9th International Conference on HIV TREATMENT AND PREVENTION ADHERENCE

June 8-10, 2014 • Miami

jointly sponsored by

IAPAC
INTERNATIONAL ASSOCIATION
OF PROVIDERS OF AIDS CARE

PIM Postgraduate Institute
for Medicine

9th International Conference on HIV TREATMENT AND PREVENTION ADHERENCE

WELCOME

Welcome to the 9th International Conference on HIV Treatment and Prevention Adherence. We are honored to serve as the conference's Scientific Co-Chairs and thrilled to celebrate with all of you numerous advances that have been made in biomedical and behavioral sciences, community alliances, and overall commitment towards reaching new levels of excellence in HIV prevention and treatment around the world, centering on the essential role of "adherence" in the broadest context. As you will learn through the conference plenaries and the oral and poster abstract presentations, these advances are attenuated by continued disparities affecting at-risk populations as well as "leaks" across the continuum of HIV care. Together, we are confident that these next few days will provide opportunities for discovery, new insights, and collaborations that will shape the future of research and practice centered on the complexities of HIV-prevention, linkage to quality HIV care, subsequent ongoing HIV care engagement, and antiretroviral therapy adherence.

Our ninth year of open discussion across disciplines, organizations, and individuals will continue to distinguish this conference as an exceptional example of collaboration between research, practice, policy, and community. We wish to sincerely thank the Planning Committee, Abstract Review Committee, faculty, delegates, oral abstract presenters, and the presenters of outstanding posters that will be on display at the Opening Reception and throughout the conference, for their contributions to this year's program. We hope that this program will foster novel insights that will push the science and practice of HIV prevention and treatment adherence to the next level. In addition to the long-standing traditions of the conference, we note several new features to this year's scientific program, including:

- Poster Session on the opening day in conjunction with the Opening Reception;
- Recognition of the highest scored posters with a "palm tree" designation; and
- Late-Breaker Oral Abstract sessions and late-breaker poster presentations.

We are thankful for the commercial support provided by AbbVie, Gilead Sciences, Merck & Co., and ViiV Healthcare. We are also thankful to José M. Zuniga, PhD, MPH, and Christopher M. Gordon, PhD, under whose leadership as Co-Chairs over the past four years this conference has become an exemplar of collaboration and excellence. We appreciate the traditions they have established and look forward to continuing to promote innovation, discourse, and discovery. We are equally indebted to the amazing team at the International Association of Providers of AIDS Care (IAPAC), including Dr. Zuniga and Angela Knudson, who have been instrumental in developing this year's excellent program and managing countless logistics for us to all be able to be here.

With over 400 delegates from 28 countries, this year's conference will offer a truly remarkable opportunity to learn from each other, find the synergies, and discover and innovate to advance the science and practice of HIV prevention and treatment adherence. As adherence drives efficacy, disseminating the innovative scientific discoveries and practical lessons learned and shared over the next three days is vital to achieving the individual and population health benefits afforded by contemporary HIV prevention and treatment modalities.

Welcome to Miami - we hope you enjoy the conference!

K. Rivet Amico, PhD[1]
Co-Chair

Michael J. Mugavero, MD, MHSc[2]
Co-Chair

[1] University of Connecticut, Storrs, CT, USA
[2] University of Alabama at Birmingham, Birmingham, AL, USA

TABLE OF CONTENTS

CONFERENCE INFORMATION

TARGET AUDIENCE
The target audience for the 9th International Conference on HIV Treatment and Prevention Adherence (Adherence 2014) includes physicians, nurses/nurse-practitioners, pharmacists, psychologists, behavioral researchers, social scientists, epidemiologists, social workers, case managers, AIDS service organization (ASO) staff, and allied healthcare and lay 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
Adherence 2014 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:

- Summarize HIV treatment and biomedical prevention adherence state-of-the-science in relation to individual, community, and public health
- Apply evidence-based strategies to enhance treatment adherence in order to mitigate drug resistance and achieve long-term virologic suppression
- Integrate into clinical practice evidence-based interventions to improve linkage to and long-term engagement in care
- Utilize patient engagement and adherence assessment tools to enhance adherence to HIV treatment and biomedical prevention

GENERAL INFORMATION

MEETING VENUE
Adherence 2014 is being held at the Loews Miami Beach Hotel. Plenary, Oral Abstract, and Breakout Sessions, as well as the Poster Session will be held on the second level (see the Hotel Maps and the Program Schedule on page 7 and pages 10-12, respectively).

MEALS
Lunch will only be provided on Monday, June 9, 2014, and Tuesday, June 10, 2014, during the Lunch Panel discussions.

SOCIAL MEDIA
If you haven't already, "like" our Facebook page (International Association of Providers of AIDS Care) and join the Adherence 2014 event for live updates on the conference. Join the conference's social media conversation: #Adherence2014

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
Adherence 2014 does not provide Internet access to participants. Wireless Internet can be purchased for $14.95 per day, and is complimentary in the hotel lobby.

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

PHYSICIANS & NURSE-PRACTITIONERS/NURSES

CONTINUING MEDICAL EDUCATION

Accreditation Statement
This activity has been planned and implemented in accordance with the accreditation requirements and policies of the Accreditation Council for Continuing Medical Education (ACCME) through the joint providership of Postgraduate Institute for Medicine 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 19.25 *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 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 Abstracts book, please visit the conference's Registration Desk.

Postgraduate Institute
for Medicine

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 9762. Upon successfully completing the evaluation, a CME certificate will be made available to each participant.

CONTINUING EDUCATION IN NURSING

The Association of Nurses in AIDS Care (ANAC) is accredited as a provider of continuing nursing education by the American Nurses Credentialing Center's Commission on Accreditation. ANAC designates this educational activity for a maximum of 20 CNE contact hours. Certificates will be available at www.cmeuniversity.com, Project ID number 9762.

ANAC
ASSOCIATION OF
NURSES IN AIDS CARE

PHARMACISTS

CONTINUING EDUCATION IN PHARMACY
Nova Southeastern University College of Pharmacy is accredited by the Accreditation Council for Pharmacy Education as a provider of continuing pharmacy education. ACPE# 0092-9999-14- (10-19)-L04-P. This program has been approved for up to 9.0 contact hours (.9 CEUs). Following are sessions that have been approved for credit hours.

Pharmacists claiming credits must collect and return a completed Certificate of Participation to IAPAC staff at the registration desk prior to leaving the conference. Certificates will be mailed two weeks post-conference.

SUNDAY, JUNE 8, 2014
1:00 P.M. - 3:00 P.M. • Poinciana 1/2
Pre-Conference Symposium 2: Increasing PrEP Awareness in the US: The Development and Implementation of Five Resources

Learning Objectives:
- Apply evidence-based interventions to promote the use of PrEP for biomedical HIV prevention
- Identify barriers to PrEP use among at-risk populations
- Describe the acceptability of PrEP in various populations

4:15 P.M. - 4:45 P.M. • Americana 3
Gary S. Reiter, MD, and Andrew Kaplan, MD, Memorial Lecture: The Changing Landscape of HIV/AIDS Research: What's Next?

Learning Objectives:
- Describe key scientific advances, which provide an opportunity to end the HIV pandemic
- Identify research priorities to meet the aims of preventing new HIV infections and ending AIDS

MONDAY, JUNE 9, 2014
9:00 A.M. - 9:30 A.M. • Americana 3
Keynote Address: Treating Stigma: When a Pill Isn't Enough

Learning Objectives:
- Describe the role of stigma as a barrier to entry into and retention in HIV care and treatment
- Describe the barriers for eradicating the HIV epidemic using antiretrovirals

9:30 A.M. - 10:30 A.M. • Americana 3
Panel 2: Optimizing Our Response: Placing Adherence within the Continuum of Care Context

Learning Objectives:
- Describe the role of pharmacists in supporting adherence across the continuum of care
- Identify strategies that pharmacists can use to support adherence within the context of the continuum of care
- Identify advantages to using a multi-disciplinary approach to support adherence

12:05 P.M. - 1:05 P.M. • Americana 3
Lunch Panel: Early ART Initiation: Caveats, Challenges, and Opportunities

Learning Objectives:
- Define "early" ART initiation
- Explain advantages of early initiation of therapy
- Identify challenges to early initiation of ART

MONDAY, JUNE 9, 2014 (continued)
4:00 P.M. - 4:30 P.M. • Americana 3
Plenary 1: Adherence Monitoring - State of the Science and Future Innovations

Learning Objectives:
- List two innovative methods for monitoring adherence
- Describe advantages for newer methods of adherence monitoring

4:30 P.M. - 5:00 P.M. • Americana 3
Plenary 2: Digital Adherence Interventions - A Review of CDC Investments in IT-Based Technologies

Learning Objectives:
- Identify common features of successful digital adherence interventions

TUESDAY, JUNE 10, 2014
9:00 A.M. - 10:00 A.M. • Americana 3
Panel 3: PrEP - State of the Science, Uptake Challenges, and Other Barriers to Scale Up

Learning Objectives:
- Describe the acceptability of PreP in various populations
- List factors associated with adherence to PreP in demonstration projects
- List considerations for implementing PreP in health centers

12:15 P.M. - 1:15 P.M. • Americana 3
Lunch Panel: Patient-Provider Teams: Some Times the "Care Relationship" is the Intervention

Learning Objectives:
- Identify successful elements of building a positive "care relationship"
- Apply principles of relationship building to pharmacy practice
- Identify pharmacy practices which may be detrimental to establishing a therapeutic alliance

4:00 P.M. - 5:00 P.M. • Americana 3
Closing Panel: Slaying the Hydra: Examining Universal ART's Acceptability, Adherence, Affordability, Accessibility, and Accountability Challenges

Learning Objectives:
- Explain the benefit of widespread rollout of universal ART
- List challenges associated with implementation of universal ART
- Identify potential roles for pharmacists in promoting universal ART

PSYCHOLOGISTS

CONTINUING EDUCATION IN PSYCHOLOGY

Postgraduate Institute for Medicine (PIM) is approved by the American Psychological Association to sponsor continuing education for psychologists. PIM maintains responsibility for this program and its content. This program offers 18.50 continuing education credits for psychologists. The following sessions have been approved for continuing education credits for psychologists. Participants must verify their attendance by signing in during each session. Sign-in sheets will be placed in the back of every room.

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 9762. Upon successfully completing the evaluation, a CE certificate will be made available to each participant.

SUNDAY, JUNE 8, 2014
10:00 A.M. - 12:00 P.M. • Poinciana 1/2
Pre-Conference Symposium 1: Networking: Adherence Update from the International HIV Networks

1:00 P.M. - 3:00 P.M. • Poinciana 1/2
Pre-Conference Symposium 2: Increasing PrEP Awareness in the US: The Development and Implementation of Five Resources

4:15 P.M. - 4:45 P.M. • Americana 3
Gary S. Reiter, MD, and Andrew Kaplan, MD, Memorial Lecture: The Changing Landscape of HIV/AIDS Research: What's Next?

4:45 P.M. - 5:45 P.M. • Americana 3
Panel 1: Patient Perspectives on Treatment as Prevention

MONDAY, JUNE 9, 2014
9:00 A.M. - 9:30 A.M. • Americana 3
Keynote Address: Treating Stigma: When a Pill Isn't Enough

9:30 A.M. - 10:30 A.M. • Americana 3
Panel 2: Optimizing Our Response: Placing Adherence within the Continuum of Care Context

10:45 A.M. - Noon • Salon 1
Thematic Oral Abstract Session 2: Adherence - Measurement and Epidemiology

1:30 P.M. - 2:45 P.M. • Salon 2
Thematic Oral Abstract Session 7: Adherence - Intervention

2:50 P.M. - 3:50 P.M. • Salon 1
Late-Breaker Oral Abstract Session 2: ART Adherence: Toolkits and Technology

2:50 P.M. - 3:50 P.M. • Salon 2
Late-Breaker Oral Abstract Session 3: ART Adherence: Correlates and Consequences

4:00 P.M. - 4:30 P.M. • Americana 3
Plenary 1: Adherence Monitoring - State of the Science and Future Innovations

4:30 P.M. - 5:00 P.M. • Americana 3
Plenary 2: Digital Adherence Interventions - A Review of CDC Investments in IT-Based Technologies

MONDAY, JUNE 9, 2014 (continued)
5:00 P.M. - 6:00 P.M. • Americana 3
Plenary 3: Three Top-Rated Oral Abstracts

TUESDAY, JUNE 10, 2014
9:00 A.M. - 10:00 A.M. • Americana 3
Panel 3: PrEP - State of the Science, Uptake Challenges, and Other Barriers to Scale Up

10:15 A.M. - 11:30 A.M. • Americana 3
Thematic Oral Abstract Session 9: Engagement in Care - Interventions and Correlates

10:15 A.M. - 11:30 A.M. • Salon 1
Thematic Oral Abstract Session 10: Adherence - Technology

11:35 A.M. - 12:05 P.M. • Americana 3
Invited Speaker Session 1: Patient-Provider Communication

11:35 A.M. - 12:05 P.M. • Salon 1
Invited Speaker Session 2: Stigma

11:35 A.M. - 12:05 P.M. • Salon 2
Invited Speaker Session 3: Health Literacy

12:15 P.M. - 1:15 P.M. • Americana 3
Lunch Panel: Patient-Provider Teams: Some Times the "Care Relationship" is the Intervention

1:45 P.M. - 3:00 P.M. • Americana 3
Thematic Oral Abstract Session 13: Adherence

1:45 P.M. - 3:00 P.M. • Salon 2
Thematic Oral Abstract Session 15: Linkage and Retention - Correlates of Linkage and Retention

1:45 P.M. - 3:00 P.M. • Poinciana 1/2
Thematic Oral Abstract Session 16: Biobehavioral Prevention - Perspectives: Consumers, Prescribers, and Communities

4:00 P.M. - 5:00 P.M. • Americana 3
Closing Panel: Slaying the Hydra: Examining Universal ART's Acceptability, Adherence, Affordability, Accessibility, and Accountability Challenges

NETWORKING OPPORTUNITIES

COFFEE TALKS

Adherence 2014 covers a vast spectrum of issues. Come break it down with us over coffee and an early bird breakfast.

IAPAC invites you to stop by a Coffee Talk to mix and mingle among colleagues and new friends. This unique and casual networking opportunity will provide a space for you to discuss issues specific to HIV/AIDS service providers and special populations.

Group Interest Coffee Talk, 8:00 A.M. - 8:50 A.M., Monday, June 9, 2014

Pharmacists, Nurses & Nurse Practitioners, Civil Society, Psychologists, Physicians
The Group Interest Coffee Talk will focus on the individuals who serve people living with HIV/AIDS: the service providers.

Issue Interest Coffee Talk, 8:00 A.M. - 8:50 A.M., Tuesday, June 10, 2014

Men who have Sex with Men, Women, Transgender Individuals, Children/Adolescents, Mental Health
The Issue Interest Coffee Talk will focus on on special populations of individuals living with or affected by HIV/AIDS.

RUNNING CLUB

Meet Up Point: Hotel Lobby, 7:00 A.M. (Monday, June 9, 2014 & Tuesday, June 10, 2014)

Calling all runners! Come meet us every morning for a pre-conference run around Miami Beach. Adherence 2014 participants and runners of all endurance, paces, distances and experience levels are encouraged to come run together in a non-competitive atmosphere as a way to get to know each other in a relaxed, informal environment. See you there!

Disclaimer: Runners acknowledge that they are participating at their own risk and waive all claims of every nature against the organizers, sponsors, and any other participating groups with respect to any personal loss, illness, bodily injury or death resulting from participating in this event. Participants also fully understand the rigors of this activity and have prepared themselves physically for the event. Please use caution when performing exercise and/or engaging in strenuous physical activity. Please consult your physician before beginning exercise program. Participants should stay on sidewalks, use crosswalks and stay alert to traffic and pedestrians.
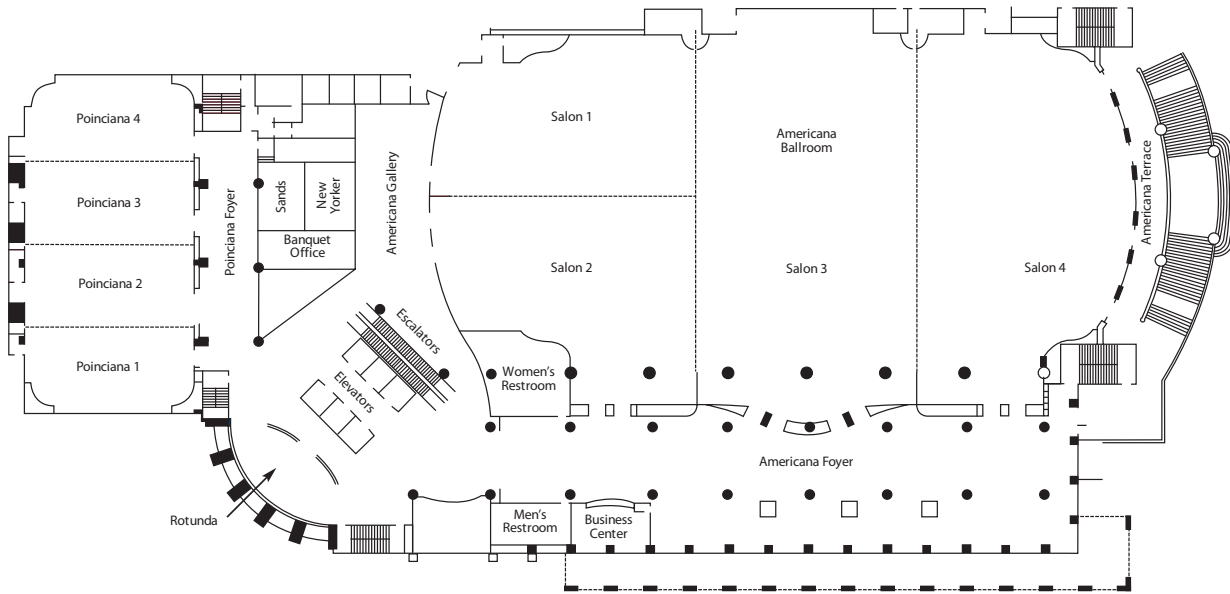
NETWORKING DINNERS

Monday, June 9, 2014

Maximize your networking opportunities and enjoy a mouthwatering meal at one of Miami's top restaurants by joining other Adherence 2014 delegates for a networking dinner. Whether you're traveling alone, a first-time attendee, or just looking for a great meal, this is a great opportunity to participate in a casual dinner with fellow delegates and guests who want to enjoy a nice meal and interesting conversation.

Reservations will be offered for tables to seat six-10 people for dinner Monday, June 9, 2014, between 6:30 P.M. and 8:30 P.M. The reservation is filled on a first-come, first-served basis to offer automatic dinner plans, networking, and great food all in one.
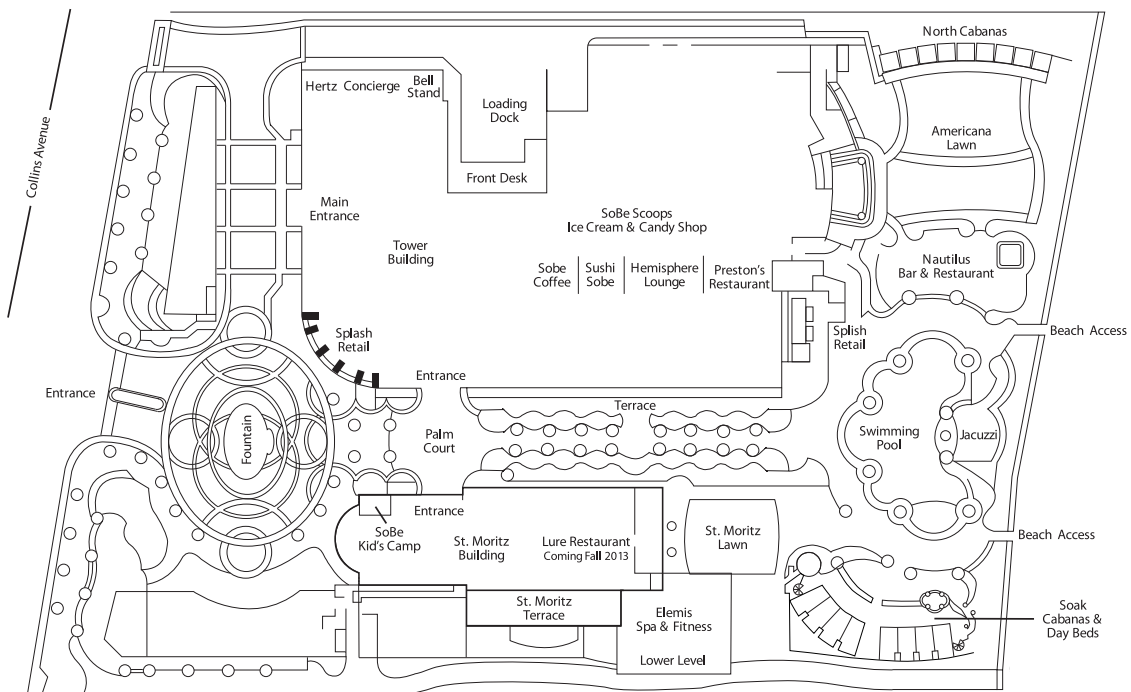
Networking dinner attendees will be responsible to pay for their own meal, drinks, and associated tip. The networking dinners are offered to Adherence 2014 attendees as a way to help you make the most of your conference experience and connect with your colleagues. Please visit the Adherence 2014 registration desk to sign-up today!

LOEWS MIAMI BEACH HOTEL

Poinciana 4

Poinciana 3

Poinciana 2

Poinciana 1

Poinciana Foyer

Sands

New Yorker

Banquet Office

Americana Gallery

Salon 1

Americana Ballroom

Salon 2

Salon 3

Salon 4

Americana Terrace

Escalators

Elevators

Women's Restroom

Americana Foyer

Rotunda

Men's Restroom

Business Center

Second Level

Collins Avenue

North Cabanas

Hertz Concierge

Bell Stand

Loading Dock

Americana Lawn

Front Desk

Main Entrance

Tower Building

SoBe Scoops Ice Cream & Candy Shop

Nautilus Bar & Restaurant

Sobe Coffee

Sushi Sobe

Hemisphere Lounge

Preston's Restaurant

Splash Retail

Splish Retail

Beach Access

Entrance

Entrance

Terrace

Swimming Pool

Jacuzzi

Palm Court

Fountain

Entrance

SoBe Kid's Camp

St. Moritz Building

Lure Restaurant Coming Fall 2013

St. Moritz Lawn

Beach Access

St. Moritz Terrace

Elemis Spa & Fitness

Soak Cabanas & Day Beds

Lower Level

Property Overview

K. Rivet Amico, PhD
University of Connecticut
Storrs, CT, USA

Michele Peake Andrasik, PhD
Fred Hutchinson Cancer Research Center
Seattle, WA, USA

Mary Catherine Beach, MD, MPH
Johns Hopkins University
Baltimore, MD, USA

Patrick Buzzell
Boston, MA, USA

Megan Canon, MPH
San Francisco AIDS Foundation
San Francisco, CA, USA

Amanda Castel, MD, MPH
George Washington University
Washington, DC, USA

Jennifer Cocohoba, PharmD, MAS
University of California
San Francisco, CA, USA

Dazon Dixon Diallo, MPH
Sister Love
Atlanta, GA, USA

Ruth DeRamus
UAB 1917 Clinic
Birmingham, AL, USA

Thomas P. Giordano, MD, MPH
Baylor College of Medicine
Houston, TX, USA

Christopher M. Gordon, PhD
National Institute of Mental Health
Rockville, MD, USA

Robert M. Grant, MD, PhD
University of California
San Francisco, CA, USA

Kathleen Green, PhD
Centers for Disease Control and Prevention
Atlanta, GA, USA

Jessica E. Haberer, MD, MS
Massachusetts General Hospital
Boston, MA, USA

Sybil G. Hosek, PhD
John H. Stroger, Jr. Hospital of Cook County
Chicago, IL, USA

Linda J. Koenig, PhD, MS
Centers for Disease Control and Prevention
Atlanta, GA, USA

Deborah Konkle-Parker, PhD, FNP
University of Mississippi Medical Center
Jackson, MS, USA

Ann Kurth, PhD, CNM, FAAN
NYU College of Nursing
New York, NY, USA

Kenneth Mayer, MD
Harvard University
Boston, MA, USA

Alan McCord
Project Inform
San Francisco, CA, USA

Maria T. Mejía
Miami, FL, USA

Julio S.G. Montaner, MD
British Columbia Centre for Excellence in
    HIV/AIDS
Vancouver, BC, Canada

Michael J. Mugavero, MD, MHSc
University of Alabama at Birmingham
Birmingham, AL, USA

Julie Myers, MD
NYC Department of Health and Mental
    Hygiene
New York, NY, USA

Rob Newells
AVAC PxROAR
Oakland, CA, USA

Jim Pickett
AIDS Foundation of Chicago
Chicago, IL, USA

Robert H. Remien, PhD
Columbia University
New York, NY, USA

Steven A. Safren, PhD, ABPP
Harvard Medical School
Boston, MA, USA

Jeffrey T. Schouten, MD, JD
Fred Hutchinson Cancer Research Center
Seattle, WA, USA

James D. Scott, PharmD, MEd
Western University
Pomona, CA, USA

Kenly Sikwese
African Community Advisory Board
Lusaka, Zambia

Jane M. Simoni, PhD
University of Washington
Seattle, WA, USA

Papa Salif Sow, MD, MS
Bill & Melinda Gates Foundation
Seattle, WA, USA

Christian Stanley
Boston, MA, USA

Sean Strub
The Sero Project
Milford, PA, USA

Betsy Tolley, PhD, MA
FHI 360
Durham, NC, USA

Ariane van der Straten, PhD, MPH
RTI International
Washington, DC, USA

Mitchell Warren
AIDS Vaccine Advocacy Coalition
New York, NY, USA

Sheri Weiser, MD, MA, MPH
University of California
San Francisco, CA, USA

Alan Whiteside, DEcon
Wilfrid Laurier University
Waterloo, ON, Canada

Ira B. Wilson, MD
Brown University
Providence, RI, USA

Phill Wilson
Black AIDS Institute
Los Angeles, CA, USA

Theresa Wolters, MA
Elizabeth Glaser Pediatric AIDS Foundation
Washington, DC, USA

Anna Zakowicz, MPH, MA
Global Network of People Living with HIV
Amsterdam, Netherlands

José M. Zuniga, PhD, MPH
International Association of Providers of
    AIDS Care
Washington, DC, USA

PRE-CONFERENCE SYMPOSIA

SUNDAY, JUNE 8, 2014

Symposium 1
10:00 A.M. - Noon / Poinciana 1/2

Networking: Adherence Update from the International HIV Networks

Moderator:
Jeffrey T. Schouten, MD, JD, Fred Hutchinson Cancer Research Center, Seattle, WA, USA

Panelists:
Michele Peake Andrasik, PhD, Fred Hutchinson Cancer Research Center, Seattle, WA, USA
Steven A. Safren, PhD, ABPP, Harvard Medical School, Boston, MA, USA
Ariane van der Straten, PhD, MPH, RTI International, Washington, DC, USA
Betsy Tolley, PhD, MA, FHI 360, Durham, NC, USA

*Jeffrey T. Schouten, MD, JD, presenting on behalf of Carlos Del Rio, MD, Emory University School, Atlanta, GA, USA,
and Sybil Hosek, PhD, Stroger Hospital of Cook County, Chicago, IL, USA*

CME accredited

Sponsored by:

Symposium 2
1:00 P.M. - 3:00 P.M. / Poinciana 1/2

Increasing PrEP Awareness in the US: The Development and Implementation of Five Resources

Moderator:
K. Rivet Amico, PhD, University of Connecticut, Storrs, CT, USA

Panelists:
Megan Canon, MPH, San Francisco AIDS Foundation, San Francisco, CA, USA
Dazon Dixon Diallo, MPH, Sister Love, Atlanta, GA, USA
Sybil Hosek, PhD, Stroger Hospital of Cook County, Chicago, IL, USA
Alan McCord, Project Inform, San Francisco, CA, USA
Jim Pickett, AIDS Foundation Chicago, Chicago, IL, USA

CME accredited

SUNDAY, JUNE 8, 2014

TIME	ACTIVITY	POINCIANA 1/2
10:00 A.M.–Noon	Pre-Conference Symposium 1	Networking: Adherence Update from the International HIV Networks **Moderator:** Jeffrey T. Schouten, MD, JD **Panelists:** Michele Peake Andrasik, PhD Steven A. Safren, PhD, ABPP Betsy Tolley, PhD, MA Ariane van der Straten, PhD, MPH *Jeffrey T. Schouten, MD, JD, presenting on behalf of Carlos Del Rio, MD, and Sybil Hosek, PhD*
Noon–1:00 P.M.	Break	
1:00 P.M.–3:00 P.M.	Pre-Conference Symposium 2	Increasing PrEP Awareness in the US: The Development and Implementation of Five Resources **Moderator:** K. Rivet Amico, PhD **Panelists:** Megan Canon, MPH Dazon Dixon Diallo, MPH Sybil Hosek, PhD Alan McCord Jim Pickett
3:00 P.M.–4:00 P.M.	Break	

TIME	ACTIVITY
OPENING SESSION • AMERICANA 3	

4:00 P.M.–4:15 P.M.	Conference Welcome
	    José M. Zuniga, PhD, MPH
	    K. Rivet Amico, PhD
	    Michael J. Mugavero, MD, MHSc

4:15 P.M.–4:45 P.M.	Gary S. Reiter, MD, and Andrew Kaplan, MD, Memorial Lecture Christopher M. Gordon, PhD

4:45 P.M.–5:45 P.M.	Panel 1: Patient Perspectives on Treatment as Prevention
	    Moderator: Phill Wilson
	    Panelists: Patrick Buzzell; Maria T. Mejía; Rob Newells; Kenly Sikwese;
	    Christian Stanley; Anna Zakowicz, MPH, MA

5:45 P.M.–6:00 P.M.	Break
OPENING RECEPTION & POSTER SESSION • AMERICANA 4	
6:00 P.M.–8:00 P.M.	¡Bienvenidos a Miami!

MONDAY, JUNE 9, 2014

TIME	ACTIVITY				
GROUP INTEREST NETWORKING BREAKFAST • SALON 1/2					
8:00 A.M.–8:50 A.M.	Pharmacists	Nurses/ Nurse-Practitioners	Civil Society	Psychologists	Physicians
8:50 A.M.–9:00 A.M.	Break				

KEYNOTE ADDRESS • AMERICANA 3	
9:00 A.M.–9:30 A.M.	Treating Stigma: When a Pill Isn't Enough Sean Strub

PANEL • AMERICANA 3	

9:30 A.M.–10:30 A.M.	Panel 2: Optimizing Our Response: Placing Adherence within the Continuum of Care Context
	    Moderator: Papa Salif Sow, MD, MS
	    Presenter: Julio S.G. Montaner, MD
	    Discussants: Ann Kurth, PhD, CNM, FAAN; James Scott, PharmD, Med; Jane M. Simoni, PhD

10:30 A.M.–10:45 A.M.	Break

TIME	ACTIVITY	AMERICANA 3	SALON 1	SALON 2	POINCIANA 1/2
10:45 A.M.–Noon	Thematic Oral Abstract Sessions	Session 1: Linkage and Retention - Measurement and Epidemiology	Session 2: Adherence - Measurement and Epidemiology	Session 3: Engagement in Care - Measurement and Epidemiology	Session 4: Biobehavioral Prevention - Measurement and Epidemiology
Noon–12:05 P.M.	Break				

LUNCH PANEL • AMERICANA 3	

12:05 P.M.–1:05 P.M.	Early ART Initiation: Caveats, Challenges, and Opportunities
	    Moderator: Mitchell Warren
	    Panelists: Amanda Castel, MD, MPH; Kenly Sikwese

1:05 P.M.–1:30 P.M.	Break

TIME	ACTIVITY	AMERICANA 3	SALON 1	SALON 2	POINCIANA 1/2
1:30 P.M.–2:45 P.M.	Thematic Oral Abstract Sessions	Session 5: Biobehavioral Prevention - Correlates and Methods	Session 6: Linkage and Retention - Measurement and Epidemiology	Session 7: Adherence - Intervention	Session 8: Engagement in Care - Continua of Care and Correlates
2:45 P.M.–2:50 P.M.	Break				

TIME	ACTIVITY	AMERICANA 3	SALON 1	SALON 2
2:50 P.M.–3:50 P.M.	Late-Breaker Oral Abstract Sessions	Session 1: Structural and Health Systems Approaches Across the Care Continuum	Session 2: ART Adherence: Toolkits and Technology	Session 3: ART Adherence: Correlates and Consequences
3:50 P.M.–4:00 P.M.	Break			

PLENARY • AMERICANA 3	
4:00 P.M.–4:30 P.M.	Plenary 1: Adherence Monitoring - State of the Science and Future Innovations Jessica E. Haberer, MD, MS
4:30 P.M.–5:00 P.M.	Plenary 2: Digital Adherence Interventions - A Review of CDC Investments in IT-Based Technologies Kathleen Green, PhD and Linda J. Koenig, PhD, MS
5:00 P.M.–6:00 P.M.	Plenary 3: Three Top-Rated Oral Abstracts Moderator: José M. Zuniga, PhD, MPH

TUESDAY, JUNE 10, 2014

TIME	ACTIVITY
GROUP INTEREST NETWORKING BREAKFAST • SALON 1/2	

8:00 A.M.–8:50 A.M.	Men who have Sex with Men	Women	Transgender Individuals	Children/Adolescents	Mental Health

8:50 A.M.–9:00 A.M.	Break

PANEL • AMERICANA 3	
9:00 A.M.–10:00 A.M.	Panel 3: PrEP - State of the Science, Uptake Challenges, and Other Barriers to Scale Up Presenter: Kenneth Mayer, MD Discussants: Patrick Buzzell; Robert M. Grant, MD, PhD; Sybil G. Hosek, PhD; Jim Pickett

10:00 A.M.–10:15 A.M.	Break

TIME	ACTIVITY	AMERICANA 3	SALON 1	SALON 2	POINCIANA 1/2
10:15 A.M.–11:30 A.M.	Thematic Oral Abstract Sessions	Session 9: Engagement in Care - Interventions and Correlates	Session 10: Adherence - Technology	Session 11: Linkage and Retention - Interventions	Session 12: Biobehavioral Prevention - Interventions and Demonstration Projects

11:30 A.M.–11:35 A.M.	Break

TIME	ACTIVITY	AMERICANA 3	SALON 1	SALON 2
11:35 A.M.–12:05 P.M.	Invited Speakers	Session 1: Patient-Provider Communication Mary Catherine Beach, MD, MPH	Session 2: Stigma Sean Strub	Session 3: Health Literacy Anna Zakowicz, MPH, MA

12:05 P.M.–12:15 P.M.	Break

LUNCH PANEL • AMERICANA 3	
12:15 P.M.–1:15 P.M.	Patient-Provider Teams: Some Times the "Care Relationship" <u>is</u> the Intervention Moderator: Ira B. Wilson, MD Panelists: Jennifer Cocohoba, PharmD, MAS; Ruth DeRamus; Thomas P. Giordano, MD, MPH; Deborah Konkle-Parker, PhD, FNP; Robert H. Remien, PhD

1:15 P.M.–1:45 P.M.	Break

TIME	ACTIVITY	AMERICANA 3	SALON 1	SALON 2	POINCIANA 1/2
1:45 P.M.–3:00 P.M.	Thematic Oral Abstract Sessions	Session 13: Adherence	Session 14: Engagement in Care - Interventions	Session 15: Linkage and Retention - Correlates of Linkage and Retention	Session 16: Biobehavioral Prevention - Perspectives: Consumers, Prescribers, and Communities

3:00 P.M.–3:15 P.M.	Break

TIME	ACTIVITY	AMERICANA 3	SALON 1	SALON 2
3:15 P.M.–3:45 P.M.	Invited Speakers	Session 4: Public Health Approaches Julie Myers, MD	Session 5: Food Insecurity Sheri Weiser, MD, MA, MPH	Session 6: Health Systems in Transition Theresa Wolters, MA

3:45 P.M.–4:00 P.M.	Break

CLOSING PANEL • AMERICANA 3	
4:00 P.M.–5:00 P.M.	Slaying the Hydra: Examining Universal ART's Acceptability, Adherence, Affordability, Accessibility, and Accountability Challenges Moderators: K. Rivet Amico, PhD and Michael J. Mugavero, MD, MHSc Panelists: Christopher M. Gordon, PhD; Alan Whiteside, DEcon

5:00 P.M.	Adjourn

MONDAY, JUNE 9, 2014

THEMATIC ORAL ABSTRACT SESSIONS

SESSION 1
Linkage and Retention - Measurement and Epidemiology
10:45 A.M. - Noon / Americana 3
Moderator: Michael J. Mugavero, MD, MHSc

287   Patterns of HIV Service Use and HIV Viral Suppression among Patients Treated in an Academic Infectious Diseases Clinic in North Carolina
Anton Palma presenting

427   Antiretroviral Refill Adherence is an Early Predictor of Retention in HIV Care
Robert Gross presenting

444   Public Health Campaigns as a Vehicle for Quality Improvement in HIV Services
Michael Hager presenting

SESSION 2
Adherence - Measurement and Epidemiology
10:45 A.M. - Noon / Salon 1
Moderator: Jane M. Simoni, PhD

315   Changing Trend in Adherence to Highly Active Antiretroviral Therapy in the Multicenter AIDS Cohort Study and the AIDS Linked to Intravenous Experience
Shilpa Viswanathan presenting

345   Development of an Evidence-Based Alert for Risk of ART Failure within an Electronic Medical Record in Haiti
Nancy Puttkammer presenting

414   Comparing Adherence Items of Missed Doses with Different Timeframes and their Associations with Viral Load in Routine Clinical Care
Heidi Crane presenting

443   Using the Visual Analogue Scale to Measure Adherence to Antiretroviral Therapy: A Meta-Analysis
David Finitsis presenting

SESSION 3
Engagement in Care - Measurement and Epidemiology
10:45 A.M. - Noon / Salon 2
Moderator: Alan Whiteside, DEcon

330   2014 Federal Recommendations about HIV Prevention Services for Persons with HIV: Promoting Synergies between Clinicians, Community-Based Organizations, and Health Departments
Amrita Tailor presenting

436   Examining Clinic-Based and Public Health Approaches to Ascertainment of HIV Care Status
Katerina Christopoulos presenting

441   in+care Campaign: Improving Retention in HIV Care
Michael Hager presenting

448   Comparison of Engagement in Care Measures Using Self-Report and Clinical Records Data
Amanda Castel presenting

SESSION 4
Biobehavioral Prevention - Measurement and Epidemiology
10:45 A.M. - Noon / Poinciana 1/2
Moderator: Yvette Calderon, MD, MS

275   DNA and Protein Biomarkers Offer Increased Accuracy for Assessing Vaginal Microbicide Gel Adherence
Andrea Thurman presenting

297   What Do We Really Mean By 'Adherence' in Vaginal Microbicide Trials? A Comparative Study
Lori Miller presenting

366   FEM-PrEP: Participant Explanations for Study Product Adherence
Amy Corneli presenting

382   Daily Short Message Service Surveys Detect Greater HIV Risk Behavior than Monthly Clinic Questionnaires in Kenya
Kathryn Curran presenting

ORAL ABSTRACTS SCHEDULE

MONDAY, JUNE 9, 2014 (CONTINUED)

SESSION 5
Biobehavioral Prevention - Correlates and Methods
1:30 P.M. - 2:45 P.M. / Americana 3
Moderator: Kenneth Mayer, MD

347 Why Do People Come Back for Follow-up? A Prospective Study of Post-Sexual Exposition Prophylaxis
Nima Machouf presenting

374 Patterns and Correlates of PrEP Drug Detection among MSM and Transgender Women in the Global iPrEx Study
Albert Liu presenting

396 Sexual Relationships Outside Primary Partnerships and Abstinence are Associated with Lower Adherence and Adherence Gaps: Data from the Partners PrEP Ancillary Adherence Study
Alexander Kintu presenting

440 To Take or Not to Take PrEP: Perspectives from Participants Enrolled in the iPrEx Open Label Extension (OLE) in the United States
Hailey Gilmore presenting

SESSION 6
Linkage and Retention - Measurement and Epidemiology
1:30 P.M. - 2:45 P.M. / Salon 1
Moderator: Zaza Tsereteli, MD, MPH

303 Time of HIV Diagnosis and Engagement in Prenatal Care Impact Outcomes in Pregnant Women with HIV
Florence Momplaisir presenting

383 Factors Associated with Intervals between Women's Visits to HIV Outpatient Clinics
Fiona Burns presenting

408 Time to Retention among Persons Linked to HIV Care in BC, Canada, from 2000-2012
Lillian Lourenco presenting

428 Postpartum Retention in HIV Care among HIV-Infected Women in the South
Mirjam-Colette Kempf presenting

SESSION 7
Adherence - Intervention
1:30 P.M. - 2:45 P.M. / Salon 2
Moderator: José M. Zuniga, PhD, MPH

273 Acceptability and Feasibility of a Cell Phone Support Intervention for Youth Living with HIV Nonadherent to Antiretroviral Therapy
Marvin Belzer presenting

301 First Findings of a Novel, Variable, Rewards-Based Adherence Intervention in Uganda
Sebastian Linnemayr presenting

370 Impact of a Self-Management Telephone Support Program for Older People Living with HIV on Antiretroviral Adherence and Quality of Life
Sheryl Catz presenting

397 A Tablet-Computer Clinical Intervention to Support Antiretroviral Adherence: Initial Results of the MedCHEC Randomized Trial
Allen Gifford presenting

SESSION 8
Engagement in Care - Continua of Care and Correlates
1:30 P.M. - 2:45 P.M. / Poinciana 1/2
Moderator: Evelyn P. Tomaszewski, MSW, ACSW

334 Engagement in Outpatient Care for Patients Living with HIV
Christine Oramasionwu presenting

337 Engagement in the Continuum of HIV Care in Estonia
Kaja-Triin Laisaar presenting

375 Factors Associated with Loss to Clinic in a Large HIV Care Center of New York City
Rituparna Pati presenting

402 Population-Based Estimates of Engagement in the Continuum of HIV Care in Western Kenya: From HIV Testing to Retention
Becky Genberg presenting

LATE-BREAKER ORAL ABSTRACT SESSIONS

SESSION 1
Structural and Health Systems Approaches Across Care Continuum
2:50 P.M. - 3:50 P.M. / Americana 3
Moderator: Papa Salif Sow, MD, MS

482 Pulling the Network Together: A Novel Social Network Intervention for Promoting Engagement in HIV Care on Mfangano Island, Kenya
Matt Hickey presenting

483 Geospatial Patterns Predict Linkage to Care, Retention in Care, and Viral Suppression: A New Method for Monitoring the HIV Care Continuum
Kathleen Brady presenting

SESSION 2
ART Adherence: Toolkits and Technology
2:50 P.M. - 3:50 P.M. / Salon 1
Moderator: Benjamin Young, MD, PhD

473 Every Dose Every Day: A Peek into CDC's New e-Learning Training Toolkit to Improve Adherence to Antiretroviral Treatment
Rhondette Jones presenting

490 The Impact on 5-Year Mortality and the Cost-Effectiveness of Proven Text-Messaging Programs for Improving Antiretroviral Adherence in Kenya
Anik Patel presenting

493 The China Adherence through Technology Study: The Effect of Real-Time Feedback on Adherence to Antiretroviral Therapy
Lora Sabin presenting

SESSION 3
ART Adherence: Correlates and Consequences
2:50 P.M. - 3:50 P.M. / Salon 2
Moderator: Thomas P. Giordano, MD, MPH

471 Association between Barriers to Antiretroviral Therapy Adherence and HIV Viral Load among AIDS Clinical Trials Group Study Participants
Parya Saberi presenting

472 Adherence and HIV RNA Suppression in the Current Era - Results from the Veterans Aging Cohort Study
Shilpa Viswanathan presenting

486 Health Literacy is Related to HIV-Positive Persons Medication Adherence Motivations
Marcia Holstad presenting

THREE TOP-RATED ORAL ABSTRACTS

5:00 P.M. - 6:00 P.M. / Americana 3
Moderator: José M. Zuniga, PhD, MPH

283 Gender Disparities in Viral Suppression and Antiretroviral Therapy Use by Racial and Ethnic Group - Medical Monitoring Project, 2009
Linda Beer presenting

377 Implementation of PrEP in STD and Community Health Clinics: High Uptake and Drug Concentrations among MSM in the Demo Project
Albert Liu presenting

395 Linkage to Care Demonstration Project: A Practice-Advised Intervention to Facilitate Emotional and Cognitive Responses for Rapid Linkage to HIV Care
Robert Bolan presenting

TUESDAY, JUNE 10, 2014

THEMATIC ORAL ABSTRACT SESSIONS

SESSION 9
Engagement in Care - Interventions and Correlates
10:15 A.M. - 11:30 A.M. / Americana 3
Moderator: Christopher M. Gordon, PhD

363 Robust Short-Term Effectiveness of a Comprehensive HIV Care Coordination Program in New York City
Stephanie Chamberlin presenting

372 A Qualitative Investigation of Patients Transitional States of Engagement in HIV-Related Medical Care
Stephanie Koch presenting

430 Six-Month Outcomes from a Medical Care Coordination Program at Safety Net HIV Clinics in Los Angeles County
Rhodri Dierst-Davies presenting

431 Engagement in HIV Care Following Release from Jail
Janet Myers presenting

SESSION 10
Adherence - Technology
10:15 A.M. - 11:30 A.M. / Salon 1
Moderator: Benjamin Young, MD, PhD

266 An iPhone App/Game to Improve ART Adherence
Laura Whiteley presenting

276 The Effectiveness of a New Smartphone App Using Personalized Health-Related Visual Imagery in Improving Adherence to Antiretroviral Therapy
Keith Petrie presenting

323 Feedback of HIV Medication Adherence Data to Patients: Assessment of Presentation Formats
Robert Gross presenting

369 Real-Time Antiretroviral Treatment Monitoring among HIV-Positive Individuals in Southern China: Early Experiences with 'Wisepill'
Lora Sabin presenting

SESSION 11
Linkage and Retention - Interventions
10:15 A.M. - 11:30 A.M. / Salon 2
Moderator: Celso Ramos, MD, MSc

248 Community HIV Support Worker Program in Rural Ethiopia: Client Attitudes and Outcomes after 1 Year
Alan Lifson presenting

387 Impact of a Peer Intervention on Engagement in Prevention and Care Services among HIV-Infected Persons Not Yet on Antiretroviral Therapy: A Qualitative Evaluation of a Randomized Trial in Rakai, Uganda
April Monroe presenting

437 Evaluating the Development and Implementation of Linkage and Retention Interventions for People Living with HIV: The HRSA/SPNS Systems Linkage and Access to Care Initiative
Kimberly Koester presenting

456 Seek, Test, Treat and Retain for People Who Inject Drugs in Kenya: Findings from the First Intervention Period of a Stepped Wedge Study
John Lizcano presenting

SESSION 12
Biobehavioral Prevention - Interventions and Demonstration Projects
10:15 A.M. - 11:30 A.M. / Poinciana 1/2
Moderator: K. Rivet Amico, PhD

317 Adherence to Pre-Exposure Prophylaxis in the Partners Demonstration Project: Preliminary Findings
Jessica Haberer presenting

339 Acceptability of HIV Pre-Exposure Prophylaxis at Varying Levels of Effectiveness among Low SES Black Gay and Bisexual Men in Los Angeles: Implications for PrEP Dissemination
Ronald Brooks presenting

350 Real Time Plasma TFV Levels to Support Adherence in a Pre-Exposure Prophylaxis Demonstration Project
Ryan Kofron presenting

409 Developing and Implementing a PrEP Demonstration/Implementation Hybrid in a Community-Based Health Center
Sarit Golub presenting

SESSION 13
Adherence
1:45 P.M. - 3:00 P.M. / Americana 3
Moderator: Mark R. Nelson, MBBS

260 Facilitators and Challenges to ART Adherence among Men who have Sex with Men in Coastal Kenya
Susan Graham presenting

351 Roles of Medication Responsibility, Executive and Adaptive Functioning in Adherence for Youth with Perinatal HIV
Patricia Garvie presenting

371 Active Methamphetamine Use is Associated with Antiretroviral Medication Non-Adherence
David Moore presenting

379 Symptomatic HIV Disease or Perceived Side Effects of Medication Associated with Lower Antiretroviral Adherence among MACH14 Patients
Yan Wang presenting

SESSION 14
Engagement in Care - Interventions
1:45 P.M. - 3:00 P.M. / Salon 1
Moderator: Tia Morton, RN, MS

274 Identification of Evidence-Based Interventions for Promoting Linkage to, Retention, and Re-Engagement in HIV Medical Care: Findings from a Systematic Review of Randomized Controlled Trials, 1996-2012
Darrel Higa presenting

322 Bridging the Gaps: The Use of Health Information Technology and Bridge Counseling to Improve Retention in Care in North Carolina
Jennifer Keller presenting

400 The Navigation Program: An Innovative Method for Finding and Re-Engaging Lost HIV Clinic Patients
Rhodri Dierst-Davies presenting

413 Positive Links: Smart Phones and Support for Successful Linkage to HIV Care in Rural Virginia
Rebecca Dillingham presenting

SESSION 15
Linkage and Retention - Correlates of Linkage and Retention
1:45 P.M. - 3:00 P.M. / Salon 2
Moderator: Chinkholal Thangsing, MBBS

255 Who are They? Identifying Risk Factors of Loss to Follow Up among HIV-Positive Patients on Care and Treatment in Dar es Salaam
Lameck Machumi presenting

264 Location Matters: Site of HIV Diagnosis Strongly Associated with Linkage to Care
Baligh Yehia presenting

381 Linking Key Populations to HIV Care Services in Kampala, Uganda
Stephen Alege presenting

389 Correlates of Not Receiving HIV Care among HIV-Infected Women Enrolling in a HRSA SPNS Multi-Site Initiative
Oni Blackstock presenting

SESSION 16
Biobehavioral Prevention - Perspectives: Consumers, Prescribers, and Communities
1:45 P.M. - 3:00 P.M. / Poinciana 1/2
Moderator: Jeffrey Crowley, MPH

270 New England Healthcare Providers' Perceptions, Knowledge, and Practices Regarding the Use of Antiretrovirals for Prevention
Douglas Krakower presenting

329 Choosing Prevention: The Case for Involving Users in Early Microbicide Development
Kathleen Morrow presenting

386 PrEP Audio Visual Representation (PrEP REP) Project: Development and Pilot of a PrEP Education Video
K. Rivet Amico presenting

416 Houston Primary Care Providers' Perceptions of and Willingness to Prescribe HIV Pre-Exposure Prophylaxis
Charlene Flash presenting

ORAL ABSTRACTS SCHEDULE

248 Community HIV Support Worker Program in Rural Ethiopia: Client Attitudes and Outcomes after 1 Year

Alan Lifson[1] (presenting), Sale Workneh[2], Abera Hailemichael[2], Workneh Demissie[2], Lucy Slater[3], Tibebe Shenie[2]

[1] University of Minnesota, Minneapolis, MN, USA
[2] National Alliance of State and Territorial AIDS Directors, Addis Ababa, Ethiopia
[3] National Alliance of State and Territorial AIDS Directors, Washington, DC, USA

Background: To improve retention in treatment for HIV-positive patients newly enrolled in care in rural Ethiopia, we implemented a program using trained lay community support workers (CSWs) who were also HIV positive. CSWs provided education, counseling, social support and linkage by cell phone to the HIV clinic for antiretroviral therapy (ART) or other medical questions.

Methodology: 142 clients (75% ART, 25% pre-ART) from Arba Minch town and surrounding villages in southern Ethiopia were each assigned a CSW, based on residence. Baseline and follow-up surveys after 12 months were conducted. Composite scores were calculated for HIV treatment knowledge; symptoms of chronic illness; physical and mental quality of life (QOL); feelings of social support; and internalized stigma. HIV clinic data included CD4+ count and body mass index (BMI).

Results: CSWs visited clients 1-4 times/month, and typically spent an average of 1-2 hours/month with each client. During the first year, 7 clients (median baseline CD4+ = 107) died and 2 transferred out; there were no losses to follow-up. Of 133 (94%) clients retained in the project through 12 months, significant changes were seen in client knowledge, attitudes, and clinical and mental status (see Table).

Conclusions: HIV-positive patients in this pilot CSW program had significant improvement in knowledge about HIV, physical and mental QOL, and perceived social support, with a significant reduction in symptoms of chronic illness and internalized stigma. Client retention in this program was excellent.

MEAN VALUES AT BASELINE AND 12-MONTH FOLLOW-UP

	Baseline	12-months
HIV knowledge (# correct = 0-6)	4.7	5.5[†]
Chronic illness (# symptoms = 0-7)	2.3	0.1[†]
Physical QOL (summary score = 0-14*)	7.4	13.6[†]
Mental QOL (summary score = 0-8*)	6.7	7.6[†]
Social Support (summary score = 0-24*)	18.2	21.5[†]
Internal stigma (summary score = 0-5**)	1.6	0.05[†]
CD4+ counts (cells/mm^3)	225	396[†]
BMI (kg/m2)	20.5	21.7[†*]

* higher score = better QOL/social support   p-value: † = <0.001
** higher score = greater stigma   †* = 0.004

255 Who are They? Identifying Risk Factors of Loss to Follow Up among HIV-Positive Patients on Care and Treatment in Dar es Salaam

Lameck Machumi[1] (presenting), David Sando[1], Expeditho Mtisi[2], Guerino Chalamilla[1], Irene Andrew[1], Humphrey Mkali[1], Ester Mungure[1], Eric Aris[1]

[1] Management and Development for Health, Dar es Salaam, Tanzania
[2] Harvard School of Public Health, Boston, MA, USA

Introduction: Loss to follow up (LTFU) is a challenge in care and treatment programs in Sub Saharan Africa, Tanzania included. We analyzed risk factors LTFU among HIV+ patients receiving care and treatment in Dar es Salaam, so as to inform strategies to retain patients in care and treatment services.

Methods: A cohort of patients enrolled in care and treatment facilities in Dar es Salaam from 2004-2011 were studied. LTFU was defined as missing clinic visit for 90 and 180 consecutive days after the last appointment date among patients on antiretroviral therapy (ART) and care respectively. For univariate and multivariate analysis, Cox proportional hazard regression model was employed to identify the risk factors.

Results: Among 85,608 patients studied, 77% were on ART. Median age of participants was 34 (IQR: 29- 41 years) and median CD4+ count was 206 cells/μL (IQR: 84-378 cells/μL). For those on ART, it was found that patients aged ≥50 years and those with CD4+ cell count <100 cells/μL had an independent significantly increased risk of loss to follow up (RR: 1.11, 95% CI 1.03 - 1.19, p < 0.0001 and RR: 1.22, 95% CI 1.10 - 1.24, p = 0.01 respectively). Among patients on care and monitoring male patients, patients with advanced disease and lower CD4 cell count had significantly increased risk of LTFU (RR: 1.06, 95% CI 1.01 - 1.14, p < 0.04), (RR: 1.26, 95% CI 1.14 - 1.39, p < 0.0001) and (RR: 2.10, 95% CI 2.07 - 2.22, p< 0.0001 respectively). Patients on care and monitoring were more likely to be LTFU compared to patients on ART (LTFU rate 0.45 vs. 0.21 respectively).

Conclusions: Determining risk of LTFU at enrolment and initiation of ART and active and focused tracking of patients at risk is important to improve retention rates both for patients on ART and care and monitoring.

260 Facilitators and Challenges to ART Adherence among Men who have Sex with Men in Coastal Kenya

Murugi Micheni[1], Elise van der Elst[2], Bernadette Kombo[2], Jane Simoni[3], Don Operario[4], Eduard Sanders[2], Susan Graham[5] (presenting)

[1] Kenya Medical Research Institute, Mombasa, Kenya
[2] Kenya Medical Research Institute, Kilifi, Kenya
[3] University of Washington, Seattle, WA, USA
[4] Brown University, Providence, RI, USA
[5] University of Washington, Seattle, WA, USA

Background: In coastal Kenya, 20% of total HIV infections occur among men who have sex with men (MSM), a highly stigmatized group that faces many barriers to care engagement and antiretroviral therapy (ART) adherence. We aimed to identify key facilitators and challenges faced by HIV-positive Kenyan MSM, with the goal of developing an intervention to improve outcomes in this group.

Methods: We conducted individual in-depth interviews (IDI) with HIV-positive MSM recruited through purposive sampling, and focus group discussions (FGD) with their health care providers. Semi-structured, open-ended topic guides used an approach based on the information-motivation-behavioral skills model of adherence, with an additional focus on access to care and trust in providers. After translation into English, detailed interviewer notes and transcriptions were reviewed to identify common factors influencing ART adherence.

Results: Twenty-eight of 50 planned IDI and 3 of 4 planned FGD have been carried out and were included for analysis. Barriers identified include lack of psychosocial support, non-disclosure of HIV status and of sexual orientation, poor access to health information and MSM-friendly services, depression, substance abuse, and effects of poverty, such as hunger and homelessness. Factors that facilitated ART adherence and care engagement included self-acceptance, knowledge, disclosure to select individuals, peer support, and economic empowerment. The quest for self-actualization ('Shikamana' in Kiswahili) despite a highly stigmatizing environment also emerged as an important facilitator. Most men suggested that the best way to encourage self-acceptance and increase knowledge would be through the use of a trained peer outreach worker who would serve as a patient navigator.

Conclusions: HIV-positive MSM are challenged by stigma, discrimination, and social isolation that can impede optimal ART adherence and engagement in HIV care services. Self-acceptance and self-actualization, along with increased knowledge, can facilitate engagement in care despite stigma. These concepts were not included in our initial conceptual model, but emerged as important in the IDI.

264 Location Matters: Site of HIV Diagnosis Strongly Associated with Linkage to Care

Baligh Yehia[1] **(presenting)**, Elizabeth Ketner[1], Florence Momplaisir[2], Michael Eberhart[3], Kathleen Brady[3]

[1] University of Pennsylvania, Philadelphia, PA, USA
[2] Temple University, Philadelphia, PA, USA
[3] Philadelphia Department of Public Health, Philadelphia, PA, USA

Background: Linking and retaining HIV-infected persons in care improves survival and is essential to HIV prevention efforts. Little is known about how the site of HIV diagnosis impacts linkage to care. We therefore evaluated if linkage rates varied by HIV diagnosis site.

Methods: Retrospective analysis of adults (≥18-years-old) newly diagnosed with HIV in Philadelphia in 2010 and 2011, with follow-up through 2012. Site of HIV diagnosis was categorized as outpatient clinic, inpatient setting (including emergency room), counseling and testing center (CTC), or correctional facility. Linkage to care was defined as having a CD4 count or HIV-1 RNA test at an outpatient treatment facility within 90 days of diagnosis. Multivariable logistic regression examined associations between site of HIV diagnosis and linkage to care, adjusting for age, sex, race/ethnicity, HIV risk factor, and calendar year.

Results: Overall, 1,362 new HIV diagnoses were identified in 2010-2011; 74% were male, 68% Black, 60% 18-39 years old, and 41% with MSM HIV risk. Most people (72%) were diagnosed in outpatient clinics, 15% in inpatient settings, 7% in CTCs, and 6% in correctional facilities. Younger adults, men, and those with MSM risk were more likely to be diagnosed at outpatient clinics or CTCs than older adults, women, and those with heterosexual or injection drug use risk, respectively ($p < 0.05$). The proportion of persons linked to care was 60% overall, and varied by HIV diagnosis site: 65% for outpatient clinics, 53% for inpatient settings, 52% for CTCs, and 12% for correctional facilities. In multivariate analyses, individuals diagnosed in an inpatient setting (AOR 0.49, 95% CI 0.36-0.68), CTC (0.50, 0.32-0.79), or correctional facility (0.06, 0.03-0.12) were significantly less likely to link to care compared to those diagnosed in an outpatient clinic.

Conclusions: Site of HIV diagnosis is strongly associated with linkage to care. Interventions focused on linking patients diagnosed in inpatient settings, CTCs, and correctional facilities are needed.

ORAL ABSTRACTS

266 An iPhone App/Game to Improve ART Adherence

Laura Whiteley[1] (presenting), Larry Brown[1], Michelle Lally[1], Jacob van den Berg[1], Virginia Curtis[1], Amethys Nieves[1]

[1] Rhode Island Hospital, Providence, RI, USA

Introduction: Despite the need for consistent adherence, youth and young adults living with HIV (YLWH) have suboptimal rates of adherence to antiretroviral treatment (ART).

Description: We have developed the first iPhone game to promote ART adherence among YLWH in the United States. A smart pill bottle monitoring device is integrated into the app/game to both measure adherence and enhance game play. In-depth interviews were conducted with 20 YLWH (ages 14-24) to develop an action-oriented adventure game to increase health information, improve motivation, and build skills for adherence. Using the information-motivation-behavior model (IMB) as an organizing framework, the interviews elicited feedback on game characteristics, suitability, and interactions between the game, the smart pill bottle, and phone.

Lessons Learned: Consistent themes emerged from the interviews, which were integrated into the app/game and will be tested in a randomized controlled trial: (1) gaming characteristics important to YLWH included directly killing HIV with weapons, improving health by taking pills, increasingly harder levels of play to increase self-efficacy, and HIV-relevant images and facts. Participants remarked that seeing facts about the deadly consequences of HIV were important for motivation. (2) YLWH found it acceptable to have HIV pictured in the scenes, but did not want HIV in the game title due to concerns about stigma. Several participants noted that many of their older friends with HIV (up to age 29) played iPhone games and would also benefit from this game. (3) YLWH desired multiple interactions between the technologies (smart pill bottle cap and app/game) and requested adherence feedback to their phone and "bonus game points" for adherence.

Recommendations: With a gaming company, Mission Critical Studios, we have developed an engaging, IMB-consistent, HIV-specific app/game to improve ART adherence. It can be played by conference participants on an iPhone.

270 New England Healthcare Providers' Perceptions, Knowledge, and Practices Regarding the Use of Antiretrovirals for Prevention

Douglas Krakower[1] (presenting), Jennifer Mitty[1], Ira Wilson[2], Ann Kurth[3], Kevin Maloney[4], Donna Gallagher[5], Kenneth Mayer[6]

[1] Beth Israel Deaconess Medical Center, Boston, MA, USA
[2] Brown University, Providence, RI, USA
[3] New York University, New York, NY, USA
[4] Beth Israel Deaconess Medical Center, Boston, MA, USA
[5] New England AIDS Education and Training Center, Boston, MA, USA
[6] Harvard University, Boston, MA, USA

Background: Prescribing antiretroviral therapy (ART) to HIV-infected persons irrespective of CD4+ count ("early ART") and to high-risk, HIV-uninfected persons (pre-exposure prophylaxis/"PrEP") reduces HIV transmission. However, many healthcare providers have not yet adopted these strategies.

Methods: In September-December 2013, 197 providers affiliated with New England AIDS Education and Training Center answered online surveys assessing perceptions, knowledge, and practices regarding early ART and PrEP. Analyses regarding provision of early ART were restricted to ART-prescribing clinicians (n = 112). Multivariable regression identified factors associated with intentions to prescribe early ART.

Results: Respondent median age was 44, 57% were female, and 78% were white. Practitioners included physicians (20% infectious diseases [ID], 20% primary care provider [PCP], 26% other), associate clinicians (25%), and other (9%). On average, participants had provided HIV care for 12 years and had 53 HIV-infected patients in their care. Most respondents (96%) agreed that early ART decreases HIV transmission; 56% were aware that treatment guidelines recommend early ART. Sixty-six percent would initiate ART in all patients irrespective of CD4+ count, and 69% often/always recommended ART for CD4+ count ≥500 cells/mL. However, providers tended to defer ART if patients were not ready to initiate (78%) or had uncontrolled depression (28%) or alcohol/substance abuse (23%). In multivariate analysis, ID physicians were at 4 times greater odds of intending to prescribe early ART than PCPs. Seventy-five percent were aware of normative guidance regarding PrEP provision. Few (9%) were concerned about PrEP efficacy, though 51% indicated safety concerns. Thirteen percent had prescribed PrEP, though 57% indicated they would be likely/very likely to prescribe PrEP to high-risk patients.

Conclusions: Providers believe early ART and PrEP are efficacious. However, only 2/3 report prescribing intentions and practices consistent with implementing early ART, and few have prescribed PrEP despite positive intentions. Interventions to optimize practices regarding ART/treatment-as-prevention and PrEP are needed.

273 Acceptability and Feasibility of a Cell Phone Support Intervention for Youth Living with HIV Nonadherent to Antiretroviral Therapy

Marvin Belzer[1] **(presenting)**, Karen Kolmodin MacDonell[2], Sylvie Naar-King[2], Shoshana Kahana[3], Moussa Sarr[4], Sarah Thornton[4], Jennifer Haung[4], Johanna Olson[5], Leslie Clark[1]

[1] Children's Hospital Los Angeles/University of Southern California, Los Angeles, CA, USA
[2] Wayne State University, Detroit, MI, USA
[3] National Institute on Drug Abuse, Bethesda, MD, USA
[4] WESTAT, Rockville, MD, USA

Background: A recent pilot randomized controlled trial of youth ages 15-24 nonadherent to antiretroviral therapy (ART) utilizing daily cell phone support was found to have significant improvement in self-reported adherence and HIV RNA both during the 24 week intervention and 24 weeks post intervention. Understanding acceptability and feasibility is critical to future implementation in clinic settings.

Methods: Exit interviews were obtained from intervention participants and adherence facilitators (AF). Acceptability was assessed from content analysis of exit interviews. Feasibility was assessed via intervention retention and study retention rates. AFs also reported average length of calls and sites reported on the cost of cell phone plans.

Results: Thirty-seven eligible subjects were enrolled with 19 assigned to the intervention. Seven subjects (37%) were discontinued from the intervention either due to missing over 20% of calls for 2 consecutive months (N = 5) or missing 10 consecutive calls (N = 2). Calls averaged 3-6 minutes. Scheduling and making calls required less than one hour per week per subject and phone plans costs varied from $25-75 per line. Sixteen of the 19 intervention subjects completed exit interviews, 15 reported the call length was just right, 13 reported they would have liked to continue calls after the 24 week intervention and all would recommend the intervention to a friend. Twelve of 13 AFs felt youth made use of the problem solving discussions, 4 reported calls were intrusive, and 9 reported the most difficult part of being an AF was coordinating times for the calls.

Conclusions: Providing cell phone support to youth non-adherent to ART was acceptable and feasible. Seven youth did not complete the intervention and future studies will need to determine if lowering call adherence requirements improves intervention completion without adversely impacting adherence outcomes. Future studies will need to explore if providing for the cost of cell phone plans is essential.

274 Identification of Evidence-Based Interventions for Promoting Linkage to, Retention, and Re-Engagement in HIV Medical Care: Findings from a Systematic Review of Randomized Controlled Trials, 1996-2012

Darrel Higa[1] **(presenting)**, Nicole Crepaz[1], Cynthia Lyles[1]

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

Background: Engaging and retaining persons living with HIV (PLWH) in medical care are associated with individual- and population-level health benefits, but only 37% of PLWH in the United States are estimated to be in routine HIV medical care. Identifying evidence-based interventions (EBIs) that promote linkage to, retention, and re-engagement in care (LRC) can help to increase the proportion of PLWH receiving regular medical care.

Methods: A comprehensive search strategy was developed, including searching four electronic databases (MEDLINE, EMBASE, PsychINFO, CINAHL) and manually searching 16 peer-reviewed journals, reference lists, and listservs. Interventions were eligible if they were published between 1996 and 2012, randomized controlled trials, and reported LRC outcome data not solely based on self-report. Outcomes included linkage to care, retention in care (e.g., multiple visits within a time period), and re-engagement in care. We evaluated each eligible intervention against established criteria on the quality of study design, implementation, analysis, and strength of findings.

Results: Eight United States and 3 non-United States interventions were eligible. Four EBIs were identified, including three from the United States. and one from Uganda. Of the United States-based interventions, the strengths-based case management intervention found effects for linkage to and retention in care, while the other two interventions, clinic-based treatment for opioid addiction and interactive provider alerts, found effects for retention in care. The Uganda study, using specialized posttest counseling and home visits by community workers, found an effect for linkage to care. Of the 7 remaining eligible interventions, 6 reported null findings. No EBIs were identified for re-engaging PLWH who fell out of care.

Conclusions: Despite the emerging body of LRC research, only a few evidence-based interventions were identified. More studies are needed, especially those focusing on re-engagement. Integrating EBIs into practice, particularly targeting PLWH less likely to access medical care, is needed to improve health outcomes and reduce disparities.

ORAL ABSTRACTS

275 DNA and Protein Biomarkers Offer Increased Accuracy for Assessing Vaginal Microbicide Gel Adherence

Andrea Thurman[1] (presenting), Terry Jacot[2], Christine Mauck[3], Jill Schwartz[3], Gustavo Doncel[4]

[1] CONRAD, Norfolk, VA, USA
[2] CONRAD/Eastern Virginia Medical School, Norfolk, VA, USA
[3] CONRAD, Arlington, VA, USA
[4] CONRAD EVMS, Norfolk, VA, USA

Background: Current measures of product adherence and protocol compliance in human immunodeficiency virus (HIV) prevention trials, which include participant report of product use, visual inspection of returned applicators (VIRA), dye stain assays and ultraviolet light (UVL) assessment are suboptimal. DNA and protein based biomarkers, obtained from returned, used vaginal gel applicators, were developed to determine vaginal insertion more accurately. The sensitivity and specificity of DNA/protein biomarkers in detecting vaginal insertion were determined and compared to VIRA and UVL assessment.

Methods: Forty non-pregnant, HIV-negative women were given 12 applicators containing hydroxyethyl cellulose (HEC) universal placebo: four applicators were handled but not vaginally inserted ("sham") and eight applicators were vaginally inserted under direct observation. Half of the applicators (n = 240) were assessed within 7 days of the clinic visit, and half (n = 240) were assessed after storage for 30 days. VIRA and UVL inspection of gel applicators was performed by three independent, blinded readers. Blinded laboratory staff analyzed vaginal markers (bacterial DNA and Cytokeratin 4) obtained by swabbing the returned applicators.

Results: The sensitivity of VIRA (52 - 54%) and UVL assessment (74 - 92%) was significantly lower at both the 7-and 30-day timeframes, compared to DNA and protein biomarkers (95 - 100%). The specificity of VIRA (49 - 78%) and UVL assessment (66 - 73%) was significantly lower at both the 7-and 30-day assessments, compared to DNA and protein biomarkers (100%).

Conclusions: DNA and protein biomarkers were superior to VIRA and UVL assessment in detecting the vaginal insertion of HEC placebo gel applicators when assessed within 7 days of use and after 30 days of storage at room temperature. These highly sensitive and specific biomarkers will be further investigated and optimized to accurately characterize product adherence and protocol compliance in large women's health research trials.

276 The Effectiveness of a New Smartphone App Using Personalized Health-Related Visual Imagery in Improving Adherence to Antiretroviral Therapy

Keith Petrie[1] (presenting), Anna Perera[1], Mark Thomas[1], John Moore[2]

[1] University of Auckland, Auckland, New Zealand
[2] Massachusetts Institute of Technology, Boston, MA, USA

Background: Mobile technologies have potential to deliver adherence promoting interventions which are cost-effective and scalable. However, existing mobile adherence interventions generally employ automated SMS reminders and have limited long-term efficacy as they focus on the forgetfulness aspect of medication non-adherence, and do not address the cognitive determinants of non-adherent behavior. This study aimed to investigate the effectiveness of a smartphone app that links personal adherence to real-time simulated visual displays of viral activity on adherence to antiretroviral therapy (ART), illness perceptions, and medication beliefs. These features were intended to modify participants' conceptualizations of their HIV infection and ART regimen to be more conducive to optimal adherence.

Methods: 28 people on ART were randomized to use either a standard or augmented version of the smartphone app. The augmented version contained additional components which illustrated to the participant, in real-time, the estimated concentrations of antiretroviral agents in blood plasma as well as personalized immune activity. Adherence to ART was assessed at baseline and three month follow-up using HIV viral load, pharmacy dispensing and self-report. Information was also collected on illness perceptions and medication beliefs.

Results: Participants who received the augmented application displayed a significantly higher level of self-reported adherence to ART at follow-up, compared to individuals who received the standard version (p = .02). Participants who received the augmented version of the application also had a significantly lower HIV viral load at three month follow-up than those who received the standard version (p = .027). Further, there was a significant decrease from baseline to three month follow-up in the proportion of participants classified as non-adherent in the augmented group p = .03). Greater usage of the app was associated with improvements understanding of HIV infection and perceived necessity for ART.

Conclusion: This research suggests that a smartphone app, using personalized health-related imagery and real-time feedback, is effective in facilitating adherence to ART. Study findings indicate that such an intervention may have considerable utility in the clinical care of people with HIV infection.

283 Gender Disparities in Viral Suppression and Antiretroviral Therapy Use by Racial and Ethnic Group - Medical Monitoring Project, 2009

Linda Beer[1] **(presenting)**, Christine Mattson[1], William Short[2], Jacek Skarbinski[1]

1   Centers for Disease Control and Prevention, Atlanta, GA, USA
2   Jefferson Medical College, West Deptford, NJ, USA

Background: Women comprise a quarter of persons living with HIV in the United States and the majority of these women are black or Hispanic/Latina. Because female gender and non-white race/ethnicity have often been found to be associated with poor clinical outcomes, stratified analysis is needed to identify areas for targeted intervention relevant to specific groups of women, but few prior studies have had sufficient sample size to do so.

Methods: We analyzed weighted data from the Medical Monitoring Project (MMP), a national probability sample of HIV-infected adults receiving medical care in the United States between January-April 2009. We estimated the prevalence of self-reported antiretroviral therapy (ART) use and medical record documentation of recent viral suppression (undetectable or ≤200 copies/mL) among men and women by racial and ethnic group.

Results: Among 4,152 persons estimated to represent 414,335 persons in care, 74% of men and 66% of women were virally suppressed ("suppressed") (p<0.001). Stratified by racial/ethnic group, 81% of white men vs. 69% of white women (p=0.001), 64% of black men vs. 64% of black women (p=0.824), and 76% of Hispanic/Latino men vs. 72% of Hispanic/Latina women (p=0.430) were suppressed. Stratified by racial/ethnic group, women were significantly less likely than men to take ART (range: p<0.001- p<0.028), but among those prescribed ART, women were equally likely to be suppressed compared to men.

Discussion: Among persons in care, we saw disparities in suppression between white men and women and between racial/ethnic groups. Among those taking ART, men and women of the same race/ethnicity did equally well. Further exploration is warranted, but understanding barriers to ART use among women and decreasing racial/ethnic disparities in suppression may help decrease gender disparities in viral suppression.

287 Patterns of HIV Service Use and HIV Viral Suppression among Patients Treated in an Academic Infectious Diseases Clinic in North Carolina

Anton Palma[1] **(presenting)**, Lynne Messer[2], David Lounsbury[3], Evelyn Quinlivan[4]

1   Columbia University, New York, NY, USA
2   Portland State University, Portland, OR, USA
3   Albert Einstein College of Medicine, Bronx, NY, USA
4   University of North Carolina at Chapel Hill, Chapel Hill, NC, USA

Background: Many people living with HIV (PLWH) have difficulties participating in care, including keeping regularly-scheduled clinic visits, taking medications and having regular laboratory assessments, thereby preventing effective management of HIV disease. Irregular medical care hinders HIV RNA suppression and impacts HIV-related health outcomes. However, the optimal frequency of medical visits needed to sustain viral suppression and good health is a matter of ongoing deliberation.

Methods: To assess how medical care usage influences patient outcomes, we conducted cluster analysis of medical visit data from 1,748 PLWH attending a large academic medical center, using two measures of HIV service use: annualized visits per year and the HIV/AIDS Bureau (HAB) performance measure (2 visits/year at least 90 days apart). Results yielded three clusters of HIV service usage patterns, which we validated on a randomly selected subset of the data. We then identified demographic and clinic predictors of these patterns and used the clusters to predict future health outcomes.

Results: Patients in the "engaged in care" cluster exhibited most consistent retention in care (average 80% of follow-up years meeting HAB), optimal annualized visits (2.9 mean visits/year) and sustained viral suppression (>73% HIV RNA tests <400 copies/mL). Patients in "sporadic care" demonstrated lower retention (46-52% years meeting HAB), visit use (1.7 visits/year) and viral suppression (56% tests <400 copies/mL). Patients with "frequent use" demonstrated higher than average visit use (5.2 visits/year) and had more hospitalizations (RR = 2.41, 95% CI [1.75, 3.07]) and emergency room visits (RR = 2.60 [1.80, 3.41]) than "engaged in care" patients. Female gender, out of state residency, low visit attendance during the first 12 months of observation and detectable first HIV RNA test were early predictors of subsequent service usage.

Conclusions: Results confirm earlier findings that under-utilization of services predicts poorer viral suppression and health outcomes and support current recommendations for visit frequency of 2-3 visits/year.

ORAL ABSTRACTS

297 What Do We Really Mean By 'Adherence' in Vaginal Microbicide Trials? A Comparative Study

Lori Miller[1] **(presenting)**, Richard Hayes[1]

[1] London School of Hygiene and Tropical Medicine, London, United Kingdom

Background: Understanding participant adherence is critical to interpret results from HIV prevention microbicide trials. Individual trial teams determine how to assess adherence in their trials, yet this can result in challenges for comparing adherence across trials. This study critically examined how 6 completed trials measured adherence, analyzed adherence data, and reported gel adherence in the primary trial manuscripts.

Methodology: Trials included were Cellulose Sulfate CONRAD, Cellulose Sulfate FHI, HPTN 035, Carraguard, MDP 301 and CAPRISA 004. Protocols, case report forms, and statistical analysis plans were obtained from study teams to identify variables used to collect adherence data and understand how intermediate measures of adherence were calculated. Primary trial manuscripts were reviewed to determine how overall estimates of adherence were reported. A survey was conducted with trial teams to clarify methods and understand lessons learned.

Results: Six trials used self-reported data to measure adherence; three trials collected data on applicator use. Five trials collected data on sex acts in the past 7 days, 4 trials collected data on last sex act, and 2 trials collected data on last 30 days. Two trials using self-reported and applicator data used a mixed-methods measure to report overall adherence. How adherence was calculated was not always clear in statistical analysis plans and primary manuscripts, thus clarification from trial teams was required in some cases.

Conclusions: Primary trial manuscripts did not always provide clear information about adherence estimates for the trial. Most trial teams agreed last sex act was a good recall period for general population participants. Asking about reasons for non-use of gel can be a way to obtain data about sex acts not covered by gel, potentially reducing social desirability bias created by standard questions about product use. There was great variability in methods used for estimating and reporting adherence in these trials. The field would benefit from more standardization.

301 First Findings of a Novel, Variable, Rewards-Based Adherence Intervention in Uganda

Sebastian Linnemayr[1] **(presenting)**, Glenn Wagner[1], Barbara Mukasa[2]

[1] RAND Corporation, Santa Monica, CA, USA
[2] Mildmay Uganda, Kampala, Uganda

Background: Antiretroviral therapy (ART) requires life-long, consistent medication adherence that many patients struggle with. Successful interventions need to address two fundamental issues: first, they need to bolster adherence and retention over a person's lifetime. Second, they need to be adapted to the resource-constraints of developing countries to be sustainable. The Rewarding Adherence Program (RAP) is designed to improve motivation ART adherence and addresses the needs of a growing number of treatment-mature clients in sub-Saharan Africa at low cost.

Description: RAP is a randomized controlled trial offering small rewards allocated through a drawing conditional on timely clinic visits and ART adherence of 95% or higher to 157 HIV-positive clients in Uganda's capital Kampala. Primary outcome measures are timely clinic visits and ART adherence objectively measured by the Medication Event Monitoring System (MEMS). We evaluate this novel intervention with regard to acceptability/feasibility and also present preliminary evidence for short-term impact.

Lessons Learned: Focus group discussions revealed broad acceptability and enthusiasm for the project that is also reflected by a low refusal rate (4.6%). Clients in the intervention group after 3 months showed 6.8 percentage points higher mean ART adherence (83.9% vs. 77.2%, p-value .05), and a higher fraction of 95% adherence or higher (30.4% vs. 20%, p = .20). Similarly, clients in the intervention group show higher levels of kept timely clinic appointments, although the result is not statistically significant.

Recommendations: At month 3 of the intervention, we find that small rewards given out through a prize drawing conditional on two adherence-related target behaviors are acceptable, and find preliminary evidence of their effectiveness on adherence and timely clinic visits. We will test the intervention for a total of 20 months to test longer-term effectiveness and arrive at more conclusive results.

303 Time of HIV Diagnosis and Engagement in Prenatal Care Impact Outcomes in Pregnant Women with HIV

Florence Momplaisir[1] **(presenting)**, Kathleen Brady[2], Dana Thompson[3], Baligh Yehia[4]

[1] Temple University, Philadelphia, PA, USA
[2] Philadelphia Department of Public Health, Philadelphia, PA, USA
[3] Drexel University Hospital, Philadelphia, PA, USA
[4] University of Pennsylvania, Philadelphia, PA, USA

Background: Little is known about the care continuum for HIV-infected pregnant women. We examined the impact of time of HIV diagnosis and engagement in prenatal care on use of antiretroviral therapy (ART) and viral suppression during pregnancy.

Methodology: Retrospective analysis of 836 pregnancies, involving 656 HIV-infected women, in Philadelphia between 2005 and 2013. Time of HIV diagnosis was classified as: (1) before or (2) during pregnancy. Engagement in prenatal care (adequate, intermediate, and inadequate) was assessed using the Kessner index which accounts for time of entry into prenatal care, number of prenatal visits, and infants' gestational age at delivery., and was grouped as (1) adequate, (2) intermediate, and (3) inadequate. Outcomes were: (1) use of ART during pregnancy and (2) HIV viral load <200 copies/mL at the time closest to delivery. Multivariable regression examined associations between time of HIV diagnosis, engagement in prenatal care, and outcomes, adjusting for age, race/ethnicity, use of illicit drugs, and calendar year.

Results: Overall, 636 pregnancies (76%) involved women diagnosed with HIV before and 200 (24%) during pregnancy. Women were adequately engaged in care in 39% of pregnancies, intermediately engaged in 38%, and inadequately engaged in 23%. Compared to pregnancies with HIV diagnosed during pregnancy, those with HIV diagnosed before pregnancy had greater (p <0.05) use of ART (89% vs. 73%) and viral suppression (73% vs. 46%). Similarly, 92% of pregnancies with women adequately engaged in prenatal care had ART prescribed and 43% had viral suppression compared to 55% and 26% of pregnancies where women were inadequately engaged, respectively (p <0.05). Multivariate models confirmed that time of HIV diagnosis and engagement in prenatal care were strongly associated (p <0.05) with the outcomes.

Conclusions: Targeted interventions to diagnose women early and to improve engagement in prenatal care are needed, and have the potential to improve outcomes for mothers and infants.

315 Changing Trend in Adherence to Highly Active Antiretroviral Therapy in the Multicenter AIDS Cohort Study and the AIDS Linked to Intravenous Experience

Shilpa Viswanathan[1] **(presenting)**, Roger Detels[2], Bernard Macatangay[3], Shruti Mehta[4], Gregory Kirk[1], Lisa Jacobson[4]

[1] Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, USA
[2] UCLA Fielding School of Public Health, Los Angeles, CA, USA
[3] University of Pittsburgh School of Medicine, Pittsburgh, PA, USA
[4] Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, USA

Background: The goal of the study was to determine whether the effect of adherence on HIV RNA suppression changed over time with simpler and improved formulations, and to estimate the minimum cut-off of adherence to newer highly active antiretroviral therapy (HAART) needed for population HIV RNA suppression.

Methods: Longitudinal data from the Multicenter AIDS Cohort Study (MACS) and the AIDS Linked to Intravenous Experience (ALIVE) collected prospectively between March 2001 and December 2011 were used. Adherence was calculated from reported use compared to prescribed use over the 4 days prior to the 6-month study visit, using an established algorithm. Linear mixed models were used to study the effect of time on adherence. The minimum needed adherence cutoff was defined as the level at which 78% of the population was suppressed, using an established metric observed in prior studies with ≥95% adherence.

Results: Our study population consisted of 1,006 HAART users with 10,971 person-visits in the MACS, and 197 HAART users with 1,745 person-visits in the ALIVE. The proportion reporting 100% adherence, and the proportion with suppressed viral load among those with <95% adherence increased over time in both cohorts such that by 2011, 76% and 55% overall were suppressed in the MACS and ALIVE respectively. With current therapy, 78% suppressed HIV RNA between 75% and 79% adherence in the MACS, and did not significantly differ than the population suppressed at adherence ≥95%. In the ALIVE, we did not observe a minimum adherence cutoff below 95% because <78% suppression was observed even among those with ≥95% adherence (73.5%).

Conclusions: Although all HIV-infected persons should be instructed to be 100% adherent, concerns of adherence should not hinder prescribing new HAART regimens early in HIV infection. Comprehensive adherence counseling sessions for current and former IDUs are still warranted.

ORAL ABSTRACTS

317 Adherence to Pre-Exposure Prophylaxis in the Partners Demonstration Project: Preliminary Findings

Jessica Haberer[1] (presenting), Jared Baeten[2], Renee Heffron[2], Deborah Donnell[3], Nelly Mugo[4], Elly Katabira[5], Elizabeth Bukusi[6], Stephen Asiimwe[7], Katherine Thomas[2], Lara Kidoguchi[2], Connie Celum[2], David Bangsberg[1]

[1] Massachusetts General Hospital, Boston, MA, USA
[2] University of Washington, Seattle, WA, USA
[3] Fred Hutchinson Cancer Research Center, Seattle, WA, USA
[4] KEMRI, Nairobi, Kenya
[5] Infectious Disease Institute, Kampala, Uganda
[6] Kenya Medical Research Institute, Kisumu, Kenya
[7] Kabwohe Clinical Research Centre, Kabwohe, Uganda

Background: Effectiveness of PrEP is highly dependent on adherence. Data from the Partners PrEP Study showed high adherence within HIV serodiscordant couples in East Africa. It is unknown if similar adherence levels will be seen with open-label use outside clinical trials.

Methods: The Partners Demonstration Project involves high risk HIV serodiscordant couples in Kenya and Uganda. Couples are offered comprehensive HIV prevention services, including daily oral PrEP and antiretroviral therapy per national guidelines. Adherence is measured through the medication event monitoring system (MEMS) and self-report. This analysis reflects up to the first three months of data per participant.

Results: Data are available on 437 HIV-uninfected participants; 422 (97%) initiated PrEP at enrollment. Of 200 participants with a month 3 visit, 2 (1.5%) had not yet initiated PrEP.

HIV-uninfected participant characteristics	N (%) or Median (IQR)
Female	131 (30%)
Age (years)	29 (26-36)
Education (years)	8 (7-12)
Partnership duration (years)	2.3 (0.8-6.0)
Aware of HIV serodiscordancy prior to enrollment	122 (28%)
Unprotected sex with study partner in prior month	285 (65%)
Belief of moderate/high risk of	
HIV acquisition from partner	132 (31%)
No concerns about daily use of PrEP	376 (87%)

HIV-infected partner characteristics	
CD4 count (cells/mm^3)	423 (262-598)
HIV RNA (log10 copies/mL)	4.6 (4.0-5.0)

Using MEMS, median adherence to PrEP was 98% (IQR 89-100%) and mean adherence was 90% (SD 20%); 18% of participants had adherence <80%. At month 3, 11 participants (6%) self-reported <80% adherence by missed doses, 84 (42%) reported less than "very good"/"excellent" adherence, and 32 (16%) reported taking less than "most"/"all doses."

Conclusions: Preliminary data suggest high uptake and high adherence to PrEP among HIV serodiscordant couples in East Africa with a minority exhibiting suboptimal adherence in the first 3 months. Longitudinal data will be critical for understanding adherence patterns, factors influencing adherence, and decisions for continuation/discontinuation of PrEP.

322 Bridging the Gaps: The Use of Health Information Technology and Bridge Counseling to Improve Retention in Care in North Carolina

Jennifer Keller[1] (presenting), Kristen Sullivan[2], Katherine Schafer[1], Mary Beth Cox[3], Amy Heine[4], Jacquelyn Clymore[3], Arlene Seña[4], Aimee Wilkin[1]

[1] Wake Forest University School of Medicine, Winston Salem, NC, USA
[2] Duke University, Durham, NC, USA
[3] North Carolina Department of Health and Human Services, Raleigh, NC, USA
[4] University of North Carolina at Chapel Hill, Chapel Hill, NC, USA

Introduction: Only 37% of people living with HIV (PLWH) engage in regular medical care. As part of NC-LINK, a statewide initiative to increase the number of PLWH engaged in regular medical care in NC, a retention intervention utilizing CAREWare was implemented in a 2,000 patient HIV clinic in Western North Carolina.

Description: The Plan-Do-Study-Act model was used to develop a "Bridge Counseling" protocol to identify out of care (OOC) patients (no medical visit ≥9 months) using CAREWare and return them to care (RTC). Contact was attempted using phone calls, letters, internet searches, and other providers/pharmacies. If contact was successful, staff addressed specific barriers to care and scheduled medical appointments. All efforts were tracked in CAREWare. If no contact was made or no other definitive outcome (DO) identified such as relocation, death, or incarceration, patients were referred via CAREWare to a state bridge counselor (SBC) for further follow-up.

Lessons Learned: Over 10 months, 510 OOC patients were identified and 351 (69%) had a DO of which 219 (43%) were RTC. One hundred fifty-six (31%) were referred to the SBC, who has linked 43 to care and identified other DO for 31 patients. The intervention improved retention in HIV medical care from baseline. Medical visit frequency (1 visit every 6 months) increased from 57% to 69% (p <0.0001) and new patient retention (1 visit every 4 months in their first year of care) increased from 51% to 63% (p = 0.32). CAREWare was an effective tool in finding, tracking, and referring OOC patients to the SBC. Collaboration between the clinic and the SBC program decreased the numbers of OOC PLWH requiring SBC intervention.

Recommendations: Bridge counseling at the clinic and statewide level can be effective in re-engaging OOC PLWH and CAREWare can facilitate this process. Future directions include standardizing enhanced outreach for PLWH with missed appointments.

323 Feedback of HIV Medication Adherence Data to Patients: Assessment of Presentation Formats

Anita Lyons[1], Warren Bilker[2], Janet Hines[3],
Robert Gross[3] **(presenting)**

1 UPMC Internal Medicine Residency, Pittsburgh, PA, USA
2 University of Pennsylvania Perelman School of Medicine,
   Philadelphia, PA, USA
3 University of Pennsylvania, Philadelphia, PA, USA

Background: Medication adherence feedback is an important component of behavioral interventions. It is unknown which presentation format patients most easily understand.

Methods: HIV-infected adults on antiretrovirals for ≥6 months were presented examples of one month's refill data in 5 formats: (1) medication possession ratio (MPR), (2) number of days late to refill, (3) calendar plot of days with/without medications, (4) pie chart of proportion of doses taken/not taken, and (5) a color-coded letter grade. Five scenarios (>95%, 90-95%, 80-90%, 70-80% and <70%) were presented in each format. Participants were queried regarding how much adherence improvement was needed for each with "good understanding" defined as answering >4 of 5 scenarios correctly and which format they preferred. We calculated relative risks (RR) for "good understanding" using logistic regression with "days late" as the base case format.

Results: 124 participants were median age 48.5, 65% white, 34% African American, 71% male. Only 43% had good understanding of MPR. The association between each format and understanding differed by education (test for interaction, p = 0.001). For ≤12 years education, the relative risks were: *calendar* 0.9 (95% CI: 0.6-1.3), *pie chart* 0.6 (95% CI: 0.4-0.9), *letter grade* 0.5 (95% CI: 0.4-0.8), and *MPR* 0.3 (95% CI: 0.2-0.4). For >12 years education, the RRs were *calendar* 1.8 (95% CI: 1.3-2.6), *pie chart* 2.2 (95% CI: 1.3-3.6), *letter grade* 1.3 (95% CI: 0.9-2.0), and *MPR* 0.4 (95% CI: 0.2-0.7). 33 (27%) did not achieve good understanding on their preferred format.

Conclusions: We found large differences in the ability to understand adherence data presented in different ways. Those with higher education had a broader range of formats they understood. Interventions should use calendar plots or number of days late for feedback. Patients who do not understand adherence data even in their favorite format may need other approaches to feedback.

329 Choosing Prevention: The Case for Involving Users in Early Microbicide Development

Kathleen Morrow[1] **(presenting)**, Shira Dunsiger[2], Joseph Fava[3],
Rochelle Rosen[2], Julia Shaw[3], Sara Vargas[1], Project LINK Study Team[3]

1 Miriam Hospital/Brown Medical School, Providence, RI, USA
2 Miriam Hospital/Brown University, Providence, RI, USA
3 Miriam Hospital, Providence, RI, USA

Background: User experience is critical to whether or not individuals choose to use microbicides. Understanding patterns of experiences elicited by product properties and their use is critical to development and impact of prevention technologies. The goal was to identify sensory perceptions women experience and discriminate during vaginal gel use, and identify experience patterns that help predict use.

Methods: 204 participants evaluated 4 vaginal gels (with differing properties; randomized) and chose a preferred product. Validated User Sensory Perception & Experience (USPE) scale scores differentiated gels across experiences during coital activity. Latent class modeling identified patterns of USPEs based on participant responses to their choice product.

Results: Data support 4 classes of USPEs in preferred experiences, with frequencies as follows: 0.14, 0.28, 0.25, 0.33 (posterior probabilities of belonging to each class). Class 1 is characterized by lower than average scores on initial penetration, lubrication and perceived wetness, but higher scores on intravaginal awareness and messiness (compared to 2/3 of remaining classes). Class 2 had the highest overall averaged mean scale scores, with the exception of initial penetration, on each USPE scale. The Class 2 experience overall would appear to be the most noticeable experience from a user perspective: higher lubrication, stimulation and wetness sensations, and a higher degree of messiness and leakage. Qualitative interpretations can also be made for Classes 3 and 4. There were no between-class differences in sociodemographics, prior STD infection, or hormonal contraceptive use.

Conclusions: Microbicide effectiveness is predicated on optimal drug delivery and use adherence. Both drug delivery and use are impacted by biophysical properties of gel formulations. Clinical trials have been challenged by low adherence, obviating proof of concept. By understanding the correspondence between product properties and the user experience elicited by those properties, the likelihood of improved adherence and impact on HIV incidence could be realized.

ORAL ABSTRACTS

330 2014 Federal Recommendations about HIV Prevention Services for Persons with HIV: Promoting Synergies between Clinicians, Community-Based Organizations, and Health Departments

Amrita Tailor[1] **(presenting)**, Kathleen Irwin[1], Gema Dumitru[1], Priya Jakhmola[1], Anna Huang[2]

[1]   Centers for Disease Control and Prevention, Atlanta, GA, USA
[2]   Health Resources and Services Administration, Rockville, MD, USA

Background: To advance national goals to reduce onward transmission from persons with HIV ("prevention with positives"), Centers for Disease Control and Prevention, Health Resources Services Administration, and six non-governmental organizations updated the 2003 recommendations to incorporate HIV prevention into HIV medical care. The update was directed to clinicians, community-based organizations (CBO), and health departments (HD) to expand the workforce and resources focused on "prevention with positives."

Methods: The workgroup developed a comprehensive set of recommendations based on other recent federal guidelines, systematic literature reviews, program evaluations, and opinions of >80 experts in HIV prevention, care, and policy. The recommendations addressed linkage and retention in care, HIV treatment and adherence, behavioral risk reduction, partner services, STD services, reproductive and pregnancy care, and other medical and social services that influence HIV transmission. They included new and longstanding, but underutilized, interventions that apply social, structural, ethical, legal, behavioral, and biomedical approaches.

Results: Many recommended interventions promote synergies between clinicians, CBOs, and HDs. For example, CBO testing programs can link newly diagnosed persons to HIV medical care by helping with health insurance enrollment, appointments, and transportation. HD surveillance programs can identify testing sites that warrant linkage facilitators by tracking reported cases of HIV not followed by reported CD4 cell counts. To complement adherence advice from clinicians, CBOs can offer community-based ART support and surveillance programs can identify persons with persistently high viral loads that warrant adherence support. Like clinicians, CBO and HD partner services specialists can inform HIV-uninfected partners about options for post-exposure and pre-exposure prophylaxis to reduce risk of acquiring HIV.

Conclusions: By stressing synergies between different health sectors, these new recommendations promise to accelerate "prevention with positives" and reduce onward HIV transmission in the United States. Some communities have used these synergistic strategies and developed best practices to guide HIV prevention providers.

334 Engagement in Outpatient Care for Patients Living with HIV

Christine Oramasionwu[1] **(presenting)**, Stacy Cooper Bailey[1], Terence Johnson[1], Lu Mao[2]

[1]   University of North Carolina at Chapel Hill, UNC Eshelman School of Pharmacy, Chapel Hill, NC, USA
[2]   University of North Carolina at Chapel Hill, UNC Gillings School of Global Public Health, Chapel Hill, NC, USA

Background: The HIV cascade illustrates the varying level of engagement within the stages of HIV care by people living with HIV (PLWH). Prior studies that have applied the treatment cascade to various populations were restricted to patients receiving care in HIV medical care facilities. These data are not representative of care received by PLWH throughout the United States, as not all PLWH receive care in HIV clinics. This study sought to estimate engagement in outpatient care for PLWH, beyond facilities that specialize in HIV.

Methods: Cross-sectional data from the 2009-2010 National Hospital Ambulatory Medical Care Survey (NHAMCS) were used to conduct this study. ICD-9-CM codes were used to denote HIV infection (042, V08, 079.53). Levels of care included: receiving any care (≥1 clinic visit for a PLWH), receiving HIV care (clinic visit with a primary ICD-9-CM code for HIV), established in care (patient previously seen within the clinic), engaged in care (≥2 clinic visits in the past year), and prescribed ARV (documentation of ≥1 ARV medication). Factors associated with ARV prescription were determined by logistic regression.

Results: ~2.6 million outpatient clinic visits for PLWH were analyzed. Of these, 90% were receiving HIV-related care, 86% were established in care, 75% were engaged in care, and 56% were prescribed ARV. In stratified analysis, engagement in the various levels of care did not vary by gender or by race/ethnicity. Routine engagement in care and ARV coverage was less common in younger patients than in older patients ($p < 0.05$). Type of provider seen was associated with ARV prescription (OR = 0.27, 95% CI = 0.15-0.51) whereas routine engagement in care was not associated with ARV prescription (OR=0.99, 95% CI = 0.96-1.03).

Conclusions: PLWH with established outpatient care are still not being prescribed ARV. With the change in ARV prescription guidelines, further research will be needed to understand factors deciding when a PLWH initiates ARV in the outpatient setting.

337 Engagement in the Continuum of HIV Care in Estonia

Kaja-Triin Laisaar[1] **(presenting)**, Mait Raag[1], Heli Rajasaar[2], Anneli Uusküla[1]

[1] Department of Public Health, University of Tartu, Tartu, Estonia
[2] University of Tartu, Tartu, Estonia

Background: According to recent international reports, Estonia had the highest rate of new HIV cases (23.5 per 100,000) in the European Union, and the estimated HIV prevalence in the adult population was 1.3%. HIV care, including antiretroviral therapy (ART) is free of charge for persons living with HIV/AIDS (PLWHA), regardless of their medical insurance status. Yet to maximize health benefits of care, health system has to ensure effectiveness and quality of a cascade of services, provided to PLWHA.

Methods: To describe and quantify the spectrum of PLWHA engagement in HIV care in Estonia, we reviewed published reports, retrieved data from surveillance and administrative databases. We defined the cascade indicators based on Centers for Disease Control and Prevention and the Institute of Medicine metrics: the number of individuals (1) infected with HIV, (2) diagnosed with HIV, (3) linked to HIV care, (4) retained in HIV care, (5) on ART, and (6) with suppressed viral load (HIV-RNA < 200 copies/mL).

Results: In 2012 and 2013 the estimated number of PLWHA in Estonia was between 7,200 and 11,000, averaging 9,100. About 87% of them were diagnosed, 59% were linked to and 33% retained in HIV care. 29% were receiving ART, yet only 19% were taking full advantage of it (i.e. had suppressed viral load). Of PLWHA linked to care 92% were linked within 3 months of diagnosis, yet at linkage 61% had CD4 count ≤350 cells/mm^3.

Conclusions: Identifying the gaps in connecting PLWHA to sustained and quality care enables policymakers and service providers implement system improvements and service enhancements that better support individuals as they move from one step in the continuum to the next. In Estonia, PLWHA reaching the healthcare system with low CD4 counts i.e. too late can be explained by delayed testing after HIV acquisition, the issue requiring most urgent attention in fighting HIV/AIDS.

339 Acceptability of HIV Pre-Exposure Prophylaxis at Varying Levels of Effectiveness among Low SES Black Gay and Bisexual Men in Los Angeles: Implications for PrEP Dissemination

Ronald Brooks[1] **(presenting)**, Vincent Allen[2], Stanley Johnson[1]

[1] UCLA Department of Family Medicine, Los Angeles, CA, USA
[2] UCLA Department of Psychology, Los Angeles, CA, USA

Background: In the United States, HIV incidence is highest among Black men who have sex with men (BMSM). The goals of this study were to assess perceptions of and adoption intentions for Pre-Exposure Prophylaxis (PrEP) among high-risk BMSM.

Methods: Interviews were conducted with 224 HIV-uninfected BMSM in Los Angeles. Survey domains included: PrEP awareness, intention to adopt PrEP, perceptions of PrEP, sexual risk behavior, alcohol and substance use, and socio-demographic characteristics. Chi-square tests and regression analyses were conducted to determine predictors of future PrEP adoption.

Results: Participants ranged in age from 18 to 69 (M = 33.5). Only a third (33%) of participants were aware of PrEP. More than half (60%) of the participants indicated a likelihood of adopting a PrEP medication that was 90% effective in preventing HIV infection. Acceptability decreased for PrEP at lower levels of effectiveness: 7%, 16% and 30% acceptability for PrEP at 44%, 50% and 73% effectiveness, respectively. Participants were less likely to indicate an intention to adopt PrEP if they agreed with the following statements: "I would be very uncomfortable taking HIV medicines when I don't have HIV" (AOR: Adjusted Odds Ratio = 0.39; CI: 95% Confidence Interval = 0.16-0.91)" and "Not knowing if there are long-term side effects of taking a daily HIV medicine makes me very uncomfortable" (AOR = 0.36; CI = 0.14-0.88). Younger participants (18-28 years) were more likely than older participants to report intentions to adopt PrEP (AOR = 2.3; CI = 1.1-4.9).

Conclusions: BMSM may adopt a highly effective PrEP medication for HIV prevention but will have diminishing interest for PrEP medications with mid- to low-levels of effectiveness. Negative perceptions of PrEP may also limit uptake of PrEP. Programs to address concerns and highlight the benefits of PrEP may help facilitate both greater awareness and uptake of PrEP among high-risk BMSM.

ORAL ABSTRACTS

345 Development of an Evidence-Based Alert for Risk of ART Failure within an Electronic Medical Record in Haiti

Nancy Puttkammer[1] (presenting), Steven Zeliadt[2], Janet Baseman[2], Rodney Destine[3], Nathaelf Hyppolite[3], Nernst Raphael[4], Kenneth Sherr[2], Krista Yuhas[2], Scott Barnhart[2]

[1] International Training and Education Center for Health (I-TECH), University of Washington, Seattle, WA, USA
[2] University of Washington, Seattle, WA, USA
[3] International Training and Education Center for Health - Haiti (I-TECH), Port-au-Prince, Haiti
[4] International Training and Education Center for Health - Haiti (I-TECH), Kenscoff, Haiti

Background: In Haiti, the Ministry of Health's iSanté electronic medical record system can help clinicians monitor patients' adherence to HIV antiretroviral therapy (ART) via self-reported or pharmacy-based measures. This analysis identifies which ART adherence measure is most useful in predicting ART failure, identifies other patient-level predictors of ART failure, and uses these results to design a simple risk classification algorithm.

Methods: The study analyzed data on 2,510 adult patients enrolled on ART from 2005-2013 at two large, public-sector hospitals in Haiti. ART failure was assessed based on immunologic and clinical criteria. Performance of candidate prediction models was compared using area under the receiver operating curve, and results were validated using a randomly-split data sample. The selected prediction model was used to generate a weighted risk score and risk classification, and its ability to differentiate ART failure risk over a 36-month treatment period was tested using stratified Kaplan-Meier survival curves.

Results: Among 923 patients with data available on ART failure, 196 (21.2%) met failure criteria. The pharmacy-based proportion of days covered (PDC) measure performed best among five ART adherence measures. Average PDC during the first 6 months on ART was 79.0% among ART failures and 88.6% among non-failures (p <0.01). Self-reported adherence measures were not helpful in predicting ART failure and were frequently unavailable within iSanté. Beyond PDC, the variables sex, baseline CD4 count, and duration of enrollment in HIV care prior to ART initiation enriched the prediction model. The predicted risk groups strongly differentiated observed risk of ART failure within the first 12 months as well as over 36 months.

Conclusions: Pharmacy data are most useful for new ART adherence alerts within iSanté. These alerts have potential to help clinicians identify patients at high risk of ART failure so that they can be targeted with adherence support interventions, before ART failure occurs.

347 Why Do People Come Back for Follow-up? A Prospective Study of Post-Sexual Exposition Prophylaxis

Nima Machouf[1] (presenting), Réjean Thomas[1], Sylvie Vézina[1], Daniele Longpré[1], Danielle Legault[1], Morency Duchastel[1], Michelle Milne[1], Jason Friedman[1], Amélie Mc Fadyen[1], Benoit Trottier[1]

[1] Clinique Médicale L'Actuel, Montréal, Québec, Canada

Background: Patients who seek care for post sexual-exposure prophylaxis (sPEP) are considered at high risk of contracting HIV. Counselling and HIV testing during sPEP is an important component of the care protocol. At l'Actuel we recommend patients come back for counselling and HIV/STI screening at 4 weeks and 16 weeks after a consultation for sPEP. In the context of increasing the use of and scaling up the sPEP strategy, we aimed at assessing the patient's determinants of a good PEP follow-up (FU).

Methods: From 2000 to 2012, we prospectively enrolled patients consulting for sPEP in a single site cohort study. Our outcome was adherence to week 16 FU visit. Factors associated with adherence to FU-w16 were identified using backward stepwise logistic regression analyses by SPSS 17.0.

Results: A total of 2,287 sPEP consultations were included. Patients consulting for sPEP were mostly MSM (80%), with a median age of 32 years, with consultation after receptive anal intercourse in 38% of cases. Source person was known HIV+ in 26% of cases and risk of HIV acquisition as moderate or high in 81% of cases. In 1750 (78%) of them treatment was advised, mainly by CBV/LPV (N = 243), TVD/LPV (N = 1,248) or TVD/RAL (N = 51). Adherence to treatment was 1,206/1,750 (69%, ITT) varying based on the treatment selected. Globally, 70% of patients came back for their FU visit at w4 and 50% for the w16 visit.

MULTIPLE LOGISTICAL REGRESSION ANALYSES FOR THE DETERMINANTS OF FU-W16 VISIT.

Independent variables	Crude OR (95% CI)	Adjusted OR (95% CI)
Gender (Women vs. Men)	0.72 (0.47 - 1.09)	--
Age	1.04 (1.02 - 1.05)	1.02 (1.01 - 1.04)
Risk Evaluation by Physician:		
Moderate vs. Low	1.47 (0.57 - 3.79)	--
High vs. Low	1.36 (0.52 - 3.51)	--
Nb of episode (1st vs. subsequent PEP)	1.22 (0.92 - 1.61)	--
Received ARV as Prophylaxis	2.22 (0.89 - 5.51)	1.81 (1.32 - 2.47)
Regimen:		
CBV/LPV vs. TVD/LPV	1.52 (1.15 - 2.01)	--
TVD/RAL vs. TVD/LPV	0.98 (0.56 - 1.71)	--
Other vs. TVD/LPV	0.27 (0.95 - 1.71)	--
Came to 4 weeks Follow up	6.96 (5.06 - 9.56)	3.74 (2.82 - 4.96)
Was adherent to 4 weeks Treatment	4.07 (3.28 - 5.07)	1.87 (1.42 - 2.45)

Conclusions: Counselling and testing are an integral part of the PEP protocol. It is reassuring to see that this study demonstrates that patients who had high-risk behavior and needed treatment are also those who come back for their HIV testing and counseling at follow-up visits. However, additional effort is needed to enhance adherence to follow-up visits in all patients consulting for post-sexual exposition prophylaxis for HIV.

350 Real Time Plasma TFV Levels to Support Adherence in a Pre-Exposure Prophylaxis Demonstration Project

K Rivet Amico[1], Christina Psaros[2], Steve Safren[3],
Ryan Kofron[4] (presenting), Risa Flynn[5], Robert Bolan[5],
Wilbert Jordan[6], Kenneth Mayer[7], Peter Anderson[8],
Lane Bushman[9], Rhodri Dierst-Davies[10], Amy Rock-Wohl[10],
Mario Perez[11], Keith Rawlings[11], Raphael Landovitz[4]

[1]   University of Connecticut, Brighton, MI, USA
[2]   Harvard Medical School, Boston, MA, USA
[3]   Massachusetts General Hospital, Boston, MA, USA
[4]   UCLA CARE Center, Los Angeles, CA, USA
[5]   Los Angeles Gay and Lesbian Center, Los Angeles, CA, USA
[6]   OASIS Clinic, Los Angeles, CA, USA
[7]   Harvard University, Boston, MA, USA
[8]   University of Colorado Denver, Aurora, CO, USA
[9]   University of Colorado, Denver, CO, USA
[10] Los Angeles County Department of Public Health, Los Angeles, CA, USA
[11] Gilead Sciences, Foster City, CA, USA

Introduction: Pre-exposure prophylaxis (PrEP) has great potential to reduce HIV incidence with adequate adherence. Optimal interventions for promoting daily PrEP adherence have yet to be defined. Randomized placebo-controlled efficacy data from the Partners PrEP study suggest that adherence may be tri-modal, with relative distributions varying by population: some individuals adhere well, some adhere poorly, and some adhere episodically. This distribution suggests that identifying and targeting poor and episodic adherers is likely to prove more efficient than a "one-size-fits-all" approach.

Description: We designed a PrEP demonstration study that uses real-time PrEP drug (plasma tenofovir; TFV) concentrations to deploy a stepped-care adherence intervention. In step 1, all receive integrated "Next Step Counseling (iNSC)" at study visits (baseline and weeks 4, 8, 12, 24, 36, and 48). Plasma TFV concentrations collected at each visit are used to identify below the limit of quantitation (BLQ, <10ng/mL) and trigger step 2, "Targeted iNSC," a more detailed discussion that aims to develop strategies a) to support adherence and b) to maintain sexual health in the face of non-protective TFV levels. A repeat BLQ result prompts escalation to step 3, "PrEP-STEPS," a six-session intervention based on principles of cognitive behavioral therapy and the ART-supporting LIFE-STEPS intervention for HIV-positive individuals.

Lessons Learned: As of 1/15/14, 52 participants were enrolled and only 1 BLQ assay was observed, which occurred at a week 4 study visit. While no participant has yet reached week 36, assays collected at week 8 (n = 28), 12 (n = 20) and 24 (n = 3) were all above limits of quantification. Dried blood spots (DBS) will also be used to evaluate gradients of adherence using intraerythrocytic TFV-DP levels.

Recommendations: Real-time drug-level monitoring is feasible to support adherence in PrEP demonstration projects and potentially in clinical practice. Point-of-care drug level assays would facilitate monitoring adherence when deploying enhanced adherence support.

351 Roles of Medication Responsibility, Executive and Adaptive Functioning in Adherence for Youth with Perinatal HIV

Patricia Garvie[1] (presenting), Susannah Allison[2], Sean Brummel[3],
Kathleen Malee[4], Megan Wilkins[5], Lynnette Harris[6],
Miriam Chernoff[3], Sharon Nichols[7]

[1]   Children's Diagnostic & Treatment Center, Fort Lauderdale, FL, USA
[2]   National Institute of Mental Health, Bethesda, MD, USA
[3]   Harvard School of Public Health, Boston, MA, USA
[4]   Northwest University Feinberg School of Medicine, Chicago, IL, USA
[5]   St. Jude Children's Research Hospital, Memphis, TN, USA
[6]   Baylor College of Medicine, Houston, TX, USA
[7]   University of California San Diego, La Jolla, CA, USA

Background: Assuming responsibility for medication adherence is a critical but challenging developmental task for youth with perinatally acquired HIV (PHIV). To help prepare youth for transition to adulthood, it is essential to understand how medication responsibility, executive (EF) and adaptive functioning (AF) contribute to adherence and readiness for successful medication management among PHIV youth prior to adulthood. EF has predicted adherence in adults and may, along with AF, inform adherence interventions for PHIV youth.

Methods: PHIV youth aged 7-16 years enrolled in the Pediatric HIV/AIDS Cohort Study Adolescent Master Protocol, who were on antiretroviral medication, with completed measures of responsibility for adherence, 7-day caregiver- and youth-reported adherence, Adaptive Behavior Assessment System, 2nd Edition, General Adaptive Composite (GAC), Behavior Rating Inventory of Executive Function, General Executive Composite (GEC), in addition to demographic and health characteristics, were evaluated.

Results: 256 PHIV youth (mean age 12 years), primarily Black (76%) and/or Hispanic (21%), and 49% male were included in analyses. Per 7-day recall, 72% were adherent (no missed doses). Per youth self-report, 22% had sole medication responsibility with most reporting shared caregiver-youth medication responsibility (55%). Adjusted logistic models showed significantly higher odds of adherence for caregiver vs. child solely responsible for medication (odds ratio (OR) = 4.23, confidence interval (CI)[1.5,12.3], p = 0.008), and nadir CD4% <15% vs. >15% (OR = 2.24, CI[1.1,4.4], p = 0.019), adjusting for demographic variables (age, race, caregiver education). No significant association of GEC or GAC was found with medication responsibility or adherence.

Conclusions: Study results suggest that among PHIV youth, continued caregiver involvement in medication management during adolescence is essential, despite youths' growing autonomy. Global ratings of EF and AF were not significantly associated with medication adherence. Given that EF and AF continue to develop throughout adolescence, relationships with adherence should be evaluated longitudinally, especially as youth transition to adulthood and shared caregiver responsibility diminishes.

ORAL ABSTRACTS

363 Robust Short-Term Effectiveness of a Comprehensive HIV Care Coordination Program in New York City

Mary Irvine[1], **Stephanie Chamberlin[2] (presenting)**, Rebekkah Robbins[1], Julie Myers[1], Graham Harriman[1], Sarah Braunstein[1], Beau Mitts[1], Sarah Gorrell Kulkarni[3], Denis Nash[3]

[1] New York City Department of Health & Mental Hygiene, New York, NY, USA
[2] New York City Department of Health & Mental Hygiene, Queens, NY, USA
[3] CUNY School of Public Health, New York, NY, USA

Background: Evidence is needed regarding multi-component HIV interventions that improve engagement in care (EiC) and viral load suppression (VLS) across affected subpopulations. We assessed subgroup differences in EiC and VLS change following enrollment into a comprehensive medical case management intervention, the NYC Ryan White HIV Care Coordination Program (CCP).

Methods: Using the local program reporting system and CD4 and viral load (VL) records from a longitudinal, population-based HIV Surveillance Registry, we examined pre- and post-enrollment outcomes for 3,176 CCP clients enrolled by March 31, 2011 and diagnosed >1 year before enrollment. For the 12-month periods before and after enrollment, we estimated EiC (defined as ≥2 tests ≥90 days apart, with ≥1 in each half of the 12-month period) and VLS (defined as VL ≤200 copies/mL on latest VL test in the second half of the 12-month period). Relative risks (RRs) and confidence intervals (CIs) for the outcomes were estimated using generalized estimating equations.

Results: The proportions with EiC and VLS increased from 74% to 91% (RREiC = 1.24, 95% CI: 1.21-1.27) and from 32% to 51% (RRVLS = 1.58, 95% CI: 1.50-1.66), respectively. Significant improvements held across subgroups, except clients with baseline CD4 ≥500 (VLS only, RRVLS = 1.03, 95% CI: 0.97-1.10) or "other/unknown" race (EiC only, RREiC = 1.11, 95% CI: 0.99-1.23). By client characteristics at enrollment, the greatest improvements were among those under age 45, diagnosed after 2004, not on antiretrovirals, born male (EiC only), making <$9,000/year (EiC only), uninsured (EiC only), homeless (EiC only), unsuppressed (EiC only), and having CD4 <200 (VLS only). Significant improvements were observed for EiC at 25 (89%) and VLS at 21 (75%) of 28 CCP agencies.

Conclusions: Short-term EiC and VLS improvements were robust across most subgroups examined. Given the cost/complexity of comprehensive care coordination, differences found suggest the value of targeting recruitment to those with greater need of support to succeed in treatment.

366 FEM-PrEP: Participant Explanations for Study Product Adherence

Amy Corneli[1] (presenting), Brian Perry[1], Khatija Ahmed[2], Kawango Agot[3], Kevin McKenna[1], Fulufhelo Malamatsho[2], Joseph Skhosana[2], Jacob Odhiambo[3], Lut Van Damme[4]

[1] FHI 360, Durham, NC, USA
[2] Setshaba Research Centre, Pretoria, South Africa
[3] Impact Research and Development Organization, Kisumu, Kenya
[4] Bill & Melinda Gates Foundation, Seattle, WA, USA

Background: FEM-PrEP was a clinical trial of daily emtricitabine/tenofovir disoproxil fumarate (FTC/TDF) for HIV prevention among women in sub-Saharan Africa. Study product adherence was too low to determine the effectiveness of FTC/TDF. However, a minority of participants had evidence of recent pill use in drug concentration analyses. We conducted a follow-up study to identify facilitators of adherence among these participants in two sites.

Methods: We conducted qualitative, semi-structured interviews with 88 purposefully-sampled participants assigned FTC/TDF. To explore facilitators, we categorized a sub-set of participants into two adherence groups, "moderate" (n = 31) and "good" (n = 25), based on drug concentrations from samples collected at multiple times during FEM-PrEP. Participants viewed a graph displaying their adherence over time and were asked about their adherence patterns, including factors making adherence easy ("good" group) and reasons for adhering some of the time ("moderate" group). We also asked participants about their perceptions of other participants' adherence. We used thematic analysis to analyze the data.

Results: Preliminary results suggest that many participants in the "good" group were motivated to adhere because of perceived HIV risk and interest in learning if FTC/TDF can prevent HIV; several also said partners reminded them. In the "moderate" group, many were motivated to adhere after adherence counseling or enrollment, although interest after enrollment waned over time; many also mentioned perceived risk. When describing factors that influenced other participants' adherence, numerous participants said coitally-dependent adherence was common.

Conclusions: Some trial participants may need additional support beyond adherence counseling to sustain their initial interest in using a daily investigational product throughout trial implementation. Although perceived risk appeared to facilitate adherence, the concept cannot be ethically used to promote adherence within trials comparing an investigational drug with a placebo. Future research could explore the role of risk perceptions and partner support in FTC/TDF demonstration projects.

369 Real-Time Antiretroviral Treatment Monitoring among HIV-Positive Individuals in Southern China: Early Experiences with 'Wisepill'

Lora Sabin[1] **(presenting)**, Mary Bachman DeSilva[2], Christopher Gill[1], Li Zhong[3], Taryn Vian1, Wubin Xie[4], Feng Cheng[5], Jessica Haberer[6], David Bangsberg[6], Allen Gifford[7]

[1] Boston University School of Public Health, Boston, MA, USA
[2] Center for Global Health and Development, Boston University, Boston, MA, USA
[3] FHI360, Beijing, China
[4] FHI360, Nanning, Guangxi, China
[5] Global Health Strategies, Beijing, China
[6] Massachusetts General Hospital, Boston, MA, USA
[7] Veterans Health Administration, Bedford, MA, USA

Background: The 'China Adherence through Technology Study' (CATS) is assessing use of 'Wisepill,' web-linked medication containers that allow real-time adherence tracking, among patients on antiretroviral therapy (ART) in China. Although Wisepill has been used to monitor medication adherence previously, its potential as an adherence support tool remains unknown. CATS will evaluate use of Wisepill-generated real-time reminders and adherence-data supported counseling. One study component examined technical feasibility and patient acceptability of Wisepill.

Methods: Patients attending an ART clinic in Nanning, China, were provided Wisepill for 1 ART medication. After monitoring subjects' adherence for three months, we randomized them to intervention (reminders and counseling) or control (usual care). Socio-demographic and self-reported adherence data were collected at baseline. After three months, we collected quantitative and qualitative data on patients' experiences with Wisepill. Signal lapses of 48 hours or more were investigated during this 3-month period.

Results: 120 subjects were enrolled; all but one completed the pre-intervention period. Two-thirds (65.3%) were male; mean age was 37.5 years. 78.6% had completed middle school and 49.0% were married. 13.3% reported experience with injection drug use. Mean adherence was 91.7% (SD 12.4) measured by Wisepill, but 95.6% (SD 17.2) by self-report. 93.2% of subjects reported positive or very positive overall experience with Wisepill; 57.6% found it "very easy" to use. However, 56.0% said Wisepill was inconvenient or very inconvenient, supported by statements that it was large and conspicuous. 55.9% were worried that using Wisepill might disclose their HIV status, though no disclosures occurred. Over these 3 months, minor technical difficulties were encountered and addressed.

Conclusions: ART patients in China are generally positive about using a real-time, web-linked adherence monitoring device; Wisepill is also feasible. Concerns about convenience and potential stigma need further exploration. Wisepill holds potential for interventions that provide rapid adherence feedback directly to patients.

370 Impact of a Self-Management Telephone Support Program for Older People Living with HIV on Antiretroviral Adherence and Quality of Life

Sheryl Catz[1] **(presenting)**, Benjamin Balderson[1]

[1] Group Health Research Institute, Seattle, WA, USA

Background: People living with HIV (PLWH) aged 50 and older have increased rates of chronic health conditions and polypharmacy, and unique social and health related quality of life (QOL) concerns. However, HIV support programs have not traditionally targeted this rapidly growing age group.

Methods: The PRIME randomized controlled trial evaluated the efficacy of a telephone-delivered individual self-management intervention for older PLWH. 452 PLWH aged 50 and older, currently prescribed ART, and reporting adherence lapses in the past 30 days were recruited from AIDS service organizations in 9 cities, and randomized to one of three interventions (Individual, Group, Information) after completing baseline telephone surveys. All participants received a book on living well with HIV. Individual intervention participants also received up to 10 30-minute telephone calls that integrated chronic disease and HIV self-management skills training with motivational and problem-solving counseling. Group participants received access to10 time-matched self-management support group calls. Information participants received a book only.

Results: Individual telephone counseling significantly improved composite ART adherence scores as compared to Group and Information (book-only) comparison arms, and these differences were maintained at 12-month follow-up in intent-to-treat (ITT) analyses. At 6 months, ITT analyses showed the Individual arm had significantly higher Social Functioning than Group or Information controls, significantly higher Mental Health Functioning than Information controls, and no differences in Physical Functioning. Mental Health Functioning for Individual intervention participants remained higher than Information controls at 9 months, but there were no differences in SF-36 subscales by 12 months.

Conclusions: PRIME trial results suggest that individual telephone counseling that is wellness-focused and recognizes the unique needs and comorbidities of the aging HIV population represents a promising intervention model for supporting self-management and maintaining treatment adherence among older PLWH.

ORAL ABSTRACTS

371 Active Methamphetamine Use is Associated with Antiretroviral Medication Non-Adherence

David Moore[1] **(presenting)**, Alexandra Rooney[1], Jessica Montoya[1], Kaitlin Casaletto[1], Ben Gouaux[1], Colin Depp[1], J. Hampton Atkinson[2]

[1] University of California, San Diego, CA, USA
[2] VA San Diego/University of California, San Diego, CA, USA

Background: Methamphetamine use is associated with worse adherence to antiretroviral therapy (ART) and poorer HIV disease outcomes. The present study assessed the association between daily texting responses of methamphetamine use and electronically-monitored ART adherence among HIV-infected (HIV+) persons.

Methods: We analyzed data from 50 HIV+ persons who self-reported using methamphetamine within the last 30 days at the time of study enrollment. Participants were enrolled in an ongoing randomized text messaging intervention designed to improve ART adherence over a 6 week period. All participants received daily text messages assessing whether they had used methamphetamine in the last 24 hours. A single "sentinel" antiretroviral medication was tracked daily using an electronic monitoring system and the proportion of correctly taken doses over the six weeks was used as the measure of adherence.

Results: There was a trend-level association between frequency of reported methamphetamine use and ART adherence, such that greater proportions of methamphetamine-using days were associated with worse mean ART adherence (ρ = -0.27, p = 0.05). Participants who reported methamphetamine abstinence during the entire six-week study period (n=9) had significantly better mean ART adherence (mean adherence = 89.9%, SD = 13.3) as compared to those who reported some methamphetamine use (n = 41, mean adherence = 63.6%, SD = 27.3; p <0.001). Interestingly, using a matched-pairs t-test, there was no significant association between day-specific methamphetamine use (yes/no) and day-specific ART adherence (yes/no) (p >0.05).

Conclusions: Any active methamphetamine use, regardless of frequency, appears to confer risk of ART nonadherence, although there was a trend toward increased methamphetamine use and worse adherence. The relationship between adherence and methamphetamine use appears to be more complex than a simple one-to-one relationship (i.e., methamphetamine use on any given day does not specifically relate to nonadherence on that same day). Interventions designed to both lessen substance use behaviors, and improve ART adherence in the context of active methamphetamine use, continue to be needed.

372 A Qualitative Investigation of Patients Transitional States of Engagement in HIV-Related Medical Care

Stephanie Koch[1] **(presenting)**, Mary Gerkovich[1], Karen Williams[1], Julie Banderas[1]

[1] UMKC School of Medicine, Kansas City, MO, USA

Background: Engagement in care following an HIV positive diagnosis carries essential clinical and public health implications, including better management of the disease, minimization of viral load, maintenance of a healthy CD4 count, and transmission prevention. This qualitative study was designed to investigate factors related to engagement in HIV-related medical care with emphasis on transitions in and out of care.

Methods: Data were collected through person-level interviews followed by thematic coding and analysis. The sample consisted of 22 participants recruited from safety-net providers in an urban setting.

Results: Six main themes emerged from the data and were identified as factors related to engagement: health, treatment, personal, support, clinic, and resources, with each of these containing subthemes that describe the issues more specifically. Results were analyzed in context of how they relate to phases of engagement on the HIV continuum of care, with specific examples from the interviewees that characterize the transitional states of interest (e.g., engaging vs. disengaging in care, being in vs. out of care).

Conclusions: Factors that enable or hinder care engagement vary among HIV-positive persons; the data demonstrate that a deterrent for one patient may act as a motivator for another. The relative importance of the six factors varied between individuals and over time. To reflect this complexity, factors related to engagement should be individualized, based on evaluation upon care entry and during each subsequent contact. Findings support an existing framework and indicate the need for evaluation of funding priorities, as well as changes at the health care system and policy levels. Our conceptual framework addresses engagement transitions and can help providers, case managers, clinic staff, and administrators understand the complexity of factors to be accounted for when developing efforts to support better engagement in care.

374 Patterns and Correlates of PrEP Drug Detection among MSM and Transgender Women in the Global iPrEx Study

Albert Liu[1] (presenting), David Glidden[2], Peter Anderson[3], K Rivet Amico[4], Vanessa McMahan[5], Megha Mehrotra[5], Javier Lama[6], John MacRae[7], Juan Carlos[8], Orlando Montoya[9], Valdilea Veloso[10], Mauro Schechter[11], Esper Kallas[12], Suwat Chariyalerstak[13], Linda-Gail Bekker[14], Kenneth Mayer[15], Susan Buchbinder[16], Robert Grant[5]

1   Bridge HIV, San Francisco, CA, USA
2   University of California, San Francisco, CA, USA
3   University of Colorado Denver, Aurora, CO, USA
4   University of Connecticut, Brighton, MI, USA
5   Gladstone Institutes, University of California, San Francisco, CA, USA
6   Asociación Civil Impacta Salud y Educación, Lima, Peru
7   Investigaciones Médicas en Salud, Lima, Peru
8   Asociación Civil Selva Amazónica, Iquitos, Peru
9   Fundación Ecuatoriana Equidad, Quito, Ecuador
10 Instituto de Pesquisa Clinica Evandro Chagas - IPEC/FIOCRUZ, Rio de Janeiro, Brazil
11 Universidade Federal do Rio de Janeiro, Rio de Janeiro, Brazil
12 Universidade de São Paulo, São Paulo, Brazil
13 Research Institute for Health Sciences, Chiang Mai University, Chiang Mai, Thailand
14 The Desmond Tutu HIV Foundation, Cape Town, South Africa
15 Fenway Community Health, Brown University, Boston, MA, USA
16 San Francisco Department of Public Health, San Francisco, CA, USA

Background: Adherence to HIV pre-exposure prophylaxis (PrEP) is critical for efficacy. Antiretroviral drug concentrations are an objective measure of PrEP use and correlate with efficacy. Understanding patterns and correlates of drug detection can identify populations at risk for non-adherence and inform design of PrEP adherence interventions.

Methodology: Blood antiretroviral concentrations were assessed among active-arm participants in iPrEx, a randomized, placebo-controlled efficacy trial of emtricitabine/tenofovir in men who have sex with men (MSM) and transgender women in 6 countries. We evaluated rates and correlates of drug detection among a random sample of 470 participants at week 8 and a longitudinal cohort of 303 participants through 72 weeks of follow-up using logistic regression.

Results: Overall, 55% (95% CI 49-60%) of participants tested at week 8 had drug detected. Drug detection was associated with older age and higher education and varied significantly by study site, with detection rates lowest in samples from Lima, Peru (35%) and highest in San Francisco, USA (90%). In longitudinal analysis, 31% never had drug detected, 30% always had drug detected, and 39% had an inconsistent detection pattern. Overall drug detection rates declined over time. Drug detection at some or all visits was associated with older age, indices of risk behavior, and responding "don't know" to a question about belief of PrEP efficacy. Among participants who had evidence of early drug detection, approximately one-third showed a pattern of non-persistence (detection stopped and remained undetectable at subsequent visits).

Conclusions: Distinct patterns of study-product use were identified, with a significant proportion demonstrating no evidence of initiating study-drug in iPrEx. Research literacy may explain greater drug detection among populations having greater research experience, such as older MSM in the United States. Greater drug detection among those reporting highest risk sexual practices is expected to increase the impact and cost-effectiveness of PrEP.

375 Factors Associated with Loss to Clinic in a Large HIV Care Center of New York City

Rituparna Pati[1] (presenting), Christopher Beattie[2], Joyce Park[3], Denis Nash[4], Victoria Sharp[3]

1   Mount Sinai St Luke's and Roosevelt Hospital, New York, NY, USA
2   Spencer Cox Center for Health - St. Luke's-Roosevelt Hospital, New York, NY, USA
3   St Luke's Roosevelt Hospital, New York, NY, USA
4   CUNY School of Public Health, New York, NY, USA

Background: Clinic-based electronic medical record data are underutilized but uniquely informative data sources for development of targeted strategies to improve suboptimal patient retention in HIV primary care.

Methods: We examined data on HIV-infected patients seen in New York City's Spencer Cox Center for Health for at least one HIV primary care visit in 2010 or 2011. Retention was defined as returning for at least one medical visit between January 1, 2012 and September 30, 2012; lost to clinic (LTC) was defined as no medical visit during that period. Multivariate regression models were used to estimate adjusted odds ratios (AOR) and 95% confidence intervals (CI) of factors associated with LTC.

Results: 5,750 HIV-infected patients were seen between January 1, 2010 and December 31, 2011 (median visits = 8, IQR:4-13). 4415 (76.8%) were retained in care and 1335 (23.2%) were LTC. Among those LTC, median CD4 count at last visit was 338 cells/μL(IQR:169-528) and viral load suppression was 31%. Factors associated with LTC include insurance coverage (AOR commercial vs. Medicaid:0.7, CI:0.5-0.9), housing status (AOR unstable vs. stable:1.6, CI:1.4-1.9), incarceration history (AOR some vs. none: 2.0, CI:1.6-2.4), and clinic site (AOR midtown vs. downtown: 3.5, CI:2.8-4.4). Mental health diagnosis, higher CD4 count, suppressed viral load, and antiretroviral therapy (ART) were independently associated with lower risks of LTC.

Conclusions: Patients who are underinsured, unstably housed, previously incarcerated, and not on ART appear to be at highest risk of LTC. Those with lower CD4 counts and high viral loads are also more likely to be LTC, suggesting that strategies to reduce LTC could lead to improvements in both individual and public health outcomes. Further evaluation of the impact of mental health care and housing support integrated with outpatient HIV care is warranted. Future studies would benefit from the ability to ascertain care status and vital status of those LTC.

This abstract will also be presented as a poster.

ORAL ABSTRACTS

377 Implementation of PrEP in STD and Community Health Clinics: High Uptake and Drug Concentrations among MSM in the Demo Project

Stephanie Cohen[1], Eric Vittinghoff[2], Peter Anderson[3], Susanne Doblecki-Lewis[4], Oliver Bacon[2], Wairimu Chege[5], Richard Elion[6], Susan Buchbinder[1], Michael Kolber[4], **Albert Liu[7] (presenting)**

[1] San Francisco Department of Public Health,
     San Francisco, CA, USA
[2] University of California, San Francisco, CA, USA
[3] University of Colorado Denver, Aurora, CO, USA
[4] University of Miami, Miami, FL, USA
[5] National Institutes of Health, Bethesda, MD, USA
[6] Whitman Walker Health, Washington, DC, USA
[7] Bridge HIV, San Francisco, CA, USA

Background: Pre-exposure prophylaxis (PrEP) has been shown to be safe and efficacious in clinical trials. Demand for PrEP and adherence in real-world settings are unknown. We evaluated PrEP uptake and drug concentrations among men who have sex with men (MSM) in the US PrEP Demonstration (Demo) Project.

Methodology: HIV-uninfected MSM and transgender women attending STD clinics in San Francisco (SF) and Miami, and a community health center in Washington, DC, were offered screening for The Demo Project. Clients were approached in clinic while receiving services or self-referred to the program. Enrolled participants were offered 48 weeks of open-label emtricitabine/tenofovir. Predictors of PrEP uptake were assessed using multivariable logistic regression. Tenofovir-diphosphate (TFV-DP) levels in dried blood spots (DBS) were measured to estimate average adherence in a random sample at week 4.

Results: From 9/2012-1/2014, 1097 clients were assessed for participation, 408 declined, 142 were ineligible, and 547 enrolled. 34% of clients assessed were self-referred. PrEP uptake varied among sites (52% in SF, 61% in DC and 67% in Miami). Mean age of enrolled participants was 35; 10% were Black, 32% Latino, and 48% white; 74% had previously heard of PrEP. In adjusted analyses, participants from Miami or DC, those who were self-referred, and those reporting higher indices of sexual risk were more likely to enroll. DBS from 136 participants were tested: almost all (98%) had TFV-DP detected. Median TFV-DP levels were higher in SF than in Miami and DC (975, 658 and 812 fmol/punch respectively, p <0.001). Most participants (77%) had a TFV-DP level consistent with taking at least 4 doses/week (≥550 fmol/punch) (92% SF, 57% Miami, 78% DC, p <0.001).

Conclusions: Demand for PrEP and drug concentrations at week 4 are high among MSM in the Demo Project. Factors contributing to differences in PrEP uptake and adherence across sites warrant further investigation.

379 Symptomatic HIV Disease or Perceived Side Effects of Medication Associated with Lower Antiretroviral Adherence among MACH14 Patients

Yan Wang[1] (presenting), Ira Wilson[2], Marc Rosen[3], Loren Miller[1], Carol Golin[4], Judith Erlen[5], Jie Shen[1], Jane Simoni[6], Robert Remien[7], Honghu Liu[8]

[1] University of California, Los Angeles, CA, USA
[2] Brown University, Providence, RI, USA
[3] Yale University School of Medicine, New Haven, CT, USA
[4] University of North Carolina, Chapel Hill, NC, USA
[5] University of Pittsburgh, Pittsburgh, PA, USA
[6] University of Washington, Seattle, WA, USA
[7] HIV Center for Clinical and Behavioral Studies,
     New York, NY, USA
[8] UCLA School of Dentistry, Los Angeles, CA, USA

Background: Symptomatic HIV disease and medication side effects are implicated in lower antiretroviral (ARV) medication adherence. However, which of common HIV symptoms and medication side effects are associated with lower medication adherence is unclear.

Methods: MACH14 is collaboration of 14 sites that assessed antiretroviral therapy (ART) adherence using medication event monitoring system (MEMS) electronic bottle caps. Ten studies collected perceived HIV- or ARV-related physical symptomatology data from 1997 to 2009, seven collected data on symptom severity, and four studies collected data that patients differentiated side effects from symptomatic HIV disease. The association of HIV related symptoms or side effects of ARVs on adherence was analyzed through random intercept and slope (RIAS) models with repeated measures of adherence, viral load and regimens clustered within studies.

Results: The RIAS model, adjusting for age, gender, ethnicity, education, viral load, and current regimens, indicated that lower adherence was associated with higher number of symptoms (p = 0.041) and more severe symptoms (p = 0.001). Among the 20 self-reported symptoms, lower adherence was significantly associated with fever (p = 0.003), weight loss (p = 0.04) and nausea (p = 0.048). Among the patients who reported the symptoms are not because of the side effects of the medication, fatigue (p = 0.001), insomnia (p = 0.002), cough (p = 0.02), appetite (p = 0.02) and fever (p = 0.04) were still significantly associated with lower adherence, adjust for current regimens and the viral load.

Conclusions: Although there was no objective determination for symptoms by physicians in MACH14 studies, we found that among HIV-infected persons, several symptoms including fever, weight loss and nausea are associated with lower adherence. Among those who reported their symptoms are not related to their regimens, fatigue, insomnia, cough, appetite and fever are associated with lower adherence. Further research is warranted to identify the source of symptoms so interventions can target patients with symptoms caused by medications to improve adherence.

381 Linking Key Populations to HIV Care Services in Kampala, Uganda

Stephen Alege[1] (presenting)

[1] Makerere University, Kampala, Uganda

Introduction: In Uganda, there is high incidence of stigma against key populations such as sex workers and men who have sex with men (MSM). This situation is exacerbated by their illegal status, which makes it difficult to design and implement HIV friendly services that meet their needs. As such the community and self-stigma inhibits them from seeking HIV/AIDS services.

Description: Uganda Health Marketing Group (UHMG) is implementing a 3-year project to provide HIV counseling and testing (HCT) services and link HIV-positive key populations to HIV Care services. The project is implemented through 56 private health clinics and 2 mobile HCT vans in Kampala. Clinics were supported to contract fulltime dedicated linkage facilitators to link and follow up key population posttest clients who test HIV positive to HIV care facilities of their choice.

Results: Partnerships have been established with 5 key population groups and associations. Over a period of 3 months, 520 sex workers and 92 MSM have been provided with HCT services. Of these, 122 were referred and linked to HIV care services with a total of 103 receiving HIV care services. A total of 31 HIV-positive key population clients were followed up in the community to ensure that they are retained on the care services.

Lessons Learned: Key population peer groups and associations are critical in mobilization of their peers. Training of staff in private health care facilities in providing appropriate services is important. Dedicated linkage facilitators at clinics increases linkage success and retention into care. Collaboration with HIV-related care services has led to immediate enrollment into care services at the HIV testing site.

Recommendations: Involve key populations in delivering HCT services so as to increase uptake by clients.

382 Daily Short Message Service Surveys Detect Greater HIV Risk Behavior than Monthly Clinic Questionnaires in Kenya

Kathryn Curran[1] (presenting), Nelly Mugo[2], Ann Kurth[3], Kenneth Ngure[4], Renee Heffron[5], Deborah Donnell[6], Connie Celum[5], Jared Baeten[5]

[1] World Health Organization, Geneva, Switzerland
[2] KEMRI, Nairobi, Kenya
[3] New York University, New York, NY, USA
[4] Jomo Kenyatta University of Agriculture and Technology, Nairobi, Kenya
[5] University of Washington, Seattle, WA, USA
[6] Fred Hutchinson Cancer Research Center, Seattle, WA, USA

Background: Technology-based approaches offer novel opportunities to record HIV risk behaviors in real-time, potentially reducing biases related to recall and social desirability that are inherent in other methods of self-report. We conducted a pilot evaluation of daily short message service (SMS, i.e., text message) surveys to measure sexual behavior and pill taking in a study of pre-exposure prophylaxis (PrEP) for HIV prevention among HIV-uninfected members of HIV serodiscordant couples in Kenya. In this analysis, we compared self-reported sexual and pill-taking behaviors collected over daily SMS to concurrent monthly questionnaires among HIV-uninfected Kenyan adults taking pre-exposure prophylaxis (PrEP).

Methods: Eighty-five participants contributed 145 observation-months. SMS data were collected daily through an automated survey; clinic-based questionnaires were completed monthly. We assessed agreement between reporting of sexual activity, sex unprotected by condoms, and missed PrEP doses.

Results: The proportion of observation-months with reports of any sex (93.8% vs. 85.5%), any unprotected sex (35.2% vs. 15.9%), or any missed PrEP doses (54.5% vs. 13.1%) were significantly greater by daily SMS data collection than monthly questionnaires, respectively (all $p < 0.0001$). Participants reported a median of 9 sex acts per month through daily SMS surveys and a median of 5 sex acts through monthly interviewer-administered questionnaires. Participants reported a median of 2 more sex acts per month on the daily SMS survey than the monthly questionnaire. The mean number of missed PrEP doses reported was 0.2 for monthly questionnaires and 1.2 for daily SMS surveys.

Conclusion: Daily SMS surveys delivered to personal mobile phones elicited significantly greater reports of sex, unprotected sex, and missed PrEP doses compared to monthly questionnaires, likely providing more accurate self-reported HIV risk behavior through enhanced privacy and reduced recall period. SMS diaries offer a promising method to assess sensitive or repetitive health behaviors (such as medication-taking) in real time.

ORAL ABSTRACTS

383 Factors Associated with Intervals between Women's Visits to HIV Outpatient Clinics

Alison Evans[1], Caroline Sabin[1], Vanessa Apea[2], Sophie Jose[1], Teresa Hill[1], **Fiona Burns**[1] **(presenting)**

[1] University College London, London, England, United Kingdom
[2] Barts Health NHS Trust, London, England, United Kingdom

Background: Studies find that women with HIV are less likely than men to engage with care. As part of the REACH project, we examined factors associated with intervals between women's visits to outpatient HIV clinics to better understand their engagement in care.

Methods: We conducted a secondary analysis of UK Collaborative HIV Cohort (CHIC) data, including 12 years of data from adult patients who made two or more visits to 15 UK HIV clinics (1 January 2000 to 31 December 2011). As clinic visits were not always reliably captured, CD4 counts, viral loads and/or haemoglobin measures were used as surrogate markers of attendance.
We conducted qualitative interviews with 6 HIV clinicians about factors associated with time to next appointment.

Results: The UK CHIC analysis included 31,784 adults; 28.1% were women (n = 8,930). Women were more likely than men to not attend for a year or more (17.7% vs. 16.2%). Women who did not attend for a year or more were more likely to be white (20.4%) or black-other ethnicity (20.5% vs. 17.2% for black African, 11.4% for Asian, 18.3% for other), exposed to HIV through injecting drug use (32.2% vs. 17.5% for heterosexual, 24.0% for blood recipient, 10.9% for mother-to-child) and younger (21.2% of under 30s vs. 10.6% of over 45s), all p <.001. The average time between women's clinic visits was 86.6 days. Women who became pregnant during the study had shorter gaps between visits during pregnancy (46.8 days) than when they were not pregnant (95.0 days). The qualitative analysis highlighted the role of pregnancy in women's engagement in care and the importance of comorbidities and psychosocial issues as key determinants of time to next appointment.

Conclusions: A range of factors contributes to positive engagement in HIV care services and must be considered in the development of any successful intervention.

386 PrEP Audio Visual Representation (PrEP REP) Project: Development and Pilot of a PrEP Education Video

K Rivet Amico[1] **(presenting)**, Christopher Balthazar[2], Tom Coggia[3], Sybil Hosek[3]

[1] University of Connecticut, Brighton, MI, USA
[2] Stroger Hospital of Cook County, Chicago, IL, USA
[3] Iconatomic, Los Angeles, CA, USA

Background: Despite the availability of pre-exposure prophylaxis (PrEP) in the United States for over a year, PrEP knowledge is reportedly low among individuals in communities at elevated risk for HIV infection. Relatedly, educational tools to improve PrEP knowledge are lacking. The PrEP REP team developed the PrEP REP video to address this gap, where actions of PrEP are animated in an engaging, brief media clip intended for a wide range of audiences. The video was pilot tested to determine immediate impact on PrEP-related knowledge and beliefs.

Methods: The PrEP REP video was developed in collaboration with medical experts and community advisors. Young men who have sex with men (MSM) in Chicago who were not on PrEP were recruited to evaluate the video. Changes in PrEP knowledge, perceived knowledge and beliefs were evaluated using pre- and immediate-post video surveys, using non-parametric McNemar test with binomial distribution and single sample mean difference t-tests depending on item.

Results: 46 young MSM (average age 21) viewed the video between November and December 2013. 48% reported having heard of PrEP prior to the study. All but one of the 16 knowledge items significantly improved post-viewing, with 12 of these answered correctly by 80% or more of the sample (none of the items reached 80% correct in pre-test). Rated efficacy of daily PrEP rose from 62% to 87% effective (on average), as did perceived ability to take PrEP daily. Perceived chances of getting infected with HIV did not significantly change, nor did perceptions that PrEP would change condom use or number of partners. Perceptions that taking PrEP would promote mindfulness around sexual decision making significantly increased, as did overall positivity towards PrEP adherence.

Conclusions: The video significantly increased PrEP knowledge and supported positive feelings towards PrEP and daily PrEP adherence among PrEP non-experienced at-risk young MSM.

387 Impact of a Peer Intervention on Engagement in Prevention and Care Services among HIV-Infected Persons Not Yet on Antiretroviral Therapy: A Qualitative Evaluation of a Randomized Trial in Rakai, Uganda

April Monroe[1] (presenting), Gertrude Nakigozi, Jeremiah Mulamba Bazaale[2], William Ddaaki[2], David Serwadda[2], Maria Wawer[1], Ronald Gray[1], Steven Reynolds[3], Larry Chang[4]

[1] Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, USA
[2] Rakai Health Sciences Program, Kalisizo, Uganda
[3] National Institutes of Health, Kampala, Uganda
[4] Johns Hopkins School of Medicine, Baltimore, MD, USA

Background: Engagement in care and treatment services benefits people living with HIV (PLHIV). Peer support has been proposed to improve treatment adherence among PLHIV, however evidence is needed to assess the effectiveness of peers in improving care initiation and retention among people not yet on antiretroviral therapy (ART). We conducted a complimentary qualitative study in a randomized controlled trial (RCT) of the impact of a peer intervention targeting PLHIV who were not yet on ART in Rakai, Uganda. The intervention was based on a situated-Information Motivation Behavioral skills model (s-IMB) of engagement in care.

Methods: The qualitative evaluation (September-November 2013) included 41 in-depth interviews and 6 focus group discussions with patients, peers, and staff (total n = 75). Semi-structured interview guides were used for data collection with open-ended questions. Transcripts were uploaded into analytic software, coded and synthesized by theme.

Results: Participant narratives paralleled the s-IMB model, indicating that peers improved information, motivation, and behavioral skills, leading to increased engagement in care among patients. Participants described how peers reinforced health messages and helped patients to better understand complicated health information. Peers also helped patients to navigate the health system, develop support networks, and identify strategies for remembering to take medication and keep clinic appointments. In addition to the benefits conferred to patients, participants reported benefits peers received including improved knowledge of health information, positive reputations within their communities, and improved relationships with health staff and understanding of the health system.

Conclusions: This qualitative evaluation found largely positive perceptions of the peer intervention. These findings lend support to the scale-up of the intervention as part of integrated care services and highlight the value of s-IMB models for understanding and improving engagement in care among PLHIV who are not yet on ART.

389 Correlates of Not Receiving HIV Care among HIV-Infected Women Enrolling in a HRSA SPNS Multi-Site Initiative

Oni Blackstock[1] (presenting), Arthur Blank[1], Jason Fletcher[2], Niko ver[2], Chinazo Cunningham[2]

[1] Montefiore Medical Center/Albert Einstein College of Medicine, Bronx, NY, USA

Background: Although 60% of United States HIV-infected women are not retained in HIV care, little is known about their characteristics. We sought to identify baseline factors associated with not receiving HIV care among women enrolling in a multi-site initiative to promote engagement and retention in HIV care.

Methods: Health Resources and Services Administration's Enhancing Access and Quality HIV Care for Women of Color Initiative took place at 9 community-based organizations and clinics in high HIV prevalence areas throughout the United States. From 2010-2013, baseline interviews were conducted with 924 women who ranged in level of engagement in HIV care. We used chi-square and multivariate logistic regression to assess the association between not receiving HIV medical care in the past 6 months (self-report) and socio-demographic characteristics (age modeled: <30; 30-50; >50 years old) and current HIV risk behaviors. We included only variables that were significant at p <0.05 in the multivariate model.

Results: Mean age was 41.3 years (SD 11.1); 66.8% were African American/Black and 27.1% Latina; 30.5% resided in rural areas; 61.5% were single; 41.3% had not completed high school; 41.4% reported recent high-risk sexual behavior and 13.8% recent substance use. At baseline, 48.2% reported not receiving HIV medical care in the past 6 months. Compared to women receiving HIV care, those not receiving care were more likely to be younger (<30 vs. >50 years old; aOR = 1.68, 95%CI: 1.01-2.79), live in rural areas (aOR = 2.12, 95%CI: 1.51-2.99), to be uninsured (aOR = 2.41, 95%CI: 1.70-3.41), and to report fair/poor health (aOR = 1.58, 95%CI: 1.15-2.18) and current high-risk sexual behavior (aOR = 1.51, 95%CI: 1.08-2.11).

Conclusions: Among women enrolling in a multi-site initiative to promote engagement and retention in HIV care, half reported not receiving care in the past 6 months. We identified specific factors associated with not receiving care that represent potential targets for future interventions that seek engage and retain women in HIV care.

ORAL ABSTRACTS

395 Linkage to Care Demonstration Project: A Practice-Advised Intervention to Facilitate Emotional and Cognitive Responses for Rapid Linkage to HIV Care

Robert Bolan[1] **(presenting)**, Risa Flynn[1], Steve Leyva[1], K Rivet Amico[2], Rhodri Dierst-Davies[3], Amy Rock-Wohl[3], Mario Perez[4]

1   Los Angeles Gay and Lesbian Center, Los Angeles, CA, USA
2   University of Connecticut, Brighton, MI, USA
3   Los Angeles County Department of Public Health, Los Angeles, CA, USA
4   Los Angeles County Department of Public Health, Division of HIV and STD Services, Los Angeles, CA, USA

Introduction: The Los Angeles Gay and Lesbian Center is one of the largest HIV testing and care services providers in Los Angeles County, performing over 12,000 HIV tests annually with a positivity rate of 3-4%. In response to the National HIV/AIDS Strategy linkage to care (LTC) goals, a Linkage to Care Specialist (LTCS) was hired in 2011. A 20% improved LTC rate (to 90%) was seen in the subsequent 24 months. We sought to characterize strategies introduced by the LTCS that may have influenced the improved rate, and identify gaps in approach. Soliciting guidance from experts in research and practice we analyzed the LTCS strategies in relation to social-behavioral theory and models of linkage. Guided by intervention mapping we then described a reproducible practice-advised LTC intervention.

Description: The intervention 1) focuses on early emotional and cognitive reactions to receiving an HIV-positive diagnosis; 2) is one-on-one; 3) emphasizes tailoring of intervention components based on specific client needs; 4) allows for referral to other services; 5) includes phone-based follow-up as needed; and 6) uses integrated monitoring systems to identify individuals not linking into care. A unique assessment tool administered shortly following disclosure of HIV diagnosis will be used to explore domains of fear, stigma, knowledge, attitudes, and support. Linkage rates, viral load, CD4, adherence, and retention data will be gathered for 12 months following diagnosis to evaluate the intervention.

Lessons Learned: Implementation of a research protocol in the context of clinical care in a manner that leverages successes while offering potential solutions for gaps is feasible when all team members with practice and research-based interests are well represented.

Recommendations: Involvement of clinical staff in protocol development for research on linkage to care is critical to balance the requirements of research with patient centered and compassionate care.

396 Sexual Relationships Outside Primary Partnerships and Abstinence are Associated with Lower Adherence and Adherence Gaps: Data from the Partners PrEP Ancillary Adherence Study

Alexander Kintu[1] **(presenting)**, Susan Hankinson[2], Raji Balasubramanian[2], Karen Ertel[2], David Bangsberg[3], Jessica Haberer[3]

1   Harvard School of Public Health, Boston, MA, USA
2   Division of Biostatistics and Epidemiology, School of Public Health and Health Sciences, University of Massachusetts, Amherst, MA, USA
3   Massachusetts General Hospital, Boston, MA, USA

Background: High adherence is critical for effective pre-exposure prophylaxis (PrEP) against HIV. Initial studies indicate that sexual behavior influences adherence; however, further data are needed on different types of sexual behavior and their associations with levels and patterns of PrEP adherence.

Methods: We enrolled 1,147 HIV-negative individuals in long-term serodiscordant relationships at three sites in Uganda from the Partners PrEP Study- a randomized placebo-controlled trial of daily oral tenofovir and emtricitabine/tenofovir in East Africa. Sexual behavior was assessed via monthly interviews and PrEP adherence was measured through electronic monitoring. We used generalized estimation equations to assess risk factors of low adherence (<80%) and gaps in adherence.

Results: Fifty-three percent were male, 51% were 18-34 years and 24% were polygamous. Participants who had sex with someone other than their primary partner and <100% condom use (N=40) were more than twice as likely to have low adherence (OR = 2.48, 95%CI = 1.70-3.62) compared to those who had sex with only their primary partners and 100% condom use. Those who abstained from sex in the previous month (N = 124) had 30% higher odds of low adherence (OR = 1.30,95%CI = 1.05-1.62). Participants in non-polygamous relationships who reported sex with both their primary and other partners with <100% condom use (N = 15) were almost twice as likely to be low adherers (OR = 1.76,95%CI = 1.01-3.08). At least one 72-hour gap in adherence was seen in 598 participants (54.7%); 23.2% had at least one one-week gap. Participants who had sex with other partners and <100% condom use (N = 47) had 50% higher odds of a 72-hour gap in adherence (OR = 1.50,95%CI = 1.19-1.91).

Conclusions: Risk of low overall adherence and gaps in adherence were higher in participants who reported sex outside their primary partnerships and those who abstained from sex. Polygamy was associated with lower odds of low adherence. Gaps in adherence were common, potentially creating risk for HIV acquisition.

397 A Tablet-Computer Clinical Intervention to Support Antiretroviral Adherence: Initial Results of the MedCHEC Randomized Trial

Allen Gifford[1] **(presenting)**, Sarah McDannold[2], Keith McInnes[2], Julie Devasia[2], Joel Reisman[3], Mark Glickman[2], Matthew Goetz[4]

[1] Veterans Health Administration, Bedford, MA, USA
[2] Boston University and Department of Veteran Affairs, Bedford, MA, USA
[3] Department of Veteran Affairs, Bedford, MA, USA
[4] Department of Veteran Affairs, Los Angeles, CA, USA

Background: Tablet computers are increasingly convenient, familiar, inexpensive and common in healthcare. But the clinical effectiveness of tablet-delivered patient-facing interventions to support adherence is unknown. We conducted a multi-site prospective randomized trial of a touch-screen computer-based intervention for anti-retroviral therapy (ART) adherence.

Methods: *MedCHEC* is a browser-based HIV adherence audio computer-assisted and adapted self-interview completed prior to each clinic visit, with results produced real-time to support patient and physician adherence care during routine clinic visits. Adults on ART at 3 urban US clinics were randomized to receive *MedCHEC* (MED), or standard care adherence patient education (EDU). Referral to adherence care educators was available at study clinics. Electronic drug monitor (MEMSCap™) adherence was measured at baseline, and throughout 1 year of follow-up. Adherence was defined as the fraction of total daily expected doses taken, averaged over successive 7-day periods during the year of follow-up. Random effects linear models were fit as a function of study arm (MED vs. EDU), baseline adherence, health and socio-demographic characteristics, with separate random effects per patient. A 45-day "wash-in" was set to assure at least one clinic visit tablet-use opportunity. We tested *early period* (days 46-180) and *late period* (days 181-360) intent-to-treat analysis effects.

Results: The N=255 randomized were predominantly male (81%), non-white (72%), aged >50 years (57%), and dosed once daily (65%); 23% reported IVDU, 32% MSM. N=238 (51% MED, 49% EDU) contributed follow-up data. *Early period* adherence was significantly greater in the MED group vs. EDU ($p<0.03$), with adjusted mean adherence 9.6% higher in MED during the period. *Late period* adherence was not different between the groups.

Conclusions: During one year of follow-up, ART-experienced HIV-positive patients assigned to *MedCHEC* initially had better dose-taking adherence than patients assigned to standard adherence education, but the effect did not persist during the 6-12 month period. Effects on dose-timing adherence and other outcomes are unknown.

400 The Navigation Program: An Innovative Method for Finding and Re-Engaging Lost HIV Clinic Patients

Rhodri Dierst-Davies[1] **(presenting)**, Saloniki James[1], Amy Rock-Wohl[1]

[1] Los Angeles County Department of Public Health, Los Angeles, CA, USA

Introduction: An estimated 47% of HIV-infected persons in Los Angeles County (LAC) were retained in care in 2011(2 or more viral load [VL] at least 3 months apart). The Navigation Program was developed to identify, locate and re-engage lost patients at four LAC clinics. Enhanced public health investigative techniques were used to locate/contact patients including use of contact information from HIV/STD surveillance, clinic records and public databases. A modified ARTAS strength-based intervention was used to promote linkage to care. Preliminary results are presented.

Description: Eligible lost clinic patients included HIV-infected persons 18 years of age or older with any of the following: a) no reported VL or CD4 measures in previous 12 months per HIV surveillance data; b) no reported VL or CD4 measurement in 7-12 months and most recent VL >200 copies/mL; c) newly- diagnosed with HIV and not linked to care within 3 months; and d) recent incarceration with no regular provider.

Lessons Learned: Among 499 lost clinic patients, 43% were ineligible (in-care elsewhere, deceased, not LAC residents); 43% were unavailable or had invalid contact information and 12% were located and enrolled (n = 47). The majority was Latino (68%), male (72%), uninsured (51%) and reported stable housing (87%). The most useful contact information came from HIV surveillance (39%) and clinic medical records (36%). An average of 7 appointments or 15 hours of NAV time over 90 days was needed to link patients to care. A total of 98% of enrolled participants were linked to care, however only 59% of those enrolled in the intervention for at least 6 months had completed two or more medical visits at 6 months.

Recommendations: HIV surveillance and clinic medical records provided the most useful contact information and the modified ARTAS intervention was effective at linking persons to care, however a longer intervention would likely improve retention in care at 6 months.

ORAL ABSTRACTS

402 Population-Based Estimates of Engagement in the Continuum of HIV Care in Western Kenya: From HIV Testing to Retention

Becky Genberg[1] **(presenting)**, Violet Naanyu[2], Juddy Wachira[3], Paula Braitstein[4]

1 Brown University, Providence, RI, USA
2 Moi University School of Medicine, Eldoret, Kenya
3 AMPATH Consortium, Eldoret, Kenya
4 Indiana University School of Medicine, Indianapolis, IN, USA

Background: Few estimates of engagement in the early phases of the continuum of HIV care from community-based samples exist in sub-Saharan Africa. The objective of this study was to report engagement within one district in Kenya served by AMPATH (Academic Model Providing Access to Healthcare). Focused on care delivery, AMPATH is a partnership between Moi University, Moi Teaching and Referral Hospital, and a consortium of North American institutions.

Methods: 3,485 HIV-positive individuals >13 years were identified during population-wide home-based counseling and testing (HBCT) between December 2009-February 2011. AMPATH medical records verified engagement in care (initial encounter with an HIV provider), treatment eligibility (CD4 testing), antiretroviral therapy (ART) initiation, retention (clinic visit within three months of scheduled return), and mortality as of April 2013. Individuals reporting care outside of AMPATH were excluded. Logistic regression analysis was used to examine socio-demographic factors associated with losses in the continuum. Secondary analysis examined the subset newly diagnosed during HBCT.

Results: Of 3286 eligible individuals, 64% were female, with a mean age of 36. As of April 2013, 59% (n = 1,940) had engaged in care, 59% had received CD4 testing, and 52% had initiated ART. Among those engaged in care, 10% were not retained in care and 3% died. Men (OR = 0.64, 95% CI: 0.55,0.77) and those <25 years (OR = 0.33, 95% CI: 0.27,0.39) were less likely to have engaged in care. Men and those <25 years were also less likely to have had CD4 testing, initiated ART, been retained in care, and more likely to have died. Among those newly diagnosed during HBCT (n = 1,349), 12% linked to care, 67% within 90 days.

Conclusions: Engagement estimates were similar to recently published reviews of largely clinic-based samples, however linkage following HBCT among those newly diagnosed was low. Additional efforts are needed to engage men, young adults, and individuals testing via HBCT.

408 Time to Retention among Persons Linked to HIV Care in BC, Canada, from 2000-2012

Lillian Lourenco[1] **(presenting)**, Guillaume Colley[1], Dmitry Shopin[1], Keith Chan[1], Bohdan Nosyk[1], Kate Heath[1], Julio Montaner[1], Viviane Lima[1]

1 British Columbia Centre for Excellence in HIV/AIDS, Vancouver, BC, Canada

Background: Previous analyses have demonstrated the greatest attrition observed in the HIV cascade of care for the province of British Columbia (BC), Canada, occurs in the transition from 'linked' to 'retained' in care. Thus, we performed a time to retention analysis among persons linked to HIV care in BC to understand why leakage occurs.

Methods: We included individuals in the BC STOP HIV cohort 'linked' to care between 2000 and 2012 who had at least one calendar year of follow-up. Individuals were followed until death, last contact date or end of December 31, 2011. 'Linked' was defined as the first instance of an HIV-related service following HIV diagnosis. 'Retained' in care was defined as having, within a calendar year, either: i) an HIV-related physician visit or diagnostic test (CD4 or pVL) or ii) ≥2 ARV dispensations, ≥3 months apart. Weibull survival analysis was used to determine factors associated with time to retention among linked persons. We adjusted for several fixed and unfixed clinical and demographic variables.

Results: A total of 5,231 persons were linked to care between 2000 and 2012 (79% male, median age ([Q1-Q3]): 39 (32-46) years, median time to retention: 8 (5-12) months), of which 540 (10%) were never 'retained' in care. The adjusted survival model estimated that females (adjusted Hazard Ration (aHR) = 0.81 (95%CI:0.75,0.87)), individuals with non-HIV related visits to a general practitioner (GP) during 'linked' year (aHR = 0.75 [95%CI:0.70, 0.80]) or non HIV-related hospital admissions, during linked" year (aHR = 0.60 [95%CI:0.54,0.67]) were less likely to be retained in care. Individuals 40-49 (aHR = 1.20 (1.10, 1.31) and ≥50 years of age (aHR = 1.16 (1.05, 1.28), and those with non-HIV related specialist visits, during 'linked year' were more likely to be retained in care (aHR = 3.06 (95%CI: 2.71, 3.45)).

Conclusions: Individuals who saw non-HIV-related specialists during their linked year were more likely to be retained in HIV care than those who saw a non-HIV-related GP. This missed opportunity for engagement in HIV care suggests a potential for GP-related interventions to improve time to retention in care.

409 Developing and Implementing a PrEP Demonstration/ Implementation Hybrid in a Community-Based Health Center

Sarit Golub[1] **(presenting)**, Anita Radix[2], Amy Hilley[2], Sharon Marazzo[2], Anthony Catalanotti[2]

[1] Hunter College, CUNY, New York, NY, USA
[2] Callen-Lorde Community Health Center, New York, NY, USA

Introduction: Although PrEP received FDA approval in July 2012, uptake among men who have sex with men (MSM) remains low, and few community-health centers have integrated PrEP into their HIV prevention programs. This project (R01AA022067) was funded to develop a program in which PrEP is provided and supported as a fully integrated comprehensive HIV prevention package at a community-based health center in New York City.

Description: To develop the program, we conducted in-depth interviews with health center providers, patients, and community stakeholders (n = 44) regarding individual-, organizational-, and community-level factors that might influence PrEP access, uptake, and use/adherence. Based on this formative work, we developed a comprehensive PrEP implementation program, including two brief interventions - one designed to assist patients in decision-making around PrEP initiation, the other designed to support and improve PrEP adherence. We also developed specific training for health center staff at all levels, written program materials and a website.

Lessons Learned: Our work pointed to critical considerations in six areas: 1) Developing messages and counseling strategies that extend beyond risk reduction toward sexual health; 2) Managing a variety of staff skepticism and resistance; 3) Creating or adapting related protocols throughout the health center impacted by PrEP (i.e., sexual health clinic, STI testing, HIV counseling and testing); 4) Deciding about eligibility, targeting, referral and self-referral protocols, 5) Developing visit protocols that span provider types and include PrEP-specific elements; and 6) Confronting issues of stigma that might impact PrEP uptake and persistence.

Recommendations: Creating PrEP delivery and support programs within community health centers is a critical step toward realizing its potential to avert new HIV infections among MSM. This presentation suggests an implementation blueprint for other health centers, including concrete steps that can be adapted to the specific needs of individual settings and communities.

413 Positive Links: Smart Phones and Support for Successful Linkage to HIV Care in Rural Virginia

Colleen Laurence[1], Erin Wispelwey[1], Erin Plew-Ogan[1], George Reynolds[2], Tabor Flickinger[1], Karen Ingersoll[1], Wendy Cohn[1], **Rebecca Dillingham**[1] **(presenting)**

[1] University of Virginia, Charlottesville, VA, USA
[2] Health Decision Technologies, Sheboygan, WI, USA

Introduction: Nationally, models suggest that 59-69% of people diagnosed with HIV are linked to care and a smaller proportion is retained in care. People recently diagnosed with HIV in rural Virginia struggle with multiple challenges to linkage and engagement in care. The *Positive Links* program (*PLp*) described strives to address these challenges with a tailored smart phone app and counseling program.

Description: *PLp* is offered to all newly-diagnosed individuals referred to the program. Participation in the program includes provision of a no-cost cell phone that is loaded with a custom-designed, highly secure application (app). The app delivers personalized, interactive reminders; offers a virtual anonymous community and educational materials; and monitors adherence and other key. In addition, *PLp* has adapted the strengths-based case management (SCBM) counseling sessions developed by the Antiretroviral Treatment and Services (ARTAS) program and coordinated them with the *PL* app.

Lessons Learned: 1) The *PLp* is highly desirable to newly diagnosed patients, and it is reaching a key demographic of young gay men. From September 25, 2013 to January 11, 2014, we enrolled 26 participants in the program, 74% of those approached. Mean age of participants is 32. 54% are under 30. 70% are male, and 54% are MSM. 2) On average, 70% of the participants interact with the app in some way each week. The community message board and the individual dashboard are the most used features. 3) The community message board provides an important space to ask questions and share ideas, but crisis messages are frequent and must be addressed. 4) There is low uptake of in-person counseling sessions.

Recommendations: One year of participation is planned. Qualitative and quantitative data about app usage and experience over time will be collected. Clinical and engagement outcomes will be collected prospectively and systematically.

ORAL ABSTRACTS

414 Comparing Adherence Items of Missed Doses with Different Timeframes and their Associations with Viral Load in Routine Clinical Care

Robin Nance[1], J Delaney[1], Rob Fredericksen[1], Anna Church[1], Anna Harrington[1], Paul Crane[1], **Heidi Crane[1] (presenting)**

[1] University of Washington, Seattle, WA, USA

Background: Medication adherence items often ask how many doses have been missed over a time period. However, questions remain regarding the optimal timeframe for asking about medication adherence in clinical care settings. To determine which timeframe is most useful, we compared 4-, 7-, 14-, 30-, and 60-day self-reports with viral load levels.

Methods: Observational study of 920 patients on antiretroviral therapy from the University of Washington. Patients complete touchscreen assessments including adherence at ~4-6-month intervals as part of clinical care. Adherence items asking about numbers of missed doses were included with timeframes of 4, 7, 14, 30, and 60 days. Using patients' most recent assessment, and each timeframe item, we calculated missed doses per day and examined the correlations with each other and with viral load. We conducted logistic and linear regression analyses examining associations between different timeframes and viral load as a binary and log-transformed continuous outcome.

Results: Longer timeframes capture increasing numbers of patients as having missed doses (23% for 4-day vs. 58% for 60-day items). Correlations between calculated missed doses for each timeframe was strong (e.g.14- vs. 30-days 0.871) however became increasingly less strong for time periods farther apart (e.g. 4- vs. 60-days. 0.560). Calculated missed doses from the 14-day item had the largest correlation with viral load. In logistic and linear regression models of viral load including all timeframes, only missed doses calculated from the 14-day adherence item was significant (p <0.05). In a stepped approach, adding the other timeframes did not improve the R2 of models including the 14-day item.

Conclusions: Adherence measured by all missed dose items correlated with viral load and with each other to varying degrees. Items with longer timeframes captured more patients with missed doses. The 14-day item seemed to be best able to capture adherence behavior as measured by viral load.

416 Houston Primary Care Providers' Perceptions of and Willingness to Prescribe HIV Pre-Exposure Prophylaxis

Charlene Flash[1] (presenting), Monisha Arya[1], Amber Amspoker[1], Kenneth Mayer[2], Douglas Krakower[3], Micha Zheng[4], Thomas Giordano[1]

[1] Baylor College of Medicine, Houston, TX, USA
[2] Harvard University, Boston, MA, USA
[3] Beth Israel Deaconess Medical Center, Boston, MA, USA
[4] University of California, Berkeley, CA, USA

Background: Although HIV pre-exposure prophylaxis (PrEP) uptake requires providers to be knowledgeable and willing to prescribe or refer, little is known about their attitudes and practices.

Methods: From January-April 2013, community health center primary care providers in Houston, TX, participated in an anonymous on-line survey, analyzed via multiple logistic regression.

Results: 210 providers completed the survey. Mean participant age was 36 years and 63% were female. Almost half (43%) were faculty and 56% trainees; 42% were internists, 26% family physicians, 19% ob/gyns, and 11% HIV specialists. Fifty-seven percent believed PrEP to be proven safe and effective; most of the rest were unsure. Controlling for demographic and medical practice variables, HIV specialists had 7.4 times greater odds of agreeing that PrEP is safe and effective (p = .002), compared to other providers. Forty-one percent believed they could identify PrEP candidates in their practices. HIV specialists were at nearly 4 times greater odds of being confident in their ability to identify patients who needed PrEP than other providers (p = .003). Most providers would be willing to refer patients for PrEP (94%) or to prescribe PrEP (86%) if trained to do so. Nonetheless, 60% preferred PrEP be managed by a specialist. Although only 18% of providers had received a patient inquiry about PrEP, 80% would be motivated to prescribe PrEP by patient requests. However, 29% believed PrEP might promote risky behavior.

Conclusions: More than 40% of primary care providers in Houston were unsure that PrEP is safe and effective. Many were concerned about increased risky behaviors in PrEP users, and many were uncertain they could identify eligible patients. Most primary care providers prefer HIV specialists manage PrEP. These findings highlight the need for additional training for primary care providers to enhance their confidence in prescribing PrEP and willingness to engage patients in the use of PrEP.

427 Antiretroviral Refill Adherence is an Early Predictor of Retention in HIV Care

Robert Bonacci[1], Warren Bilker[1], Laura Bamford[2], Baligh Yehia[3], Katherine Frasca[1], Lyles Swift[3], Jing Ren[1], Daohang Sha[1], **Robert Gross[3] (presenting)**

[1] University of Pennsylvania Perelman School of Medicine, Philadelphia, PA, USA
[2] Philadelphia FIGHT, Philadelphia, PA, USA
[3] University of Pennsylvania, Philadelphia, PA, USA

Background: Non-retention in HIV care is difficult to detect early with the long time needed for defining adequate retention (6-12 months). Retention and adherence to antiretrovirals (ARVs) are related constructs. We evaluated whether ARV refill adherence is an early marker of non-retention.

Methods: We enrolled a retrospective cohort from a Philadelphia adult HIV clinic between October 2012 and April 2013. Primary outcome was 'show' vs. 'no-show' at a randomly selected primary HIV care index visit. Adherence was defined as: 1) % doses taken for an index drug (30-day supply/days between fills)*100% for two fills closest to index visit and 2) # of days late for index drug immediately prior to index visit. We used rank sum tests to compare adherence between groups and logistic regression to control for age, race, sex, injection drug use (IDU) history, AIDS diagnosis, and HIV risk factor.

Results: 297 participants were median age 48 years (IQR 41-53), 69% male, 63% black, 20% with IDU history, 53% with AIDS diagnosis, and 46% on boosted protease inhibitor. 89 (30%) 'no showed.' % doses taken was higher for the 'show' than 'no show' group [93.8% (95% CI: 75, >100%) vs. 81% (95% CI: 54%, >100%), p <0.005]. The probability of being late for the most recent prescription was significantly higher in the 'no show' than the 'show' group (p = 0.003]. There was no confounding.

Conclusions: 'No show' to clinic was common and ART adherence was significantly lower in 'no shows' than 'shows.' This is proof of concept that tracking of pharmacy data for being late for refills may flag individuals in need of retention interventions. Future studies may use this early marker to identify and address barriers arising at the time of late refill to prevent future non-retention in HIV care.

428 Postpartum Retention in HIV Care among HIV-Infected Women in the South

Kelly Smith[1], Jodie Dionne-Odom[2], Inmaculada Aban[3], Martin Rodriguez[2], Marsha Sturdevant[4], **Mirjam-Colette Kempf[5] (presenting)**

[1] Department of Epidemiology, University of Alabama at Birmingham, Birmingham, AL, USA
[2] Department of Medicine, University of Alabama at Birmingham, Birmingham, AL, USA
[3] Department of Biostatistics, University of Alabama at Birmingham, Birmingham, AL, USA
[4] Department of Pediatrics, University of Alabama at Birmingham, Birmingham, AL, USA
[5] Nursing and Health Behavior, University of Alabama at Birmingham, Birmingham, AL, USA

Background: While prevention of mother to child transmission has been a focus of prenatal care among HIV-infected women, less attention has been given to their postpartum continuum of HIV care. This study's objective is to provide insight on postpartum retention in care among HIV-infected women seeking care at five HIV clinics in Alabama.

Methods: In this retrospective review, 266 pregnancies were included from 226 HIV-infected women who delivered between 1998-2008 in Birmingham or Montgomery, AL. Data were collected once for each interval of prenatal and postpartum care as available; each trimester and every 6 months postpartum from 6-36 months. Availability of CD4 counts or HIV viral load (VL) were used as surrogate markers for retention in HIV care. HIV virologic suppression was defined at a threshold of <400 VL copies/mL.

Results: Women in our cohort were predominantly African-American (81.5%), with a median age of 26.8 years and age range of 15-45 years at time of delivery. VL or CD4 count data was available for 245 pregnancies during the third trimester of pregnancy, indicating optimal HIV care (92%) prior to delivery, followed by decreased retention over time (59% at 12 months postpartum, 49% at 24 months postpartum and 42% at 36 months postpartum). VL data only was available for 198 pregnancies during the 3rd trimester, with 68% showing VL suppression. VL suppression rates declined over the postpartum period for women who were retained, with 40% at 12 months, 42% at 24 months and 33% at 36 months.

Conclusions: While most pregnant HIV-infected women are successfully retained in care during pregnancy, postpartum HIV care outcomes such as retention in care and VL suppression rates are alarming. Efforts need to be made to address retention and adherence to care during postpartum among pregnant HIV-infected women to maintain clinical outcomes achieved during pregnancy.

ORAL ABSTRACTS

430 Six-Month Outcomes from a Medical Care Coordination Program at Safety Net HIV Clinics in Los Angeles County

Wendy Garland[1], **Rhodri Dierst-Davies[2] (presenting)**, Sonali Kulkarni[1]

[1] Los Angeles County Department of Public Health, Division of HIV/STD Programs, Los Angeles, CA, USA
[2] Los Angeles County Department of Public Health, Los Angeles, CA, USA

Background: Medical care coordination (MCC) models have improved health outcomes for a number of chronic diseases, however, there is limited application of these models in HIV care settings. To improve health outcomes at HIV clinics in LAC that serve predominantly low-income, minority populations, we implemented a MCC service model that is integrated into routine clinical services. Preliminary 6-month viral load (VL) and service data are presented.

Methods: In 1/2013 MCC was implemented at 18 Ryan White-funded HIV clinics to identify and serve patients at risk for poor health outcomes as follow: HIV diagnosis ≤6m; VL ≥ 200 copies/mL; not on antiretrovirals (ARTs) but CD4 ≤500 cells/mm^3; active substance user; incarcerated in past 6m; and last medical visit >7m. Baseline assessment and service delivery data were collected. Change in median VL and viral suppression (VL <200 copies/mL) at 6m were the main outcomes. Comparisons from baseline to 6m were performed using Wilcoxon Signed Rank and McNemar's tests for paired data. Regression methods were used to calculate odds ratios (ORs) and 95% confidence intervals (CIs) and to identify predictors of viral suppression at 6m.

Results: From 1/2013-10/2013, 271 patients were assessed for MCC (51% Latino, 21% African American; 86% male; 76% ≥ poverty level; 54% ≥40 years; 34% foreign-born; and 73% on ARTs). At 6m, patients received 10.8 median hours of MCC (interquartile range (IQR) = 12.0). From baseline to 6m, median VL decreased from 4,060 copies/mL (IQR=55,158) to 68 copies/mL (IQR = 9,046) (p <0.0001) and the proportion of patients with viral suppression increased from 28% to 58% (OR = 5.1, 95%C I= 2.6, 9.8). Viral suppression at 6m was not associated with hours of MCC received (OR = 0.9, 95%CI = 0.9-1.0).

Conclusions: Preliminary findings suggest that a clinic-based MCC model has the capacity to identify and serve patients at risk for poor health outcomes and improve viral load suppression at 6m.

431 Engagement in HIV Care Following Release from Jail

Mi-Suk Kang Dufour[1], **Janet Myers[2] (presenting)**, Timothy Buisker[3], Mark Morewitz[2], Rebecca Packard[2], Milton Estes[4], Kate Monico-Klein[4]

[1] UCSF CAPS, San Francisco, CA, USA
[2] University of California, San Francisco, CA, USA
[3] University of California, Berkeley/University of California, San Francisco, CA, USA
[4] Forensic AIDS Project, Department of Public Health, San Francisco, CA, USA

Background: HIV-infected individuals receive health care in jail and are often medically stabilized while incarcerated but face challenges to establishing continuing care in the community following release. Patient navigators can support engagement in care and adherence to treatment, resulting in viral suppression and reduced HIV transmission risk.

Methods: The Navigator Project is a randomized controlled trial for HIV-infected inmates leaving jail in San Francisco. Participants were randomized to either 1 year of active patient navigation or 90 days of as needed case management. To examine adherence to ARVs after release, we used data from jail and city-wide electronic medical record systems maintained by public clinics. Audio computer assisted self-interviews were conducted at 2, 6 and 12 months following release. Results are presented here for the first 2 months post-release.

Results: Baseline pre-release data were available for 271 individuals. In the 2 months following release, interview and medical record data were available for 215 and 254 participants respectively. Most (78%) participants reported having seen an HIV provider for their regular care. Undetectable viral loads were reported by 50% and confirmed in clinical data for 46% in the two months post release. Undetectable viral load lab results were associated with higher baseline scores on the coping and self-efficacy scale (OR 1.01 95% CI 1.00, 1.02) and with older age (OR 1.03 95% CI 1.00, 1.06). There were no statistically significant differences in self-reported adherence or service utilization or undetected viral load by alcohol or substance use severity, psychiatric diagnoses or between study arms during the first 2 months following release.

Conclusions: Self-reported data indicated that for participants receiving either type of case management, engagement in care was high among HIV-infected individuals in the first 2 months following release from jail.

436 Examining Clinic-Based and Public Health Approaches to Ascertainment of HIV Care Status

Katerina Christopoulos[1] **(presenting)**, Susan Scheer[2], Revery Barnes[3], Wendy Hartogensis[1], Wayne Steward[4], Edwin Charlebois[1], Stephen Morin[1], Hong-Ha Truong[1], Elvin Geng[1]

[1] University of California, San Francisco, CA, USA
[2] San Francisco Department of Public Health, San Francisco, CA, USA
[3] Harbor UCLA Department of Family Medicine, Los Angeles, CA, USA
[4] UCSF Center for AIDS Prevention Studies, San Francisco, CA, USA

Background: Identification and re-engagement of HIV-infected individuals who are not in care is a priority issue. Silent transfers, migration, and incarceration can result in misclassification of care status. Clinic-based data sources and public health surveillance data may provide different information regarding care status for the same patients. How best to use these sources together to identify out of care patients is unknown

Methods: At a large public HIV clinic in San Francisco, we selected a 10% random sample of active patients who were at least 210 days "late" for a primary care visit by electronic medical record query as of April 6, 2013, for clinic-based tracking. Care status was ascertained through chart review and outreach by phone, email, mail, and in-person tracking. Patients were considered out of care if they had not seen an HIV primary care provider in the 210 days prior to April 6, 2013. We then matched the sample with the San Francisco Department of Public Health HIV/AIDS surveillance registry. Patients with a CD4 or viral load result in the 210-day period were classified as in care. We compared results from both sources.

Results: Of 940 patients lost to follow-up, 95 were sampled. Clinic tracking found 60 (63%) in care, 23 (24%) not located, 9 (10%) out of care, 2 (2%) incarcerated, and 1 (1%) had died. Of 42 individuals surveillance classified as out of care, tracking found 22 (52%) were in care. Surveillance classified 12/32 (38%) of those not located or out of care by clinic tracking as in care.

Conclusions: Clinic-based tracking and surveillance data together provide a better understanding of care status than either method alone. Using surveillance data to inform clinic-based outreach efforts may be an effective strategy, especially since effective care consists of regular primary care visits in addition to laboratory testing.

437 Evaluating the Development and Implementation of Linkage and Retention Interventions for People Living with HIV: The HRSA/SPNS Systems Linkage and Access to Care Initiative

Kimberly Koester[1] **(presenting)**, Shannon Fuller[2], Andre Maiorana[3], Cara Safon[3], Shane Collins[1], Wayne Steward[1], Janet Myers[3]

[1] UCSF Center for AIDS Prevention Studies, San Francisco, CA, USA
[2] University of California, San Francisco/Center for AIDS Prevention Studies, San Francisco, CA, USA
[3] University of California, San Francisco, CA, USA

Background: In 2011, the Health Resources and Services Administration (HRSA) Special Projects of National Significance (SPNS) launched the Systems Linkage and Access to Care Initiative. Six states received funding to develop and implement HIV testing, linkage and retention interventions over a 4-year period. This statewide demonstration project includes a multistate evaluation center.

Methods: The multistate evaluation includes a comprehensive qualitative component. During the formative evaluation phase, we conducted key informant interviews with stakeholders (n = 68) and observations of statewide planning meetings (n = 18) in 6 states to document the development and implementation process of the interventions. Stakeholders included state-level project representatives, demonstration site representatives, and project implementers. All interviews were audio-recorded, transcribed verbatim and analyzed following the framework analysis approach.

Results: To date, the demonstration states collectively generated 19 different interventions. The majority of the interventions focus on linking, engaging/re-engaging and retaining patients rather than testing. Interventions include enhancing and standardizing existing linkage services and/or creating new interventions, which rely heavily on additional human resources e.g., patient navigators, linkage-to-care specialists. State representatives and their clinic partners are creating procedures to prioritize the identification and retention of out-of-care and loosely retained patients. Common features of the interventions include focused support services directed to small caseloads and home visits/fieldwork. Challenges include role differentiation between linkage/retention specialists and case managers as well as transitioning patients out of the specialized services. People who are newly diagnosed with HIV have different (lesser) needs than those who are out-of-care.

Conclusion: The SPNS demonstration projects are testing interventions that concentrate time and personnel on hard to reach patients. While the interventions are not necessarily expansive in reach, they are intensive. Areas of innovation include increased ability to do home visits and a re-conceptualization of case management to shift the emphasis to retaining patients.

ORAL ABSTRACTS

440 To Take or Not to Take PrEP: Perspectives from Participants Enrolled in the iPrEx Open Label Extension (OLE) in the United States

Hailey Gilmore[1] **(presenting)**, Kimberly Koester[2], Albert Liu[1],
K Rivet Amico[3], Vanessa McMahan[4], Pedro Goicochea[4],
David Lubensky[5], Susan Buchbinder[6], Kenneth Mayer[7],
Sybil Hosek[8], Robert Grant[4]

[1] Bridge HIV, San Francisco, CA, USA
[2] UCSF Center for AIDS Prevention Studies, San Francisco, CA, USA
[3] University of Connecticut, Brighton, MI, United States
[4] Gladstone Institutes, UCSF, San Francisco, CA, USA
[5] Bagatto, Inc., San Francisco, CA, USA
[6] San Francisco Department of Public Health, San Francisco, CA, USA
[7] Fenway Community Health, Brown University, Boston, MA, USA
[8] Stroger Hospital of Cook County, Chicago, IL, USA

Background: iPrEx OLE, the first global HIV pre-exposure prophylaxis (PrEP) demonstration project, launched in 2011. Uptake of PrEP in OLE was 69% overall. We describe motivations to take or not take PrEP among participants in San Francisco (SF), Boston, and Chicago.

Methods: During OLE participants who had previously participated in blinded PrEP trials were given the option to take open label PrEP or not. A subset of US-based participants was purposefully selected for in-depth-interviews (IDIs). Questions included reasons for choosing to take/not take PrEP and how PrEP did/did not fit into their lives. Interviews were transcribed verbatim, coded, and analyzed using Framework Analysis.

Results: Overall, 293 men who have sex with men (MSM) enrolled in OLE in SF (154), Boston (93), and Chicago (46). Between April and August 2012, 77 participants (28 SF, 26 Boston, 23 Chicago) participated in IDIs; 54 (70%) were on-PrEP. Median age was 34; 49% white; 36% Black; 15% other; Chicago participants were younger and more likely to be black or Latino. Most on-PrEP IDI-participants chose to take PrEP for an "extra layer of protection" when having sex, such as in the event of condom non-use or malfunction. A few reported using PrEP as their primary HIV risk-reduction strategy. Off-PrEP participants expressed prior experiences with or concerns about side effects; change in relationship status; utilizing other safer-sex strategies; or (less often) having medical issues precluding use of PrEP; as reasons not to take PrEP. Participants in both groups described study benefits including regular HIV-testing, and a desire to continue to contribute to the HIV-prevention field.

Conclusions: IDI-participants expressed a range of factors influencing their PrEP-uptake decisions. Accurate information regarding safety/tolerability may assist in the decision to take PrEP. Understanding and supporting motivation to use PrEP will be critical to its success as an HIV prevention intervention.

441 in+care Campaign: Improving Retention in HIV Care

Michael Hager[1] **(presenting)**

[1] National Quality Center, New York, NY, USA

Background: The in+care Campaign is designed to facilitate local, regional and national improvement on patient retention in HIV care and to evaluate the factors correlated with such improvements.

Methods: The Campaign involves prospective analysis of participant-submitted sequential cross-sectional data using standardized indicators: three retention indicators and one viral suppression indicator. Utilization of Campaign resources, frequency of data submission, and important facility characteristics were included in the analysis. The Campaign collected data from over 200 HIV provider organizations located in 48 states and territories and representing a patient pool of 160,000 HIV-infected individuals (non-de-duplicated).

Results: Average performance on three Campaign indicators improved over the two years of data collection (gap measure from 15.6% to 12.29%, visit frequency measure from 63.9% to 69.5%, viral suppression measure from 70.0% to 73.2%). Organizations serving 501 to 2000 HIV+ people had higher levels of performance than those serving 500 or fewer or greater than 2000 HIV+ people across the same three indicators (e.g., viral suppression measure October 2013 was 76.5% for middle-sized agencies, 71.2% for small agencies, and 71.8% for large agencies). In addition, community health centers had higher levels of performance than hospitals and health department clinics (e.g., visit frequency measure October 2013 was 75.2% for non-FQHC health centers, 74.2% for FQHCs, 68.5% for hospitals, and 64.7% for health department clinics that are not FQHCs). Improvement was greater among those agencies that reported their retention strategies to Campaign staff (e.g., gap measure performance improved by 5.4 percentage points for intervention reporters vs. 1.4 percentage points for non-reporters) and among agencies performing in the bottom quartile at baseline.

Conclusions: Retention in HIV care improved among Campaign participants over the first 2 years of the in+care Campaign. Additional follow-up with more rigorous design is needed to identify which specific retention strategies led to greater improvement in performance.

443 Using the Visual Analogue Scale to Measure Adherence to Antiretroviral Therapy: A Meta-Analysis

David Finitsis[1] **(presenting)**, Jennifer Pellowski[1], Seth Kalichman[1]

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

Background: Mobile technology (mHealth) can innovate how we monitor and measure adherence. With its single-item structure and graphical interface, the visual analogue scale (VAS) is a putative front-runner for use in mobile applications measuring adherence. Research on the application of VAS as a measure of adherence however has yielded a mixed literature. This meta-analysis synthesized currently available studies comparing VAS with other methods of measuring antiretroviral therapy (ART) adherence.

Methods: Included studies (a) reported on medication adherence in an HIV sample using VAS and (b) analyzed VAS concordance with at least one other adherence or biological measure. Studies were coded for participant and design characteristics. An inverse variance weighted Fisher's *Zr* effect size was calculated from information reported in each study. Effect sizes were analyzed under random effects assumptions. All study coding and ES calculations were independently duplicated.

Results: Sixteen studies met inclusion criteria. Studies compared VAS with additional self-report measures, objective measures (e.g., pill count), and viral load data. The mean age of participants was 37 years and 45.5% of the total sample (N = 5212) was female. Mean ES by study indicated a large strength of association (r = 0.45; 95%CI: 0.43, 0.47). Sensitivity analyses by comparison measure type exhibited high rates of concordance with the well validated AACTG (k = 6; r = 0.55; 95%CI: 0.37, 0.69), pill counts (k = 5; r = 0.77; 95%CI: 0.64, 0.86), and electronic data monitors (k = 4; r = 0.51; 95%CI: 0.25, 0.69). There was a medium strength association between VAS scores and viral load (k = 9; r = -0.32; 95%CI: -0.14, -0.48).

Conclusions: Analysis supports the continued use of VAS to measure ART adherence. Additional research should investigate design characteristics that will improve response accuracy, reduce self-report bias, and optimize its transition to mHealth applications.

444 Public Health Campaigns as a Vehicle for Quality Improvement in HIV Services

Michael Hager[1] **(presenting)**

[1] National Quality Center, New York, NY, USA

Introduction: The in+care Campaign is designed to facilitate local, regional and national improvement on patient retention in HIV care and to evaluate the factors correlated with such improvements in the context of a public health campaign.

Description: The Campaign has several activities for participants, including: 1) an educational curriculum including webinars, newsletters, and web resources geared toward different stakeholder groups and subpopulations; 2) access to nationally recognized QI coaches; 3) opportunities to organize local retention group task forces among enrolled providers and other key stakeholders; 4) data reporting on standardized retention indicators and improvement interventions related to the measures; and 5) forums for consumer input. Participants were invited to enroll voluntarily, and participation was not a requirement of Ryan White funding. Participants were able to select which activities to join a-la-carte, and there was no expectation or threat of removal for partial participation. The Campaign enrolled over 500 HIV provider organizations in 48 states and territories and representing nearly 475,000 HIV-infected individuals (non-de-duplicated). More than 500 HIV-infected individuals are enrolled in the consumer activity, Partners in+care.

Lessons Learned: More than 50% of enrollees submitted performance data at some point and more than 20% of enrollees submitted almost every data point. Only 33% of participants made use of their assigned QI coach and fewer still (21%) submitted information on improvement strategies. 35 local retention groups formed across the United States as discussion forums for retention issues. The Campaign was an action-oriented vehicle around which to organize regional and local responses to the NHAS. Middle sized agencies were most likely to submit performance and intervention data.

Recommendations: Future campaigns focused on retention in HIV care are needed to serve as a peer learning platform. An a-la-carte public health campaign model can be employed as part of other chronic disease projects to rapidly expand learning and improvement potential.

This abstract will also be presented as a poster.

ORAL ABSTRACTS

448 Comparison of Engagement in Care Measures Using Self-Report and Clinical Records Data

Irene Kuo[1], Kossia Dassie[1], Paige Kulie[1], Wenze Tang[1], Ifeoma Ikwuemesi[1], Jillian Dunning[1], Sean Allen[1], Meriam Mikre[1], **Amanda Castel[1] (presenting)**, James Peterson[1], Avani Patel[1]

[1] George Washington University School of Public Health and Health Services, Washington, DC, USA

Background: Determining where a person exists along the continuum of HIV care is often determined using various sources including self-report and clinical data. The objective of this analysis was to assess differences in care-status measures collected from patient report and clinical records data.

Methods: Between June-December 2013, a convenience sample of HIV-infected persons receiving care at three clinics in Washington, DC was surveyed regarding perspectives on engagement in care. Participants provided self-reported visit frequency and were assigned a HRSA stage of care status. In this preliminary analysis, we compared engagement in care measures based on self-reported and clinical records (CR).

Results: Of 159 participants surveyed, 94 (59%) had CR abstracted; of those, 81% were male, 64% black, median age was 50 years, and 93% were insured in the previous 12 months. Twenty-seven (28%) self-reported visit patterns consistent with being in sporadic care; using CR, 24% were determined to be in sporadic care; of those in sporadic care, 100% perceived themselves to be "fully engaged in care" when presented with a visual continuum of care diagram. Based on CR, a median of 4 visits were scheduled during the study period, of which a median of 3 visits were kept. Participants self-reported more missed visits than those documented in the CR (mean 1.23 vs. 0.95). Forty-two percent self-reported the longest gap between care visits as being ≥6 months vs. 30% based on CR.

Conclusions: Among this sample of clinic attending HIV-infected persons, patients' perceptions of their care patterns and engagement in care differed from their actual receipt of care as measured by clinical records. Patient education regarding the meaning of optimal care engagement may assist in the measurement of care patterns and further inform research on the HIV care continuum.

456 Seek, Test, Treat and Retain for People Who Inject Drugs in Kenya: Findings from the First Intervention Period of a Stepped Wedge Study

John Lizcano[1] (presenting), Eva Muluve[2], Ann Kurth[1], Charles Cleland[1], Peter Cherutich[2]

[1] New York University, New York, NY, USA
[2] MOH Kenya, Nairobi, Kenya

Background: HIV infections in sub-Saharan Africa increasingly occur among people who inject drugs (PWID). Needle and syringe programs (NSPs) and PWID-specific ART support have been nearly non-existent, though Kenya is among the first to implement NSP at a country-wide level starting in 2013.

Methods: Evaluation is being done using a stepped wedge cluster-randomized design. We are using respondent-driven sampling (RDS) to reach PWIDs for HIV-1 prevalence and viral load determination [SEEK]. We will then collect study data in additional time periods as PWID service sites roll out, including behavioral data collected using tablets, rapid HIV testing [TEST], POC CD4 determination for HIV-positives, and assignment of peer case managers (PCMs) to those with CD4 <350 cells/μL to link to ART with adherence [TREAT]. Both PCMs and PWID will receive small conditional cash transfers for PWID adherence to HIV care visits [RETAIN].

Results: 1739 individuals were screened during the first intervention period with 1489 found to be eligible and enrolled (85.6%). Most enrolled participants were male (87.9%). Median age was 31 years; age ranged from 18 to 83 years. Median age at first injection was 26 years. About one in five (19.5%) were HIV positive. About 22% (n = 64) of those with HIV infection (n = 290) were newly diagnosed by our study. 21 participants were eligible to be assigned to a PCM and initiate ART. Of those, 19 initiated ART, 9 successfully continued on ART, 6 stopped taking ART, 2 were incarcerated, and 2 died. Thus 60% were retained in care (9/15 retained).

Conclusions: The combination of RDS and rapid testing is an effective strategy for finding PWID with HIV infection, including those not previously diagnosed. Linkage to care by PCMs has been very effective for ART initiation, but 40% of those not incarcerated or deceased do not continue ART.

471 Association between Barriers to Antiretroviral Therapy Adherence and HIV Viral Load among AIDS Clinical Trials Group Study Participants

Parya Saberi[1] **(presenting)**, Torsten Neilands[1], Eric Vittinghoff[1], Mallory Johnson[1], Margaret Chesney[1], Susan Cohn[2]

[1] University of California, San Francisco, CA, USA
[2] Northwestern University, Chicago, IL, USA

Background: We conducted a longitudinal secondary data analysis of ACTG studies to examine the association between ART adherence barriers and VL and to discern the relative importance of each barrier.

Methods: We assessed adherence barriers and VL from 11 ACTG ART studies conducted in the United States between 1997 and 2013. In bivariate logistic regression models, we examined the association between 11 individual and summed barriers at 12 weeks (+/- 4 weeks) and VL (detectable vs. undetectable) at 24 weeks (+/- 4 weeks). We used dominance analysis for variable importance, by arranging 11 barriers at 12-week in their order of importance based on the degree that they explained 24-week VL detectability.

Results: At 12 weeks, we examined data from 2,918 individuals, 83.2% male, 53.4% White, 29.5% Black, 18.1% Latino, 51.1% men who have sex with men, and 54.9% treatment-naïve pre-enrollment. Mean CD4+ was 386 cells/mm^3 and 44.0% had an undetectable VL. Participants most commonly reported missing ART due to "simply forgot" (22.5%) or "were away from home" (24.9%). However, only missing ART due to "had too many pills to take," "wanted to avoid side effects", "felt like the drug was toxic/harmful," "felt sick/ill," and "felt depressed/over-whelmed" were significantly associated with odds of having a detectable VL and were the barriers with the highest relative importance in explaining 24-week VL. "Simply forgot" was not associated with VL and was 10th in relative importance. Pattern of results was unchanged when accounting for study protocol.

Conclusions: Adherence barriers related to ART regimens such as high pill burden or perceived/actual medication adverse effects and depression were most important and significantly associated with virologic detectability in ACTG study participants. Adherence interventions may be more effective by prioritizing decreasing pill burden, educating about and mitigating ART adverse effects, and managing depression as opposed to focusing on forgetfulness.

472 Adherence and HIV RNA Suppression in the Current Era - Results from the Veterans Aging Cohort Study

Shilpa Viswanathan[1] **(presenting)**, Amy Justice[2], G. Caleb Alexander[1], Todd Brown[3], Neel Gandhi[4], Ian McNicholl[5], David Rimland[6], Maria Rodriguez-Barradas[7], Lisa Jacobson[8]

[1] Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, USA
[2] Yale School of Public Health/VA Connecticut Healthcare System, New Haven, CT, USA
[3] Johns Hopkins School of Medicine, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, USA
[4] Emory University Rollins School of Public Health, Atlanta, GA, USA
[5] San Francisco General Hospital - UCSF Positive Health Program/Department of Medicine, UCSF School of Pharmacy, San Francisco, CA, USA
[6] VA Medical Center, Emory University School of Medicine, Atlanta, GA, USA
[7] VA Medical Center, Baylor College of Medicine, Houston, TX, USA
[8] Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, USA

Background: We examined trends in adherence to highly active anti-retroviral therapy (HAART) and HIV RNA suppression, and estimated the minimum cutoff of adherence to newer HAART needed for HIV RNA suppression by regimen type.

Methods: Using pharmacy claims data from the Veterans Aging Cohort Study Virtual Cohort between October 2000 and September 2010, adherence was defined as the ratio of the total number of days of drug supply to the number of days between the first and last refill dates. Temporal trends in adherence and viral load suppression were examined by the most frequently used HAART regimen in a given year. The minimum needed adherence cutoff was defined as the level at which the odds of suppression was not significantly different than that observed with ≥95% adherence using repeated measures logistic regression.

Results: 21,865 HAART users contributed 82,217 person-years of follow-up. There was a significant increase (ptrend < 0.001) in the proportion virally suppressed even among those with <95% adherence (2001: 38% to 2010: 84%). The proportion with ≥95% adherence increased over time for users of NNRTI-based regimens but remained stable at 38% among PI users. The proportion suppressing virus in 2006-2010 with ≥95% adherence were 84.1%, 79.2% and 76.0% for users of NNRTI-, PI- and INSTI-based regimens, respectively. Suppression with <95% adherence was less likely (p<0.05) for PI-based regimens, whereas NNRTI users suppressed virus with lower adherence levels, odds ratios: 1.1 (0.89,1.36) and 0.82 (0.64,1.04) for 90-94% and 85-89% adherence, respectively. Associations did not appreciably differ between NNRTI- based single and multiple pill use.

Conclusions: The lower adherence level needed for suppression among NNRTI users likely represents more effective HAART formulations. Although all HIV-infected persons should be instructed to achieve perfect adherence, concerns of adherence should not hinder prescribing new HAART regimens early in HIV infection.

ORAL ABSTRACTS

473 Every Dose Every Day: A Peek into CDC's New e-Learning Training Toolkit to Improve Adherence to Antiretroviral Treatment

Rhondette Jones[1] **(presenting)**, Kathleen Green[1], Janet Van Ness[2], Angel Ortiz-Ricard[1]

1   Centers for Disease Control and Prevention, Atlanta, GA, USA
2   John Snow Inc., Boston, MA, USA

Background: Despite improvements in the potency and tolerability of antiretroviral treatment (ART), more than 800,000 of the estimated 1.1 million people living with HIV in the United States do not have a suppressed viral load. The CDC's Division of HIV/AIDS Prevention Capacity Building Branch developed a media-rich and interactive e-learning training toolkit entitled - "Every Dose Every Day" to support providers as they counsel and encourage patients to attain maximum adherence to their HIV regimen. The toolkit features four e-learning modules based on evidence-based behavioral interventions that were found to improve HIV adherence among ART-naïve and/or ART-experienced patients.

Description: We piloted the Every Dose Every Day toolkit among 30 providers (physicians, nurses, pharmacists, and health educators) to assess interest in the toolkit and obtain feedback on the content of the learning environment. Providers were asked to review the content of at least 1 module and complete a 30-item survey for each module reviewed. Each module provided the learner with background information on the intervention, videos demonstrating the intervention in action, and downloadable materials that can be given to patients about the importance of adherence.

Lessons Learned: The pilot study revealed that over 90% of providers thought the length and pace of the activity was appropriate. Nearly all of providers reported that the delivery method used helped them learn the content. Over 95% of providers indicated they could apply the knowledge gained as a result of the activity. Very few providers reported needing technical assistance with implementation. Providers took an average of 60 minutes to complete each module.

Recommendations: The development of an e-learning training for HIV providers facilitates a swifter movement in disseminating evidence-based interventions into practice. E-learning technologies may be a more feasible delivery method when compared to face-to-face training to assist providers with supporting optimal patient adherence.

482 Pulling the Network Together: A Novel Social Network Intervention for Promoting Engagement in HIV Care on Mfangano Island, Kenya

Matt Hickey[1] **(presenting)**, Charles Salmen[2], Dan Omollo[3], Brian Mattah[3], Elvin Geng[4], Peter Bacchetti[4], Cinthia Blat[4], Gor Ouma[3], Kathryn Fiorella[5], Daniel Zoughbie[6], Robert Tessler[7], Marcus Salmen[8], Monica Gandhi[4], Starley Shade[9], Elizabeth Bukusi[10], Craig Cohen[4]

1   UCSF/Organic Health Response / Microclinic International, San Francisco, CA, USA
2   UCSF/Organic Health Response, Minneapolis, MN, USA
3   Organic Health Response, Mfangano Island, Nyanza, Kenya
4   University of California, San Francisco, CA, USA
5   UC Berkeley/Organic Health Response, Berkeley, CA, USA
6   Microclinic International, San Francisco, CA, USA
7   UCSF East Bay/Organic Health Response, Oakland, CA, USA
8   Organic Health Response, Minneapolis, MN, USA
9   UCSF Center for AIDS Prevention Studies, San Francisco, CA, USA
10 Kenya Medical Research Institute, Kisumu, Kisumu, Kenya

Background: Despite progress in the global scale-up of antiretroviral therapy (ART), sustained engagement in HIV care remains challenging. Social capital has been identified as an important factor for sustained engagement, but interventions to harness this powerful social force are uncommon.

Methods: We conducted a quasi-experimental study evaluating the impact of a targeted social network intervention on engagement in HIV care at a rural health facility on Mfangano Island, Kenya. 369 (87%) of 426 eligible adult patients on ART were enrolled. The intervention was introduced into one of four similar communities served by this clinic, and comparisons were made between communities using intention-to-treat. Microclinics, composed of patient-defined support networks, participated in 10 bi-weekly discussion sessions covering topics ranging from HIV biology to group support. The curriculum also included voluntary participation in a group HIV status disclosure session. We report impact on disengagement from care, measured by the incidence of ≥90 day gaps in care following a missed clinic appointment, using Cox proportional hazards regression. The model was adjusted for potential clinical and demographic confounders and included robust standard errors to account for clustering.

Results: 113 (74%) intervention community participants joined a microclinic group, 86% of whom participated in group HIV status disclosure. Over 22-months of follow-up, incidence rates of 90-day disengagement were 6.8 per 100 person-years in the intervention group (95%CI 4.2-10.9) and 12.9 (95%CI 9.6-17.3) in control. In the adjusted Cox model, intervention community participants experienced one-half the rate of 90-day clinic absence as those in control communities (adjusted hazard ratio 0.48, 95%CI 0.25-0.92).

Conclusions: The microclinic intervention holds promise as a feasible community-based strategy to improve long-term engagement in HIV care. Reducing treatment interruptions using a social network approach has important implications for individual patient virologic suppression, morbidity and mortality, and for broader community empowerment and engagement in healthcare.

483 Geospatial Patterns Predict Linkage to Care, Retention in Care, and Viral Suppression: A New Method for Monitoring the HIV Care Continuum

Kathleen Brady[1] **(presenting)**, Michael Eberhart[1], Amy Hillier[2], Chelsea Voytek[2], Michael Blank[2], Ian Frank[2], David Metzger[2], Baligh Yehia[2]

[1]   Philadelphia Department of Public Health, Philadelphia, PA, USA
[2]   University of Pennsylvania, Philadelphia, PA, USA

Background: The HIV care continuum is an effective framework for improving the health of people living with HIV. We used geospatial analysis to identify geographic areas with poor outcomes along the continuum as possible points for intervention.

Methods: Retrospective analysis of persons newly diagnosed with HIV in Philadelphia during 2008-2009, with follow up through 2012. Outcomes of interest were linkage to care (≥1 CD4 or HIV-RNA test within 90 days of diagnosis), retention in care (≥1 CD4 or HIV-RNA test in each 6-month interval of the 24-month period following date of linkage), and viral suppression (HIV-RNA <200 copies/mL closest to the end of the 24-month follow up period). Geospatial patterns were analyzed using K-functions to identify geographic "hot spots" with poor outcomes. Logistic regression models evaluated the relationship between "hot spots" and each outcome, adjusting for age, sex, race, HIV risk factor, insurance status, incarceration status, proximity to care and use of multiple care sites.

Results: 1,704 persons were diagnosed with HIV in 2008-2009. In total, 59 of 384 (15.4%) Philadelphia census tracts were in "hot spots," with 12-19 unique tracts per outcome; 23.8% of the sample resided in a "hot spot." For those living in a "hot spot," 54.3% were linked to care, 24.0% retained in care, and 9.1% virally suppressed. In comparison, 64.6%, 33.0%, and 26.3% of individual living outside of a "hot spot" were linked, retained, and suppressed, respectively. In multivariable regression models controlling for patient factors, residence in a "hot spot" was significantly associated with each outcome (p < 0.05).

Conclusions: Geospatial patterns are a strong predictor of linkage to care, retention in care, and viral suppression. Geospatial analysis is a potential new tool for monitoring the HIV care continuum and designing interventions to improve HIV care.

486 Health Literacy is Related to HIV-Positive Persons Medication Adherence Motivations

Marcia Holstad[1] **(presenting)**, Raymond Ownby[2], Drenna Waldrop-Valverde[1]

[1]   Emory University, Atlanta, GA, USA
[2]   Nova Southeastern University, Fort Lauderdale, FL, USA

Background: Health literacy (HL) has been shown to be related to a number of health-related variables. Motivation is important in enacting medication adherence. In this study, we evaluated the relationship of patients' levels of health literacy to their motivations to adhere to their antiretroviral medications.

Methods: 323 persons treated for HIV infection participated in a study of medication use. Questionnaires assessed demographic variables, antiretroviral medication motivation, and health literacy (the HIV-HL-2). In other analyses, we validated a cut-off score for the HIV-HL predicting those who had lower vs. higher levels of health literacy. The motivation scale, based on self-determination theory, contains two subscales: intrinsic ("an important choice I really want to make") and extrinsic ("I want others to approve of me") motivation. The adherence motivations of participants with lower and higher levels of HL were assessed in a MANCOVA model that included the effects of age, education, race, and gender.

Results: The sample consisted of 221 men, 96 women, and 6 transgendered persons; 105 were white and 218 were black. Average age was 49.3 years and average education was 12.8 years. Mean HIV-HL-2 score was 16.7 (SD 3.5, range 2 to 23). The mean score for those with low HL was 13.4 (SD = 2.6) while that for those with higher levels was 19.2 (SD = 1.5). Level of HL was associated with an overall significant multivariate effect on patients' adherence motivations (F [15, 302] = 3.34, p < 0.001). Patients with lower levels of HL were more likely to be extrinsically motivated.

Conclusions: HIV-infected persons with low HL reported significantly higher levels of external motivation for adhering to their medications. This might indicate they don't fully understand their illness and rely more on providers and others for information, support, and encouragement. Other unknown factors may also contribute.

ORAL ABSTRACTS

490 The Impact on 5-Year Mortality and the Cost-Effectiveness of Proven Text-Messaging Programs for Improving Antiretroviral Adherence in Kenya

Anik Patel[1] (presenting), Richard Lester[1], Scott Braithwaite[2], Jason Kessler[2], Kim Nucifora[2], Mia van der Kop[3], Carlo Marra[1]

[1] University of British Columbia, Vancouver, BC, Canada
[2] New York University, New York, NY, USA
[3] Karolinska Institutet, Vancouver, BC, Canada

Background: Use of mobile phones to improve health (mHealth) has demonstrated ability to improve the care of HIV-positive patients. Adherence to antiretroviral therapy (ART) is a critical issue that may be promoted through text-messaging interventions. Randomized trials from Kenya have shown that text-message programs improved adherence to ART over 1 year, and 1 trial suggested improved patient retention in care. In this study, we examined the impact on 5-year mortality and the cost-effectiveness of text-messaging programs compared to standard care.

Methods: Adherence improvements above standard care that were observed in the clinical trials were transformed into costs and benefits using a 2nd-order Monte Carlo simulation model. CD4 count drives changes in Quality Adjusted Life Years (QALY) and costs associated with HIV health states. Our secondary analysis explored retention benefits observed in one trial in addition to adherence improvements. One-way and multi-way sensitivity analyses were included to reflect the uncertainty in the results and to highlight the key drivers of the outcomes of 5-year mortality impact and the incremental cost per quality adjusted life year gained (ICER: US$/QALY).

Results: We found that the text-messaging programs would reduce 5-year mortality by 10% from 25.3% to 22.7%. The low programmatic costs also made the program cost-effective by WHO standards in most scenarios. In our base case analysis, the ICER was $1,662/QALY. In the base case analysis, addition of the retention benefits observed from one trial further reduced 5-year mortality by 14% from 25.3% to 21.7%, but increased the ICER to $1,815/QALY.

Conclusions: Our simulation results suggest that the text messaging interventions could provide meaningful improvements in HIV mortality and longevity through its ability to improve adherence. Retaining patients in care could further improve its value, though retaining patients without good adherence may have a paradoxical effect on cost-effectiveness.

493 The China Adherence through Technology Study: The Effect of Real-Time Feedback on Adherence to Antiretroviral Therapy

Lora Sabin[1] (presenting), Mary Bachman DeSilva[2], Li Zhong[3], Taryn Vian[1], Wubin Xie[4], Feng Cheng[5], Jessica Haberer[6], David Bangsberg[6], Keyi Xu[7], Allen Gifford[8]

[1] Boston University School of Public Health, Boston, MA, USA
[2] Center for Global Health and Development, Boston University, Boston, MA, USA
[3] FHI360, Beijing, China
[4] FHI360, Nanning, Guangxi, China
[5] Global Health Strategies, Beijing, China
[6] Massachusetts General Hospital, Boston, MA, USA
[7] Ditan Hospital, Beijing, China
[8] Veterans Health Administration, Bedford, MA, USA

Background: China has rolled out antiretroviral therapy (ART) rapidly, with 287,000 HIV-positive individuals currently on ART. However, inadequate adherence, indicated by emerging drug resistance, is a problem. The 'China Adherence through Technology Study' (CATS) assessed an innovative 'real-time feedback' adherence intervention using web-linked medication containers ('Wisepill') that allow instantaneous adherence tracking. CATS' intervention employed text messages triggered by failures in prompt dose-taking, supplemented by counseling using patients' Wisepill-generated adherence data.

Methods: We provided patients in Nanning, China, with Wisepill for one ART medication and monitored their adherence for three months. In Month 3, we stratified subjects to high (≥95%) or low (<95%) adherence groups based on Months 1-3 mean adherence, and randomized them within groups to intervention and control arms. In Months 4-9, intervention subjects received a text reminder whenever their device failed to open within 30 minutes of schedule, and monthly counseling using Wisepill-generated adherence data; controls received no reminders or adherence-informed counseling. We compared Month 9 mean adherence and proportions achieving optimal (≥95%) adherence between arms and within groups.
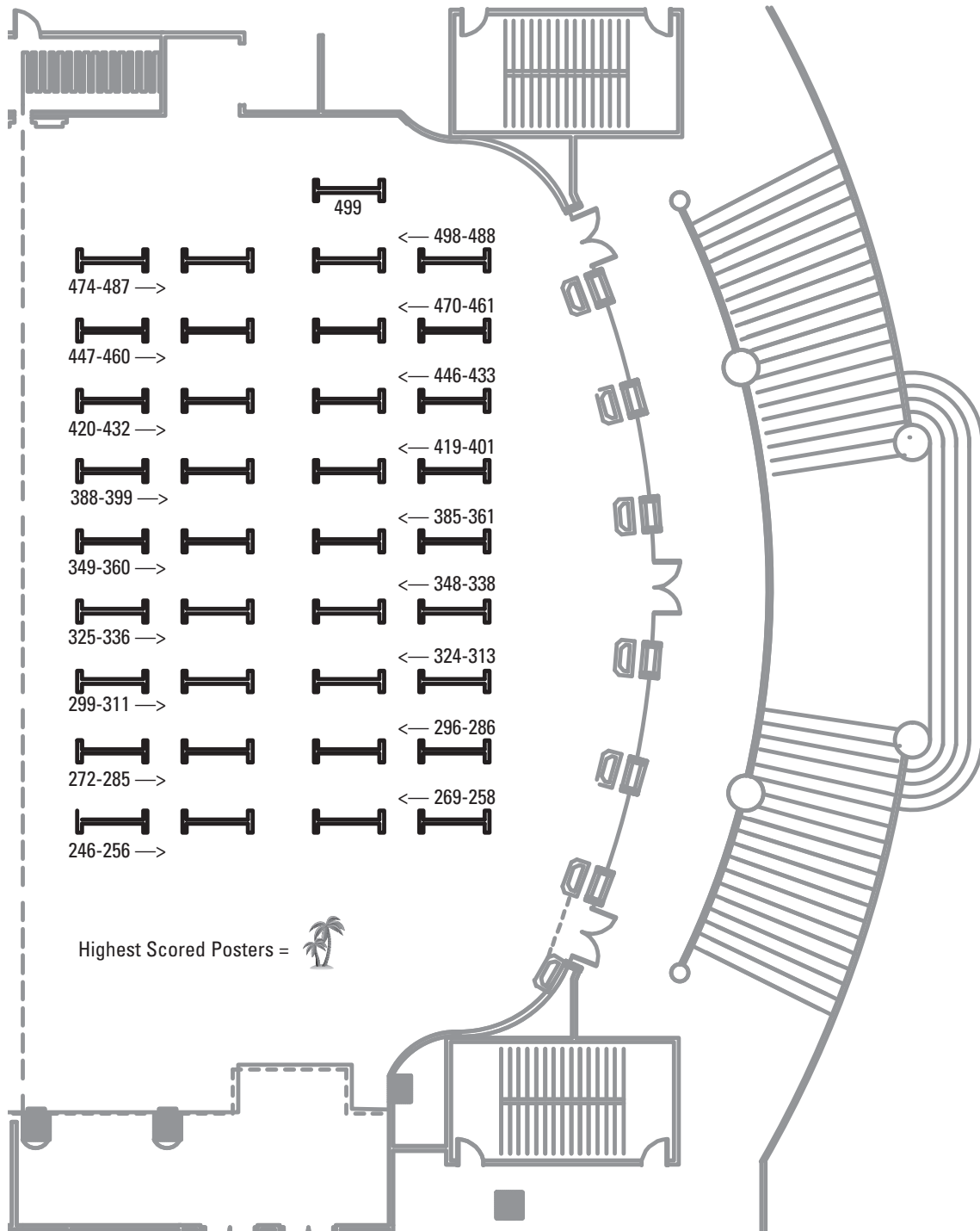
Results: A total of 120 subjects were enrolled; 116 (96.7%) completed the intervention. At randomization, mean adherence was 91.7% vs. 92.6% (p = NS). In month 9, mean adherence was 96.4% vs. 89.2% (p = 0.003); 88.5% vs. 52.7% achieved optimal adherence in intervention vs. control arms, respectively (risk ratio (RR) 1.7, 95% Confidence Interval (CI) 1.3-2.2, p (RR 2.3, 95% CI 1.2-4.6, p = 0.003). Among high adherers, mean adherence was 98.0 vs. 92.0% (p = 0.020); 92.1% of intervention vs. 60.5% controls achieved optimal adherence (RR 1.5, 95% CI 1.2-2.0, p = 0.001).

Conclusions: Real-time feedback significantly improved ART adherence, in both low and high adherers. This approach holds promise for management of HIV and other chronic diseases.

POSTER SESSION MAP

499

<— 498-488

474-487 —>

<— 470-461

447-460 —>

<— 446-433

420-432 —>

<— 419-401

388-399 —>

<— 385-361

349-360 —>

<— 348-338

325-336 —>

<— 324-313

299-311 —>

<— 296-286

272-285 —>

<— 269-258

246-256 —>

Highest Scored Posters =

246 Pilot Study to Describe the Substance Use Experiences of HIV-Positive Young Black Men who have Sex with Men between the Ages of 18-29 in San Francisco

Austin Nation[1] (presenting), Howard Pinderhughes[1]

[1] University of California, San Francisco, CA, USA

Background: The prevalence of HIV among young black men who have sex with men (MSM) is 3 to 4 times higher than white MSM. Young black MSM are run-aways and homeless, forcing them to survive on the streets by becoming sex workers, engaging in unprotected anal intercourse because either they or their partner is under the influence of drugs or alcohol. Previous studies cite crack cocaine use, sex while high on crack cocaine, marijuana and alcohol, or sharing needles for injection drugs as strongly associated with HIV infection among young black MSM.

Methods: The goal of this qualitative study is to offer insight about the range of factors and enhance our understanding about the role that substance use plays in the lives of HIV-positive young black MSM. Surprisingly, the results of this study do not draw the same conclusions as previously cited studies with HIV-positive young black MSM in other cities. Participants will identify contributing risk factors for acquiring HIV/AIDS among young black MSM as well as describe and explain the significance of substance use among this population.

Results: The themes that emerged from the coding of this qualitative narrative study describe an across-case experiential trajectory with a summary of the significant experiences of this population, contributing to the limited body of knowledge currently available about family, relocation, relationships, methamphetamine prevalence and access, testing positive for HIV and willpower, coping and the sense of hope. This information will contribute to the development of prevention education strategies specifically tailored to this population that address issues surrounding substance abuse in HIV transmission.

a. *family* includes issues with being stigmatized due to their sexual orientation along with rejection, judgment, discrimination, and lack of acceptance and early exposure to drugs and sex in the family.
b. *relocation* to San Francisco to talk about HIV, being homeless and the theme of *survival*, needing money for meet their basic needs including food and housing so they can have a place to sleep and shower.
c. *relationships*, which include feelings of abandonment, loneliness, and the need to find a community and have a sense of belonging.
d. *methamphetamine exposure, prevalence, and access* happening among their newfound community and peer pressure to use the drug, including for emotional numbing so that they can deal with their circumstances. They discover the drug's *sexual enhancement* effect and this leads them to engage in high-risk behaviors such as unprotected receptive anal intercourse.
e. *testing positive for HIV*, describing as a sense of relief and something they are not surprised about; there is a resignation about eventually being HIV infected.
f. *willpower, coping, and a sense of hope* for their future

Conclusions: Clinicians and researchers in all academic and practice settings will encounter HIV-positive young black men and need to understand the prevalence of HIV/AIDS among this population as well as the importance of making a thorough sexual health and risk behavior assessment. It appears that the high exposure to, prevalence of use, and access to methamphetamines in San Francisco among the predominantly white MSM population has had an impact on these young black men.

247 Comparison of Adherence Rates for Antiretroviral Medications, Blood Pressure Medications, and Mental Health Medications for HIV-Positive Patients at an Academic Medical Center Outpatient Pharmacy

Jacob Langness[1] **(presenting)**, Paul Cook[2], Jasjit Gill[1], Rachael Boggs[1], Nathan Netsanet[3]

[1] University of Colorado Hospital, Aurora, CO, USA
[2] University of Colorado School of Nursing, Aurora, CO, USA
[3] University of Colorado Skaggs School of Pharmacy and Pharmaceutical Sciences, Aurora, CO, USA

Background: Despite advances in safety, tolerability, and decreased pill burden for HIV antiretroviral therapy (ART), non-adherence continues to be a major cause of HIV-related morbidity and mortality. Adherence to these medications presents particular challenges because persons living with HIV (PLWH) must use medication more consistently (≥95%) than persons with other chronic diseases such as hypertension or diabetes mellitus (≥80%).

Methods: In this retrospective review, we examined outpatient pharmacy prescription fill records at University of Colorado Hospital (UCH) to quantify PLWH's adherence rates to ART, scheduled blood pressure medications, or scheduled mental health medications. We also examined how pill burden and dosing schedule affected adherence. Finally, we analyzed a comparator group, patients who filled scheduled blood pressure medications or scheduled mental health medications (but not HIV medications) at other University of Colorado outpatient pharmacies, in order to compare adherence rates of PLWH and similar patients to these medication classes. Patients 18 years of age or older, on any prescribed HIV antiretroviral therapy, scheduled prescription blood pressure medication or scheduled prescription mental health medication filled between March 1, 2012, and March 31, 2013, were included in the analysis. The proportion of days covered (PDC) was calculated to measure adherence. Statistical analyses were performed to compare adherence rates between groups.

Results: 865 PLWH filled 1,943 antiviral prescriptions with an average PDC of 84.53%. However, only 40% of patients had high enough adherence to achieve therapeutic benefits, based on a criterion of at least 95% of scheduled doses taken. When separated by regimen, 282 patients filled single-tablet once-daily regimens, 295 patients filled multi-tablet once-daily regimens, and 288 patients filled multi-tablet twice-daily regimens. The calculated PDC of PLWH on a single-tablet once-daily regimen was 89.7% vs. 81.0% for PLWH on a multi-tablet once-daily regimen (p <0.001). The average PDC for PLWH (n = 269) who filled 460 scheduled blood pressure prescriptions was 82.68%. The average PDC for PLWH (n = 295) filling 467 scheduled mental health prescriptions was 81.70%. This was a statistically significant difference in adherence between ART and blood pressure medications of 2.5% (p = 0.013) and a difference between ART and scheduled mental health medications of 3.03% (p = 0.002). For the comparator group of similar patients without HIV, 895 patients filled 1398 scheduled blood pressure medications with an average adherence of 83.8%. The difference between groups was not statistically significant (p = 0.390). For scheduled mental health medications in the comparator group, there were 666 patients filling 828 prescriptions. The comparator group had a higher average PDC than PLWH with 85.1% vs. 81.7%, respectively (p = 0.009).

Conclusions: Based on average PDC, PLWH filling prescriptions at this UCH Infectious Disease Group Practice (IDGP) pharmacy had an adherence of 84.5% to ART. However, only 40% of patients were adherent at the needed 95% level for therapeutic effects. Additionally, PLWH were more adherent to single-tablet once-daily regimens than multi-tablet once-daily regimens or multi-tablet twice-daily regimens. Adherence in PLWH to HIV ART was better than the same patients' adherence to scheduled blood pressure and scheduled mental health medications. Levels of optimal adherence still need to be improved to reduce rates of resistance and maximize therapeutic durability of selected regimens. When compared to the comparator group, adherence in PLWH to scheduled blood pressure medications was similar but adherence to scheduled mental health medications was slightly worse. Further work is needed to address non-adherence among PLWH, including their adherence both to ART and to medications prescribed for other chronic diseases.

POSTER ABSTRACTS

249 Patient Perspectives on Psychological Aspects of Chronic Pain While Living with HIV

Jessica Merlin[1] **(presenting)**, Melonie Walcott[1], Ivan Herbey[1], Stefan Kertesz[1], Eric Chamot[1], Michael Saag[1], Janet Turan[1]

[1] University of Alabama at Birmingham, Birmingham, AL, USA

Background: Chronic pain (pain >3 months duration) is common in HIV-infected individuals, and associated with substantial functional impairment. Despite effective psychological interventions, providers' approach to chronic pain remains mostly biomedical. We recently adapted and tailored the Biopsychosocial (BPS) Framework to HIV-infected patients with chronic pain. Our goal is to explore HIV-infected patients' perspectives on psychological aspects of pain, using the psychological portion of the BPS Framework as a guide.

Methods: Eighteen participants were sampled to include individuals with mood disorders and substance use. Perspectives on chronic pain were collected using qualitative interviews. Three investigators engaged in an iterative process of independent and group coding. Interviews were conducted until theme saturation was reached. Key themes were identified and classified within the psychological portion of the BPS Framework.

Results: Of the 18 individuals interviewed, 13 were male, 12 were African American, the median CD4+ T-cell count was 587 cells/mm^3 (IQR 421-792), and 14 had HIV RNA <200 copies/mL. The majority (15) had a mood disorder, and half (9) actively used illicit substances. Psychological issues related to pain from BPS Framework categories included 3 main themes: mood (depression, anxiety); emotions (anger, frustration, fear) and stress; and alcohol/substance use. The combined impact of psychological burdens of chronic pain and living with HIV can make the pain experience difficult to bear. Participants articulated a bidirectional relationship between pain and mood, and pain and emotions. Substance use was seen as a temporary, maladaptive way to deal with pain.

Conclusions: The chronic pain experience among HIV-infected individuals resonates with the BPS Framework. Participants showed insight into the importance of psychological factors, and the context of living with HIV, in their chronic pain experience. This suggests that psychological approaches to chronic pain treatment may be well received by HIV-infected patients, and should be developed and tailored to this population.

251 Factors Influencing the Vulnerability of HIV Transmission by Injecting Drug Users' Widows Living with HIV in Ukhrul District Manipur India

Kingson Shimray[1]

[1] UNICEF Reproductive, Maternal, Newborn, Child and Adolescent Health (RMNCH +A), Imphal East, Manipur, India

Background: Ukhrul district is 1 of the 9 districts in Manipur with a population of 183,115. With HIV prevalence rate of 2.10% as estimated from antenatal care clinic (ANC) thus being the highest HIV prevalent district in Manipur. The current estimate of injecting drug users (IDUs) in Manipur is about 30,000 and in Ukhrul district there are about 3200 IDUs. The IDUs in Manipur contributes to 50% of the total HIV infection. About 40% of IDUs are married, and the rate of HIV infection among their wives increased from 6% in 1991 to 45% in 1997.

Methods: A qualitative exploratory research was done as part of my Master in Public Health 2013.

Results: Studies shows AIDS related death among the IDUs has increase in the past years, thus ultimately increase the widows of IDUs. Studies also shows that IDU wives are increasingly becoming widows below the age. Widows of IDUs are frequently stigmatized at 2 levels, being widows of IDUs and HIV-positive individuals. They face many social challenges including social violence, stigma and discrimination. In India, about 90% of HIV-positive widows reported forced to stop living in their marital home only 9% gets financial support from their in laws. These put them into socioeconomic, health and psychological problem, poverty, loneliness and difficulties to care for children. So HIV prevention services were not a primary concern they predominantly concerned about the livelihood issues. Due to these difficulties, they are more prone to risky behavior including sex work and substance abuse.

Conclusions: The HIV epidemic has placed an additional burden on IDU's widows living with HIV in Ukhrul district, as many of them become exacerbate to social difficulties and destitute due to socioeconomic factors including cost of living and main care takers for their families, poverty and marginalization that predispose them to risky behaviors. There is a lack of specific program for widows/spouses of IDUs.

252 COPA: Enhancing Adherence, Engagement, and Retention in HIV Care in Argentina

Deborah Jones[1] **(presenting)**, Lina Bofill[2], Ines Aristegui[3], Ines Mattioli[4], Diego Cecchini[3], Omar Sued[3], Pedro Cahn[3], Isabel Cassetti[3], Stephen Weiss[1], Drenna Waldrop-Valverde[5], Maria Lopez[1]

[1] University of Miami Miller School of Medicine, Miami, FL, USA
[2] University of Miami, Miami, FL, USA
[3] Fundacion Huesped, Buenos Aires, Argentina
[4] Helios Salud, Buenos Aires, Argentina
[5] Emory University, Atlanta, GA, USA

Background: Treatment engagement, retention and adherence to care are required for optimal HIV outcomes. This study examined the most challenging patients, those not engaged in care in public and private HIV health care settings in Buenos Aires, Argentina.

Methods: Men and women (n = 60) prescribed antiretrovirals (ARVs) and disengaged from treatment in the last 3 to 6 months completed an assessment of adherence, knowledge, motivation and attitudes regarding ARVs and were randomized to intervention or control conditions.

Results: Participants were similar between clinics (age, x = 39.22 SD + 7.92) and drug/alcohol use (33%); over 52% of public patients reported mild to moderate depression and 60% had discontinued ARVs (p <.005); private patients reported higher adherence (85%) than public patients (52%). Those (35%) who did not understand their health status were less likely to know their CD4/VL count (X2 = 7.67, p = .005) and more likely to have questions (X2 = 14.81, p = .002); overall, 52% were taking ARVs less than 80% of the time. Treatment motivation was similar between clinics but half of all patients had motivation deficits. Patients not engaged in care following diagnosis were less likely to take ARVs; those confused about their health status (67%) were more likely to have discontinued treatment for 3 months (p = .03); self-reported adherence to medication was associated with VL (r = .35, p = .01). Preliminary outcomes indicate that attendance was higher in the intervention (p = .02), though one third of participants failed to attend any sessions. Healthcare barriers were addressed in both clinics.

Conclusions: Opportunities exist for educational, mental health, and motivational interventions. Preliminary data highlight challenges to patient engagement and disparities in health among public and private clinic patients. Strategies to enhance healthcare systems may improve engagement and retention. Funded by NIMH grant R34MH097609.

253 PATHWAYS: Engaging Women Living with HIV in Family Planning and Safer Conception

Deborah Jones[1] **(presenting)**, Ryan Cook[1], JoNell Potter[1], Nahida Chakhtoura[1], Alison Coll[1], Andrew Spence[1], Jenny Jean[1]

[1] University of Miami Miller School of Medicine, Miami, FL, USA

Background: Attempts to conceive that do not risk HIV transmission to partners require significant planning and treatment engagement. Yet, even those engaged in care often fail to discuss fertility desires or practices during routine visits. Understanding patient and provider perspectives on fertility planning can enable the development of an intervention to address this gap to help patients make informed decisions about safer conception methods. This pilot study describes knowledge, attitudes and practices regarding conception and reproductive decision making among women, partners and providers in Miami, Florida.

Methods: Women (n = 32) were assessed regarding the relative importance of finances, opinions of partners and family, the risk of HIV transmission to partners, and their doctor's opinion on fertility desires using a conjoint questionnaire and a 10-point scale of individual factors. A subset of women (n = 19), partners (n = 11) and providers (n = 14) completed qualitative interviews.

Results: Women (n = 32) were aged 18-45 (n = 36±7) and most were African American (72%, n = 23). The majority of participants had children (69%) and planned to have more (78%). Using conjoint analysis, provider's opinion, partner's opinion, and family's opinion emerged as the most influential factors in fertility desires (mean "importance scores" 24.0%, 23.8%, 21.4%); risk of transmission was less influential. Women expressed unwillingness to discuss fertility desires with providers, partners and family members; providers tended to rely on patient initiation of the topic. Both women and partners had little information on safer conception.

Conclusions: Results suggest that women value their doctor's and partner's opinions on fertility planning, but discussions on the topic are infrequent. Providers should incorporate fertility planning in routine care, and discuss strategies such as pre-exposure prophylaxis and treatment-as-prevention to prevent transmission. Opening the dialogue between patients and providers regarding conception may enhance motivation for adherence among women hoping to conceive.

POSTER ABSTRACTS

254 Postpartum Retention in Care among Women with HIV

Judy Levison[1], **Natalie Williams[2] (presenting)**, Yvette Peters[2], Monique Green[2], Yanette Alvarenga[2], Cynthia Deverson[1]

[1] Baylor College of Medicine, Houston, TX, USA
[2] Harris Health System, Houston, TX, USA

Introduction: Retention in care after pregnancy among HIV-positive women has been identified as a national challenge. Within Harris Health System, which provides indigent health care in Houston, Texas, a review of 213 HIV-positive women who delivered from 2006 through 2011 elucidated a 40% loss to care 1-year postpartum.

Description: As prenatal care providers for HIV-positive women, our team identified obstacles to communicating consistent messages to women about the importance of retention in care after delivery. We often focus more on the current pregnancy and immediate adherence to medications than long term follow-up. We sought interventions to encourage postpartum retention in primary care. A pilot project engaged 31 women over 12 months in a support group scheduled on days they had appointments. Discussions often addressed issues spontaneously brought up by clients; some women chose to attend even on days they did not have appointments.

Lessons Learned: From the positive response to support groups tied to obstetrical visits, we embarked on merging the infrastructure of CenteringPregnancy, a trade-marked program for group prenatal care, with HIV education. CenteringPregnancy proposes 10 sessions, each with a specific focus ranging from discomforts of pregnancy to labor to newborn care. We have developed a parallel 10 session curriculum for HIV education which includes coping with an HIV diagnosis, adherence to medication, and multiple messages on retention in care. There are no published studies of CenteringHIV programs.

Recommendations: Our plan is to assess the number of primary care visits at 1 year among women who have attended group care (compared to our historical baseline). We will also evaluate pre- and post-test surveys of knowledge, adherence, stigma, and depression among women in group vs. individualized care. We hypothesize that women attending this 10-session program are more likely to remain in care after delivery.

256 Reasons Clinicians Delay Antiretroviral Therapy for Clinically Eligible HIV-Infected Patients

Linda Beer[1] (presenting), Eduardo Valverde[1], Raiford Jerris[1], John John[1], Becky White[2], Jacek Skarbinski[1]

1. Centers for Disease Control and Prevention, Atlanta, GA, USA
2. University of North Carolina at Chapel Hill, NC, USA

Background: Guidelines for antiretroviral therapy (ART) initiation have evolved, but have consistently noted that adherence issues should be considered and addressed, as suboptimal adherence can lead to treatment failure and viral resistance. While the prevalence of ART use is often studied, little is known regarding reasons providers delay ART initiation in clinically eligible patients.

Methods: In 2009, we surveyed a probability sample of HIV care providers in 582 outpatient facilities in the United States and Puerto Rico with an open-ended question about reasons for delaying ART initiation in clinically eligible patients. Thematic codes were developed through a standardized iterative process and multivariable logistic regression was used to identify provider and practice characteristics associated with reasons to delay ART.

Results: Of 1,743 eligible providers, 734 (42%) completed the survey. Among 640 who responded to the ART delay question, 15 (2%) said they never delayed initiating ART. Reasons for delaying ART were: provider concerns about patient adherence (68%), patient acceptance of ART (60%), and provider concerns about structural barriers to ART use (33%). Provider age <50 years, non-Hispanic white provider race, and having >50 HIV-positive patients per month were independently associated with adherence concerns. Being a nurse practitioner or physician assistant compared to a medical doctor, having >5 years HIV care experience, >50% patients who were men who have sex with men, and never referring for initial ART prescription were independently associated with acceptance concerns. Non-Hispanic white provider race was independently associated with structural concerns.

Conclusions: Reported reasons for delaying ART were consistent with clinical guidelines and were patient-level and structural; hence multi-level strategies to address patient barriers to taking ART are likely to be most effective. Providers may benefit from training and access to referrals for ancillary services to enhance their ability to monitor and address these issues with their patients.

258 Impacting Linkage and Retention through the Development of Regionally Based Collaboratives

Steven Sawicki[1] **(presenting)**

[1] New York State Department of Health AIDS Institute, Albany, NY, USA

Introduction: A review of the processes and thinking utilized by New York Links to develop geographically regional collaboratives of HIV service providers in order to improve linkage to care and retention in care within those specified geographic regions.

Description: All HIV providers (clinical and non-clinical) within specific geographic regions in New York State were gathered into collaborative groups which, utilizing regionally based cascades (continuums of HIV care), began the process of improving both individual health outcomes as well as community health and public health outcomes related to HIV with a specific focus on linking newly identified HIV+ individuals to care, re-engaging those HIV+ individuals who had dropped out of care, and retaining all HIV+ individuals who were in care with the goal being to get them all to viral suppression. The approach involved data generation and analysis, QI/QM processes, development, implementation and assessment of interventions, and reporting of findings.

Lessons Learned: This approach is an effective means of generating change both within individual organizations as well as the systems they operate in. This approach also allows for a wide variety of change, responsive to a diversity of individual organizational inputs such as staffing, resources, readiness, location and patient demographics. The use of regional cascades allows for organizations to work toward their strengths while allowing them to identify areas internally that should be focused on as well as identifying broader, regional areas that also need attention. It allows for synergy and community. To be most effective there needs to be a flexible and responsive data process that requires a minimal amount of time to use.

Recommendations: Systems should consider adopting a more regional approach to resolving issues related to linkage to and retention in care so long as that approach takes into consideration aspects of individualization amongst organizations.

259 Stimulant Use and Mortality Following Highly Active Antiretroviral Therapy Initiation

Adam Carrico[1] **(presenting)**, Steven Shoptaw[2], Christopher Cox[3], Ronald Stall[4], Xiuhong Li[3], David Ostrow[5], David Vlahov[1], Michael Plankey[6]

[1] University of California, San Francisco, CA, USA
[2] University of California, Los Angeles, CA, USA
[3] Johns Hopkins University, Baltimore, MD, USA
[4] University of Pittsburgh, Pittsburgh, PA, USA
[5] Chicago MACS, Chicago, IL, USA
[6] Georgetown University, Washington, DC, USA

Background: HIV-positive persons who use stimulants (e.g., methamphetamine, crack-cocaine) experience profound health disparities, but it remains unclear if these persist following highly active antiretroviral therapy (HAART) initiation. This study examined if stimulant use predicts more rapid progression to AIDS-defining illness (ADI) or faster all-cause mortality following HAART initiation in the Multicenter AIDS Cohort Study.

Methods: Marginal structural modeling produced a weighted model that adjusted for key confounders (i.e., demographics, HIV disease markers, other health status indicators, self-reported physical health, depressive symptoms, binge drinking, and cigarette smoking). The cumulative proportion of visits where any stimulant use was reported (i.e., 0%, 1-49%, 50-99%, and 100%) was examined as a time-varying predictor of all-cause mortality as well as ADI or all-cause mortality following HAART initiation.

Results: Among the 1,313 men who have sex with men (MSM) included in this study, 56% were Caucasian, the median age was 43 years (interquartile range [IQR] = 38-48 years), and half (59%) had a T-helper count less than 350 cells/µl at HAART initiation. There were 190 deaths (50% AIDS-related; 38% non-AIDS related, and 12% indeterminate) during the 8.5-year median follow-up period (IQR = 4.2 - 11.5 years). The crude mortality rate was 14.5% (95% CI = 12.6% - 16.5%). There was no significant association of any level of stimulant use with all-cause mortality following HAART initiation. Among the 1,138 participants without a history of an ADI at HAART initiation, 6.2% (95% CI = 4.9 - 7.8%) developed an ADI over the course of follow-up. There was no significant association of any level of stimulant use with progression to ADI or all-cause mortality following HAART initiation.

Conclusions: HIV-positive, stimulant-using MSM appear to experience health outcomes that are comparable to non-users following HAART initiation.

261 Retained and Poorly Retained Patients with HIV had Similar Total Costs in the First 2 Years of Diagnosis

Lauren Richey[1] (presenting), Jason Halperin[2]

[1] Medical University of South Carolina, Charleston, SC, USA
[2] New York University, New York, NY, USA

Background: Multiple studies have shown that patients with HIV who are retained in care have improved clinical outcomes and survival; however, improved retention may result in increased costs for physician visits and diagnostic tests. The purpose of this study is to compare the differences in costs among patients who are retained in care vs. those who are poorly retained in care.

Methods: A retrospective cohort study was conducted using the medical records of patients who had a positive rapid HIV test in the emergency department in 2008 and were linked to care. Inpatient, outpatient, and emergency costs as well as number of visits were collected for the first 2 years after initial HIV diagnosis. The Kruskal-Wallis test (SPSS) was used for analysis. Retained in care was defined as 2 visits with an HIV provider divided by 90 days each year for 2 years.

Results: 56 patients met the inclusion criteria; they were predominantly uninsured (73%) and African American (89%). The median total costs per patient for the retained patients over 2 years was $45,793 (range $14,349 to $305,380) and for poorly retained patients $24,491 (range $2,685 to $137,489) (p = .11), driven predominantly by outpatient costs, median $26,600 for retained patients and $8,478 for poorly retained patients (p = <.00). Inpatient and emergency department costs for retained vs. poorly retained patients were similar, $8,100 vs. $10,311 (p =.59) and $1,945 vs. $2484 (p =.29), respectively. The median number of outpatient visits over the first 2 years was 30 for retained patients and 7 for poorly retained patients; inpatient days 1.5 vs. 3; emergency room visits 2 vs. 2.

Conclusion: Patients with HIV have high healthcare costs, but retained patients, who are known to have better health outcomes and decreased mortality, did not statistically cost more than patients who were poorly retained, with the exception of outpatient costs, which was expected.

262 Social Network Characteristics Moderate the Effects of HIV Stigma on Non-Adherence among African Americans Living with HIV

Laura Bogart[1] (presenting), Glenn Wagner[2], Harold Green[2], Matt Mutchler[3], David Klein[4], Bryce McDavitt[3], Marc PunKay[2]

[1] Boston Children's Hospital/Harvard Medical School, Boston, MA, USA
[2] RAND Corporation, Santa Monica, CA, USA
[3] California State University Dominguez Hills/AIDS Project Los Angeles, Los Angeles, CA, USA
[4] Boston Children's Hospital, Boston, MA, USA

Background: Research suggests that HIV stigma contributes to disparities, including lower antiretroviral treatment adherence among African Americans. Research has not examined whether social network characteristics moderate stigma's effects.

Methods: At baseline and 6-months post-baseline, 147 HIV-positive African Americans (71% male) listed ≤20 social network members (alters) and indicated alters' relationships to them and each other; social network structure measures were derived (proportion of isolated alters without connections to others; average interaction frequency between participant and alters). Enacted stigma was operationalized with an indicator of whether participants had heard any alter say at least 1 of 2 prejudicial beliefs ("most people with AIDS are responsible for having their illness"; "a person with AIDS must have done something wrong and deserves to be punished"). Social network changes were derived by subtracting baseline from 6-month values of network characteristics. Daily adherence was measured electronically for 6 months with the Medication Event Monitoring System and dichotomized at ≥85% of prescribed doses taken at baseline and follow-up.

Results: On average, 33% reported that any alters said prejudicial beliefs, and 41.9% took ≥85% of doses over 6 months. In multivariate logistic regressions controlling for socio-demographics and network changes, baseline stigma was significantly related to decreased adherence over time, OR(95%CI) = 0.33(0.13-0.85), p <.05. Significant interactions of network characteristics with baseline stigma indicated that increased interaction frequency with alters over time was protective, and increased proportions of isolated alters over time were detrimental: stigma's effects on decreased adherence were attenuated among participants who had more frequent interactions with alters over time, OR(95%CI) = 4.59(1.39-15.11), p <.05, and augmented among those with a greater proportion of isolated alters over time, OR(95%CI) = 0.03(<0.01,0.86), p <.05.

Conclusions: Social networks characterized by strong relationships and inter-connections may buffer against stigma's deleterious effects. Interventions to reduce stigma and support adherence need to take into account social network factors.

263 "Someone to Listen": Becoming Adherent to HIV Medications after Repeated Failure

Maithe Enriquez[1] **(presenting)**, Kimberly Hart[2]

[1] University of Missouri, Leawood, KS, USA
[2] University of Missouri-Columbia, Nashville, TN, USA

Background: It is unfortunate that a large number of people living with HIV have difficulty adhering to their medications. This study was undertaken to better understand the processes involved in becoming adherent to HIV treatment.

Methods: This qualitative descriptive study was part of a randomized controlled pilot study targeting adults (n = 20) linked to HIV medical care but failing treatment. Participants had failed an average of 3 HIV medication regimens due to non-adherence. Of 10 participants randomized to a peer-facilitated medication adherence intervention, 90% became adherent and remained so at the 6-month follow-up time point. Content analysis was used to examine the detailed field notes from the intervention sessions of those 10 participants.

Results: Findings indicated that major barriers to adherence included the lack of a routine, little confidence about the ability to become adherent, and stigma. All participants stated that emotional distress, depression and loneliness had contributed to past inability to adhere to HIV medications. Participants felt that to "be able to tell (the peer) things I couldn't tell other people" helped them in their process of becoming adherent. The peer facilitator was perceived as "someone to talk with, someone to listen, someone not to judge, but to understand…." Participants developed a routine, including medication reminders such as visual or meal-time cues, which was critical to becoming adherent.

Conclusions: Interaction with a peer who understood the rigors of HIV treatment adherence and who could then help with the development of a plan to make taking medications 'become a routine' were important in the process of becoming adherent. For this group of adults who had little social support, lacked confidence and felt stigmatized, the peer served as a role model and confidant who showed how to be adherent by example.

267 Strategies to Explore Factors Impacting Study Product Adherence among Women in VOICE

Miriam Hartmann[1], **Ariane van der Straten**[1] **(presenting)**, Elizabeth Montgomery[1], Lisa Levy[2], Jeanna Piper[3], Barbara Mensch[4]

[1] RTI International/WGHI, San Francisco, CA, USA
[2] FHI360, Durham, NC, USA
[3] Division of AIDS, National Institutes of Health, Bethesda, MD, USA
[4] Population Council, New York, NY, USA

Introduction: In the VOICE trial, daily oral or vaginal tenofovir (TFV)-based pre-exposure prophylaxis (PrEP) was not effective in reducing HIV acquisition. This was potentially due to poor adherence, as determined by low plasma TFV detection in a subset of active arm participants. MTN-003D is a follow-up qualitative study using in-depth-interviews (IDIs) and focus group discussions (FGDs) in Zimbabwe, South Africa and Uganda, exploring reasons for non-adherence in juxtaposition to individual drug detection data.

Description: We developed 4 strategies to encourage open discussions of adherence challenges with VOICE participants: 1) presentation of local media clippings on VOICE results; 2) representation of participants' drug detection patterns during VOICE (based on at least 3 plasma samples) using illustrations of teapots/cups depicting levels of overall "adherence"; 3) use of theme cards listing 20 adherence challenges identified through previous qualitative research in this population; and 4) identification of IDI participants who were open about adherence challenges to act as peer "sparks" during FGDs.

Lessons Learned: Input gained through consultation with PrEP researchers and site staff was instrumental in the development of all strategies. The teapot tool was finalized after pretesting with former research participants, local clinic staff, or community board members at each site. Among 47 Zimbabwean and South African women interviewed to date, the teapot tool facilitated understanding and discussion of drug detection patterns, a difficult scientific concept to grasp. The theme cards, used during IDIs and FGDs, helped to systematically explore saliency and ranking of adherence challenges and to elicit new themes. When present, peer sparks successfully stimulated discussion in FGDs.

Recommendations: Use of pre-tested culturally appropriate visual tools and innovative strategies can help facilitate understanding and discussion of scientifically complex concepts, and stimulate more candid reporting of adherence behaviors in the context of clinical trials.

POSTER ABSTRACTS

POSTER ABSTRACTS

268 Assessment of VOICE Adherence Support Program (VASP) in the MTN-003 Trial

Ariane van der Straten[1] **(presenting)**, Ashley Mayo[2], Elizabeth Brown[3], K Rivet Amico[4], Helen Cheng[1], Nicole Laborde[1], Jeanne Marrazzo[3], Kristine Torjesen[2]

1   RTI International WGHI, San Francisco, CA, USA
2   FHI360, Durham, NC, USA
3   University of Washington, Seattle, WA, USA
4   University of Connecticut, Brighton, MI, USA

Background: Given suboptimal adherence to pre-exposure prophylaxis (PrEP) in some HIV prevention trials, the VOICE Adherence Strengthening Program (VASP) was implemented in May 2011, to improve adherence counseling in MTN-003, an ongoing placebo-controlled study of daily oral or vaginal tenofovir (TFV)-based PrEP.

Methods: To assess VASP acceptability and effect, anonymous baseline (N = 82) and one-year follow-up (N = 75) surveys were conducted with counseling staff (counselors/pharmacists) at 15 VOICE sites, and compared using GEE. Baseline (N = 18) and final (N = 26) qualitative interviews were also conducted with purposively sampled staff at 13 sites and analyzed for key themes. Of VOICE participants in the active arms (N= 365), the proportion with detectable plasma TFV within 6 months pre/post VASP, was compared using McNemar's test.

Results: Overall, staff were more likely to 'strongly like' VASP compared to the previous counseling approach (OR = 2.66, 95% CI = 1.32-5.35). Counselors expressed greater satisfaction with VASP compared to pharmacists throughout. Perspectives of successful counseling shifted towards participant engagement, identifying or overcoming barriers rather than focusing on perfect adherence. Further, 72% of staff thought participants preferred VASP to the previous approach. Nevertheless, no difference in prevalence of detectable plasma TFV was noted among participants pre and post VASP (p = 0.8).

Conclusions: While the majority of staff preferred VASP and thought that participants preferred VASP, no changes in participants' biological product use were observed. Interpretation of results is complicated by the proximity of VASP implementation to early closure of oral and vaginal TFV study arms due to futility. Modifying adherence support approaches in the midst of clinical trial follow-up is challenging, and careful consideration to include all staff should be made.

269 Validation of a New 3-Item ARV Adherence Self-Report Scale: Comparison with Electronic Drug Monitoring

Ira Wilson[1] **(presenting)**, Yoojin Lee[1], Aadia Rana[2], Joanne Michaud[1], Eric Lamy[3], Judith Bentkover[1], William Rogers[4]

1   Brown University, Providence, RI, USA
2   Alpert Medical School of Brown University/The Miriam Hospital, Providence, RI, USA
3   The Miriam Hospital, Providence, RI, USA
4   Tufts Medical Center, Boston, MA, USA

Background: In previous work, we used detailed cognitive testing to develop a new 3-item adherence scale. Herein we describe validation work that compares self-reports with an objective adherence measure, electronic drug monitoring (EDM).

Methods: We have enrolled 65 persons in a 4-month observational validation study. Eligibility criteria include adults taking antiretrovirals (ARVs) and at least 1 other regular non-ARV medication who have had a recent non-suppressed viral load (i.e., some evidence of a possible adherence problem). Participants were enrolled at a baseline visit and trained in the use of the MedSignals Device, which has 4 medication bins and thus allows up to 4 medications to be electronically monitored simultaneously. They had 3 follow up visits at approximately monthly intervals, at which time they were asked to self-report on their adherence to the medications in each of (up to) 4 bins. In this abstract we report the findings from the first bin (an ARV) for the 26 patients who had completed 3 follow up visits as of December 2013. The time frame for the self-report items is the past 30 days, and we therefore matched the EDM data to the same 30 days for these analyses. We used a previously published measure of "covered time" to summarize the EDM data, and compare the 2 measures by subtracting the SR from the EDM measure.

Results: Mean participant age was 49 years, 54% were non-white, and 35% were female. Mean SR adherence was 83.4, and mean EDM adherence was 78.3 (100 = perfect for both). The mean of the difference scores (SR-EDM) was 4.5 points (p = 0.07).

Conclusions: In these preliminary analyses the overestimation shown by the SR methods was relatively small (4.5 points), providing preliminary evidence of the validity of the SR scale. Analyses of the full data set will be available by June 2014.

272 A Randomized, Controlled Pilot Study of Cell Phone Support for Youth Non-Adherent to ART: Impact of the Intervention on Depression, Substance Abuse, and Service Utilization

Marvin Belzer[1] (presenting), Leslie Clark[1], Shoshana Kahana[2], Moussa Sarr[3], Sarah Thornton[3], Johanna Olson[1], Sylvie Naar-King[4]

[1]   Children's Hospital Los Angeles/University of Southern California, Los Angeles, CA, USA
[2]   National Institute on Drug Abuse, Bethesda, MD, USA
[3]   WESTAT, Rockville, MD, USA
[4]   Wayne State University, Detroit, MI, USA

Background: An experimental pilot study of cell phone support found significantly improved self-reported adherence and reductions in viral load among HIV infected adolescents. These analyses evaluate the impact of this intervention on depression, substance use and service utilization.

Methods: Thirty-seven youth ages 15-24 with marked baseline non-adherence (mean 33%) were randomized to receive usual care (n = 18) or Monday through Friday cell phone support (n = 19) through brief calls for 24 weeks by unlicensed adherence facilitators. Intervention subjects were provided free cell phones and plans or could utilize their own phone (subsidized with $45 monthly). Subjects missing more than 20% of calls for 2 consecutive months or missing 10 consecutive calls were discontinued from the intervention (N = 7). In addition to HIV RNA and self-reported adherence (VAS), subjects reported on substance use (ASSIST), depression (BSI) and service utilization (including medical, mental health, case management, emergency services) collected by ACASI at baseline, 6, 12, 24, 36, and 48 weeks. Substance use was combined to create a variable of "any drug use."

Results: Mean age was 20 years, 62% were male, 70% African American, and 54% acquired HIV sexually (46% perinatally). Controlling for baseline use, any drug use was significantly lower in intervention subjects than control subjects over the 48 week study (p = 0.0151). Controlling for baseline depression, intervention subjects reported lower depression than control subjects at the end of the 24-week intervention (P = 0.0222) but not at 48 weeks (P = 0.1666). Intervention and control groups showed no significant differences in self-reported service utilization.

Conclusions: The provision of cell phone support in this small pilot study demonstrated significant reductions in substance use that persisted for an additional 24 weeks once phone calls were terminated. Differences in depression during the intervention did not persist. Larger studies are required to see if these are actually mediators of improved adherence.

278 Mapping Barriers to Retention in HIV Care and ART Adherence to Andersen's Behavioral Model

Carol Holtzman[1] (presenting), Judy Shea[2], Karen Glanz[2], Robert Gross[2], Janet Hines[2], Karam Mounzer[3], Rafik Samuel[1], Joshua Metlay[4], Baligh Yehia[2]

[1]   Temple University, Philadelphia, PA, USA
[2]   University of Pennsylvania, Philadelphia, PA, USA
[3]   Philadelphia FIGHT, Philadelphia, PA, USA
[4]   Massachusetts General Hospital, Boston, MA, USA

Background: For HIV-infected populations, Andersen's Behavioral Model may provide a framework for understanding how patient characteristics (predisposing factors, enabling factors, and perceived need) and the contextual and healthcare environment (clinic, system, and provider factors) influence health behaviors. We applied Andersen's Behavioral Model to 2 HIV-specific behaviors - retention in HIV care and antiretroviral therapy (ART) adherence.

Methods: Qualitative semi-structured interviews with 36 HIV-infected adults (≥18-years-old) enrolled in care at 3 HIV clinics in Philadelphia between April and November 2013. Interviews included open-ended questions assessing barriers/facilitators to scheduling and attending clinic visits, obtaining and adhering to ART, and the perceived quality of the patient-provider relationship. Interview data were analyzed for themes using a grounded theory approach, a methodology that involves iterative development of themes emerging from the data as they are collected.

Results: Among patients interviewed, 20 (56%) were male and 32 (89%) were nonwhite. Twenty (56%) patients were retained in care (≥1 visit in each 6-month period of the year, at least 60 days apart), 34 (94%) were on ART for ≥1 month, and 24 (67%) were virally suppressed (all HIV-1 RNA <400 copies/mL) in the 12-month period prior to the interview date. Participants identified 24 barriers/facilitators to retention in HIV care and ART adherence corresponding with all 7 domains of Andersen's Behavioral Model. Of these, 5 related to retention, 6 to ART adherence, and 13 to both behaviors. The top 5 barriers/facilitators were: competing life activities (related to both behaviors), adverse medication effects (ART adherence only), physical symptoms (both behaviors), cognitive function/memory (both behaviors), and mental illness (both behaviors).

Conclusions: We identified 24 barriers/facilitators to care and ART adherence that can be classified within the broad domains of Andersen's Behavioral Model. This model should be considered when designing interventions to improve health behaviors and clinical outcomes.

POSTER ABSTRACTS

279 Correlation between Use of Antiretroviral Adherence Devices by HIV-Infected Youth and Plasma HIV RNA and Self-Reported Adherence

Parya Saberi[1] **(presenting)**, Kenneth Mayer[2], Eric Vittinghoff[1], Sylvie Naar-King[3]

[1] University of California, San Francisco, CA, USA
[2] Harvard University, Boston, MA, USA
[3] Wayne State University, Detroit, MI, USA

Background: Our objective was to investigate antiretroviral (ARV) adherence device use (i.e., labels, calendars, pillboxes, beepers, timers, MEMS, programmable wrist watches, and diaries) by HIV-infected youth and assess the association of device use and viral suppression and self-reported ARV adherence. Additionally, we examined this association among 3 sub-groups: 1) perinatally vs. behaviorally HIV-infected youth, 2) those reporting vs. not reporting forgetting to take ARVs as an adherence barrier, and 3) those reporting vs. not reporting problematic substance use.

Methods: We conducted a secondary data analysis of cross-sectional data collected as part of Adolescent Trials Network 086 and 106 and included data from 1,317 HIV-infected individuals 12-24 years old prescribed ARVs. Psychosocial information using audio-computer assisted self-interviews and biomedical data via blood draw or medical charts from HIV-infected youth receiving care at 20 Adolescent Medicine Trials Units were collected from 2009 through 2012.

Results: Mean 7-day adherence was 86.1%, 50.5% had an undetectable viral load, and pillbox was the most commonly endorsed device. No specific device was independently associated with higher odds of 100% adherence. Having an undetectable viral load was inversely associated with use of adherence devices (OR = 0.80; p = 0.04) and among those with <100% adherence, higher adherence was associated with the use of at least 1 device (coefficient = 7.32; p = 0.003). The route of HIV infection, forgetting to take ARVs as an adherence barrier, and problematic substance use did not modify the association between undetectable viral load and use of specific devices.

Conclusions: Our data suggest that youth who experienced virologic failure often used adherence devices, which may not have been sufficiently effective in optimizing adherence. Therefore, future research should concentrate on approaches of improving adherence that are above and beyond adherence devices alone. Other tailored adherence-enhancing methods may need to be considered to maximize virologic suppression and decrease HIV transmission.

280 Barriers to Retention in HIV Care: A Comparison of Patient and Provider Perspectives

Baligh Yehia[1] **(presenting)**, Aaloke Mody[1], Leslie Stewart[1], Carol Holtzman[2], Janet Hines[1], Karam Mounzer[3], Joshua Metlay[4], Judy Shea[1]

[1] University of Pennsylvania, Philadelphia, PA, USA
[2] Temple University, Philadelphia, PA, USA
[3] Philadelphia FIGHT, Philadelphia, PA, USA
[4] Massachusetts General Hospital, Boston, MA, USA

Background: Prior studies have described differences between patient and provider-identified barriers to healthcare engagement, including weight loss, prenatal care, and adherence to diabetes treatment. We compared patient and provider perceptions of barriers to retention in HIV care.

Methods: Qualitative semi-structured interviews with 36 HIV-infected adults (≥18 years old) and 13 providers at 3 HIV clinics in Philadelphia between April and November 2013. Interviews included open-ended questions assessing barriers/facilitators to scheduling and attending clinic visits. Interviews were analyzed for themes using a grounded theory approach. We compared the relative importance placed on themes between patients and providers.

Results: Among patients interviewed, 20 (56%) were male, 32 (89%) nonwhite, and 20 (56%) retained in care (≥1 visit in each half of the 12-month period prior to the interview date, ≥60 days apart). Of providers interviewed, 12 were physicians and 1 was a nurse practitioner. On average, patients identified 7 (range 3-16) and providers 16 (range 13-24) barriers to retention in HIV care. Barriers frequently offered by both patients and providers were mental illness, cognitive function/memory, competing life activities, and poor clinic experiences. Compared to patients, providers were more likely to identify substance abuse (100% vs. 22%), lack of health insurance (92% vs. 33%), and structural issues - difficulty navigating the health system (100% vs. 27%), transportation (92% vs. 35%), and inconsistent housing (77% vs. 19%) - as barriers. Patients were more likely than providers to offer physical symptoms and negative patient-provider interactions as barriers.

Conclusions: Perceived barriers to retention in HIV care differed between patients and providers. Providers identified more barriers and more commonly cited substance abuse, lack of insurance coverage, and structural issues as obstacles to care, while patients focused on their physical symptoms and the patient-provider relationship. These differences should be considered when designing tools and strategies to improve retention in HIV care.

281 Barriers to Care Differ for Patients Retained and Not Retained in HIV Care

Baligh Yehia[1] **(presenting)**, Leslie Stewart[1], Aaloke Mody[1], Carol Holtzman[2], Janet Hines[1], Karam Mounzer[3], Joshua Metlay[4], Judy Shea[1]

[1] University of Pennsylvania, Philadelphia, PA, USA
[2] Temple University, Philadelphia, PA, USA
[3] Philadelphia FIGHT, Philadelphia, PA, USA
[4] Massachusetts General Hospital, Boston, MA, USA

Background: Multiple cohort and survey studies have evaluated a limited number of patient and health system factors associated with retention in HIV care. A more qualitative approach would provide a broader understanding of relevant factors that differ between patients retained and not retained in HIV care.

Methods: Qualitative semi-structured in-person interviews with 36 HIV-infected adults (20 retained and 16 not retained) at 3 HIV clinics in Philadelphia between April and November 2013. Retention was defined as attending ≥1 visit in each half of the 12-month period prior to the interview date, at least 60 days apart. Interviews included open-ended questions assessing barriers/facilitators to scheduling and attending clinic visits and the perceived quality of the patient-provider relationship. Interview data were analyzed for themes using a grounded theory approach. We compared the relative importance placed on themes between patients retained and not retained in care.

Results: Both groups had similar demographic characteristics, with the majority being male, nonwhite, and with heterosexual HIV transmission risk. Overall, patients identified an average of 7 barriers (range 3-16). Patients not retained in care offered more barriers (8, range 3-16) than retained individuals (5, range 3-10). Clinic-level (difficulty scheduling appointments, challenging clinic experiences) and provider-level (perceived quality of the patient-provider relationship) barriers were similarly endorsed by both groups. However, compared to retained patients, those not retained in care were more likely to offer individual-level barriers to care (competing life activities, lack of family and social support, HIV stigma, physical symptoms, and substance abuse).

Conclusions: Patients not retained in HIV care had a greater number and identified more individual-level barriers to care than those consistently engaged in care. These findings have important implications for designing more effective interventions to retain HIV-infected patients in care.

282 Correlation of Internet Use for Healthcare Utilization Purposes and HIV Clinical Outcomes among HIV-Positive Individuals Using Online Social Media

Parya Saberi[1] **(presenting)**, Mallory Johnson[1]

[1] University of California, San Francisco, CA, USA

Background: Our objective was to describe mobile telephone and Internet use and the correlation of the use of the Internet for healthcare utilization (HCU) purposes and HIV clinical outcomes among HIV-positive individuals participating in a national online survey.

Methods: We conducted an online survey advertised on online social media to examine mobile telephone and Internet use, self-reported viral load (VL; detectable vs. undetectable), and antiretroviral adherence rating (excellent vs. <excellent). Participants were asked about their Internet use for HCU purposes (including emailing healthcare providers [HCPs], refilling medications, or making medical appointments).

Results: Respondents were 1,494 HIV-positive individuals with mean age= 45.6 years, 94.4% male, 71.1% White, 12.8% Latino, 8.9% African American, and 91.9% homosexual/bisexual. 84.8% reported undetectable VL, 66.5% reported excellent adherence, and 55.5% reported Internet use for HCU purposes. 96.2% stated having mobile telephone access and 71.5% reported owning a smartphone. Approximately 57.7% of participants stated using their mobile telephone nearly daily or daily for Internet access in the past month (mean hours on Internet using any device/day = 5.2 hours). Those who used the Internet for any HCU purposes had a 1.52-fold odds of reporting an undetectable VL (p = 0.009) and a 1.49-fold odds of reporting excellent adherence (p = 0.001). Use of the Internet for HCU purposes was associated with race (African American OR = 0.63, Latino OR = 0.67; overall p-value = 0.02, compared to White).

Conclusions: Our data reveal that among HIV-positive users of online social media, the majority own smartphones and spend a substantial amount of time on the Internet. Using the Internet to email HCPs, refill medications, and make medical appointments was associated with better virologic and adherence outcomes. Racial disparities exist with the use of the Internet for HCU purposes. Future research should examine the impact of an intervention to promote Internet use for HCU purposes on HIV clinical outcomes.

POSTER ABSTRACTS

284 Evidence for a Hawthorne Effect in the Measurement of Antiretroviral Adherence in Adolescents

Elizabeth Lowenthal[1] (presenting), Rachel Hammond[2], Tafireyi Marukutira[3], Jennifer Chapman[2], Jessica Eby[4], Ontibile Tshume[5], Gabriel Anabwani[5], Robert Gross[6], Knashawn Morales[1]

[1] University of Pennsylvania, Perelman School of Medicine, Philadelphia, PA, USA
[2] Children's Hospital of Philadelphia, Philadelphia, PA, USA
[3] Botswana-Baylor Children's Clinical Centre of Excellence/Centers for Disease Control and Prevention-Botswana, Gaborone, Botswana
[4] Villanova University, Villanova, PA, USA
[5] Botswana-Baylor Children's Clinical Centre of Excellence, Gaborone, Botswana
[6] University of Pennsylvania, Philadelphia, PA, USA

Background: Electronic monitors track medication bottle openings. Most published studies using them have lasted ≤3months. Whether electronic monitoring impacts adolescent behavior is unknown.

Methods: We analyzed 9 months of adherence monitoring data in HIV+ 10-19 year olds in Botswana. Electronic monitor (MEMS) data were downloaded and viral loads were obtained every 3 months. We calculated percent adherence over each 30-day interval for each subject and used a piecewise linear mixed effects model to evaluate the linear adherence trend for each interval. We separately evaluated the trend among adolescents who had <95% adherence during any 3-month interval.

Results: We enrolled 300 adolescents (158, 53% female) of median age 13.4 (IQR 11.8-15.6) years and median treatment duration of 91 (IQR 64-105) months. At baseline, 47 (16%) had detectable viral loads without evidence of drug resistance. Of those, 22 (47%) suppressed their viral loads by 6 months without a regimen change. 143 subjects (48%) had adherence <95% during 1 or more 3-month intervals. First month median adherence was 100% (IQR 96.7-100), declining to 98.3 (IQR 93.3-100) by month 9 in the complete cohort. Among the 143 with adherence ever <95%, month 1 median adherence was 98.3 (IQR 90-100), declining to 91.7 (IQR 81.3-96.7) by month 9. There was a significant decline in adherence for each month after the first 3 months (p <0.001) in both analyses and a significant inflection point during month 2.

Conclusions: In our cohort, adolescent virologic outcome was temporarily improved by enrollment in an observational adherence study. This was likely due to the high rates of adherence observed early after enrollment. Due to early improvement in adherence caused by the Hawthorne Effect, short-term studies showing high levels of adherence in adolescents may fail to demonstrate the poor adherence seen over time, particularly for those who are least adherent.

285 Piloting an mHealth Intervention to Improve Treatment Adherence among Newly Diagnosed and Non-Adherent HIV-Positive Patients

Aadia Rana[1] (presenting), Jacob van den Berg[2], Eric Lamy[3], Curt Beckwith[1]

[1] Alpert Medical School of Brown University/The Miriam Hospital, Providence, RI, USA
[2] Brown University/The Miriam Hospital, Providence, RI, USA
[3] The Miriam Hospital, Providence, RI, USA

Background: The US National HIV/AIDS strategy prioritizes efforts to improve continuous engagement in HIV care. Technology-based methods may play a supportive role in improving self-care of HIV infected individuals, particularly those at highest risk for disengaging with care including newly diagnosed or those with a history of non-adherence.

Methods: We are conducting a 6-month pilot study at The Miriam Hospital Immunology Center in Providence, RI to assess the feasibility and acceptability of a staff-delivered bi-directional texting intervention with appointment and medication adherence reminders, additional supportive messaging, and assistance with problem solving by an interventionist. English-speaking patients with a cell phone capable of sending/receiving text messages, age ≥ 18, who are either: newly entering into care, re-engaging with medical care after a lapse >1 year, or have a history of non-adherence are eligible to participate.

Results: From January-August 2013, 58 participants were referred and 32 enrolled. The majority are male (72%),white (66%), non-Hispanic (81%), median age 38 (range 19-64), insured (72%), prescribed antiretroviral therapy (94%) with 25% newly diagnosed, 6% re-entering care, and 69% with a reported history of treatment non-adherence. Participants chose confidential pre-selected (69%) or self-created (31%) medication and appointment text-message reminders. Eight participants opted for a third text message e.g., reminders for substance support meetings, smoking cessation, or supportive messaging. Participant-initiated messages include inquiries on clinic appointments (5), study visits (13), clinic contact information (2), and notifications of number change (4). To date, 5 participants are lost to follow-up with 1 out-of-state transfer, 1 death, and 1 incarceration. Nine participants have pending final visits.

Conclusions: The use of a low-cost bi-directional mHealth intervention among patients at high risk for disengaging with medical care is feasible at our clinic given prevalence of texting cell phone use and acceptability of intervention.

286 Acceptability of a Bidirectional Text Messaging Intervention for Improving Treatment Adherence among Patients at Highest Risk for Disengaging with HIV Medical Care

Jacob van den Berg[1] **(presenting)**, Eric Lamy[2], Curt Beckwith[3], Aadia Rana[3]

1   Brown University/The Miriam Hospital, Providence, RI, USA
2   The Miriam Hospital, Providence, RI, USA
3   Alpert Medical School of Brown University/The Miriam Hospital, Providence, RI, USA

Background: Despite considerable advances in antiretroviral treatment, the number of persons living with HIV in the United States who are engaged in treatment and care is suboptimal. The purpose of this pilot study was to investigate the acceptability of a bidirectional text messaging intervention to improve treatment adherence among patients at highest risk for disengaging with HIV medical care.

Methods: Semi-structured, in-depth interviews were conducted with 15 HIV-infected patients from a community-based HIV clinic located in the northeastern United States who completed a 6-month study piloting a bidirectional texting intervention. Participants were eligible if they were 18 years of age or older; received an HIV diagnosis within 12 months of entry into care, a history of non-adherence, or reengaging with medical care; English-speaking; and owned a cell phone capable of receiving and sending text messages. Interviews were audio-recorded and transcribed verbatim. Two independent researchers coded each transcript separately and then compared transcripts to resolve any coding discrepancies. Codes were subsequently entered into NVivo 9 and data were reviewed in aggregate for thematic analysis.

Results: Emergent data revealed that all participants found this intervention to be acceptable as it helped them to remember to take their medications daily and to keep their scheduled medical appointments. Most reported liking the option of creating their own personalized text messages, liking the frequency of receiving only 1 message at the same time every day, and being less concerned about confidentiality as the messages did not mention HIV. Many also indicated experiencing an emotional connection to the messages they received by the study interventionist, and expressed a desire to continue receiving messages upon study completion. Participant-initiated messaging was rare.

Conclusions: Text messaging is a viable supportive tool that has the potential to improve treatment adherence among US patients at highest risk for disengaging with HIV medical care.

288 How Does Depression Impact ART Dose Timing Adherence? The Role of Lifestyle Structure in a Longitudinal Mediation Analysis

Jessica Magidson[1] **(presenting)**, Aaron Blashill[2], Steve Safren[1], Glenn Wagner[3]

1   Massachusetts General Hospital, Boston, MA, USA
2   Massachusetts General Hospital/Harvard Medical School, Boston, MA, USA
3   RAND Corporation, Santa Monica, CA, USA

Background: Despite the well-documented relationship between depression and antiretroviral therapy (ART) non-adherence, few studies have tested factors that underlie this relationship, which is important to inform behavioral intervention development. The current study tested lifestyle structure - a factor related to both depression and ART non-adherence - as a potentially modifiable mediator of the relationship between depressive symptoms and ART non-adherence.

Methods: HIV-infected individuals starting or re-starting ART in the California Collaborative Treatment Group (CCTG) 578 were assessed over 48 weeks. CCTG 578 was a 3-arm randomized controlled trial evaluating a cognitive behavioral intervention for adherence among HIV-infected individuals starting or re-starting ART. Study arm was controlled for in all analyses. Dose timing adherence was measured using electronic monitoring caps and calculated as the percentage of prescribed doses taken within the specified time window for the antiretroviral monitored by the cap. Lifestyle structure - defined as the degree of organization and routinization of daily activities - and depressive symptoms were assessed via self-report. Mediation was tested using generalized linear mixed-effects modeling and bootstrapping.

Results: Participants (n=199) were 20% female and 49% Latino(a). 30% were HIV antiretroviral naïve. Mean dose timing adherence over the study period was 78.2% (SD=24.5). There was a significant relationship between depression and lifestyle structure (path a, p <.0001), lifestyle structure and dose timing adherence (path b, p <.01), and depression and dose timing adherence (path c, p <.05). Path c was no longer significant when lifestyle was included in the model (p = .61), and lifestyle structure significantly mediated the relationship between depression and dose timing adherence (γ =-.013, 95%CI[-.026, -.003]).

Conclusions: Lifestyle structure may be an important modifiable factor in the relationship between depression and ART adherence behavior. Interventions that aim to minimize disruptions to lifestyle structure, increase routinization of daily activities, and link adherence to daily activities may improve both adherence and depression.

289 HIV and Maternal Mortality: Factors Responsible for Deaths

Clara Appiagyei Nkyi[1] (presenting), Daniel Ansong[1], Sampson Ofori[2], Samuel Nguah Blay[1]

[1] Komfo Anokye Teaching Hospital, Kumasi, Ghana
[2] Koforidua Regional Hospital, Koforidua, Ghana

Background: HIV/AIDS is among the leading causes of maternal mortality in sub-Saharan Africa and infectious diseases like tuberculosis, malaria, pneumonia, and sepsis are major contributing factors. We sought to determine the trend in HIV related maternal mortality and factors associated with it in a regional hospital in Ghana. A retrospective study of maternal deaths in a cohort of HIV-infected women was carried out between January, 2010 and December 2012. A facility-based maternal death review using case records and mortality summaries was systematically conducted. Maternal deaths which were associated with HIV/AIDS and its complications that occurred within the 3-year study period were critically reviewed. Factors associated with the maternal deaths were identified.

Results: Maternal mortality for the 3-year period (per 100,000 live births) was 763 (95%CI: 628-918). Year-specific mortality rates were 2010, 2011 and 2012 were 828 (95%CI: 583-1141), 664 (95%CI: 454-937) and 797 (577-1074) respectively. There was neither a statistically detectable difference between the yearly morality rates (p = 0.616) and detectable trend (p = 0.904). The proportion of the maternal mortality that was associated with HIV infection was 5.4% (2/37), 12.5% (4/32), 13.9% (6/43), and 10.7% (12/112) for 2010, 2011, 2012 and all years combined. There was no significant changes in the proportion of HIV-associated deaths (p = 0.435) as well as a significant trend seen (p = 0.244). The mean age of the HIV maternal deaths was 30.25 years (range 18-42 years). Out of a total of 12 HIV maternal deaths, 6 had undergone prevention of mother-to-child transmission (PMTCT). All the HIV-related maternal deaths were admitted to the hospital at an advanced. 4 persons in the study population had received antiretroviral treatment (ART) whilst 6 were never started on ARTs. Tuberculosis was the commonest cause of death (4). The other causes of death were cerebral toxoplasmosis (3), septicemia (1), chronic diarrhea (1), severe anemia (2), and pneumonia (1).

Conclusion: Inadequate implementation of the PMTCT and delays in ART in qualified women was observed to be common in HIV maternal-related death. Stringent measures should be put in place to adequately address the implementation of PMTCT HIV preventive programs to help decrease the burden of the disease.

290 Depression as a Predictor of 4-Day ART Treatment Interruptions and Virologic Detectability in an Online Social Network Survey of People Living with HIV

John Sauceda[1] (presenting), Mallory Johnson[2], Parya Saberi[2]

[1] Center for AIDS Prevention Studies, San Francisco, CA, USA
[2] University of California, San Francisco, CA, USA

Background: The objective of our study was to examine the association between self-reported depressive symptomatology, 4-day antiretroviral treatment (ART) interruptions, and viral suppression in a national cohort of online social media users.

Methods: Using a cross-sectional study design we collected data from HIV-positive individuals via an online survey advertised on Facebook. The 2 primary outcomes were a 4-day treatment interruption (none vs. at least 1 in the past 3 months), and reporting a detectable or undetectable viral load (VL). Depression, via the Patient Health Questionnaire-9, was our primary predictor. Participants were categorized as "minimum," "mild," "moderate" and "moderate/severe" by diagnostic cutoff scores. Age, race/ethnicity, gender, sexual orientation, and substance use were controlled for in 2 logistic regression models (1 per outcome).

Results: The mean age of our participants (N = 1,218) was 44 years, with 78% being White, 12% Latino, 10% African American, and 93% gay/bisexual. Approximately 14% of the sample reported at least 1 treatment interruption and 10% reported a detectable VL. Groups based on self-reported depression severity were as follows: 37% "minimum," 30% "mild," 15% "moderate," and 17% "moderate/severe." Each successive depressive group (i.e., from "mild," to "moderate/severe") was associated with greater odds of treatment interruption (ORs = 2.4, 2.2, 2.7, respectively, ps <.01), compared to the "minimum" group. The "moderate" and "moderate/severe," but not "mild" group, had greater odds of having a detectable VL (ORs = 1.7, 1.8, respectively, ps <.05), compared to the "minimum" group. Increased odds for interruptions also emerged for Latinos and African Americans (ORs = 2.0, 2.4, respectively, ps <.05), compared to Whites and participants reporting drug use (OR = 1.8, p <.01).

Conclusion: Depression, as well as race/ethnicity and substance use, was predictive of missing 4 consecutive days of ART over a 3-month period. Addressing mental health needs in HIV care is vital to reducing the risk for virological rebound and drug resistance via treatment interruptions.

291 Barriers and Facilitators of Retention in a Decentralized HIV Treatment Program in North Central Nigeria: A Qualitative Analysis

Grace Kolawole[1] **(presenting)**, Nancin Dadem[1], Patricia Agaba[1], Becky Genberg[2], Oche Agbaji[1], Atiene Sagay[1], Prosper Okonkwo[3], Norma Ware[4]

1. Jos University Teaching Hospital, Jos, Nigeria
2. Brown University, Providence, RI, USA
3. AIDS Prevention Initiative Nigeria, Abuja, Nigeria
4. Harvard Medical School, Boston, MA, USA

Background: Decentralization of antiretroviral treatment (ART) and care seeks to link patients to services and improve retention by expanding delivery of ART from tertiary to secondary and primary health care settings. Decentralization efforts have been underway for several years in Africa, and retention rates have improved. Yet we know little of patients' experiences of transferring to new sites, or of receiving care in decentralized facilities. We conducted a qualitative study of patient experiences of decentralized care in Nigeria, focusing particularly on retention barriers and facilitators.

Methods: We report data collected at 1 public, 1 private and 2 faith based sites in a decentralized HIV care network in Plateau State, north central Nigeria. 56 (N = 56) adults who had transferred from a larger, central HIV specialty clinic and were receiving ART at local community hospitals took part in individual interviews. Another 16 individuals participated in focused group discussions. Data collection topics included reasons for transferring to the local clinic, experiences of decentralized care, keeping clinic appointments and perceived quality of services received. Data were inductively content analyzed to identify themes.

Results: Participants reported saving money and time on transport to clinic appointments and experiences of improved health from ART as retention facilitators. A number of barriers were also pointed out including: (a) travel difficulties due to poor roads and security checkpoints (b) having to pay for medicines received for non-HIV ailments that had been provided free of charge at the previous care site, c) long clinic waiting times, and (d) heightened fear of disclosure and resulting stigma.

Conclusion: Decentralization alleviates transport time and cost as barriers to retention but presents other structural and social obstacles to persisting in care. Some of these are similar to and some are different from obstacles reported previous for large, centralized treatment settings in sub-Saharan Africa.

292 Retention in Decentralized HIV Treatment: Patient Strategies for Persisting in Long-Term Care in Secondary Health Facilities in Nigeria

Nancin Dadem[1] **(presenting)**, Grace Kolawole[1], Patricia Agaba[1], Becky Genberg[2], Oche Agbaji[1], Prosper Okonkwo[3], Atiene Sagay[1], Norma Ware[4]

1. Jos University Teaching Hospital, Jos, Nigeria
2. Brown University, Providence, RI, USA
3. AIDS Prevention Initiative Nigeria, Abuja, Nigeria
4. Harvard Medical School, Boston, MA, USA

Background: Patients receiving antiretroviral treatment (ART) for HIV/AIDS require lifelong medical management. Decentralization seeks to improve retention by bringing care closer to patients, reducing travel barriers. We know little, however, about patients' actual experiences of keeping appointments at decentralized care facilities in Africa. This qualitative study describes strategies patients adopt to persist in decentralized care in Plateau State, central Nigeria.

Methods: The presentation reports data collected at 3 decentralized care sites -1 public, 1 private and 1 faith-based facility. Data consisted of 42 individual interviews (patients N = 30; staff N = 12), and 3 patient focus groups. Participating patients had all transferred to decentralized sites from a larger specialty clinic at an urban teaching hospital. Interview and focus group questions addressed reasons for seeking transfer, perceptions of accessing care closer to home, experiences of care at initial and decentralized sites, reasons for missing scheduled clinic appointments, and strategies for coping with continuous, long-term care. Interviews were recorded, transcribed and inductively analyzed to construct descriptive categories.

Results: Despite decentralization, patients faced retention challenges. For some, transportation difficulties persisted. Other challenges included illiteracy, resulting in mistaken appointment dates; increased fear of disclosure and subsequent stigma due to proximity of patients' homes to care sites; impassable rural roads and bridges during the rainy season; and civil instability in neighboring communities. Patients responded to challenges by: (1) seeking financial assistance from friends and relatives for transportation costs; (2) consulting literate relatives for confirmation of appointment dates; (3) making conscious commitments to remaining healthy by accepting illness and adhering to ART; and (4) deriving inner strength and encouragement from religious faith.

Conclusions: Barriers to patient retention are reduced, but not eliminated through decentralization of HIV treatment. Patients deliberately exploit collective social reserve and personal religious inclination to overcome these barriers and persist in care.

POSTER ABSTRACTS

293 High Levels of Stress, Depression and other Psychiatric Disorders among HIV-Infected Individuals

Lotte Rodkjaer[1] **(presenting)**, Maria Slot[2], Charlotte Gabel[1], Tinne Laursen[1], Nils Christensen[3], Jens Holmskov[4], Peter Leutscher[1], Morten Sodemann[5]

[1] Department of Infectious Diseases, Aarhus University Hospital, Aarhus, Denmark
[2] Department of Infectious Diseases, Odense University Hospital, Odense, Denmark
[3] The Research Clinic for Functional Disorders and Psychosomatics, Aarhus University Hospital, Aarhus, Denmark
[4] Department of Psychiatric Diseases, Odense University Hospital, Odense, Denmark
[5] Department of Infectious Diseases, Odense University, Odense, Denmark

Background: HIV-infected individuals are at high risk of depression and other psychiatric disorders. In Denmark there is a lack of information about mental health in the clinical records of HIV-infected individuals, hence we know very little about the prevalence of psychiatric disorders in this patient group. Previous studies have shown that psychiatric disorders are associated with non-adherence to antiretroviral therapy (ART). The aim of this study was to investigate the prevalence of depression and other psychiatric disorders among HIV-infected in 2 outpatient clinics in Denmark and to detect factors associated with risk of depression.

Methods: In 2013, a population of 501 HIV-infected individuals were included in a questionnaire-based study. The Beck Depression Inventory II (BDI-II) was used to assess the prevalence and severity of depressive symptoms. HIV-infected individuals with a BDI-II ≥20 were offered a clinical evaluation by a consultant psychiatrist.

Results: Symptoms of depression (BDI >14) was observed in 167 (33%) patients, and symptoms of moderate to major depression (BDI ≥20) in 111 patients (22%). Of all patients 93 (19%) reported having other psychiatric disorders. Among the 111 patients at risk of depression 65 (59%) patients consulted a psychiatrist and the psychiatrist found that 71% had a psychiatric disorder other than depression. In multivariate logistic regression self-reported stress, self-reported bad health, not satisfied with life, previous psychiatric history and substance abuse, non-adherence to ART, were independently associated with symptoms of depression (BDI ≥20).

Conclusions: The study found that Danish HIV-infected individuals are at high risk of depression and have other psychiatric disorders. Depression and stress reduces adherence, hence HIV clinics should routinely screen and treat depressive symptoms to provide full evaluation, and accurate psychiatric diagnosis. We suggest that simple questions such as self-reported health and satisfaction with life could be used in clinical practice to identify patients at risk of depression.

296 Patient-Centered Survey in a Hepatitis C Virus (HCV) and Human Immunodeficiency Virus Coinfected Population

Rebecca Sumner[1] **(presenting)**, Eugene Morse[1], Joshua Sawyer[1], Anthony Martinez[2]

[1] University at Buffalo, Buffalo, NY, USA
[2] University at Buffalo/Erie County Medical Center/Buffalo General Medical Center - Kaleida Health, Buffalo, NY, USA

Background: Among individuals living with HIV in the United States, approximately one-quarter are coinfected with Hepatitis C virus (HCV). HIV accelerates the natural history of HCV infection with rates of fibrosis progression nearly 3 times greater in the coinfected population. Incorporation of HCV treatment to antiretroviral therapy complicates medication regimens, introducing additional adverse effects and drug interactions which may have a potential impact on patient quality of life. Integration of patient-centered goals and values into medical decision-making allows individuals to assess the risks and benefits associated with treatment outcomes, allowing for patient-specific provider education and intervention prior to treatment initiation. Patient-centered outcomes research assessing HCV knowledge and treatment expectations in the coinfected population is warranted to identify potential adherence barriers and improve successful treatment outcomes.

Methods: Approximately 44 HCV/HIV-coinfected adults in an urban, immunodeficiency clinic will be administered a survey during an initial pre-HCV treatment evaluation appointment. Twenty-two survey questions will be independently completed by the patient and will address previous HCV treatment experiences, expectations and anticipations regarding HCV treatment and its adverse effects, as well as regimen complexity with current antiretroviral treatment. A subset of patients initiated on HCV treatment during the study period will be administered an abbreviated survey at treatment weeks 4 and 12 to compare current health status to initial treatment perspectives.

Results: This study is in the active enrollment phase and identification of coinfected patient subjects for study participation is ongoing. Study results will be finalized with abstract modification for poster presentation.

Conclusions: The results of this study will identify general knowledge deficits on HCV disease and current treatment modalities. The data gathered will be utilized to create a patient-centered educational module delivered prior to HCV treatment initiation, derived directly from patient-identified responses and focused concerns.

299 Quantitative Evaluation of a New Brief Chronic Pain Screening Tool in HIV-Infected Individuals

Jessica Merlin[1] **(presenting)**, Andrew Westfall[1], Eric Chamot[1], Michael Saag[1], Melonie Walcott[1], Christine Ritchie[2], Stefan Kertesz[1]

[1] University of Alabama at Birmingham, Birmingham, AL, USA
[2] University of California, San Francisco, CA, USA

Background: Chronic pain is pain of at least 3 months duration, beyond the period of normal tissue healing. While pain among HIV-infected patients is common, the prevalence of the clinically important syndrome of chronic pain is unknown. To date, there has been no widely used screening tool to identify patients with chronic pain in the general population, or individuals with HIV. A new 2-question Brief Chronic Pain Screening Tool (BCPS) includes 1 question on pain severity in the past week and another question on the presence of pain for >3 months. This study quantitatively evaluated the BCPS in HIV-infected patients.

Methods: We evaluated the association between the presence of at least mild chronic pain for >3 months and factors associated with chronic pain in a sequential sample of patients in an academic HIV clinic. These factors were impaired physical function (EuroQOL, none vs somewhat/unable to perform); overall health state (EuroQOL thermometer, 0-100); consistent pain (pain on 2/2 EuroQOLs over the past 18 months); depression (PHQ-9 ≥10); and anxiety (PHQ-Anxiety, none vs anxiety symptoms/panic). Persons with and without chronic pain were compared using the Wilcoxon rank sum test for continuous variables and the chi squared test for categorical variables.

Results: Of 100 participants, 30 had chronic pain. Participants with chronic pain were more likely to have impaired mobility (43% vs. 12%, p <0.001), difficulty with usual activities (47% vs 12%, p <0.001), lower overall health state (70 vs. 84, p = 0.002), consistent pain (65% vs. 17%, p <0.001), depression (30% vs. 15%, p = 0.08), and anxiety (43% vs. 10%, p <0.001).

Conclusions: The results of the BCPS correlate as hypothesized with measures of functional impairment, health state, consistent pain, depression, and anxiety. This study provides preliminary evidence for the BCPS as a screening tool for chronic pain in HIV care settings.

300 Innovative Approaches for Identifying Out-of-Care Persons for Re-Linkage to Care

Kellie Watkins[1], Camden Hallmark[1], **Richard Grimes**[2] **(presenting)**, Biru Yang[1], Marcia Wolverton[1], Marlene McNeese[1]

[1] Houston Department of Health and Human Services, Houston, TX, USA
[2] University of Texas Health Science Center at Houston, Houston, TX, USA

Background: Forty-nine percent of HIV-diagnosed persons in Houston/Harris County Texas were lost to care in 2012. A study was conducted to determine if these persons returned to HIV care without intervention, were out-of-jurisdiction, incarcerated, or needed assistance to return to care.

Methods: Three sources identified potentially out-of-care HIV-positive patients: surveillance program data, medical providers, and health department field staff. Information collected from 2 databases determined whether these persons had relocated to another jurisdiction or were incarcerated. Searches in 4 surveillance and care databases determined whether these persons had returned to care on their own. If patients lacked CD4 count or viral load results within the previous 6 months and/or were missing evidence of a medical appointment, they were assigned to Service Linkage Workers (SLWs) for re-linkage to care.

Results: Ninety patients were included in the study. Fifty-one referrals came from surveillance data, 19 from health department staff, and 20 from medical providers. Twenty-nine individuals (32.2%) returned to care on their own, 8 (8.8%) were out-of-jurisdiction, 3 (3.3%) were ineligible, and 50 persons (55.6%) were out-of-care and eligible for SLW intervention. Fifty-three percent of surveillance referrals, 68.4% of health department referrals, and 50.0% of medical provider referrals were out-of-care.

Conclusions: The creation of 3 referral methods to identify out-of-care patients is an innovative approach that can be applied in other jurisdictions. Utilizing laboratory data from surveillance records to confirm the current care status of patients helps target SLW efforts towards individual in-need of assistance. Health department referrals identified the highest proportion of out-of-care patients (68.4%) while provider referrals identified the lowest (50.0%). To measure the impact of SLWs and further understand the health status of patients while in and out of care, the dates and results of CD4 and viral loads will be examined in future analyses.

POSTER ABSTRACTS

302 Applying Motivational Interviewing to Enhance Engagement in Care in Patients with HIV in Buenos Aires, Argentina

Lina Bofill[1] (presenting), Stephen Weiss[2], Alejandra Bordato[3], Graciela Fernandez-Cabanillas[3], Mar Lucas[4], Analia Dorigo[4], Deborah Jones[2]

[1] University of Miami, Miami, FL, USA
[2] University of Miami Miller School of Medicine, Miami, FL, USA
[3] Fundacion Helios Salud, Buenos Aires, Argentina
[4] Fundacion Huesped, Buenos Aires, Argentina

Background: Motivational interviewing (MI) has been shown to promote behavioral change in different health related situations. However, the use of MI among physicians providing HIV health care have has not previously been conducted in Argentina. This study examines provider responses to MI training, uptake and ongoing use of this specialized application of MI to improve engagement and retention in care for challenging patients who have not responded to usual care.

Methods: An MI intervention was offered as a 1-day workshop for physicians (n = 12) in public and private settings in Buenos Aires, Argentina. A questionnaire was completed immediately post-training and 1 week post-training, to evaluate MI uptake and implementation. Physicians also video recorded a routine consult session with a challenging HIV-positive patient pre- and post-MI training, to evaluate the utilization of the MI techniques.

Results: The health care providers expressed strong interest and satisfaction immediately following their participation in the work shop. One week post-training, all were committed to using MI strategies in their consultation sessions. Based upon their post-workshop responses, most physicians (n = 8) described using several MI techniques, 2 were ambivalent about the techniques; 1 declined to respond. All wanted to receive additional MI training. Preliminary analyses (5 of 7 video recordings) illustrated appropriate utilization of MI techniques (active listening, short summaries, positive feedback, guiding more than directing). Two providers used MI scales (1 to 10) to quantify their patient's willingness to be adherent.

Conclusions: MI was well received among HIV health care providers. However, the process of HIV management is lengthy and providers may need more intensive training and practice using MI techniques to fully incorporate their routine use in care. MI appears to be a viable strategy to enhance engagement and retention in care among challenging patients.

304 HIV-Related Stigma and ART Adherence in a Clinical Cohort: Does the Impact of Stigma Differ for Men and Women?

Bulent Turan[1], Sheri Weiser[2], Mallory Johnson[2], Greer Burkholder[1], Anne Zinski[1], James Raper[1], David Batey[1], Michael Mugavero[1], Janet Turan[1] (presenting)

[1] University of Alabama at Birmingham, Birmingham, AL, USA
[2] University of California, San Francisco, CA, USA

Background: HIV-related stigma may affect women differently than men, contributing to disparities in adherence and health outcomes by gender.

Methods: We analyzed observational data from a cohort of patients who initiated HIV care at a clinic in the US South after 2011. Data on HIV-related stigma (internalized, enacted, community, and disclosure concerns) were collected during patients' clinic orientation session (new-to-care or re-engagement). A validated self-report measure of ART adherence in the past month was administered at each subsequent clinic visit over 30 months. ART adherence data were available for 349 men and 83 women at their first clinic visit, and for 269 men and 48 women at subsequent visits. Logistic regression analyses predicting adherence were adjusted for gender, race, age, baseline CD4, and years since HIV diagnosis.

Results: The proportion of clients reporting less than excellent ART adherence was 44% for the first visit and 50% for subsequent visits (average of up to 10 visits). Internalized, enacted, and total stigma scores were negatively related to ART adherence assessed at first and subsequent visits. Compared to men, women had higher enacted, community, and total stigma, and lower ART adherence. Effect sizes for the relationships between stigma dimensions and ART adherence measured at first visit were larger for women (OR range = .32-.80) compared to men (OR range = .75-.95), with significant interactions between gender and total and enacted stigma (p = .03). For ART adherence measured at subsequent visits, effect sizes remained larger for women. For women, internalized and total stigma were negatively associated with both ART adherence measured at first visit (OR = .54, 95%CI = .30-.999; OR = .32, 95%CI = .13-.77, respectively) and at subsequent visits (OR = .39, 95%CI =.15-.998; OR = .28, 95%CI = .08-1.00, respectively).

Conclusions: HIV-related stigma at baseline has stronger effects on ART adherence for women as compared to men, which may be a driver of more negative outcomes for women living with HIV.

307 Feasibility and Impact of a Personalized Bidirectional Text Messaging ART Adherence Tool for Nonurban Substance Users

Karen Ingersoll[1] (presenting), Rebecca Dillingham[1], George Reynolds[2], Jason Freeman[1], Avi Hosseinbor[1], Jennifer Hettema[3]

[1] University of Virginia, Charlottesville, VA, USA
[2] Health Decision Technologies, Sheboygan, WI, USA
[3] University of New Mexico, Albuquerque, NM, USA

Background: Patients with HIV with recent substance use who reside in non-urban and rural areas have specific challenges to adherence, including stigma, isolation, poverty, and transportation challenges. While many nonurban patients have limited access to Internet or mobile web service, they usually have adequate access to text messaging services. Text messaging has a broad reach and bidirectional messaging could provide opportunities to detect non-adherence just in time for delivery of adherence interventions. In this study, our aim was to develop and pilot test a personalized bidirectional text messaging ART adherence tool for nonurban substance using people living with HIV.

Methods: Following formative research, we developed the tool, which includes patient-created personalized messages for their own reports of adherence/non-adherence, good mood/poor mood, and substance use/no substance use. The tool sent daily queries of medication taking at dosing times, mood twice daily at random times, and substance use in the past 24 hours using a coded query to protect patient privacy. Participants enrolled in the study following informed consent, completed a baseline assessment, and were randomized to the texting condition (Text) or to treatment as usual (TAU). Text participants were given a study phone and trained on its use. They created personalized messages for various contingencies during the training session. The intervention period was 12 weeks, followed by a 3M and 6M followup assessment. Primary outcomes included adherence measured by pharmacy refill rate and Timeline Followback self report (TLFB), treatment engagment measured by missed visit proportion, and substance using days reported on the TLFB.

Results: 63 people participated in the trial, with 33 randomized to Text and 30 randomized to TAU. There was significant psychiatric comorbidity in the sample, predominantly depressive and anxiety disorders measured by the MINI. Adherence by pharmacy refill rate for the previous 90 days was 64% and by TLFB was 63% at baseline. Missed visit proportion for the past 6 months was 30% at baseline. The proportion of days using alcohol or drugs at baseline was 53%. Randomization failed to control for alcohol use disorders, with a much higher rate of alcohol problems and diagnoses in the Text condition, requiring using baseline alcohol disorder diagnosis as a covariate in analyses. Response rates to substance use, adherence, and mood queries were similar, ranging from 62%-67%. Repeated measures analyses of variance revealed significant improvements in all primary variables except missed visit proportion across time that did not differ by treatment assignment. MVP at 3M was .09 for the Text and .31 for the TAU condition; $t = 2.58$; $p < .02$. The repeated measures ANOVA showed that MVP differed between groups, but did not have a time effect or an interaction effect over time. However, rates of change for the other primary outcomes favored the Text group, and power was limited in this small sample. Follow-up at 3M shows improvement in adherence, engagement, and substance use, and these return nearly to baseline levels at 6M.

Conclusions: A personalized, bidirectional text messaging ART adherence tool engages participants for the full 12 weeks, and they responded to all 3 types of queries. The Text condition shows promise to improve both adherence and substance use, and merits a fully powered subsequent trial.

POSTER ABSTRACTS

308 Retention in HIV Care among a Medicaid Insured Population, 2006-2010

Kathy Byrd[1] **(presenting)**, Melissa Furtado[1], Tim Bush[1], Lytt Gardner[1]

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

Background: Using surveillance and other available data, the Centers for Disease Control and Prevention estimates that 51% of HIV-positive persons are retained in medical care. Health services claims data may also be useful for estimating levels of retention in care, particularly in insured HIV populations.

Methods: We used the 2006-2010 Truven Health MarketScan® Medicaid claims databases to identify HIV/AIDS cases, and to determine levels of retention in care and gap in care. We used ICD-9 Clinical Modification diagnosis codes to identify cases, restricted analyses to persons who: 1) were ≥18 years (in the case identification year) 2) had ≥10 months of continuous enrollment in Medicaid during each 12-month period of a 24-month measurement period and 3) had ≥1 office visit claim in the first 6-month period of follow-up. Procedure and provider codes were used to identify office visits. Retention in care was defined as ≥1 office visit claim with a clinical provider during each 6-month period of the 24-month measurement period, and gap in care as the absence of an office visit claim in the last 6 months of the first 12-month period. Procedure and drug codes were used to determine if cases with a gap in care received other HIV care related services.

Results: Between 2006-2010, 4,894 cases met the study criteria of whom 54.4%, on average, (range 47.0%-56.6%) were retained in care during the 24-month measurement periods and 23.4%, on average, (range 20.6%-30.1%) failed to be retained in care due to a gap in care in the first 12 months of follow-up. Of cases who experienced a gap in care, 5.8% had claims for HIV viral load and/or t-cell tests, or claims for antiretroviral therapy (ART) during the gap.

Conclusions: Our estimates for retention in care among a Medicaid-insured HIV population were similar to national estimates. Among cases experiencing a gap in care, approximately 6% continued to be monitored through laboratory tests, or continued to fill ART prescriptions.

309 CD4 Response in Pediatric Patients on HAART with Sustained Virologic Control

Janice Piatt[1] **(presenting)**, Rukmalee Vithana[2], Laura Clarke-Steffen[1]

[1] Phoenix Children's Hospital, Phoenix, AZ, USA
[2] Children's National Medical Center, Washington, DC, USA

Background: Previous studies of CD4 response have followed mixed cohorts of adherent and non-adherent children; pre- and post-highly active antiretroviral therapy (HAART). This study evaluated the CD4 response in highly adherent children with sustained viral suppression on HAART.

Methods: Retrospective chart review of HIV-positive patients, ages 0-21 years, on HAART with CD4 counts and viral loads available prior to HAART initiation, as well as at least 2 data points per year. Patients must have maintained viral suppression with only 1 viral load discrepancy >1,000 copies allowed for the duration of the study. CD4 response was followed from initial treatment for as long as patients remained suppressed.

Results: Thirty-five patients remained adherent and virologically suppressed after initiation of HAART, 17 male, 18 female, ages 6 weeks to 17 yrs (mean 4.58 yrs) with 6 acquired, 29 vertical transmissions. Patients were followed at least 2 yrs up to 15 yrs (mean 6.44 yrs). Eight patients (22.8%) had greater than 10 years of viral suppression. Baseline CD4 counts ranged from 25-4400 (mean 1045), CD4% 2.8-28.7 (mean 26.68); viral loads 4,700 to >750,000 (mean 283,048). Peak CD4 counts were dependent on initial CD4 count and age at initiation of therapy. Plateaus in the CD4 graph began between 2.5 and 5.5 years after the start of HAART. Independent of age and initial CD4 count, CD4 % stabilized and increased throughout 15.5 years of therapy. All 22 patients suppressed >5 years of therapy achieved >25% CD4. All 8 patients suppressed >10 years achieved 30% and 4 patients with data from 12-15.5 years were above 32%.

Conclusion: Some patients had virologic control over greater than 10-15 years of treatment. Unlike previous studies, this study suggests that children who remain adherent to HAART can experience ongoing immune healing for as many as 15 years.

311 A Five-Year HIV/AIDS Health Promotion-Disease Prevention Collaborative by People Take Action Save Lives (P-TAS)

Dean Wantland[1], **Jesse Thomas[2] (presenting)**, Catherine Miranda[3]

[1] Rutgers College of Nursing, Newark, NJ, USA
[2] RDE Systems, Clifton, NJ, USA
[3] NYC Health Department of Health & Mental Hygiene, Queens, NY, USA

Background: People Take Action Save Lives (P-TAS) is a community-based participatory research (CBPR) voluntary health collaborative, developed in New Jersey to decrease the number of PLWH of color who over-utilized emergency departments and who did not access routine HIV care. P-TAS is an innovative model developed by a consortium of local/state health departments, industry representatives, faith-based and minority organizations, and local colleges, P-TAS was implemented to improve outreach, access, and engagement to care.

Methods: Targeted messaging to members of high-risk communities were developed and delivered via community-based events and forums. Innovative monitoring and measuring strategies were used for outreach to assess testing and change in care engagement via tracking cards and a novel web-based health information exchange system. Dynamically generated graphs and tables informed on project intervention strategies, HIV risk-transmission behavior change and identify additional high-risk communities.

Results: Of 1,197 tested, 52 (4.3%) new HIV cases were identified. P-TAS demonstrated an increase in numbers and rates of HIV tests conducted and engagement in care between 2006 and 2009. Black/African races were less likely to be tested over time compared to other races (OR = 0.536, CI:0.439-0.655,p ≤0.001) also showing comparatively larger declines in testing rates over time. White races were more likely to get tested compared to non-whites (OR = 1.44, CI:1.207-1.729,p ≤0.001). In year 4, an increase in Hispanics being tested was achieved due to Hispanic-community outreach efforts. Those mostly testing positive were non-Hispanic and age ≥45. Outreach efforts to females showed an increase in testing in the ≤24-year-old group over time.

Conclusions: The P-TAS model is critical to a test-and-treat approach to HIV prevention. The study provides empirical information that testing, treatment initiation and adherence can be achieved through a comprehensive, community-wide approach to HIV prevention and the reduction of the "community viral load," promoting "treatment as prevention" efforts.

313 Seven-Year Review of Retention in HIV Care and Treatment in the Federal Medical Centre Ido-Ekiti, Nigeria

Oluwole Babatunde[1] (presenting), Lawrence Ayodele[1], Sunday Abidoye[2]

[1] Federal Medical Center, Ido-Ekiti, Ekiti, Nigeria
[2] Ondo State Branch of World Health Organization, Akure, Ondo, Nigeria

Background: Poor retention of patients in care is a major driver of poor performance and increased morbidity and mortality in HIV/AIDS program despite the expansion of access to antiretroviral therapy (ART). The objective of this study is to assess retention rates and possible determining factors in PLHIV on ART.

Methods: It is a descriptive, cross-sectional study conducted in Federal Medical Center, Ido-Ekiti, Nigeria. Medical records of clients who were enrolled in ART Care and support unit (HIV Clinic) of the health facility from 2005 to 2012 were reviewed and analyzed using SPSS version 16. A total of 621 client records were reviewed for basic demographic information, CD4 count, WHO stage, number of follow-up visit, client ART status and client retention status (defined as client attending at least 1 clinic visit in 2012).

Results: A total of 347 (63%) patients were retained in care and 208 (37%) were not retained in this study in 2012. Retention was statistically significant with age (P-value 0.031), ART status (P-value 0.000) baseline CD4 (P-value 0.004), year of diagnosis and ART initiation (P-value 0.027). Poor retention was associated with decreasing age, pre-ART client, HIV stage 1 and IV client and baseline CD4 above 400 cells/mm^3.

Conclusions: Retention in care of PLHIV is a minimum necessary condition for maintaining or restoring health in the long run. The strategies to sustain and improvement retention rate should be adopted to maximize ART benefits. A follow-up study is needed on other factors affecting retention from diagnosis to long-term retention ART program.

POSTER ABSTRACTS

314 High Rates of Early Linkage to HIV Care in a Facility-Based HIV Counseling and Testing Unit in Jos, Nigeria

Olawumi Dinchi[1] (presenting), Patricia Agaba[2], Fadeware Hauwa[1], Oche Agbaji[2], Imade Godwin[1], Ugoagwu Placid[1], Muazu Awal[1]

[1] Apin Juth, Jos, Plateau, Nigeria
[2] Jos University Teaching Hospital, Jos, Plateau, Nigeria

Background: Globally, a substantial number of HIV-infected persons are unaware of their status and some of those who are aware are unable to establish linkage to care services or remain engaged in care. Our objectives were to assess rates of early linkage to HIV care from a facility-based HIV counseling and testing (HCT) unit and to determine associated factors in a tertiary health institution in Jos, Nigeria.

Methods: We reviewed electronic medical records of HIV-positive adults referred from the facility-based HCT unit to the antiretroviral (ARV) clinic between January 2010-December 2012 (n =1096). We defined early linkage to care as having a clinic visit or laboratory test (CD4 count or viral load assay) within 30 days of diagnosis. Gender differences were explored for variables and regression analysis with crude and adjusted odds ratio (OR) and 95% confidence interval (CI) was used to identify factors associated with early linkage to care.

Results: Of 1,095 HIV-positive referred patients enrolled, there were 703 females (64.7%) and the median age was 32 years (IQR = 16-75 years). The males were significantly older than the females (37+9 vs. 32+8, p <0.001). 604 (56.4%) patients were married and 146 (13.6%) had no formal education. The median CD4 and viral load were 177 cells/mm^3 and 41,532 copies/mL, respectively at baseline, with 578 (55.4%) having CD4 count ≤200. There was no difference in CD4 (177 vs. 184, p = 0.73) and viral load (42 782 vs. 40 765, p = 0.97) levels between female and male patients respectively. 955 (87.2%) were linked to care and had both CD4 and viral load testing within 30 days of HIV diagnosis. 32 (2.9%) and 13 (1.1%) were linked within 31-60 and 61-90 days respectively. 10 (0.9%) were linked beyond 91-180 days of diagnosis. 86 (7.8%) were missing linkage data. Median time to linkage was 8 days (IQR: 1-189), there was no difference in time to linkage between females and males (8 days, IQR: 1-164 vs 8 days, IQR: 1-189, p = 0.05). Following uivariate analysis using age (>35 years or younger-OR-0.93, 95% CI: 0.65-1.35), marital status (married vs other-OR-1.65, 95% CI: 1.15-2.35), level of education (none vs other- OR-0.66, 95% CI:0.41-1.07), occupation (unemployed vs other-OR-0.66, 95% CI: 0.66-1.07), gender (male vs female-OR-1.18, 95% CI:0.81-1.74) and CD4 count (<200 vs. >200-OR-0.95, 95% CI:0.67-1.36) as independent variables, a regression model fitting the same variables was developed. Marital status (married vs. other-aOR: 1.70, 95%CI: 1.19-2.44) was the only predictor of early linkage to care.

Conclusions: Early linkage to HIV care and laboratory testing was high in this cohort of HIV-positive patients. Further follow-up to assess retention in long-term care is necessary for sustained benefits to the patients and their communities.

316 Self-Reported Adherence to Pre-Exposure Prophylaxis and Sexual Behavior by Text Messaging: Preliminary Findings from the Partners Mobile Adherence to PrEP Study

Jessica Haberer[1] (presenting), Jared Baeten[2], Renee Heffron[2], Nelly Mugo[3], Elly Katabira[4], Kenneth Ngure[5], Njambi Njuguna[6], TImothy Muwonge[4], Lara Kidoguchi[2], Courtney Ng[1], David Bangsberg[1]

[1] Massachusetts General Hospital, Boston, MA, USA
[2] University of Washington, Seattle, WA, USA
[3] KEMRI, Nairobi, Kenya
[4] Infectious Disease Institute, Kampala, Uganda
[5] Jomo Kenyatta University of Agriculture and Technology, Nairobi, Kenya
[6] Partners in Prevention, Nairobi, Kenya

Background: Effectiveness of PrEP is highly dependent on adherence, which has been associated with sexual activity. Self-report of these behaviors is often limited by recall and social desirability biases, which may be overcome via text messaging (SMS).

Methods: The Partners Mobile Adherence to PrEP Study is a sub-study within the Partners Demonstration Project, which involves provision of comprehensive HIV prevention services to high-risk serodiscordant couples in East Africa. In the substudy, daily SMS surveys are sent to HIV-uninfected partners taking PrEP for 14 days around each scheduled study visit. An airtime incentive (~US$0.50) is provided for each completed survey.

Results: As of December 2013, 225 (65%) of the 348 HIV-uninfected participants initiating PrEP have been screened and 187 (83%) enrolled in the substudy. Reasons for ineligibility are no personal phone with reliable charging source (N = 8), illiteracy/inability to send SMS (N = 16), not taking or planning to continue PrEP at sub-study recruitment (N = 10), and other/refusal (N = 4). Technical challenges include temporary server outages and variable network availability. This table presents data per participant:

SMS surveys	
N completing >1 survey to date	125
Mean N (SD) surveys	13.3 (6.6)
Mean % expected surveys completed	76.1%
Adherence	
Median (IQR)	100% (77.8-100%)
Mean (SD)	83.0% (27.4)
N (%) with <80% adherence	33 (26.4%)
Mean % non-adherence and no sex	76.4%
Sexual activity in previous 24 hours	
Mean % surveys reporting sex	36.2%
Of surveys reporting sex, % also reporting	
PrEP use	83.0%
Condom use	68.0%
PrEP and condom use	60.7%
No PrEP or condom use	9.7%

Conclusions: Preliminary findings suggest periodic collection of daily adherence and sexual behavior data from most participants is feasible. Self-reported adherence to PrEP is generally high, although some adherence is suboptimal. Most sex acts are protected by PrEP and/or condoms. Future analyses will determine the validity and factors influencing these data.

318 Adaptation of a Couple-Based HIV Prevention Intervention for Limited English Proficient Latino Men Who Have Sex with Men and their Same-Sex Partners

Omar Martinez[1] (presenting), Elwin Wu[2], Theo Sandfort[1], Zach Shultz[1], Hugo Ovejero[3], Jonathan Capote[4], Brian Dodge[5], Scott Rhodes[6], Silvia Chavez-Baray[7], Eva Moya[7], Antonio Porras[8], Juan DelaCruz[9]

[1] HIV Center for Clinical and Behavioral Studies at the New York State Psychiatric Institute and Columbia University, New York, NY, USA
[2] Columbia University School of Social Work, New York, NY, USA
[3] Latino Commission on AIDS, New York, NY, USA
[4] AID for AIDS International, New York, NY, USA
[5] Indiana University Bloomington School of Public Health, Bloomington, IN, USA
[6] Wake Forest University School of Medicine, Winston-Salem, NC, USA
[7] University of Texas at El Paso, El Paso, TX, USA
[8] Community Activist, New York, NY, USA
[9] Lehman College, New York, NY, USA

Background: The purpose of the study was to adapt *"Connect 'n Unite" (CNU)*, an existing, evidence-based HIV/STI intervention for Black men who have sex with men (MSM) and their same-sex partners for a new target population of limited English proficient (LEP) Latino MSM and their same-sex partners, a group that research has shown to be at high risk for HIV and STIs. Epidemiological behavioral research has identified that relationship dynamics in male couples are associated with sexual risk behavior. The proposed study adds to the increasing relevance and demonstrated impact that innovative couple-based approaches can have on LEP Latino MSM.

Methods: This study followed a systematic adaptation process utilizing qualitative methods, including an intervention adaptation workshop which included sessions with key informants: 14 couples and 10 providers.

Results: We developed *Latinos en Pareja*, a science-based HIV/STI preventive intervention that is culturally, linguistically, and contextually appropriate. The adapted intervention covers several topics including self-care (e.g., information about HIV/AIDS, stimulant use, self-care plan); communication (e.g., use of effective communication styles); relationship strengthening (e.g., identification of unwritten rules and sexual decision-making); biomedical prevention strategies (e.g., pre-exposure prophylaxis (PrEP), post-exposure prophylaxis (PEP), and treatment as prevention); and couple problem-solving (e.g., identification support mechanism for each partner).

Conclusions: The process culminated with preliminary indications that a couple-based HIV prevention intervention for gay Latino couples is feasible and attractive.

319 Public Health Implication of Passage of Same-Sex Law in Nigeria - Case Study of Lagos Island and Oshodi Lagos State Nigeria

Samuel Nwafor[1] (presenting)

[1] Centre for the Right to Health, Ilupeju, Lagos, Nigeria

Background: The perceived knowledge by most Nigerians is that anti-gay law will increase morals and reduce anal sex practice which would reduce HIV infection. The passage of the anti-gay law had led to increased homophobia, discrimination, denial of HIV services, and violence based on real or perceived sexual orientation and gender identity. The law also prohibits organizations from working to provide HIV prevention and treatment services to LGBT people. In 2010, the national HIV prevalence in Nigeria was estimated at 4% among the general population and 17% among men who have sex with men (MSM). This study aims to describe how HIV could be tackled among MSM amidst the law.

Methods: A population-based cross-sectional survey was conducted among 120 MSM randomly selected from 7 hotspots across 2 local government areas where USAID funded SHiPS project is implemented. Two hotspots were selected from each LGA, where 6 to 7 respondents were recruited. Also qualitative data was obtained from 2 focus group discussions and 2 in-depth interviews during an end-line survey. Questionnaires were analyzed using SPSS version 16.0.

Results: About 91.7% of the MSMs strongly believe the anti-gay law will increase HIV prevalence. 62.0% of respondents believe the law is inflicting fears among MSM and MSM health service providers, 99.4% of the respondents urge the government to review the law. 88.3% of respondents agreed that MSM might be force to flee the country while 17.2% MSM will stay and practice anal sex underground. The stated reasons for practicing anal sex underground include stigmatization (43.4%), increased homophobia (73.2%), means of living (71.9%), and satisfaction (6.9%).

POSTER ABSTRACTS

320 Strengthening HIV Counseling and Testing among Men who have Sex with Men in Lagos through Integration of Other Health Services and Home-Based Service Delivery

Grace Hygie-Enwerem[1] **(presenting)**

[1]   Centre for the Right Health, Lagos, Nigeria

Introduction: The purpose of this project is to increase demand for uptake of HIV counseling and testing (HCT) by MSM to reduce the incidence of HIV infection among them. The strategy was developed over a period of time in partnership with Department Of Defense funded clinic- a local HIV service centre for MSM community established by the Population Council Nigeria.

Description: It is estimated that there are about 1,496 MSM in Lagos state. Focal group discussion conducted across two LGA in Lagos shows that 8.7% of MSMs are willing to access HCT on the field while 92.3% are not willing to access HCT. Most MSMs living in Lagos Island received other medical treatment willingly in a designated clinic. About 78% of the survey respondents believed that home-based HCT service delivery is good for MSM due to stigma associated with clinic. 84.7% of the respondents believes that MSM will appreciate uptake of HCT if other health services are integrated. 75% of the respondents believed that there must be something wrong with any MSM going to access HCT.

Lessons Learned: Most MSM do not like to uptake HCT openly due to the internal stigmatization and discrimination among community members. They think there must be something wrong with whoever seeks HCT. This situation discourages HCT uptake and contributes to increases in HIV prevalence among LGBT.

Recommendations: Home-based HCT which will be integrated with other related health services is recommended. This strategy will also curb the associated effect of anti-gay law which is currently affecting public service delivery to LGBT community.

321 The Health, Development, and Human Rights Implication of the Same-Sex Law in Nigeria

Christy Ekerete-Udofia[1] **(presenting)**

[1]   Centre for the Right to Health, Ilupeju, Lagos, Nigeria

Introduction: The news of the passage of the same-sex bill came to most Nigerians as a rude shock especially those in development work, the bill passed not minding the fact that Nigeria has the second largest HIV epidemic globally [UNAIDS] - 2012, there were an estimated 3.4 million people living with HIV in Nigeria. In 2010, national HIV prevalence in Nigeria was estimated at 4% among the general population and 17% among men who have sex with men. The recently signed same-sex law in Nigeria will retard the already made progress as concerns the fight against HIV.

Description: In the 2011 United Nations Political Declaration on HIV/AIDS, all UN Member-States committed to removing legal barriers and passing laws to protect populations vulnerable to HIV and urge governments to protect the human rights of lesbian, gay, bisexual and transgender people through repealing criminal laws against adult consensual same sex sexual conduct; implementing laws to protect them from violence and discrimination; promoting campaigns that address homophobia and transphobia; and ensuring that adequate health services are provided to address their needs.

Lesson Learned: The provisions of the law could lead to increased homophobia, discrimination, denial of HIV services and violence based on real or perceived sexual orientation and gender identity which could further increase the HIV epidemic prevalence among this group from present 17.3%. It could also be used against organizations working to provide HIV prevention and treatment services to LGBT people thereby discouraging those in development work.

Recommendations: There is an urgent need to review the constitutionality of the law in light of the serious public health and human rights implications. The Nigerian authorities and civil society organizations must strive to ensure safe access to HIV services for all people in Nigeria.

324 Impact of HIV Counselling Training on the Knowledge of Counselling Skills' and Counselling Outcome, Jos, North Central, Nigeria

Alero Babalola-Jacobs[1] **(presenting)**, Rosemary Omoregie[1], Jonah Musa[2], Gloria Angyo[1], Chinedu Ekwempu[2], Oche Agbaji[3], Atiene Sagay[3]

[1] AIDS Prevention Initiative in Nigeria (Apin)/Jos University Teaching Hospital (Juth), Jos, Nigeria
[2] University of Jos/Jos University Teaching Hospital, Jos, Nigeria
[3] Jos University Teaching Hospital, Jos, Nigeria

Background: HIV testing and counseling remains the gateway to assessing care, treatment and support. This is critical in achieving success in HIV prevention and management of the sero-positives, particularly in PMTCT program. HIV-positive status and its challenges which are client specific require specific counselling skills; hence the need for counselors to acquire and improve their counseling knowledge and skills. This has implications for counselling practice and outcome.

Methods: This is a 2 time-point assessment survey. For this phase, participant rating of counselling skills knowledge was conducted in an in-training session. This was done for pre- and post- training using a counselling skills proforma with a scoring guide. The ratings were for good, moderate, and poor. A total of 15 counselling skills were rated and 27 participants were involved. Only 24 completed proforma were collated and analyzed.

Results: Counselling skills knowledge rating indicates an upward movement from 0.3% of the participants with good counseling skills knowledge at the pre-training rating to 84.2% at post-training rating. For moderate level of knowledge, pre-training rating was 71.1% while post-training rating was 6.6%. For the poor level of knowledge, there was also a downward movement from 20.5% at pre-training rating to 0% at post-training rating.

Conclusions: The general improvement in the counseling skills knowledge has implications for counseling practice and outcome; that is an improved knowledge of counseling skills will inform counseling practice and practice will affect outcome. However, the nature of the effect needs to be explored. Counselling outcome has implications for acceptance of serostatus and decision for positive living including adherence to treatment and patient role in continuity in care.

325 Social Desirability Bias in Assessment Tools Used with HIV-Positive Adolescents in Botswana

Elizabeth Lowenthal[1] **(presenting)**, Tafireyi Marukutira[2], Keboletse Mokete[3], Ontibile Tshume[3], Gabriel Anabwani[3], Karen Glanz[4], Robert Gross[4]

[1] University of Pennsylvania, Perelman School of Medicine, Philadelphia, PA, USA
[2] Botswana-Baylor Children's Clinical Centre of Excellence/Centers for Disease Control and Prevention-Botswana, Gaborone, Botswana
[3] Botswana-Baylor Children's Clinical Centre of Excellence, Gaborone, Botswana
[4] University of Pennsylvania, Philadelphia, PA, USA

Background: We culturally adapted and sought to validate a series of psychosocial assessment tools to be used in a longitudinal adolescent adherence study. We included assessments of self-efficacy, outcome expectancy, future orientation, psychological reactance, and drug/alcohol use.

Methods: A study nurse administered all assessments to 40 adolescents twice, 2-4 weeks apart. Participants were classified by the nurse as those she did or did not know well at the initial assessment. Individual assessments ranged from 4 to 11 questions in length. Cronbach's alpha was used to assess internal consistency of the multiple items measuring the same constructs. Interclass correlation coefficients (ICC) were calculated to determine test-retest reliability. Kruskal Wallis test was used to assess for differences between scores at the 2 time points.

Results: Median age of subjects was 12.4 years (IQR 11.4-13.6), 22 (55%) were female. The internal consistency of all constructs assessed in the tools was in the good to excellent range (0.74-0.83). Test-retest reliability was similarly high for the self-efficacy, outcome expectancy and future orientation tools. The psychological reactance scale had lower test-retest reliability (ICC = 0.41). Among those who knew the tester well (N = 15), the ICC was high (0.84) with socially-desirable reactance scores at both time points. Among those who did not know the tester well (N = 25), the ICC was lower (0.21) with significantly (p = 0.03) more socially-desirable answers given at the second time point. No subjects admitted to ever having tried alcohol, cigarettes, or any drugs of abuse in their lifetimes.

Conclusions: Psychological reactance and substance use may be difficult for adolescents to admit, particularly to a known questioner. In evaluating the relationship between these measures and HIV treatment adherence, testing procedures that seek to minimize social desirability bias (e.g., audio computer-assisted self-interview) may yield more accurate results.

POSTER ABSTRACTS

326 Prediction of Virologic Failure among Adolescents Using the Pediatric Symptom Checklist

Elizabeth Lowenthal[1] (presenting), Tafireyi Marukutira[2], Ontibile Tshume[3], Gabriel Anabwani[3], Robert Gross[4]

1. University of Pennsylvania Perelman School of Medicine, Philadelphia, PA, USA
2. Botswana-Baylor Children's Clinical Centre of Excellence/Centers for Disease Control and Prevention-Botswana, Gaborone, Botswana
3. Botswana-Baylor Children's Clinical Centre of Excellence, Gaborone, Botswana
4. University of Pennsylvania, Philadelphia, PA, USA

Background: Psychosocial dysfunction is a risk factor for non-adherence. The Pediatric Symptom Checklist (PSC) is a simple psychosocial screening tool which has previously been associated with a history of virologic failure. We sought to determine whether high scores on the PSC could predict which adolescents will have virologic failure in the next 6 months.

Methods: Parents/guardians of 300 adolescents (age 10-19 years) from a longitudinal adherence study were asked to complete the PSC at baseline. PSC scores were dichotomized (at ≥20 = positive) based on prior data. Inability to complete a PSC was classified as a positive score. Viral loads were obtained at least every 3 months. Virologic failure was defined as any viral load ≥400 copies/mL within 6 months of enrollment. Chi-squared test evaluated the difference in virologic failure rates among those with and without positive PSC scores. Total PSC scores were evaluated continuously for their association with virologic failure using logistic regression.

Results: 290 parents/guardians completed the PSC. Sixty adolescents (20%) had virologic failure with 14 (23%) having a positive PSC. 28 (12%) adolescents without virologic failure had a positive PSC, p = 0.02. The odds of failure among those with higher PSC scores were 1.03 (95% CI 0.99-1.07). The positive and negative predictive value of a positive PSC score predicting virologic failure were 31% and 82%, respectively.

Conclusions: In settings in which viral load testing is limited, a positive PSC score could help identify adolescents who might benefit most from virologic testing due to a higher risk of virologic failure. However, most patients with virologic failure would not be identified by a positive PSC.

327 Self-Report and Parent-Report Measures Over-Estimate Adherence among Adolescents in Botswana

Elizabeth Lowenthal[1] (presenting), Rachel Hammond[2], Knashawn Morales[1], Tafireyi Marukutira[3], Ontibile Tshume[4], Gabriel Anabwani[4], Robert Gross[5]

1. University of Pennsylvania Perelman School of Medicine, Philadelphia, PA, USA
2. Children's Hospital of Philadelphia, Philadelphia, PA, USA
3. Botswana-Baylor Children's Clinical Centre of Excellence/Centers for Disease Control and Prevention-Botswana, Gaborone, Botswana
4. Botswana-Baylor Children's Clinical Centre of Excellence, Gaborone, Botswana
5. University of Pennsylvania, Philadelphia, PA, USA

Background: Adolescents have lower rates of adherence and higher rates of virologic failure (VF) than adults and younger children. Self-report and parent-report adherence measures are commonly used, but their validity for adolescents with HIV remains poorly studied.

Methods: 300 adolescents (age 10-19) utilized microelectronic monitors (MEMS) and were followed every 3 months for self-reported adherence, parent-report of adolescents' adherence and viral load. Adherence was scored using both the Reynolds Index and last missed dose (never, >3 months, 1-3 months, 2-4 weeks, 1-2 weeks, 1 week ago). VF was defined as viral load >400 copies/mL. The association of each measure with VF was evaluated using generalized estimating equations.

Results: 3-month data are available for all subjects and 6 and 9 month data for a subset. There are 70 VFs among 59 adolescents. Median MEMS adherence was 95.3% (IQR 84.4-98.4) in those with VF and 98.8 (IQR 94.6-100) in those without VF. 96.4% of adolescent and 98.2% of adult Reynolds Indices were 100%. 76.6% of adolescent and 73% of adult reports indicated no missed doses. 3.4% of adolescents and 3.5% of adults reported the last missed dose was >3 months ago. The odds of VF were 2.2 (95% CI 1.3-3.8) for those with MEMS adherence <95% compared with >95%, p = 0.004, but neither the adolescent nor adult Reynolds Index was associated with VF (OR 1.0, 95% CI 0.6-2.3 and OR 1.0, 95% CI 0.95-1.1, respectively). Compared with those who reported no missed doses, the odds of VF were 0.2 (95% CI 0.1-0.4) and 0.1 (0.0-0.3) for those indicating missing >3 months ago via self- or parent report, respectively.

Conclusions: Self-report and parent-report measures of adherence over-estimated true adherence. Admitting distant imperfect adherence may paradoxically indicate better current adherence. Compared with both subjective measures, MEMS performed better as an adherence measure in this setting.

328 Fidelity Monitoring of a Patient Navigation Intervention for HIV Linkage and Retention in Care

Anne Rhodes[1], **Thomas Moore**[2] **(presenting)**

[1] Virginia Department of Health, Richmond, VA, USA
[2] Virginia Commonwealth University, Richmond, VA, USA

Introduction: Through a Health Resources and Services Administration (HRSA) Special Projects of National Significance (SPNS) grant, the Virginia Department of Health (VDH) currently supports Patient Navigation (PN) programs for HIV-positive individuals. PNs facilitate and maintain client access to HIV care and related services. PNs are trained and certified in Motivational Interviewing (MI), a client-centered style of counseling, designed to elicit behavior change by helping clients explore and resolve ambivalence. Initially directed at problem drinking, MI has expanded to focus on medical adherence and pro-health behaviors in a diverse group of clients.

Description: VDH worked with the Virginia Commonwealth University's Institute for Drug and Alcohol Studies to train, monitor, and evaluate PN use of MI skills to support client linkage and retention in HIV care. PNs audiotape client sessions, which are then reviewed by evaluation staff using the Motivational Interviewing Treatment Integrity Code. This coding system guides individual and group feedback to PNs. The initial focus is on the establishment of MI skills with shifts towards protocol adherence and skill maintenance.

Lessons Learned: PNs have found it challenging to utilize MI techniques when addressing client issues that require immediate attention. PNs that have historically used different models of care, have found it difficult to transition into the MI style of interaction. Ongoing training and support are integral to the continued success of this MI-based model.

Recommendations: As interventions to link and retain persons in HIV care are developed as part of the National HIV/AIDS Strategy, the effectiveness of these approaches in real-world settings must be measured to ensure successful translation from theory to practice. While the MI-focused PN program requires an investment of time and resources, it is essential in documenting the fidelity of intervention delivery and in developing successful approaches for linking and retaining clients in HIV care and services.

331 Factors Associated with Self-Reported Adherence in Harare Adolescents on Antiretroviral Therapy

Robert Gross[1] **(presenting)**, Tsitsi Bandason[2], Lisa Langhaug[3], Hilda Mujuru[4], Elizabeth Lowenthal[5], Rashida Ferrand[6]

[1] University of Pennsylvania, Philadelphia, PA, USA
[2] Biomedical Research and Training Institute, Harare, Zimbabwe
[3] REPSSI, Harare, Zimbabwe
[4] University of Zimbabwe College of Health Sciences, Harare, Zimbabwe
[5] University of Pennsylvania Perelman School of Medicine, Philadelphia, PA, USA
[6] London School of Hygiene and Tropical Medicine, Harare, Zimbabwe

Background: Adherence is key to HIV treatment success and prevention of transmission. Adolescents are at high risk, but non-adherence risk factors have been understudied in the developing world.

Methods: We conducted a cross-sectional survey of adolescents 10-19 years in HIV care at Parirenyatwa and Harare Hospitals in Zimbabwe. Study staff provided anonymous questionnaires. Self-reported adherence was rated excellent to poor in response to "How good a job did you do with taking your medication every day;" it was dichotomized as optimal (excellent) or suboptimal. We queried about logistics of clinic visits, HIV care attitudes, and services provided. Dichotomous responses were compared with X2 tests and ordinal responses with non-parametric tests of trend with multivariable logistic regression to control for confounding.

Results: 262 participants were median 15.5 years (IQR 14-17), 61% female, 94% living with family, with 74% having >4 visits annually, and 78% traveling <1 hour. Adherence was optimal in 39% and associated with parent/guardian in the room during visits [optimal vs. suboptimal: always (56% vs. 38%), sometimes (31% vs. 48%), never (12% vs. 14%), test of trend p = 0.01], confidence in adherence [optimal vs. suboptimal: very (87% vs. 76%), somewhat (14% vs. 19%), not at all (0 vs. 4%), test of trend p = 0.04], comfort asking provider questions [optimal vs. suboptimal: very (70% vs. 57%), somewhat (20% vs. 29%), not at all (0 vs. 4%), test of trend p = 0.02], and professionally run counseling group participations [optimal vs. suboptimal: 65% vs. 50%, X2 p = 0.02]. Age, sex, and peer-led support group participation were not associated. There was no confounding.

Conclusions: Suboptimal adherence was common. Increasing supportive parent/guardian involvement may be a viable intervention. Professional group counseling may be justified. Peer-led support groups need more testing before further investment. High rates of adolescent non-adherence merits attention; effective interventions are desperately needed.

332 Understanding Patients' Experiences with PEPFAR-Associated Transitions in c-Care in South Africa: A Qualitative Study

Ingrid Katz[1] **(presenting)**, Laura Bogart[2], Christie Cloete[3], Tamaryn Crankshaw[4], Janet Giddy[3], Tessa Govender[3], Elena Losina[5], Ingrid Bassett[5]

1   Brigham and Women's Hospital, Boston, MA, USA
2   Boston Children's Hospital/Harvard Medical School, Boston, MA, USA
3   McCord Hospital, Durban, South Africa
4   Health Economics and HIV and AIDS Research Division (HEARD), University of KwaZulu-Natal, Durban, South Africa
5   Massachusetts General Hospital, Boston, MA, USA

Background: South Africa (SA) was the largest recipient of PEPFAR funding for antiretroviral therapy programs from 2004-2012. However, PEPFAR funds to SA will decrease by 50% by 2017. These funding changes have led to transfers from hospital and non-governmental organization-based care to government-funded, community-based clinics. We examined the impact of clinic transfers on patients' healthcare-related attitudes and experiences.

Methods: We conducted semi-structured interviews with 36 participants (66% women) to assess patient experiences related to transfer of care from a PEPFAR-funded, hospital-based clinic in Durban, to 3 different levels of government facilities (primary health care clinic, community health care clinic, hospital-based clinic). Data were transcribed, translated, coded, and inductively analyzed.

Results: Participant narratives revealed the importance of connectedness between patients and clinic staff at the PEPFAR-funded program, which was described as respectful and conscientious. Participants reported that transfer clinics were largely focused on dispensing medication and on throughput, rather than holistic care. Although participants appreciated the free treatment at transfer sites, they expressed frustration with long waiting times and low quality of patient-provider communication, and felt that they were treated disrespectfully. These factors eroded confidence in the quality of the care. The transfer was described by participants as hurried with an apparent lack of preparation at transfer clinics for new patient influx. Formal (e.g., counseling) and informal (e.g., family) social supports, both within and beyond the PEPFAR-funded clinic, provided a buffer to challenges faced during and after the transition in care. Experiences were generally consistent across transfer facility type.

Conclusions: Transitions in care are a necessary component of shifting PEPFAR funds in SA. Optimizing retention in care during such transitions may require moving beyond a response rooted in efficiency, to one that focuses on sociobehavioral factors, including improving inter-clinic coordination and provider-patient communication, while maintaining social support.

333 Illicit Drug Use and Unmet Needs Sub-Group Effects in the Retention in Care Intervention Trial

Lytt Gardner[1] **(presenting)**, Lisa Metsch[2], James Willig[3], Richard Moore[4], Mari-Lynn Drainoni[5], Jessica Davila[6], Tracey Wilson[7], Faye Malitz[8], Allan Rodriguez[9], Charles Rose[1]

1   Centers for Disease Control and Prevention, Atlanta, GA, USA
2   University of Miami, Miami, FL, USA
3   1917 HIV/AIDS Clinic and Department of Medicine, University of Alabama at Birmingham, Birmingham, AL, USA
4   Johns Hopkins University School of Medicine, Baltimore, MD, USA
5   Boston University School of Public Health, Boston, MA, USA
6   Baylor College of Medicine, Houston, TX, USA
7   SUNY Downstate Medical Center School of Public Health, Brooklyn, NY, USA
8   Health Resources and Services Administration, Rockville, MD, USA
9   Miller School of Medicine, University of Miami, Miami, FL, USA

Background: The Retention in Care (RIC) trial, a 3-arm randomized trial in 1,838 adults in 6 academic-medical center HIV clinics in the United States , was broadly efficacious, yet 2 sub-groups: 1) patients who actively used drugs, 2) patients with unmet service support needs, appeared to benefit less from the intervention. We formally assessed these sub-group effects with an interaction term.

Methods: Outcome measure: visit constancy rate: having 1 or more kept HIV primary care visits in each of 3 4-month intervals. Trial arms: a) enhanced contact (2 arms, N =1225; patients received reminder and missed visit calls, face-face contacts and basic HIV education); and b) standard of care (SOC: 1 arm, N = 613, patients received usual care. Subgroups: Drug use: use of >1 of 7 illicit drugs (ID) (e.g., crack, heroin, meth) in the 3 months before enrollment. Unmet needs (UN): >1 unmet support service needs (e.g., housing, transportation, financial assistance) in the 6 months before enrollment. Effect measures: Visit constancy risk ratios (RR) were calculated at each level of the subgroup variables, and compared with a study variable x intervention interaction term, fit with a log-binomial model.

Results: For illicit drugs: ID-yes, 44.9/46.5, intervention vs. SOC; ID-no, 58.1/45.5, intervention vs. SOC. RR 0.97 vs. 1.28, p = 0.044. For unmet needs: UN-yes, 49.1/47.5, intervention vs. SOC; UN-no, 60.5/44.5. RR 1.04 vs. 1.37. p = 0.007. The sub-group differences were significant for unmet needs and for illicit drugs.

Conclusions: Compared to standard care, our intervention of enhanced contacting significantly improved visit constancy, an important target for intervention in the treatment cascade. In our sub-group analysis, patients with unmet support service needs and patients using illicit drugs were less likely to benefit from the intervention. These are important groups to now target for additional elements over and above the current intervention approach to improve retention in care.

336 A Rural-Urban Comparative Study on Adherence to Highly Active Antiretroviral Therapy (HAART) among People Living with HIV/AIDS in Southern Nigeria

Afiong Oku[1] **(presenting)**, Oku Oboko[1], Eme Owoaje[2], Emmanuel Monjok[1]

[1] University of Calabar, Calabar, Nigeria
[2] University of Ibadan, Ibadan, Oyo, Nigeria

Background: Adherence to highly active antiretroviral therapy (HAART) is a major predictor of the success of HIV/AIDS treatment. Although adherence to antiretroviral therapies has been assessed in the various geopolitical zones of the country, the south-south zone remains largely unexplored in Nigeria. This study therefore aimed to compare the prevalence and determinants of adherence to HAART, among people living with HIV/AIDS (PLHIV) accessing treatment in an urban and rural treatment location in Cross River State, Nigeria.

Methods: A comparative cross-sectional analytical study was conducted among patients on HAART attending a General hospital (rural site) and the Special Treatment clinic of the University of Calabar Teaching Hospital (urban site). A semi-structured, interviewer administered questionnaire was used to collect information from 804 consecutively recruited patients who met the inclusion criteria. Data were obtained on self-reported medication adherence which was based on a 1 week recall before actual interview. Predictors of adherence to HAART were determined by binary logistic regression. Level of significance was set at p <0.05.

Results: The overall self-reported adherence rate based on a 1-week recall was 55.2%. This was significantly higher in the urban patients (59.9%) compared to 50.4% amongst PLHIV accessing treatment in the rural site (p = 0.007). The major reasons cited for skipping doses were operating a busy schedule [urban 43.8% vs. rural 50.6%], simply forgetting medications [urban 31.1% vs. rural 48.9%] and feeling depressed [urban 20% vs. rural 12.2%]. The major predictors of adherence were fewer number of children [OR 1.9; 95% CI 1.13-3.07], perceived improved health status [OR 3.0; CI: 1.50-5.89], free ART services [OR 2.2; 95% CI: 1.21-4.15.] and treatment regimen devoid of dietary instructions [OR 1.5; 95% CI: 1.06-1.97]. However, pill load [OR 0.7; 95% CI: 0.46-0.97] and use of herbal remedies [OR 0.7; 95% CI: 0.46-0.89] significantly decreased the likelihood of adherence to HAART.

Conclusion: The adherence rate reported in this study was quite low in both treatment locations but significantly lower in the rural site compared to the urban. Appropriate adherence enhancing intervention strategies targeted at reducing pill load and ensuring an uninterrupted access to free services regimen is strongly recommended.

338 Performance of the PHQ-9 Depression Screening Tool among HIV-Infected Patients Recruited for a Depression Treatment Study

Riddhi Modi[1] **(presenting)**, Brian Pence[2], Bradley Gaynes[3], Julie O'Donnell[3], Teena McGuinness[1], James Willig[4], Melonie Walcott[1], James Raper[1], Anne Zinski[1], Malaika Edwards[3], Michael Mugavero[1]

[1] University of Alabama at Birmingham, Birmingham, AL, USA
[2] University of North Carolina at Chapel Hill, Chapel Hill, NC, USA
[3] Duke University, Durham, NC, USA
[4] 1917 HIV/AIDS Clinic and Department of Medicine, University of Alabama at Birmingham, Birmingham, AL, USA

Background: Psychiatric illness occurs at a rate of 63% among people living with HIV/AIDS (PLWHA). Depression is most common with prevalence of 20-30%; a 3-fold increase compared to the general population. Depression is associated with poor antiretroviral therapy (ART) adherence. ART adherence guidelines recommend screening for depression. The Patient Health Questionnaire-9 (PHQ-9) is used in clinical settings to screen for depression. However, the ability of PHQ-9 to distinguish depression from other psychiatric disorders is not well-defined. We evaluated the performance of PHQ-9 depression screening tool relative to the reference standard Mini International Neuropsychiatric Interview (MINI) among PLWHA.

Methods: Study participants were HIV infected patients who were assessed for the SLAM DUNC (Strategies to Link Antidepressant and Antiretroviral Management at Duke, UAB, Northern Outreach Clinic, and UNC); a randomized clinical trial of effect of depression management on HIV outcomes. The PHQ-9 was used to identify potential participants. Patients with PHQ-9 scores ≥10 who provided informed consent completed MINI for diagnostic confirmation.

Results: Overall 363 patients (mean age = 63 years, 70% female, 63% African American) scored PHQ-9 ≥10, indicating a likely major depressive disorder (MDD), met eligibility criteria and provided informed consent for study participation. Among 363 participants, 32 (9%) met bipolar disorder criteria, 21 (6%) met psychotic disorder criteria, 6 (2%) did not meet MDD criteria, and the remaining 304 (84%) met MDD criteria without any evidence of bipolar or psychotic disorders.

Conclusions: While the majority of patients identified by the PHQ-9 were confirmed to have MDD using diagnostic instrument, approximately 1 in 6 had indicators for bipolar or psychotic disorder which require very different treatment approaches. While the PHQ-9 remains a useful depression screening instrument, a positive PHQ-9 screen on its own may not be sufficient to distinguish MDD from other psychiatric disorders.

POSTER ABSTRACTS

POSTER ABSTRACTS

340 Psychosocial Factors, Depression, Adherence, and Response to Antiretroviral Therapy in Persons Living with HIV in the Dominican Republic

Consuelo Beck-Sague[1] (presenting), Carlos Adon[2],
Leonel Lerebours-Nadal[3], Ellen Koenig[2], Maria Pinzon-Iregui[4],
Mina Halpern[3], Sharice Mc Donald[4], Micaela Atkins[5], Julia Siegel[5],
Jessy Devieux[6]

1   Robert Stempel College of Public Health and Social Work, Miami, FL, USA
2   Instituto Dominicano de Estudios Virologicos (IDEV), Santo Domingo, Dominican Republic
3   Clinica de Familia La Romana, La Romana, Dominican Republic
4   Robert Stempel College of Public Health and Social Work, Miami, FL, USA
5   University of Massachusetts Medical School, Worcester, MA, USA
6   Florida International University, Miami, FL, USA

Background: Antiretroviral therapy (ART) can reduce HIV mortality as well as sexual and mother-to-child transmission but optimal "treatment-as-prevention" may require achievement of undetectable viral loads (UVLs). Psychosocial factors may affect ART adherence and response.

Methods: To estimate the prevalence and predictors of clinically significant depressive symptomatology (CSDS) in DR patients and identify psychosocial factors affecting ART adherence and response, the Center for Epidemiologic Studies Depression Scale (CES-D) scores, and demographic, psychosocial and clinical data were anonymously abstracted from records of patients receiving ART in a clinic in the DR capital and one in the interior and analyzed.

Results: Data abstracted from 205 patients' records showed that 103 (50.7%) were female. Ages ranged from 19-72 (median = 39.3) years. Age did not vary significantly by sex. Sixty one (29.8%) patients met CES-D criteria for CSDS. CSDS prevalence did not vary by sex or age, but was higher in patients reporting food insecurity than those who did not (37/71 [52.1%] vs. 20/124 [16.1%]; p <.001) and in those residing in "bateyes" (underserved sugarcane plantation worker barracks) than others (8/8 [100%] vs. 48/177 [27.1%], p <.001). Patients with CSDS were more likely to describe ART use as "problematic" (13/61 [21.3%] than others 6/144 [4.2%]) (p <.001). Patients who reported imperfect adherence (27/64 [42.2%]), or had CSDS (22/62 [36.1%]) were less likely to have an UVL than those reporting perfect adherence (80/141 [56.7%]; p = .053) and/or no CSDS (85/144 [59%]; p = .003). When controlled for perfect adherence and describing ART as "problematic" in a logistic regression model, CSDS continued to be associated with a >65% decrease in likelihood of UVL (p = .004).

Conclusions: CSDS is associated with food insecurity, problems with ART, living in bateyes, and with a lower likelihood of achieving an UVL in DR patients. Addressing psychosocial factors and depression in these patients may improve adherence and response to ART.

341 Stressful Caregiving and Coping by HIV-Infected Women

Evelyn Quinlivan[1] (presenting), Lynne Messer[2],
Peggye Dilworth-Anderson[1], Tandrea Hilliard[1], Katya Roytburd[1]

1   University of North Carolina at Chapel Hill, Chapel Hill, NC, USA
2   Portland State University, Portland, OR, USA

Background: Limited information exists regarding the caregiving experiences and coping strategies used by HIV+ women of color (HIV+WOC).

Methods: As part of a retention in care project (Guide to Healing), 106 HIV+WOC attending an academic Infectious Disease Clinic were interviewed from December 2010 through June 2011. A 30-question assessment of caregiving activities (10 caretaking activities; 10 cultural context; 10 coping strategies) was included. Associations between caretaking and personal characteristics are described.

Results: Most HIV+WOC were African American (80%), >40y.o. (74%), high school graduates (68%), unemployed (70%), and housed permanently (90%). Few HIV+WOC were married (21%) or insured privately (19%). Women provided care to minor children or grandchildren (25%); other adults (21%), both adults and minors (25%) or to neither (30%). Women reported coping with caregiving using humor (87%), laughter (85%), faith (93%), by seeking help from others (82%), and advance planning (87%). Despite this, women commonly reported that they had to physically (25%) or emotionally (20%) remove themselves from the caregiving situation due to stress. The mean positive caregiver coping score was 33.0 (SD: 4.5; range: 19 - 40). Difficulties with caregiving were also reported: unable to fulfill their caregiving responsibilities due to their health (25%); were unable to ask family for assistance with caregiving (24%) or skipped or delayed a medical appointment to provide care (16%). However, most reported that they could call someone for help if they were sick (86%). Family expectations to provide care regardless of health was associated with private insurance (20% with private insurance vs. 47% without private insurance (unadjusted OR: 3.48, 1.07 - 11.26) and positive coping (unadjusted beta-coefficient: 1.84, 0.09 - 3.6).

Conclusions: Despite high levels of coping, 1 in 5 HIV+WOC report significant difficulties in providing care to others. Plans for the aging of this population must include efforts to support HIV+WOC with chronic caregiving responsibilities.

342 Documenting PMTCT Services in MNCH Settings: An Implementation Challenge

Lameck Machumi[1], David Sando[1], **Lucy Magesa[1] (presenting)**, Ester Mungure[2], Irene Anyango[1], Mary Sando[1], Ally Kaduma[1], Theodora Mbunda[1], Guerino Chalamilla[1]

[1] Management and Development for Health, Dar es Salaam, Tanzania
[2] Harvard School of Public Health, Boston, MA, USA

Introduction: As HIV/AIDS care and treatment shift towards integration into routine health care settings, it is important to ascertain reliability of data collected routinely. We provide our experience in data collection during implementation of Familia Salama study in Dar es Salaam, Tanzania.

Description: Familia Salama, a 2-year PMTCT option A/B implementation study is conducted in Dar es Salaam from 2012 to 2014, utilizing data collected during routine service delivery. Data are collected in physical registers, and summary reports produced at the end of the month. Technical support through training and routine mentorship is provided by the study team in collaboration with district supervisors.

Lessons Learned: In this study, we learned the presence of multiple data capture registers collecting similar information hence jeopardizing time for patient care. Furthermore, 3 major changes in data collection tools and reporting system happened since 2012 as a result of changes in PMTCT guideline and policies, leading to a need for more trainings, mentorship and supervisions. Data accuracy in routinely collected data are questionable. However, we found a less than 10% difference in reported data compared to physically verified data, an acceptable margin in our study settings. The major challenge was linking pregnant women at different stages of PMTCT cascade. Identification numbers provided at registration were unique only at the facility level hence difficult to link pregnant women across the facilities. On utilizing other variables such as age, parity, residence, we were able to link about 65% of pregnant women. Finally, our study shows that when trained, low cadre staff can take up M&E tasks designed for higher cadre health workers. Our study introduced CTC-2 cards in lower level MNCH facilities, and after training, lower cadre nurses were able to utilize CTC-2 cards comfortably.

Recommendations: Using routine health facility data for implementation study is possible in Tanzania, but only if additional support in terms of trainings and mentorship are warranted. We recommend use of standardized registers incorporating different program variables to avoid overwhelming paper works at MNCH clinics. Finally use of unique ID numbers is recommended to ensure linkage of pregnant women at different levels.

343 Examining the Relationship between Substance Use and Sexual Risk Behavior among Low Socioeconomic Status Black Men Who Have Sex with Men

Vincent Allen[1] (presenting), Ronald Brooks[2], Stanley Johnson[2]

[1] University of California, Los Angeles, Department of Psychology, Los Angeles, CA, USA
[2] University of California, Los Angeles, Department of Family Medicine, Los Angeles, CA, USA

Background: In the United States, HIV incidence is highest among Black men who have sex with men (BMSM). Unprotected sex is associated with HIV transmission, and substance use in the context of sex may increase the likelihood of such behavior. This study examined the association between substance use (i.e. alcohol and drugs) and risky sexual behavior (i.e. condom use) among BMSM.

Methods: BMSM (N = 224) participated in a study assessing sexual risk behaviors, substance use, and attitudes toward HIV treatment and prevention.

Results: Men ranged in age from 18 to 69 ($M = 33.5$), and the majority (55.8%) of men were gay-identified. Men reported having used marijuana (91.1%), methamphetamine (39.3%), and club drugs (38.8%) in their lifetime. Men reported 8.4 drinking days in the past month, 2.9 drinks per drinking day, and 5.7 days "drunk" in the past month. Over a third (37.2%) reported no condom use (NCU) during last receptive anal sex, and 38.3% reported NCU during last insertive anal sex. Illicit drug use (47.1%) and alcohol consumption (35.6%) were prevalent during most recent sexual encounters. Compared to men reporting condom use (CU), men reporting NCU during last receptive anal sex had significantly more drinking days ($M = 12.7$ vs. $M = 6.4$, $p < .01$), and more days using marijuana over the past month ($M = 6.5$ vs. $M = 2.4$, $p < .05$). Men using drugs during last insertive anal sex were more likely to report inconsistent CU (62.7%), $\chi^2 = 5$, $p < .05$. Exploratory analyses by sexual identity revealed that compared to gay-identified men, non-gay identified men had a greater number of drinking days ($M = 10$ vs. $M = 7.3$, $p < .05$), and were more likely to report using alcohol during last receptive anal sex, (55.3% vs. 44.7%) $\chi^2 = 6$, $p < .05$.

Conclusions: These findings suggest that substance use is prevalent among BMSM and has significant associations with unprotected sex. Non-gay-identified BMSM and receptive sex partners may be at particular risk for substance use during sex. Understanding the role of substance use in sexual behavior is important for addressing HIV among BMSM and can inform HIV prevention strategies.

POSTER ABSTRACTS

344 Description of HIV-Disclosure and Relation with Medication Adherence

Aurelie Rotzinger[1], Matthias Cavassini[2],
Matthias Reymermier[3], Amico Sebastian[1], Olivier Bugnon[1],
Marie Paule Schneider[1] (presenting)

[1] Community Pharmacy, Department of Ambulatory Care & Community Medicine, University of Lausanne, Lausanne, Vaud, Switzerland
[2] Infectious Disease Service, CHUV, University of Lausanne, Switzerland, Lausanne, Vaud, Switzerland
[3] Community Pharmacy, Department of Ambulatory Care & Community Medicine, University of Lausanne, Switzerland, Lausanne, Vaud, Syria

Background: Medication adherence is crucial in HIV. Among many other factors, social support may influence adherence. This study aims at investigating disclosure, social reaction to disclosure, participants' living situation, and correlations with cART adherence.

Methods: Participants were eligible if they were older than 18, fluent in French, and had been taking part for more than 1 month in a pharmacy medication enhancing program combining electronic measurement of medication adherence, and brief and repeated motivational interviews. The questionnaire administered in this cross-sectional design measured the number of people the HIV status has been disclosed to, social attitude after disclosure, and percentage of disclosed-to people living in the same home. Electronic medication adherence data were retrieved over the last 3 months.

Results: Over the 159 eligible patients, 31 refused the study and 25 postponed participation till the end of the recruitment period; 103 participants took part in the study. They were in majority white (63% vs. 35%, p = 0.049), high educated (70% vs. 30%, p <0.001) and homosexual (33% vs. 9%, p = 0.019) compared to those who refused. Adherence was high (median 99%, IC 96,100), 12 (12%) participants did not disclose at all, 28 (28%) to 1 person and 63 (63%) to more than 1 person. Social reaction to disclosure was perceived as positive by 73 (75%) participants. Among the 62 (62%) participants living with other people, 33 (52%) disclosed to all living-with people. No correlation with adherence was statistically significant.

Conclusion: HIV disclosure is a sensitive issue in Europe, possibly explaining the high refusal rate and possible selection bias. Indeed, we cannot exclude that participants who did not disclose refused to participate. This question should therefore be further explored to determine its real impact on individual adherence and the way to approach it within a medication adherence clinic.

346 Does the Treatment Matter? A Prospective Study of Post-Sexual Exposition Prophylaxis in Canada

Réjean Thomas[1], **Nima Machouf[1] (presenting)**, Sylvie Vézina[1], Michel Boissonnault[1], Emmanuelle Huchet[1], Stephane Lavoie[1], Louise Charest[1], Daniel Murphy[1], Daouda Sissoko[2], Benoit Trottier[1]

[1] Clinique Médicale l'Actuel, Montréal, QC, Canada
[2] Université de Montréal, Montréal, QC, Canada

Background: Post sexual-exposure prophylaxis (sPEP) poses several challenges both to clinicians and patients. Better understanding of sPEP use and outcomes is crucial in adapting our current practices. In the context of increasing use and scaling up of this strategy, and knowing that drug intolerance has often led to suboptimal adherence, we aimed at assessing the impact of PEP regimen in enhancing adherence to prophylaxis.

Methods: From 2000 to 2012, we prospectively enrolled patients consulting for sPEP in a single site cohort study. Our primary outcome was adherence to 28 days of treatment (PEP adherence). Factors associated with adherence to PEP treatment were identified using backward stepwise logistic regression analyses by SPSS 17.0.

Results: A total of 2,287 sPEP consultations were included. Patients consulting for sPEP were mostly MSM (80%), with median age 32y, coming after receptive anal intercourse in 38% of cases. Source person was known HIV+ in 26% of cases and risk of HIV acquisition was moderate or high in 81% of cases. In 1,750 (78%) of our sPEP consultations treatment was advised, mainly by CBV/LPV (N = 243), TVD/LPV (N = 1,248) or TVD/RAL (N = 51). Global adherence to treatment was 1206/1750 (69%, ITT). The adherence to treatment was greater among patients receiving TVD with either LPV (73%) or RAL (77%) regimen than among those receiving CBV.LPV (57%; p = 0.010). 38% of patients reported adverse events during PEP. The most common adverse event reported was GI disturbance (32%) followed by fatigue (11%). Only 6% of patients discontinued treatment prematurely. More patients in the CBV/LPV group had adverse events resulting in discontinuation of the prophylaxis (10%) compared to 5% for TVD/LPV and 2% for TVD.RAL (p <0.001). We had 9 cases of seroconversion among patients who had 1-month prophylaxis, but since there was a history of re exposition to HIV for 5/9 of them, we cannot conclude to a PEP failure (seroconversion rate = 0.17%).

DETERMINANTS OF A GOOD ADHERENCE TO PROPHYLAXIS ANALYZED BY MULTIPLE LOGISTICAL REGRESSION ANALYSES.

Independent variables	Crude OR (95% CI)	Adjusted OR (95% CI)
Regimen:		
CBV/LPV vs. TVD/LPV	0.46 (0.33 - 0.63)	0.48 (0.36 - 0.66)
TVD/RAL vs. TVD/LPV	0.96 (0.48 - 1.95)	0.90 (0.45 - 1.82)
Other vs. TVD/LPV	0.60 (0.42 - 0.86)	0.64 (0.45 - 0.90)
Gender (Women vs. Men)	0.52 (0.36 - 0.76)	0.54 (0.37 - 0.78)
Age	1.03 (1.01 - 1.04)	1.03 (1.01 - 1.04)
Risk evaluation by physician:		
Moderate vs. Low	0.75 (0.36 - 1.53)	--
High vs. Low	0.63 (0.31 - 1.24)	--
Number of episode (first vs. subsequent)	1.22 (0.92 - 1.61)	--

Conclusions: The adherence rate to prophylaxis for sPEP was quite high in our cohort. The present study suggests that the regimen chosen for prophylaxis does matter: TVD (with either LPV or RAL) proved to be superior to CBV (with LPV) in increased adherence to drugs and reduced adverse events conducive to discontinuation of PEP. Interestingly, very few patients abandoned the prophylaxis for adverse effects related to ARV.

348 Feasibility and Failure Rates Using Medication Event Monitoring in a Prospective Cohort Study Measuring Children's Adherence to Antiretroviral Therapy

Michael Scanlon[1] **(presenting)**, Winstone Nyandiko[2], Caroline Watiri[3], Rachel Vreeman[1]

1   Indiana University School of Medicine, Indianapolis, IN, USA
2   Moi University School of Medicine, Eldoret, Kenya
3   Academic Model Providing Access to Healthcare (AMPATH), Eldoret, Kenya

Background: The feasibility of using technologies for monitoring adherence to antiretroviral therapy (ART) for pediatric patients in resource-limited settings has not been adequately explored.

Methods: We used Medication Event Monitoring System (MEMS®, AARDEX, Inc.) bottle caps to evaluate ART adherence for 6 months among HIV-infected children ages 0 to 14 years receiving care within a large HIV care program in western Kenya. MEMS were used on bottles containing nevirapine (NVP) pills, NVP liquid, or efavirenz (EFV) pills. At monthly visits, study personnel downloaded MEMS adherence data, discussed results with participants, evaluated the condition of the bottle, and recorded any problems with MEMS. Univariate analyses using Pearson Chi-square tests were performed to investigate factors associated with MEMS failure (defined as MEMS not recording bottle openings or not downloading).

Results: MEMS were used for 191 HIV-infected children. Fifty-five percent were female and mean age was 8.2 years. MEMS data were evaluated at 1,104 study encounters. Median adherence by MEMS was 96%. Most MEMS were used with pill bottles, but 41% were used with NVP liquid bottles. MEMS failure rate was 2%. Additional commonly reported problems with MEMS were: left at home, switched from bottles containing pills to liquids or vice versa, and not being used at all (e.g., all medication removed from bottle at once). The majority of MEMS had "usual wear" (85%) with only 2% classified as "very dirty." In univariate analyses, MEMS failure was significantly associated with having a MEMS on NVP liquids (p = .07). Condition of MEMS caps, using MEMS with NVP vs. EFV pills, MEMS dichotomized adherence (≥90% doses taken or <90%) and length of time in study were not associated with MEMS failure.

Conclusions: MEMS is a feasible ART adherence-monitoring tool among children in this setting. Potential complications of using MEMS with liquid ART formulations deserve further investigation.

POSTER ABSTRACTS

POSTER ABSTRACTS

349 Using Optimal Data Analysis to Predict Antiretroviral Adherence among HIV-Positive Youth

Israel Gross[1] (presenting), Sybil Hosek[2], Maryse Richards[3], Isabel Fernandez[4], Heather Huszti[5]

[1] Loyola University Chicago/John H. Stroger Jr. Hospital of Cook County, Chicago, IL, USA
[2] Stroger Hospital of Cook County, Chicago, IL, USA
[3] Loyola University Chicago, Chicago, IL, USA
[4] Nova Southeastern University, Miami, FL, USA
[5] Children's Hospital of Orange County, Orange, CA, USA

Background: Adherence to antiretroviral therapy is crucial for thwarting disease progression and reducing secondary transmission, yet HIV+ youth struggle with adherence. The highest rates of new HIV infections occur in young African American men (YAAM), thus understanding reasons for non-adherence in this group is critical. Reasons for non-adherence can be complex and multifactorial, and innovative methods of exploration are needed for advancing prevention and treatment efforts.

Methods: A sample of 387 HIV+ YAAM who reported currently taking HIV medications were selected from a cross-sectional assessment of 2,226 HIV+ youth from sites within the Adolescent Trials Network for HIV/AIDS Interventions (ATN) from 2009-2012 (12-24 years-old, Median = 22.00, SD 2.06). Participants completed self-reported adherence, demographic, health, and psychosocial measures. Seventy-two theoretically relevant predictors of adherence underwent Optimal Data Analysis (ODA) to construct a classification tree which hierarchically maximizes the classification accuracy of 100% adherence.

Results: Sixty-two percent reported 100% adherence (no missing doses) over the past 7 days. Frequency of cannabis use was the strongest predictor of adherence, yielding moderate effect strength sensitivity, ESS = 27.1, p <0.00. Among participants with infrequent cannabis use, 72% demonstrated full adherence, while only 45% of participants who used cannabis (monthly or more) demonstrated full adherence. Classification tree analysis (CTA) correctly classified 82.35% of those who were adherent and 64.85% of those who were non-adherent. The final CTA adherence model was strong (ESS = 49.12) identifying 4 pathways towards adherence and 5 pathways toward non-adherence. Participants most likely to be adherent were those less likely to have substance abuse issues and reported low levels of psychiatric distress (92.59% were adherent).

Conclusions: This research demonstrates the impact of substance use and mental health on adherence among YAAM. Moreover, this analysis identifies complex and multiple profiles of adherence among HIV+ YAAM and suggests that targeted interventions may be most prudent.

352 Testing a Mediated Biopsychosocial Model to Predict Viral Load among People Living with HIV

Jennifer Attonito[1] (presenting), Jessy Devieux[1], Brenda Lerner[1], Michelle Hospital[1], Rhonda Rosenberg[1]

[1] Florida International University, Miami, FL, USA

Background: Antiretroviral therapy (ART) adherence has been associated with increased mortality, viral replication, and increased risk of transmitting the virus to others. Neurocognitive (NC) impairment, drug and alcohol abuse, and psychosocial factors such as stress all have been associated with poorer adherence, while social support has predicted better adherence rates. This study sought to explore the effects of several psychosocial variables upon viral load (VL) via mediation of ART adherence among HIV-seropositive adults.

Methods: Multivariate linear regression was used to test a mediated biopsychosocial model predicting VL among a cross-sectional sample of 246 HIV-positive adults who were on ART. Exogenous variables were tangible social support, barriers to ART adherence, and stress. Moderators were alcohol use, marijuana use and NC impairment. Associations were analyzed using structural equation modeling (SEM) with Mplus. Full mediation through ART adherence was tested using Baron and Kenny's 4-step approach.

Results: A small positive association between marijuana use and adherence approached significance (β = 0.15, p = .057) however, "barriers to medication adherence" was the only independent variable significantly associated with both ART adherence and VL in SEM, so was tested in a mediated relationship. Each additional barrier predicted a 10% decrease in adherence rates and a 0.42-unit increase in log10 VL. No other factors were significantly associated with either VL or adherence and no interaction effects between exogenous variables and moderators were identified. The SEM explained 31% of variance in ART adherence and 18% of variance in log10 VL. The relationship between barriers to adherence and VL was found to be partially mediated by ART adherence.

Conclusions: These findings provide modest support for the biopsychosocial model in predicting virologic response to ART. Outcomes may provide a more complete picture of the complex factors affecting the health of HIV-positive adults. The effects of marijuana on ART adherence require further exploration.

353 Regional Differences in the Utilization of Truvada for PrEP

Staci Bush[1] **(presenting)**, Keith Rawlings[1], Leslie Ng[1], Robertino Mera1

[1] Gilead Sciences, Foster City, CA, USA

Background: In July 2012 the FDA approved Truvada (TVD) for pre-exposure prophylaxis (PrEP) to reduce the risk of sexually acquired HIV-1 in adults at high risk. We describe the demographic characteristics of TVD for PrEP users compared to CDC demographics of new HIV infections in 2011.

Methods: A previously described algorithm was applied to national electronic data from ~55% of all US retail pharmacies that dispensed TVD for PrEP between January 2011 and September 2013. Detailed de-identified patient data (drug information, medical claims, patient and provider demographics, and laboratory data) was available for analysis.

Results: A total of 2,491 unique individuals were prescribed TVD for PrEP. Women accounted for 47.5% of PrEP users compared to 32.04% of new HIV-positives. Among US Census regions, the South had the largest proportion of individuals prescribed PrEP (32.9%) and female PrEP users (34.7%). The Midwest had the smallest proportion of persons prescribed PrEP (16.2%); and the highest proportion of PrEP users on Medicaid (15.9%). Overall, the mean age of PrEP users was 38.5 + 12.2 years, and 11.8% of individuals < 25 years old. Specialties with the highest initiation of PrEP prescriptions: Family Practice 17%; Internal Medicine 16%; Infectious Diseases 12%; Nurse Practitioners and Physician Assistants 9% respectively. Compared to HIV-positive patients, individuals receiving TVD for PrEP were 1.8 times more likely to be female (95% CI 1.7 - 2.0); 1.5 times more likely to be younger than 25 years old (95% CI 1.3 - 1.7) and 3.7 times more likely to be treated by a non-ID physician (95% CI 3.3 - 4.2).

Conclusions: Initial analysis of national pharmacy data suggests that there are significant regional differences in TVD for PrEP prescriptions by age, gender, and prescriber specialty. These findings have implications for future research and the implementation of TVD for PrEP in clinical practice.

354 Adherence Patterns in HIV-Positive Patients in Southern Rural Tanzania: The KIULARCO Cohort

Daniel Nyogea[1], Eveline Geubbels[2], Sally Mtenga[1], Ingrid Felger[3], Lars Henning[4], Fabian Franzeck[3], Emili Letang[3], Marcel Tanner[3], **Tracy Glass**[3] **(presenting)**

[1] Ifakara Health Institute, Ifakara, Tanzania
[2] Ifakara Health Institute, Dar es Salaam, Tanzania
[3] Swiss Tropical and Public Health Institute, Basel, Basel-Stadt, Switzerland
[4] University Hospital Zurich, Zurich, Switzerland

Background: Limited information is known about patterns of adherence to antiretroviral therapy (ART) in resource-limited settings (RLS). We conducted a prospective adherence assessment within the Kilombero and Ulanga Antiretroviral Cohort (KIULARCO) study.

Methods: All patients in KIULARCO receiving ART and attending the Chronic Diseases Clinic Ifakara between June 2011 and May 2012 were included. Non-adherence was defined as any reported missed doses. Repeated measures logistic regression models were used to explore factors associated with non-adherence and changes in adherence.

Results: We included 1,822 patients completing a total of 8,379 questionnaires (median = 5, interquartile range (IQR): 3-6), 67.6% were female, median age was 39 (IQR: 32 - 47), and 57.9% disclosed their HIV status. Median time on ART was 2.4 years (IQR: 1.2 - 3.5) and 60.7% were on nevirapine-based regimen. On at least 1 visit, 20.0% and 15.6% of individuals missed doses in the past 3 days and 1-4 weeks, respectively. Main reasons for non-adherence were forgetting (48.0%) and running out of medication (19.4%). Drug switching occurred on 12.0% of visits with drug stock out cited as the primary reason (46.1%). Changes in adherence were reported on 16.4% of visits-pairs with 45.5% of changes being for the worse. Non-adherence initially decreased and then increased over the study period (compared to middle 4 months: first 4 months, adjusted odds ratio (aOR): 1.32, 95% confidence interval (CI): 1.00-1.75; last 4 months, aOR: 1.18, 95% CI: 0.87-1.62). Risk of non-adherence decreased with longer time on ART (aOR: 0.87, 95% CI: 0.78-0.98). Nondisclosure of HIV status was the only significant predictor of worsening adherence (aOR: 1.32, 95% CI: 1.00-1.76).

Conclusions: We found similar levels of and factors affecting adherence to ART, such as disclosure, as in other RLS. Adherence patterns changed over time; initial improvements likely due to introducing an adherence questionnaire dissipated over time.

POSTER ABSTRACTS

355 Feasibility of an HIV Self-Test Voucher Program to Raise Community-Level Serostatus Awareness, Los Angeles

Robert Marlin[1], Sean Young[1], **Emily Huang[2] (presenting)**, Claire Bristow[1], Greg Wilson[3], Jeffrey Rodriguez[4], Jose Ortiz[2], Rhea Mathew[2], Jeffrey Klausner[1]

[1] David Geffen School of Medicine at University of California, Los Angeles, Los Angeles, CA, USA
[2] University of California, Los Angeles, CA, USA
[3] Reach Los Angeles, Los Angeles, CA, USA
[4] Los Angeles Gay & Lesbian Center, Los Angeles, CA, USA

Introduction: Up to half of all new HIV cases in Los Angeles may be caused by the 20-30% of men who have sex with men (MSM) with unrecognized HIV infection. MSM are at high risk for being sero-unaware and might benefit from increased access to novel testing methods, such as the recently FDA-approved OraQuick® In-Home HIV Test.

Description: From July-November 2013, we examined the feasibility of implementing a voucher program for free OraQuick® tests targeting high-risk MSM in Los Angeles. We determined feasibility based on ability to: (1) establish a voucher redemption and third-party payment system, (2) use community-based organizations (CBOs) to disseminate vouchers, and (3) collect user demographics and test results with an anonymous telephone survey. We defined high-risk MSM as those with > 1 partner, untested for HIV, and with inconsistent condom use in the past 6 months. We calculated descriptive statistics using Microsoft Excel® and STATA® 13.

Lessons Learned: We partnered with Walgreens® to create a voucher and third-party reimbursement system for free OraQuick® tests. Of 641 vouchers supplied to CBOs and other distributors, 274 (42.7%) went to clients; 53 (19.3%) were redeemed. Fifty (94.3%) of 53 voucher-redeemers were surveyed: 39 (78%) reported being likely to repeat voucher use, 44 (88%) reported reviewing pre-test information, 37 (74%) the post-test information, and 12 (24%) were high-risk MSM. Three (6%) of 50 respondents reported newly testing HIV-positive of whom all (100%) reported seeking medical care. Two withheld their results, of whom, 1 sought medical care.

Recommendations: Developing a voucher system to facilitate HIV self-testing with linkage to care was feasible. Our findings suggest the voucher program was associated with increasing the identification of new cases of HIV infection with high rates of linkage to care. Expanded research and evaluation of voucher programs for HIV self-test kits among high-risk groups is warranted.

356 Hospitalized Out of Care Persons with HIV Infection Face Numerous Barriers to Retention in Care

Thomas Giordano[1] (presenting), Christine Hartman[2], Jessica Davila[1], Jeffrey Cully[1], Melinda Stanley[1], Michael Kallen[3], K Rivet Amico[4]

[1] Baylor College of Medicine, Houston, TX, USA
[2] DeBakey VA Medical Center, Houston, TX, USA
[3] Northwestern University, Chicago, IL, USA
[4] University of Connecticut, Brighton, MI, USA

Background: Finding persons with HIV who are out of care to re-engage them is challenging. Hospitalizations represent such an opportunity. We are conducting a randomized study of an intervention to improve retention in care, enrolling at a public hospital. The degree of barriers to retention in care for such a population is not well characterized.

Methods: We enrolled persons out of care or newly diagnosed with HIV infection in the trial and assessed participants' self-reported barriers to outpatient HIV care. We assessed 7 barriers, based on prior literature: a new diagnosis of HIV infection, no health insurance, at-risk alcohol use (AUDIT-C score >4 for men and >3 for women); illicit substance use (any use in last 3 months, excluding marijuana use), depression (PHQ-8 score >10, which is high risk for moderate depression), homelessness (living on street or in shelter, half-way house, or drug rehabilitation facility), and at least 1 unmet need out of 19 services, including medical and dental care, mental health and substance use care, social and case management services, legal and immigration services, nutrition services, and general health as well as HIV-specific information, in the last 6 months. We calculated the percent with each barrier, as well as the proportion with any barrier.

Results: We enrolled 460 participants between 2010 and 2013, and 456 completed the baseline survey: mean age was 42.1 years; 67% were black, 19% Hispanic, 14% white; 73% male, 26% female, 1% transgender; 80% unemployed. Barriers were frequent: 5% were homeless, 11% were newly diagnosed, 27% reported recent illicit drug use excluding marijuana (83% of which was cocaine); 32% reported at risk alcohol use; 46% were high risk for moderate depression, 71% had no private or public health insurance; and 83% reported at least 1 unmet need (median [IQR] number of unmet needs = 3 [1, 6]). Overall, 95% of participants had at least 1 barrier to retention in care (median number of barriers [IQR] = 2 [1, 3]), including the following distribution of participants with 0 to 7 barriers, respectively: 5%, 21%, 31%, 26%, 13%, 4%, <1%, and 0%.

Conclusions: A patient population hospitalized with HIV infection in our public hospital has multiple significant barriers to retention in care. Coordinated inpatient and outpatient social services and case management services that address barriers are likely critical. Other interventions should be developed for and deployed in similar settings.

357 Measuring Adherence to HAART in the Russian Context

Alena Suvorova[1] **(presenting)**, Olga Levina[2], Robert Heimer[2], Andrey Ustinov[3], Andrey Belyakov[4]

[1] SPIIRAS (St. Petersburg Institute for Informatics and Automation of the Russian Academy of Sciences), St. Petersburg, Russian Federation
[2] Yale University, New Haven, CT, USA
[3] Bekhterev Research Psychoneurological Institute, St. Petersburg, Russian Federation
[4] St. Petersburg City AIDS Center, St. Petersburg, Russian Federation

Background: Although highly active antiretroviral therapy (HAART) is available in Russia, measures of adherence to HAART have not been sufficiently studied. According to Russian federal regulations, all HIV-positive patients should visit the clinics every 6 months for monitoring of their health status. Clinical measures such as CD4 cells count and viral load are collected regularly, but the understanding of adherent behavior requires additional measures. We undertook this research to compare different measures of adherence among registered HIV-positive people in St. Petersburg.

Methods: We surveyed 210 HIV-positive patients receiving HAART in St. Petersburg. During face-to-face interviews participants answered questions about their socio-demographic characteristic and self-reported 6-month and 30-day adherence using a visual analog scale. We use 3 additional measures of adherence: doctors' estimate in medical charts, measurement based on pharmacy refills, and the clinical measures.

Results: Adherence was converted to binary scale using 95% self-reported adherence as the cutoff between low and high adherence. We used Cohen's Kappa to compare the scales. The sample was 57% of male with a mean age is 35 years (SD = 7.5). We observed no statistically significant differences in all measures of adherence by sex, age, marital status, and income. The different measures of self-reported adherence in general agreed with each other: moderate agreement between 30-day and 6-month adherence (kappa = 0.55, p <0.001), between 6-month and visual scale adherence (kappa = 0.52, p <0.001), substantial agreement between 30-day and visual scale adherence (kappa=0.71, p <0.001). Measures obtained from different sources (self-reports, pharmacy refills, doctors estimate, clinical measures) showed only agreement by chance (kappa <0.12), except between doctors' estimate and clinical measures, where we obtain fair agreement (kappa = 0.28, p <0.001).

Conclusions: Different measures of adherence do not show appropriate consistency and this can be explained by an overestimation of adherence in self-reports. Possibly, considering more than 2 levels of adherence might improve the agreement between measures.

360 Substance Use and Mental Illness as Predictors of ART Adherence among St. Petersburg HIV-Positive Patients: Preliminary Results

Andrey Ustinov[1] **(presenting)**, Alena Suvorova[2], Robert Heimer[3], Olga Levina[3], Andrey Belyakov[4]

[1] Bekhterev Research Psychoneurological Institute, St. Petersburg, Russian Federation
[2] Institute for Informatics and Automation of RAS, St. Petersburg, Russian Federation
[3] Yale University, New Haven, CT, USA
[4] AIDS Center, St. Petersburg, Russian Federation

Background: The current Russian HIV epidemic represents a serious public health concern. The city of St. Petersburg now has more HIV cases than any of the other regions in Russia. Antiretroviral therapy (ART) has transformed HIV to a treatable condition, but specific factors predicting ART adherence success have not been sufficiently studied in Russia. For this analysis we focused on specific factors that are likely to impact ART adherence -- substance use and mental illness, that are common among HIV-infected patients in Russia.

Methods: We conducted 80 face-to-face interviews with patients taking ART not less than 6 months. Interview included the Addiction Severity Index (ASI) and the Symptom Check List 90 Revised (SCL-90-R) to determine the level of substance use and mental illness predictors of interest. We additionally obtained CD4 cell count and HIV viral load data from medical charts during the last 6 months as indicators of ART adherence, which was then characterized as low or high adherence.

Results: Available data on 64 patients allowed characterization of 33 (51.5%) with low and 31 (48.5%) with high adherence. Statistically significant differences were found only by gender. After adjusting the sample (n = 55) by gender, also no significant differences were found. However, the best set of predictors (stepwise regression, AIC = 54) includes ASI: Alcohol use, Drug use, Legal status, Psychiatric status, and SCL-90-R symptom constructs: Somatization, Obsessive-Compulsive Symptoms, Interpersonal Sensitivity, Depression, Anxiety, Phobic-Anxiety, Paranoid Ideation, Psychoticism.

Conclusions: Although the results are limited by the sample size, the results suggested connections between the level of adherence and predictors of interest. Further study may reveal that achieving high level of ART adherence can be improved through programs that include screening for substance use and mental illness at HIV clinic intake and integrate psychiatric, substance abuse, and HIV treatment at a single site.

POSTER ABSTRACTS

361 Novel Techniques for Investigating Adherence Behavior Using Data from Electronic Drug Monitor

Christopher Gill[1], **Mary Bachman DeSilva[2] (presenting)**, Lora Sabin[1]

[1] Boston University School of Public Health, Boston, MA, USA
[2] Center for Global Health and Development, Boston University, Boston, MA, USA

Background: Electronic drug monitors (EDM) have proven highly useful in the study of adherence. Typically, EDM data are expressed as the percentage of doses taken or doses taken on time, or dichotomized above or below 95% adherence. Here, we describe a series of investigations aimed at making fuller use of the full EDM data set from the 'Adherence to Life' (AFL) study conducted in Dali, China.

Methods: We created 2 methods for displaying individual level EDM data over time. Method 1 (Unimodal) express calendar date on the Y-axis; the X-axis displays when the EDM bottle was opened on an absolute scale, such that an event occurring on time falls at the origin, with greater deviations (early or late) as one moves right from the origin. Method 2 (Bimodal) reverses the X and Y-axes with calendar date on the X-axis, and the Y-axis expressing openings relative to the scheduled dose time, and early/late openings deviating plus or minus from the origin. The resulting bimodal scatter plots were categorized into those with high (nearly all events occurring within 1 hour of dose time), moderate (occasional deviations from dose window) or poor adherence (frequent events out of dose window).

Results: 68 AFL subjects contributed data. From the bimodal scatter plots, 29/68 (43.1%) were highly adherent, 18/68 (26.5%) were moderately adherent, and 20/68 (29.4%) were moderately adherent. Within the moderately/poorly adherent subjects, 5/38 (13.2%) were early mistimers; 9/38 (23.7%) were symmetrical mistimers; and 24/38 (63.2%) were late mistimers. From unimodal plots, mean slopes are calculated per subject and reported in the poster. Slopes ranged from nearly vertical (~90 Degrees, highly adherent) to horizontal (~45 degrees, extremely non-adherent).

Conclusions: Late mistiming was the dominant pattern of non-adherence. Further analyses will explore the relationship between these metrics and biological measures of HIV disease control (VL, CD4).

364 The Science of Being a Study Participant: FEM-PrEP Participants' Explanations for Over-Reporting Study Product Adherence and the Whereabouts of the Unused Study Product

Amy Corneli[1] (presenting), Kevin McKenna[1], Kawango Agot[2], Khatija Ahmed[3], Brian Perry[1], Fulufhelo Malamatsho[3], Jacob Odhiambo[2], Joseph Skhosana[3], Lut Van Damme[4]

[1] FHI 360, Durham, NC, USA
[2] Impact Research and Development Organization, Kisumu, Kisumu, Kenya
[3] Setshaba Research Centre, Pretoria, Pretoria, South Africa
[4] The Bill & Melinda Gates Foundation, Seattle, WA, USA

Background: FEM-PrEP could not determine the effectiveness of emtricitabine/tenofovir disoproxil fumarate (FTC/TDF) for HIV prevention among women in sub-Saharan Africa because of low adherence to the study product. Self-reported adherence was high and pill-count data suggested good adherence. Yet, analyses of drug concentrations revealed evidence of recent pill use in only a minority of participants. We conducted a follow-up study in 2 FEM-PrEP sites to understand factors that influenced over-reporting of adherence and to learn the whereabouts of unused study pills.

Methods: We conducted qualitative, semi-structured interviews (SSIs) with 88 participants assigned FTC/TDF and quantitative audio computer-assisted self-interviews (ACASI) with 224 participants assigned FTC/TDF or placebo. We used thematic analysis and descriptive statistics to analyze the qualitative and quantitative data, respectively.

Results: Among ACASI participants, 31% (n = 70) said they over-reported adherence during the trial (69%, n = 154, said they did not). Of the 70 participants, 69% (n = 48) believed reporting non-adherence would terminate them from the trial, 63% (n = 44) did not want to disappoint staff, 61% (n = 43) thought misreporting was easier than reporting actual adherence, and 56% (n = 39) thought staff would scold them. Frequently-mentioned whereabouts of the unused pills were: returned to clinic (83%, n = 185) or discarded (35%, n = 78). Few participants reported stockpiling pills (7%, n = 15) or giving them to someone with HIV (2%, n = 5). Site differences exist. Many SSI participants said other participants counted and removed pills from their bottles to appear adherent.

Conclusions: Despite repeated messages that non-adherence would not upset staff, participants had difficulty reporting that they weren't following study procedures, primarily because of perceived negative consequences. Uneasiness continued after the trial, as many participants in this study said they always reported adherence accurately during the trial. Efforts to improve self-reported measures should identify alternative methods for creating supportive environments that allow participants to feel comfortable reporting actual adherence.

365 Retention in Care among HIV-Infected Black Men Who Have Sex with Men before and after Release from Jail: Results from a Multi-Site Study

Panagiotis Vagenas[1] **(presenting)**, Alexei Zelenev[1], Angela Di Paola[1], Frederick Altice[1], Sandra Springer[1]

[1] Yale University, New Haven, CT, USA

Background: The HIV/AIDS epidemic is concentrated among men who have sex with men (MSM), in the United States. In addition Black or African-American (BAA) MSM suffer from higher infection rates and worse HIV-related health outcomes, compared to MSM of other races. Incarceration rates in the United States are the highest in the world, with BAA men representing the majority of incarcerated individuals.

Methods: This study analyzed data from the largest multisite prospective cohort study of HIV-infected released jail detainees (N = 1270), HRSA's *Enhancing Linkages to HIV Primary Care and Services in Jail Setting Initiative* (EnhanceLink). Multivariate logistic regression models were constructed to define the correlates of retention in care.

Results: Among the 22% of BAA men who self-identified as MSM, we found that young HIV+ BAA MSM (<30 years old) had a lower probability to be retained in HIV care in the first 3 months post-jail release, compared to other male releasees. Additionally, the young BAA MSM were significantly less likely to have access to an HIV health provider at baseline prior to incarceration, compared with other men.

Conclusions: There is an urgent need for specifically targeted interventions for formerly incarcerated young HIV+ BAA MSM.

367 HIV Disclosure History among Persons Initiating Antiretroviral Therapy at 6 Ethiopian HIV Clinics, 2012-2013

Tsigereda Gadisa[1], **Olga Tymejczyk**[2] **(presenting)**, Sarah Gorrell Kulkarni[2], Susie Hoffman[3], Robert Remien[4], Maria Lahuerta[1], Muluneh Yigzaw[1], Shalo Daba[5], Batya Elul[1], Denis Nash[2], Zenebe Melaku[1]

[1] ICAP-Columbia University, Mailman School of Public Health, New York, NY, USA
[2] CUNY School of Public Health, New York, NY, USA
[3] Mailman School of Public Health, Columbia University, New York, NY, USA
[4] HIV Center for Clinical and Behavioral Studies, New York, NY, USA
[5] Oromia State Regional Bureau of Health, Addis Ababa, Ethiopia

Background: Ethiopia's national guidelines encourage disclosure of HIV status to facilitate treatment adherence, social support, and diagnosis of HIV-positive family members and sex partners.

Methods: Adults initiating ART (N = 945) in 2012 and 2013 at 6 HIV clinics in Oromia, Ethiopia, were interviewed using a structured questionnaire. Chi-squared tests and adjusted odds ratios (aOR) were used to examine correlates of HIV disclosure.

Results: Overall, 86% of respondents (males: 82%, females: 88%, p = 0.006) disclosed their HIV status to someone other than a health care professional prior to ART initiation. Fifty-eight percent of participants who disclosed did so with ≥2 persons. Those who disclosed their status confided in a median of 2 persons (interquartile range [IQR] 1-4; men: median 1; women: median 2). The majority of participants who disclosed shared their status with their main partner, 92% (males: 95%, females: 89%, p = 0.022), followed by other family members, 63% (males: 58%, females: 66%, p = 0.030). In multivariable models, disclosure to ≥2 persons vs. ≤1 was associated with knowing at least 1 other HIV+ person (aORref=0 = 2.09, 95% confidence interval [CI]:1.54-2.84), whereas disclosure to ≥1 person vs. none was associated with not living alone (aORref=live alone = 5.40, 95%CI:3.34-8.73) and having ever had children (aORref=no children = 2.22, 95%CI:1.45-3.41). Upon disclosure, most participants experienced a supportive response: 84% were comforted and 85% were encouraged to get treatment. Despite these positive experiences, 52% of patients were concerned that someone they had not disclosed to might learn their HIV status. Among the 136 patients who did not disclose to anyone, main concerns included unauthorized disclosure (72%), gossip (67%), and partner violence (61%).

Conclusions: HIV status disclosure prior to ART initiation was high and reported disclosure experiences were largely positive. However, some individuals may need additional help to disclose their HIV status to people in their lives who can offer support.

POSTER ABSTRACTS

368 Factors Contributing to Missed ART Doses among HIV-Infected Patients with Suboptimal Adherence Participating in an Adherence-Focused Care Management Randomized Controlled Intervention Trial Integrated into Routine Clinical Care

Rob Fredericksen[1] **(presenting)**, Tyler Brown[1], Anna Church[1], Anna Harrington[1], Paul Crane[1], Paul Ciechanowski[1], Kari Nasby[2], Jennifer Magnini[2], Heidi Crane[1]

[1] University of Washington, Seattle, WA, USA
[2] Harborview Medical Center, Seattle, WA, USA

Background: We identified key factors contributing to suboptimal medication adherence based on documented discussions between HIV-infected patients and their case managers in clinical care.

Methods: Patients in routine care with suboptimal medication adherence were enrolled in a randomized controlled intervention trial integrated into care using a stepped-care approach consisting of up to 6 sessions, depending on adherence level, at 6- to 8-week intervals. Clinic case managers served the care manager role to demonstrate feasibility in care by using regular clinic personnel. Structured sessions targeted adherence barriers using a problem-solving approach. Case managers documented "problems addressed" and "solutions discussed" concerning missed doses. We used an open-coding system to create categories of reasons for suboptimal adherence.

Results: Case managers documented adherence discussions for 153 sessions for 60 unique patients. In one-third of sessions, patients denied having current adherence issues. Half (50%) of patients discussed more than 1 problem affecting their adherence. Most common were depression in 21% of sessions, fatigue/sleep problems (12%), substance use (11%), forgetting (11%), separation from medications (8%), disruption in basic needs such as food, shelter, money, or transport (8%), being distracted/too busy (7%), irregular work schedule (5%), and issues with ingestion, such as poor appetite or difficulty swallowing (5%). Of these, interrelated barriers to adherence were common, such as irregular work schedule followed by sleep disruption and/or separation from medication.

Conclusions: Suboptimal adherence often derived from a multitude of contextual factors and their relationships were often complex and cyclical: i.e., financial problems leading to social isolation, followed by depression and substance abuse. It may be necessary to address multiple barriers to adherence simultaneously to have a substantial impact on complex adherence behavior. For patients facing complex, interrelated psychosocial and logistical problems, case managers are an integrated part of routine clinical care and can facilitate identifying and addressing adherence challenges.

376 Towards the Elimination of HIV Mother-to-Child Transmission: The Experience of a Buenos Aires Public Hospital

Fernando Murano[1] **(presenting)**

[1] Hospital de San Fernando, Buenos Aires, Argentina

Background: To analyze the clinical and epidemiology issues of pregnant HIV-positive women (HPW) and the rate of mother to child transmission (MTCT).

Methods: Prospective cohort of HPW from 1997-2010 was analyzed. It compares Group 1 (G1): 1997-2003 with 63 Newborns (NB) and Group 2 (G2): 2004-2010 (102 NB). The NB HIV diagnosis was performed by viral culture and p24 until 1999, and after that DNA PCR and ELISA at 18 months.

Results: 165 children were born. HPW median age was 26 (15-42) G1: 24.5, G2: 28 (P = 0.001).HPW drug users (DU) 42% G1, 43% G2 (P = 0.3). Time of diagnosis: G1: Prior to pregnancy (PP) 33/62 (53.2 %), before delivery (BD) 6 (9.7 %), G2: PP 74/103 (71.8 %), BD: 7 (7 %). Use of PI was 8.1 % for G 1 and 57.3 % for G2. (P = 0.001). NNRTI 35,5% in G1 and 26,2% in G2 (P 0,001). Median CD4 was 350 in G1 and 366 in G2 (P = 0.66). VL was <1000 in 57.1 % in G1 and 76.1 % in G2 (P = 0.11). No VL results BD: 55.5 % in G1 and 31.4% in G2 (P = 0.002) ARVs during labor: 88.7% of G1 and 91.3% in G2 (P = 0.99). ARV in NB was 95.2% in G1 and 99% in G2 (P = 0.045). Cesarean section (CS) was 35.5% G1 to 67% G2 (P = 0.0001). Median weight of NB was 3250gr G1 and 3000gr G2 (P = 0.002). Infection was confirmed in 9/165 NB (5.45%) 5/63 (7.94 %) for G1 and 4/102 (3.92 %) for G2. Only 2/9 in G2 had CV results BD and none in G1.

Conclusions: Reduction of MTCT in recent years was related to early diagnosis, increased use of HAART and cesarean section. VL results BD increased in G2. It is a priority to improve access and retention in care of mothers and children to meet the challenge of PAHO/WHO 2015.

378 High Acceptability but Low Uptake of Oral Pre-Exposure Prophylaxis among High-Risk Men Who Have Sex with Men Using Mobile Dating Applications in New York City

Viraj Patel[1] **(presenting)**, Sherry Estabrook[2], Kimberleigh Smith[2], Sarit Golub[3]

[1] Montefiore Medical Center; Albert Einstein College of Medicine, Bronx, New York, USA
[2] Harlem United Community AIDS Center, New York, NY, USA
[3] Hunter College, CUNY, New York, NY, USA

Background: To inform PrEP dissemination efforts, we conducted an online survey to assess correlates of awareness, uptake, and consideration of future use of PrEP in men who have sex with men (MSM) in New York City.

Methods: Cross-sectional survey administered on 2 MSM-specific mobile dating applications to men having had anal sex in past 12 months and living in New York City. Participants self-reported demographics, HIV status, condom use, last HIV test, number of partners, PrEP awareness, current or prior PrEP use, and consideration of future use. We used multivariate logistic regression to identify correlates of consideration of PrEP use (primary outcome) and limited the analysis to those having a HIV negative or unknown status (n = 1,238).

Results: Participants were on average 32 years old, 59% had a college degree or higher, 44.4% made over $50,000/year; and 31% were Hispanic, and 21% Black. The men had a median of 5 partners in past 6 months. Over 32% did not use condoms at last intercourse, 71.6% had an HIV test in the past 6 months, 76% were not in a relationship. Overall, 42.7% were aware of PrEP but 4.2% had used PrEP. Having brief PrEP information, 66.6% would consider taking PrEP and 79% would recommend PrEP to a friend or partner. In multivariate analysis, consideration of PrEP was associated with having >4 partners in past 6 months (AOR 1.48, CI 1.13-1.96) and not using a condom (AOR 1.55, 95% 1.15-2.08), but not associated with age, income, education, race, HIV testing history, or prior knowledge of PrEP.

Conclusions: A majority of MSM were unaware of PrEP in this sample. Interest in PrEP was high, but rates of actual use were very low. High-risk MSM were more likely to consider PrEP use. Dissemination efforts for PrEP need to focus on increasing awareness and addressing the large gap between potential and actual use.

384 Low Incidence of HIV-1 among Seasonal Workers in the Rice Growing Area of the Office du Niger in Mali in 2012: Hope for the Zero New HIV Infection Goal

Modibo Keita[1] **(presenting)**, Yaya Coulibaly[1], Mamoudou Kodio[1], Siaka Coulibaly[2], Sory Fomba[2], Kounandji Diarra[1], Boubacar Diallo[1], Ilo Dicko[2], Brahima Dicko[3], Oumar Maïga[1], Samba Sow[1]

[1] Centre National d'Appui à la Lutte Contre la Maladie, Bamako, Mali
[2] Malaria Research Centre and Training, Bamako, Mali
[3] Centre Hospitalier Universitaire du Point G, Bamako, Mali

Background: HIV incidence is an important element in the assessment of the impact of control interventions. The recent discovery of recent HIV infection tests and the 3 zeros vision (zero new infection, zero HIV-related death and zero discrimination) have paved the way for indirect measures of HIV incidence in some specific groups. The aim of this study was to estimate the overall HIV infection incidence among seasonal workers in the Office du Niger rice growing area in Mali in 2012.

Methods: A cross-sectional survey was conducted in 2 of the 6 rice growing areas. A total of 503 seasonal workers aged 15 years and above volunteer for an interview, a diagnostic test (HIV-1/2) and an incidence test with the BED-capture EIA (Enzyme Immuno Assay) to identify HIV-1 recent infections. The Kassanjee et al. (2012) adjustment method was used to estimate the overall incidence of HIV infection.

Results: Among the 503 study volunteers, the sex ratio was 1.46 in favor of males with a median age of 22 years (15-68 years). Almost half of the seasonal workers [48.5% (244/503)] were single. Relative to HIV infection, 3/503 (0.6%) were seropositive and only 1 of these 3 cases was a recent infection using the BED-EIA incidence test. The estimated overall HIV-1 incidence was low with [0.37%, 95% CI (0 to 1.10)].

Conclusions: The overall incidence was low among seasonal workers in the Office du Niger rice growing area in Mali in 2012. The zero new infection hope is attainable if the strengthening of HIV prevention programs for this target group in this area is supported by all the stakeholders.

385 Monitoring Self-Reported Adherence to Antiretroviral Therapy in the Brazilian HIV Care Facilities: National Cross-Sectional Measures of Adherence and Associations with Site Organizational Characteristics

Maria Altenfelder Santos[1] (presenting),
Maria Ines Battistella Nemes[2], Cáritas Relva Basso[2],
Ernani Tiaraju Santa-Helena[3], Francisco Assis Acurcio[4],
Gustavo Machado Rocha[5], Maria das Graças Ceccato[4],
Palmira Bonolo[6], Felipe Vale[2], Ana Alves[2], Wania Carvalho[2],
Paulo Menezes[2], Mark Drew Crosland Guimaraes[4]

[1] University of Sao Paulo/Yale University, New Haven, CT, USA
[2] University of Sao Paulo, Sao Paulo, Brazil
[3] Regional University of Blumenau, Blumenau,
    Santa Catarina, Brazil
[4] Federal University of Minas Gerais, Belo Horizonte,
    Minas Gerais, Brazil
[5] Federal University of Sao Joao Del-Rei, Divinopolis,
    Minas Gerais, Brazil
[6] Federal University of Ouro Preto, Ouro Preto, Minas Gerais, Brazil

Background: Adherence to recommendations for taking antiretroviral therapy (ART) is critical for good outcomes. We sought to understand the extent to which adherence varies across care sites.

Methods: In 2010 we conducted a survey of 2,424 patients treated in a nationally representative sample of 55 Brazilian public HIV care facilities. We selected a stratified sample of facilities in 7 regions in Brazil within 7 performance levels that were determined in a previous national evaluation of HIV care sites. Participants answered a pre-validated web-based questionnaire that included 3 questions about deviations from recommended ART in the past 7 days: if patients took fewer than recommended number of pills (dose), took medicine at non-recommended times (timing), and did not take 1 of their medications (medication). We created a 4 category scale of adherence: perfect adherence, non-adherence in 1 dimension, 2 dimensions, and 3 dimensions (i.e., dose, timing, medication). Associations between non-adherence and site characteristics were estimated in multinomial logistic regression models, using weighted data to account for the sampling design.

Results: Approximately half of participants reported non-adherence with respect to dose timing. Perfect adherence was reported by 38.9% (CI 95% 36.3-41.5) of participants, and some degree of non-adherence was reported by 61.1% of participants (30.8% on 1 measure, 18.6% on 2 measures, and 11.7% on 3 measures). The extent of non-adherence varied across sites. Site size (number of patients receiving ART) and region independently predicted non-adherence, with sites with 101 to 500 patients showing lower odds of non-adherence. Contrary to our expectations, lower odds of non-adherence were obtained in lower performance levels.

Conclusions: Brazilian HIV care facilities should implement strategies to support adherence among patients who are having difficulty following treatment recommendations, specially focusing on adherence to recommended dose timing. Associations between patient adherence and care site characteristics should be studied further.

388 Determinants of Quality of Life in Newly Diagnosed HIV-Infected Patients in Kenya

Anik Patel[1] (presenting), Mia van der Kop[2], David Ojakaa[3],
Carlo Marra[1], Patrick Igunza[3], Richard Lester[1]

[1] University of British Columbia, Vancouver, BC, Canada
[2] Karolinska Institutet, Vancouver, BC, Canada
[3] AMREF, Nairobi, Kenya

Background: Determinants of quality of life (QoL) in HIV-infected patients include disease severity, social support and coping mechanisms. Common symptoms of HIV may determine QoL and health state utilities. The objective of this study was to examine the influence of symptoms associated with HIV disease on physical, mental and health state utility scores of HIV infected patients in Kenya.

Methods: Between April and October 2013, an adapted Kiswahili version of the Short Form 12 (SF12) was administered to newly diagnosed HIV-infected patients participating in a randomized controlled trial in Nairobi, Kenya. Patients were also asked if they were experiencing 19 common symptoms of HIV/AIDS (e.g. fatigue, loss of appetite, depression or diarrhea) on a scale of no symptoms, mild, moderate and severe symptoms. SF-12 survey responses were scored to derive a physical component score (PCS), a mental component score (MCS), and an overall utility score (SF6D). Linear regression was used to examine the association between each symptom and each score.

Results: 135 respondents were included in the analysis with 7 observations removed due to missing data. Severe fatigue was associated with 15.0 point (p <0.01) reduction in PCS while severe lack of appetite was associated with an 8.6 point (p <0.01) reduction in PCS compared patients not experiencing those symptoms. Those experiencing severe depression had 12.2 point (p <0.01) lower MCS and those experiencing severe anxiety had 8.4 point (p <0.01) lower MCS compared to those not experiencing those symptoms. Severe fatigue (-0.10), depression (-0.18), fever (-0.12), numbness (-0.11) and lack of appetite (-0.06) were all associated with lower SF6D scores (p <0.05).

Conclusions: This study is the first to investigate symptoms that are associated with QoL outcomes and health state utilities in a cohort of HIV-infected patients in Kenya. The drivers of lower physical, mental and overall health scores may be valuable to inform targeted clinical management and program planning efforts in HIV treatment and care.

390 Knowledge, Experience and Attitudes Regarding Pre-Exposure Prophylaxis for HIV Prevention: Is there a Difference between HIV and Non-HIV Providers?

Jill Blumenthal[1] **(presenting)**, Sonia Jain[1], Xiaoying Sun[1], Douglas Krakower[2], Kenneth Mayer[3], Richard Haubrich[1]

1. University of California, San Diego, San Diego, CA, USA
2. Beth Israel Deaconess Medical Center, Boston, MA, USA
3. Harvard University, Boston, MA, USA

Background: The 2012 FDA approval of emtricitabine and tenofovir (FTC/TDF) for pre-exposure prophylaxis (PrEP) has raised questions about PrEP delivery in the real-world.

Methods: We gave iPAD-based questionnaires to providers at HIV-related conferences in California and New York to assess HIV and non-HIV provider knowledge/experience with PrEP and perceived barriers and motivators to future provision. HIV providers were self-defined as primary HIV providers and/or having greater than 5 years of HIV experience. Knowledge scores were the sum of correct answers from 5 PrEP knowledge questions. Univariate t-test and one-way-ANOVA were used to compare knowledge scores among provider groups and other factors. Fisher's exact test was used to assess associations between past or future PrEP prescription and predictor variables.

Results: Of 171 respondents, the mean age was 41, 58% were physicians and 55% were HIV providers. Mean PrEP knowledge scores (max 5) were significantly higher for: HIV providers (2.9 vs. 2.2; p <0.001), age >41 (mean 2.8 vs. 2.3; p = 0.017), White race (2.8 vs. 2.2; p = 0.002), and those that previously prescribed PEP (3.2 vs. 2.3, p <0.001). CDC guidance and PrEP clinical trials familiarity were significantly associated with higher knowledge scores. The rate of prior PrEP prescription was higher among HIV providers than non-HIV providers (31% vs. 10%; p = 0.001). Among 150 potential prescribers, there was no difference in the likelihood of endorsing future PrEP prescription between HIV and non-HIV providers (70% vs. 64%, P = 0.49). The most common concerns about PrEP (>40% of providers) were drug toxicities, development of resistance and patient adherence to follow-up; 30% identified risk compensation as a concern.

Conclusions: Positive attitudes to future PrEP prescription were high across groups; however, PrEP knowledge was low among non-HIV providers. To help achieve successful implementation of real-world PrEP, educational efforts should be directed towards potential PrEP providers, particularly primary care physicians, to increase knowledge and comfort regarding PrEP provision.

391 HIV Care and Treatment Beliefs among Patients Initiating Antiretroviral Therapy in Oromia, Ethiopia

Olga Tymejczyk[1] **(presenting)**, Susie Hoffman[2], Sarah Gorrell Kulkarni[1], Tsigereda Gadisa[3], Maria Lahuerta[3], Robert Remien[4], Batya Elul[3], Wafaa El-Sadr[3], Zenebe Melaku[3], Denis Nash[1]

1. CUNY School of Public Health, New York, NY, USA
2. Mailman School of Public Health, Columbia University, New York, NY, USA
3. ICAP-Columbia University, Mailman School of Public Health, New York, NY, USA
4. HIV Center for Clinical and Behavioral Studies, New York, NY, USA

Background: Patient beliefs are critical to successful adoption of positive health behaviors, including adherence to ART. We examined various dimensions of HIV beliefs among persons initiating ART during 2012-2013 at 6 clinics in Oromia, Ethiopia.

Methods: Adults (n = 1,177) were interviewed within 2 weeks of ART initiation about their beliefs across 3 domains identified through factor analysis: ART and health outcomes, ART and transmission risk, and the curative potential of holy water (a popular belief in Ethiopia), with responses on 4-point Likert scales (1 = strongly disagree - 4 = strongly agree). Logistic regression models were used to assess correlates of accurate beliefs (average scores >3) in each domain.

Results: Whereas most respondents held accurate beliefs regarding ART and health outcomes (90.0%) and holy water (66.8%), only 13.4% had accurate beliefs on ART and transmission risk. For ART and health outcomes, no education (aORref=primary = 0.63, 95% CI: 0.57-0.70) and Muslim religion (aORref=non-Orthodox Christians = 0.56, 95% CI: 0.43-0.74) were significantly associated with lower odds of accurate beliefs. For ART and transmission risk, no education was associated with higher odds of accurate beliefs (aORref=primary = 1.62, 95% CI: 1.06-2.47), whereas patients with secondary education (aORref=primary = 0.64, 95% CI: 0.51-0.81) and more clinic visits (aOR4-8 vs. 2-3 = 0.43, 95% CI: 0.27-0.68) had lower odds of accurate beliefs. For Holy Water, being a pregnant woman (aORref=men = 0.32, 95% CI: 0.17-0.61) or Ethiopian Orthodox (aORref=non-Orthodox Christians = 0.23, 95% CI: 0.12-0.46) was associated with lower odds of accurate beliefs.

Conclusions: At the time of ART initiation, belief in health benefits of ART was high, but few patients knew that it prevents sexual transmission and many believed Holy Water could cure HIV. To reduce the risk of future non-adherence, HIV education should be routinely reinforced among patients of all educational backgrounds, and especially those with long histories of and possible gaps in care, who may have missed the recent emphasis on treatment as prevention or have not received in-depth HIV education since enrollment in care.

POSTER ABSTRACTS

POSTER ABSTRACTS

392 Knowledge of and Experience with HIV Pre-Exposure Prophylaxis among New York State Healthcare Providers

Ethan Cowan[1], **Yvette Calderon[1] (presenting)**, Kelly Chacon[1], Sara Rahman[1], Siddhi Mankame[1], Puthiery Va[1], Sophie Sohval[1], Jason Leider[1]

[1] Jacobi Medical Center, Bronx, NY, USA

Background: The safety and efficacy of HIV pre-exposure prophylaxis (PrEP) has been established in several high-risk populations, underscoring the importance of its integration into clinical practice. However, the implementation of PrEP as a population-level prevention strategy has not been demonstrated. Several questions remain, particularly the local healthcare community's knowledge, experience, and attitudes towards PrEP. This study assessed knowledge and willingness to prescribe PrEP among New York State (NYS) healthcare providers.

Methods: A prospective, cross-sectional study was conducted on a convenience sample of NYS providers. Eligible participants completed anonymous written or web-based surveys about experience, knowledge, and willingness to prescribe PrEP.

Results: The study population (n = 147) was 53.1% male, 23.1% White, 22.4% Asian, 14.3% Hispanic, and 4.8% Black. Practice settings included primary care (42.9%), HIV clinic (17.7%), and emergency medicine (12.2%). Levels of clinical practice included attending physician (46.9%), intern/resident (29.9%), and nurse practitioner/physician assistant (4.7%). Most participants correctly defined PrEP (82.3%) and identified eligible patients. Additionally, most believe PrEP is effective (64.6%) and that their patients would be interested (54.4%). However, only 43.5% feel comfortable starting their high-risk patients on PrEP, and only 12.2% had actually prescribed PrEP. A majority of respondents expressed concerns about non-adherence (61.3%) and not having enough time during an appointment session to discuss PrEP (51.0%). Most participants believe patients could be initiated and followed on PrEP in primary care clinics (92.5%), HIV clinics (79.6%), STI/sexual health clinics (87.1%), and women's health clinics (78.9%), but not in mental health clinics (70.7%) or the emergency room (70.7%).

Conclusions: Despite knowledge of PrEP and recognition of its efficacy, many NYS healthcare providers would not feel comfortable prescribing PrEP. Perceived barriers included non-adherence and inadequate time in an appointment to discuss PrEP. Programs addressing these barriers will be needed to facilitate the widespread implementation of PrEP in the clinic.

393 Reading between the Numbers: Identifying Disparities in the Virally Unsuppressed in an HIV Clinic in North Carolina

Katherine Schafer[1] (presenting), Jennifer Keller[1], Erica Sickelbaugh[1], Mary Beth Cox[2], Aimee Wilkin[1]

[1] Wake Forest University School of Medicine, Winston Salem, NC, USA
[2] Communicable Disease Branch, North Carolina Department of Health and Human Services, Raleigh, NC, USA

Background: Of the 1.1 million Americans living with HIV, only 25% are virally suppressed. A more comprehensive description of unsuppressed patients could help identify specific risk factors for targeted interventions to improve virologic control.

Methods: Wake Forest's HIV clinic conducted a retrospective review of patients with ≥1 medical visit in the period 8/1/2012-7/31/2013 using CAREWare. Data were stratified by demographic, clinical, and socioeconomic variables of interest. The threshold for "undetectable" viral load (VL) was <200 copies/mL (last VL in period).

Results: Out of 1,909 patients, 408 (21%) were unsuppressed. The unsuppressed were 60% male, 77% Black/African American (AA), 70% aged <50, and 34% uninsured. 74% of unsuppressed patients attended clinic within the past 6 months.

AA patients were 2.1 times more likely to be unsuppressed compared to non-AA patients (95% CI 1.67-2.76, p <0.001) and AA women were 1.7 times more likely than non-AA women to have detectable VL (95% CI 1.07-2.60, p = 0.02). AA patients composed 64% of the general clinic population but 77% of the unsuppressed (p <0.0001). Women of childbearing age (ages 20-39) were 1.5 times more likely than women of other ages to have viremia (95% CI 1.01-2.22, p = 0.047). Young men (ages 20-29) were 2.6 times more likely to be unsuppressed than men of other ages (95% CI 1.77-3.81, p <0.001), and were overrepresented in the unsuppressed vs. general clinic population (20% vs. 11%, p <0.0001).

Conclusions: African Americans, women of childbearing age, and young men were disproportionately unsuppressed compared to the general clinic population. This review identified populations for which further research and the development of targeted interventions are needed. While a more comprehensive description of the unsuppressed is necessary for better understanding ongoing viremia, the fact that 74% were seen within the past 6 months suggests that clinic attendance may not fully explain lack of virologic control.

394 Development of a Vaginal Ring Psychometric Adherence Scale

Elizabeth Tolley[1] **(presenting)**, Kathleen Morrow[2], K Rivet Amico[3], Kathleen MacQueen[1]

[1] FHI 360, Durham, NC, USA
[2] Miriam Hospital/Brown Medical School, Providence, RI, USA
[3] University of Connecticut, Brighton, MI, USA

Introduction: Despite shortcomings, the assessment of self-reported adherence remains a standard component of trials because it is inexpensive, non-invasive, and allows for immediate feedback. Efforts to improve validity and reliability of self-reported adherence measures have largely focused on mode of data collection (e.g., ACASI) and memory aids (e.g., diary cards). We propose an alternative approach: the development of a validated psychometric adherence scale.

Description: Psychometric scales are composed of multiple items in the form of questions or statements that, when combined, measure a more complex construct that may not be directly observable. Validated multi-item measures tend to be more stable, reliable and precise than single item ones because they elicit a set of internally consistent replies that are "less prone to sociopsychological biases," enabling minimization of both systematic and random measurement error. As such, they may provide a superior strategy for identifying non-adherence by focusing on the multiple factors "driving" non-adherence rather than relying on direct report of non-adherence in situations where such reports are intentionally avoided.

Lessons Learned: Drawing on behavioral theory and existing acceptability and adherence data, we identify a multidimensional set of items that could theoretically assess ARV-based vaginal ring adherence. In contrast to other contexts within which adherence scales have been used, ring adherence within a placebo-controlled clinical trial is not motivated by assurance of health promotion, but should be influenced by knowledge, attitudes and motivations specific to trial participation more broadly.

Recommendations: We describe our conceptual framework, domains and potential items, as well as next steps for scale validation. Ultimately, a valid and reliable measure of vaginal ring adherence could provide immediate feedback for correct use or potential non-use for discussion in adherence support sessions; it could also advise statistical analyses for determining ring efficacy in HIV prevention, contractive or multipurpose prevention vaginal ring research.

398 Project Engage: An Innovative Technique for Finding and Linking HIV-Infected Persons into Consistent HIV Medical Care in Los Angeles County

Rhodri Dierst-Davies[1] **(presenting)**, Saloniki James[1], Amy Rock-Wohl[1]

[1] Los Angeles County Department of Public Health, Los Angeles, CA, USA

Introduction: Project Engage (PE) was designed to find hard-to-reach out of care (OOC) HIV-infected persons and link them to HIV care.

Description: A combination of snowball sampling and direct recruitment was used. Recruiters (seeds) were recruited from HIV clinics/agencies. OOC persons (alters) were recruited either through social network referrals from seeds, directly by staff or through flyers. Seeds/alters were incentivized $40 to complete a baseline interview and seeds were reimbursed $40 when a referred alter completed an HIV medical visit. OOC was defined as no HIV care visits in >12 months; no HIV care visits in 7-12 months and most recent VL >200 copies/mL; newly-diagnosed and not linked to care within 3 months; and recently released from jail and no HIV provider. OOC status was verified for alters using LAC HIV surveillance data. Staff advocated for linkage to care and helped negotiate barriers. Preliminary results are presented.

Lessons Learned: To date, 22 OOC persons were enrolled via social network referrals (n = 20) or direct recruitment (n = 2). Enrolled participants include: African Americans (41%), MSM (99%), the uninsured (64%), those recently incarcerated (64%), homeless persons (73%) and individuals who have traded sex for drugs or money in the previous 6 months (27%). On average, participants had been OOC for 9 months; had previously attended 3 HIV clinics; and had a history of ART (64%). Participants reported an average of 8 sexual partners (previous 6 months) and an elevated VL prior to enrollment (mean = 55,536 copies/mL). It took an average of 11 days to link a client to care that included 6 hours of staff time on average. Among patients enrolled, 16/22(76%) completed 1 medical visit, and of those 88% (n = 8) were retained in care after 6 months. Program acceptability was high.

Recommendations: A combined methodology of snowball sampling and direct recruitment is feasible for finding hard-to-reach, severely marginalized OOC HIV-infected persons in order to provide needed support for HIV care linkage.

399 When Need Plus Supply Does Not Equal Demand: Challenges in Uptake of Depression Treatment in HIV Clinical Care

Brian Pence[1] **(presenting)**, Evelyn Quinlivan[1], Amy Heine[1], Malaika Edwards[2], Riddhi Modi[3], Nathan Thielman[2], Bradley Gaynes[2]

[1] University of North Carolina at Chapel Hill, Chapel Hill, NC, USA
[2] Duke University, Durham, NC, USA
[3] University of Alabama at Birmingham, Birmingham, AL, USA

Background: Depression is highly prevalent among patients in HIV care and is associated with worse health behaviors and outcomes. Effective treatments for depression are readily available, yet depression remains widely underdiagnosed and undertreated in HIV clinical care.

Methods: As part of a multisite randomized trial of depression treatment integrated into HIV clinical care (the SLAM DUNC Study), we examined the proportion of positive depression screens that resulted in study enrollment and reasons for non-enrollment.

Results: Over 33 months, patients presenting for care at 2 sites completed 9,765 PHQ-9 depression screens; 1,852 (19%) screens were positive for depression (PHQ-9 score ≥10) and 1,628 (88%) positive screens were assessed for study eligibility. Of positive screens that were assessed, 186 (11%) resulted in study enrollment. Of screens not resulting in enrollment, in 649 cases (40%) the HIV provider did not recommend enrollment (patient's mental health managed by outside provider = 14%; HIV provider preferred to manage independently = 7%; HIV provider thought mental health picture too complicated = 5%; HIV provider thought patient was not depressed = 5%); in 431 cases (26%) the patient declined to enroll (not interested in treatment = 8%; wanted more time to consider = 6%; did not want medications = 5%); and in 360 cases (22%) the patient did not meet study inclusion criteria (current/past bipolar = 7% or psychotic disorder = 4%; not taking antiretrovirals = 4%). While these results reflect multiple screens per patient, analyses restricted to narrower time windows which largely reflecting unique patients yielded similar results.

Conclusions: Despite a high burden of untreated or undertreated depression, only 1 in 9 positive depression screens resulted in enrollment in the depression treatment study. While some of the reasons for low enrollment were study-specific, others speak to potentially modifiable patient- and provider-level barriers to depression treatment engagement. Addressing such barriers will be critical to maximize the reach of depression treatment services for HIV-positive patients.

401 Symptom Bothersomeness and Symptom Attribution in Adults on HIV Medications

Holly Swan[1] **(presenting)**, Sarah McDannold[1], Keith McInnes[1], Mark Glickman[2], Joel Reisman[3], Allen Gifford[1]

[1] Veterans Health Administration, Bedford, MA, USA
[2] Boston University and Department of Veteran Affairs, Bedford, MA, USA
[3] Department of Veteran Affairs, Bedford, MA, USA

Background: Patients who attribute their symptoms to HIV medications - rather than disease - may be prone to switching antiretrovirals (ARVs), and may experience poor retention/adherence to care. Certain symptoms (e.g., nausea/vomiting) are more often experienced as a side effect, but little is known about whether symptoms attributed to medications are more bothersome. Symptom attribution relationships may be important in guiding symptom and medication management.

Methods: Adults on ARVs in 3 urban US outpatient clinics (N = 260) completed survey responses about 20 symptoms common in HIV. For each symptom, participants rated symptom bothersomeness on a 1 "it doesn't bother me" to 4 "it bothers me a lot" scale. Participants were also asked whether they believed each symptom was a side effect of their ARVs. Bivariate tests examined bothersomeness differences by symptom between those with and without attribution to ARVs.

Results: Average symptom bothersomeness when attributed to ARVs ranged from 2.51 (dizzy/lightheaded) to 3.23 (cough/shortness of breath); when not attributed to ARVs, average bothersomeness ranged from 2 (hair loss/changes) to 2.98 (sleep difficulty). Adjusting for the multiplicity of tests, 5 symptoms were significantly more bothersome between those attributing them to ARV side effects and those attributing them to other causes (all p <.01): shortness of breath/cough [mean = 3.23 (n = 22) vs. mean = 2.63 (n = 62)], weight loss/wasting [3.21 (n = 24) vs. 2.46 (n=28)], hair loss/changes [3.17 (n = 18) vs. 2.00 (n = 17)], skin problems/rash [3.09 (n = 46) vs. 2.59 (n = 58)], and weight gain/fat deposits [3.06 (n = 51) vs. 2.42 (n = 33)]. No symptoms were significantly less bothersome when attributed to ARVs.

Conclusions: Five symptoms were significantly more bothersome in people who attributed the symptoms to medications rather than something else (e.g., disease). These findings may have implications for ARV medication adherence management and outcomes. Incorporating patient beliefs about causes of symptoms and side effects may contribute to improved symptom and medication management, and to better ARV medication adherence.

410 Patient Perceptions of Engagement in Outpatient Care among Hospitalized HIV-Positive Patients

Jessica Davila[1], Christine Hartman[2], Jeffrey Cully[1], Melinda Stanley[1], K Rivet Amico[3], **Thomas Giordano[3] (presenting)**

[1] Baylor College of Medicine, Houston, TX, USA
[2] DeBakey VA Medical Center, Houston, TX, USA
[3] University of Connecticut, Brighton, MI, USA

Introduction: Perceived engagement in outpatient HIV care among patients who are out of care has not been explored. Further, beliefs about how often such patients feel they should see their HIV provider are unknown. We examined patient perceptions about being in HIV care and evaluated the association between these perceptions with VL suppression.

Methods: Baseline data from a cohort of hospitalized HIV-infected patients who were out of care and enrolled into a randomized intervention trial were used. Out of care was defined as having an outpatient visit in <2 of the 4 quarters prior to hospitalization. The baseline survey included 1 item asking whether the patient "got outpatient HIV care on a regular basis" during the past 12-months, and 1 item asking how often persons with HIV infection should "be seen by their HIV doctor when they are feeling well." Concurrent VL<200 copies/mL was considered VL suppression.

Results: 407 patients completed the survey. 98.5% (n = 401) were out of care based on quarters in care, however, 47.8% reported receiving outpatient HIV care "on a regular basis." While 7% of persons who did not report being in regular care had VL<200 copies/mL, 27% of patients who reported receiving regular care had VL<200 (p <0.01). 52% of respondents thought that HIV-infected persons feeling well should be seen monthly or more frequently, 38% every 3 months, and 10% >6 months; there was no difference by VL status (p = 0.06).

Conclusions: About 50% of patients who are out of HIV care report being in regular care, and almost three-quarters of them did not have VL suppression. More than half of patients believed they needed to be seen more frequently than guidelines recommend, even when feeing well. Patients may not be retained in HIV care at least in part because their perceptions of "in care" do not align with national standards.

411 How Are We Building Retention in Care Interventions? Discussion of a Single-Session Retention-Promotion Intervention Piloted in an Inner-City Community Clinic

Laramie Smith[1] (presenting), K Rivet Amico[2], Jeffrey Fisher[3], Thomas Patterson[1], Chinazo Cunningham[4]

[1] University of California, San Diego, CA, USA
[2] University of Connecticut, Brighton, MI, USA
[3] University of Connecticut, Storrs, CT, USA
[4] Montefiore Medical Center/Albert Einstein College of Medicine, Bronx, NY, USA

Introduction: In the USA, approximately 50% of persons living with HIV (PLWH) are poorly retained in routine HIV medical care. While a number of studies have been conducted to describe retention rates and factors associated with poor retention, few studies have actually developed or tested interventions to improve retention in care behaviors.

Description: In the Bronx, NY, we piloted a proof-of-concept, theory-based, 60-minute intervention, developed to be delivered by non-clinical staff in a community clinic. A small sample of PLWH (N=16) with a history of poor retention were randomized 1:1 to the retention in care intervention or a time-and-attention control condition. Intervention content was informed by a situated application of the Information-Motivation-Behavioral Skills model, comprised of 4 unique sections:

1. *Physical health* - reviews and prioritizes HIV and non-HIV related health concerns most important to the patient.
2. *Emotional health* - explores how positive and negative affect about living with HIV relates to HIV-care and treatment adherence behaviors. Skills for managing affect-related barriers are practiced in session.
3. *HIV-care history* - identifies issues related to recent periods of poor retention and proactively strategizes ways to address similar barriers to improve future visit attendance.
4. *Future well-being* - develops a plan based on information elicited in sections 1-3 to implement patient-identified health goals over the next 6-months.

Lessons Learned: The intervention was feasibly implemented in a community clinic. Using a 5-point scale (1=Strongly disagree, 5=Strongly agree), patients perceived it as personally relevant (M=4.00, SD=.093), and likely to be useful in the next 6-months (M=3.64,SD=1.19). Changes in retention in care behaviors will continue to be monitored through April 2014.

Recommendations: While the efficacy of this small pilot is under investigation, this manualized 60-minute theory-based intervention may offer guidance to researchers and practitioners seeking to develop and rigorously test interventions for promoting patient retention in HIV care.

POSTER ABSTRACTS

412 Framework for a Coherent, Validated, and Feasible Adherence Measurement and Support Package for Use in ARV-Based Vaginal Ring Trials

Kathleen MacQueen[1] (presenting), Elizabeth Tolley[1], Derek Owen[1], K Rivet Amico[2], Kathleen Morrow[3], Thomas Moench[4]

[1] FHI 360, Durham, NC, USA
[2] University of Connecticut, Brighton, MI, USA
[3] Miriam Hospital/Brown Medical School, Providence, RI, USA
[4] ReProtect, Baltimore, MD, USA

Introduction: Long-acting ARV-based vaginal rings for HIV prevention may simplify use instructions and require less user action, thereby facilitating adherence. However, participant motivations, counseling support, and measurement challenges during ring trials must still be addressed. We propose a framework for methodically accelerating work in this area.

Description: To-date, adherence support and assessment procedures in microbicide, PrEP and ring trials have not benefited from rigorous evaluation identifying effective approaches. As such, the current evidence base is challenged by poor understanding of motivations for adherence within placebo-controlled clinical trials and, relatedly, strategies to promote product adherence specifically within clinical trial settings. Nonetheless, process-models exist to guide the development of behavioral interventions and measurement strategies. An important first step is the articulation of a basic framework where critical areas (targets) are identified and relevant evidence, best practices, and innovation within each are defined. Drawing from available evidence, experiences and cross-cutting fields of inquiry, we developed a framework for vaginal ring adherence identifying key areas and targeted research needed to produce effective and generalizable adherence promotion and assessment strategies.

Lessons Learned: Three critical areas need to be addressed. First, adherence support requires sequential efforts to define motivators of study-product adherence; develop, test, and refine adherence support messages and; evaluate these in a rigorous fashion. Second, the limitations of single-item self-report adherence measurement highlights the need for improved psychometric approaches. These multi-item scales, once validated, are easily administered and may capture vaginal ring use with improved predictive ability at screening, baseline and follow-up. Third, real-time adherence monitoring and cumulative measurement to correlate adherence with overall product effectiveness requires innovative designs, models, and prototypes using "smart" and biometric technologies to detect ring insertion and/or removal.

Recommendations: Interdisciplinary collaboration is needed to create a coherent, validated, and feasible measurement and support framework for future vaginal ring trials.

415 "Trials and Tribulations of Finding that Friend": Developing a Smartphone Application to Communicate Peer-Generated Strategies for Building Social Support

Erin Plews-Ogan[1] (presenting), Tabor Flickinger[1], Erin Wispelwey[1], Colleen Laurence[1], Karen Ingersoll[1], Rebecca Dillingham[1]

[1] University of Virginia, Charlottesville, VA, USA

Introduction: The value of social support in coping with HIV and maintaining adherence is firmly recognized, as is the potential positive role of HIV status disclosure in recruiting this support. However, among a patient population in rural western Virginia, social stigma and limited knowledge about HIV sharpen the risk of rejection as a result of disclosure. To address these challenges, we are developing and piloting video and community message board features within the Positive Links Smartphone application to communicate peer-generated stories and strategies.

Description: Qualitative interviews with 17 HIV-positive participants explored the role of social support during the year following their diagnosis and how a smartphone application might support positive coping strategies and medication adherence. We then collected insights and stories expressed through art, voice and video recordings to communicate key messages about building support through the voice of peers. Using the methodologies of Photovoice and Appreciative Inquiry, we conducted a focus group and in-depth individual interviews to gather participants' artwork depicting social support and their personal experiences and advice. We sought to capture strategies for recruiting support, especially considerations regarding status disclosure, and provide a vehicle for these experiences and insights through video and community message board features.

Lessons Learned: Initially drawing on a few trusted relationships strengthened participants' self-confidence and emboldened them to risk disclosing to others who might react negatively. Participants emphasized that disclosure is not the only pathway to support and must not be understood as a mandate, but instead requires nuanced considerations about the specific relationship and each party's readiness to cope with the disclosure.

Recommendations: The impact of this video and the community message board will be qualitatively assessed through interim usability and final evaluation interviews, as well as analysis of app metadata capturing exchanges of social support through the community message board.

417 Using the Visual Analog Scale to Assess Adherence to Antiretrovirals among People Living with HIV and Low Health Literacy

Jennifer Pellowski[1] (presenting), Seth Kalichman[1], David Finitsis[1]

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

Background: Assessing adherence in low-literacy populations may be particularly challenging due to the cognitive demands of recall and performing mental calculations. The purpose of this study was to examine the utility of the single item visual analog scale (VAS) for assessing ART adherence in people living with HIV and low literacy (PLWH-LL).

Methods: This study was conducted with 471 PLWH-LL who completed the Test of Functional Health Literacy for Adults (TOFHLA) and (1) a computer-delivered VAS, (2) 3 monthly phone-delivered VAS, (3) 3 monthly unannounced pill counts (UPC) and (4) measures of correlates of adherence. HIV RNA viral loads were chart-abstracted.

Results: The phone-delivered VAS demonstrated good 1-month test-retest reliability (r = 0.52). The phone-delivered VAS had good concurrent validity with the UPCs (r = 0.66, p <0.001). However, this was significantly different by literacy level, such that the UPC and Phone VAS correlated less well for those with the lowest levels of literacy (z = -5.23, p <0.001). Additionally, the VAS demonstrated favorable and comparable validity when administered by phone and computer. Finally, the VAS demonstrated good criterion-related validity with HIV RNA viral load (phone VAS: r = -0.250, p <0.001; computer VAS: r = -0.366, p <0.001). To determine predictors of the discrepancy between the VAS and UPC, multivariate regression was conducted with common correlates of adherence. Lower income and higher rates of alcohol use were significant predictors of the discrepancy between the VAS and UPC (p = 0.024, p = 0.008, respectively).

Conclusions: The VAS was reliable and valid among PLWH-LL, although its utility may be compromised by limited income and alcohol use among persons with low literacy.

418 Understanding Patient Engagement in Public HIV Clinics: A Qualitative Study in California

Shannon Fuller[1] (presenting), Kimberly Koester[1], Ryan Guinness[1], Shane Collins[1], Patrick Hazelton[1], Starley Shade[1], Wayne Steward[1]

[1] UCSF Center for AIDS Prevention Studies, San Francisco, CA, USA

Background: Patient engagement, typically characterized as shared decision-making between patients and providers, is associated with better health outcomes in a variety of conditions. Previous studies on engagement have tended to focus on patients in primary care clinics. We sought to assess patient engagement in the context of HIV care clinics and to identify factors that lead to more or less engagement in health care among these patients.

Methods: Our team of qualitative researchers conducted in-depth interviews at 5 HIV clinics in California with: 1) HIV-positive, English-speaking patients age 18 or older, and 2) providers or other clinicians in each of the 5 clinics (n = 68). We analyzed transcripts using a grounded theory approach to identify emerging themes. This investigation was part of a larger study evaluating patient-centered medical home activities in the 5 HIV clinics.

Results: Instances of shared decision-making appeared rarely in the narratives; however, patients seem engaged in care by asking both friends and providers questions about health concerns, doing research online, adhering to treatment and keeping appointments. Some monitor trends in their lab values. Patients often assume full responsibility for their care and imagine their provider as a guide or consultant. Open lines of communication between the patient and provider outside of regular clinic hours are common. Facilitators to engagement include health literacy, computer and Internet skills, future-oriented thinking and a trusting relationship with the provider and overall clinic. We present typologies and case studies to show a spectrum of activities and behaviors that signify engagement in care.

Conclusions: Although patient engagement is often defined as shared decision-making, our preliminary findings suggest that shared decision-making may take a more variable role in patient engagement in these types of settings.

POSTER ABSTRACTS

419 Developing a Conceptual Model for ART Adherence among Kenyan Men Who Have Sex with Men

Susan Graham[1] **(presenting)**, Murugi Micheni[2], Elise van der Elst[3], Bernadette Kombo[3], Don Operario[4], Eduard Sanders[3], Jane Simoni[1]

1 University of Washington, Seattle, WA, USA
2 Kenya Medical Research Institute, Mombasa, Kenya
3 Kenya Medical Research Institute, Kilifi, Kenya
4 Brown University, Providence, RI, USA

Background: Men who have sex with men (MSM) are highly stigmatized and often criminalized in sub-Saharan African, and may have difficulty accessing quality HIV care. To achieve an understanding of antiretroviral therapy (ART) adherence in this group, a socioculturally valid conceptual model is needed.

Methods: Our proposed conceptual model was adapted from an access-information-motivation-behavioral skills (access-IMB) model proposed by Simoni et al. We posited that stigma's effects would be moderated by psychosocial support, when available. We explored this model of ART adherence by analyzing qualitative data from 28 interviews with HIV-positive Kenyan MSM, of whom 16 were taking ART. To evaluate our model, we used the heuristic schema of Ware et al., which asks 4 analytic questions about model validity and relevance: (1) Are the model's basic concepts relevant in the setting? (2) Are all basic concepts important to the setting represented? (3) Are the meanings of the model's basic concepts accurate in the setting? and (4) Does the model capture the complexity of adherence in this setting?

Results: The basic concepts of the access-IMB model were relevant to this population, in which stigma related to HIV infection and to male-male sex negatively impacts men's adherence. While psychosocial support from providers and others was important, we found that the concept of resiliency, described by Herrick et al as coping with negative experiences and avoiding negative trajectories, was a key moderator of men's adherence. Meanings of the model's concepts were accurate in this setting, but resiliency-related concepts such as self-monitoring, adaptability, and optimism emerged as critical factors affecting adherence.

Conclusions: Our data support the utility of an access-IMB model as a potential framework for understanding ART adherence in this population. However, data indicate a need to consider the pervasive stigma and discrimination Kenyan MSM experience, as well as their innate resiliencies.

420 An Information-Motivation-Behavior Skills (IMB) Measure of "Retention in HIV Care" for Use in the Mentor Approach for Promoting Patient Self-Care (MAPPS) Study of Out-of-Care Persons Living with HIV

Michael Kallen[1], **K Rivet Amico**[2] **(presenting)**, Melinda Stanley[3], Jeffrey Cully[3], Jessica Davila[3], Thomas Giordano[3]

1 Northwestern University, Chicago, IL, USA
2 University of Connecticut, Brighton, MI, USA
3 Baylor College of Medicine, Houston, TX, USA

Background: The IMB Model is a well-known health behavior model that has recently been applied to retention in HIV care. Operationalizing and measuring retention-related information, motivation, and skills is critical to documenting the influence of IMB-model based interventions, yet there are few validated measures presently available to do so. We developed and evaluated an IMB-model based "retention in HIV care" measure to address this gap.

Methods: English-speaking, out-of-care, HIV-positive individuals completed an IMB-retention in care measure consisting of 12 information, 23 motivation and 17 behavior skills items. Information index item responses were scored as correct/incorrect and summed. Motivation and Behavior Skills scale item responses, ranging from 1 ("strongly agree") to 6 ("strongly disagree"), were fit to unidimensional confirmatory factor analysis models; items with low factor loadings (<0.50) were excluded. Responses to retained scale items were assessed for internal consistency reliability, and average scores calculated. Spearman correlations were computed among the 3 IMB components.

Results: Three hundred seventy-nine persons completed the survey, which was administered by audio-computer assisted self-interview (A-CASI). 6 Information items were excluded, due to low IMB-model component association (r < 0.10). The resultant 6-item Information index had a median score of 6 (min = 2, max = 6); 60.8% got all items correct. Four Motivation items and 2 Behavior Skills items were excluded, due to low internal validity. The resultant 19-item Motivation scale (alpha = 0.92) had a mean score of 4.45 (SD = 0.89); the resultant 15-item Behavior Skills scale (alpha = 0.87) averaged 4.44 (SD = 0.80). Intra-IMB scale correlations were as follows: Information-Motivation, rho = 0.18 (p = 0.001); Information-Behavior Skills, rho = 0.17 (p = 0.002); Motivation-Behavior Skills, rho = 0.75 (p = 0.000).

Conclusions: Consistent with IMB model hypotheses, Information, Motivation, and Behavior Skills scores were significantly inter-correlated. The IMB Retention in HIV Care measure is currently being used to evaluate the impact of a re-engagement and retention in care intervention targeting the IMB constructs.

421 A Brief Provider Survey to Characterize Retention and Adherence Standard of Care Support for Patients in HIV Care

K Rivet Amico[1] (presenting), Riddhi Modi[2], Carol Golin[3], Laramie Smith[4], Jeanne Keruly[5], Evelyn Quinlivan[3], Heidi Crane[7], Katya Roytburd[3], Solonge Montue[5], Rob Fredericksen[6], Anne Zinski[2], Michael Mugavero[2]

[1] University of Connecticut, Brighton, MI, USA
[2] University of Alabama at Birmingham, Birmingham, AL, USA
[3] University of North Carolina at Chapel Hill, Chapel Hill, NC, USA
[4] University of California San Diego, CA, USA
[5] Johns Hopkins University, School of Medicine, Baltimore, MD, USA
[6] University of Washington, Seattle, WA, USA

Background: Current standards of care (SOC) for optimizing engagement in HIV-care (retention and adherence) in the United States are not well characterized, and measures that document the SOC strategies, services, and programs in a given clinic are needed. In preparation for a large randomized controlled trial of an intervention to promote engagement among HIV care initiators, we developed a web-delivered survey, guided by international evidence informed practice guidelines, to document pre-intervention SOC.

Methodology: A diverse expert panel constructed a measure of current strategies used to promote engagement in HIV care among new, established, and antiretroviral therapy (ART) initiating patients. The SOC survey was offered to providers at 4 large HIV outpatient clinics in the United States.

Results: Sixty-two providers completed the survey (median 15 minutes). Most providers (85%) reported delivering basic patient education to new-to-care patients; while 8% reported material being covered by other staff. Educational content was heterogeneous, although nearly all incorporate viral load, CD4 count, and medications, and 56% asked about barriers to coming into care visits. Information was largely delivered via verbal discussion (100%), with some (34%) also using visual aids (pictures, videos). 56% discuss substance use within a harm reduction framework and 51% inquire about safer-sex practices at each visit. For patients on ART, 87% ask patients to estimate their adherence, 66% ask about specific adherence barriers, while only 28% ask about facilitators, and 11% reported not asking about adherence unless there is a suspected problem. Feedback from clinic databases alerting providers to potential adherence or retention problems with their patients was reported by <30%.

Conclusions: Evaluation of SOC engagement practices across 4 HIV clinical care sites demonstrated both consistency and heterogeneity of provider practices. Potential opportunities to enhance service delivery include incorporating visual aids, gauging facilitators of engagement and adherence, and enhancing active monitoring of patients at increased risk.

422 Utilizing Community-Based Surveillance Data to Explore Levels of Engagement in Care across the HIV Treatment Cascade in Tijuana, Mexico

Laramie Smith[1] (presenting), Thomas Patterson[1], Carlos Magis-Rodriguez[2], Victoria Ojeda[1], Jose Luis Burgos[1], Sarah Rojas[1], María Luisa Zúñiga[3], Steffanie Strathdee[1]

[1] University of California, San Diego, CA, USA
[2] Centro Nacional para la Prevención y el Control del VIH y el SIDA, Mexico City, Federal District, Mexico
[3] San Diego State University, San Diego, CA, USA

Background: Tijuana is a major Mexico-US border city where migration, deportation, drug use and sex tourism contribute to a local HIV prevalence that is 2.6 times higher than the general population, concentrated among persons who inject drugs (PWID), female sex workers (FSW), and men who have sex with men (MSM). However, little is known about the state of engagement in HIV-care among these high-risk populations.

Methods: We pooled available epidemiological data from 6 community-based studies (N = 3,668, 191 were HIV+) to examine the proportion of individuals retained across the HIV-care continuum.

Results: Overall, HIV prevalence averaged 5.2%, ranging from 3.0% among indigent/high-risk persons seeking primary care services at a community clinic to 4.6% among PWID, 5.0% among FSW and 17.4% among MSM who were identified via respondent driven sampling (RDS). Among HIV+ persons in these community samples (N = 191), 47.6% reported ever having previously been tested for HIV. Of those who had ever tested, 24.2% knew their HIV+ status, 95.5% of which reported initiating HIV-care post-diagnosis (i.e., linked). Of those linked to care, 33.3% reported they were currently receiving ART, meaning only 3.7% of all identified HIV+ persons were on active treatment. Observed differences suggest women less frequently knew they were HIV+ (p =.02). MSM were more likely to have had a previous HIV test than non-MSM (p =.01), whereas PWIDs were less likely to have previously tested for HIV compared to non-PWIDs (p =.00); neither group was more likely to know their status. Participants accessing primary-care services were both more likely to have had a previous HIV-test (p =.04) and to know they were seropositive (p =.00) than the RDS community samples.

Conclusions: Findings suggest community-based surveillance methods may help to identify HIV+ persons not retained in the HIV care continuum in Tijuana. Integrating test-and-treat interventions within such methods may increase routine testing and subsequent ART uptake.

423 The Depression Treatment Gap among HIV-Infected Patients in Routine HIV Care in a US Clinical Cohort

Rushina Cholera[1] **(presenting)**, Brian Pence[2], Heidi Crane[3], Riddhi Modi[4], Rob Fredericksen[3], Michael Mugavero[4]

[1] University of North Carolina Gillings School of Global Public Health, Chapel Hill, NC, USA
[2] University of North Carolina at Chapel Hill, Chapel Hill, NC, USA
[3] University of Washington, Seattle, WA, USA
[4] University of Alabama at Birmingham, Birmingham, AL, USA

Background: Depression affects 20-30% of HIV-infected patients, and has been associated with reduced antiretroviral adherence and poor health outcomes. Although effective depression treatment is available, up to 95% of HIV-infected depressed patients nationally are either untreated or undertreated (i.e., fail to achieve remission). We quantified the depression treatment gap among HIV-infected patients in the nationally distributed US CNICS observational HIV clinical cohort.

Methods: The CNICS cohort combines detailed clinical data with regular, self-reported depressive severity assessments using Patient Health Questionnaire-9 (PHQ-9). HIV-infected patients who newly entered HIV medical care at a CNICS site from 2004-2013 and had a PHQ-9 assessment within 6 months of entering care were included.

Results: 1,884 patients at 6 study sites were eligible (mean age = 45, 88% male, 48% White, 28% Black, 19% Hispanic). 703 participants (37%) either started anti-depressants (ADs) prior to PHQ-9 screening (n = 238) or scored ≥10 (indicating likely major depression) on the PHQ-9 (n = 465). Of 465 depressed AD-naïve participants, 17% (n = 79) initiated ADs within 1 month and 29% (n = 133) within 6 months. Among 133 participants who started ADs within 6 months and had a repeat PHQ-9 assessment within 12 months (n = 86), 14 (16%) achieved depression remission (PHQ-9 score 0-4) and 33 (38%) had a score <10. Of 320 participants who had a high PHQ-9 score but did not initiate ADs and had a repeat PHQ-9 screening within 12 months (n = 179), 39 (22%) achieved remission and 88 (49%) scored <10.

Conclusions: Over one-third of patients entering the CNICS cohort had an indication for depression treatment, and about one-third of those received treatment. Remission rates were similar among depressed patients who did and did not initiate ADs, suggesting clinicians may be distinguishing patients who might benefit most from ADs. Regardless of AD treatment, nearly 80% of all depressed patients did not achieve remission within 12 months.

424 Attributes of Effective Patient-Reported Medication Adherence Measures across Diseases for Use with Patients with Chronic Co-Morbidities

Rob Fredericksen[1] **(presenting)**, Anna Harrington[1], Matthew Jackson[1], Anna Church[1], Susan Yount[2], Elizabeth Hahn[2], Sofia Garcia[2], Mimiaga Matthew[3], Honghu Liu[4], Jane Simoni[5], Kenneth Mayer[6], Mari Kitahata[1], Donald Patrick[1], Heidi Crane[1]

[1] University of Washington, Seattle, WA, USA
[2] Northwestern University, Chicago, IL, USA
[3] Harvard University, Cambridge, MA, USA
[4] UCLA School of Dentistry, Los Angeles, CA, USA
[5] University of Washington, Seattle, WA, USA
[6] Fenway Community Health/Brown University, Boston, MA, USA

Introduction: Patients are increasingly accruing multiple co-morbidities for which medication adherence is key to averting illness and/or death. A practical cross-disease approach to measuring patient-reported adherence is needed. Adherence measures in routine clinical care should be clinically relevant, brief, valid, and easy to understand.

Description: In order to advance a cross-disease approach and learn from adherence work done across fields, we reviewed the most widely cited adherence items across disease categories, and identified attributes of measures likely to be useful in clinical care for aging patients with multiple co-morbidities.

Lessons Learned: Measures of self-reported medication adherence varied widely by disease with varying feasibility for use in clinical care.

- Many measures were developed initially for research, not clinical care.
- Many measures included several dimensions of adherence, including self-efficacy, side effects, reasons for stopping, and attitudes about need for medication. Brevity was rare, limiting practicality for clinical care.
- Negative focus was emphasized in content of many widely-used instruments, i.e., references to missed doses or assessing own 'carelessness.'
- "Disease-specific" adherence measures rarely differed from general adherence measures beyond cosmetic differences, i.e., insertion of name of medication class. Diabetes was the exception, often with blood glucose level items.
- Single-item and self-rating measures were most commonly used in HIV.
- Recall periods varied widely.
- Scoring systems of multi-item measures were too general/difficult to interpret, e.g., rendering results like "adherent" when not fully adherent, or "low adherence," the meaning of which may differ across medications classes.

Conclusions: Across many diseases, the lack of clinically relevant adherence measures lends support for developing generalized, brief adherence measures for use with patients with multiple chronic comorbidities, for which a patient may be able to answer for each medication class.

425 Coping Strategies among HIV-Positive Women with Depression: A Mixed-Methods Study and Its Implications for HIV Adherence Interventions

Erin Stevens[1], Corilyn Ott[2], Christina Psaros[3], Karen Cropsey[1], Robert Savage[1], Nicholas Van Wagoner[4], Steve Safren[5], **Mirjam-Colette Kempf[6] (presenting)**

[1] Department of Psychiatry, University of Alabama at Birmingham, Birmingham, AL, USA
[2] School of Nursing, University of Alabama at Birmingham, Birmingham, AL, USA
[3] Harvard Medical School, Boston, MA, USA
[4] Department of Medicine, University of Alabama at Birmingham, Birmingham, AL, USA
[5] Massachusetts General Hospital, Boston, MA, USA
[6] Nursing and Health Behavior, University of Alabama at Birmingham, Birmingham, AL, USA

Background: Among HIV-infected women, depression is strongly associated with non-adherence to antiretroviral therapy (ART) and HIV care, with prevalence of depression as high as 70%. To improve adherence, a better understanding of coping strategies with depression among HIV-infected women is necessary. The objective of the current study was to explore positive and negative coping strategies utilized by African-American (AA) women in the rural Southeast.

Methods: Ten HIV-infected AA women (M = 37 years old) with a history of depression were recruited from outpatient clinics providing services in rural Alabama counties. Participants were interviewed via telemedicine and completed self-report questionnaires assessing coping strategies (Brief COPE) and spiritual beliefs (SBI-15R). In this mixed methods study, using a convergent parallel study design, analyses were conducted using QRS NVivo 10[©] and SPSS v.21 software.

Results: Qualitative analyses revealed that the most utilized coping strategies used by participants for dealing with their HIV and depression were spirituality (i.e., faith and prayer), social support, and distractions. Additionally, while participants described spirituality as the primary coping strategy, results indicate that beliefs and practices (e.g., prayer, faith) may be more central to coping with HIV and depression among AA women in the South than the social support derived from their respective religious communities. Quantitative descriptive statistics supported qualitative findings, and suggested participants are most likely to utilize the following strategies to cope with their HIV disease and depression: Religion, Distraction, Acceptance, Positive Reframing, and Planning. The least utilized coping strategies reported were Behavioral Disengagement, Humor, and Substance Use.

Conclusions: Findings from the current study highlight strategies which may be important in the development of depression treatment strategies for HIV-infected AA women, a population that historically reports difficulties in engaging in depression treatment. Implications of these findings for evidenced-based treatment of HIV care adherence and depression will be discussed.

426 HIV Risk Perception among MSM is Driven by Relationships and Intimacy: Implications for PrEP, TasP, and Other Prevention Strategies

Sarit Golub[1] (presenting), Kristi Gamarel[1], Inna Saboshchuk[1]

[1] Hunter College, CUNY, New York, NY, USA

Background: Almost all theories of health behavior and behavior change focus on the importance of risk perception as a critical motivating factor. HIV prevention messages focus on risks associated with condomless sex and multiple partners, but few have incorporated recent findings regarding the high percentage of men who have sex with men (MSM) who contract HIV from their main partner.

Methods: Data were drawn from a larger NIH-funded study of PrEP acceptability. 107 high risk (≥1 unprotected anal (UA) sex act in the past 30 days) MSM (38% Black, 17% Latino) completed detailed sexual risk data and reported their perceived HIV risk, motivations for and against condom use, and interest in taking PrEP. Participants were also asked to indicate the percent of their daily life stress attributable to HIV-risk concerns.

Results: 81% of participants reported stress related to HIV-risk; however over 40% reported that HIV concern represented less than 5% of their daily stress. Risk behavior (i.e., number of UA sex acts or number of partners) did not predict HIV concern; the only significant predictor was relationship status, such that those with main partners were more than twice as likely to report low HIV concern (p <.001), and perceived themselves at significantly lower HIV risk (p <.01). In a multivariate model, intimacy motivations for condomless sex significant predicted PrEP acceptability for those with main partners (aOR = 1.63, 95%CI: 1.06, 2.52, p < 0.05), but not for those without main partners.

Conclusions: High-risk MSM appear to base personalized risk perception on relationship factors rather than objective risk behavior. MSM may underestimate HIV risk associated with main partners, but may seek PrEP in an effort to maximize their potential for intimacy with these partners. Effective prevention programs must recognize relationship and intimacy factors as critical elements in the sexual lives of MSM.

POSTER ABSTRACTS

432 Barriers to ART Adherence in Minority Groups in the United States - A Systematic Review of Intervention Research

Akesha Edwards[1] **(presenting)**, Silvia Rabionet[1]

[1] Nova Southeastern University, Fort Lauderdale, FL, USA

Background: For benefit to be derived from antiretroviral therapy (ART) there must be strict adherence to the medication. Interventions for ART adherence can range from behavioral, clinical, directly administered or even self-administered. HIV-positive patients belonging to minority groups of Caribbean descent generally have a greater issue of non-adherence to ART than those of non-minority groups. Efforts to evaluate the effect of interventions in this population are now increasing.

Methods: Electronic databases were searched during the period 8/24/13 to 12/05/13. Combinations of search terms included "HIV/AIDS, ART, HAART, adherence, minorities, ethnicity and intervention." Inclusion criteria were English language, human subjects, any form of peer reviewed/scholarly articles published between 1/1/2000 and 11/30/2013 conducted in the United States.

Results: A total of 72 abstracts from articles were reviewed after initial article extraction. Of these 45 articles were excluded because of inappropriate research question or no reporting of adherence results. In the remaining studies, interventions were either behavioral, clinical or peer based. Methods of reporting varied widely and there were many cases of incomplete data being presented. Means of measuring adherence were pill counts, visual scales, MEMS caps, refill rates, self-reporting. All interventions showed improved adherence rates during the study but there was an inability to sustain this. Adherence self-efficacy had a direct effect on adherence to ART in minority patients. Recurring barriers to adherence in this population were alcohol use, low income, low education literacy, depression, racial discrimination, lack of trust in the medical system or providers, lack of social support, being male, complicated regimens and older age.

Conclusions: Minority HIV/AIDS patients of Caribbean descent are highly vulnerable to the mal-effects of non-adherence. There is no best intervention to amend this problem, however, a combination of strategies tailored to the patient will give more reliable results.

433 Dealing with Diagnosis: Incorporating Positive Coping Strategies into a Smartphone Application for HIV Care

Colleen Laurence[1] **(presenting)**, Rebecca Dillingham[2], Erin Wispelwey[2], Erin Plews-Ogan[2], George Reynolds[3], Karen Ingersoll[2], Tabor Flickinger[2]

[1] University of Virginia School of Medicine, Charlottesville, VA, USA
[2] University of Virginia, Charlottesville, VA, USA
[3] Health Decision Technologies, Sheboygan, WI, USA

Introduction: The global, psychic, and familial distress that individuals may experience on learning they are HIV positive has repercussions not only for their HIV care, but for their health and well-being. Individuals may cope with this distress in positive and negatives ways. To address this common experience, we included several features that promote positive coping on our smartphone application (app) for rural patients. These features include a community message board, goal-setting feature, and the ability to track stress and mood.

Description: Audiotaped, semi-structured individual interviews were conducted with 17 PLWH in rural southwest Virginia from June to August 2013. Participants were asked about their process of coping with and initiating HIV care after diagnosis as well as how a smartphone application might support individuals to link to and engage in care. These interviews were transcribed and coded, and key messages from them incorporated into app design.

Lessons Learned: HIV-positive patients relied on diverse coping strategies that were historically situated and shaped by place and existing sources of support on learning of their diagnosis. Participants diagnosed in the pre- and early HAART era reported seeking out information and acceptance in support groups. Participants diagnosed more recently did not note engaging in support groups and instead sought support from friends, family members, and providers. Participants noted that these support systems reminded them that they were not defined by their HIV diagnosis, which provided some emotional comfort. Speaking with people living with HIV also provided concrete information and a visual reminder that they can live successfully with HIV.

Recommendations: The impact of this app in enabling newly-diagnosed patients to engage in positive coping strategies will be assessed through a 3-week usability interview and a final interview as well as app metadata. Participants also complete the Brief COPE scale at baseline and endline.

434 Motivators and Concerns for Adopting Pre-Exposure Prophylaxis in Men Who Have Sex with Men Using Mobile Dating 'Apps' in New York City

Viraj Patel[1] **(presenting)**, Sherry Estabrook[2], Kimberleigh Smith[2], Sarit Golub[3]

[1] Montefiore Medical Center; Albert Einstein College of Medicine, Bronx, NY, USA
[2] Harlem United Community AIDS Center, New York, NY, USA
[3] Hunter College, CUNY, New York, NY, USA

Background: To inform pre-exposure prophylaxis (PrEP) uptake interventions, we conducted a survey on mobile dating applications to assess concerns about and potential reasons for taking PrEP in men who have sex with men (MSM) in New York City.

Methods: Cross-sectional survey administered on 2 MSM-specific mobile dating applications to HIV-uninfected men having had anal sex in past 12 months, living in New York City, and considering using PrEP (n = 693). Participants self-reported demographics, condom use, last HIV test, and number of partners. Likert scales were used to rate each of 10 concerns about and 6 potential motivators for using PrEP (identified from prior research) and calculated frequencies after dichotomizing Likert scale responses.

Results: Participants were on average 32 years old, 59% had a college degree or higher, 54% made under $50,000/year; 31% were Hispanic and 21% Black. The men had a median of 5 partners in past 6 months, 34.9% did not use condoms at last intercourse, 73.3% had an HIV test in the past 6 months, and 75.3% were not in a relationship. Most highly endorsed concerns about using PrEP were cost (84%), side effects (82%), not being effective enough (73%), getting PrEP from a convenient doctor (65%), how to talk to your doctor about PrEP (44%), and how to talk to a partner about being on PrEP (44%). All potential motivators to use PrEP were highly endorsed: decreased risk of contracting HIV (96%), increased sense of control over sexual health (91%), decreased anxiety about HIV (89%), increased comfort in talking to a partner about HIV risk (79%), increased intimacy with a sexual partner (77%), and increased sexual pleasure (75%). In exploratory analysis, overall results did not significantly vary by race, age, and risk behaviors, but differences in specific concern and motivator items did emerge in stratified subgroup analyses.

Conclusions: Addressing concerns about and highlighting potential motivators for taking PrEP may serve as targets for PrEP dissemination interventions. Tailoring interventions to high-risk MSM subgroups by prioritizing their specific subgroup concerns and motivators may further enhance PrEP adoption.

435 Usability Evaluation of SMART Adherence System in HIV-Positive Patients

Donn Dennis[1] **(presenting)**, Lise Abrams[2], Timothy Morey[2], Richard Melker[1]

[1] Xhale, Incorporated, Gainesville, FL, USA
[2] University of Florida, Gainesville, FL, USA

Background: Measuring and monitoring adherence to highly active antiretroviral therapy (HAART) is challenging. We designed and tested a novel adherence system consisting of a mini-gas chromatograph (mGC) capable of measuring volatile metabolites (e.g., 2-butanone) in human breath after ingesting HAART drugs linked to the food additive, 2-butanol (metabolized to 2-butanone). Cell phone-uploaded HIPAA-compliant adherence data can be used to improve adherence. We conducted a pilot study in HIV-positive patients to test acceptance of the system.

Methods: After IRB approval, subjects were recruited from the Gainesville Area AIDS Project and completed 3 sequential components: 1) Training: educated to use the SMART adherence system with written instructions, set-up practice at their residence, and an investigator-monitored test to ensure ability, 2) Residential Use: in-home daily use for 10 days with the SMART system with 10-day supply of disposable straws (inserted for exhalation into mGC) and 2-butanol tagged capsules, and 3) Usability Assessment: Participant interview of their experiences using multiple-choice questions that rated the device on various dimensions, a set of open-ended questions, and follow-up elaboration.

Results: Enrollment: After informed consent, 12 adults (4F/8M; 6 white, 5 African American, 1 multiracial) aged 48.6±7.1 were recruited. Ease of Usage: 90-100% reported the device to be very easy or easy: to use, hold, lift, read LCD output, unwrap straw, remember to use. 50-89% reported that 15 min was too long from ingestion to exhalation into device and inserting the straw was difficult. System Acceptance: Although only 25% reported they would continue using the device long-term for disease management, 92% indicated they would use it in a clinical study.

Conclusions: SMART is a viable adherence system for use in HIV-positive patients. Participants provided valuable feedback on the strengths/weaknesses of the design, and identified factors that influence their acceptability of the system. Future design iterations will take this information into account.

438 Structural Factors of Adherence to HAART in St. Petersburg, Russia

Andrey Belyakov[1] **(presenting)**, Olga Levina[2], Vadim Rassokhin[3], Robert Heimer[2], Alena Suvorova[4], Andrey Ustinov[5]

[1] St. Petersburg City AIDS Center, St. Petersburg, Russian Federation
[2] Yale University, New Haven, CT, USA
[3] St. Petersburg AIDS Center, St. Petersburg, Russian Federation
[4] SPIIRAS (St. Petersburg Institute for Informatics and Automation of the Russian Academy of Sciences), St. Petersburg, Russian Federation
[5] Bekhterev Research Psychoneurological Institute, St. Petersburg, Russian Federation

Background: In the Russian Federation, medical care for citizens living with HIV is financed by the state and provided at regional AIDS Centers. Despite free highly active antiretroviral therapy (HAART), adherence is often low. St. Petersburg AIDS Center employed 2 models of HIV health care delivery: in addition to a central treatment facility, care in some districts of the city were organized through district infection disease departments (DIDD) beginning in 2012. DIDD provide basic HIV care with, theoretically, easier access and less stigmatization. The associations between structure of health care delivery and adherence to HAART have been insufficiently studied. We conducted exploratory research to compare the 2 models of care delivery, focusing on patients' outcomes.

Methods: We surveyed 347 HIV-positive patients receiving HAART in St. Petersburg (DIDD n = 143, AIDS Center n = 204). During face-to-face interviews participants answered questions about their socio-demographic characteristic, special aspects of medical care in the AIDS Center or DIDD, and self-reported adherence. We used 3 additional measures of adherence: doctors' estimate in medical charts, pharmacy refills, and virological parameters. In this exploratory study, we relaxed the significance level to p <0.1.

Results: Regression model with structural (time in lines, number of services used, time to get to the clinic) and psychosocial factors showed the influence on adherence (doctors' estimate) of such factors as clinic (negative association for AIDS Center compared with DIDD, p = 0.02), time since HAART prescribed (positive association, p = 0.05), searching for additional information about HIV (positive association, p <0.1), and living separately from the partner (negative association, p <0.1).

Conclusions: Sampling at AIDS centers and DIDDs revealed differences in structural parameters and in adherence (doctors' estimate). Choosing between AIDS Center and DIDD is an important predictor of adherence, but it can be associated with features of physicians' method of evaluation of adherence, because differences in self-reported adherence were not detected.

439 Drug Therapy Problems and Adherence amongst HIV-Positive Patients Attending a Treatment Site in Middle Belt Nigeria

Rosaline Aderemi-Williams[1] **(presenting)**, Eric Akoji[2], Patricia Ogbo[1]

[1] University of Lagos, Lagos, Nigeria
[2] General Hospital, Ankpa, Nigeria

Background: With the expansion in the accessibility of antiretroviral drugs (ARVs) in the management of people living with HIV and AIDS in resource limited environment, drug therapy problems (DTPs) can be a possible challenge. Hence the need to identify DTPs and the possible causes amongst HIV-positive patients on highly active antiretroviral Therapy (HAART).

Methods: This was a 6-month prospective study using a form designed to extract the relevant data that met the study objectives. The data collated were analyzed using descriptive statistical methods.

Results: Most (76%) of the patients affected by DTPs were females and aged more than 15 years old (73%). A total of 18 DTPs were identified. The major 5 were: unavailable prescribed medicines (30; 13.95%), undesirable effects (24; 11.16%), use of non-prescribed sedatives (23; 10.70%), use of non-prescribed antimalarial drugs (21; 9.77%) and use of herbal medicines (20; 9.30%). The major causes of the identified DTPs were: unnecessary drug therapy (59; 27.44%), non-adherence (47; 21.86%), patient needed additional therapy (36; 15.74%), and adverse drug reactions (30; 13.95%).

Conclusions: DTPs exists in this treatment center and the causes include non-adherence. There is need for continual pharmacist monitoring and intervention with other healthcare providers as part of the pharmaceutical care plan when patients come for drug refill.

442 Differences in HIV Prevalence among MSM Recruited for Testing Using Internet-Based vs. Non-Internet-Based Sources at a Community-Based Organization in Lima, Peru

Colby Passaro[1] **(presenting)**, Aaron Kipp[1], Sten Vermund[1], Connie Haley[1]

[1] Vanderbilt Institute for Global Health, Nashville, TN, USA

Background: The prevalence of HIV among men who have sex with men (MSM) in Peru is 30 times higher than in the general adult population (12.4% vs. 0.4% in 2011). It is critical for community-based organizations (CBOs) working to reduce this disparity to understand which recruitment strategies reach the highest risk persons in order to use their limited funding to maximize the impact of service delivery.

Methods: This is a cross-sectional study of adult MSM seeking HIV testing services at Epicentro Salud (Epicentro) in Lima, Peru, for the first time between April 2012 and October 2013. Chi-squared tests were used to compare HIV prevalence among MSM who found out about Epicentro via the internet or online sources of information (N = 408) and those using other sources (friends, partners, or print material) (N = 1,101).

Results: HIV prevalence was 23.5% among MSM who found out about Epicentro from online sources compared to 17.2% for other recruitment sources (p = 0.004). However, when compared to those MSM recruited through other sources, MSM recruited via online sources did not exhibit statistically significant higher sexual risk behavior, i.e., unprotected sex at last sexual encounter (43.9% vs. 41.1%, p = 0.642).

Conclusions: HIV diagnosis is the first step in the continuum of HIV care. Internet-based promotion and recruitment appears to successfully identify MSM at high risk of HIV. For CBOs working in resource-limited settings, this may be an effective strategy for tackling this important first step in the HIV care and treatment process. Ongoing analyses will attempt to explore why sexual risk factors did not differ between the 2 recruitment groups, to identify what places MSM Internet-users at high risk of HIV, and to better target prevention and testing messages.

445 Developing a Group Intervention to Improve Postpartum Retention in HIV Care: Early Lessons Learned and Implications for Future Interventions

Ramona Bhatia[1] **(presenting)**, Donna McGregor[1], Phyllis Chong[1], Sarah Sutton[1]

[1] Northwestern University, Chicago, IL, USA

Introduction: Retention in HIV care improves outcomes. In Northwestern University's Perinatal HIV Program (PHP), 38% experience poor postpartum retention. Interventions focused on retaining HIV+ pregnant women are understudied.

Description: Our objective was to develop a group intervention based on established group-learning protocols that have demonstrated high cohort retention and positive health behaviors in pregnant, non-HIV (CenteringPregnancy, CP) and HIV+ (WiLLOW) women. Initially, we met with PHP obstetricians, social workers, and nurse practitioners and CP leaders. We adapted CP and WiLLOW principles (health education, assessment, support) and materials into activities to improve retention in HIV+ women (i.e., describing the care continuum, charting viral load, and describing HIV-related social support).Women received CP-type notebooks with materials. Groups were facilitated by leaders (physicians, nurse practitioners, trained HIV+ mothers), but discussions were patient-driven. We enrolled English-speaking PHP patients at ≥20 weeks of gestation. They attended one 2-hour group of 5-7 women. Validated instruments (PHQ-9, ASES, MOS-SSS, BEHKA) were administered at baseline. The primary outcome is retention in HIV care (2 visits in the first postpartum year).

Lessons Learned: We held 3 monthly groups with 5 total participants. Mean age was 33y (±5.9), all were Black (80% immigrant), and 40% were employed. Baseline measures suggested mild depressive symptoms [PHQ-9 = 5 (±4.1)] and adequate HIV knowledge [BEHKA = 6.6 (±1.3)]. We also measured self-efficacy and social support [ASES = 84 (±48), MOS-SSS = 66 (±39)]. All participated actively and verbalized importance of postpartum retention. One hundred percent reported high satisfaction with the course, materials, and duration. Low enrollment (5/11 eligible) occurred because of self-reported schedule and transportation issues. Poor literacy hindered completing surveys for some.

Recommendations: Group interventions appear acceptable to ethnic minority HIV+ pregnant women. Enrollment is limited by structural barriers, suggesting that groups may need to be scheduled within existing appointments or better incentivized. Poor literacy limits utility of commonly used instruments.

446 Do Adherence Barriers Differ by Gender? Results of Pooled Data from MACH14

Carol Golin[1] (presenting), Yan Wang[2], Jie Shen[2], Ira Wilson[3], Judith Erlen[4], Jane Simoni[5], Marc Rosen[6], Robert Remien[7], Donna Evon[8], Honghu Liu[9]

[1] University of North Carolina at Chapel Hill, Chapel Hill, NC, USA
[2] University of California, Los Angeles, CA, USA
[3] Brown University, Providence, Rhode Island, USA
[4] University of Pittsburgh, Pittsburgh, PA, USA
[5] University of Washington, Seattle, WA, USA
[6] Yale University School of Medicine, New Haven, CT, USA
[7] HIV Center for Clinical and Behavioral Studies, New York, NY, USA
[8] University of North Carolina at Chapel Hill School of Medicine, Chapel Hill, NC, USA
[9] University of California, Los Angeles, School of Dentistry, Los Angeles, CA, USA

Background: Several studies, including analyses using data from the MACH14 collaboration, have demonstrated lower adherence among women than men. Few studies, however, have sought to determine whether factors influencing adherence differ for men and women.

Methods: MACH14 has pooled data from 16 diverse longitudinal studies with electronically measured (MEMS) adherence. We used pooled data from 10 MACH14 studies that collected, in addition to MEMS data, assessments of depression (cognitive, vegetative, and overall), substance use, and alcohol abuse. 4,213 observations from 1,762 patients were available for longitudinal analysis. We defined adherence as the percent of prescribed doses taken. We fitted Random Intercept (RI) models, adjusted for alcohol use, to check for interactions between gender and depression, and between gender and use of each of 3 substances (heroin, cocaine, other stimulants) known to be associated with worse adherence. We then examined the association between gender and adherence interaction over time, controlling for race, age, employment, education, CD4 count, and alcohol use.

Results: Thirty-four percent of the analytic sample participants were female; 49% African American, 27% Caucasian; 16% Latino, 10% other; 23% had less than a high school (HS) education, 64% had HS degrees and only 13% higher than a HS degree; mean age was 41.6 (8.2); 23% were part-time or full-time employed; median CD4 count was 306 cells/mm^3 (range 0-3029). Mean Adherence among women was 67% of prescribed doses vs. 73% for men. Multivariate mixed effects models showed that only the interaction between gender and cocaine use was significant, such that cocaine was more strongly associated with worse adherence among women than men, controlling for demographic factors.

Conclusions: Most factors associated with worse adherence that we assessed were the same for men and women, although cocaine use may be a more important barrier for women than men.

447 Implementation of an Emergency Department Opt-Out HIV Testing and Linkage to Care Program: Lessons Learned and Recommendations

Kelly Ross-Davis[1] (presenting)

[1] University of Alabama at Birmingham 1917 Clinic, Birmingham, AL, USA

Introduction: Due to the high rate of undiagnosed HIV infection, particularly among disproportionately affected populations, a standard of care, routine opt-out HIV testing strategy was implemented in our academically affiliated hospital emergency department (ED) in accordance with CDC recommendations. Emphasis has been placed on linkage to care (LTC) based on the necessity for enhancing health outcomes among newly diagnosed persons.

Description: Prior to implementing the opt-out HIV testing program in the ED, we conducted a pilot for a 72-hour period to assess the need, potential barriers, and individual acceptance of HIV testing in the ED setting. In August 2011, after considerable planning and engagement of stakeholders, the ED implemented 24-hour, opt-out routine HIV testing to all ambulatory patients ages 18-64. Concurrently, linkage coordinators were integrated in the testing program to provide assistance for HIV-diagnosed persons endeavoring to enter medical care. The linkage coordinator responds to each reported case within 1-2 days of diagnosis. Preliminary contact includes counseling to support mental and emotional concerns, and assistance with navigating the healthcare system, scheduling a linkage visit, and new patient orientation.

Lessons Learned: The national LTC goal is to ensure that 85% of patients attend an initial medical provider visit within 90 days of diagnosis. Initial face-to-face contact with the linkage coordinator after new HIV diagnosis at the ED allows for a more active role in patient care and personal connection to follow-up resources. Improved communication with ED personnel, collaboration with community resources, ARTAS training, and an added linkage coordinator were essential to serving a diverse and complex population seeking medical care but not anticipating an HIV diagnosis. Linkage to care in 90 days increased from 45% in 2011-2012 to 71% in 2013.

Recommendations: We successfully implemented a routine, opt-out ED-based HIV testing program coupled with linkage to care activities. Extensive planning, piloting and collaboration of a range of partners was essential for our program's success in offering routine testing and optimizing linkage. Future strategies will include identifying and empowering newly diagnosed patients ambivalent to HIV care and connecting to a broader range of community resources.

450 Still a Hard-to-Reach Population? Using Social Media to Recruit Latino Gay Couples for an HIV Prevention Intervention Study

Omar Martinez[1] (presenting), Elwin Wu[2], Theo Sandfort[1], Brian Dodge[3], Zach Shultz[1], Jonathan Capote[4], Hugo Ovejero[5], Alex Carballo-Dieguez[1], Silvia Chavez-Baray[6], Eva Moya[6], Juan DelaCruz[7], Antonio Porras[8]

[1] HIV Center for Clinical and Behavioral Studies at the New York State Psychiatric Institute and Columbia University, New York, NY, USA
[2] Columbia University School of Social Work, New York, NY, USA
[3] Indiana University Bloomington School of Public Health, Bloomington, IN, USA
[4] AID for AIDS International, New York, NY, USA
[5] Latino Commission on AIDS, New York, NY, USA
[6] University of Texas, El Paso, El Paso, TX, USA
[7] Lehman College, New York, NY, USA
[8] Community Activist, New York, NY, USA

Background: Online social networking use has increased rapidly among African-American and Latino men who have sex with men (MSM), making it important to understand how these technologies could be used to reach, retain, and maintain individuals in care and promote health wellness. In particular, the Internet is increasingly recognized as a platform for health communication and education. However, little is known about the use of online social networking among primarily Spanish-speaking populations and how these populations engage with social media platforms.

Methods: Our project aimed to adapt *"Connect n' Unite,"* an HIV prevention intervention initially created for Black gay couples, for Spanish-speaking Latino gay couples living in New York City. In order to successfully design and implement an effective social media recruitment campaign to reach Spanish-speaking Latino gay couples for our ongoing "*Latinos en Pareja*" study, our community stakeholders and research team used McGuire's communication/persuasion matrix (1985). The matrix guided our evaluation, paying particular attention to each marketing "channel," targeted "messages," and target population or "receiver."

Results: We developed a social media recruitment protocol and trained our research staff and stakeholders to conduct social media recruitment. As a result, in just 1 month, we recruited all of our subjects (N = 14 couples, N = 28 participants) and reached more than 3,000 participants through different channels. One of the major successes of our social media recruitment campaign was to build a strong stakeholder base that became involved early on in all aspects of the research process-from pilot project writing and development to recruitment and retention. In addition, the variety of "messages" used across many different social media platforms (including Facebook, the project website, Craigslist, and various smart phone applications such as Grindr, Scruff, and Jack'd) helped recruit Latino gay couples. We also relied on a wide range of community-based organizations in New York City to promote the project and all the social media components built into it.

Conclusions: Our findings highlight the importance of incorporating communication technologies into recruitment and engagement of participants in HIV interventions. Particularly, the success of our social media recruitment strategy with Spanish-speaking Latino MSM shows that this population is not particularly "hard-to-reach," as it is often characterized within public health literature.

452 Factors Influencing on Adherence to Antiretroviral Treatment for People Living with HIV in Nepal

Sharada Wasti[1] (presenting), Padam Simkhada[2], Edwin Teijlingen[3]

[1] FHI 360 Nepal, Kathmandu, Nepal
[2] University of Sheffield, Sheffield, United Kingdom
[3] Bournemouth University, Bournemouth, United Kingdom

Background: Antiretroviral therapy (ART) is a lifesaver for individual patients treated for HIV/ AIDS and maintaining optimal adherence to ART is essential for HIV infection management. This study aimed to understand the factors influencing on adherence to ART in Nepal.

Methods: A quantitative study surveying 330 ART-prescribed patients in early 2010. Adherence was assessed through survey self-reporting. A multivariate logistic regression model was used to identify factors associated with adherence to ART.

Results: A total of 282 (85.5%) respondents reported complete adherence, i.e. no missed doses in the 4-weeks prior to interview. Major factors influencing adherence were: non-disclosure of HIV status (OR = 17.99, p = 0.014); alcohol use (OR = 12.89, p = <0.001), being female (OR= 6.91, p = 0.001), being illiterate (OR = 4.58, p = 0.015), side-effects (OR = 6.04, p = 0.025), ART started <24 months duration (OR = 3.18, p = 0.009), travel time to hospital >1 hour (OR = 2.84, p = 0.035).

Conclusions: Improving adherence requires a supportive environment; accessible treatment; clear instruction about regimens; and regimens tailored to individual patients' lifestyles. Healthcare workers should address some of the practical and cultural issues around ART while policy-makers should develop appropriate social policy to promote adherence in Nepal.

POSTER ABSTRACTS

453 A Qualitative Study of Antiretroviral Treatment Adherence amongst Adolescents and Young Adults in Soweto, South Africa

Fatima Laher[1], Stefanie Hornschuh[1], **Matamela Makongoza[1] (presenting)**, Janan Dietrich[1]

[1] Perinatal HIV Research Unit, Soweto, Gauteng, South Africa

Background: HIV management of adolescents and young adults (AYAs) is pertinent to sub-Saharan Africa, which has the highest pediatric HIV incidence. Antiretroviral treatment (ART) adherence is a challenge for AYAs. This qualitative study explored factors of ART adherence among AYAs attending treatment at the Perinatal HIV Research Unit, Soweto, South Africa.

Methods: Four focus group discussions were conducted with HIV-positive 15 to 25-year old ART-recipients who provided consent/assent. Transcripts were coded using thematic analysis.

Results: Participants (n = 18) were aged median 18.5 years, 72% female and 67% virally suppressed <400copies/mL. Three main themes emerged: (i) correct knowledge and perceptions about adherence, (ii) social, personal and medication-related reasons for suboptimal adherence and (iii) reminder, concealment and motivational strategies to optimize adherence. (i) Most participants stated that counsellors and doctors taught them why and how medication should be taken. Strict dosing time and interval observance was emphasized. Adherence was perceived with health, a healthy lifestyle and longevity. Many described viral resistance as the consequence of non-adherence. One participant experienced non-adherence resulting hospitalization. (ii) Nearly all participants denied desire for or actual non-adherence but easily speculated on perceived adherence barriers, including personal (forgetting while being busy, not understanding the rationale of ART, self-pity and denial), social (being embarrassed to take medication publicly) and medication-related (tedium of daily dosing, large pill size, unpleasant smell and taste. (iii) Alarms, family members and friends were mentioned as reminder methods. Many family members and friends were aware of participants HIV status. Strategies to conceal medication were wrapping pills in paper, using excuses at dosing times like buying cell phone airtime, do homework or use the bathroom. Some participants developed motivational messages for adherence, namely the desire to grow up and have a future. Children were also their motivation.

Conclusions: HIV-positive AYAs in our study understood and aimed for ART adherence motivated by the desire for longevity.

454 Maximal HIV Adherence/ Engagement Given Minimal Mental Health Resources: Lessons Learned from China

Jane Simoni[1] (presenting), Wei-ti Chen[2], Cheenghee Shiu[1], Hongxin Zhao[3], Hongzhou Lu[4]

[1] University of Washington, Seattle, WA, USA
[2] Yale University, New Haven, CT, USA
[3] Ditan Hospital, Beijing, China
[4] SPHCC & Fudan, Beijing, China

Introduction: PLWHA experience disproportionate levels of psychiatric illness and distress, with 1 meta-analysis indicating major depression was twice as prevalent in PLWHA as the rest of the population. Psychiatric distress causes serious barriers to optimal HIV medication adherence and engagement in ongoing care. Given the dearth of specially trained mental health professionals in low- and middle-income countries (e.g., in China there are just 17,000 licensed psychiatrists, yielding a per capita rate of approximately 1 psychiatrist for every 80,000 people), alternative means of providing comprehensive care to optimize clinical outcomes are urgently needed.

Description: We will overview our experience during the last decade working in urban areas in China. Multiple NIH-funded surveys and randomized trials will be described, citing the need for assistance and the potential relevance of cognitive behavioral strategies. Preliminary (unpublished) data collected on pilot projects will be highlighted. Specific projects include an R34-funded RCT of nurse-facilitated adherence counseling in Beijing, an R21-funded parental HIV disclosure intervention in Shanghai, and a K24-funded project on computer-based counseling.

Lessons Learned: Two themes based on our findings and reflected in our current research program aims are (1) the need for task shifting/sharing away from highly trained mental health personnel to more readily available and receptive personnel such as nurses and (2) the potential for digital technology in the form of computer-based based programs to supplement mental health services in primary HIV care.

Recommendations: In conjunction with public health officials and primary HIV care providers, forging alliances with nurses, social workers, as well as paraprofessionals is crucial to expanding access to mental health care for PLWHA. Developing credentialed training programs - in person or computer-based - constitutes an important first step.

455 Use of Peer Support to Link to and Retain in HIV Care People Who Inject Drugs

John Lizcano[1] **(presenting)**, Eva Muluve[2], Ann Kurth[1], Charles Cleland[1], Peter Cherutich[2]

[1] New York University, New York, NY, USA
[2] Ministry of Health Kenya, Nairobi, Kenya

Introduction: Peer support is effective for HIV treatment access in low-income settings, though it has not been widely applied to people who inject drugs (PWID) support specifically in sub-Saharan Africa.

Description: We used peer support to link clinically eligible HIV-infected (CD4 <350cells/μL) PWID in Nairobi and Coastal Mombasa, Kenya, to HIV care and retain them. Peer case managers (PCM) were selected from a pool of recovered PWID who showed leadership and trust through working with other active PWID. Some PCM are HIV-positive and on ART. PCM support HIV-positive, clinically eligible study participants to connect to a study-participating HIV clinic and initiate ART. PCM follow-up with eligible participants to ensure appropriate treatment, help address barriers, and facilitate any needed referrals. A small conditional cash transfer is given to the PCM for every eligible participant who is confirmed by confidential clinic study logs to have initiated ART, and to every participant, in form of goods, when adherent for at least 6 months.

Lessons Learned: Use of PCM to link clinically eligible HIV-infected (CD4 <350cells/μL) PWID in Nairobi and Coastal Mombasa, Kenya to ART, has been very helpful. The relationships built among the PCM, the HIV-positive PWID, and the HIV clinic staff have made linking to care significantly easier and have reduced discrimination towards PWID. At this first intervention site, 21 participants were clinically eligible to initiate ART and were assigned to a PCM. Of those, 19 initiated ART, 9 successfully continued on ART, 6 stopped taking ART, 2 were incarcerated, and 2 died. Most who stopped had other priorities and no time for ART.

Recommendations: PCM can facilitate linkage of clinically eligible HIV-positive PWID to ART at participating HIV clinics, where the study helped create PWID-specific services. PCM can support prevention with positives, including ART initiation, continuation, and adherence as well as retention in care.

457 Adherence-Enhancing Program and Retention in Care in the Swiss Cohort

Marie Paule Schneider[1] **(presenting)**, Aurelie Rotzinger[1], Delphine Maestralli[2], Olivier Bugnon[1], Matthias Cavassini[3], JJ Parienti[4]

[1] Community Pharmacy, Department of Ambulatory Care & Community Medicine, University of Lausanne, Lausanne, Switzerland
[2] Lausanne, Switzerland
[3] Infectious Disease Service, CHUV, University of Lausanne, Lausanne, Switzerland
[4] Centre Hospitalier Universitaire de Caen, Caen, Normandy, France

Background: Retention in HIV care predicts subsequent retention and predicts survival. Our objective was to investigate if an adherence-enhancing program is associated with a better retention in care.

Methods: We conducted a retrospective cohort study in a single center of the Swiss HIV Cohort Study (SHCS). Within this cohort (430 HIV-infected patients receiving antiretroviral therapy), 200 subjects attended the adherence enhancing program for >6 months. The adherence enhancing program was an interdisciplinary program combining motivational interview, electronic pill container, and interaction with pharmaceutical and medical teams. Subjects who missed appointment were called back (2 phone calls, 1 letter). The primary and secondary endpoint were defined as a >12-month (Lost12) and >6-month (Lost6) interval without any registered SHCS visit, respectively.

Results: The mean (SD) follow-up was 3.9 years (0.12); male 63.4%; age, 43 (11%); African 33.3%; baseline CD4 cells 291 (198). In the intervention group 9/200 (4.5%) were Lost12 vs. 15/230 (6.5%) in the control group (p = 0.37). HCV co-infected patients were more likely to be Lost12 (7/64 (10.9%) vs. 19/352 (5.4%), p = 0.10). In the intervention group 72/200 (37.5%) were Lost6 vs. 120/230 (62.5%) in the control group (p <0.001). This difference remained statistically significant after adjusting for age, sex, race and CD4 cells at baseline for the Lost6 outcome. At the end of the follow-up, 160/198 (80.8%) had a HIV RNA<50 cp/mL in the intervention group (vs. 179/227 (78.8%) among controls, p = 0.63).

Conclusions: In the SHCS, our intervention was not associated with Lost12 or HIV RNA. In this context, efforts and resources invested in an antiretroviral adherence program have the potential to limit Lost6 gaps in scheduled visits and potentially patients' safety regarding antiretroviral toxicity.

460 Explaining Pre-Exposure Prophylaxis Efficacy: A Qualitative Study of Message Comprehension and Messaging Preferences among Men Who Have Sex with Men and Male Sex Workers in the United States

Kristen Underhill[1] (presenting), Kathleen Morrow[2], Don Operario[3], Kenneth Mayer[4]

[1] Yale University, New Haven, CT, USA
[2] Miriam Hospital/Brown Medical School, Providence, RI, USA
[3] Brown University, Providence, RI, USA
[4] Harvard, Boston, MA, USA

Background: Oral pre-exposure prophylaxis (PrEP) can be an acceptable HIV prevention strategy for US men who have sex with men (MSM) and male sex workers (MSWs). Clinicians prescribing PrEP must educate users about drug efficacy, but little is known about how men may understand and apply efficacy information. We used focus groups and individual interviews to explore message comprehension and message framing preferences for communicating about PrEP efficacy with MSM and MSWs.

Methods: We conducted 8 focus groups (n = 38) and 54 individual interviews with MSM and MSWs in Providence, RI; 47 of the 92 participants were MSWs. Participants were English-speaking male adults who self-reported negative/unknown HIV status and recent unprotected anal sex with a potentially serodiscordant male partner. Participants received basic information about PrEP. Groups discussed comprehension, credibility, and acceptability of efficacy messages, including success-based framing, failure-based framing, comparisons with efficacy of other prevention methods, and paraphrasing efficacy (e.g., "PrEP is usually/highly effective").

Results: Findings indicated a range of comprehension and operational understandings of efficacy messages. Across MSM and MSWs, men tended to prefer percentage-based messages, reporting that paraphrased messages may lack credibility or reduce willingness to use PrEP. Numerical translations of paraphrased information varied, with men guessing efficacy estimates of 50-90% for a "usually effective" drug, 90% or above for a "highly effective" drug, and failure rates of 10-60% for a drug that "sometimes fails." Preferences varied for communicating about efficacy using a single percentage vs. a percentage range. Men reported uncertainty about how to interpret numerical estimates, and concern about whether estimates would predict personal effectiveness. Men also preferred success-based (or dual success- and failure-based) messages to failure-based messaging alone, particularly when doctors were messengers.

Conclusions: Providers involved in PrEP education, outreach, and prescription may face challenges in communicating with potential users about drug efficacy. Findings suggest that efforts to educate MSM and MSWs about PrEP should incorporate percentage-based information, but that message framing may influence credibility and overall PrEP acceptability.

461 Association between Engagement in Substance Abuse and Mental Health Services among Recently Incarcerated HIV-Positive Individuals and Medication Adherence/Viral Load: Early Findings from imPACT (Individuals Motivating to Participate in Adherence/Care/Tx)

Carol Golin[1] (presenting), Jessica Carda-Auten[2], Jennifer Groves[3], Michelle Gould[4], Kevin Knight[4], Patrick Flynn[4], David Wohl[2]

[1] University of North Carolina at Chapel Hill, NC, USA
[2] University of North Carolina at Chapel Hill, School of Medicine, Chapel Hill, NC, USA
[3] University of North Carolina, Sheps Center for Health Services Research, Chapel Hill, NC, USA
[4] Texas Christian University, Dallas, TX, USA

Background: HIV-infected inmates re-entering communities face many challenges to antiretroviral adherence, often compounded by mental health (MH) and/or substance abuse (SA) problems. We sought to assess, among recently released HIV-infected prisoners, the prevalence of SA/MH problems and SA/MH services utilization (SU), and the association of MH/SA SU and adherence and viral load.

Methods: The impact (Individuals Motivating to Participate in Adherence/Care/Tx) trial evaluates a new model for improving HIV-infected prison releasees' adherence to HIV care. 154 participants have completed week 14 of the study to date. We collected survey data at 2, 6, 14 weeks post-release to assess, among other topics, MH (Kessler's Psychological Distress Scale (K10) at weeks 2), SA (modified AUDIT and standardized drug use scales), service utilization (SU) (time-line follow-back), self-reported antiretroviral adherence (visual analogue scale), and blood for viral load(VL). We dichotomized the drug use scores to indicate presence or absence of SA problems corresponding to DSM drug dependence diagnosis or injection drug use. We dichotomized MH scores as with or without "high or very high" psychological distress. We compared participants with MH/SA needs with and without SU regarding their 14 week adherence and VL.

Results: Among the 154 participants completing week 14 of imPACT [mean age 42; 21% Female; 69% African American, 23% Caucasian, 8% other; 5% Latino; 42% with < HS education], 25% reported an SA problem, 18% reported "high/very high" psychological distress, and 38% report *either* a SA problem and/or "high/very high" psychological distress (SA/MH). Of 58 participants reporting SA/MH problem, 26% reported SU. Mean adherence and VL at 24 weeks for those with and without SU, respectively, were (92% vs. 83%; p = 0.15; and 8,663 vs. 21,640 copies/mL; p = 0.37).

Conclusions: HIV infected former prisoners with SA and/or MH needs who access SA/MH services may trend toward higher adherence compared with those who do not access such services.

462 Will High-Risk Women Use Pre-Exposure Prophylaxis Effectively? Exploring Attitudes and Concerns about Pre-Exposure Prophylaxis among Transgender Women, Sex Workers, and Women Using Illegal Drugs

Anna Forbes[1], **Dazon Dixon Diallo**[2] **(presenting)**

[1] US Women and PrEP Working Group, Kensington, MD, USA
[2] Sister Love, Atlanta, GA, USA

Introduction: Clinical trials to date have produced widely varying results in terms of women's adherence to daily PrEP regimens. The US Women and PrEP Working Group is a national advocacy coalition addressing issues that shape pre-exposure prophylaxis' (PrEP) introduction and effective use domestically, with particular attention to those affecting its accessibility and utility to women at highest risk of HIV.

Description: In the absence of formal research on this, the Working Group conducted Community Dialogues and informally surveyed 85 women in 6 US cities who self-identified as transgender, sex workers, and/or users of illegal drugs. While not scientifically rigorous, this survey highlighted common themes among women at risk - including their levels of interest and awareness, thoughts about adherence and pragmatic issues that PrEP might raise in their own lives.

Lessons Learned: Most were unaware of PrEP as an HIV prevention option. After learning about it, 65% said they might try PrEP. Concerns about it focused primarily on cost, access, and side effects. Other areas included the ability to be adherent, the level of protection provided, and the risk of being forced to take PrEP by partners or customers intent on avoiding condom use. Questions about potential drug interactions with contraceptives, hormones taken by transgender women and/or recreational drugs were also raised.

Recommendations: The history of female condom uptake in the United States demonstrates that introduction of a new prevention tool must include both extensive provider education and active provider and community involvement to be successful. Research to inform PrEP introduction among women is needed, including multiple, well-designed demonstration projects enrolling women and qualitative research specifically exploring women's needs. This informal survey process highlighted issues that need further investigation. Such research is essential to the design of PrEP introduction strategies capable of meeting women's needs and promoting adherence among US women who use PrEP.

463 Concealment of Medication Taking and Adherence Strategies in Young Black HIV-Positive Men who Have Sex with Men

Matthew Riccio[1], **Gertraud Stadler**[2] **(presenting)**, Efe Kakpovbia[1], James Griffin[3], Emily Cherenack[1], Ellen Hada[1], Patrick Wilson[1]

[1] Columbia University, New York, NY, USA
[2] Columbia University Mailman School of Public Health, New York, NY, USA
[3] Fordham University, Bronx, NY, USA

Background: Medication adherence presents a considerable challenge for HIV-positive Black men who have sex with men (BMSM). With multiple stigmatized identities (race, sexual orientation, HIV status) and high infection rates, there is an urgent need for a more nuanced understanding of the mechanisms underlying low medication adherence rates in HIV+ BMSM.

Methods: In-depth, semi-structured qualitative interviews were conducted with fifteen HIV-positive BMSM aged 18-30 years old on highly active antiretroviral therapy (HAART) medication therapy in New York City. Participants were asked questions regarding daily adherence behaviors, medication storage methods, support sources, and adherence strategies. Interviews were recorded, transcribed, and coded. Data were analyzed within and across cases to explore issues related to adherence.

Results: Less than 10% of participants reported full-disclosure to family, friends, and colleagues, while 93% of participants mentioned the need to take medication in private as a potential barrier to adherence. All participants mentioned social support and/or strong rapport with a provider as reason(s) for higher adherence rates. In cases where men did not disclose HIV status socially, having a good relationship with their provider facilitated adherence, while poor provider rapport increased the risk for non-adherence. Several participants also noted creative strategies to ensure adherence while concealing medication intake, including storing medication in breath-mint containers for discrete carrying, and keeping medication bottles behind a regularly used coffee mug in the kitchen cabinet, behind a toothbrush container, and in a bed pillow.

Conclusions: Participants had low HIV disclosure rates and high medication concealment, both at home and in public/social environments, amplifying the risk for non-adherence. Successful adherers noted social/familial support, strong provider rapport, and self-developed creative strategies for private medication taking as facilitators for medication adherence. Ultimately, this research represents the first part of a multi-phase intervention study aimed at increasing medication compliance among HIV-positive BMSM.

POSTER ABSTRACTS

464 Peer Patient Navigation within a HIV Primary Care Setting: Outcomes and Implementation

Susan Ryerson Espino[1], Allison Precht[2], **Marisol Gonzalez**[1] **(presenting)**

[1] The CORE Center, Chicago, IL, USA
[2] The Ruth M. Rothstein CORE Center, Chicago, IL, USA

Background: Research examining the efficacy, design and implementation of peer-based HIV linkage and retention components is growing. Reviews suggest that peer-based programs across a variety of substantive fields can have significant effect on attitudes, knowledge and intentions but have been found to have mixed or limited impact on health-related behavior and clinical outcomes (Medley et al 2009, Tolli 2009; Simoni et al 2011; Webel et al 2010). Further, additional studies are needed that examine the nuances of intervention development and implementation. This paper contributes to this growing literature by focusing on both clinical outcomes and factors that facilitated and challenged the development of a HIV peer-based intervention fostering linkage and retention in a HIV primary care setting.

Methods: Over 300 women of color were enrolled in a HRSA SPNS initiative for at least 12 months aimed at increasing linkage and retention through Peer Patient Navigation. To be eligible for the intervention women were either lost to care, sporadically engaged or newly diagnosed at baseline. The local evaluation included survey interviews at baseline, 6 and 12 months.

Results: Overall, 75% were retained in HIV primary care and 84% of newly diagnosed women were linked to care within 60 days. Baseline hopelessness and medication self-efficacy were found to relate to baseline medication barriers. Women reporting more hopelessness and less medication efficacy reported more barriers at baseline. After 12 months of program exposure, local evaluation participants reported significantly lower hopelessness, increased medication efficacy, and fewer medication barriers when compared to baseline reports. Further, reports of fewer medication barriers at 12 months was found to be related to 12-month viral load suppression.

Conclusions: We will discuss outcomes and factors impacting the development and implementation of Peer Patient Navigation within an HIV primary care setting and how such navigation impacts patient outcomes.

465 Factors Associated with Treatment Utilization, Medication Adherence, and Communication with Providers in Newly HIV-Diagnosed Men Who Have Sex with Men in New York City

Jill Pace[1], **Patrick Wilson**[1] **(presenting)**, Nathan Hansen[2], Arlene Kochman[1], Kathleen Sikkema[3]

[1] Columbia University Mailman School of Public Health, New York, NY, USA
[2] University of Georgia, Athens, GA, USA
[3] Duke University, Durham, NC, USA

Background: In the USA, approximately 50% of known HIV-positive individuals are not engaged in HIV care. Approximately 55% are adequately adherent to their ART regimen. A study of men who have sex with men (MSM) found 12% of participants not currently engaged in any care. The primary aim of this analysis is to examine the factors associated with treatment utilization, medication adherence, and communication with providers in newly HIV-diagnosed MSM.

Methods: Data comes from the 6-month assessment of a randomized controlled trial of newly-diagnosed HIV-positive MSM in New York City from 2009-2013. Treatment utilization was measured by the aggregate number of medical appointments participants attended in the prior 3 months, including appointments for medical care, sexual health, mental health, and substance abuse. Adherence was measured by combined number of ART doses missed within a 7-day period. Patient-provider communication was measured using the Patient Self-Advocacy Scale. Stepwise multiple regression was used to model the factors associated with treatment utilization, medication adherence, and patient-provider communication.

Results: The sample size for this analysis was 124. Total number of medical appointments attended in the prior 3 months was significantly associated with active coping mechanisms (p = .002) and negatively correlated with alcohol and drug abuse (p = .009 and p = .019, respectively). Adherence to ART was negatively correlated with alcohol use (p = .011) and drug abuse (p = .002). Patient-provider communication was significantly associated with sensation-seeking scores and the treatment-related reduced HIV concerns scale (p = .003 and p = .004, respectively).

Conclusions: Participants who took a more active coping strategy, were less sensation-seeking, and whose HIV concerns were reduced by treatment advances were more likely to attend more medical appointments and to have better patient-provider communication. Participants who experienced more substance use and abuse were less engaged in care and more likely to be non-adherent to medication. Engagement in care and adherence to medication is critical for HIV care and treatment, as well for the prevention of HIV transmission. Understanding the predicators of these treatment outcomes can help to better target and personalize HIV care and treatment, and increase engagement in care, adherence to medication, and reduce HIV transmission.

468 Lay Social Resources for Support of Adherence to Antiretroviral Prophylaxis for HIV Prevention among Serodiscordant Couples in Sub-Saharan Africa: A Qualitative Study

Norma Ware[1], **Emily Pisarski[1] (presenting)**, Jessica Haberer[2], Monique Wyatt[1], Elioda Tumwesigye[3], Jared Baeten[4], Connie Celum[4], David Bangsberg[2]

[1] Harvard Medical School, MA, Boston, USA
[2] Massachusetts General Hospital, Boston, MA, USA
[3] Kabwohe Clinical Research Centre, Kabwohe, Uganda
[4] University of Washington, Seattle, WA, USA

Background: Effectiveness of antiretroviral pre-exposure prophylaxis (PrEP) for HIV prevention will require high adherence. In Africa, contributions of family, peers, lay health workers and other community members to antiretroviral treatment adherence are an important adjunct to professionally trained personnel, who are in short supply. Using qualitative data, this presentation describes lay social resources for support of adherence to PrEP by HIV serodiscordant couples in Uganda, laying the groundwork for incorporation of these resources into adherence support initiatives as part of implementation scale-up.

Methods: In-depth interviews with 88 HIV-uninfected partners in Ugandan serodiscordant couples constitute the data. Interviewees were taking PrEP or placebo as part of the Partners PrEP Study, a multi-site, double-blind, randomized, phase-III efficacy trial of PrEP for HIV prevention in East Africa. Interview data were examined for content yielding insight into social resources for adherence support. Relevant content was grouped into categories describing adherence support in multiple social domains.

Results: Previous analysis of these data identified the desire to preserve the relationship with a spouse as an important social motive for adherence among HIV-uninfected individuals taking PrEP or placebo. This analysis characterizes support for adherence provided by HIV-infected spouses themselves, and by children, extended family members, and the larger community. The qualitative results suggest social resources for support of PrEP adherence are plentiful outside formal health care settings and health systems and that couples will readily use them.

Conclusions: The same shortage of health professionals that impeded scale-up of antiretroviral treatment for HIV/AIDS in Africa promises to challenge delivery of PrEP. Building on the treatment scale-up experience, implementers can move to meet this challenge through incorporation of lay social resources for adherence support into delivery strategies and program planning efforts.

469 Barriers to Entry into Medical Care and ART Adherence among HIV-Positive Substance Users in San Salvador, El Salvador

Andrew Petroll[1] (presenting), Julia Dickson Gomez[1]

[1] Medical College of Wisconsin, Milwaukee, WI, USA

Background: Since the mid-1990s, many developing countries have introduced and expanded the availability of antiretroviral therapy (ART) to persons living with HIV. However, AIDS-related mortality continues to be high due to late diagnosis of HIV infection, late entry into medical care and poor medication adherence, particularly among drug users.

Methods: We conducted in-depth interviews with 13 HIV medical providers and 29 crack cocaine- and alcohol-using PLH in San Salvador, El Salvador, to explore the barriers and facilitators drug using PLH face in entering and staying in medical treatment, and adhering to ART.

Results: Providers identified drug and alcohol abuse as the most frequent barriers to retention in care and adherence to medication. More than half of the providers counseled PLH to abstain from drugs and alcohol before beginning ART, warning them that combining the 2 would result in earlier death. Most PLH reported no knowledge of ART before their diagnosis and believed they had only a few months to live. As a result, many experienced depression and increased their drug use. Because of medical providers' warnings, most PLH reported suspending or abandoning ART when they relapsed to drug and alcohol use. Others ignored providers' warnings regarding interactions and developed mechanisms to maintain high levels of adherence to ART. Some PLH reported avoiding discussing their substance use with providers following a negative interaction with their provider. Participants were given few strategies or resources to quit using drugs.

Conclusions: Messages from medical providers about the harmful effects of mixing ART with drugs and alcohol discourage drug users from initiating or adhering to ART and may contribute to treatment abandonment. Interventions with HIV medical providers are needed to reduce stigmatization of drug users and educate providers about recommendations for HIV treatment with substance users. Interventions to help substance using PLH adhere to ART are urgently needed.

470 Healthy Divas: A Culturally Relevant Intervention to Improve Engagement in Care among Transgender Women Living with HIV

Jae Sevelius[1] (presenting), Mallory Johnson[1], Parya Saberi[1]

[1] University of California, San Francisco, CA, USA

Introduction: Transgender women living with HIV (TWH) experience disproportionate rates of AIDS-related mortality and uncontrolled viral load. They are less likely to receive ART and those on ART demonstrate worse adherence, report less confidence in their abilities to integrate treatment regimens into their daily lives, and significantly less positive interaction with healthcare providers than non-transgender people.

Description: After formative interviews with patients, providers, and focus groups, Healthy Divas was developed to address culturally unique barriers to engagement in HIV care. Healthy Divas consisted of 3 peer-led individual sessions and 1 peer-led group workshop attended by 2 healthcare providers (1 HIV care expert and 1 in transgender health) to provide information, support, and skills building to identify and accomplish individualized healthcare goals related to both gender transition and HIV care and treatment.

Lessons Learned: Of 21 participants, 19 (90.5%) were retained through follow-up. Among 17 with analyzable Medication Event Monitoring System (MEMS) data, 12 (71%) increased ART adherence, 3 (18%) maintained perfect adherence, and 2 (12%) declined in adherence. We found modest increase in self-reported adherence, with substantial decrease in ART coverage gaps (number of times when ART was not taken for at least 4 consecutive days). All participants (100%) reported being extremely satisfied with their overall experience of the intervention.

Recommendations: In response to feedback, we will increase the number of sessions from 3 to 6 and extend the length of the group workshop to permit more discussion of transition-related health care content. While MEMS use was not consistent during the trial, use of MEMS as an adherence feedback tool was well received. The accuracy of self-reported appointment adherence decreased as recall time increased, leading us to refine our methodology for acquiring timeline follow-back data. Healthy Divas represents a promising approach to improving health outcomes among TWH. Efforts to evaluate its efficacy are in development.

474 Preliminary Qualitative Evaluation of an Intensive Case Management Intervention to Increase Linkage and Retention in Care: Successes in Social Support and Housing

Michelle Broaddus[1] (presenting)

[1] Center for AIDS Intervention Research, Medical College of Wisconsin, Milwaukee, WI, USA

Background: The Wisconsin Department of Health Services' AIDS/HIV Program has instituted an intervention aimed at increasing linkage and retention in medical care among people living with HIV (PLH). The intervention involves hiring full-time Linkage to Care Specialists (LTCSs) within clinical agencies and community-based organizations to provide intensive, short-term case management services for small caseloads of PLH who are newly diagnosed, recently released from incarceration, or not securely engaged in medical care.

Methods: As part of the qualitative evaluation of the intervention, in-depth interviews were conducted with 26 current or former clients of LTCSs. Interviews focused on the services LTCSs provided, the program's successes, and experiences with barriers to medical care. Data were coded for key themes using MaxQDA software.

Results: Preliminary results indicate that the LTC intervention is successful in providing basic social support and securing housing. Many participants had not disclosed their HIV status to family and friends or indicated few sources of social support outside of their LTCS. Some of the LTCS' housing successes included an assisted living facility for an older man hospitalized after a stroke, permanent housing for a homeless woman with a 4-year old daughter, residential drug treatment for a woman who had just given birth, and transitional housing for a man released from incarceration without family support. Participants indicated that the success their LTCSs had in securing stable housing, as well as direct social support they received, motivated them to take care of their own health by keeping regular medical appointments. All participants described above indicated undetectable viral loads.

Conclusions: Preliminary results indicate that short-term, intensive case management interventions such as Wisconsin's LTC Program can contribute to successes in at-risk PLH's engagement in medical care through provision of social support and securing housing. Tenuous family relationships may contribute to housing instability, but can be tempered by direct social support in combination with housing security. The small caseloads carried by LTCSs may allow for greater provision of social support and contribute to greater success rates in locating housing than other types of case management models, and should be balanced against costs and availability concerns.

477 Healthcare Access among Heterosexuals at Risk of HIV Who are Living in Philadelphia: Results from the National HIV Behavioral Surveillance System

Catherine Mezzacappa[1], Jennifer Shinefeld[1], **Kathleen Brady[1] (presenting)**

[1] Philadelphia Department of Public Health, Philadelphia, PA, USA

Background: Heterosexuals account for 25% of new HIV infections in the United States. Recommendations to integrate routine HIV testing into healthcare settings may not reach those at highest risk of HIV. We evaluated associations between healthcare access and high-risk sex from NHBS among heterosexuals living in Philadelphia.

Methods: The National HIV Behavioral Surveillance System (NHBS) employs respondent-driven sampling to survey heterosexuals at increased risk for HIV infection (HET). Data from the 2010 HET cycle were analyzed to identify factors associated with reporting at least 1 of 3 high-risk sexual behaviors in the past year: 5+ sex partners, sex in exchange for drugs/money, and unprotected sex with a non-main partner. Weighted logistic regression was performed including age, race, and marital status as covariates and backward selection for all other variables (significance level p <0.10).

Results: Respondents were predominantly black (84.0%), living in poverty (83.0%) or deep poverty (57.9%), never married (71.6%), and 51.7% had a high school diploma/GED. 32.7% of participants were uninsured and 22.9% had not seen a healthcare provider in the past year. In multivariate analysis, male gender (OR = 3.3), not seeing a healthcare provider (OR = 3.3), crack cocaine use (OR = 2.7), and frequent binge drinking (OR = 3.6) remained associated with high risk sex. One third of men and 25% of women who reported high risk sex also did not visit a healthcare provider. Approximately 40% of uninsured individuals had not visited a provider in the past year, compared to 15% of insured respondents (p <0.0001).

Conclusions: A significant number of heterosexuals at greatest risk of HIV infection are not reached by routine HIV testing and substance abuse counseling in healthcare settings. Uninsured status presents a barrier to accessing care in this at-risk population. Expansion of insurance coverage in this population may help realize the goal of routine HIV testing in healthcare settings through improved access to care.

478 Snapshots of Adherence: Photo-Stories as a Tool to Promote Medication Use among People with HIV

Michelle Teti[1], **Mary Gerkovich[2] (presenting)**, Rose Farnan[3]

[1] The University of Missouri, Columbia, MO, USA
[2] The University of Missouri, Kansas City School of Medicine, Kansas City, MO, USA
[3] Truman Medical Center, Kansas City, MO, USA

Background: Novel interventions are needed to improve adherence to antiviral treatment among people with HIV (PLH). Adherence improves health and can reduce HIV transmission - yet many PLH struggle to use medications correctly and consistently. We conducted a pilot study to explore the feasibility and use of photo-stories - using pictures to identify, discuss, and share personal adherence successes and challenges - as a potential adherence intervention strategy for PLH.

Methods: Participants took part in the photo-story project in small groups. Project components included a photography tutorial, 3 group photo-sharing and discussion sessions, and a photo display in the HIV clinic where the project took place. To assess project impact, we conducted individual interviews and analyzed transcripts of group and individual sessions and over 100 photographs using theme and narrative analysis strategies.

Results: 16 PLH, 9 women and 6 men, took part in the project. Participants were low-income residents of a city in the Midwest, United States. Key project themes revolved around motivations to be and remain adherent - important people or things, spirituality, hopefulness about being healthy, and analogies for medication as a way to take control over one's health. Images were varied and included medication routines, support systems, pets, self-portraits, and nature.

Conclusions: Photo-stories are a feasible and appropriate tool to help PLH talk about and identify reasons to be adherent and how to surmount adherence challenges. The process helped participants reflect on why they were committed to adherence, how to manage adherence barriers like the stigma of taking medicines, and reiterated to participants that they could be healthy and in control of their life with HIV. Our findings suggest that directing the process towards photographing adherence motivators is a potential adherence intervention strategy. Photos and stories can be used to support adherence behavior among the photographers and others who see the pictures.

POSTER ABSTRACTS

480 The HIV-HL-2: A Revised Instrument to Assess the Health Literacy of Persons with HIV

Raymond Ownby[1] **(presenting)**, Drenna Waldrop-Valverde[2], Marcia Holstad[2], Albert Anderson[2]

[1] Nova Southeastern University, Fort Lauderdale, FL, USA
[2] Emory University, Atlanta, GA, USA

Background: In a previous project, we developed and provided initial data on a brief measure of health literacy in persons with HIV infection, the HIV-HL (AIDS and Behavior, 2013). The measure includes an assessment of patients' listening comprehension for health information as well of knowledge about the viral life cycle, treatment, and laboratory tests. The initial version of the HIV-HL was related to patients' knowledge of HIV infection and its treatment as well as medication adherence, but it showed ceiling effects and several of the original 20 items were eliminated due to poor psychometric performance. The measure was therefore expanded to include 25 items with a greater range of difficulties and is being tested in another study. The purpose of this presentation will be to present information on the psychometric characteristics of the revised and updated version of the measure, the HIV-HL-2.

Methods: As part of a larger study, 323 participants completed the HIV-HL-2 via computer administration. A subgroup of 180 completed the measure on a second occasion 6 months later. In addition to providing demographic and educational history information, participants also completed measures of self-reported health literacy (e.g., "How often do you have difficulty understanding written health information?") and the LifeWindows IMB questionnaire assessing information, motivation, and behavioral skills related to HIV treatment. Skewness and kurtosis were assessed in order to evaluate the effectiveness of a wider range of test item difficulties. Test reliability was assessed via Cronbach's alpha and test-retest correlations. Validity was assessed via correlations with other measures and receiver operating curve (ROC) analyses were used to identify cut-off values for the HIV-HL-2 associated with low levels of health literacy.

Results: Item analyses showed that 2 items had low or negative item-total correlations and were dropped from the scale. The scale's mean was 16.7 (of 23 items) while it median was 17, with skewness (-0.80) and kurtosis (0.64) values within acceptable ranges. Its internal consistency was 0.75 (Cronbach's alpha) and its test retest correlation over 6 months was 0.72. The scale's total score was significantly correlated with the 3 LifeWindows scale scores and the self-report health literacy questions (e.g., r with LifeWindows Information = 0.30 and r with confidence in filling out medical forms = -0.40; for all correlations, ps <0.05). ROC analyses using the R statistical package OptimalCutpoints targeting maximum sensitivity and specificity showed that a cut-off score of 16 (of possible total of 23) had a sensitivity of 0.73 and a specificity of 0.67 in detecting individuals with difficulties in understanding written information; a value of 14 provided a sensitivity of 0.88 while a value of 22 yielded a specificity of 1.0. The area under the curve (AUC) for identifying self-reported difficulty in understanding health information was 0.70 (CI 0.62-0.78) with a positive predictive value (PPV) of 0.87, while that for identifying persons with less than 12 years of education was 0.77 (CI 0.70-0.83) with a positive predictive value of 0.91.

Conclusions: This additional development has been effective in improving some psychometric characteristics of the HIV-HL while preserving its relations to other measures. The HIV-HL-2 continues to be a promising measure for the assessment of HIV-related health literacy skills. This new version is now available on-line for use by qualified users.

481 Low Health Literacy is Associated with Poor Attitudes toward HIV Care Providers

Drenna Waldrop-Valverde[1] **(presenting)**, Raymond Ownby[2], Albert Anderson[1], Marcia Holstad[1]

[1] Emory University, Atlanta, GA, USA
[2] Nova Southeastern University, Fort Lauderdale, FL, USA

Background: Relationship with one's HIV provider is an important element for successful HIV care. Causal pathways between patient health literacy and health outcomes that rely on the health system have been proposed, suggesting that patient satisfaction with provider encounters is essential. Therefore, the relation of health literacy to patients' attitudes to their healthcare team was evaluated.

Methods: 323 persons treated for HIV infection participated in an ongoing study of racial disparities on medication use. Participants completed questionnaires assessing demographic variables, the Attitudes toward HIV Health Care Providers Scale, and health literacy (the HIV-HL-2). Using a validated cut-off score of 16 on the HIV-HL-2, the attitudes of participants with lower and higher levels of health literacy were assessed in a MANCOVA model that included the effects of age, education, race, and gender.

Results: Sixty-seven percent of participants were African American (AA), 68% were men, their average age was 49.3 and averaged 12.8 years of education. Their mean score on the HIV-HL-2 was 16.7 (of a possible total score of 23) with AAs having significantly lower health literacy than whites.

Level of health literacy was associated with an overall significant multivariate effect on patient attitudes toward their healthcare providers (F [19, 298] = 2.34, p < 0.001). Patients with lower levels of health literacy rated their medical team lower in knowledge about HIV/AIDS, level of effort put into treatment and caring and were more likely to state that they believed their medical team saw the patient as a bad person or "stupid" (all ps < 0.05). Interaction effects showed that whites with low health literacy agreed more that providers saw them as "stupid."

Conclusions: Low health literacy was associated with poorer attitudes toward one's health care providers and may be a mechanism by which health literacy affects health status and outcomes.

484 Early Results from the Philadelphia Integrative Behavioral Health Initiative: Improved Retention in Care

Susan Lehrman[1], **Emerson Evans[2] (presenting)**, Kathleen Brady[2], Coleman Terrell[2]

[1] Philadelphia University, Philadelphia, PA, USA
[2] Philadelphia Department of Public Health, Philadelphia, PA, USA

Background: In 2012, the Philadelphia Department of Public Health implemented the SAMHSA-funded "Philadelphia Integrative Behavioral Health Initiative (PIBHI)." The project is based on the Primary Care Behavioral Health model, in which Behavioral Health Consultants (BHCs), typically LCSWs or MSWs, are integrated as full-time, site-based members of HIV medical care specialty teams. Focused on improving the treatment of behavioral health problems in primary care settings, the model is not designed to replace specialty mental health care. Program objectives include improved retention in care, increased rates of viral suppression, and reduced behavioral health and HIV-related health disparities.

Methods: 6 BHCs were fully embedded in 9 clinical sites which are housed in 6 of Philadelphia's largest HIV treatment programs. This analysis includes persons with HIV/AIDS (PLWHA), who were determined to have behavioral health needs based on a preliminary assessment and enrolled in BHC services between January 1, 2012 and March 31, 2013. Pre- and post-intervention rates of retention in care (evidence of 2 or medical visits at least 90 days apart in a 1-year measurement period), receipt of ART (prescription of ART during the measurement period) and viral suppression (HIV-1 RNA <200 copies/mL closest to the end of the measurement period) were compared.

Results: Overall, 471 PLWHA were enrolled in BHC services during the study period. Baseline data on those enrolled indicated that 80.7% were retained in care, 87.0% were on ART and 74.6% were virally suppressed. In the follow up period, 90.9% of BHC service recipients were retained in care (P <0.05), 93.0% (P <0.05) of these individuals received ART and 80.0% were virally suppressed (p = .06).

Conclusions: BHC services in PLWHA resulted in improvements in retention in care and ART use. Further study of this model is warranted, as is the development of sustainable funding mechanisms to support BHC services moving forward.

485 Impact of Unplanned Care Interruptions on CD4 Response Early after ART Initiation in Nigeria

Aimalohi Ahonkhai[1] (presenting), Juliet Adeola[2], Bolanle Banigbe[2], Ifeyinwa Onwuatuelo[2], Ingrid Bassett[1], Susan Regan[1], Kenneth Freedberg[1], Prosper Okonkwo[2], Elena Losina[1]

[1] Massachusetts General Hospital, Boston, MA, USA
[2] AIDS Prevention Initiative in Nigeria, Abuja, Nigeria

Background: Unplanned care interruption (UCI) from HIV treatment is common in resource-limited settings, but its clinical impact has not been well studied. Our objective was to determine the immunologic consequence of UCI in the first 6 months on antiretroviral therapy (ART) in Nigeria.

Methods: We conducted a retrospective cohort study at a university-affiliated HIV clinic. The cohort included adults who enrolled in clinic and started ART between 1/2009 and 12/2011. Follow-up was through 12/2012. UCI was defined as ≥90 days with no clinician, laboratory, or pharmacy visits, but later return to care. We categorized patients into 3 groups: 0, 1, or 2 UCI in the first year on ART. We used multivariate linear regression adjusting for repeated measures to model the change in CD4 count early (0-6 months) and later (>6 months) after ART initiation in each group.

Results: Among the 2,027 patients in our cohort, 54% had 0, 37% had 1, and 8% had 2 UCI. Median baseline CD4 counts for those with 0, 1, and 2 UCI were 190/uL [IQR 92, 285], 211/uL [IQR 95, 374], and 403/ul [IQR 213, 562]. For those with 0 and 1 UCI, mean CD4 increase in the first 6 months on ART was 18/month [95%CI 17, 20] and 8/month [95%CI 6, 12]; those with 2 UCI had a mean CD4 count decrease of 4/month [95%CI -11, 3].

Conclusions: UCI was common in a cohort initiating ART in Nigeria. In the first 6 months on ART, patients with 1 UCI had half the rate of CD4 increase of those with no UCI. Despite initiating ART with the highest CD4 values, patients with 2 UCI had no increase in their CD4 counts, negating the potential benefit of early presentation. Interventions to maintain consistent HIV care are critical to maximize the immunologic benefits of ART.

POSTER ABSTRACTS

487 Differences in Outcomes of Engagement in the HIV Care Continuum by Relationship Status and Partner Serostatus among Young Black HIV-Positive MSM

Judy Tan[1] **(presenting)**, Lance Pollack[1], Greg Rebchook[1], Susan Kegeles[1]

[1] Center for AIDS Prevention Studies, University of California San Francisco, San Francisco, CA, USA

Background: There is a dearth of research that examines engagement in the HIV care continuum (CC) among couples, and even less among couples of young black men who have sex with men (YBMSM), a population with some of the worst outcomes along the CC relative to other racial/ethnic MSM groups in the United States. Despite the potential of antiretroviral therapy (ART) to lower transmission rates, the efficacy of treatment-for-prevention approaches for HIV-positive (HIV+) YBMSM with serodiscordant partners may be limited due to poor engagement in the CC, and developing efficacious interventions for improving their care engagement is paramount. The present study aimed to examine differences in engagement in care outcomes among HIV+ YBMSM with and without primary partners (i.e., boyfriends), and HIV+ YBMSM in HIV seroconcordant vs. serodiscordant relationships.

Methods: A sample of young (ages 18-29) HIV+ BMSM in Dallas and Houston, TX. Participants completed measures regarding Linkage to care (have a primary health care provider), any care in past 6 months, adherence to ART (any skipped doses in past 30 days), and demographic information.

Results: Data across single and partnered men (N = 290) were compared on engagement in the CC variables. Chi-square difference tests showed that men with a primary partner reported being *more engaged in HIV care* than single men in terms of receiving HIV treatment in past 6 months, $X^2(1) = 6.68$, p = .01, and in having a primary health care provider, $X^2(1) = 7.01$, p = .01. No statistically significant differences were found between partnered and single men on ART adherence. However, Chi-square difference tests comparing men with seroconcordant positive partners with those with serodiscordant partners showed that men with seroconcordant partners reported *worse adherence in the last 30 days* than men with serodiscordant partners, $X^2(1) = 6.65$, p = .01, while engagement in the CC did not vary by partner serostatus.

Conclusions: These data suggest that partners may play an integral role in engagement in the HIV CC and adherence to treatment, and that optimizing care and treatment outcomes may be improved through intervention strategies that incorporate a couples approach. Further, interventions to improve HIV care engagement and ART adherence for partnered HIV+ BMSM should be tailored to whether their partner is HIV- or HIV+.

488 Utilization of an Interactive Online Tool to Visualize Geographic Patterns in the HIV Treatment Cascade in Philadelphia

Kathleen Brady[1] **(presenting)**, Michael Eberhart[1], Alexandra Ricca[2], Patrick Sullivan[2], Travis Sanchez[2]

[1] Philadelphia Department of Public Health, Philadelphia, PA, USA
[2] Emory University, Atlanta, GA, USA

Background: The HIV care continuum has been used to evaluate performance at the national, state, and local level on linkage to care, retention in care and viral suppression. Little attention has been paid, however, to how these outcomes vary by geography. Online tools are robust for mapping illness data, and allow for insights into geographic patterns of illness and care that are not possible with aggregate data.

Methods: HIVcontinuum.org is a collaboration of academic, private, and public health partners that has developed an online resource for visualizing HIV continuum elements by geography. Philadelphia HIV surveillance/laboratory data for adult/adolescent residents who were diagnosed with HIV during 2006-2010 were utilized. The zip-code level maps include outcomes of new HIV diagnoses (5-year risk of new HIV diagnosis), late HIV diagnoses (proportion who had an AIDS diagnosis within 12 months of initial HIV diagnosis), linkage to HIV care (proportion linked to care within 3 months of HIV diagnosis), engagement in HIV care (proportion living in 2011 who had a CD4 count and/or a viral load), viral suppression among those engaged in care (engaged in care in 2011 and most recent viral load <200 copies/mL) and viral suppression among the newly diagnosed (proportion newly diagnosed whose most recent viral load was <200 copies/mL).

Results: HIVContinuum.org allows viewers to look at ZIP-code/ward-level HIV surveillance data by race/ethnicity, sex and age groups. The presentation will review the features of this new online tool using data from Philadelphia, a city highly impacted by HIV.

Conclusion: Geographic analysis of the HIV care continuum can be instrumental in targeting areas that need additional/improved services, and may help to mobilize public health, policy, and health care resources.

491 Updating the Evidenced-Based Intervention Pager Messaging into a Mobile Application to Improve Adherence to Antiretroviral Treatment

Kathleen Green[1] **(presenting)**, Rhondette Jones[1], Angel Ortiz-Ricard[1]

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

Introduction: Mobile and smartphone applications (app) are increasingly being used for the prevention and care of HIV. We describe a project that updated an evidence-based pager intervention into a mobile app to assist people living with HIV (PLWH) in staying adherent to their HIV treatment.

Description: In August 2011, the CDC's Division of HIV/AIDS Prevention, Capacity Building Branch partnered with the original researcher of the pager intervention and a mobile app developer to create an app that possessed key features of the pager intervention along with additional elements to improve user interactivity. We also conducted an environmental scan of the literature on mobile apps to support medication adherence. A prototype was created and piloted among PLWH (N = 9) during 60-minute interviews. The app features dose and appointment reminders, tracking viral load and CD4 cell counts, a component to record missed doses and medication side effects, tips to stay adherent, and a place to record contact information of their health care team. The app allows the user to upload a "reason photo," which serves as an inspirational reminder of the importance of taking every dose every day. Lastly, the app features an option to notify a buddy if the user falls off their regimen.

Lessons Learned: Pilot interviews revealed that all participants thought the app would serve as a valuable tool for adherence. In general, participants found initial set-up and logging doses easy. About half of participants stated while the buddy feature may be beneficial, they would not use this feature. More than 50% of participants found that the app did more than they initially expected.

Recommendations: In developing mobile interventions for PLWH, formative work is critical to customizing features for specific populations. Furthermore, public health organizations should work with app developers to adequately incorporate key elements of evidenced-based interventions and improve user interactivity.

492 Who's Tweeting about #PrEP? A Content Analysis of Messages about Pre-Exposure Prophylaxis on a Social Media Platform in the United States

Viraj Patel[1] **(presenting)**, Vanessa Eddy[2], Sarit Golub[3], Oni Blackstock[1]

[1] Montefiore Medical Center; Albert Einstein College of Medicine, Bronx, NY, USA
[2] Albert Einstein College of Medicine, Bronx, NY, USA
[3] Hunter College, CUNY, New York, NY, USA

Background: HIV pre-exposure prophylaxis (PrEP) uptake remains low in the United States, which may partly be due to low awareness about PrEP among potential users. Using communication channels such as social media may help to increase awareness and consequently enhance PrEP uptake. Because it is unknown whether social media is being used to communicate about PrEP, we conducted an exploratory study to determine if Twitter, the second largest social media platform, is being used to discuss PrEP and, if so, by whom and what type of information is being communicated.

Methods: Using Twitter's public search tool, we extracted all messages ("tweets") referencing PrEP originating in the United States and posted from June 2012 to June 2013. We used the search terms "pre-exposure prophylaxis," "PrEP [and] HIV," and other similar combinations. We collected information about each tweet's author and size of the author's social network. Using content analysis, we coded each 140-character tweet, and through an iterative process identified emerging themes.

Results: We identified 2,822 messages about PrEP and coded 1,358 (after removing duplicates and re-tweets) posted by 1,149 unique users (range of social network size: 0-835,517). Users were primarily individuals (35.7%), non-profit organizations (32.9%), and health-related publications (20.9%). The largest proportion of tweets (29%) shared links to scientific articles or news about PrEP and 22% shared links to other information about PrEP. An additional 18% of tweets promoted PrEP, 13% contained questions or concerns (e.g., safety, cost) about PrEP, and a minority expressed negative attitudes towards PrEP or reported on personal experiences with PrEP (<5%).

Conclusion: There is public discourse about PrEP involving a diverse group of stakeholders on social media. Twitter and similar platforms, given their broad and efficient reach, may be an important 'venue' to implement and disseminate interventions that aim to increase PrEP awareness and influence PrEP uptake.

POSTER ABSTRACTS

494 Paying for PrEP: Eligibility for Assistance Programs and Willingness to Contribute to Cost among NYC Health Department STD Clinic Patients, 2013-4

Zoe Edelstein[1] (presenting), Christine Borges[2], Emily Westheimer[2], Sarit Golub[3], Julie Myers[1]

[1] New York City Department of Health and Mental Hygiene, Queens, NY, USA
[2] New York City Department of Health and Mental Hygiene, New York, NY, USA
[3] Hunter College, CUNY, New York, NY, USA

Background: The cost of HIV pre-exposure prophylaxis (PrEP) poses a challenge for publically-supported programs. Uninsured patients earning <$20,000/year are eligible for current drug manufacturer assistance programs. Those earning more or those without insurance may have to pay for some or all of the medication. We examined whether patient contribution might be an acceptable way to defray costs among New York City (NYC) STD clinic attendees.

Methods: Data were derived from a 2013-2014 survey conducted to assess acceptance of a proposed PrEP program. Respondents were NYC residents, ≥18 years who met the criteria for acute HIV testing (predominantly men with male sex partners) (n = 389). This analysis was restricted to respondents who reported being somewhat/very likely to take PrEP and participate in the proposed program. We described self-reported insurance status, household income, and maximum amount willing to pay for PrEP at the clinic ($0;$5-15;$15-30;$30-50;$50-100;$100+). We also evaluated differences in proportion willing to pay by age, race, insurance status, income, current/prior STD diagnosis, perceived HIV risk, and prior awareness of PrEP using Poisson regression.

Results: Among respondents likely to take PrEP and participate in the proposed program (n = 231), 45% were uninsured and 82% earned ≥$20,000/year, including 43% who were also uninsured. Most (91%) were willing to pay for PrEP; 33% were willing to pay ≥$30/month. Overall willingness to pay did not differ significantly by factors examined; willingness to pay ≥$30/month was associated with income ≥$20,000/year and prior awareness of PrEP.

Conclusions: In NYC, 9 of 10 high-risk STD clinic patients interested in PrEP reported willingness to pay and one-third were willing to pay ≥$30/month. This information is important given high interest in PrEP and apparent lack of payment options (insurance or assistance eligibility) for many. Patient contribution may be an acceptable way to reduce programmatic cost and increase access to publically-funded PrEP programs.

495 The Challenges of Re-Engaging the Lost to Follow-Up: Early Lessons from a Social Innovation Demonstration Project

David Batey[1] (presenting), William Anderson[1], Jeremiah Rastegar[2], Andrew Douglas[1], Karen Musgrove[2], Michael Mugavero[1], James Raper[1]

[1] University of Alabama at Birmingham, Birmingham, AL, USA
[2] Birmingham AIDS Outreach, Birmingham, AL, USA

Introduction: Fifty percent of HIV-diagnosed individuals are eventually lost to care. Limited research has provided insight into strategies by which to identify and re-engage, yet little is known about this population and best practices for locating them.

Description: Birmingham Access to Care (BA2C) is a partnership between a university and an AIDS service organization, formed to characterize and re-engage the lost to follow-up population of an urban HIV clinic. Eligible persons were identified using the HRSA HIV/AIDS Bureau (HAB) measure of kept clinic visits, people who had not arrived at clinic in the past 7 months, and those who missed ≥2 visits within the last 12 months. Contact procedures included a 12-month series of telephone calls to all known patient numbers, as well as certified letters to last known addresses.

Lessons Learned: Application of the HRSA-HAB measure yielded 816 individuals; applying the 7-month with no visit and ≥2 missed visits during the past 12 months criteria increased the sample by 255 and 152, respectively. Early results indicate that waiting for patients to become eligible under more definitive out of care criteria results in greater difficulty contacting patients and may jeopardize subsequent attempts to intervene.

Recommendations: Using both kept- and missed-visit measures of retention that illustrate patients' visit profiles early on increases the likelihood that contact information will still be valid and established locator strategies will be successful. Alternative means of locating the lost to follow-up population such as those utilizing shared surveillance may improve re-engagement efforts. These recommendations point to the need to intervene earlier after the patient falls out of care.

496 Pre-Exposure Prophylaxis for HIV Prevention among Transgender Women: Exploring the Paucity of Evidence

Jae Sevelius[1] (presenting), JoAnne Keatley[1]

[1] University of California, San Francisco, Center of Excellence for Transgender Health, San Francisco, CA, USA

Introduction: Despite significant differences in behavioral risk factors and cultural context, transgender women ('transwomen') are consistently grouped with men who have sex with men in HIV-related research, including recent efforts to investigate the use of pre-exposure prophylaxis (PrEP) as a prevention tool. While guidelines for PrEP demonstration sites have been based on iPrEx results that grouped transwomen with MSM, subanalysis of that data revealed that there was no evidence of PrEP efficacy among transwomen enrolled in iPrEx (Mascolini, 2011). iPrEx investigators have speculated that this was likely due to barriers to adherence among transwomen in the study (www.bodypro.com, 2013). The PrEP demonstration project in San Francisco had difficulty recruiting and retaining transwomen in the study (Cohen, 2014).

Description: We have initiated a series of focus groups (completed 2 of 5) of HIV-negative transwomen in San Francisco to explore their knowledge, beliefs, and attitudes toward PrEP as a prevention tool, including barriers and facilitators to uptake and adherence. To date we have completed 2 focus groups, 1 in English (n = 11) and 1 in Spanish (n = 8).

Lessons Learned: None of the participants reported having taken PrEP or having been offered PrEP by a provider. The vast majority of participants had never heard of PrEP. Levels of interest in PrEP as a potential prevention tool were mixed, with most frequently voiced concerns about safety, side effects, and cost. Participants expressed high levels of medical mistrust.

Recommendations: Research is needed to further elucidate the differences between MSM and transwomen in terms of community perspectives on PrEP, including attitudes toward uptake and potential barriers and facilitators to adherence. Next steps include conducting additional focus groups and individual interviews, including interviews with potential PrEP providers who work with transwomen in San Francisco.

497 Health Literacy and Viral Load in Youth Living with HIV

Megan McCormick King[1] (presenting)

[1] Children's National Medical Center, Washington, DC, USA

Background: For people living with HIV, viral load (VL) is a critical marker of disease activity, treatment success, and medication adherence. Understanding factors related to VL is important for identifying those patients at risk for negative outcomes associated with high VL. Health literacy (HL) is 1 factor that has received attention as a possible predictor of adherence and VL. The current study sought to examine HL and VL in a sample of youth living with HIV. We predicted that patients receiving higher scores on both subtests of the Test of Functional Health Literacy in Adults (TOFHLA; Numeracy and Reading Comprehension) would demonstrate lower (better) VL. In addition, we anticipated that patients who had received medical care for longer would show better HL, given increased exposure to medical information.

Methods: Sixty-two patients between the ages of 16 and 24 (63% male, 99% African American) were administered the TOFHLA as part of routine medical care in an adolescent HIV clinic.

Results: As expected, VL was significantly and negatively correlated ($r = -.269$, $p = .035$) with scores on the Reading Comprehension subtest of the TOFHLA. It was not, however, correlated the Numeracy subtest. In addition, TOFHLA scores were not correlated with age or time since diagnosis.

Conclusions: The novel and differential findings between the 2 subtests of the TOHFLA indicate the possibility that literacy, reading comprehension, and logical reasoning skills may be more helpful for understanding and/or following medical information than are numerical calculation abilities. In addition, it is possible that these skills need not be specific to health-related information, but rather reflect more general cognitive abilities that are relatively stable across time and exposure to medical settings. These data have implications for our understanding of "health literacy," as well as the assessment and treatment of this construct in medical practice.

POSTER ABSTRACTS

498 Poverty - A Risk Environment for Suboptimal Engagement in HIV Care among Low-Income Women Living with HIV in the Deep South

Melonie Walcott[1] **(presenting)**

[1] University of Alabama at Birmingham, Birmingham, AL, USA

Background: The HIV epidemic among women in the United States is concentrated in the South, especially in areas with high rates of poverty. Among HIV-infected women in the United States, only 53% are in care and only 43% have controlled viral loads. The relationship between poverty and engagement in care is complex and merits further investigation.

Methods: We conducted a qualitative study to describe the role of poverty in engagement in HIV care among low-income HIV-infected women in Birmingham, Alabama. We conducted focus groups discussions (7) with HIV-infected women (46), and in-depth interviews with stakeholders (14) including service providers, and community based organizations. The data were analyzed using a modified Grounded Theory approach. NVivo qualitative software was used in the management and analysis of the data.

Results: Most of the women were African American (89%) and earned <$11,000.00 annually (64%). Participants described how poverty creates a risk environment for sub-optimal engagement in care at different levels. Mechanisms at the community level included transportation challenges, easy access to drugs, high rates of unemployment, stigma, and poor access to health care. Health insurance status often dictated where the women went for HIV care - public infectious disease clinic vs doctor's office, with implications for engagement in care. Participants reported stigma associated with accessing care at facilities for low-income individuals and facilities designated for HIV care contributed to sub-optimal engagement in care. Mechanisms at the individual level included lack of education, inability to meet basic needs (resulting in health not being a priority), and substance use.

Conclusion: For these women, the urgency of meeting basic survival needs and avoiding stigma appeared to supersede adopting behaviors that promote engagement in HIV care. The importance of addressing both financial needs and stigma as experienced by HIV-infected women in HIV programs is highlighted.

499 Predictors of Participant Dropout in ART Adherence RCTs

Kathy Goggin[1] **(presenting)**, Dwight Yin[1], Yan Wang[2], Glenn Wagner[3], Ira Wilson[4], Marc Rosen[5], Carol Golin[6], Nancy Reynolds[7], Robert Remien[8], Jane Simoni[9], Judith Erlen[10], Julia Arnsten[11], Robert Gross[12], Neil Schneiderman[13], David Bangsberg[14], Honghu Liu[15]

[1] Children's Mercy Hospital/University of Missouri, Kansas City, MO, USA
[2] University of California, Los Angeles, CA, USA
[3] RAND Corporation, Santa Monica, CA, USA
[4] Brown University, Providence, RI, USA
[5] Yale University School of Medicine, New Haven, CT, USA
[6] University of North Carolina at Chapel Hill, Chapel Hill, NC, USA
[7] Yale University, West Haven, CT, USA
[8] HIV Center for Clinical and Behavioral Studies, New York, NY, USA
[9] University of Washington, Seattle, WA, USA
[10] University of Pittsburgh, Pittsburgh, PA, USA
[11] Albert Einstein College of Medicine, Montefiore Medical Center, Bronx, NY, USA
[12] University of Pennsylvania, Philadelphia, PA, USA
[13] University of Miami, Miami, FL, USA
[14] Massachusetts General Hospital, Boston, MA, USA
[15] UCLA School of Dentistry, Los Angeles, CA, USA

Background: Participant dropout in randomized controlled trials (RCTs) is costly, reduces statistical power, and may introduce selection bias. Few studies have investigated baseline predictors of dropout in multiple RCTs of behavioral interventions for antiretroviral therapy (ART) adherence, however identification could inform strategies to retain and oversample participants at risk for dropout.

Methods: Utilizing data from the Multi-site Adherence Collaboration on HIV among 14 institutes (MACH14), this study explored the association between baseline demographics (age, gender, race, education, employment, and housing status), depression, substance use, and participant burden in predicting dropout over time. Participants were coded as dropouts when they ceased to provide electronic drug monitoring (EDM) data confirmed by ensuring that self-report data were also never provided at a subsequent visit.

Results: Data from 1,272 participants enrolled in 9 studies were analyzed. Participants had a mean age of 42 years (SD = 8.3), 68% male, 12% were Latino, and 18% dropped out [95% CI (14-30)] prior to 48 weeks. Median time of follow-up was 12 months (interquartile range 9 to 12 months). We conducted a series of Cox proportional hazard models that were unadjusted, then adjusted only for demographics, to identify the candidate variables for the final parsimonious model. This final Cox proportional hazards model revealed that dropout was significantly associated with being male [hazard ratio 1.49, 95% CI (1.09, 2.03)] and Latino [1.94, CI (1.28, 2.96)].

Conclusions: To our knowledge, this study is the first to explore predictors of dropout in behavioral interventions for ART adherence RCTs that utilized EDM. Men were 1.5 times more likely to drop out than females and Latinos were nearly twice as likely to drop out than White participants. Researchers should focus retention and/or oversampling efforts on Latinos and men to protect against dropout.

ACKNOWLEDGEMENTS

ABSTRACT REVIEW COMMITTEE

K. Rivet Amico, PhD
University of Connecticut
Storrs, CT, USA

Moises Agosto
National Minority AIDS Council
Washington, DC, USA

Carlos Cáceres, MD, PhD, MPH
Universidad Peruana Cayetano Heredia
Lima, Peru

Amanda Castel, MD, MPH
George Washington University
Washington, DC, USA

Jennifer Cocohoba, PharmD, MAS
University of California San Francisco
School of Pharmacy
San Francisco, CA, USA

Amy Corneli, PhD
FHI360
Durham, NC, USA

Marla A. Corwin, LCSW, CAC III
University of Colorado, Denver
Denver, CO, USA

Marijn de Bruen, PhD
University of Aberdeen
Amsterdam, Netherlands

Dazon Dixon Diallo, MPH
Sister Love
Atlanta, GA, USA

Vanessa Elharrar, MD, MPH
National Institute of Allergy and
Infectious Diseases
Bethesda, MA, USA

Edward M. Gardner, MD
Denver Public Health
Denver, CO, USA

Thomas P. Giordano, MD, MPH
Baylor University
Houston, TX, USA

Christopher M. Gordon, PhD
National Institute of Mental Health
Washington, DC, USA

Robert M. Grant, MD, PhD
University of California
San Francisco, CA, USA

Robert Gross, MD, MSCE
University of Pennsylvania
Philadelphia, PA, USA

Ian Hodgson, MA, PhD
University of Huddersfield
West Yorkshire, UK

Shoshana Kahana, PhD
National Institute on Drug Abuse
Bethesda, MD, USA

Linda Koenig, PhD, MS
Centers for Disease Control and Prevention
Atlanta, GA, USA

Deborah Konkle-Parker, PhD, FNP
University of Mississippi Medical Center
Jackson, MS, USA

Franco Maggiolo, MD
University of Pavia
Pavia, Italy

Marlene Matosky, MPH, RN
Health Resources and Services
Administration
Rockville, MD, USA

Kenneth Mayer, MD
Harvard University
Boston, MA, USA

Rafael Mazin, MD, MPH
Pan American Health Organization
Washington, DC, USA

Gregorio Millett, MPH
The American Foundation for AIDS Research
Washington, DC, USA

Tia Morton, RN, MS
National Institute of Allergy and
Infectious Diseases
Bethesda, MD, USA

Nellie R. Mugo, MBChB, MMed, MPH
University of Nairobi and Kenyatta
National Hospital
Nairobi, Kenya

Michael J. Mugavero, MD, MHSc
University of Alabama
Birmingham, AL, USA

Paula Munderi, MD
Medical Research Council
Entebbe, Uganda

Jean B. Nachega, MD, PhD
Stellenbosch University
Stellenbosch, South Africa

Catherine Orrell, MBChB, MSc, MMed
Desmond Tutu HIV Centre
Cape Town, South Africa

Allan E. Rodriguez, MD
University of Miami
Miami, FL, USA

Steven A. Safren, PhD
Harvard Medical School
Boston, MA, USA

James D. Scott, PharmD, MEd
Western University
Pomona, CA, USA

Elizabeth Sherman, PharmD
Nova Southeastern University
Fort Lauderdale, FL, USA

Jane M. Simoni, PhD
University of Washington
Seattle, WA, USA

Michael J. Stirratt, PhD
National Institute of Mental Health
Bethesda, MA, USA

Evelyn Tomaszewski, MSW, ACSW
National Association of Social Workers
Washington, DC, USA

Marco Vitória, MD
World Health Organization
Geneva, Switzerland

Mitchell Warren
AIDS Vaccine Advocacy Coalition
New York, NY, USA

Allison Webel, PhD, RN
Association of Nurses in AIDS Care
Akron, OH, USA

Alan Whiteside, DEcon
Wilfrid Laurier University
Waterloo, ON, Canada

Benjamin Young, MD, PhD
International Association of Providers of
AIDS Care
Washington, DC, USA

9th International Conference on HIV TREATMENT AND PREVENTION ADHERENCE

June 8-10, 2014

To Whom It May Concern:

This letter is a confirmation that _____ attended the 9th International Conference on HIV Treatment and Prevention Adherence, held June 8-10, 2014, at the Loews Miami Beach Hotel in Miami, FL, USA. This 2.5-day conference was jointly sponsored by the International Association of Providers of AIDS Care (IAPAC) and the Postgraduate Institute for Medicine (PIM).

Sincerely,

José M. Zuniga, PhD, MPH
President/CEO
International Association of Providers of AIDS Care

HIV

Controlling the HIV Epidemic with Antiretrovirals

18–19 September 2014 · Royal Garden Hotel, London, UK

The **International Association of Providers of AIDS Care**, in collaboration with the **Joint United Nations Programme on HIV/AIDS**, **AIDS Healthcare Foundation**, and other partners (to be announced),will host a summit aimed at leveraging antiretrovirals to end AIDS-related mortality and prevent new HIV infections.

The summit will feature data related to and discussion about the implementation of high-impact prevention, including treatment as prevention (TasP) and pre-exposure prophylaxis. In addition, it will provide a forum for exploring HIV care and prevention continua optimization to achieve antiretroviral therapy's maximum therapeutic and preventative effects.

IAPAC — INTERNATIONAL ASSOCIATION OF PROVIDERS OF AIDS CARE

UNAIDS

AHF AIDS HEALTHCARE FOUNDATION

Co-Chairs

Kenneth Mayer, MD
(Harvard University/Fenway Institute, Boston, MA, USA)

Julio SG Montaner, MD
(British Columbia Centre for Excellence in HIV/AIDS, Vancouver, BC, Canada)

For More Information

Summit information and online registration will be available soon at **www.iapac.org**.

Evidence Summit Themes

Seizing an Historic Opportunity
Lessons from Polio Eradication
Post-MDG (2015) Retargeting

Generating Treatment Demand
Optimizing the Care Continuum
TasP State-of-the-Science

Energizing the Prevention Agenda
Enhancing the Prevention Continuum
PrEP State-of-the Science

Making Smart Investments
Facilitating Country Ownership
Return on Investment Scenarios

Making It Happen
Paying it Forward…
Mobilizing to End AIDS

Abstract Submissions

Abstract submissions are encouraged in a variety of specific domains, including:

Implementation Science   Innovations in Service Delivery   Human Resources for Health   HIV Care Continuum
Health Financing   Mathematical Modeling   Clinical Pharmacology   HIV Prevention Continuum

General guidelines and an online submission portal will be available soon at **www.iapac.org**.

9th International Conference on HIV TREATMENT AND PREVENTION ADHERENCE

The 9th International Conference on HIV Treatment and Prevention Adherence is co-hosted by the **International Association of Providers of AIDS Care (IAPAC)** and the **Postgraduate Institute for Medicine (PIM)**, who wish to express their gratitude to the institutional and commercial supporters whose generosity has made this conference possible.

Institutional Supporters

IAPAC — INTERNATIONAL ASSOCIATION OF PROVIDERS OF AIDS CARE

HUMANITAS

Commercial Supporters

| AbbVie | Gilead Sciences | Merck & Co. | ViiV Healthcare |