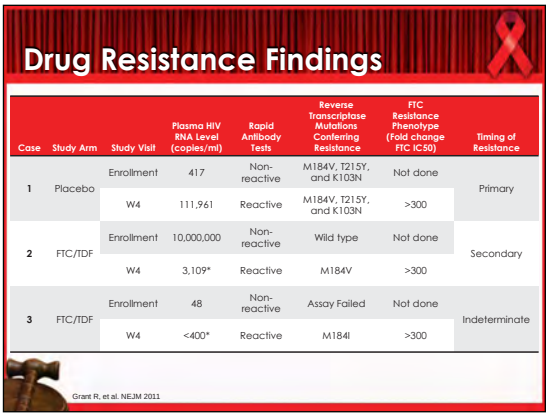






Adverse Event	FTC-TDF (N=1251)		Placebo (N=1248)		P Value†
	no. of patients (%)	no. of events	no. of patients (%)	no. of events	
Any adverse event	867 (69)	2630	877 (70)	2611	0.50
Any serious adverse event	60 (5)	76	67 (5)	87	0.57
Any grade 3 or 4 event	151 (12)	248	164 (13)	285	0.51
Grade 3 event	110 (9)	197	117 (9)	225	0.65
Grade 4 event	41 (3)	51	47 (4)	60	0.57
Elevated creatinine level	25 (2)	28	14 (1)	15	0.08
Headache	56 (4)	66	41 (3)	55	0.10
Depression	43 (3)	46	62 (5)	63	0.07
Nausea	20 (2)	22	9 (<1)	10	0.04
Unintentional weight loss (≥5%)	27 (2)	34	14 (1)	19	0.04
Diarrhea	46 (4)	49	56 (4)	61	0.36
Bone fracture	15 (1)	16	11 (<1)	12	0.41
Death	1 (<1)‡	1	4 (<1)	4	0.18
Discontinuation of study drug					
Permanently	25 (2)	26	27 (2)	33	0.82
Permanently or temporarily	79 (6)	99	72 (6)	92	0.49



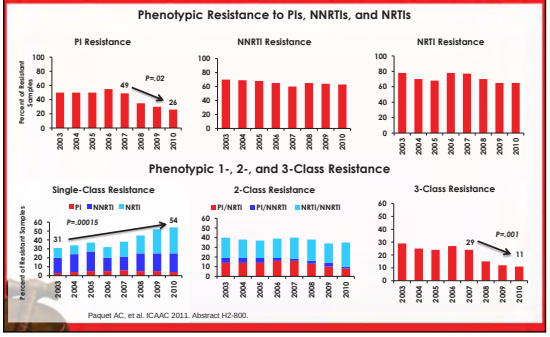


Case	Study Arm	Study Visit	Plasma HIV RNA Level (copies/ml)	Rapid Antibody Tests	Reverse Transcriptase Mutations Conferring Resistance	FTC Resistance Phenotype (Fold change FTC IC50)	Timing of Resistance
1	Placebo	Enrollment	417	Non-reactive	M184V, T215Y, and K103N	Not done	Primary
		W4	111,961	Reactive	M184V, T215Y, and K103N	>300	
2	FTC/TDF	Enrollment	10,000,000	Non-reactive	Wild type	Not done	Secondary
		W4	3,109*	Reactive	M184V	>300	
3	FTC/TDF	Enrollment	48	Non-reactive	Assay Failed	Not done	Indeterminate
		W4	<400*	Reactive	M184I	>300	

The Experts Square Off: Debating the Pressing HIV Issues of 2011

PrEP: The Time Is Now – Con — *David Wohl, MD*

Trends in Phenotypic Resistance to PIs, NNRTIs and NRTIs



Paquet AC, et al. ICAAC 2011. Abstract H2-800.

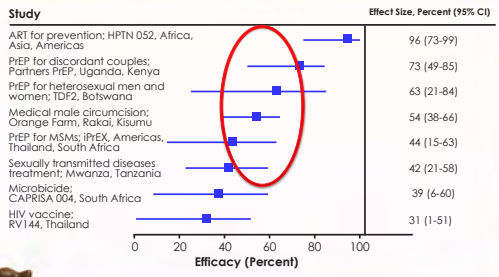
FEM-PrEP: TDF/FTC in Heterosexual African Women

- HIV-uninfected women at high risk of HIV infection randomized to TDF/FTC vs placebo (n = 1951)
- Preliminary results reported in April 2011
  - 28 infections in TDF/FTC arm and 28 in placebo arms
    - New infection rate: ~ 5%/yr
  - Adherence ~ 95% when product available
  - Increased pregnancy rate in TDF/FTC group
  - TDF/FTC associated with known adverse effects

Orderly closure of study recommended due to futility

FHI360. FHI Statement on the FEM-PrEP HIV Prevention Study. Available at: http://www.fhi.org/en/AboutFHI/Media/Releases/FEM-PrEP_statement041811.htm. These data are available in press release format only, have not been peer reviewed, may be incomplete, and we await presentation or publication in a peer-reviewed format before conclusions should be made from these data.

Efficacy of HIV Prevention Strategies From Randomized Clinical Trials



Abdool Karim SS, et al. Lancet. 2011;[Epub ahead of print].

A US Policy Perspective on Oral Preexposure Prophylaxis for HIV

Cost-Effectiveness Comparison of Interventions to Avert HIV Infection

Intervention	Year	Cost per QALY, $ (as Published)	Cost per QALY, $ (2010)	Source
PrEP (50% efficacy)	2006	298000	345203	Paltiel et al.[20]
PrEP for high-risk MSM (50% efficacy) 25% coverage rate	2007	31970	35594	Desai et al.[19]
TNT/TLC+ (without secondary effects)	2004	37100	46653	Paltiel et al.[22]
TNT/TLC+ (with secondary effects)	2004	30800	38731	Paltiel et al.[22]
PEP regimen	2000	14449	21646	Pinkerton et al.[23]

Note. MSM = men who have sex with men; PEP = postexposure prophylaxis; PrEP = preexposure prophylaxis; QALY = quality-adjusted life year; TNT/TLC + = test and treat or testing with linkage to care. Constant dollar estimates of alternative biomedical interventions using the "medical care" item of the Consumer Price Index.
Published online ahead of print April 14, 2011. American Journal of Public Health. Leibowitz et al.

A US Policy Perspective on Oral Preexposure Prophylaxis for HIV

"With regard to costs, opportunity costs, and ethical considerations, the desirability of orally administered PrEP must be established. We have argued that randomized clinical trials may not provide all the needed evidence when the intervention under consideration is one for which the outcome depends not only on physiologic responses to treatment but also on behavioral responses. In the case of PrEP, clinical trials may demonstrate physiologic efficacy but are unlikely to provide definitive information on adherence levels and risk compensation, key parameters in determining whether PrEP will lead to increased rather than decreased HIV transmission."

Published Ahead of Print on April 14, 2011, as 10.2105/AJPH.2010.300066
The latest version is at http://ajph/aphapublications.org/cgi/doi/10.2105/AJPH.2010.300066
Arleen A. Leibowitz, PhD, Karen Byrnes Parker, MPP, and Mary Jane Rotheram-Borus, PhD

There is no magic pill.

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PrEP: The Time Is Now – Con *David Wohl, MD*