8th International Conference on HIV TREATMENT AND PREVENTION ADHERENCE

June 2-4, 2013 • Miami

jointly sponsored by

IAPAC
INTERNATIONAL ASSOCIATION
OF PROVIDERS OF AIDS CARE

NIMH
National Institute
of Mental Health

PIM
Postgraduate Institute
for Medicine

8th International Conference on HIV TREATMENT AND PREVENTION ADHERENCE

WELCOME

We are pleased to welcome you to the 8th International Conference on HIV Treatment and Prevention Adherence.

Over the last several years, we have witnessed remarkable progress in the science of HIV medicine, which allows us an opportunity to more than imagine an end to the HIV pandemic. However, this hopeful perspective is tempered by the real world challenges at the intersection of treatment adherence and strategies for biomedical prevention of HIV. This year's program is thus well-grounded in behavioral, clinical, and structural interventions to help promote, enhance, and maintain optimal adherence to treatment - both for therapeutic and preventative effect.

In our eighth year, we continue to count on contributions from government, institutional, and commercial supporters. We thus wish to acknowledge and express our gratitude to the National Institute of Mental Health (NIMH) and the National Institute of Allergy and Infectious Diseases (NIAID), as well as the International Association of Providers of AIDS Care (IAPAC) and the Humanitas Foundation for their support. We equally appreciate the commercial support provided by Gilead Sciences, Merck & Co., and ViiV Healthcare. And, we thank the Postgraduate Institute for Medicine (PIM), the Society of Behavioral Medicine (SBM), and the Association of Nurses in AIDS Care (ANAC) for providing continuing education for our clinician-delegates.

Ultimately, though, a conference is in large measure successful because of its Planning Committee and faculty, its delegates, and those individuals who submit their research for review and, if accepted, presentation via oral abstract or poster presentations. Our gratitude to the stellar faculty we have assembled for this year's conference, to the oral abstract and poster presenters who will share their exciting new data, and to delegates from over 30 countries who are here with us for the next few days. Your research and clinical work has never been more important to HIV treatment and prevention.

Christopher M. Gordon, PhD[1]
Co-Chair

José M. Zuniga, PhD, MPH[2]
Co-Chair

1 National Institute of Mental Health, Bethesda, MD, USA
2 International Association of Providers of AIDS Care, Washington, DC, USA

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CONFERENCE INFORMATION

TARGET AUDIENCE
This activity has been designed to meet the educational needs of physicians, pharmacists, physician assistants, nurses/nurse-practitioners, psychologists, social workers, and allied health-care professionals working in the field of HIV medicine.

STATEMENT OF NEED
Antiretroviral therapy can inhibit viral replication and reduce viral load to a point where viral particles are undetectable in the blood of infected individuals. Significant and sustained suppression of HIV replication is associated with improved clinical outcomes. However, these benefits are only tenable when adherence to precise dosing schedules is rigorous and other requirements are closely followed. Partial or poor adherence can lead to the resumption of rapid viral replication, poorer survival rates, and virus mutation to treatment-resistant strains of HIV. Similarly, adherence to antiretroviral-based prevention interventions will be critical to achieving the promise that pre-exposure prophylaxis (PrEP) and other biomedical interventions hold to dramatically curb HIV transmission rates among at-risk populations.

Behavioral and clinical interventions are integral to the success of any medication advance and its health outcomes. Therefore, understanding and enhancing HIV treatment and biomedical prevention adherence is a critical goal at individual, community, and public health levels, which requires multidisciplinary cooperation among patients, clinicians, researchers, and public health specialists.

PROGRAM OVERVIEW
The 8th International Conference on HIV Treatment and Prevention Adherence will provide a forum where the state-of-the-science for HIV treatment and biomedical prevention adherence research will be presented, discussed, and translated into evidence-based approaches. The 2.5-day program will allow healthcare and human service professionals to examine scientifically sound and practical strategies to enhance adherence to HIV treatment and biomedical prevention interventions in a variety of domestic and international settings.

EDUCATIONAL OBJECTIVES
After completing this activity, participants will be able to:

- Identify successes and challenges in HIV treatment adherence in various settings and populations worldwide
- Explain behavioral and clinical aspects of adherence that reflect a variety of HIV treatment team perspectives (e.g., patients, physicians, physician assistants, pharmacists, nurses, mental health professionals, adherence specialists)
- Describe current perspectives on biomedical HIV prevention interventions, including pre-exposure prophylaxis [PrEP] and antiretroviral-based microbicides
- Discuss the implications of HIV treatment and biomedical prevention adherence for individual, community, and public health
- Utilize adherence assessment tools and interventions that can be integrated into patient care and/or as components of prevention interventions

GENERAL INFORMATION

MEETING VENUE
The 8th International Conference on HIV Treatment and Prevention Adherence is being held at the Eden Roc Renaissance Hotel. Plenary, Oral Abstract, and Breakout Sessions, as well as the Poster Session will be held in various rooms off the hotel's Lobby (see the Conference Hotel Maps and the Conference Program on page 4 and pages 6-8, respectively).

MEALS
Continental breakfast will be served from 7:30 A.M. - 8:30 A.M., Monday, June 3, 2013, and Tuesday, June 4, 2013, in Ocean Tower 1 AB/Foyer. Lunch will only be provided on Monday, June 3, 2013, during the Lunch Panel discussion. Visit the conference's Registration Desk for a list of restaurants inside the hotel complex as well as local restaurants.

QUESTIONS
If you have any questions during the conference, please locate an IAPAC staff member at the conference's Registration Desk. If you have any questions post-conference, please contact Angela Knudson at aknudson@iapac.org.

INTERNET ACCESS
The 8th International Conference on HIV Treatment and Prevention Adherence does not provide Internet access to participants. In each sleeping room, guests have available: Wireless or Hard-Wired High Speed Internet for $14.95 per 24 hours, with individual login. This fee includes High-Speed Internet access and unlimited local phone calls.

SLIDE PRESENTATIONS/ABSTRACTS
Slide presentations will be available at www.iapac.org post-conference. The Program and Oral Abstracts book as well as the Poster Abstracts book will be distributed at registration, and electronic versions will be available at www.iapac.org post-conference.

CONTINUING EDUCATION

CONTINUING MEDICAL EDUCATION

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 (ACCME) through the joint sponsorship of the Postgraduate Institute for Medicine (PIM) and the International Association of Providers of AIDS Care (IAPAC). The Postgraduate Institute for Medicine is accredited by the ACCME to provide continuing medical education for physicians.

Credit Designation
The Postgraduate Institute for Medicine designates this live activity for a maximum of 18.25 *AMA PRA Category 1 Credit(s)™*. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

Disclosure of Conflicts of Interest
The Postgraduate Institute for Medicine (PIM) requires instructors, planners, managers, and other individuals who are in a position to control the content of this activity to disclose any real or apparent conflict of interest (COI) they may have as related to the content of this activity. All identified COI are thoroughly vetted and resolved according to PIM policy. PIM is committed to providing its learners with high quality CME activities and related materials that promote improvements or quality in healthcare and not a specific proprietary business interest of a commercial interest.

A Disclosure of Conflicts of Interest handout is inserted in the Program and Oral Abstracts book. The handout reflects reports of financial relationships or relationships to products or devices faculty, planners, and managers, or their spouses/life partners, have with commercial interests related to the content of this CME activity. If you do not find this handout inserted in your Program and Oral Abstracts book, please visit the conference's Registration Desk.

Disclosure of Unlabeled Use
This educational activity may contain discussion of published and/or investigational uses of agents that are not indicated by the US Food and Drug Administration (FDA). The planners of this activity do not recommend the use of any agent outside of the labeled indications.

The opinions expressed in the educational activity are those of the faculty and do not necessarily represent the views of the planners. Please refer to the official prescribing information for each product for discussion of approved indications, contraindications, and warnings.

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.

Evaluation
Participants may complete an online evaluation at www.cmeuniversity.com. On the navigation menu, click on "Find Post-Tests by Course" and search by Project ID 9220. Upon successfully completing the evaluation, a CME certificate will be made available to each participant.

CONTINUING EDUCATION IN NURSING
This conference is also jointly sponsored with the Association of Nurses in AIDS Care (ANAC), an approved provider of continuing education (CE) in nursing through the Virginia Nurses Association, which is accredited by the Commission on Accreditation of the American Nurses' Association. ANAC designates this educational activity for maximum 18.25 CE Credits. Certificates will be available at www.cmeuniversity.com, Project ID number 9220.

CONTINUING EDUCATION IN PSYCHOLOGY
The Society of Behavioral Medicine is approved by the American Psychological Association to sponsor continuing education for psychologists. The Society of Behavioral Medicine maintains responsibility for this program and its content. The Society of Behavioral Medicine designates this activity for a maximum of 18.25 Continuing Education (CE) Credits for psychologists. Certificates will be available at www.cmeuniversity.com, Project ID number 9220.
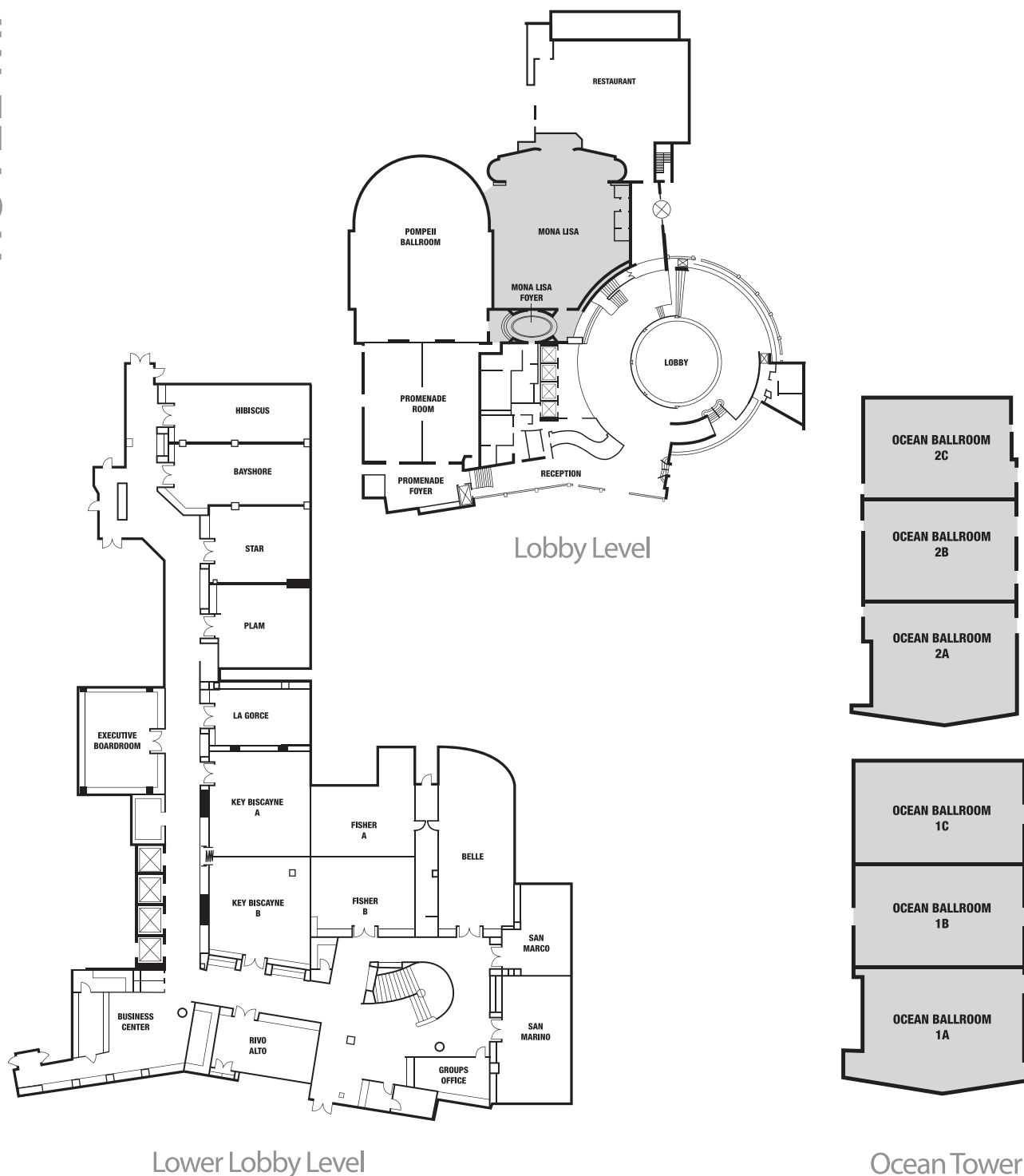
PIM | Postgraduate Institute for Medicine

ANAC | ASSOCIATION OF NURSES IN AIDS CARE

SOCIETY *of* BEHAVIORAL MEDICINE
Better Health Through Behavior Change

EDEN ROC RENAISSANCE HOTEL

RESTAURANT

POMPEII
BALLROOM

MONA LISA

MONA LISA
FOYER

LOBBY

PROMENADE
ROOM

PROMENADE
FOYER

RECEPTION

Lobby Level

HIBISCUS

BAYSHORE

STAR

PLAM

LA GORCE

EXECUTIVE
BOARDROOM

KEY BISCAYNE
A

FISHER
A

BELLE

KEY BISCAYNE
B

FISHER
B

SAN
MARCO

BUSINESS
CENTER

RIVO
ALTO

SAN
MARINO

GROUPS
OFFICE

Lower Lobby Level

OCEAN BALLROOM
2C

OCEAN BALLROOM
2B

OCEAN BALLROOM
2A

OCEAN BALLROOM
1C

OCEAN BALLROOM
1B

OCEAN BALLROOM
1A

Ocean Tower

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SUNDAY, JUNE 2, 2013

TIME	ACTIVITY	OCEAN TOWER 2 BALLROOM	MONA LISA
10:00 A.M.–Noon	"New Frontiers" Pre-Conference Symposia	Public Health Systems Approaches for Linkage and Retention in HIV Care **Moderator:** Evelyn P. Tomaszewski, MSW **Panelists:** Julie Dombrowski, MD Blayne Cutler MD, PhD Abraham Feingold, PsyD	
Noon–1:00 P.M.	Break		
1:00 P.M.–3:00 P.M.	"New Frontiers" Pre-Conference Symposia	Affordable Care Act Implementation (2013-2015) and its Implications for HIV Service Delivery at Specialty and Primary Care Levels **Moderator:** Michael A. Horberg, MD, MAS **Panelists:** Daniel Montoya Amy Killelea, JD Jennifer Kates, PhD Andrea Weddle, MSW	Novel Technologies and Assays for Adherence Assessment and Support **Moderators:** Jeffrey Schouten, MD Jane M. Simoni, PhD **Panelists:** Ariane van der Straten, PhD Donn Dennis, MD Maya Petersen, PhD **Discussant:** Wendy Nilsen, PhD
3:00 P.M.–4:00 P.M.	Break		

TIME	ACTIVITY
OPENING SESSION • OCEAN TOWER 2 BALLROOM	
4:00 P.M.–4:15 P.M.	Conference Welcome José M. Zuniga, PhD, MPH Christopher M. Gordon, PhD
4:15 P.M.–4:20 P.M.	Introduction to the Gary S. Reiter, MD, and Andrew Kaplan, MD, Memorial Lecture Christopher M. Gordon, PhD
4:20 P.M.–5:00 P.M.	Turning Points in HIV Treatment Adherence Research David R. Bangsberg, MD, MPH
5:00 P.M.–6:00 P.M.	Patient Perspectives on Adherence **Moderator:** Robert H. Remien, PhD **Panelists:** Juan Carlos; Allam García; Maria T. Mejía; Emmanuel Murray; Quintara Lady Queen-Lane; Kathleen Reed-Cabrera
OPENING RECEPTION • OCEAN GARDEN (outdoors)	
6:00 P.M.–8:00 P.M.	¡Bienvenidos a Miami!

MONDAY, JUNE 3, 2013

TIME	ACTIVITY			
7:30 A.M.–8:30 A.M.	Breakfast Served in Ocean Tower 1 AB/Foyer			

TIME	ACTIVITY	OCEAN TOWER 2 BALLROOM	MONA LISA	OCEAN TOWER 1C
8:00 A.M.–8:50 A.M.	Science to Practice Translation Sessions	Pharmacist Support for Medication Adherence Jennifer Cocohoba, PharmD	The AHRQ CERTS Initiative on Medication Management Anne Trontell, MD	An Orientation to the MAPS Problem-Solving Counseling Intervention to Promote ART Adherence Robert Gross, MD, MSCE
8:50 A.M.–9:00 A.M.	Break			

TIME	ACTIVITY			
KEYNOTE ADDRESS • OCEAN TOWER 2 BALLROOM				
9:00 A.M.–9:30 A.M.	A Call to Action to Treat 15 Million by 2015 Badara Samb, MD, PhD			
PLENARY • OCEAN TOWER 2 BALLROOM				
9:30 A.M.–10:00 A.M.	Call Me Maybe? Text Messaging to Strengthen ART Adherence and Retention in Care in Global Settings Richard Lester, MD			
10:00 A.M.–10:15 A.M.	1st Annual Pioneer Award for Outstanding Contributions to HIV Adherence Science/Practice & Rising Star Award for Promising Early Career Scientist/Practitioner			
10:15 A.M.–10:25 A.M.	Break			

TIME	ACTIVITY	OCEAN TOWER 2 BALLROOM	MONA LISA	OCEAN TOWER 1C
10:25 A.M.–11:40 A.M.	Thematic Oral Abstract Sessions	Retention in Care	PrEP Uptake and Adherence	Interventions and Adherence Effects
11:40 A.M.–1:00 P.M.	Lunch/Networking			

LUNCH PANEL • OCEAN TOWER 2 BALLROOM				

11:45 A.M.–1:00 P.M.	Provider Panel: Tips for Addressing Adherence with Patients
	     Moderator: Ira B. Wilson, MD
	     Panelists: Ingrid Bassett, MD, MPH; Thomas P. Giordano, MD, MPH; Robert Gross, MD, MSCE; Mary Jane Nettles, ACRN			

TIME	ACTIVITY	OCEAN TOWER 2 BALLROOM	MONA LISA	OCEAN TOWER 1C
1:05 P.M.–2:20 P.M.	Thematic Oral Abstract Sessions	Linkage to Care	Mental Health, Resilience, and Relationships	Meta-Analyses
POSTER SESSION • OCEAN TOWER 1 BALLROOM				
2:20 P.M.–3:50 P.M.				
3:50 P.M.–4:00 P.M.	Break			

PLENARY • OCEAN TOWER 2 BALLROOM				
4:00 P.M.–5:00 P.M.	Three Top-Rated Oral Abstracts Moderator: Michael J. Stirratt, PhD			

TUESDAY, JUNE 4, 2013

TIME	ACTIVITY			
7:30 A.M.–8:30 A.M.	Breakfast Served in Ocean Tower 1 AB/Foyer			

TIME	ACTIVITY	OCEAN TOWER 2BC	OCEAN TOWER 2A	OCEAN TOWER 1C
8:00 A.M.–8:50 A.M.	Science to Practice Translation Sessions	Use of EHR Systems to Integrate Engagement in Care Interventions into Routine Clinical Practice in Primary Care Settings Benjamin Young, MD, PhD	Brief Orientation to Motivational Interviewing and Resources for Further Training Jeffrey Parsons, PhD	The "Script Your Future" Campaign to Improve Patient Medication Adherence Across Multiple Chronic Conditions Rebecca Burkholder, JD
8:50 A.M.–9:00 A.M.	Break			

TIME	ACTIVITY
PLENARY • OCEAN TOWER 2BC	
9:00 A.M.–9:30 A.M.	Disparities in HIV Treatment Engagement, Adherence, and Outcomes Gregorio Millett, MPH
9:30 A.M.–10:00 A.M.	Clinical Pharmacology of Antiretrovirals for HIV Prevention: Implications for PrEP Adherence and Effectiveness Craig Hendrix, MD
10:00 A.M.–10:15 A.M.	Break

TIME	ACTIVITY	OCEAN TOWER 2BC	OCEAN TOWER 2A	OCEAN TOWER 1C
10:15 A.M.–11:30 A.M.	Thematic Oral Abstract Sessions	Methodologies for Prevention and Adherence	Adherence and Retention in African Settings	Adherence Analyses Derived from Large Datasets
11:30 A.M.–12:50 P.M.	Lunch/Networking			
12:55 P.M.–2:10 P.M.	Thematic Oral Abstract Sessions	Cascade Interventions	Engagement and Retention in Care	Understanding Racial Disparities
2:10 P.M.–2:15 P.M.	Break			
2:15 P.M.–3:00 P.M.	Invited Speakers	PrEP: State of the Science Kenneth Mayer, MD	Behavioral Economics Approaches to Incentivize Adherence Sebastian Linnemayr, PhD	Aging and HIV Comorbidities: A Challenge for Engagement in Care Maria L. Alcaide, MD
3:00 P.M.–3:15 P.M.	Break			

CLOSING PLENARY • OCEAN TOWER 2BC	
3:15 P.M.–4:00 P.M.	Multisectoral Perspectives on HIV Treatment Adherence: Connecting the Dots Moderators: José M. Zuniga, PhD, MPH; Christopher M. Gordon, PhD Panelists: Gregorio Millett, MPH; Blayne Cutler, MD, PhD; Michael A. Horberg, MD, MAS; John Pottage, MD; Wendy Nilsen, PhD
4:00 P.M.	Adjourn

8th International Conference on **HIV Treatment and Prevention Adherence**

"NEW FRONTIERS" PRE-CONFERENCE SYMPOSIA

SUNDAY, JUNE 2, 2013

Symposium 1
10:00 A.M. - Noon / Ocean Tower 2 Ballroom

Public Health Systems Approaches for Linkage and Retention in HIV Care

Moderator:
Evelyn P. Tomaszewski, MSW, National Association of Social Workers, Washington, DC, USA

Panelists:
Julie Dombrowski, MD, Public Health Seattle-King County, Seattle, WA, USA
Blayne Cutler MD, PhD, New York City Department of Health and Mental Hygiene, New York, NY, USA
Abraham Feingold, PsyD, Florida Department of Health in Broward County, Fort Lauderdale, FL, USA

CME accredited

Symposium 2
1:00 P.M. - 3:00 P.M. / Ocean Tower 2 Ballroom

Affordable Care Act Implementation (2013-2015) and its Implications for HIV Service Delivery at Specialty and Primary Care Levels

Moderator:
Michael A. Horberg, MD, MAS, Kaiser Permanente & Presidential Advisory Council on HIV/AIDS, Rockville, MD, USA

Panelists:
Daniel Montoya, National Minority AIDS Council, Washington, DC, USA
Amy Killelea, JD, National Alliance of State and Territorial AIDS Directors, Washington, DC, USA
Jennifer Kates, PhD, Kaiser Family Foundation, Washington, DC, USA
Andrea Weddle, MSW, HIV Medicine Association, Arlington, VA, USA

CME accredited

Symposium 3
1:00 P.M. - 3:00 P.M. / Mona Lisa

Novel Technologies and Assays for Adherence Assessment and Support

Moderators:
Jeffrey Schouten, MD, Fred Hutchinson Cancer Research Center, Seattle, WA, USA
Jane M. Simoni, PhD, University of Washington, Seattle, WA, USA

Panelists:
Ariane van der Straten, PhD, University of California, San Francisco & Research Triangle Institute International, San Francisco, CA, USA
Donn Dennis, MD, University of Florida College of Medicine & Xhale, Inc., Gainesville, FL, USA
Maya Petersen, PhD, University of California, Berkeley, Berkeley, CA, USA

Discussant:
Wendy Nilsen, PhD, Office of Behavior and Social Sciences Research, Bethesda, MD, USA

CME accredited

We are pleased to honor two individuals at this year's 8th International Conference on HIV Treatment and Prevention Adherence with inaugural awards. They were nominated for these awards by members of the conference Planning Committee and voted upon by a panel of four individuals, including the conference Co-Chairs and an additional representative each from IAPAC and NIMH.

PIONEER AWARD FOR OUTSTANDING CONTRIBUTIONS TO HIV ADHERENCE SCIENCE/PRACTICE

The Pioneer Award recognizes the achievements of an individual whose career has made significant contributions to the field of HIV adherence science/practice. The recipient will have demonstrated a history of leadership or advocacy that has enhanced knowledge, education, implementation, or policies in HIV care.

RISING STAR AWARD FOR PROMISING EARLY CAREER SCIENTIST/PRACTITIONER

The Rising Star Award for Promising Early Career Scientist/Practitioner is funded by the Humanitas Foundation to support young researchers who demonstrate innovation, originality, and quality in the field of HIV adherence science/practice. The honoree must be under age 40 and/or have completed their terminal professional training in the previous 10 years.

David R. Bangsberg, MD, MPH

Dr. Bangsberg is Director of the Massachusetts General Hospital Center for Global Health and the International Program of the Harvard University Center for AIDS Research; and Professor at the Harvard School of Medicine and the Harvard School of Public Health in Boston, as well as the Mbarara University of Science and Technology in Uganda. He earned his Medical Degree at Johns Hopkins Hospital in Baltimore; completed his internal medicine and chief residency at Columbia Presbyterian Hospital in New York, and fellowships in infectious disease and AIDS prevention at the University of California, San Francisco (UCSF). He holds a Master's Degree in Public Health from the University of California, Berkeley. His research focuses on social behavioral factors related to HIV treatment access, treatment adherence, and treatment outcomes in impoverished populations. Dr. Bangsberg received the AIDS Research Institute Mentoring Award from UCSF, and the Clifford Berger Mentoring Award from Harvard Medical School. He has published over 250 manuscripts and raised more than USD$50 million in funding related to the study of social, behavioral, and structural determinants of HIV treatment in vulnerable populations. He is on the Editorial Boards of *PLOS Medicine, JAIDS, AIDS Patient Care and STDs, AIDS Care,* and *AIDS and Behavior,* as well as the Scientific Advisory Board for the US President's Emergency Plan for AIDS Relief (PEPFAR).

Edward M. Gardner, MD

Dr. Gardner is the Medical Director of the Infectious Diseases Clinic and the Director of Clinical Research at Denver Public Health. He is an Associate Professor of Medicine at the University of Colorado Denver. He earned his Medical Degree from the University of Chicago's Pritzker School of Medicine and his internal medicine training at the University of North Carolina Hospitals in Chapel Hill, NC. After four years in community health and correctional medicine, he completed his infectious diseases training at the University of Colorado Denver in 2005. His primary areas of research interest are engagement in HIV care and adherence to antiretroviral therapy, and he has received National Institutes of Health (NIH) funding in both of these areas. Of note, Dr. Gardner is most well known for his often-referenced "treatment cascade" model, which his colleagues and he first described in the March 2011 edition of *Clinical Infectious Diseases*. Their analysis found that along each step of the cascade, a significant number of people living with HIV in the United States "fall off," and only a minority of HIV-positive individuals achieve viral suppression. Policymakers and service providers now routinely utilize the cascade metric to implement system improvements and service enhancements that better support individuals as they move from one step in the continuum to the next.

MONDAY, JUNE 3, 2013

Retention in Care
10:25 A.M. - 11:40 A.M. / Ocean Tower 2 Ballroom
Moderator: Benjamin Young, MD, PhD

85   Are Missed- and Kept-Visits-Based Measures Capturing Different Aspects of Retention in Care?
David Batey (presenting)

86   Impact of HIV Disease Severity on Retention in Care and Viral Load Suppression
Baligh Yehia (presenting)

137   Retention in HIV Care Predicts Subsequent Retention and Predicts Survival Well After the First Year of Care: A National Study of US Veterans
Thomas Giordano (presenting)

149   Sustaining Adherence and Retention in Care for Improved Health Outcomes in Community-Level HIV and AIDS Services in Swaziland
Gloria Ekpo (presenting)

PrEP Uptake and Adherence
10:25 A.M. - 11:40 A.M. / Mona Lisa
Moderator: Vanessa Elharrar, MD, MPH

68   Factors Influencing Adherence Behavior for Daily and Intermittent Regimens of Pre-Exposure Prophylaxis (PrEP) among Men who have Sex with Men (MSM) in Kenya
Jessica Haberer (presenting)

107   HIV Providers' Perceived Facilitators and Barriers to Implementing HIV Pre-Exposure Prophylaxis in Clinical Settings: A Qualitative Study
Douglas Krakower (presenting)

125   Impact of PrEP Messaging Factors on Comprehension, Adherence Motivation, and Risk Compensation Intentions
Sarit Golub (presenting)

144   Assessing Pre-Exposure Prophylaxis Knowledge, Attitudes, and Potential Uptake among Adolescents and Young Adults at High-Risk for HIV in Washington, DC
Amanda Castel (presenting)

Interventions and Adherence Effects
10:25 A.M. - 11:40 A.M. / Ocean Tower 1C
Moderator: James D. Scott, PharmD, MEd

127   Changes in HIV Outcomes Following Depression Care in a Resource-Limited Setting: Results from a Pilot Study in Bamenda, Cameroon
Bradley Gaynes (presenting)

151   SPIRIT: Switching to Rilpivirine/Emtricitabine/Tenofovir DF Single-Tablet Regimen from Boosted Protease Inhibitor Demonstrated High Adherence and High Rates of Virologic Suppression*
Elizabeth Elbert (presenting)

This presentation is not CME-certified

165   Developing and Implementing a Mobile Health (mHealth) Adherence Support System for HIV-Uninfected Men who have Sex with Men (MSM) Taking Pre-Exposure Prophylaxis (PrEP): The iText Study
Albert Liu (presenting)

229   Household Food Aid and Nutrition Education Improve Adherence to Antiretroviral Therapy in Honduras
Kartika Palar (presenting)

Linkage to Care
1:05 P.M. - 2:20 P.M. / Ocean Tower 2 Ballroom
Moderator: Yvette Calderon, MD, MS

21   Using a Health System and Patient-Centered Approach to Link Individuals Living with HIV Infection into Primary Medical Care in Louisiana
Russell Brewer (presenting)

135   Linkage to Care Impacts Survival with HIV Infection, but the Entire Spectrum of Care Determines Survival: A National Study of US Veterans
Thomas Giordano (presenting)

182   Expanded HIV Testing Coverage is Ecologically Associated with Decreases in the Number of Late HIV Diagnoses, New York City, 2001-2010
Denis Nash (presenting)

245   Expanded HIV Testing and Linkage to Care (X-TLC) in Healthcare Settings on the South Side of Chicago
Nanette Benbow (presenting)

Mental Health, Resilience, and Relationships
1:05 P.M. - 2:20 P.M. / Mona Lisa
Moderator: Evelyn P. Tomaszewski, MSW

56   Resilience in Women with HIV: Relationships with Abuse History, Medication Adherence, and HIV Viral Load
Sannisha K. Dale (presenting)

66   Relational Orientations and Viral Suppression among Serodiscordant Same-Sex Male Couples
Kristi Gamarel (presenting)

113   Psychiatric Disorder Symptoms are Associated with Longitudinal Changes in Antiretroviral (ARV) Non-Adherence in Perinatally HIV Infected Youth in the United States: Results from IMPAACT P1055
Deborah Kacanek (presenting)

124   Psychiatric Comorbidity in Depressed HIV-Positive Individuals: Common and Clinically Consequential
Bradley Gaynes (presenting)

Meta-Analyses
1:05 P.M. - 2:20 P.M. / Ocean Tower 1C
Moderator: Wendy Nilsen, PhD

22   Adherence to Post-Exposure Prophylaxis for Non-Forcible Sexual Exposure to HIV: A Meta-Analysis
Catherine Oldenburg (presenting)

95   Predictors and Correlates of Adherence to Combination Antiretroviral Therapy (cART) for Chronic HIV Infection: A Meta-Analysis
Pythia Nieuwkerk (presenting)

210   Text Message Reminders Promote Adherence to Antiretroviral Therapy: A Meta-Analysis of Intervention Trials
David Finitsis (presenting)

225   Impact of HIV-Related Stigma and Serostatus Disclosure on HIV Treatment Adherence: Meta-Synthesis and Systematic Review
Ingrid Katz (presenting)

MONDAY, JUNE 3, 2013 (CONTINUED)

Three Top-Rated Abstracts
4:00 P.M. - 5:00 P.M. / Ocean Tower 2 Ballroom • Moderator: Michael J. Stirratt, PhD

28 HIV Treatment Adherence Counseling Interventions for People Living with HIV and Limited Health Literacy
Seth Kalichman (presenting)

43 Barriers and Facilitators to Oral and Topical (Vaginal Gel) PrEP Use in Johannesburg, South Africa: The VOICE-C Study
Ariane van der Straten (presenting)

116 The Contribution of Missed Clinic Visits to Disparities in HIV Viral Load Outcomes
Anne Zinski (presenting)

TUESDAY, JUNE 4, 2013

Methodologies for Prevention and Adherence
10:15 A.M. -11:30 A.M. / Ocean Tower 2BC
Moderator: K. Rivet Amico, PhD

44 Evaluation of Three Methods for Assessing Daily Vaginal Microbicide Gel Use
Ariane van der Straten (presenting)

55 Field Testing of a New Set of Medication Adherence Self-Report Items for HIV Care
Ira B. Wilson (presenting)

99 Accounting for Variable Adherence and Sexual Risk Behaviors in the Design and Analysis of PrEP Trials and When Modeling the Impact of PrEP Implementation
Marijn de Bruin (presenting)

136 Accuracy in Predicting Daily Anal Intercourse with Casual Partners and its Relevance for Intermittent PrEP: An Online Diary Analysis of Highly Sexually Active Gay and Bisexual Men
Jonathon Rendina (presenting)

Adherence and Retention in African Settings
10:15 A.M. - 11:30 A.M. / Ocean Tower 2A
Moderator: Edward Mills, PhD, MSc

83 Text Message Reminders Prior to HIV Clinic Appointments do not Improve Retention in Care when Added to Weekly Text Message Reminders Supporting Adherence to ART in Rural Sierra Leone: A Randomized Controlled Trial
John Kelly (presenting)

162 Anticipated Experiences of and Barriers to Enrolling in HIV Care: Are There Gender Differences among Newly Diagnosed South Africans?
Susie Hoffman (presenting)

175 The Value of Pharmacy-Based Adherence Measurement in Predicting Virologic Outcomes among HIV-Infected Adults in Jos, North Central Nigeria
Isaac Abah (presenting)

233 Routine Viral Load Monitoring for Targeted Adherence Support among Antiretroviral Therapy Patients in a Resource-Limited Setting, Swaziland
Charles Azih (presenting)

Adherence Analyses Derived from Large Datasets
10:15 A.M. - 11:30 A.M. / Ocean Tower 1C
Moderator: Tia Morton, RN, MS

33 Nationally Representative Estimates of Self-Reported Adherence to Antiretroviral Therapy in the United States - Medical Monitoring Project, 2009
Linda Beer (presenting)

157 Dose-Timing Errors Do Not Impact Viral Rebound among HIV-RNA Suppressed Patients
Becky Genberg (presenting)

164 Modeling Treatment Outcomes Using Rich Adherence Data and Antiretroviral Pharmacometrics
Daniel Rosenbloom (presenting)

215 Repeated Measures Analysis of the Relationship between Genotypic Sensitivity and MEMS Adherence with Viral Suppression
Honghu Liu (presenting)

Cascade Interventions

12:55 P.M. - 2:10 P.M. / Ocean Tower 2BC
Moderator: Linda Koenig, PhD, MS

67 Pilot Controlled Trial of the Adherence Readiness Program: An Intervention to Assess and Sustain HIV Antiretroviral Adherence Readiness
Glenn Wagner (presenting)

74 Reasons for Lack of ART Usage among Well-Engaged, ART-Eligible Clinic Patients
Katerina Christopoulos (presenting)

91 Using Community Expert Clients to Improve Adherence to Clinic Appointments in Swaziland
Bindza Ginindza (presenting)

205 Provider-Delivered Reminder Calls Improve Clinic Attendance by Patients with a History of Poor Engagement in Semi-Rural Virginia
Erin Wispelwey (presenting)

Engagement and Retention in Care

12:55 P.M. - 2:10 P.M. / Ocean Tower 2A
Moderator: Cynthia Grossman, PhD

75 Characterizing Persons Living with HIV who are Linked to Care but Not Retained
Baligh Yehia (presenting)

123 Factors Associated with Achieving Clinical Core Indicators among Patients Newly Initiating HIV Care
Gillian Greer (presenting)

163 Large-Scale, Rapid Transfer of HIV-Infected Patients from Hospital-Based to Primary Health Clinics in South Africa: An Assessment of Self-Reported Linkage to Care
Ingrid Bassett (presenting)

195 Baseline HIV Drug Resistance Testing Upon Linkage to Care: A Common Practice in San Francisco Even Prior to National Guidelines Revisions
Hong-Ha Truong (presenting)

Understanding Racial Disparities

12:55 P.M. - 2:10 P.M. / Ocean Tower 1C
Moderator: Robert Carroll, RN, ACRN

58 Relationships of HIV- and Race-Based Discrimination to Antiretroviral Treatment Use and Retention in Care among African Americans with HIV
Laura Bogart (presenting)

102 Adherence to Antiretroviral Therapy and Disparities in Viral Suppression among US Black and White Men who have Sex with Men - Medical Monitoring Project, 2009
Linda Beer (presenting)

106 Medical Mistrust Predicts Lower Longitudinal Medication Adherence among African-American Men
Sannisha K. Dale (presenting)

121 A Computer-Delivered IMB-Based Health Literacy Intervention Reduces Racial Disparities in HIV Information
Raymond Ownby (presenting)

ORAL ABSTRACTS

21 Using a Health System and Patient-Centered Approach to Link Individuals Living with HIV Infection into Primary Medical Care in Louisiana

Russell Brewer[1] **(presenting)**, Sarah Chrestman[1], Michael Robinson[1], Peter Gamache[1], Snigdha Mukherjee[1]

[1] Louisiana Public Health Institute, New Orleans, LA, USA

Background: In 2010, more than 17,000 individuals were living with HIV infection in Louisiana with an estimated 36% not in care. Louisiana is one of five Positive Charge (PC) grantees that were funded by AIDS United and Bristol-Myers Squibb to link newly HIV-diagnosed individuals and those living with HIV infection who are not in care into primary medical care. Research has shown that decreased HIV viral load resulting from access to care and life saving treatment plays a critical role in preventing the spread of HIV.

Methods: Since 2010, persons living with HIV infection have enrolled in one of four patient-centered interventions under PC (patient health navigation, linkage case management, pre/post release case management, and HIV-specific Disease Intervention Specialists) in New Orleans, Baton Rouge, Lake Charles, and Shreveport. In addition, a variety of health system-level tools and structures are in place to support entry or re-entry into primary medical care. They include "housing" the patient-centered interventionists at a provider and community-based organization, the utilization of the Louisiana Public Health Information Exchange (LaPHIE) alert system, the Ryan White CAREWare data collection system, the state's surveillance system to match clinical outcomes, and provider systems that generate out of care lists.

Results: From August 2010 to June 2012, 682 individuals have enrolled in PC with a linkage rate of 72%. Among enrolled participants at baseline (January 31, 2011), 11% had an undetectable viral load and a mean CD4 cell count of 293 cells/mm³ (January 31, 2011) and by time one follow-up (July 31, 2011), 22% of participants had an undetectable viral load and mean CD4 cell count of 348 cells/mm³.

Conclusions: A health system and patient-centered approach in Louisiana has facilitated the successful linkage of individuals living with HIV infection into care.

22 Adherence to Post-Exposure Prophylaxis for Non-Forcible Sexual Exposure to HIV: A Meta-Analysis

Catherine Oldenburg[1] **(presenting)**, Till Bärnighausen[1], Guy Harling[1], Matthew Mimiaga[2], Kenneth Mayer[2]

[1] Harvard School of Public Health, Boston, MA, USA
[2] The Fenway Institute, Boston, MA, USA

Background: Adherence to prescribed post-exposure prophylaxis (PEP) regimens for non-forcible sexual exposure to HIV has not been well described. We conducted a review of the literature and meta-analysis to characterize adherence after such exposure.

Methods: MEDLINE, EMBASE, and PsycINFO were searched and data from relevant studies were extracted. Articles were considered if they were in English and contained primary adherence data following non-forcible sexual exposure. The primary outcome was adherence, defined as completing the entire prescribed PEP regimen. Random-effects meta-analysis was used to create pooled point estimates for adherence.

Results: Of 1,257 records identified through our search algorithm, 17 were eligible for inclusion in this review, representing 3,634 patients enrolled in 3 randomized controlled trials (RCTs), 9 prospective, and 5 retrospective observational studies. RCTs included comparison of two PEP regimens (n = 1) and behavioral interventions (comparison of standard versus enhanced counseling, n = 2). Studies were conducted in Europe (n = 8), United States (n = 6), Australia (n = 1), Brazil (n = 1), and Kenya (n = 1), and focused on men who have sex with men (MSM) (n = 7), heterosexual and homosexual exposure (n = 9), and female sex workers (n = 1). Pooled adherence was 77% (95% confidence interval (CI): 68 to 87%) in prospective observational studies, 81% in retrospective studies (95%CI: 65 to 96%), 78% (95%CI: 65 to 91%) in RCTs, and 78% (95%CI: 72 to 85%) overall. Among 14 studies reporting their PEP regimen, there was no significant difference in adherence between 2- and 3-drug PEP regimens (coefficient -0.03, 95%CI: -0.21 to 0.14) or MSM-only and mixed exposure studies (coefficient 0.11, 95%CI -0.03 to 0.26).

Conclusions: Self-reported adherence to PEP was moderately high, across both observational studies and RCTs. Adherence was comparable in studies reporting 2- and 3-drug regimens, and between MSM and mixed exposure studies.

28 HIV Treatment Adherence Counseling Interventions for People Living with HIV and Limited Health Literacy

Seth Kalichman[1] (presenting), Chauncey Cherry[1], Christina Amaral[1], Tamar Grebler[1], Denise White[1], Moira Kalichman[1]

[1]   University of Connecticut, Storrs, CT, USA

Background: Limited health literacy is a known barrier to medication adherence among people living with HIV infection. Associations between health literacy and HIV treatment adherence are robust even after controlling for factors such as education, substance use, and depression. Adherence improvement interventions are urgently needed for this vulnerable population. This study tested the efficacy of a pictograph-guided adherence skills-building counseling intervention for limited literacy adults living with HIV.

Methods: Men and women living with HIV and receiving antiretroviral therapy (ART, N = 446) who scored below 90% correct on a test of functional health literacy were partitioned into marginal and lower literacy groups and randomly allocated to 1 of 3 adherence-counseling conditions: (a) pictograph-guided adherence counseling, (b) standard adherence counseling, or (c) general health improvement counseling. Participants were followed for 9-months post-intervention with unannounced phone-based pill count adherence and blood plasma viral load as primary endpoints.

Results: Preliminary analyses demonstrated the integrity of the trial and more than 90% of participants were retained. Generalized estimating equations showed significant interactions between counseling conditions and levels of participant health literacy across outcomes. Participants with marginal health literacy in the pictograph-guided and standard counseling conditions demonstrated greater adherence and undetectable HIV viral loads compared to general health counseling. In contrast and contrary to hypotheses, participants with lower health literacy skills in the general health improvement counseling demonstrated greater adherence compared to the 2 adherence counseling conditions.

Conclusions: Consistent with previous research, adherence was poor and viral suppression was often incomplete in this sample of people living with HIV infection and limited health literacy skills. Patients with marginal literacy skills appeared to benefit from adherence counseling regardless of pictographic tailoring and patients with lower literacy skills may require more intensive or provider directed interventions.

33 Nationally Representative Estimates of Self-Reported Adherence to Antiretroviral Therapy in the United States - Medical Monitoring Project, 2009

Linda Beer[1] (presenting), Jacek Skarbinski[1]

[1]   Centers for Disease Control and Prevention, Atlanta, GA, USA

Background: Adherence to antiretroviral therapy (ART) is critical for viral suppression and treatment success in HIV-infected persons. Though adherence is well-studied, there are no recent nationally representative US estimates of adherence.

Methods: We analyzed data from the Medical Monitoring Project (MMP), a national probability sample of HIV-infected adults receiving care from January 2009-April 2009. We estimated the prevalence of self-reported 100% adherence to ART doses in the past 72 hours among key groups. We assessed the relationship between adherence and 2 measures of viral suppression from medical records: 1) current viral suppression (most recent viral load undetectable or ≤200 copies/ml), and 2) durable viral suppression (all viral loads in past 12 months undetectable or ≤200 copies/ml). All analyses accounted for clustering, unequal selection probabilities, and non-response.

Results: Of an estimated 370,367 (95% confidence interval [CI]: 332,786-407,949) HIV-infected adults on ART in the United States, 86% (CI: 84-87) reported 100% adherence. Adherence was significantly lower among persons who were young**, transgender**, heterosexual women**, black*, recently diagnosed*, in poverty**, homeless*, recently incarcerated*, depressed**, drug users**, or binge drinkers** (**p <.01; *p <.10). Of persons reporting 100% adherence, 82% (CI: 79-85) were currently virally suppressed and 67% (CI: 64-69) achieved durable viral suppression, compared to 65% (CI: 59-71) and 50% (CI: 43-57) of those <100% adherent, respectively (both p <.0001).

Conclusions: Self-reported adherence was high among HIV-infected adults in care in the United States, but significant differences between groups were noted. Of concern, adherence was lower among groups found to have poorer health, lower access to care, and higher levels of sexual risk behavior. Developing and implementing interventions to improve adherence among these groups is critical for decreasing health disparities and lowering HIV transmission risk. Also, self-reported dose adherence could be a low-cost, easily implemented screening tool in clinical settings to identify patients with sub-optimal adherence for referral to adherence counseling or intervention.

ORAL ABSTRACTS

43 Barriers and Facilitators to Oral and Topical (Vaginal Gel) PrEP Use in Johannesburg, South Africa: The VOICE-C Study

Ariane van der Straten[1] **(presenting)**, Jonathan Stadler[2], Miriam Hartmann[1], Catie Magee[1], Sello Seoka[2], Katie Schwartz[3], Lydia Soto-Torres[4], Elizabeth Montgomery[1]

[1] RTI International, San Francisco, CA, USA
[2] WRHI, Johannesburg, Gauteng, SOUTH AFRICA
[3] FHI360, Chapel Hill, NC, USA
[4] National Institute of Allergy and Infectious Diseases, Division of AIDS, Bethesda, MD, USA

Background: Product adherence in pre-exposure prophylaxis (PrEP) trials is a major challenge. Using a socio-ecological framework (SEF), we explored factors influencing daily use of vaginal gel and oral tablets.

Methods: At the Johannesburg site of a multisite PrEP trial (MTN-003; VOICE), we conducted a qualitative study among 102 randomly selected female VOICE participants through in-depth interviews (n = 41); serial ethnographic interviews (n = 21) or Focus Group Discussions (n = 40). All interviews were audiotaped, transcribed, translated, and coded thematically for analysis.

Results: Of the 102 participants, the mean age was 27, 43% had no current income, 96% had a primary sex partner, with whom 43% co-habitated, 27% were Zulus, and 29% considered Johannesburg to be home. While many participants acknowledged skipping occasional doses of investigational product, few reported long periods of non-use. Employment reportedly had the greatest impact on non-use as it caused missed visits and thus weeks/months without product. Stigma related to associating products - mostly the tablets - with ARVs and HIV was pervasive across SEF levels: through rumors/ gossip/suspicion in the community, at workplaces, and with partners and family members. Stigma led to concealed use of product, hesitancy to use, non-disclosure and occasional relationship conflicts; but few acknowledged non-use due to stigma. Other barriers to use included: travel, concerns with privacy (for gel users), and side effects (for tablet users). Facilitators and motivators included support from staff and significant others, ancillary benefits of products (e.g. enhanced sexual experience or cleansing properties of gel), feeling protected by the product and altruism.

Conclusions: Acknowledgment of product non-use was rare, but a range of barriers and facilitators to product use were cited and several were product formulation-specific. These factors must be addressed at all levels, from the individual to the community, in order to facilitate future roll out of oral or vaginal PrEP.

44 Evaluation of Three Methods for Assessing Daily Vaginal Microbicide Gel Use

Ariane van der Straten[1] **(presenting)**, Helen Cheng[1], Barbara Mensch[2], Lauren Katzen[2], Barbara Friedland[2], Sarah Littlefield[2], Niall Buckey[3], Lilia Espinoza[3], Marla Keller[3], Mark Einstein[3], Betsy Herold[3]

[1] RTI International, San Francisco, CA, USA
[2] Population Council, New York, NY, USA
[3] Albert Einstein College of Medicine, Bronx, NY, USA

Background: Methods to accurately measure microbicide use are limited. We assessed the Wisebag™ electronic monitoring device and two applicator tests: the Dye Stain Assay (DSA) and the UV light test (UV). We compared adherence estimates among methods, and to self-report.

Methods: At enrollment, healthy, HIV-negative, non-pregnant women aged 23-45 from the Bronx, NY, were given a Wisebag and 32 Microlax®-type applicators filled with hydroxyethylcellulose (HEC) placebo gel. Participants inserted their first applicators under clinical supervision (positive controls); negative controls were generated by emptying applicators *ex vivo*. Participants were asked to: insert one applicator per day for 30 days, return the Wisebag and all applicators after 30 days, and complete an exit interview about gel and Wisebag use. Used applicators were batched, tested for insertion by UV then DSA and scored by two readers; positive and negative controls were randomly included in applicator batches.

Results: Forty-two women enrolled; 39 completed the study. Based on the evaluation of control applicators, DSA and UV yielded similar sensitivity (0.97; 0.94) and specificity (0.79; 0.79). Two participants with inoperable Wisebag devices were excluded from analyses; 9 had partially inoperable devices (and were included in analyses). The estimated proportion of participants achieving high adherence (≥80%) over 30 days varied between 43% (Wisebag), 44% (UV); 46% (DSA) and 62% (self-report), with Pearson correlation coefficients between methods ranging from 0.41 to 0.92 (all p <0.01). While 28% of participants reported that it was difficult to remember to open the Wisebag daily, 59% said the Wisebag helped them remember to use the gel.

Conclusions: The DSA and UV tests performed similarly, with high sensitivity but moderate specificity. DSA, UV and Wisebag provided lower estimates of adherence compared to self-report. Given the technical difficulties and expense of the Wisebag, applicator tests may prove more feasible for adherence measurement in clinical trials.

55 Field Testing of a New Set of Medication Adherence Self-Report Items for HIV Care

Ira B. Wilson[1] **(presenting)**, Floyd J. Fowler[2], Carol Cosenza[2], Joanne Michaud[1], Judy Bentkover[1], Aadia Rana[3], Laura Kogelman[4], William H. Rogers[4]

[1] Brown University, Providence, RI, USA
[2] University of Massachusetts, Boston, Boston, MA, USA
[3] Miriam Hospital, Providence, RI, USA
[4] Tufts Medical Center, Boston, MA, USA

Background: In previous work, we conducted cognitive testing of new HIV antiretroviral (ARV) medication self-report items with the goal of developing items that could be consistently understood by patients with a broad range of educational and racial/ethnic backgrounds. Herein we: 1) describe the results of field tests of the resulting three-item battery in over 6,800 respondents; and 2) test whether such self-report items need to be asked separately for each component of the ARV regimen, or whether self-report items can refer to the regimen overall.

Methods: We tested the items in an online survey of 6,485 persons participating in a social networking site for men who have sex with men (MSM), and also among 351 persons sampled in the waiting room of an HIV care site. As part of the online survey, we conducted a randomized assessment of two versions of the adherence questionnaire - one that asked about adherence to a specific ARV medication, and a second that asked about adherence to their "HIV medicines" as a group.

Results: Between 57% and 60% of participants selected the highest or best adherence category (the ceiling), but the full range of the response scales were used. The internal consistency reliability (Cronbach's alpha) of the three-item adherence scale was 0.89, and did not differ between the in-person and online surveys. Mean scores for the two different randomized versions of the online survey were 91.0 (individual medication) and 90.2 (all medications) and were statistically significantly different (p <0.05); we do not think this difference is clinically important.

Conclusions: In field testing, the resulting three-item scale had excellent internal consistency reliability. Findings suggest that it is not generally necessary to ask about individual medications in an ARV regimen when attempting to describe overall adherence. Formal validity testing of the three-item scale is underway.

56 Resilience in Women with HIV: Relationships with Abuse History, Medication Adherence, and HIV Viral Load

Sannisha K Dale[1] **(presenting)**, Mardge Cohen[2], Kathleen Weber[3], Gwendolyn Kelso[1], Ruth C. Cruise[1], Leslie Brody[1]

[1] Boston University, Boston, MA, USA
[2] Cook County Hospital, Chicago, IL, USA
[3] Cook County Health & Hospital System, Chicago, IL, USA

Background: Abuse is highly prevalent among HIV-positive women, leading to poor health outcomes. Resilience (functioning competently despite adversity) may buffer the effects of abuse. This study investigated the relationships among resilience, abuse history, highly active antiretroviral therapy (HAART) adherence, HIV viral load (VL), and CD4 count.

Methods: During 2011-2012, 138 HIV-positive women (87% African-American) from the Women's Interagency HIV Study (WIHS) Chicago CORE Center site participated in a resilience substudy. Mean age was 45.74, 44% had less than a high school education, 77% were unemployed, and median household annual income was $6,001-$12,000. Resilience (measured by the 10-item Connor-Davidson Resilience Scale), current/prior sexual and physical abuse, and HAART adherence (> 95% usage of prescribed medication) were self-reported during structured interviews. Immunosuppression (CD4 count <200 cells/mm^3) and viral suppression (undetectable VL <20 copies/ml) were analyzed.

Results: Many women (53% adult and/or childhood sexual abuse, 71% physical abuse) reported abuse. Mean resilience score was 28.82 (sd = 7.80). Multiple linear regressions, controlling for age, education, employment and income, indicated that resilience tended to relate to higher medication adherence (ß = .16, t = 1.85, p = .07) and significantly related to having undetectable VL (ß = -.21, t = -2.39, p = .02). HAART adherence significantly correlated with undetectable VL (r = -.45, p = .001) and mediated (30% of total direct effect) the relationship between resilience and undetectable VL. Only in low resilience women did a sexual abuse history significantly relate to lower HAART adherence (ß = -.26, t = -2.24, p = .03).

Conclusions: Higher resilience scores correlated with HAART medication adherence necessary to achieve viral suppression. Enhancing resilience among women with a history of sexual abuse may improve adherence. Interventions that promote resilience among HIV-positive women may be beneficial for achieving higher HAART adherence and viral suppression.

58 Relationships of HIV- and Race-Based Discrimination to Antiretroviral Treatment Use and Retention in Care among African Americans with HIV

Laura Bogart[1,2] **(presenting)**, Glenn Wagner[3], Matt Mutchler[4,5], Hank Green[3], Bryce McDavitt[4], David Klein[1]

1   Boston Children's Hospital, Boston, MA, USA
2   Harvard Medical School, Boston, MA, USA
3   RAND Corporation, Santa Monica, CA, USA
4   California State University, Dominguez Hills, Carson, CA, USA
5   AIDS Project LA, Carson, CA, USA

Background: Overall, only 29% of African Americans with HIV have been prescribed antiretroviral treatment (ART), and 21% are virally suppressed. Research suggests that discrimination may contribute to health disparities across the HIV cascade. We previously demonstrated that perceived discrimination is associated with worse ART adherence and detectable viral load among HIV-positive Black men. The present study investigated whether perceived discrimination affects additional steps in the cascade - ART use and retention in care.

Methods: 239 HIV-positive African Americans (75% men) completed surveys measuring HIV-related and racial discrimination, ART use, and medical appointment frequency. Multivariate regression models tested whether both discrimination types were associated with ART use and retention in care (less than one healthcare visit in six months).

Results: 85% were taking ART; 80% were classified as retained in care. In multivariate models including both discrimination types and controlling for socio-demographics, greater perceived HIV discrimination was related to lack of ART use, b(SE) = -.02(.09), p <.01, and greater racial discrimination was associated with lower retention in care, b(SE) = -.18(.08), p <.05.

Conclusions: Chronic discrimination experiences can contribute to worse HIV treatment behaviors. HIV-related discrimination may have distinct effects from racism. HIV-related discrimination may have worse consequences for medication-taking, which may be affected by disclosure concerns, and racial discrimination may foster medical mistrust, which has implications for utilization. Community-level interventions are needed to decrease mistreatment due to race and HIV, and raise awareness of the persistence of discrimination in patients' everyday lives. Culturally-tailored interventions should build coping skills for discrimination-related stress among people living with HIV.

66 Relational Orientations and Viral Suppression among Serodiscordant Same-Sex Male Couples

Kristi Gamarel[1] **(presenting)**, Torsten Neilands[2], Tyrel Starks[3], Mallory Johnson[2]

1   Graduate Center, CUNY, New York, NY, USA
2   University of California, San Francisco, San Francisco, CA, USA
3   Center for HIV Educational Studies & Training, New York, NY, USA

Background: Couples' ability to adopt a relational or "we" orientation has been associated with positive health outcomes. Antiretroviral therapy (ART)-mediated virologic suppression reduces the risk of HIV transmission by 96% between partners in heterosexual serodiscordant relationships. While this effect has not been demonstrated among men who have sex with men (MSM) couples, there is support to suggest that viral suppression also lowers MSM transmission risk. Researchers have suggested that seroadaptive behaviors (i.e., adherence) may be driven in part by "prevention altruism" among HIV-positive individuals to keep their HIV-negative partners negative.

Methods: HIV-positive men and their HIV-negative partners (N = 116 serodiscordant couples, 232 men) were surveyed. Participants' mean age was 46.70; 38.4% were racial/ethnic minority; 40% earned less than $20,000 annually; and 63% of HIV-positive men had an undetectable viral load confirmed by plasma HIV RNA viral load tests. A logistic regression model examined the associations between each partners' reports of high vs. low relational orientation, sexual satisfaction, commitment and depressive symptoms (CESD at the clinical cut off 16) and income, with the HIV-positive partner's viral suppression and length of time since HIV diagnosis.

Results: Viral suppression was associated with higher relational orientation among HIV-positive partners (aOR = 7.87; 95% CI = 1.63, 38.05; p = 0.01) and HIV-negative partners (aOR = 6.16; 95% CI: 1.43, 26.59; p = 0.015). HIV-positive partners' higher income was positively associated with viral suppression (aOR = 2.95; 95% CI = 1.13, 7.70; p = 0.027) and depression was negatively associated with viral suppression (aOR=0.39; 95% CI = 0.15, 0.97; p = 0.042). No other variables were associated with viral suppression.

Conclusions: Findings suggest that adherence may be associated with espousing a relational orientation for both partners in serodiscordant relationships. Examining relational motivations for adherence, alongside social determinants of health and mental health, represents an important area for future research to improve the wellbeing of HIV serodiscordant couples.

67 Pilot Controlled Trial of the Adherence Readiness Program: An Intervention to Assess and Sustain HIV Antiretroviral Adherence Readiness

Glenn Wagner[1] (presenting), Paul Lovely[2], Stefan Schneider[2]

[1] RAND Corporation, Santa Monica, CA, USA
[2] Living Hope Clinical Foundation, Long Beach, CA, USA

Background: With no established methods for determining adherence readiness prior to patients starting antiretroviral therapy (ART), and the consequent need to provide adherence support to all patients, we piloted the Adherence Readiness Program - an intervention that uses pre-ART practice trials to determine readiness, and tailored intensity of adherence counseling to sustain readiness.

Methods: A pilot randomized controlled trial was conducted with patients planning to start ART assigned to either usual care or the intervention and followed for 24 weeks. Primary outcomes included optimal dose-taking (at least 85% of prescribed doses taken) and dose-timing (at least 85% of doses taken within +/- two hours of target time) electronically measured adherence, as well as undetectable HIV viral load, at Week 24. Self-reported adherence was a secondary outcome.

Results: Of the 60 enrolled patients, 54 initiated ART (30 control and 24 intervention), with 51 (94%) completing Week 8 and 43 (80%) completing Week 24. At Week 8, more of the intervention group had optimal dose-taking (75.0% vs. 56.7%) and dose-timing (45.8% vs. 23.3%) electronically measured adherence in intention-to-treat (ITT) analyses, with the latter difference being marginally significant (p = .08). At Week 24, a significantly greater proportion of the intervention group had optimal dose-timing electronically measured adherence (50.0% vs. 16.7%; p = .01), as well as self-reported optimal dose-taking adherence (73.9% vs. 41.4%; p = .02) in ITT analyses; 75.0% of the intervention group had undetectable viral load at Week 24 compared to 56.5% of control patients (p = .21).

Conclusions: Low statistical power impeded ability to detect statistically significant differences, but clinically meaningful intervention effects on adherence and viral suppression were evident, suggesting the need for further development and evaluation of the intervention.

68 Factors Influencing Adherence Behavior for Daily and Intermittent Regimens of Pre-Exposure Prophylaxis (PrEP) among Men who have Sex with Men (MSM) in Kenya

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Background: Qualitative assessments of Kenyan MSM taking daily and intermittent PrEP found 'complexities of life,' sex work, mobility, and alcohol to impact adherence. We analyzed quantitative data to further characterize adherence behavior with each dosing regimen in the same cohort.

Methods: Volunteers were randomized to daily oral emtricitabine/tenofovir or placebo, or intermittent (Monday, Friday, after sex; maximum 1 dose/day) oral emtricitabine/tenofovir or placebo (2:1:2:1) and followed monthly for four months. Adherence was measured with the medication event monitoring system (MEMS). Factors associated with adherence were assessed with linear, repeated measures multivariable regression analyses.

Results: Of 62 MSM, 29 and 33 were assigned to daily and intermittent PrEP, respectively. Median age was 26 years; 48% engaged in sex work and 86% had sex with men in the previous month (baseline). Median adherence was 80% (IQR 63-88%) for daily and 56% (IQR 28-78%) for fixed intermittent dosing (Mondays/Fridays; p = 0.01). Assessing all volunteers together, higher adherence was significantly associated with daily versus intermittent dosing (+18.4 percentage points), sex with a new partner (+9.5), and a source of income versus none (+22.6); lower adherence was associated with transactional sex (-13.2), each month on PrEP (-3.4), and marginally with frequent travel (-5.8). Assessing daily dosing only, lower adherence was associated with frequent travel (-10.9) and marginally with sex while drunk (-9.5). Assessing intermittent dosing only, higher adherence was associated with sex with a new partner (+11.8) and a source of income (+26.9); lower adherence was associated with transactional sex (-16.7) and each month on PrEP (-4.5).

Conclusions: Data confirm the qualitative findings and suggest adherence interventions should address challenges related to sex work, mobility, alcohol, and long-term PrEP use. Importantly, factors appear to differ by dosing regimen. As researchers consider less frequent dosing to decrease adherence challenges, careful assessment of adherence behavior will be needed.

74 Reasons for Lack of ART Usage among Well-Engaged, ART-Eligible Clinic Patients

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Background: Successful movement through the HIV care cascade involves initiating and persisting with antiretroviral therapy (ART) while remaining retained in care. We sought to understand barriers to ART usage from the perspectives of well-engaged, ART-eligible patients and their primary care providers. A secondary aim was to identify factors promoting regular primary care attendance in the absence of ART.

Methods: Medical anthropologists/sociologists conducted in-depth interviews at two academic HIV clinics in San Francisco and New York with: 1) patients in care for at least the past year who met the HRSA definition of engagement (2 visits 90 days apart) and had a CD4 count under 500 cells/mm^3; and 2) each patient's primary care provider. Patient and provider narratives (n = 24) were analyzed simultaneously to identify emerging themes, and follow-up interviews are being conducted after at least three months to investigate these themes and assess whether perspectives on ART change over time.

Results: Patients and their providers voiced similar reasons for lack of ART usage: 1) Older patients had vivid memories of ART side effects, especially AZT toxicity; 2) Some individuals held conspiracy theories about ART; 3) Lack of housing, drug use, and mental health crisis led patients and providers to articulate that "more stability" was necessary; and 4) Some patients had internalized a message from providers that their health was good enough and ART initiation would be an acknowledgment of deterioration. Nearly all patients expressed positive feelings about their providers; these personal connections motivated regular visit attendance, along with the ability to access social services and obtain pain medication.

Conclusions: Reasons for lack of ART usage among well-engaged patients with CD4 counts under 500 cells/mm^3 are complex. Patients do not necessarily perceive ART as integral to HIV care. Messages from providers play an important role in patient perceptions of the need for and urgency of ART.

75 Characterizing Persons Living with HIV who are Linked to Care but Not Retained

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Background: Successfully navigating the HIV care cascade - diagnosis, linkage to care, retention in care, use of antiretroviral therapy (ART), and ART adherence for virologic suppression - improves patient outcomes and decreases HIV transmission. However, 66% of patients linked to care remain in regular care and only 45% achieve virologic suppression. Understanding who is linked but not retained in care, and linked but not virologically suppressed, is critical for designing effective HIV care interventions.

Methods: We performed a retrospective cohort study of 680 HIV-infected adults (age ≥18 years) newly diagnosed with HIV in 2007 and 2008 and linked to care (defined as ≥1 visit between 21 and 365 days after diagnosis) at 25 Ryan White Program-funded clinics in Philadelphia, PA. Retention in care (≥2 visits separated by ≥90 days over 12 months) and virologic suppression (any HIV RNA <200 copies/ml) were determined for each patient in the 13- to 24-month period after diagnosis. Logistic regression compared socio-demographic and clinical factors (age, race/ethnicity, gender, poverty level, insurance status, HIV risk, and AIDS at time of diagnosis) for patients linked to care but: 1) not retained in care (vs. those retained in care); and 2) not virologically suppressed (vs. those virologically suppressed).

Results: Between 13 to 24 months after diagnosis, 65% of patients were retained in care and 41% achieved virologic suppression. No risk factors distinguished patients linked but not retained in care. While, age 18-29 years, CD4 counts >200 cells/mm^3 at time of diagnosis, and household income <133% of the poverty line were independently associated with being linked but not virologically suppressed.

Conclusions: Traditional socio-demographic factors were not associated with retention 13 to 24 months after HIV diagnosis. Further studies should investigate non-traditional risk factors that may influence retention in care after linkage, including psychiatric disease, stigma, and healthcare beliefs.

83 Text Message Reminders Prior to HIV Clinic Appointments do not Improve Retention in Care when Added to Weekly Text Message Reminders Supporting Adherence to ART in Rural Sierra Leone: A Randomized Controlled Trial

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Background: In sub-Saharan Africa, weekly short message service (SMS) reminders have improved adherence to antiretroviral therapy (ART), but no study has assessed the additive impact of SMS reminders prior to HIV clinic appointments.

Methods: We conducted a randomized controlled trial in Kono District, Sierra Leone, of SMS reminders prior to HIV clinic appointments with three months of follow-up. A total of 111 participants who had initiated ART received the standard of care, community-based ART with thrice-weekly home visits, and weekly SMS adherence reminders. Participants randomly assigned to the intervention group received additional daily SMS reminders starting two days prior to their appointment and ending on the day of their expected visit. Adherence was measured by home-based pill counts, and participants were considered adherent to ART if their adherence was ≥90%. Retention was measured by missed visits, and participants were considered retained if they attended all their visits. Treatment interruptions due to delays in clinic attendance were measured comparing home-based pill counts to refill dates and defined as at least a 48-hour period without taking any pills.

Results: Of the 111 participants enrolled, 11 were lost to follow up, four died, and one withdrew. 95 participants were followed for three months. In the control group, 61.7% of participants adhered to ART, and 76.5% were retained in care. 69.2% had at least one treatment interruption due to delays in clinic attendance (mean = 5.3 days later than scheduled). In the intervention group, 56.6% of participants adhered to ART, and 79.2% were retained in care. 62.8% had at least one treatment interruption due to delays in clinic attendance (mean = 5.0 days later than scheduled). There was no significant difference in adherence, retention, or interruption outcomes between groups.

Conclusions: SMS reminders prior to HIV clinic appointments did not improve adherence or retention outcomes when added to weekly SMS adherence reminders.

85 Are Missed- and Kept-Visits-Based Measures Capturing Different Aspects of Retention in Care?

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Background: Recent research demonstrates heterogeneity among different approaches to measuring retention in care. Numerous measures based on missed or kept clinic visits have been associated with biological and clinical outcomes yet variably correlate with one another. We further evaluated the relationship between, and associated factors across, missed- and kept-visits-based retention measures.

Methods: Clinic-wide patient-level data from six academic HIV clinics was collected for 12 months preceding implementation of the CDC/HRSA Retention in Care intervention. Six retention measures were calculated for each patient based on scheduled primary HIV provider visits: Count and dichotomous missed visits and visit adherence that include missed clinic visits; and 4-month visit constancy, 6-month gap, and the HRSA HIV/AIDS Bureau (HAB) measure based solely on kept clinic visits. Principal components analysis with a varimax rotation was used to reduce the six measures. Separate multivariable regression models evaluated the association of socio-demographic factors with each measure assessing consistency of findings across missed- and kept-visits-based measures.

Results: Among 10,053 patients (mean age = 46 years, 63% male, 64% black), analysis of the measures yielded two components, one including the missed visits-based measures and the other the kept visits-based measures which, combined, accounted for 84% of the total variance. Multivariable analyses suggested no significant gender differences on any of the missed visits measures; however, males had significantly poorer performance on all kept visits measures. Conversely, black race was associated with significantly poorer performance across all missed visits measures, but these associations were not observed for any of the kept visits measures.

Conclusions: Missed- and kept-visits-based measures loaded onto separate components and were differentially associated with gender and race. These findings suggest missed- and kept-visits-based measures may capture different aspects of care retention. Additional research, including more sophisticated psychometric analyses, is warranted to further evaluate measures of retention and what they are capturing.

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86 Impact of HIV Disease Severity on Retention in Care and Viral Load Suppression

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Background: Retention in care is critical for all HIV-infected individuals; but may be more important for people with lower CD4 counts, who require treatment of HIV-related opportunistic infections and complications. We examined whether: 1) the association between retention and viral suppression and 2) the discriminatory ability of retention measures to accurately predict suppression, differs by HIV disease severity.

Methods: Serial cross-sectional analysis (2006-2010) of 85,450 adults receiving care at 18 HIV clinics. Three measures of retention were calculated for each patient during each year: HRSA measure (≥ 2 visits separated by ≥ 90 days in 12 months); 6-month gap (≥ 6 months between visits); and 4-month visit constancy (number of 4-month intervals with ≥ 1 visit). Viral suppression was HIV RNA ≤ 400 copies/mL closest to 12/31 in each year ± 120 days. Disease severity, based on initial CD4 in each year, was grouped into ≤ 350, 351-500, and >500 cells/mm^3. Multivariable logistic regression models, with interaction terms between CD4 and each measure, assessed if the association between retention and suppression differed by disease severity. Area under the ROC curve (AUC) evaluated the predictive accuracy of measures overall and stratified by disease severity.

Results: All measures were significantly associated with suppression (p <0.001). For each measure, the association between retention and suppression was strongest for patients with lower CD4s: CD4 ≤ 350 cells/mm^3 (adjusted odds ratio = 2.79, 95% CI 2.59-3.02), CD4 351-500 cells/mm^3 (2.36, 2.11-2.64), and CD4 >500 cells/mm^3 (1.97, 1.79-2.16), using the HRSA measure as an example. Within CD4 groups, 4-month visit constancy had the highest (AUC = 0.69-0.71) and 6-month gap had the lowest (AUC = 0.67-0.69) predictive accuracy for suppression. Predictive accuracy of all measures was highest among patients with CD4 351-500 cells/mm^3 (AUC = 0.69-0.71).

Conclusions: Our results suggest the added value of retaining patients with advanced HIV disease in care, and demonstrate the prognostic utility of all three measures across the HIV disease spectrum.

91 Using Community Expert Clients to Improve Adherence to Clinic Appointments in Swaziland

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Background: Use of Expert Clients (ECs) to support HIV/AIDS care services is widely employed in resource limited settings where shortage of skilled health workers is common. However, in most instances EC activities are restricted to facility level. This abstract documents the impact of using Community Expert Clients (CECs) to improve patient adherence to clinic appointments and reducing loss to follow up (LTFU) in Swaziland.

Methods: Data were collected from 17 clinics in a World Vision International project funded by US Centers for Disease Control and Prevention. In these facilities patients who failed to keep their appointments where identified and followed up through phone calls or home visits. The data was analyzed using SPSS and the missed appointment, defaulter, return to care and LTFU rates were compared between the first and second year of introduction of CECs into the project. The mean differences using the paired samples T test were compared between 2011 and 2012.

Results: The average total appointments from the 17 clinics in 2011 were 198 compared to 248 in 2012 (25% increase). The mean difference in missed appointment and defaulter rates were 5.23 (2.84-7.62, p <0.001) and 0.22 (0.56-0.60, p = 0.936), respectively. The mean difference in LTFU rate was 0.28 (0.045-0.510, p = 0.023) while the return to care rate was 9.27 (11.32-29.85, p = 0.343).

Conclusions: The use of CECs in patient follow up significantly improved the average missed appointment and LTFU rates but not the defaulter and return to care rates. The reduction in the LTFU rate could be attributed to the improved efficiency in patient tracking by CECs through phone calls and home visits as needed. Therefore, Public health systems should consider including home visits and use of CECs as part of routine follow up of patients.

95 Predictors and Correlates of Adherence to Combination Antiretroviral Therapy (cART) for Chronic HIV Infection: A Meta-Analysis

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Background: Medication adherence can be influenced by a wide range of factors that have previously been categorized into demo-graphic-, condition-related, treatment-related, patient-related and interpersonal factors. Quantitative evidence about the relative importance of predictors/correlates of adherence could guide targets for the development of interventions to enhance adherence.

Methods: We searched PubMed for original studies reporting on cor-relates or predictors of adherence to cART among adults prescribed cART for chronic HIV infection, reporting a statistical association between a potential predictor/correlate and adherence, published between 1996 and April 2012. We used the standardized mean difference as common effect size (ES). ES of 0.20, 0.50 and 0.80 indicate small, moderate and large effects, respectively. We used random effect models with inverse variance weights to aggregate individual effect sizes into pooled effect estimates with 95% confidence limits, using Review Manager 5.2.

Results: A total of 104 studies, containing data from 52,984 patients, were included in our meta-analyses. The following factors were significantly associated with higher levels of adherence: higher age (ES 0.09), male gender (ES 0.06), adherence self-efficacy beliefs (ES 0.46), belief in necessity/utility of cART (ES 0.26), social support (ES 0.22), and trust in health care provider (ES 0.24). The following factors were significantly associated with lower level of adherence: financial con-straints (ES -0.17), concurrent substance use (-0.34), being pre-scribed a PI-containing regimen (ES -0.11), higher pill burden (-0.13), more frequent daily dosing (-0.17), depressive symptoms (ES -0.25), concerns about cART (ES -0.43), and HIV stigma (ES -0.18).

Conclusions: Our findings suggest that adherence enhancing inter-ventions should target psychological factors such as self-efficacy and necessity/concerns beliefs about cART. Our findings support currrent emphasis on reducing depressive symptoms and concurrent substance use. Moreover, our findings suggest that simplification of regimens may have smaller, albeit significant effects.

99 Accounting for Variable Adherence and Sexual Risk Behaviors in the Design and Analysis of PrEP Trials and When Modeling the Impact of PrEP Implementation

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Background: Recently, promising trials of innovative biomedical approaches to prevent HIV transmission have been reported. Despite contradictory trial results for some methods, the findings were suffi-ciently promising to cause discussion on the (wide) scale implemen-tation of prevention measures. A recent modeling study suggests, however, that variable adherence and sexual risk behavior patterns may have influenced the conclusions from PrEP trials and modeling studies underlying these policy debates.

Methods: A cumulative probability model of infection risk in HIV pre-vention trials was developed. Sexual behavior and adherence data were collected from various PrEP trials. Data was used to examine the implications of variable sexual and adherence behavior patterns on trial outcomes, and thus on modeling studies using these data.

Results: The model suggests that the power to detect an effect of an efficacious HIV prevention method in a double-blind randomized controlled trial depends to a large extent on the specific adherence and sexual risk behavior patterns of trial participants. Moreover, without controlling for these behavior patterns, it seems impossible to accurately estimate the true effectiveness of an HIV prevention method.

Conclusions: Since it is hard to predict adherence and sexual behav-iors prior to a trial, researchers are recommended to check their sample size computations after trial initiation using actual trial partic-ipant behavior. In addition, it is important to reliably assess and accu-rately control for variable risk behavior patterns in order to identify methods' true effectiveness. Studies modeling the effects of the wide-scale implementation of prevention measures on population infection rates should first obtain accurate estimates of true method effectiveness, and then predict the impact of PrEP methods based on models that use real-life (i.e., not those displayed by trial partici-pants) sexual and adherence behaviors.

102 Adherence to Antiretroviral Therapy and Disparities in Viral Suppression among US Black and White Men who have Sex with Men - Medical Monitoring Project, 2009

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Background: Among HIV-infected persons, viral suppression is associated with decreased morbidity, mortality, and risk of transmission to uninfected partners. Adherence to antiretroviral therapy (ART) is key to suppressing viral replication. Blacks/African Americans (blacks), and in particular black men who have sex with men (BMSM) are disproportionately affected by HIV infection, and are less likely to achieve viral suppression than whites, but the reasons for this disparity are unclear. Differences in medication adherence may contribute to these inequalities.

Methods: We analyzed weighted data from the Medical Monitoring Project (MMP), a national probability sample of HIV-infected adults receiving medical care between January 2009-April 2009. We estimated the prevalence of self-reported 100% adherence to ART doses in the past 72 hours and viral suppression from the participant's medical records (most recent viral load undetectable or ≤200 copies/ml) among black and white MSM.

Results: Among an estimated 44,142 BMSM (n = 445) and 105,346 WMSM (n = 1,004) receiving HIV care in the United States, 82% (95% confidence interval [CI]:78-86) of BMSM and 93% (CI:92-95) of WMSM were on ART (p <.01). Among those on ART, 80% (CI:75-86) of BMSM and 90% (CI:87-93) of WMSM achieved viral suppression (p <.01). Self-reported adherence to ART was lower among BMSM (79%; CI:73-84) than WMSM (88%; CI:84-92) (p = .02). Among those reporting 100% adherence to ART, viral suppression improved to 84% (CI:79-89) for BMSM and 91% (CI:88-94) for WMSM (p = .03). Adherence was significantly associated with viral suppression among BMSM (p <.01), but not among WMSM (p = .28).

Conclusions: Although differences remained, use of and adherence to ART reduced disparities in viral suppression among BMSM and WMSM. Increasing ART use and adherence among BMSM are key steps towards decreasing racial disparities in treatment outcomes among MSM. The development and implementation of ART use and adherence interventions that specifically address the needs of BMSM should be prioritized.

106 Medical Mistrust Predicts Lower Longitudinal Medication Adherence among African-American Men

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Background: African-American men living with HIV show worse health outcomes, including low antiretroviral treatment adherence and viral suppression, than do Whites. Medical mistrust, which has been shown to be high among African Americans, has been linked to worse health behaviors among people with HIV, as well as other health conditions. The present longitudinal study investigated whether medical mistrust among African-American men predicted lower antiretroviral medication adherence over time.

Methods: 140 HIV-infected African-American men in Los Angeles, CA, provided data at baseline and 3- and 6-month follow-up [Mean (SD) age = 44.8(8.6) years]. On average, participants took 59.3% of doses (SD = 30.6) over the 6-month period. Medical mistrust was assessed with two subscales by LaVeist et al (2000): a 4-item racism-related mistrust scale (e.g. "Racial discrimination in a doctor's office is common"), and a 5-item general medical mistrust scale (e.g. "Patients have sometimes been deceived or misled at hospitals"). The Medication Event Monitoring System (MEMS) was used to assess adherence electronically.

Results: A multivariate model predicted adherence at follow-up with both forms of mistrust entered together, controlling for number of days since baseline, socio-demographic characteristics (age, education, income), medication side effect severity, and health care barriers. General medical mistrust, but not racism-related mistrust, significantly predicted lower medication adherence at follow-up (b = -.08, se = .04, p = .05).

Conclusions: Medical mistrust may be contributing to poor health outcomes in this population. Intervention efforts that target mistrust may improve adherence and health-related outcomes for African Americans living with HIV.

107 HIV Providers' Perceived Facilitators and Barriers to Implementing HIV Pre-Exposure Prophylaxis in Clinical Settings: A Qualitative Study

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Background: Administration of antiretroviral pre-exposure prophylaxis (PrEP) to high-risk persons decreases their risk of HIV acquisition. However, optimizing this strategy in care settings will depend on whether clinicians are able to identify high-risk persons and are willing to prescribe PrEP. Therefore, it is critical to understand clinicians' perceived barriers and facilitators to implementing PrEP.

Methods: In May 2012-June 2012, 39 HIV providers from six Boston clinics (4 hospital-based practices, 2 community health centers) participated in focus groups that addressed perceived barriers and facilitators to prescribing PrEP: 56% were women, 66% were White, 77% were Infectious Diseases specialists, and 62% had >5 years of experience providing HIV care. Discussions were audio-recorded, transcribed, and analyzed for themes relating to provider practices, attitudes, and intentions regarding PrEP implementation.

Results: Participants believed that PrEP was efficacious and could protect carefully selected, adherent individuals from HIV acquisition. However, providers indicated misgivings about prescribing PrEP given beliefs that early antiretroviral therapy for HIV-infected partners would offer superior benefits for serodiscordant couples, and concerns that PrEP utilization could result in unintended consequences, including medication toxicities, selection of drug resistant viral strains, and diversion of resources from HIV treatment programs. Additional perceived barriers to prescribing PrEP included infrequent contact with HIV-uninfected patients, difficulty obtaining accurate assessments of behavioral risk, limited patient awareness and interest in using PrEP, and concerns that persons with the riskiest behaviors would be least likely to be adherent. HIV specialists believed that generalists would be better positioned to implement PrEP. Patient requests, insurance coverage, normative guidelines, and encountering patients with repeated use of post-exposure prophylaxis (PEP) would motivate prescribing behaviors, though providers ultimately expressed limited prescribing intentions.

Conclusions: HIV providers perceive substantial barriers to prescribing PrEP and report limited prescribing intentions. Successful implementation of PrEP in HIV clinics is unlikely to occur without interventions to address provider concerns.

113 Psychiatric Disorder Symptoms are Associated with Longitudinal Changes in Antiretroviral (ARV) Non-Adherence in Perinatally HIV Infected Youth in the United States: Results from IMPAACT P1055

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Background: We examined the association between psychiatric disorder symptoms and antiretroviral (ARV) non-adherence over a two-year period among perinatally HIV infected (PHIV+) youth in the IMPAACT P1055 cohort.

Methods: We evaluated participants with at least one follow up visit and adherence information. We assessed two outcomes: self-reported non-adherence (missed >5% of doses, past 3 days) and unsuppressed viral load (HIV RNA >400 copies/mL), at study entry, weeks 48 and 96. Presence of a psychiatric disorder was defined as meeting DSM-IV symptom cutoff criteria for at least one of the following: Attention Deficit Hyperactivity Disorder (ADHD), oppositional defiant or conduct disorder (ODD/CD), depression or dysthymia (depression), and separation or generalized anxiety (anxiety). We fit multivariable logistic models for non-adherence using Generalized Estimating Equations. We also evaluated the effect of baseline disorders on incident non-adherence using multivariable logistic regression.

Results: Among 270 PHIV+ youth (49% female, median age 13 years, 55% Black/non-Hispanic), 14% reported non-adherence and 35% had unsuppressed viral load (VL) at entry; these proportions remained similar over time. At entry, 38% met symptom cutoff criteria for ≥1 disorder (17% ADHD, 13% ODD/CD, 14% depression, 18% anxiety). Those with depression (Adjusted Odds Ratio (aOR) = 4.14; 95% confidence interval (CI):1.11-15.42) vs. without and those with ODD/CD (aOR = 3.36; 95% CI:1.02-11.10) vs. without had greater odds of non-adherence at Week 96, but not at earlier visits. Odds of unsuppressed VL for those with ADHD versus without were greater at Week 48 (aOR = 2.51; 95% CI:1.28-4.9) and Week 96 (aOR = 2.17; 95% CI:1.0-4.69) vs. entry (overall interaction p = 0.02). Among 232 youth who were adherent at entry, 16% reported non-adherence at follow-up. Those with ODD/CD at entry versus without had greater odds (aOR = 3.01; 95% CI:1.24-7.31) of developing non-adherence during follow-up.

Conclusions: In PHIV+ youth, depression and ODD/CD were associated with non-adherence, and ADHD was associated with unsuppressed VL over two years.

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116 The Contribution of Missed Clinic Visits to Disparities in HIV Viral Load Outcomes

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Background: Disparities in health outcomes among African-American patients and those with a history of injection drug use (IDU) are well described, yet few contributing factors that may serve as intervention targets have been identified. We evaluated the contribution of missed primary HIV care visits to observed disparities in viral load outcomes.

Methods: Patient-level data from six academic HIV clinics were collected for 12 months preceding implementation of the CDC/HRSA Retention in Care intervention. Frequency of no-show clinic visits during the 12-month observation period was the principal variable of interest. Staged multivariable logistic regression models evaluated the association of socio-demographic factors with viral load failure (>400 copies/mL) at the end of 12 months. No-show visit count was added to an initial model to assess the subsequent impact on parameter estimates and statistical significance of observed socio-demographic characteristics with viral load failure (VF). Model odds ratios quantified VF, and multiple imputation was used to assign values to missing data.

Results: Among 10,053 patients (mean age = 46 years, 35% female, 64% Black, 15% IDU), mean no-show visits were 1.51, and means differed by race (1.69 vs. 1.13 Black vs. white) and by transmission risk group (1.96 vs. 1.20 IDU vs. MSM). 31% experienced viral load failure. In multivariable analyses, Black patients (OR = 1.32; 95%CI=1.15-1.52) and IDU (1.30; 1.11-1.52) were significantly more likely to experience viral load failure. After adding no show visit count to the model, parameter estimates for Black race (1.18; 1.01-1.35) and IDU (1.09; 0.93-1.27) were attenuated.

Conclusions: Missed clinic visits contributed to and explained some of the observed differences in viral load outcomes among Black patients and IDU transmission risk group. These findings suggest that achieving an improved understanding of reasons for differential visit attendance and interventions to reduce no-show clinic visits are worthy next steps toward reducing disparities in HIV outcomes.

121 A Computer-Delivered IMB-Based Health Literacy Intervention Reduces Racial Disparities in HIV Information

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Background: Disparities in health status and outcomes are priorities in public health efforts. Race-related discrepancies have been found in disease-related knowledge that may in turn be related to health status. Electronic information applications may be a useful technique for reducing race-related information disparities.

Methods: As part of a study of a computer-delivered intervention to improve participants' HIV-related health literacy, participants completed the LifeWindows IMB scale at baseline, immediately after, and one month after completing a one-hour tailored information intervention that focused on improving participants' knowledge and skills related to medication adherence in the treatment for HIV infection. Race-based differences in information, motivation, and behavioral skills were assessed through repeated measures analysis of variance.

Results: One hundred and four participants completed study visits assessment. A significant effect for time was observed (F [2,99] = 3.40, p = 0.02). At baseline, Black participants reported significantly lower HIV knowledge than did whites (t [df = 116] = 2.04, p = 0.04); this difference was no longer significant immediately after both groups completed the intervention (t [df=110] = 0.37, p = 0.71). No differences were seen at one-month follow-up (t [df = 116] = -0.01, p = 0.99).

Conclusions: A computer-based tailored information intervention may be helpful in reducing race-based health information disparities. To the extent that information disparities are related to important health outcomes, computer-based interventions may be a useful strategy for reducing race-related health disparities.

123 Factors Associated with Achieving Clinical Core Indicators among Patients Newly Initiating HIV Care

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Background: Responding to the 2010 National HIV/AIDS Strategy, the Institute of Medicine (IOM) identified, in 2012, core indicators for measuring health outcomes in HIV-positive persons. Guided by these indicators, we identified patients who met IOM criteria during their first year of care and examined the characteristics of these "model" patients.

Methods: We analyzed a cohort of care and antiretroviral therapy (ART) naïve patients initiating medical care between January 2007 and July 2012 at an urban academic HIV clinic. The following IOM indicators were utilized to evaluate the first year after care entry: 1) arrived for at least two HIV primary care visits separated by at least 90 days; 2) had ≥2 CD4 tests; 3) had ≥2 viral load tests; 4) had at least one CD4 count >350 cells/mm^3; and 5) if CD4 count <350 cells/mm^3 at least once, was prescribed ART. We defined "model" patients as those who fulfilled at least 4 of 5 IOM criteria during the first 12 months following a first-arrived primary care appointment.

Results: Of the 448 patients (mean age = 35 yrs, 62% black, 79% male), 81% were "model" patients. In univariate logistic regression analysis, having permanent housing (OR = 4.65; 95% CI:1.01-21.37; p = 0.048) and having a monthly income over $1,000 (OR = 3.58; 95% CI:1.95-6.59; p <0.001) were found to be significant predictors of being a "model" patient. Compared to uninsured patients, those with public insurance were less likely (OR = 0.47; 95% CI:0.25-0.88; p = 0.019) to be "model" patients. Age, race, gender, education level, access to transportation, depression, anxiety, alcohol and disclosure of HIV status to others were not significant.

Conclusions: Housing instability, income insufficiencies, and insurance inadequacies decrease the chances for HIV patients to meet IOM criteria. Addressing structural and financial barriers on entry into HIV care may improve individual health outcomes and achievement of the National HIV/AIDS Strategy.

124 Psychiatric Comorbidity in Depressed HIV-Positive Individuals: Common and Clinically Consequential

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Background: While data addressing the impact of depression on HIV outcomes are growing, the effect of psychiatric comorbidity (having more than one psychiatric illness) on HIV management remains poorly understood. We report here on the prevalence of psychiatric comorbidity and its association with illness severity in depressed HIV patients.

Methods: The SLAM DUNC Study, a multi-site clinical randomized controlled trial of depression treatment for HIV patients, has enrolled 231 HIV-positive patients meeting criteria for Major Depressive Disorder (MDD) who concurrently were assessed for other mood, anxiety and substance use disorders with the Mini-International Neuropsychiatric Interview, a structured psychiatric diagnostic interview. We also assessed baseline adherence, risk, and HIV measures.

Results: Complicated depressive illness was common. 73% had either recurrent MDD or a first MDD episode with coexisting dysthymia. Only 4% were experiencing a first MDD episode with no comorbid psychiatric diagnoses. A full 73% had a comorbid anxiety disorder (57%), substance use disorder (29%), or both (13%). There was little difference in baseline self-reported adherence or one-month pill count adherence by psychiatric comorbidity. However, comorbidity was associated with more severe HIV symptoms. Those with MDD alone reported fewer HIV symptoms (mean 3.9 out of 12) compared to those with one (mean = 4.6), and 2 or more comorbidities (mean = 6.0) (p = 0.001). Further, those with substance use disorders had a greater risk of unprotected sex (29% vs. 15%, p = 0.04) and a greater likelihood of detectable HIV RNA viral load (48% vs. 34%, p = 0.06).

Conclusions: For HIV-positive patients with MDD, chronic depression and psychiatric comorbidity are the rule rather than the exception, and this complexity is associated with greater HIV disease severity and worse prevention and treatment indicators. Appreciating this comorbidity can help clinicians better target those at risk of harder-to-treat HIV disease, and underscores the challenge of treating depression in this population.

ORAL ABSTRACTS

125 Impact of PrEP Messaging Factors on Comprehension, Adherence Motivation, and Risk Compensation Intentions

Sarit Golub[1] **(presenting)**, Kristi Gamarel[2], Anthony Surace[1], Corina Lelutiu-Weinberger[1]

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Background: Although PrEP is a promising new prevention strategy, little is known about the most effective means of communicating PrEP information to diverse populations. This NIH-funded study examined the impact of different PrEP messaging factors on comprehension, adherence motivation, and risk compensation intentions.

Methods: 270 MSM and transgender women (34% Black, 25% Latino) were presented with educational information about PrEP and completed computerized surveys. Educational information varied by frame (i.e., risk reduction or health promotion), specificity (i.e., verbatim versus gist presentation of PrEP efficacy data) and delivery method (i.e., via health educator or computer).

Results: Overall acceptability was high, with almost 60% of participants indicating they would definitely or probably take PrEP if it were available for free. Messaging components had significant impacts on outcomes. There was a significant effect of modality on comprehension, such that 82% of those who received the message from a health educator answered all comprehension questions correctly, compared to only 63% who received the message via computer (p <.01). Importantly, this effect was exacerbated among Black participants and those with less education. Adherence motivation was highest (86%) among participants who received a health promotion, gist message delivered by a health educator (p <.05). Risk compensation intentions were highest among those who received the gist message via computer (p < .05). In regression models, risk compensation intentions were higher among those who: a) perceive themselves at higher risk for HIV; and b) believe that PrEP reduces the risk of unprotected sex (R = .31, p <.000). These associations were stronger among those who received the health promotion message (R2 = .15, p <.000).

Conclusions: Components of PrEP messaging may have significant impacts on comprehension, adherence, and risk compensation. Such factors must be considered in the development of PrEP educational campaigns, policies, and programs.

127 Changes in HIV Outcomes Following Depression Care in a Resource-Limited Setting: Results from a Pilot Study in Bamenda, Cameroon

Bradley Gaynes[1] **(presenting)**, Brian Pence[2], Julius Atashili[3], Alfred Njamnshi[4], Julie O'Donnell[1], Dmitry Katz[1], Peter Ndumbe[5]

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Background: Little is known about how improved depression care affects HIV-related outcomes in Africa. In a sample of depressed HIV-positive patients in a low-income, sub-Saharan country, we explored how implementing measurement-based antidepressant care (MBC) affected HIV outcomes at 4-month follow-up.

Methods: As part of a project adapting MBC for use in Cameroon, we enrolled 55 depressed HIV-positive patients in a pilot study employing a depression care manager (DCM) providing evidence-based decision support to an outpatient HIV clinician. Depression management was provided for the first 12 weeks, with DCM contact every 2 weeks and HIV clinician appointments every 4 weeks. We measured HIV clinical and psychiatric outcomes at 4 months.

Results: Patients were moderately depressed (median Patient Health Questionnaire [PHQ] score = 13, interquartile range 12-16). All HIV clinical outcomes improved by 4-month follow-up: median CD4 count improved from 454 cells/mm^3 (242-612) to 489 cells/mm^3 (335-572), median log-viral load decreased from 4.09 (3.86-4.33) to 3.00 (2.05-3.46), virologic load suppression improved from 0% to 26%, median HIV symptoms decreased from 6 (5-9) to 3 (2-4), the proportion reporting good or excellent health improved from 18% to 68%, and the proportion reporting any missed antiretroviral (ARV) doses decreased from 75% to 53%. Concurrently, all psychiatric measures improved. The median PHQ score decreased from 13 (12-16) to 1 (0-2) and 87% achieved depression remission, while mean maladaptive coping style scores decreased from 1.63 to 1.38 (Cohen's D = 0.47) and mean self-efficacy scores improved from 3.7 to 3.8 (Cohen's D =0.33).

Conclusions: In this pilot study of depressed HIV-positive patients in Cameroon receiving depression care management, both depression and HIV outcomes improved at 4-month follow-up. These data are consistent with a model in which better depression care can lead to improved HIV outcomes. Subsequent large scale prospective trials can test whether these relationships hold true.

135 Linkage to Care Impacts Survival with HIV Infection, but the Entire Spectrum of Care Determines Survival: A National Study of US Veterans

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Background: While early HIV diagnosis, receipt of antiretroviral therapy (ART), adherence to ART, and retention in care are known to predict survival, the effect of timely linkage to care on survival is not well documented.

Methods: Using the US Veterans Affairs (VA) Immunology Case Registry we constructed a national cohort of HIV-infected users of VA healthcare. Veterans with an index date (first evidence of HIV in VA) between 1998 and 2008 were included. Linkage to care was defined as completing an infectious disease, internal medicine, or primary care clinic visit within 90 days of index date. During the year after the index date, we measured: retention in care (≥1 visit per 4-month block); prescription of ART; and adherence to ART (using pharmacy refill data). To avoid bias, we only included veterans who survived one year after index date. Cox proportional hazards regression models predicted death.

Results: Among 19,102 veterans (97% male, 51% black, mean age 46.9 years, mean CD4 count 370 cells/mm^3), 83.2% linked to care. Adjusting for demographics and initial CD4 and VL, delayed linkage increased the hazard of death (aHR 1.19, p = 0.004). In a single multivariate model of death, the following retained statistical significance: initial CD4 (>500 cells/mm^3 aHR 0.46, P <0.001; 200-500 cells/mm^3 aHR 0.64, p<0.001; compared to <200 cells/mm^3), very poor retention in care (no 4-month blocks with visit aHR 1.35, p = 0.02, compared to three blocks with visit), and either low (>0-20% adherence, aHR 1.22, p = 0.01; 21-40% adherence, aHR 1.19, p = 0.01) or high adherence to ART (61-80% adherence, aHR 0.75, p <0.001; 81-100% adherence, aHR 0.48, p <0.001; both compared to no ART prescription). Linkage was not a significant predictor.

Conclusions: Timely linkage to care predicts survival independent of initial disease severity. Delayed linkage's impact can be overcome by adherence to ART and retention in care. The entire HIV care continuum influences survival with HIV infection.

136 Accuracy in Predicting Daily Anal Intercourse with Casual Partners and its Relevance for Intermittent PrEP: An Online Diary Analysis of Highly Sexually Active Gay and Bisexual Men

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Background: Highly sexually active gay and bisexual men (GBM) are ideal candidates for PrEP, and one means of achieving efficacy may be by targeting PrEP around sexual events (i.e., intermittent PrEP). However, little is known about the extent to which these men are able to predict such events with accuracy.

Methods: To date, data have been gathered from 71 highly sexually HIV-negative GBM (≥9 male partners in 90 days) who completed an online daily diary for 30 days. Each night, men reported their sexual behavior from that day and the likelihood that they would have sex with a casual partner the following day. We calculated a lagged score whereby previous day's likelihood report was used to predict current day's behavior.

Results: Three meaningful categories of likelihood ratings emerged in initial analyses from their associations with sex days: unlikely (0-25%), unsure (26-74%), and likely (75-100%). Overall, 8% of "unlikely" days, 25% of "unsure" days, and 45% of "likely" days turned out to be sex days. The modal likelihood on sex days was 100% (M = 46.3%, Mdn = 43.0%) and 0% on non-sex days (M = 21.7%, Mdn = 11.0%). In a multilevel model, on a day for which men predicted a 50% likelihood of sex, the probability of having sex was 16.2% (Odds=0.19, 95%CI[0.14, 0.26]). The odds increased by 12.2%, 95%CI[1.05, 1.20], for every 10% increase in predicted likelihood of sex. Hypersexual men tended toward less accurate predictions (p = .08).

Conclusions: Highly sexually active GBM tended to more accurately predict not having rather than having sex, though increases in their likelihood estimates corresponded relatively accurately to increases in the predicted odds of having sex. These findings suggest intermittent PrEP use might be best recommended any time the likelihood of sex on the next day exceeds 25% in order to minimize the number of times sex occurs without PrEP.

137 Retention in HIV Care Predicts Subsequent Retention and Predicts Survival Well After the First Year of Care: A National Study of US Veterans

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Background: While retention in HIV care during the first 1-2 years of care impacts survival, whether subsequent retention continues to influence survival is unknown. The impact of prior poor retention on subsequent retention is also poorly described.

Methods: Using the US Veterans Affairs (VA) Immunology Case Registry, we constructed a national cohort of HIV-infected users of VA healthcare whose HIV index date (first evidence of HIV in VA) was between 1998 and 2008 and who survived at least one year. "Retention in care" was based on 4-month blocks with ≥1 infectious disease, internal medicine, or primary care clinic visit. Logistic regression evaluated predictors of retention after the first year. Using a time up-dated variable for retention reflecting the proportion of blocks during follow-up with a visit, multivariable Cox proportional hazards analysis examined the effect of cumulative retention in care on survival.

Results: Among 19,102 veterans (97% male, 51% black, mean age 46.9 years, mean CD4 370 cells/mm^{3}) who survived the first year, there were 3,765 deaths with mean 6.1 years/veteran of follow-up. In a logistic regression model of veterans alive through year 4, veterans with visits in 3/3, 2/3, and 1/3 blocks in Year 3 were 43-, 16-, and 6-times more likely to be retained in care in year 4 compared to those with visits in 0 blocks; all p <0.001. Similar results were obtained for Years 2 and 6. In a Cox survival model adjusting for demographics and initial CD4 and VL, time-updated cumulative poor retention increased the hazard of death: aHR 1.43 for 61%-80%, aHR 1.64 for 41%-60%, aHR 1.83 for 21%-40%, and aHR 1.55 for 0%-20%, compared to 81%-100% blocks with a visit; all p <0.001.

Conclusions: Prior retention in care strongly predicts future retention in care. Retention in care during all phases of HIV care continues to predict survival.

144 Assessing Pre-Exposure Prophylaxis Knowledge, Attitudes, and Potential Uptake among Adolescents and Young Adults at High-Risk for HIV in Washington, DC

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Background: PrEP is effective in reducing HIV incidence among men who have sex with men (MSM), heterosexuals, and serodiscordant couples. Young persons at high-risk for HIV may also benefit from PrEP as a prevention method, yet there is limited knowledge regarding its acceptability and potential uptake among this population. We sought to measure PrEP knowledge, acceptability, and potential use among sexually active, clinic-attending adolescents and young adults in Washington, DC.

Methods: A self-administered survey was conducted among patients attending an STD clinic, a community-based clinic for gay men, and an adolescent health clinic. Data on demographics, HIV risk behaviors, PrEP knowledge, and acceptability were captured. Descriptive and bivariate analyses were conducted to identify potential differences in acceptability and use by age group.

Results: From February 2012-June 2012, 293 clinic attendees were surveyed; 45% were youth (13-24 yrs), 55% were adults (≥25 years). Youth did not differ significantly from adults with respect to sexual behaviors, condom use, or self-perceived HIV-risk. Thirty-one participants had previously heard of PrEP, nine were youth. No differences were observed regarding willingness to use PrEP, perceived ability to take a daily pill, using condoms with PrEP, or potential stigma associated with its use when compared to adults. However, fewer youth were likely to agree to using PrEP if there were few to no side effects (62.4% vs. 78.1%, p = 0.02), would take it if offered by a provider (62.4% vs. 70.6%, p = 0.02), and would be able to follow a provider's instructions (67.7% vs. 76.9%, p = 0.03). 64.7% of youth reported they would consider participating in future PrEP studies.

Conclusions: Although younger high-risk populations in DC are generally accepting of PrEP, potential barriers to its use in this group include limited knowledge of PrEP and potential problems with adherence. Our findings on youth PrEP acceptability can inform educational initiatives, future studies, and scale up of PrEP among this population.

149 Sustaining Adherence and Retention in Care for Improved Health Outcomes in Community-Level HIV and AIDS Services in Swaziland

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Background: Adherence to and retention in care is known to improve health outcomes for HIV and AIDS patient on antiretroviral therapy (ART). Sustaining this effort is often a challenge and requires multifaceted approaches. This abstract documents trends and factors that sustain adherence in HIV-positive patients on care and treatment in Swaziland.

Methods: Multiple approaches were adopted to monitor and enforce adherence in HIV-positive patients receiving care in Community Linkages Project funded by the Centers for Disease Control and Prevention and implemented by World Vision International and the International Center for AIDS Care (ICAP) in Hhohho and Lubombo regions in Swaziland from 2010 through 2012. Main approaches adopted were strengthening linkages to care from community to clinics and clinics to community; household visits by different cadre of trained community workers including Rural Health Motivators (RHM), Home-Based Care givers (HBC), Community Expert Clients (CEC), and Community Nurses (CN); establishment of adherence support groups; patient tracking and follow up using simplified tools and competency training for the community health workforce. Adherence trends and retention in care were compared over three years from 2010 through 2012.

Results: Beneficiaries linked/referred to clinic increased 14-fold (342 in 2010 to 4935 in 2012); household visited by RHM/HBC/CEC/CN and provided with home-based care increased 3-fold; clients attending adherence support group increased more than 5-fold (620 in 2010 to 3,301 in 2012); while defaulting clients who returned to care increased almost 8-fold (167 in 2010 to 1,231 in 2012)

Conclusions: Sustained contacts with PLHWA by various cadre of community workers, effective links and follow up between community and clinics, engagement in adherence support groups, monitoring and tracking patients in care with simple tools improves adherence and retention in care for HIV-positive patients. Multifaceted approaches should be adopted as part of routine adherence support programs.

151 SPIRIT: Switching to Rilpivirine/Emtricitabine/Tenofovir DF Single-Tablet Regimen from Boosted Protease Inhibitor Demonstrated High Adherence and High Rates of Virologic Suppression

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Background: HIV treatment efficacy is correlated with medication adherence. Rilpivirine/emtricitabine/tenofovir DF (RPV/FTC/TDF) is a well-tolerated, efficacious, once-daily, single-tablet regimen (STR) treatment option.

Methods: SPIRIT is a phase 3b, open-label, international, 48-week study to evaluate the safety and efficacy of simplifying from ritonavir-boosted protease inhibitor (PI+RTV+2NRTI) regimens to RPV/FTC/TDF in virologically-suppressed HIV-1 infected subjects. Subjects were randomized 2:1 to switch to RPV/FTC/TDF immediately at baseline or maintain their current PI+RTV+2NRTI regimen with a delayed switch to RPV/FTC/TDF at Week 24. The primary endpoint was the proportion of subjects with HIV-1 RNA <50 c/mL at Week 24 as determined by Food and Drug Administration (FDA) snapshot algorithm (12% non-inferiority margin). Additional analyses were done to evaluate outcomes with RPV/FTC/TDF treatment stratified by <95% and ≥95% adherence measured by pill count.

Results: A total of 476 subjects were randomized and received at least 1 dose of study drug (317 RPV/FTC/TDF; 159 PI+RTV+2NRTIs). Switching to RPV/FTC/TDF was non-inferior to remaining on PI+RTV+2NRTI (93.7% vs. 89.9%) at Week 24 for HIV-1 RNA <50 copies/mL (difference 3.8%, 95% CI:-1.6, 9.1]) by FDA snapshot analysis. After switching to RPV/FTC/TDF, 90% (285/317) of subjects in the immediate switch arm and 93% (141/152) in the delayed switch arm demonstrated ≥95% adherence by pill count. Through 24 weeks of RPV/FTC/TDF treatment in subjects with adherence of ≥95%, the rates of virologic suppression were 94.4% (269/285) in the immediate switch arm and 92.2% (130/141) in the delayed switch arm. For subjects with <95% adherence, virologic suppression rates were 87.5% (28/32) in the immediate switch group and 90.9% (10/11) in the delayed switch group.

Conclusions: The primary endpoint of non-inferiority at Week 24 was met. High adherence was demonstrated after switching to RPV/FTC/TDF, and was associated with numerically higher rates of virologic suppression in both the immediate and delayed switch arms.

* Not CME-certified

157 Dose-Timing Errors Do Not Impact Viral Rebound among HIV-RNA Suppressed Patients

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Background: Electronic drug monitoring (EDM) enables precise dose timing measurement. The objective of this study was to examine the impact of early/late dosing, controlling for missed doses, on viral rebound among individuals on antiretroviral therapy (ART) in the United States.

Methods: Data from the MACH14 Study (pooled EDM data from 16 studies in the United States) were analyzed. Dose-timing errors (DTE) were calculated as the interval between the observed and expected dose timing (based on the prior dose), within intervals that were less than or equal to 1.5 times the expected dose interval (e.g., 36 hours for once daily). Intervals that exceeded this range were considered missed doses and no DTE was assigned. Average adherence and DTE summary measures, including mean timing error and net timing error, covered 4-week periods. The impact of DTE on first viral rebound after HIV-RNA suppression (<400 copies/ml) was examined using mixed models with random effects for repeated measures and study location, controlling for average adherence. Area under the curve (AUC) analysis provided measures of discrimination.

Results: The sample included 580 participants with HIV-RNA <400 copies/ml. 71% were male, 42% were African American, 36% were treatment-naïve at baseline, with a mean age of 40 years. 5% of HIV-RNA measures represented first viral rebound. Average monthly adherence was 63% (SD = 34). There was no difference (p = 0.45) in AUC between models adding either DTE measure to average adherence (AUC = 0.78 for both mean timing and net timing error) compared with average adherence alone (AUC = 0.79).

Conclusions: DTE within the dosing interval do not improve prediction of viral rebound beyond measures of average adherence among patients with viral suppression. While timing of doses may be important for establishing consistency in medication-taking among patients, timing had no impact on viral rebound, so clinicians should prioritize and focus on limiting interruptions in treatment.

162 Anticipated Experiences of and Barriers to Enrolling in HIV Care: Are There Gender Differences among Newly Diagnosed South Africans?

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Background: Linkage to care after HIV diagnosis is recognized as an urgent priority to increase timely antiretroviral therapy (ART) initiation. Although men are less likely than women to present for HIV testing, we know little about gender differences in care-seeking beliefs once a person has tested.

Methods: We recruited people presenting for testing at three public-sector clinics in Durban, South Africa. HIV-positive women (n = 246) and men (n = 119) subsequently enrolled in a prospective cohort study. Through structured interviews we elicited participants' expected experiences of enrolling in care (prior to HIV testing) and anticipated barriers to doing so (after diagnosis), and compared responses between women and men.

Results: The most frequently expected negative experiences were being seen by someone you know (55%) and having to wait too long at the clinic (55%). Gossiping by clinic staff was anticipated by 34%, not learning anything helpful by 18%, and being treated badly by clinic staff by 19%. There were neither significant gender differences in any outcome nor in the mean of all items (scale α = 0.75). After diagnosis, women were more likely than men to report any barrier (60% vs. 48%, p = .03) and barriers related to caring for family (25% vs. 8%, p <.001), not feeling sick (21% vs. 9%, p = .004), feeling too sick (16% vs. 9%, p = .05), inconvenient clinic days/hours (21% vs. 9%, p = .02) and lack of transport funds (40% vs. 31%, p = .05). No gender differences were found for barriers related to doubt about one's HIV-positive status, partner objections, difficulty taking work leave, distance to clinic, or preference for traditional healers.

Conclusions: Women and men reported similar expectations of negative outcomes for returning to care, but women were more likely to report a potential barrier after diagnosis. Future research needs to determine whether these anticipated barriers are associated with any gender differences in linkage to care.

163 Large-Scale, Rapid Transfer of HIV-Infected Patients from Hospital-Based to Primary Health Clinics in South Africa: An Assessment of Self-Reported Linkage to Care

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Background: Hospital-based HIV clinics formerly supported by the US President's Emergency Plan for AIDS Relief (PEPFAR) are transferring patients to government-funded, community-based clinics. Our objective was to evaluate linkage to care following a rapid, large-scale transfer from a hospital-based HIV clinic in South Africa.

Methods: All adult (≥18 years of age) patients on antiretroviral therapy (ART) who visited the hospital-based HIV clinic in Durban between March 2012-June 2012 were transferred to >170 clinics. Counselors identified patients' target transfer clinic based on area and care needs. Research assistants phoned subjects 5-10 months after transfer to complete a brief survey assessing self-reported linkage to the target clinic. We selected the 80 clinics closest to the hospital, and randomly chose 10 clinics for chart/register reviews to validate patients' self-report.

Results: 3,702 patients were transferred and phoned at least once; 2,617 (69%) were reached and completed surveys. Only 10 (0.4%) subjects contacted reported not attending a referral clinic and 14 (0.5%) reported missing ART doses since transfer. Of those reached, 26% reported visiting a different clinic than that assigned. The commonest reasons for attending alternative clinics were: told by the receiving clinic to go elsewhere (25%), stigma concerns (19%), and inconvenient location (16%). The first clinic visited for validation had 103 subjects transferred; 69 (67%) had been reached by phone survey. Of the reached subjects who self-reported attendance at this clinic, 77% (40/52) had a visit validated by clinic register. Of the 34 unreached subjects referred to this clinic, 61% (21/34) had a validated visit.

Conclusions: A substantial proportion of patients reported successful transfer from a hospital- to a community-based clinic, though a quarter of patients attended a different clinic than assigned. Unreachable subjects were less likely to attend the target clinic. Efforts to optimize transfers to community-based sites require accurate contact details and collaboration with receiving clinics to ensure successful linkage to care.

164 Modeling Treatment Outcomes Using Rich Adherence Data and Antiretroviral Pharmacometrics

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Background: Understanding relationships between antiretroviral adherence and virologic outcome is critical for optimal HIV therapy. A mathematical model of viral dynamics incorporating pharmacometrics (specifically, half-lives and in vitro dose-response curves) has been shown to explain adherence-outcome relationships for different drug classes. This model uses estimates of viral fitness (expected growth rate). We assessed whether this model could predict virologic outcomes in the Multi-site Adherence Collaboration on HIV (MACH14) cohort.

Methods: MACH14 databases provide viral load and adherence measurements from medication event monitoring system (MEMS) pill caps, for over 2,500 patients. The effect of each MEMS-recorded dose on viral fitness was estimated using published pharmacometric data. Viral fitness changes over time, decreasing with adherence, drug half-life, and drug strength (e.g., inverse of IC_{50}). For each patient, fitness prior to viral load measurement was assessed as a predictor of virologic rebound - defined as viral load (VL) ≥400 copies/ml following viral suppression. Initial VL measurements and fitness were used as inputs for the model simulating future viral load.

Results: Most patients had MEMS data for a partial regimen. 92 patients had MEMS for ≥3 drugs and two consecutive viral load measurements within 60 days. Of these, 13 showed rebound at the second measurement. Viral fitness at the second measurement was significantly higher for rebounders than for the group maintaining suppression. High fitness correlated with patterns of consecutive missed doses. A simplified approach neglecting pharmacometrics produced poorer estimates of future viral load than the full fitness-based model.

Conclusions: Viral fitness is a novel summary quantity incorporating MEMS adherence and pharmacometrics. Since regimens vary in strength by several orders of magnitude, this metric may outperform adherence measures that ignore drug properties (e.g., fraction of doses taken) in predicting outcomes. A viral dynamic model incorporating fitness may be able to simulate hypothetical adherence interventions and regimen optimizations.

165 Developing and Implementing a Mobile Health (mHealth) Adherence Support System for HIV-Uninfected Men who have Sex with Men (MSM) Taking Pre-Exposure Prophylaxis (PrEP): The iText Study

Albert Liu[1] (presenting), Kristefer Stojanovski[2], Richard Lester[3], K. Rivet Amico[4], Vanessa McMahan[5], Pedro Goicochea[5], Lorena Vargas[6], David Lubensky[7], Kim Koester[8], Susan Buchbinder[2], Kenneth Mayer[9], Sybil Hosek[10], Robert Grant[11], Jonathan Fuchs[1]

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Introduction: Pre-exposure prophylaxis (PrEP) is a highly promising HIV prevention approach, yet non-adherence could significantly limit its effectiveness. SMS-based outreach (text-message check-ins to see if individuals want additional phone support) has been shown to improve HIV treatment adherence. Building on this model, we developed iText, an innovative mHealth program for PrEP-using men who have sex with men (MSM) in iPrEx Open Label Extension (OLE).

Description: We conducted in-depth interviews with 59 OLE participants in San Francisco, Chicago, and Boston to assess interest in SMS-support and elicit preferences for message content/delivery. Based on formative work, we developed a weekly SMS/email-based platform allowing participants to choose message content and delivery day/time. In October 2012, we began enrolling PrEP-using MSM into a pilot study evaluating the feasibility and acceptability of iText in iPrEx OLE.

Lessons Learned: Qualitative interviews revealed substantial interest in SMS support, particularly among young MSM of color in Chicago. There was considerable variability in messaging preferences, with some preferring PrEP-specific messaging, while others preferring general messages due to confidentiality concerns. Several preferred contact via email or social networking website. To date, 54 participants have enrolled in iText with high uptake (89% of eligible participants). Two-thirds opted for SMS delivery, with a variety of message options selected. Out of 505 messages sent, there were 2 requests for phone support; no response was received in 13% of messages. Implementation issues included cell-phone discontinuations and technical problems (non-delivery/erroneous messages). Preliminary data will be presented and suggest most participants would recommend iText for PrEP adherence support, especially during early PrEP initiation.

Recommendations: In designing mHealth PrEP support interventions for MSM, formative work is critical to customize content and delivery preferences. Pilot testing among staff is recommended to identify technical problems prior to implementation. Next steps will be to evaluate the overall acceptability and efficacy of iText in PrEP demonstration projects.

175 The Value of Pharmacy-Based Adherence Measurement in Predicting Virologic Outcomes among HIV-Infected Adults in Jos, North Central Nigeria

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Background: Accurate assessment of adherence to combination antiretroviral therapy (cART) is critical to maximizing clinical efficacy and minimizing the risks associated with drug resistance. However, measurement of adherence is problematic, especially in low resource settings. We examined the association between adherence to drug refill visits and virologic and immunologic outcomes.

Methods: Using an electronic Pharmacy database, adherence to drug refill schedules was monitored over a median period of 12 months in a cohort of 588 HIV-infected, cART-naïve, adults (age ≥15years), who initiated first line ART, between 2009 and 2010, at the AIDS Prevention Initiative in Nigeria Plus Harvard US President's Emergency Plan for AIDS Relief (PEPFAR)-supported antiretroviral clinic, Jos University Teaching Hospital (JUTH), in Jos, Nigeria. The main outcome measures were average percent adherence to drug refill schedules, plasma viral load (VL) and CD4 cell count at baseline and 48 weeks, respectively. Multivariable logistic regression analysis assessed associations with virologic (VL >400 copies/ml) and immunologic failure (as defined by the World Health Organization [WHO]).

Results: The median age of the cohort was 34 years. After a median of 12 months on cART, 42.5% and 57.5% of patients had a cumulative adherence to drug refill of <95% and ≥95%, respectively. The proportion of patients with virologic and immulogic failure was 48.3% (n = 284) and 16.8 (n = 99), respectively. A cumulative adherence of ≥95% to drug-refill visits was significantly associated with lower odds for virologic and immunologic failure (p <0.05). In the final multivariable model, risk factors for virologic failure were incomplete adherence (OR 2.36, 95% CI:1.35-4.097), and cART category (OR 0.45, 95% CI:0.24-0.83).

Conclusions: High virologic failure rate was observed in the cohort after a median of 12 months on cART. Adherence to drug refill is a useful indicator of drug exposure, predicts early virologic failure and should be used for routine monitoring of adherence to cART.

182 Expanded HIV Testing Coverage is Ecologically Associated with Decreases in the Number of Late HIV Diagnoses, New York City, 2001-2010

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Background: Efforts to expand HIV testing have been undertaken in New York City (NYC) to identify undiagnosed HIV infections, reduce morbidity and prevent transmission of HIV through earlier diagnosis.

Methods: We conducted a longitudinal ecological analysis using data from the NYC Department of Health and Mental Hygiene's (DOHMH) HIV/AIDS surveillance registry and the NYC Community Health Survey (CHS), an annual cross-sectional telephone survey. Aggregate data on the number of adult NYC residents receiving an AIDS diagnosis within 12 months of their HIV diagnosis (late diagnosis) were analyzed within 173 NYC ZIP codes by sex for the two 24-month periods 2001/2002 and 2009/2010. Neighborhood-level CHS estimates on self-reported HIV testing in the past 12 months (recent HIV testing) were calculated for United Hospital Fund (UHF) neighborhoods, groupings of adjacent ZIP codes aligned with hospital catchment areas. Generalized estimating equations were used to assess the association of changes in recent HIV testing with changes in the number of late diagnoses between 2001/2-2009/10.

Results: New diagnoses declined by 35% from 10,057 in 2001/2002 to 6,530 in 2009/2010 (median neighborhood percent-change [MNC]: -36%; IQR: -46%, -25%). Late diagnoses declined by 33% from 2,028 to 1,458 (MNC: -29%; IQR: -39%, -10%). The age-adjusted weighted proportion reporting a recent HIV test increased among males from 22% in 2003 to 29% in 2009/2010 (MNC: +35%;IQR: +3%, +51%), and from 25% to 33% among females (MNC: +35%; QR: +15%, +53%). A 10% increase in the proportion of New Yorkers reporting a recent HIV test was associated with decreases in late diagnoses for both males (162 fewer late diagnoses citywide; p <0.001) and females (74 fewer late HIV diagnoses citywide; p <0.015).

Conclusions: During a period marked by citywide expansion of HIV testing and decreases in new HIV diagnoses, longitudinal ecological analyses suggest that increases in recent HIV testing may have reduced the number of late HIV diagnoses.

ORAL ABSTRACTS

195 Baseline HIV Drug Resistance Testing Upon Linkage to Care: A Common Practice in San Francisco Even Prior to National Guidelines Revisions

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Background: National HIV drug resistance (DR) testing guidelines have evolved greatly. Baseline DR testing upon linkage to care was first officially recommended in 2006, after being proposed as reasonable to consider in 2003. Genotypic DR testing patterns over time were assessed with respect to concurrent guideline recommendations.

Methods: San Francisco residents diagnosed with HIV/AIDS between 2001 and 2010 who were linked to care at publicly-funded facilities were included in the analysis (N = 4,223). Cases were characterized by HIV diagnosis year and stratified by DR testing guideline eras: Era 1 = 2001-2003 (n = 1,455); Era 2 = 2004-2006 (n = 1,287); and Era 3 = 2007-2010 (n = 1,481).

Results: Overall, 36% of HIV/AIDS cases had DR testing (n = 1,534) and the proportion increased from 22% (Era 1), to 38% (Era 2), to 49% (Era 3) (p <0.0001). HIV/AIDS cases DR tested within 12 months of diagnosis increased from 42% (Era 1) to 61% (Era 2) to 84% (Era 3) (p <0.0001). Overall, 58% of HIV/AIDS cases initiated antiretroviral therapy (ART) within 12 months of DR testing and the proportion remained stable across eras (p = 0.6747). Among HIV/non-AIDS cases at diagnosis (n = 1,168), the proportion with a DR test within 12 months of diagnosis increased from 33% (Era 1), to 52% (Era 2), to 80% (Era 3) (p <0.0001), while those initiating ART within 12 months of DR testing remained stable at 50% (p = 0.7510). From 2001 to 2010, Hispanics, Asians, men who have sex with men (MSM), and heterosexuals were more likely to be DR tested within 12 months of diagnosis (p <0.005). However, demographic and risk characteristics did not differ significantly in Era 3.

Conclusions: Baseline HIV DR testing upon linkage to care was adopted in San Francisco as early as 2002. DR testing rates within one year of diagnosis increased steadily from 2002 through 2010 among all cases. Early baseline DR testing can inform regimen selection upon subsequent initiation of ART and may improve treatment outcomes.

205 Provider-Delivered Reminder Calls Improve Clinic Attendance by Patients with a History of Poor Engagement in Semi-Rural Virginia

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Introduction: Consistent engagement in care by people living with HIV (PLWH) is essential for optimal individual and population level HIV-related outcomes. The pilot intervention described targets rural and semi-rural PLWH with a history of poor engagement through a brief provider-based intervention which strives to promote clinic attendance.

Description: The University of Virginia Ryan White Clinic serves approximately 675 PLWH. Patients are identified as either active, out of care, or "at risk" of falling out of care. HIV providers are emailed a list of their scheduled "at-risk" patients each week and asked to telephone clients with a reminder. Providers report whether and how they interact with the clients.

Lessons Learned: From October 16, 2012, to January 31, 2013, 1,333 clinical encounters with PLWH occurred. Of these, 307 were scheduled with "at-risk" clients. Providers contacted 125 (41%) of these clients. Those contacted attended 63 (50%) of the scheduled appointments, rescheduled 28 (23%), cancelled 11 (9%), and no showed 23 (18%). Those not successfully contacted attended 71 (39%) of the scheduled appointments, rescheduled 31 (17%), cancelled 2 (1%), and no showed 78 (43%). In a population of "at-risk" patients, a brief provider-level intervention reduced "no-show" rates by 24% (p <0.0001). Additionally, "at-risk" clients who were contacted were more likely to cancel or reschedule appointments.

Recommendations: A simple provider level intervention targeting clients "at risk" for poor engagement decreased no show rate, an indicator of poor engagement in care. In the initial months, provider participation was modest with only 41% of patients contacted. Providers should be further educated about the importance of telephone contact with "at-risk" clients. Further assessment of the impacts of the intervention on retention in care longitudinally and evaluation of the possibility of shifting the responsibility to other care team members, such as case managers, is planned.

210 Text Message Reminders Promote Adherence to Antiretroviral Therapy: A Meta-Analysis of Intervention Trials

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Background: The efficacy of antiretroviral therapy (ART) depends on patient adherence to a daily medication regimen, yet many patients do not adhere. Given the increasing ownership of portable electronic devices worldwide, text-message reminders may assist providers in meeting the challenge of optimizing adherence. This meta-analysis synthesized currently available text messaging interventions to promote ART adherence in people living with HIV (PLWH).

Methods: Included studies (a) reported on an ART adherence intervention in a sample of PLWH, (b) utilized electronic text messaging, and (c) employed a randomized controlled trial (RCT) or single group pre/post design. Literature searches of multiple databases used a Boolean search. Studies were coded for participant and design characteristics. Weighted standardized mean difference effect sizes (ES) were calculated from information reported in each study. All study coding and ES calculations were independently duplicated.

Results: Ten studies met inclusion criteria, including one unpublished. Eight studies employed an RCT design. Half (k = 5) reported clinical outcomes (e.g., viral load) and adherence measures. The majority of participants (N = 2010) were African and 46% were female; mean age was 38 years. Control condition mean effects were negative and non-significant (k = 5; ES = -0.16; 95% CI:-0.37, 0.05) while intervention conditions significantly improved adherence (k = 7; ES = 0.23; 95% CI:0.08, 0.38). A significant mean difference between control and intervention conditions was also found (k = 9; ES = 0.19; 95% CI:0.09, 0.29). Mean effects on clinical outcomes were also significant (k = 5; ES = 0.41; 95% CI:0.30, 0.52). Although implementation strategies varied, Cochran's Q tests upheld the hypothesis of homogeneity of sample ESs.

Conclusions: Analysis supports the utility of text-message interventions to improve ART adherence and clinical outcomes. Mean effects are small to medium sized and findings showed consistency across studies. Additional research should seek to broaden demographic generalizability and investigate design characteristics that will optimize intervention effects.

215 Repeated Measures Analysis of the Relationship between Genotypic Sensitivity and MEMS Adherence with Viral Suppression

Yan Wang[1], Robert Gross[2], Ira B. Wilson[3], Jason Shen[3], Marc Rosen[4], Carol Golin[5], Jane M. Simoni[6], Nancy Reynolds[4], David R. Bangsberg[7], **Honghu Liu**[8] **(presenting)**

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Background: HIV-1 replication in the presence of suboptimal antiretroviral therapy (ART) drug concentrations is considered a major cause of treatment failure. Adherence to the HAART regimen is a major determinant of drug concentration and a key predictor of lack of virologic suppression. However, few studies have assessed the relation between adherence, emergence of resistance and viral load.

Methods: MACH14 is collaboration of 16 studies at 14 sites in the United States that assessed ART adherence with medication event monitoring system (MEMS), of which five studies collected resistance data. Repeated measures mixed effects models were used to model the relationship between the MEMS adherence, genotypic sensitivity and other factors (including patients' demographics and whether or not a patient was protease inhibitor (PI) naive at the study entry) with virologic outcome of viral load.

Results: The analytical sample (N = 380) was mainly male (58.6%) with 47.6% African American, 19.7% Caucasian, and 17.1% Latino, and a mean age of 40.5 (range from 21 to 69). Most were naïve to antiretroviral medications at baseline (71.4%) and had more than a high school education (69.1%). The majority were substance users (72.8%) with low income (66.8%, <$10,000/annum). The models revealed that higher genotypic sensitivity over time (p <0.001), higher percent adherence to medication in the past month (p = 0.008), and higher CD4 count at the time of measurement of viral load (p = 0.035) were significantly associated with lower continuous log viral logic level. The interaction between the genotypic sensitivity and adherence was negatively associated (p = 0.030) with log virologic outcome.

Conclusions: Our findings confirm that among patients from multiple sites, resistance and adherence level are important predictors of antiviral response, with both independent and synergistic effects. When resistance is high, adherence will be less effective on viral suppression.

225 Impact of HIV-Related Stigma and Serostatus Disclosure on HIV Treatment Adherence: Meta-Synthesis and Systematic Review

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Background: Antiretroviral therapy (ART) adherence has been demonstrated to be a critical determinant of viral suppression and health outcomes. HIV-related stigma is thought to undermine ART adherence, but this relationship is not well established. We therefore undertook this review to systematically assess the relationship between HIV-related stigma, HIV serostatus disclosure, and ART adherence.

Methods: We searched BIOSIS Previews, CINAHL, EMBASE, ERIC, MEDLINE, ProQuest Dissertations & Theses, PSYCINFO, Web of Science, and WHO African Index Medicus for studies that reported data on the relationship between ART adherence and either HIV-related stigma or serostatus disclosure. Meta-synthesis was employed to interpret findings from the qualitative studies.

Results: Our search yielded 14,854 records. We retrieved the full text of 961 articles for review, and ultimately excluded 873, as they contained no data relevant to the relationship between ART adherence and either stigma or disclosure. Thirty-one qualitative studies were included in the review. Our meta-synthesis showed that stigma is both directly and indirectly tied to ART adherence. Physical evidence of taking medications leads to social abandonment and ART non-adherence. Treatment for depression and anxiety, along with effective coping strategies to handle poverty-related stressors or racial/sexual minority status, appears to provide a protective buffer against stigma and promote acceptance of long-term treatment and "choosing to live a healthy life." Data from 38 quantitative studies were consistent with these lines of inquiry: 22 of 32 cross-sectional studies, but only 1 of 6 longitudinal studies, showed a statistically significant relationship between ART adherence and either stigma or disclosure (Pearson's chi-squared = 5.7; P = 0.02).

Conclusions: In this review and meta-synthesis, we found that HIV-related stigma and serostatus non-disclosure both compromise ART adherence. Interventions to reduce the stigma of HIV are needed to support HIV treatment adherence and reduce secondary transmission.

229 Household Food Aid and Nutrition Education Improve Adherence to Antiretroviral Therapy in Honduras

Homero Martinez[1], Kartika Palar[2] (presenting), Sebastian Linnemayr[1], Alexandria Smith[1], Kathryn Pitkin Derose[1], Blanca Ramirez[3], Hugo Farias[4], Glenn Wagner[1]

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Introduction: Food insecurity and malnutrition are associated with worse HIV clinical outcomes, including suboptimal adherence to antiretroviral therapy (ART). Yet few studies have examined the effect of household food aid or nutrition education on ART adherence outside of sub-Saharan Africa.

Methods: A pilot intervention study was conducted among patients receiving ART (n = 400) at four government-run HIV clinics in Honduras. Clinics were randomly assigned to a monthly household food basket plus nutrition education or nutrition education alone. The interventions were provided over one year with assessments at baseline, 6 months, and 12 months. Primary outcome adherence measures included clinic attendance, timeliness of prescription refills, and self-reported treatment interruption of ART. We implemented longitudinal linear probability regression models of the effect of the intervention on the binary outcomes, adjusting for key demographic, socioeconomic and clinical covariates.

Results: All three adherence measures improved significantly (p <0.01) in both groups over the 12 months of the study, with most improvement occurring between baseline and 6 months. At 6 months, prescription refills improved by 19.6% more for the group receiving household food basket plus nutrition education compared to the nutrition education-only group (p <0.01), with no further change at 12 months. Missed appointments and treatment interruptions were not affected by food assistance.

Conclusions: Nutrition education alone may have benefits for medication and appointment adherence, while household food aid could have an additive effect on fostering timely pharmacy refills. This is one of the first studies to investigate the effects of a food and nutrition intervention on ART adherence in Latin America. Further context-specific research is needed to investigate the effect of nutrition education on ART adherence, to identify pathways whereby nutrition education and household food aid affect ART outcomes, and define the optimum duration and targeting of household food aid to support adherence.

233 Routine Viral Load Monitoring for Targeted Adherence Support among Antiretroviral Therapy Patients in a Resource-Limited Setting, Swaziland

Charles Azih[1] **(presenting)**, Sithembile Dlamini[2], Lucy Parker[3], Kiran Jobanputra[3], Jacqueline Papo[4], Velephi Okello[2]

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Background: In 2012, routine viral load (VL) monitoring was implemented in the Shiselweni region of Swaziland. In addition to timely detection of treatment failure, routine VL monitoring can help identify patients with adherence problems, thus permitting adherence interventions to prevent acquired resistance. We seek to identify determinants of detectable VL, in order to define high-risk groups that may benefit from stepped-up adherence support.

Methods: Laboratory records from 5,069 patients who received first routine VL tests between May 5, 2011, and November 1, 2013, were analyzed. Among these, 1,842 were linked with the national antiretroviral therapy (ART) database. We used descriptive analysis and multivariable logistic regression to explore relationship between VL and gender, age, time on ART, recent CD4 count, and World Health Organization (WHO) stage.

Results: 614 (12.1%) patients had a detectable VL. The proportion with detectable VL was higher among children and adolescents (25.9% in <20 years vs. 10.5% in ≥20 years, p <0.0001). Being on ART for more than three years was not a determinant of virologic detectability (13.1% ≥3 years vs. 11.1% <3 years, p = 0.188). Patients <20 years old were twice as likely to have detectable VL, even after controlling for CD4 count and WHO stage (adjusted Odds Ratio 2.26, 95% CI:1.36-3.76). Among 89 'detectable' patients with a follow-up VL test, 37 (41.6%) were re-suppressed after stepped-up adherence counseling. This was significantly higher among patients ≥20 years (32/66, 48.5%) than those <20 years (5/23, 21.7%), (p = 0.025).

Conclusions: Routine VL monitoring can be beneficial in resource-constrained settings such as Swaziland, to identify those who may benefit from targeted adherence interventions. These findings show that children and adolescents are more likely to have detectable VL, and are less likely to re-suppress following stepped-up adherence interventions. These groups could benefit from routine, early and more frequent VL monitoring, to detect adherence problems early; with tailored interventions to improve adherence and achieve viral re-suppression.

245 Expanded HIV Testing and Linkage to Care (X-TLC) in Healthcare Settings on the South Side of Chicago

Rebecca Eavou[1], Michelle Taylor[1], Clara Bertozzi-Villa[1], David Amarathithada[2], Randal Buffington[2], David Pitrak[1], **Nanette Benbow**[1] **(presenting)**

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Introduction: Routine HIV testing and linkage to care (LTC) is central to CDC's high-impact prevention approach to reducing new infections. We describe an HIV prevention-funded program that developed a regional hospital/community health centers network responsible for testing, notification, and LTC.

Description: The University of Chicago is the lead for a Chicago Department of Public Health (CDPH)-sponsored program for X-TLC. A network of 11 healthcare facilities, including hospital emergency departments, inpatient units, outpatient clinics, community health centers, and community-based organizations conduct HIV testing. Each site has a coordinator responsible for HIV testing and patient notification. For those testing positive, the site coordinator contacts the lead LTC coordinator who schedules the patient's first visit with an HIV provider within one week and conducts follow-up on missed visits.

Lessons Learned: Of the 32,428 people tested for HIV between February 2011 and December 2012, 182 were confirmed positives (0.6%). Of these, 83 were new diagnoses (0.3%), 94% of which received their results. Of those notified, 94% were linked to care (median time to first visit 10 days) and only 16% had not been retained in care. Among those in care, 100% were on antiretroviral therapy (ART) and 85% had a VL <400 copies/mL. For those with a prior HIV diagnosis, 63% were in care, and 23% were LTC. Compared to citywide 2010 diagnoses, clients identified through this project were more likely to be linked to care (94% vs. 74%) and retained in care (79% vs. 43%). Additionally, baseline CD4 counts have increased to 240-342 cells/mm^3 from a historical baseline of <200 cells/mm^3.

Recommendations: Linkage and retention in care activities are more effective when screening is part of routine health care and an HIV care program is responsible for test notification and LTC. HIV prevention funding of regional centers can help fund the initial infrastructure to develop a sustainable network of healthcare facilities that incorporate linkage and retention in care efforts.

ORAL ABSTRACTS

June 2-4, 2013

To Whom It May Concern:

This letter is a confirmation that _____ attended the 8th International Conference on HIV Treatment and Prevention Adherence, held June 2-4, 2013, at the Eden Roc Renaissance Hotel in Miami, FL, USA. This 2.5-day conference was jointly sponsored by the International Association of Providers of AIDS Care (IAPAC); the National Institute of Mental Health (NIMH); and the Postgraduate Institute for Medicine (PIM).

Sincerely,

José M. Zuniga, PhD, MPH
Conference Co-Chair

HIV

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The **International Association of Providers of AIDS Care** (IAPAC), in partnership with the **British HIV Association** (BHIVA),will host an evidence summit featuring the presentation of data related to and discussion about the implementation of high impact prevention, including treatment as prevention (TasP) and pre-exposure prophylaxis (PrEP), in a variety of clinical settings.

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8th International Conference on HIV TREATMENT AND PREVENTION ADHERENCE

The 8th International Conference on HIV Treatment and Prevention Adherence is co-hosted by the **International Association of Providers of AIDS Care (IAPAC)** and the **National Institute of Mental Health (NIMH)**, who wish to express their gratitude to the government, institutional, and commercial supporters whose generosity has made this conference possible.

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