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# CONTROLLING THE HIV EPIDEMIC WITH ANTIRETROVIRALS



Avoiding the  
Cost of Inaction



18-19 September 2014 • Royal Garden Hotel, London

# WELCOME FROM IAPAC

Dear Colleagues:

On behalf of the International Association of Providers of AIDS Care (IAPAC), I welcome you to our third **Controlling the HIV Epidemic with Antiretrovirals** summit, which we are proud to sponsor in collaboration with the Joint United Nations Programme on HIV/AIDS (UNAIDS), Public Health England (PHE), and AIDS Healthcare Foundation (AHF).

As we convene in London, we find ourselves at a moment of great opportunity that demands concrete, purposeful, sustained, and vigorous action to realize our long-held hope for a world in which AIDS-related deaths and new HIV infections are exceedingly rare. But we are also at a crossroads similar to the one we encountered in the mid-1990s at the advent of antiretroviral therapy (ART), when we were confronted with a decision about whether to allow for two distinct worlds to exist – one in which people living with HIV/AIDS (PLWHA) benefited from ART, the other in which they would be denied access to ART and thus allowed to languish and die. Thankfully for the 12.9 million people who today have access to ART, we chose the former, making progress year after year.

Lest we ever rest on our laurels, we face and must address an ART coverage gap that means an additional 22.9 million people require access to antiretroviral medications. And, clearly, we cannot accept the status quo of 2.1 million new HIV infections annually that could be averted through treatment as prevention (TasP) and combination prevention, including pre-exposure prophylaxis (PrEP). As our distinguished faculty will confirm throughout the summit, we have the tools at our disposal to control and, ultimately, to end AIDS, but it will require far more focus and collaboration to deliver on this promise for millions of people.

Future generations will judge us on our action, or lack thereof, when we could have avoided the cost of inaction. Will they say we squandered the opportunity of a lifetime to expend the resources and leverage the political will necessary to end AIDS? Because of your presence here over the next two days, I am confident that they will look back upon us one day and acknowledge that we succeeded in ending AIDS and removing HIV as a public health threat through our concerted, energetic, and focused actions.

I wish you a successful summit.



José M. Zuniga, PhD, MPH  
President, IAPAC



# WELCOME FROM THE CO-CHAIRS

Dear Colleagues:

Welcome to the third annual **Controlling the HIV Epidemic with Antiretrovirals** summit, organized by the International Association of Providers of AIDS Care (IAPAC) to address the implications of emerging evidence that the medications used to treat HIV can play a vital role in both improving population health in heavily affected regions and stopping the spread of HIV.

Over the past few years, we have seen proof of concept studies translated into public health programs that are having a meaningful impact on decreasing AIDS-related morbidity and mortality, as well as transmission, while also improving workforce productivity. This summit brings together key stakeholders, including government officials, clinical investigators and implementers, private sector developers of new medications and diagnostics, as well as members of civil society, including people living with and affected by HIV, to plot a way to make actionable the summit's theme of avoiding the cost of inaction.

In the last few months, the use of antiretroviral therapy (ART) to prevent morbidity, mortality, and transmission (commonly referred to as treatment as prevention, or TasP), has moved to a higher level of attention and prominence with the Joint United Nations Programme on HIV/AIDS (UNAIDS) announcement of a proposed post-2015 90-90-90 target to be reached by 2020:

- 90% of all people living with HIV will know their HIV status;
- 90% of all people with diagnosed HIV infection will receive sustained ART; and
- 90% of all people receiving ART will have durable viral suppression.

Attaining this target will lead to 73% of all people living with HIV achieving virologic suppression globally. This would be expected to meet the UNAIDS goal of ending the HIV epidemic by 2030, defined as "the rapid reduction of AIDS-related deaths as well as new HIV infections, [and] stigma and discrimination experienced by people living with HIV and vulnerable and key populations by 90% of 2010 levels." However, the challenge in front of us is to develop and deploy the evidence-based strategies to support the swift and efficient implementation of programs aimed at meeting the proposed 90-90-90 target. This is a tall order, but one we can and must meet.

The use of antiretrovirals for primary HIV prevention as pre-exposure prophylaxis (PrEP) provides additional new opportunities to control the HIV epidemic. However, PrEP has also raised many questions, including concerns about risk compensation, cost, and selection for drug-resistant HIV. Although these fears have not materialized, it is early in the development process, and many questions remain about optimal medications, regimens, and delivery systems. On a larger scale, in a world of constrained resources, how can antiretrovirals be optimally deployed to achieve the most cost-effective strategies to improve the health of the greatest number of people?

We do not expect to provide answers to all the vital questions around TasP and PrEP over the next two days. However, we hope that scheduled plenaries and panels as well as formal and informal discussions will provide you with new information, new insights, and new contacts to facilitate further optimization of the use of antiretrovirals to control and, potentially, end the HIV epidemic by 2030.

Best wishes for a productive summit,



Kenneth H. Mayer, MD  
Harvard University/Fenway Institute  
Boston, MA, USA



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



THURSDAY  
18 SEPTEMBER 2014

SEIZING AN HISTORIC OPPORTUNITY

0900-0930 **CONFERENCE WELCOME**  
*José M. Zuniga, PhD, MPH*  
*Julio S.G. Montaner, MD*  
*Kenneth H. Mayer, MD*

0930-1000 **KEYNOTE ADDRESS**  
Leveraging HIV Treatment to End AIDS,  
Stop New HIV Infections, and Avoid the  
Cost of Inaction  
*Michel Sidibé, MEcon*

1000-1045 **HIGH-LEVEL ROUNDTABLE**  
90-90-90: The Final Treatment Targets  
toward the End of the AIDS Epidemic  
*Refer to Program Addendum*  
*NOTE: This Roundtable discussion is  
sponsored by the Joint United Nations  
Programme on HIV/AIDS (UNAIDS).*

1045-1100 **BREAK**

1100-1130 **PLENARY 1**  
Seizing an Historic Opportunity -  
A Response Based on Sound Science  
and Fundamental Human Rights  
*Deborah Bix, MD*

1130-1215 **PANEL 1**  
Controlling the HIV Epidemic -  
Perspectives on Turning Aspiration into  
Reality  
**Moderator:** *Celso Ramos, MD, MSc*  
**Presenter:** *David M. Serwadda, MBChB,  
MMed, MSc, MPH*  
**Discussants:**  
*Wafaa El-Sadr, MD, MPH*  
*Bohdan Nosyk, PhD*  
*Fábio Mesquita, MD, PhD*  
*Alan Whiteside, DEcon*

1215-1300 **PANEL 2**  
Ending Pediatric AIDS - Translating Hope  
into Reality  
**Moderator:** *Charles Lyons*  
**Panelists:**  
*Deborah Bix, MD*  
*Phillipe Duneton, MD*  
*Anja Giphart, MD, MPH*  
*Peter McDermott, MS, RPN*  
*Badara Samb, MD, PhD*  
*NOTE: This Panel discussion is sponsored  
by the Elizabeth Glaser Pediatric AIDS  
Foundation (EGPAF).*

1300-1400 **LUNCH**

GENERATING TREATMENT DEMAND

1400-1430 **PLENARY 2**  
Optimizing the HIV Treatment  
Continuum  
*Meg Doherty, MD, PhD*

1430-1515 **PANEL 3**  
Testing and Linkage to Care as Gateways  
(or Closed Doors) to Successful HIV Control  
**Moderator:** *Jorge Saavedra, MD*  
**Presenter:** *Wafaa El-Sadr, MD, MPH*  
**Discussants:**  
*Terri M. Ford*  
*James McIntyre, MD*  
*Kenly Sikwese*  
*Rupert Whitaker, MD*

1515-1600 **PANEL 4**  
State-of-the-Science: Treatment as  
Prevention and/or Treatment for Treatment?  
**Moderator:** *Jane Anderson, MBBS, PhD*  
**Presenter:** *Reuben Granich, MD, MPH*  
**Discussants:**  
*K. Rivet Amico, PhD*  
*Nikos Dedes*  
*Sarah J. Fidler, MBBS, PhD*  
*Paula Munderi, MD*

1600-1615 **BREAK**

1615-1645 **ORAL ABSTRACT SESSION 1**  
Treatment as Prevention

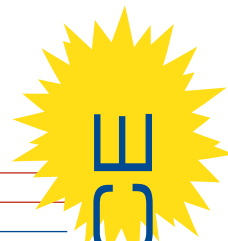
1645-1715 **PLENARY 3**  
Health Systems Strengthening  
*Francesca Celletti, MD*

1715-1745 **PLENARY 4**  
Community Engagement  
*Anna Zakowicz, MPH, MA*

1745-1815 **PLENARY 5**  
Stigma/Discrimination  
*Sean Strub*

1815-1900 **PANEL 5**  
Harmonizing Global Treatment Initiation -  
The Tale of Varied Color Starting Flags  
**Moderator:** *David Asboe, MD*  
**Presenter:** *Julio S.G. Montaner, MD*  
**Discussants:**  
*Serge Eholie, MD, PhD*  
*Fábio Mesquita, MD, PhD*  
*Andrew Phillips, PhD, MSc*  
*Luis Soto-Ramirez, MD*

# FRIDAY 19 SEPTEMBER 2014



# PROGRAM AT-A-GLANCE

## ENERGIZING THE PREVENTION AGENDA

0900-0930 **PLENARY 6**  
A Paradigm Shift Focused on the HIV Prevention Continuum  
*Richard Hayes, MSc, DSc*

0930-1015 **PANEL 6**  
State-of-the-Evidence: Antiretroviral Chemoprophylaxis  
**Moderator:** James Rooney, MD  
**Presenter:** Kenneth H. Mayer, MD  
**Discussants:**  
*Richard Gilson, MD*  
*Beatriz Grinsztejn, MD, PhD*  
*Andrew Grulich, MBBS, PhD*  
*Patrick Oyaro, MBChB*

1015-1045 **PLENARY 7**  
Striving for an Expanded HIV Prevention Response - What Does the Future Hold?  
*Sheryl Zwierski, RN*

## 1045-1100 BREAK

1100-1130 **ORAL ABSTRACT SESSION 2**  
Pre-Exposure Prophylaxis

1130-1200 **ORAL ABSTRACT SESSION 3**  
Treatment/Prevention Continua

1200-1245 **PANEL 7**  
Placing PrEP in Perspective - Ethical, Sociological, and Community Views  
**Moderator:** Julie Barroso, PhD, ANP-BC, RN  
**Presenter:** Jeremy Sugarman, MD, MPH  
**Discussants:**  
*Sheldon Fields, PhD, ARNP*  
*Jim Pickett*  
*Midnight Poonkasetwattana, MSc*  
*Janet Seeley, PhD*

## 1245-1400 LUNCH

## MAKING SMART INVESTMENTS

1400-1430 **PLENARY 8**  
The 90-90-90 Target: A Smart and Doable Investment  
*Badara Samb, MD, PhD*

1430-1500 **PLENARY 9**  
Innovations in Health Service Delivery  
*Benjamin Young, MD, PhD*

1500-1530 **PLENARY 10**  
Pursuing Strategic Partnerships to Push Innovation  
*Bertrand Audoin, MBA*

1530-1600 **PLENARY 11**  
Innovative Health Financing  
*David Wilson, PhD*

1600-1630 **PLENARY 12**  
ROI Scenarios - Implications of Making Small-, Mid-, and Large-Scale Investments  
*Alan Whiteside, DEcon*

## 1630-1645 BREAK

## MAKING IT HAPPEN

1645-1730 **CLOSING PANEL**  
Making It Happen - Navigating the Intersection of the HIV Care and Prevention Continua  
**Moderator:** José M. Zuniga, PhD, MPH  
**Presenters:**  
*Kenneth H. Mayer, MD*  
*Julio S.C. Montaner, MD*  
**Discussants:**  
*Jane Anderson, MBBS, PhD*  
*Patrick Oyaro, MBChB*  
*Jorge Sánchez, MD*  
*Kenly Sikwese*

## 1730 ADJOURN

**88** Gaps in Care among Adults Receiving HIV Care in Western Kenya

Beth Rachlis<sup>1</sup> (presenting), Becky Genberg<sup>2</sup>, Beverly Musick<sup>3</sup>, Gilbert Simiyu<sup>1</sup>, Joseph Hogan<sup>2</sup>, Paula Braitstein<sup>1</sup>

<sup>1</sup> Academic Model Providing Access to Healthcare (AMPATH), Kenya

<sup>2</sup> Brown University, United States

<sup>3</sup> Indiana University, United States

**Background:** While some individuals receiving HIV care may become lost to follow-up (LTFU), another proportion may only temporarily disengage and experience transient gaps. Disengagement from HIV care has been associated with an increased risk of morbidity and mortality. We sought to describe gaps in care among HIV-positive adults enrolled in the Academic Model Providing Access to Healthcare (AMPATH) program in western Kenya.

**Methods:** Eligible patients were HIV positive, 18 years old, had one follow-up visit recorded in the electronic medical record database, had a CD4 assessment within three months of enrollment, and were receiving care from an AMPATH supported site between January 2008 and December 2012. A gap in care was defined as missing a scheduled visit by three months but returning to care within one year (yes/no). Patients were defined as LTFU if they did not return to care within one year of a scheduled visit (yes/no). Gaps were stratified by antiretroviral treatment (ART) status.

**Results:** A total of 45,929 patients (67% female) with 790,988 follow-up visits (Median: 26 per patient) were included. Median age at enrollment was 35.3 (Interquartile Range: 28.6-43.2). Approximately 73% of patients had ever initiated ART. Overall, 52% of patients had one gap in care (Range: 1-6) and 39% had ever become LTFU. A higher proportion of pre-ART patients experienced gaps (78% versus 44%) and became LTFU (71% versus 27%) compared to ART patients.

**Conclusions:** Over half of all HIV-positive patients in our study experienced gaps in care during the course of follow-up, with a higher proportion occurring in the pre-ART stage. Given the poor clinical outcomes associated with gaps in care and treatment, future research should identify strategies that improve overall retention and continuous engagement along the HIV care continuum.

**94** A Population-Based Public Health Approach: Population- versus Facility-Level Metrics for Measuring Engagement within the HIV Care Cascade

Becky Genberg<sup>1</sup> (presenting), Edwin Sang<sup>2</sup>, Monicah Nyambura<sup>2</sup>, Beth Rachlis<sup>2</sup>, Kara Wools-Kaloustian<sup>3</sup>, Joseph Hogan<sup>1</sup>, Paula Braitstein<sup>2</sup>

<sup>1</sup> Brown University, United States

<sup>2</sup> Academic Model Providing Access to Healthcare (AMPATH), Kenya

<sup>3</sup> Indiana University, United States

**Background:** If the potential of HIV treatment as prevention (TasP) is to be realized, a high proportion of people living with HIV in a given population needs to be diagnosed, engaged in care, and maintained on antiretroviral therapy (ART). Most studies evaluate losses in the HIV care continuum from enrollment in care onwards (i.e., facility-based metrics). The objective of this analysis was to compare facility- versus population-based uptake and retention estimates.

**Methods:** The Academic Model Providing Access to Healthcare (AMPATH) program provides HIV care and treatment to more than 80,000 individuals in 22 sub-counties in western Kenya. Since 2007, AMPATH has been conducting home-based HIV counseling and testing (HBCT). Data from HBCT were merged with clinical data to obtain population-based estimates of engagement and retention in care within AMPATH in one high-prevalence sub-county (Bunyala). Population-based metrics were compared to facility-based estimates.

**Results:** From December 2009 to January 2011, HBCT covered 88% of the population in Bunyala. Among those eligible for testing, 2,306 were previously diagnosed and 1,482 were newly diagnosed during HCT (prevalence = 10%). Of these, 2,247 ever had an initial clinical visit and were considered enrolled in care. From the facility-based perspective, 92% received CD4 testing, 89% had initiated ART, and 93% of those who initiated ART were alive and active on ART as of June 2014. From the population perspective, 59% had ever engaged with care, 55% received CD4 testing, 53% had initiated ART, and 49% were alive and on ART as of June 2014. The overall estimates of retention in care (combining pre-ART and ART patients) were 86% versus 53% from the facility- and population-based metrics, respectively.

**Conclusions:** Facility-based estimates of the HIV care continuum underestimate engagement in the care cascade. Population-based strategies for testing, linkage and monitoring of the cascade are needed for the full potential of TasP to be realized.

## 111 Monitoring Effectiveness of HIV Programs in the Era of Implementation Science Utilizing a Sample of 27,000 Drug Users and Men who have Sex with Men in India

Sunil Solomon<sup>1</sup> (presenting), Gregory Lucas<sup>1</sup>, Aylur Srikrishnan<sup>2</sup>, Allison McFall<sup>3</sup>, Saravanan Shanmugam<sup>2</sup>, Oliver Laeyendecker<sup>4</sup>, Muniratnam Kumar<sup>2</sup>, David Celentano<sup>3</sup>, Suniti Solomon<sup>2</sup>, Shruti Mehta<sup>3</sup>

<sup>1</sup> Johns Hopkins University School of Medicine, United States

<sup>2</sup> YR Gaitonde Centre for AIDS Research and Education, India

<sup>3</sup> Johns Hopkins Bloomberg School of Public Health, United States

<sup>4</sup> National Institute of Allergy and Infectious Diseases, United States

**Background:** With widespread implementation of HIV programs, monitoring program effectiveness especially among hard-to-reach populations is essential. HIV incidence is the most relevant measure, but can be hard to quantify particularly in resource-limited settings. We investigated multiple potential surrogates for HIV incidence including markers of access to HIV treatment and prevention services.

**Methods:** We recruited men who have sex with men (MSM) from 12 cities and injection drug users (IDUs) from 15 cities across India (target recruitment ~1,000/site) using respondent-driven sampling. We estimated HIV incidence in all sites with a validated multi-assay algorithm incorporating BED, avidity, HIVRNA and CD4 count. We compared the correlation between site-level HIV incidence and the following measures using Spearman correlation coefficients: 1) community viral load (CVL): average log<sub>10</sub> HIV RNA among HIV-positive persons; 2) prevalence of viremia (PV): prevalence of HIV-positive individuals with HIV RNA >150 copies/mL; 3) HIV prevalence; 4) proportion HIV-positive on antiretroviral therapy by self-report (propART); 5) proportion HIV-negative people who received HIV counseling and testing in the prior 12 months (propHCT) – a measure of access to prevention services; and 6) community access to HIV services (commSERV): number of HIV-positive people on ART plus number of HIV-negative people receiving HCT/sample size.

**Results:** 26,503 participants were recruited across the 27 sites (12,022 MSM and 14,481 IDUs). The median (range) of annualized HIV incidence was 0.97% (0, 12.4). PV demonstrated the strongest correlation with HIV incidence (Rho = 0.81) followed by HIV prevalence (0.62), propART (-0.54), CVL (0.51), commSERV (-0.30), and propHCT (-0.26). PV was significantly more strongly correlated with HIV incidence compared to all other community measures (p <0.05).

**Conclusions:** Markers of HIV treatment access were more strongly correlated with HIV incidence than markers of HIV prevention. Prevalence of viremic individuals in the population, which can be readily measured using dried blood spots, appears to be the ideal surrogate when HIV incidence data is unavailable.

## 115 Nation-Wide Evaluation of Anti-retroviral Therapy Coverage on Prevention in Rwanda: A Multi-Sectional Time-Trend Analysis

Edward Mills<sup>1</sup> (presenting), Sabin Nsanzimana<sup>2</sup>, Eric Remera<sup>2</sup>, Vincent Mutabbezi<sup>2</sup>, Julius Kamwesiga<sup>2</sup>, Adeline Dukazi<sup>2</sup>, Steve Kanter<sup>1</sup>, Jeroen Jansen<sup>1</sup>, Kristian Thorlund<sup>1</sup>, Jamie Forrest<sup>1</sup>, Julio Montaner<sup>3</sup>, Till Barnighausen<sup>4</sup>, Eran Bendavid<sup>5</sup>, Tim Hallett<sup>6</sup>

<sup>1</sup> Global Evaluative Sciences, Canada

<sup>2</sup> Rwanda Biomedical Centre, Rwanda

<sup>3</sup> BC Centre for Excellence in HIV/AIDS, Canada

<sup>4</sup> Harvard University, United States

<sup>5</sup> Stanford University, United States

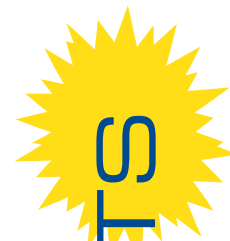
<sup>6</sup> Imperial College London, United Kingdom

**Background:** Rwanda is one of the most successful countries in terms of antiretroviral therapy (ART) coverage and recently changed guidelines to immediately initiate ART for key groups and at CD4 status of 500 cells/mm<sup>3</sup> among the general population. We aimed to examine the effect of treatment scale-up on the incidence of new infections using a time-staggered causal design.

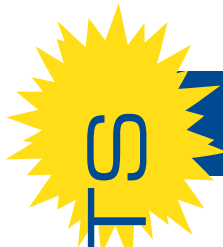
**Methods:** We applied a hierarchical design that assessed the scale-up of ART across 416 health sectors among 30 districts in Rwanda. We assessed the number of infections detected within these health sectors in three-month periods over 10 years (2004-2014). We assessed the projected number of new infections per health sector and modeled the change in slope between cases detected and projected cases. We used three different methods to evaluate incidence within each health sector.

**Results:** In our study period, 123,317 patients initiated ART across Rwanda. New cases detected peaked in 2007 and reduced to 12,993 in 2013. We found that for every 10% increase in coverage per health sector, a 6.07 percent reduction in incidence occurred. At the current coverage of 50% of all eligible patients in Rwanda, the effect of ART has contributed a reduction of 26.9% (95% Confidence Intervals [CI] 21.9-31.9%) year by year in a multiplicative way – increasing to 71% by four years. The new target goal of providing ART at 500 cells/mm<sup>3</sup> is estimated to reduce incidence by 36% per year (83% in four years).

**Conclusions:** This is, to our knowledge, the first nation-wide evaluation examining the effect of ART on incidence. Our findings demonstrate a large preventive effect associated with ART coverage. As scale-up to new guidelines and targeted populations increase, the preventive effects of ART coverage will likely contribute to greater declines in population incidence.





**106** Estimating the Impact of a PrEP Program in England for Men who have Sex with Men

Monica Desai<sup>1</sup>, Sarika Desai<sup>1</sup>, Anthony Nardone<sup>1</sup> (presenting), Sheena McCormack<sup>2</sup>, Noel Gill<sup>1</sup>

<sup>1</sup> Public Health England, United Kingdom

<sup>2</sup> Medical Research Council, United Kingdom

**Introduction:** Pre-exposure prophylaxis (PrEP) for men who have sex with men (MSM) is currently only available in England through the PROUD study. We explored whether a targeted program benefiting MSM attending Genitourinary Medicine (GUM) clinics in England, requiring a low number of MSM to be offered the intervention, could avert a high number of HIV infections with a low number needed to treat (NNT).

**Description:** We used the GUM Activity Dataset (GUMCAD) to estimate HIV infections averted and NNT from the number of and HIV incidence amongst MSM attending GUM clinics for a range of reasons, PrEP coverage of 90%/60%/30% and assuming four or more days of PrEP dosing each week. The categories analyzed were: all MSM; those with any acute bacterial STI; those with chlamydia (Ct) or gonorrhoea (Gc) alone; unprotected anal sex with a casual partner; and two HIV tests per annum.

**Lessons Learned:** Offering PrEP to all MSM had the highest NNT (45), and averted 2,025 HIV infections per year, but required high usage (81,000). Offering PrEP to a targeted group of MSM with an acute STI in the past 12 months prevented a high number of new infections (1,248) with a low NNT (17) at 90% coverage (offer to 18,360 MSM) and averted 832 HIV infections with NNT 25 at 60% coverage (offer to 12,420 MSM). Remaining categories averted 30.

**Recommendations:** Promotion of PrEP to MSM with history of an acute bacterial STI could avert over a third of new HIV infections with a low NNT at 90% coverage and could prevent almost a third of new infections at 60% coverage. Targeted offer of PrEP has the potential to make a dramatic impact on the ongoing epidemic in MSM in England.

**109** Using Mathematical Models to Estimate the Potential Impact of PrEP for Female Sex Workers and Men who have Sex with Men in Bangalore, India

Kate Mitchell<sup>1</sup> (presenting), Holly Prudden<sup>1</sup>, BM Ramesh<sup>2</sup>, Reynold Washington<sup>2</sup>, Shajy Isac<sup>2</sup>, S Rajaram<sup>3</sup>, Fern Terris-Prestholt<sup>1</sup>, Charlotte Watts<sup>1</sup>, Peter Vickerman<sup>4</sup>

<sup>1</sup> London School of Hygiene and Tropical Medicine, United Kingdom

<sup>2</sup> Karnataka Health Promotion Trust, India

<sup>3</sup> CHARME-India Project, India

<sup>4</sup> University of Bristol, United Kingdom

**Background:** In Bangalore, HIV infection is concentrated among men who have sex with men (MSM), female sex workers (FSWs) and their commercial clients. Following previous interventions, MSM and FSWs report high levels of condom use. We estimated the additional impact of providing pre-exposure prophylaxis (PrEP) for high-risk MSM (HR-MSM) and/or FSWs.

**Methods:** A deterministic model of HIV transmission between MSM, FSWs, commercial clients of FSWs and low-risk members of the general population was parameterized using behavioral data from Bangalore. The model was fitted to HIV prevalence data for MSM, FSWs and clients, and to antiretroviral therapy (ART) coverage data for Bangalore from multiple time points, and was used to estimate the impact of PrEP targeted to FSW, HR-MSM or both groups, for a range of different PrEP coverage and effectiveness assumptions. Impact was estimated in terms of infections averted (IA) and life-years gained (LYG), and efficiency was estimated in terms of years of PrEP per LYG.

**Results:** Over 10 years, the model predicted that a PrEP intervention with 40% coverage of the target population and 60% effectiveness could avert over a fifth of new infections among the targeted population (FSW or HR-MSM), and 2%-3% of new infections in the whole population. Impact increased with higher efficacy and coverage. Targeting FSW had a greater population-level impact than targeting HR-MSM, and the effects of targeting both groups were almost additive. The impact increased over time. PrEP efficiency was predicted to be greater when targeting FSWs rather than HR-MSM (after 10 years, a median of 475 versus 1,541 years of PrEP per LYG when targeting FSWs or HR-MSM respectively, with 60% PrEP effectiveness and 40% coverage), and efficiency improved substantially over time.

**Conclusions:** PrEP targeted to high-risk MSM or FSW in Bangalore could substantially reduce incidence amongst these groups, and have a small impact upon population HIV incidence. Greater impact and efficiency at the population level are predicted when PrEP is targeted to FSWs. Higher efficiency may be achieved if PrEP is targeted to FSWs who are unable to use condoms consistently.



## 114 Civil Society Advocacy as a Prerequisite for the Implementation of Oral PrEP and other ARV-Based Prevention

Cindra Feuer (presenting), Kevin Fisher, Deirdre Grant

AVAC: Global Advocacy for HIV Prevention, United States

**Introduction:** A suite of pre-exposure prophylaxis (PrEP) efficacy findings and US Food and Drug Administration approval in 2012 for the use of daily Truvada for prevention in adults at-risk of HIV infection were important milestones. But translating research into implementation is never easy. A common response to chemoprophylaxis for the prevention of sexual HIV infection has been one of caution given the novelty and unknowns of such an intervention. This case study reviews the strategies used to build PrEP literacy and advocacy, engage media, and identify replicable elements that could be used to inform civil society mobilization in related areas. Such concerted, strategic advocacy has been integral in tipping public opinion and policy toward initial PrEP implementation in some places.

**Description:** Globally, AVAC and partners supported advocates to advance PrEP communications and education in targeted populations through countless community forums. A civil society sign-on effort was triggered in support of the US Centers for Disease Control and Prevention's guidelines to counter the naysayers gaining ground in the media. An online clearinghouse ([www.prepwatch.org](http://www.prepwatch.org)) was created, and the social media campaign *PrEP at 2 Years* was recently launched. Cumulatively, such mobilization resulted in increased sympathetic US media coverage and toward an increased acceptance of PrEP as a prevention option. In Europe and some African countries, nascent movements for the implementation of PrEP have begun to gain traction. Recently, the World Health Organization (WHO) recommended PrEP for men who have sex with men (MSM) in its updated guidance on key populations.

**Lessons Learned:** Civil society advocacy is a prerequisite for the implementation of new biomedical interventions, such as PrEP. Mobilization is key to educating targeted populations about PrEP's benefits, managing expectations and engaging with the media in an evidence-based discussion.

**Recommendations:** Timely advocacy is needed to pave the way for forthcoming antiretroviral (ARV)-based prevention options such as tenofovir gel and the dapivirine ring. Learning from oral PrEP struggles and successes, advocates will enable better planning for product introduction.

## 117 Stigma as Possible Barrier to PrEP Acceptance in Nigeria: Lessons Learned from the Formative Study on PrEP Acceptability

Nancin Dadem<sup>1</sup> (presenting), John Idoko<sup>2</sup>, Morenike Folayan<sup>3</sup>, Grace Kolawole<sup>1</sup>, James Anenih<sup>2</sup>, Emmanuel Alhassan<sup>2</sup>

<sup>1</sup> Jos University Teaching Hospital, Nigeria

<sup>2</sup> National Agency for the Control of AIDS, NACA, Nigeria

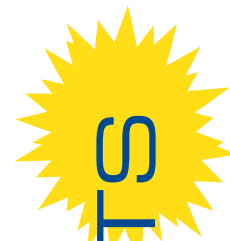
<sup>3</sup> Obafemi Awolowo University, Nigeria

**Background:** A formative study was conducted to explore acceptability of antiretroviral (ARV) use as pre-exposure prophylaxis (PrEP) for HIV prevention in Nigeria. The objectives of the study were to identify a target group for PrEP study, effective approaches to public health messaging about PrEP, possible community concerns about PrEP, logistic challenges with PrEP delivery, and how to address these challenges.

**Methods:** Qualitative data were generated through in-depth interviews with stakeholders engaged with the HIV response; and representatives of communities, civil societies and at-risk HIV populations (n = 101). Focus group discussions were held with at-risk groups and health care providers (n = 12 groups), and telephone interviews with stakeholders engaged with HIV programs (n = 113). Three consultative meetings were then conducted with HIV stakeholders and serodiscordant couples (the identified target group for PrEP). Finally, an online survey was completed with 65 respondents from around the world. Data were inductively analyzed, coded and organized into descriptive categories.

**Results:** Findings indicate wide acceptance of PrEP as an addition to the HIV prevention package in Nigeria. However, there were concerns expressed about stigma as a possible barrier to the use of PrEP. Stigma could arise through the breach of confidentiality stemming from: a) the physical layout of PrEP clinics, b) organization of PrEP services, and c) professionalism of staff. Low levels of public PrEP awareness about ARV use for HIV prevention could result in association of use of ARVs for PrEP as use of ARVs for treatment, leading to discrimination against PrEP users.

**Conclusions:** One key area to address during the PrEP Demonstration Project in Nigeria is providing appropriate information to ensure community understanding about the use of PrEP for HIV prevention. The project would also need to address the sources of stigma in the communities, remodel PrEP access clinics, and re-train health care providers on confidentiality.





## 75 Perinatally HIV-Infected Young Adults Welcome PrEP and Envision its Potential in Curtailing the Epidemic

Georgina Silva-Suarez<sup>1</sup>, Silvia Rabionet<sup>2</sup> (presenting), Carmen Zorrilla<sup>2</sup>, Irma Febo<sup>2</sup>, Elena Bastida<sup>1</sup>

<sup>1</sup> Florida International University, United States

<sup>2</sup> University of Puerto Rico, United States

**Background:** Perinatally HIV-infected (pHIV-1) young adults face the complexity of living with a transmissible disease. There is paucity in studies that explore the negotiation of sexuality among this population. The advent of pre-exposure prophylaxis (PrEP) can redefine their path to sexually active adults.

**Methods:** In-depth interviews were conducted with 20 perinatally HIV-infected women and men between the ages of 18 and 30 in Puerto Rico. Their experiences as young persons living with HIV were explored. Questions were asked about medication meaning, intimate relationships, and knowledge and acceptability of PrEP. The interviews were audio-recorded. NVIVO was used for the analysis. Responses were assessed using the Qualitative Interpretative Phenomenology Analysis.

**Results:** The participants expressed their stress about transmitting HIV. They reported feeling responsible for the wellbeing of their partners. When asked about PrEP, the majority of them did not know what it was. After a brief explanation, they were excited about the potential of the medication and embraced its adoption as part of their intimacy strategies. They felt relieved to know that their partners could have a tool to prevent infection. They envisioned adopting PrEP as a double protection, as an alternative to give control to partners, and as a way to curtail the epidemic. They wanted to know more about the side effects and efficacy. Based on the advent of PrEP, some welcomed the possibility of receiving additional education and counseling as couples.

**Conclusions:** pHIV-1 youth is a population that can highly benefit from PrEP, however they are unaware of its existence. If pHIV-1 youth are well educated about the PrEP, they can share that information with their intimate partners, facilitating their intimacy and sharing the responsibility of preventing transmission. Health programs targeted to this population should incorporate the latest information about PrEP.

## 93 A Comparison of Clients Using National Online HIV Self-Sampling Services with Those Testing for HIV in STI Clinics in England, 2013

Samantha Westrop<sup>1</sup> (presenting), Michael Brady<sup>2</sup>, Alan McOwan<sup>3</sup>, Anthony Nardone<sup>1</sup>

<sup>1</sup> Public Health England, United Kingdom

<sup>2</sup> Terrence Higgins Trust, United Kingdom

<sup>3</sup> Chelsea and Westminster NHS Trust, United Kingdom

**Introduction:** HIV testing is a major component of prevention and is directed towards the most at-risk populations in England: men who have sex with men (MSM) and black-African heterosexuals. Two national online self-sampling services for HIV testing offering postal kits were established in 2013: Terrence Higgins Trust (THT) and Dean Street at Home (DSH).

**Methods:** Online orders made from November 1, 2013, to March 31, 2014, were analyzed to determine the proportion returned and reactive, geography of residence, age, ethnicity, and sexual orientation of clients. This information was compared to clinic attendees receiving an HIV test in 2013.

**Results:** Of the 12,485 kits dispatched during the study period, 6,593 (52.8%) were returned. The return rate increased with increasing age. Both self-sampling and clinic-based testing were used most by 25 to 44 year olds (self-sampling 58.9%, clinic 50.6%). The vast majority of individuals requesting kits from THT were MSM (89.2%) for whom the positivity rate was 11 per 1,000 tests; compared to eight per 1,000 tests in clinics. The positivity rate among men using DSH was 17 per 1,000 tests. Of heterosexuals ordering kits through the THT service, individuals of black-African ethnicity accounted for 91.3% (575/630) of orders, and 81.8% (275/374) of returns. Positivity rate among black-African heterosexuals using the THT service was 33 per 1,000 tests, compared with seven per 1,000 tests in clinics. Almost two-thirds of individuals testing through DSH resided in London, compared with half of clinic users, and only one-fifth of THT users; which were more evenly distributed nationwide.

**Conclusions:** The two self-sampling services successfully recruited and diagnosed MSM and black-African heterosexuals, in higher proportion than clinical services; with distinct geographic distribution of clients. Self-sampling represents a novel, effective method of expanding HIV testing to individuals at high-risk of infection who otherwise may not test in existing clinic-based settings.

## 95 Can the HIV Epidemic Be Eliminated in South Africa using Combination Prevention? A Modeling Analysis

Nadia N. Abuelezam<sup>1</sup> (presenting), Alethea W. McCormick<sup>1</sup>, Rochelle P. Walensky<sup>2,3,4</sup>, Thomas Fussell<sup>1</sup>, Abena N. Afriyie<sup>1</sup>, Kenneth A. Freedberg<sup>1,2,4</sup>, Victor DeGruttola<sup>1</sup>, Marc Lipsitch<sup>1</sup>, George R. Seage III<sup>1</sup>

<sup>1</sup> Harvard School of Public Health, Boston, MA, United States

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**Background:** Despite a number of independently efficacious HIV prevention interventions, little is known about how these interventions will perform in combination and whether or not their use in combination will lead to the elimination of HIV.

**Methods:** We use a calibrated individual-based simulation model, the CEPAC Dynamic Model (CDM) to assess the potential for HIV elimination in South Africa using combination prevention. We examine several scenarios (from most realistic/data-driven to more idealized) with differing combinations of several interventions: condoms, adult male circumcision, HIV testing, and early antiretroviral therapy (ART). Parameters varied include: HIV test acceptance, linkage to care, ART suppression, late ART failure, loss to follow up, and ART initiation criteria. Each scenario is run with each of the 564 parameterizations that account for 90% of the model fit to prevalence/incidence data from 1990 to 2013.

**Results:** Only in the most idealized combination scenario do we project elimination of HIV on a 50-year time scale (range: 33-50 years). Universal condom usage, with no other changes in prevention policy, results in a reduction of incidence by 99% on a 50-year scale, while universal adult male circumcision alone results in a 21% incidence reduction within 20 years of the intervention. Perfecting the testing and treatment cascades, without changing condom use or adult male circumcision rates, results in an 89% incidence reduction, but not elimination. A test and treat strategy, alongside current prevention efforts, leads to an 11% drop in incidence.

**Conclusions:** Substantial decreases in HIV incidence are possible from sufficiently good uptake of primary prevention as well as of ART. Given currently available data, actual HIV elimination in South Africa is unlikely within the constraints of achieving the examined scenarios.

## 103 The “Undetectables” – Using Financial Incentives to Support Viral Load Suppression in a Community-Based Organization Providing Integrated Care

Virginia Shubert<sup>1</sup> (presenting), Charles King<sup>1</sup>, Toorjo Ghose<sup>2</sup>, Vaty Poitevien<sup>1</sup>

<sup>1</sup> Housing Works, United States

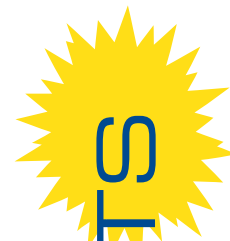
<sup>2</sup> University of Pennsylvania, United States

**Background:** This study seeks to determine the efficacy, feasibility, and cost-effectiveness of financial incentives as part of a comprehensive community-based care program to achieve antiretroviral (ARV) adherence among a formerly homeless, HIV-positive cohort of individuals. Housing Works (HW) provides a full range of housing, primary care and supportive services for formerly homeless persons with HIV in New York City, many of whom struggle with co-occurring social and behavioral issues. The HW “Undetectables” Viral Load Suppression (VLS) Project is an ongoing 24-month demonstration with a projected enrollment of 700 people living with HIV and a primary objective of supporting ARV adherence to viral suppression (50 copies/ml) for at least 80% of participants. The program uses a tiered set of evidence-based adherence interventions including a quarterly \$100 financial incentive for achieving or maintaining viral suppression.

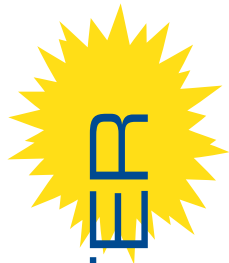
**Methods:** Using each participant as his or her own control, we will assess viral load (at HW clinics) every three months starting six months prior to VLS Project enrollment (to establish a baseline) and continuing for up to six months after the 24-month intervention ends, to monitor viral load and cumulative viral exposure. Qualitative interviews with staff and clients will examine attitudes regarding program efficacy. We will employ standard methods of cost analysis to evaluate the cost-utility of the intervention as a function of incremental program costs and medical costs saved through averted downstream infections.

**Results:** We will present a first look at six-month results (March 2014 through August 2014). Among clients eligible for enrollment in the VLS Project at its inception, 54% were virally suppressed and approximately 40% had experienced viral rebound at some point during a 24-month look-back period.

**Conclusions:** Financial incentives may be a feasible, sustainable, and scalable component of a cost-effective program of ARV adherence supports for people living with HIV who face multiple social and structural barriers to medication compliance.







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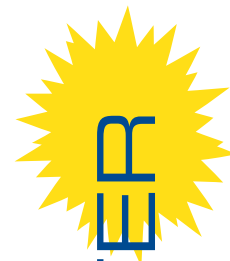
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## CONFERENCE INFORMATION

### PROGRAM OVERVIEW

The International Association of Providers of AIDS Care (IAPAC), in partnership with the Joint United Nations Programme on HIV/AIDS (UNAIDS), Public Health England (PHE), and AIDS Healthcare Foundation (AHF), is hosting this two-day **Controlling the HIV Epidemic with Antiretrovirals** summit with a goal of leveraging antiretrovirals to make AIDS-related deaths and new HIV infections exceedingly rare.

The summit will feature data related to and discussion about the implementation of combination prevention, including treatment as prevention (TasP) and pre-exposure prophylaxis (PrEP). In addition, the summit will provide a forum for exploring HIV care and prevention continua optimization to achieve antiretroviral therapy's maximum therapeutic and preventative effects.

This year's summit builds upon the significant momentum gained from the 2012 and 2013 summits. The 2012 summit allowed IAPAC to generate a Consensus Statement released at the XIX International AIDS Conference in Washington, DC, USA (avail-

able at [www.iapac.org](http://www.iapac.org)). And, last year's summit is the subject of a 1 July 1, 2014, IAPAC-sponsored supplement to *Clinical Infectious Diseases* (available at [http://cid.oxfordjournals.org/content/59/suppl\\_1.toc](http://cid.oxfordjournals.org/content/59/suppl_1.toc)).

Featured in the supplement is an editorial that serves as the foundation for the 2014 summit's program, mainly the five thematic areas around which IAPAC and our partners wish to advance a global agenda to control the HIV epidemic: 1) seizing an historic opportunity; 2) generating treatment demand; 3) energizing the prevention agenda; 4) making smart investments; 5) and making it happen.

### DISCLOSURE

Gilead Sciences and ViiV Healthcare have provided educational grants in support of this summit. IAPAC is responsible for control of the summit's content and faculty selection. In awarding educational grants, neither Gilead Sciences nor ViiV Healthcare had any involvement in the content of the program or the selection of presenters, panelists, and/or moderators.

## GENERAL INFORMATION

### MEETING VENUE

**Controlling the HIV Epidemic with Antiretrovirals** is being held at the Royal Garden Hotel. Plenary presentations and panel discussions will be held in the Palace Suite in the Lower Lobby Level (see the Hotel Map on page 13).

### MEALS

Coffee breaks will take place as scheduled in the summit program in the pre-function area of the Palace Suite. Neither lunch nor dinner will be provided on either day. Please check with summit staff in the Registration Area to coordinate a reservation in one of the restaurants in the Royal Garden Hotel (first come, first serve basis), or for a list of restaurants in close proximity to the Royal Garden Hotel.

### INTERNET ACCESS INSTRUCTIONS

To access the hotel's wireless network, go to any webpage and the log-in page will appear. Select the prepaid option and enter:

**Username:** EVENT/IAPAC

**Password:** ROYAL

### WEBCAST

The summit is being webcast, and archived webcasts will be made available post-summit at [www.iapac.org](http://www.iapac.org).

### SLIDE PRESENTATIONS

The summit's presentations are being posted at [www.iapac.org](http://www.iapac.org) as they are delivered.

### SOCIAL MEDIA

IAPAC encourages you to use social media to communicate your thoughts about the summit proceedings. The summit's Twitter hashtag is #tasp2014.

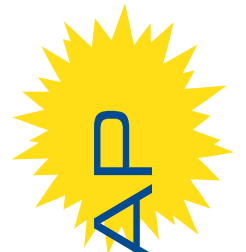


### QUESTIONS

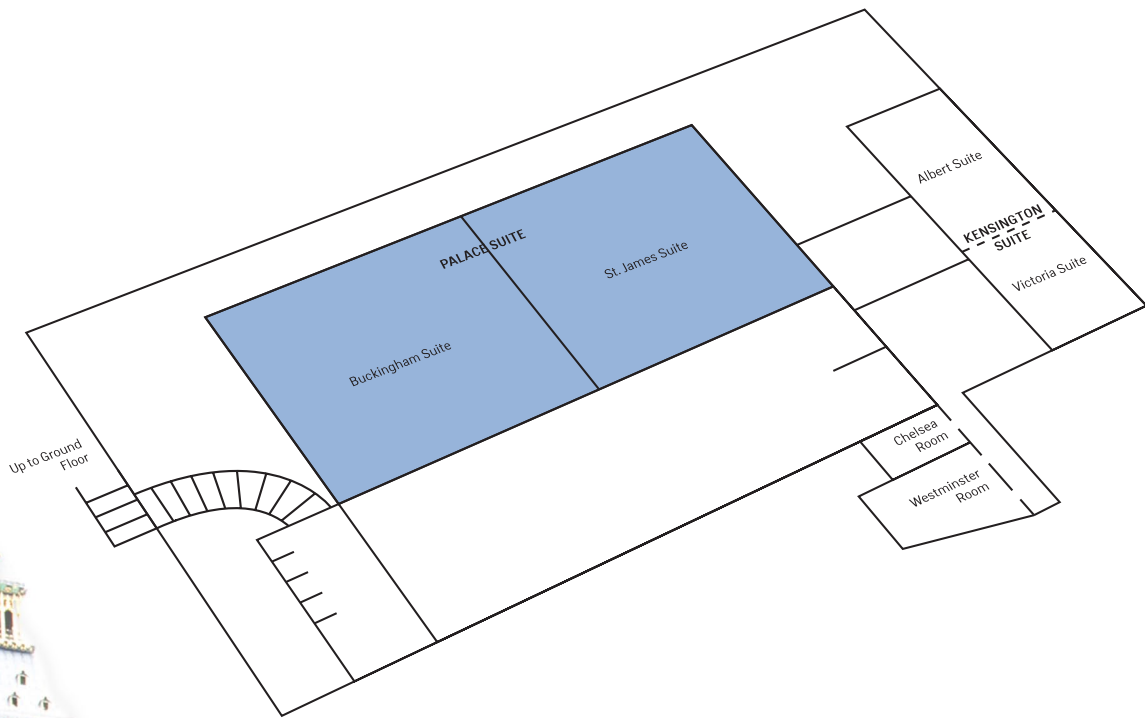
If you have any questions during the summit, please locate an IAPAC staff member in the Registration Area. If you have any questions post-summit, please contact Jonathan Hess, IAPAC's Program/Operations Associate, at [jhess@iapac.org](mailto:jhess@iapac.org).



# ROYAL GARDEN HOTEL



# HOTEL MAP





# CONTROLLING THE HIV EPIDEMIC WITH ANTIRETROVIRALS

**Controlling the HIV Epidemic with Antiretrovirals: Avoiding the Cost of Inaction** is sponsored by the **International Association of Providers of AIDS Care (IAPAC)**, in partnership with the **Joint United Nations Programme on HIV/AIDS (UNAIDS)**, **Public Health England (PHE)**, and **AIDS Healthcare Foundation (AHF)**. We wish to express our gratitude to the institutional and commercial supporters whose generosity has made our 2014 summit possible.

## Institutional Supporters

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