

MHRP EXCHANGE



Winter 2017

NEWS FROM THE U.S. MILITARY HIV RESEARCH PROGRAM AT THE WALTER REED ARMY INSTITUTE OF RESEARCH

U.S. Officials Visit with Participants in Uganda's DREAMS Program



At the time of Ambassador Malac's visit, the DREAMS participants were learning to make re-usable menstrual pads, an activity that addresses a common root cause of school absence among adolescent girls.

U.S. Ambassador to Uganda Deborah R. Malac and Deputy Assistant Secretary of State for Africa Dr. Shannon Smith in December visited a group of girls and young women participating in the DREAMS program at a Makerere University Walter Reed Project (MUWRP) site in the Mukono District of Uganda.

The President's Emergency Plan for Aids Relief (PEPFAR) last year initiated the DREAMS program in 10 African countries, including Uganda. The program's goal is to achieve a 40 percent reduction in new HIV infections among adolescent girls and young women by the end of 2017. Girls and young women account for 71 percent of new HIV infections among adolescents in sub-Saharan Africa.

This ambitious partnership aims to deliver targeted, evidence-based HIV prevention approaches that go beyond the health sector, addressing the systemic causes that increase girls' HIV risk, including poverty, gender inequality, sexual violence and a lack of education.

To achieve the DREAMS objectives, MUWRP is employing multifaceted approaches including the creation of safe drop-in spaces, peer mentoring programs and behavioral interventions. Participants in DREAMS form peer groups, for which they elect leaders and select names. The groups hold weekly meetings to provide training and support. In addition, the girls gain professional skills in vocations such as tailoring, catering and hairdressing.

Nigeria Study Identifies Potential Cohorts for HIV Vaccine Development

A recently published MHRP study found that high HIV prevalence in two communities in Nigeria, along with a reported high-level of willingness to participate in future HIV intervention studies, indicate favorable conditions for cohort development for HIV vaccine studies in the region.

Development of a globally effective HIV vaccine will need to encompass Nigeria, which, with an estimated 3.2 million people living with HIV, carries the second highest burden of HIV/AIDS in the world. The study, published online in *PLOS One*, was conducted at markets and highway settlements in Nigeria to identify and characterize populations at high risk for HIV, engage support of local stakeholders and assess the level of interest in future vaccine studies.

Of 3,229 study participants, 326 were HIV infected, with an HIV prevalence of 15.4%-23.9% at highway settlements and 3.1%-9.1% at market sites. A high percentage of HIV infected (96.0%) and HIV non-infected (95.7%) volunteers expressed willingness to participate in future studies involving regular blood draws. Dr. Ogbonnaya Njoku of the Walter Reed Program-Nigeria led the Nigerian team in recruitment, collection of specimens and collection of demographic HIV risk data.

"Educating and winning the trust of local community leadership ensured high level of participation in this study and willingness to participate in future studies," said Dr. Mark Manak, Chief Scientist in MHRP's Department of Laboratory Diagnostics and Monitoring and co-author of the paper.

IN THIS ISSUE

- 2 COMBINATION THERAPY HELPS CONTROL SIV IN PRECLINICAL STUDY
- 3 WORLD AIDS DAY 2016 ROUNDUP
- 3 TRANSMITTED DRUG RESISTANCE DECLINES IN THAI COHORT

WRAIR

Walter Reed Army
Institute of Research
Soldier Health • World Health

Investigational Therapeutic Vaccine Approach Helps Control SIV

An investigational treatment combining a therapeutic vaccine and an immune stimulator has been found to improve virologic control and delay viral rebound following the discontinuation of antiretroviral therapy (ART) in non-human primates infected with SIV, the simian form of HIV.

A proof-of-concept study examined the combined effects of therapeutic vaccination with an adenovirus serotype 26 vector vaccine and an MVA vector vaccine (Ad26/MVA) and TLR-7 agonist stimulation in ART-suppressed, SIV-infected monkeys. Findings were published in November in the journal *Nature*.

The study was a collaboration led by the Beth Israel Deaconess Medical Center (BIDMC) and MHRP, and includes scientists from Johnson & Johnson and Gilead Sciences, Inc.

“We found the combination of Ad26/MVA vaccination and TLR7 stimulation proved more effective than either component alone,” said Col. Nelson Michael, Director of MHRP, who helped design the preclinical study. “This was especially striking for viral load set-point, which impacts future disease.”

According to Dr. Merlin Robb, Deputy Director for Clinical Research at MHRP, “the combination of Ad26/MVA vaccination and TLR7 stimulation resulted in decreased levels of viral DNA in both lymph nodes and peripheral blood. With further optimization this combination strategy may show promise to achieve a functional cure for HIV.”

MHRP Welcomes Dr. M. Gordon Joyce



Dr. M. Gordon Joyce joined MHRP in November 2016 as Chief of the newly-created Structural Biology lab.

Structure-based HIV vaccine design allows for the development of novel immunogens that can target the induction and development of specific antibodies targeted to neutralization-sensitive sites on the HIV virus.

The Joyce lab will study the interplay between HIV Env structure and function including Env sequence diversity, glycan shielding and structural malleability and how this information can be used to develop novel Env-based immunogens capable of eliciting broadly protective antibodies.

Study to Examine Malaria and TB HIV Co-infection in Kenyan Defence Forces

In December 2016, MHRP completed enrollment as well as sample and data collection for a seroprevalence study in Kenya in collaboration with the Kenyan Defence Forces (KDF). The study, called RV292, will assess the prevalence of HIV-1, HIV/tuberculosis co-infection and malaria among the active duty within KDF.

The study enrolled 1,300 active duty military personnel from 15 military barracks and seeks to describe behavioral risk factors for HIV acquisition within the military population. KDF leadership was actively involved in protocol development and study execution and is participating in ongoing analysis. This is the first study of its kind with the KDF.

WRAIR has been conducting infectious diseases research in Kenya for nearly 50 years under U.S. Army Medical Research Directorate - Kenya (USAMRD-K). This new study is funded by PEPFAR and conducted through the PEPFAR-supported HIV prevention, care, and treatment program led by MHRP in Kenya since 2004.

Joint West Africa Research Group Trip



In early December 2016, a group of representatives from the Joint West Africa Research Group (JWARG) toured program sites in Nigeria, Liberia and Ghana to assess the program's progress and plan future activities. Visitors included U.S. Defense Health leaders Dr. David J. Smith, Deputy Assistant Secretary of Defense for Force Health Readiness Policy and Oversight, and Dr. Chris Daniel, Senior Adviser for Global Health Engagement within the Office of the Assistant Secretary of Health Affairs.



World AIDS Day 2016

Each year, December 1 is designated as World AIDS Day, an international event to raise awareness of HIV/AIDS and acknowledge the contributions of trial participants, researchers, health care professionals and advocates who are fighting to end the epidemic.

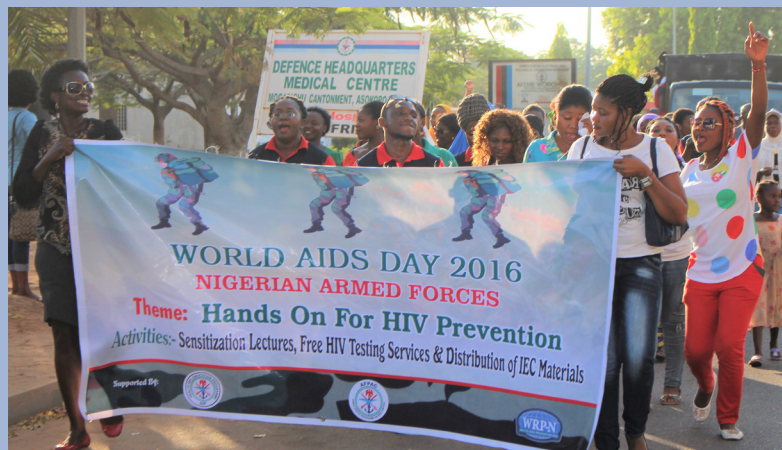
This year, MHRP's program in Tanzania joined district government and SHDEPHA-Plus, an implementing partner in the Katavi region of the southern highlands of Tanzania, for an intensive 9-day campaign of education and screening events with high-risk populations culminating on World AIDS day.

The campaign included focused HIV testing and counseling, voluntary male circumcision, cervical cancer screening and education for adolescent girls and young women on gender-based violence.

During the campaign, 647 women were screened for cervical cancer. More than 4,400 male clients age 10 and up received counseling, circumcision services and HIV testing at four voluntary medical male circumcision sites.

HIV testing and counseling providers conducted door-to-door visits, testing 5,723 clients in targeted populations in the region. Of these, 190 were identified to be HIV positive, and 90.3% of those found positive were linked to care.

Makerere University Walter Reed Program staff in Uganda held HIV counseling and testing activities near the Kampala research center, and in the Mukono district, promoted the PEPFAR DREAMS economic strengthening initiative for young women.



On World AIDS Day, Walter Reed Program-Nigeria's prevention team, collaborating with the Barrack Health Committee, conducted rallies during which they distributed condoms and offered free HIV testing services.

Transmitted Drug Resistance Declines in Acute HIV Infection Cohort

A recent study conducted by researchers from MHRP and the Thai Red Cross has shown that the prevalence of transmitted drug resistance (TDR) has declined in a cohort of individuals with acute HIV infection in Bangkok, Thailand (RV254). Findings were published in the *Journal of the International AIDS Society*.

Drug resistant HIV can arise when HIV virus mutates to evade antiretroviral therapy (ART) drugs in infected people who have begun treatment. Drug-resistant HIV can spread from person to person, and people initially infected with drug-resistant HIV have drug resistance to one or more HIV medicines even before initiating ART.

From April 2009 to December 2014, the study enrolled 233 individuals with acute HIV infection, and researchers performed drug resistance testing before participants began ART. MHRP

scientists and collaborators had previously found a 9.2% prevalence of TDR in a Thai cohort that included primarily MSM individuals with acute infection. The new analysis showed TDR prevalence declined to 4.8% in 2013 to 2014. Prevalence below 5% meets the World Health Organization's definition of low-level TDR.

Though the precise cause of the decline in TDR prevalence in the cohort is unknown, in recent years Thailand has changed the preferred regimen for HIV treatment to drugs that require less frequent dosing, have fewer side effects and are better tolerated by patients. "All of these characteristics have been associated with better treatment adherence, which is thought to contribute to decreased drug resistance," explained Dr. Jintanat Ananworanich, MHRP's Associate Director for Therapeutics Research and protocol chair of the RV254 acute infection cohort study in Thailand.



MHRP and Collaborators at CROI 2017

| Presenter (collaborator affiliation) | Title | Date and Time | Location |
|--|---|--------------------------------|-------------------|
| Jintanat Ananworanich (Plenary Session 1) | The emerging potential for HIV cure for infants, children, and adults | Tuesday Feb. 14, 8:30 | Auditorium 4 A/B |
| Hiroshi Takata~ | HIV- specific CD8 T cells in persons treated in Feibig I acute infection who stop ART | Tuesday Feb. 14, 1:30-2:30 | Room 615-617 |
| Supralee Buranapraditkun | B cell responses post- ART interruption in person treated in Fiebig I | Tuesday Feb. 14, 2:30-4:00 | Poster Hall 4 E/F |
| H.R. Omari (Institute of Human Virology) | HIV Testing, Linking in Care and Viral Suppression among Gay Men in Nigeria | Tuesday Feb. 14, 2:30-4:00 | Poster Hall 4 E/F |
| Rujipas Sirijatuphat* | Deep sequencing reveals rare CNS compartmentalization in acute HIV-1 infection | Wednesday Feb. 15, 10:00-12:00 | Room 606-609 |
| Sandhya Vasan* | Early macrophage independent inflammation and SHIV-RNA in CNS in a rhesus SHIV model | Wednesday Feb. 15, 10:00-12:00 | Room 606-609 |
| Joanna Hellmuth (University of California San Francisco) | MRS measures associate with impaired neuropsychological performance in acute HIV | Wednesday Feb. 15, 2:30-4:00 | Poster Hall 4 E/F |
| Lishomwa C. Ndhlovu (University of Hawaii) | CSF S100B and CX3CR1 monocytes in acute HIV infection predict putamen atrophy | Wednesday Feb. 15, 2:30-4:00 | Poster Hall 4 E/F |
| Louise Leyre (Centre hospitalier de l'Université de Montréal) | Altered stability of HIV-infected memory cells following very early ART | Wednesday Feb. 15, 2:30-4:00 | Poster Hall 4 E/F |
| Michelle L. D'Antoni (University of Hawaii) | Plasma soluble CD163 is suppressed upon early ART initiation in acute HIV infection | Wednesday Feb. 15, 2:30-4:00 | Poster Hall 4 E/F |
| Phillip Chan (SEARCH Thailand) | CNS monitoring of cART interruption in individuals treated during Fiebig I acute HIV | Wednesday Feb. 15, 2:30-4:00 | Poster Hall 4 E/F |
| Ornella Sortino (NIAID) | Acute HIV infection and human gut microbiome before and after anti-retroviral therapy | Wednesday Feb. 15, 2:30-4:00 | Poster Hall 4 E/F |
| Julie Mitchell* | Early detection of HIV rebound by innate sensors post ART interruption | Thursday Feb. 16, 10:00-12:00 | Room 6 E |
| Jintanat Ananworanich* | HIV RNA rebound post- interruption in persons suppressed in Fiebig I acute HIV | Thursday Feb. 16, 10:00-12:00 | Room 6 E |
| Marta Massanella (Centre hospitalier de l'Université de Montréal) | Low inducibility of the HIV reservoir in early ART- treated Thai children | Thursday Feb. 16, 2:30-4:00 | Poster Hall 4 E/F |
| C. Rodriguez-Hart (Johns Hopkins University) | Stigma Associated with HIV/STI Incidence among Nigerian Men who Have Sex with Men | Thursday Feb. 16, 2:30-4:00 | Poster Hall 4 E/F |
| Jeffrey Teigler | Soluble biomarkers in acute HIV infection reveal insight into HIV reservoir | Thursday Feb. 16, 2:30-4:00 | Poster Hall 4 E/F |
| Benedetta Milanini (University of California San Francisco) | Limitations of the international HIV dementia scale in the current era | Thursday Feb. 16, 2:30-4:00 | Poster Hall 4 E/F |
| Phillip Chan (SEARCH Thailand) | Heightened systemic and CNS immune activation in acute HIV infection with syphilis | Thursday Feb. 16, 2:30-4:00 | Poster Hall 4 E/F |
| Joanna Hellmuth (University of California San Francisco) | CNS immune activation persists in acute and chronic HIV despite extended cART | Thursday Feb. 16, 2:30-4:00 | Poster Hall 4 E/F |
| Morgane Rolland | HIV-1 Sequences from early infection predict the age of the infection | Thursday Feb. 16, 2:30-4:00 | Poster Hall 4 E/F |
| Morgane Rolland | Resurgence of HIV-1 founder viruses following antiretroviral treatment interruption | Thursday Feb. 16, 2:30-4:00 | Poster Hall 4 E/F |
| Brook Danboise | "HIV drug resistance: a unique perspective across four African countries | Thursday Feb. 16, 2:30-4:00 | Poster Hall 4 E/F |

~ themed discussion

* oral presentation

Career Opportunities at MHRP

MHRP is an international HIV vaccine and cure research program that successfully integrates HIV/AIDS prevention, care and treatment. We are currently looking for research physicians, research associates, clinical research associates, laboratory professionals and program managers for positions in the U.S. and Africa. Visit our website for more details: hivresearch.org/careers

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Please submit your questions and comments via email to communications@hivresearch.org. Editors: Lisa Reilly, Jamie Livengood

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