

UNC CFAR NEWSLETTER

JANUARY 2022

SWG SPOTLIGHT

The Carolinas United to End HIV (CUE-HIV) Scientific Working Group, formed in 2021, was born out of the knowledge that HIV does not stop at state borders, especially in the era of social media and online dating. More information about this group is available at <http://unccfar.org/cue-hiv/>.

CUE-HIV holds monthly meetings on the third Thursday of each month from 9:00am-10:00am to discuss RFAs, provide feedback on specific aims, and opportunities to collaborate.

The new CFAR EHE RFA (linked [here](#)) is directly aligned with the mission and aims of this SWG.

CUE-HIV is actively recruiting members, and encourages all investigators to join its collaborative mission to End HIV in the Carolinas. Please contact tabs_faulkner@med.unc.edu for more information, or to join this scientific working group.

**CAROLINAS UNITED TO END HIV
(CUE-HIV)**



DIAGNOSE | TREAT | PREVENT | RESPOND



A MULTI-OMNICS APPROACH TO UNDERSTANDING HIV-ASSOCIATED PRETERM BIRTH IN ZAMBIA

BY JONI PRICE, MD, MPH, FACOG



Preterm birth is the most common cause of neonatal and under-5 mortality worldwide. Maternal HIV, which complicates 1.5 million pregnancies per year, increases the risk of preterm birth and other adverse birth outcomes. While antiretroviral therapy in pregnancy can virtually eliminate mother-to-child transmission, in some cases it can increase the risk of adverse birth outcomes beyond the excess risk attributable to HIV itself.

Preterm births can result from multiple distinct or overlapping pathways, but those that occur spontaneously are often infectious and/or inflammatory in nature. Recent advances in systems biology

approaches have begun to identify interactions between the vaginal microbiome and maternal immune responses that are associated with preterm birth in gravidas without HIV from high-income countries. We hypothesize that the excess risk of preterm birth attributable to HIV may be linked to differences in the vaginal microbiota and local inflammation.

Through a multi-omics approach with support from the CFAR, we will use the specific example of HIV and pregnancy to define mechanisms leading to preterm birth. Leveraging a robust biorepository of specimens collected from antenatal participants in Zambia, we will perform metagenomic and immunological analyses on vaginal swabs collected from a sample of cases who experienced spontaneous preterm birth and a random sub-cohort of those who did not. With separate funding, we will also characterize the plasma metabolome among the same participants. We are excited to be collaborating with Dr. Kristina de Paris (UNC immunology), Dr. Jacques Ravel (University of Maryland), and Dr. Natalie Stanley (UNC computational medicine) to carry out these analyses. Ultimately, we hope to describe high-risk biological signatures that may be amenable to modification with targeted preventive therapies.

NOVEL PROVIDER TRAINING INTERVENTION TO ELIMINATE PROVIDER-DRIVEN INTERSECTIONAL STIGMA

BY LINA ROSENGREN-HOVEE, MD, MPH, MS

Conversations that Matter is a project dedicated to understand and improve relationships between sexual and gender minority youth and their healthcare providers. Intersectional stigma shapes patient-provider interactions and acts as a powerful barrier to HIV prevention care for minority youth. Through the Conversations that Matter (CtM) project, we will develop a virtual reality training app to help providers reduce stigma in the clinical



environment. Based on educational and behavior change theory, the CtM app will deliver thoughtfully implemented trainings that foster deliberate and repetitive practice for youth providers. The CtM training program will increase providers' ability to identify and challenge biases and stereotypes toward SGM youth and will bring about sustained provider change to improve health care delivery focused on HIV prevention.

Sexual and gender minority youth exist at the intersection of societal marginalization based on sexual orientation, gender identity, social and economic positions, and HIV risk. Intersectional stigma related to multiple marginalized social positions has emerged as a powerful determinant of health disparities, particularly as a driver of HIV-related disparities. Health care providers and their SGM youth patients, interact within these systems of differential power structures, which place an undue burden on SGM youth to overcome intersectional stigma to access quality health care.

Effective training that teaches culturally competent care for SGM youth at risk for HIV is lacking. There is a critical need for thoughtfully designed provider interventions that can effect long-term change in provider attitudes, behaviors, and bias to improve HIV-related health outcomes for SGM youth. We must reframe the patient-provider dialogue to embrace a routine, positive sexual health perspective to reduce intersectional stigma for SGM youth. CtM will be a tool for youth providers to learn how to effectively reduce stigma in the clinical environment to improve health along the HIV prevention continuum for SGM youth.

MAPPING UNINDUCED, INTACT HIV PROVIRUSES IN ART-SUPPRESSED DONORS



BY ANNE-MARIE W. TURNER, PHD.

While antiretroviral therapy has made Human Immunodeficiency Virus (HIV) infection a chronic but manageable disease, there is presently no cure for HIV infection. A significant obstacle remains the latent reservoir – cells which contain intact, silent HIV hidden from both the immune system and antiviral drugs. These cells can spontaneously reactivate and lead to virus rebound if antiviral drugs are stopped. A popular

HIV cure strategy aims to reactivate these latent viruses in a controlled way and thus expose these cells to the immune system. Yet in the lab, we find that even the strongest of reactivation agents fail to induce all latent viruses. The goal of this supplement is to start understanding why. Here, we are modifying a well-established method, the viral outgrowth assay, to allow us to capture cells which fail to produce any HIV following strong reactivation of infected cells. Using new methodology in the field, we will then look at the DNA of these cells to find viruses which failed to reactivate and determine if they are intact - or capable of replicating - and where they are integrated in the genome. We will couple this with assays which tell us how active the genome is surrounding these viruses to see if there are unique features which allow these viruses to be resistant to reactivation. Using this data, we will start to build a profile of these unique viruses and expand our understanding of the HIV reservoir. We will then work to identify new pathways and tools which can be used in combination with existing strategies to help clear the entire latent viral reservoir, helping us move closer towards achieving a cure for HIV.

INTERNATIONAL, PHARMACOLOGY, AND HIV/STD LABORATORY CORES EQUIPMENT

**BY JULIE NELSON, PHD, DIRECTOR OF
THE UNC CFAR HIV/STD LABORATORY**

We were recently awarded a CFAR supplement for equipment for three of the Cores in our CFAR: International Core, Clinical Pharmacology and Analytical Chemistry (CPAC) Core, and HIV/STD Laboratory Core.

For the International Core, led by Drs. Jeff Stringer and Ben Chi, the equipment is for the UNC Project-Malawi location adjacent to the new

National Cancer Treatment Centre in Lilongwe, Malawi. The new equipment will (1) increase the speed and throughput of cancer diagnostics using histology and in situ hybridization and (2) increase the safety and quality of chemotherapy preparation. This equipment is critical for expanding diagnosis of cancers by making tissue processing more automated.

For the Clinical Pharmacology and Analytical Chemistry Core, led by Drs. Angela Kashuba and Mackenzie Cottrell, the new equipment will replace aging equipment that is required to process samples for highly sensitive small molecule quantitation. The assays supported by this equipment are used to measure drugs for HIV prevention and treatment in a variety of biological specimen types. These methods are also applied for bioanalytical adherence monitoring in clinical trials.

For the HIV/STD Laboratory Core, led by Drs. Julie Nelson, Kristina De Paris, and Marcia Hobbs, the new equipment will replace aging equipment for quantifying soluble biomarkers such as cytokines and antibodies in biological specimens, including serum, plasma, and CSF. The equipment allows for quantifying single biomarkers or up to 50 biomarkers at one time from a small volume of sample. The testing on this equipment supports studies of HIV infection and a variety of other infectious diseases.



ENHANCING STRATEGIES TO ENGAGE PROVIDERS IN EFFORTS TO ELIMINATE HIV: PROJECT ENSTEP

BY KATRYNA MCCOY, PHD, FNP



Enhancing Strategies To Engage Providers in Efforts to Eliminate HIV:Project EnSTEP is a planning project that addresses the barriers faced by Black/African American (AA) cisgender women regarding their access to pre-exposure prophylaxis (PrEP) for HIV prevention to enhance efforts towards *Ending the HIV Epidemic* in the Southern United States.

Project EnSTEP pairs the Intersectional and Consolidated Frameworks for Implementation Research to understand the role that social and structural inequalities have on health care provider's PrEP prescribing behaviors and PrEP use by AA cisgender women. Using a "Whole of Society" approach, the study expands our partnerships with the Mecklenburg County Public Health department and key community stakeholders including: a public university; a historically Black college/university [HBCU]; a faith-based organization; AIDS service organizations; and status neutral AA cisgender women. Our primary objective is to develop a tailored PrEP-related stigma reduction intervention to improve the provision of PrEP to AA cisgender women living in the Southern U.S. We are utilizing focus groups with potential PrEP users and interviews with providers and clinic administrators to gather qualitative information on the effects of social and structural inequalities on PrEP prescribing and PrEP use in Mecklenburg County. This approach will help to identify barriers that influence health care provider's adoption and system delivery of PrEP to AA cisgender women.

FALL 2021 CFAR NETWORKING EVENT BY UNC CFAR, SBS CORE, RTI, AND FHI 360



On November 17, 2020, the Social and Behavioral Sciences (SBS) Core, along with the Administrative and Developmental Cores of the UNC Center for AIDS Research (CFAR) held the CFAR's annual Fall Networking Event. Co-sponsored by RTI International and FHI 360, this year's event was titled "Laying the Groundwork for Ending the HIV Epidemic in North and South Carolina: Highlighting the Work of CFAR Awardees."

A UNC CFAR Networking event takes place each semester to provide a forum for researchers from multiple institutions and disciplines to meet and discuss emerging salient HIV research topics to stimulate potential collaborations. In keeping with CDC guidelines and to ensure the safety of our guests, this event was once again held virtually.

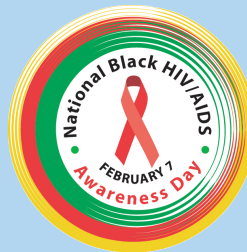
Guests were welcomed by Dr. Carol Golin, Director of the UNC CFAR's SBS Core. Prema Menezes, PhD, PA-C, Associate Director of the UNC CFAR Administrative Core, shared information on UNC CFAR's working group "Carolinas United to End HIV". CUE-HIV is an interstate collaborative created to address the disproportionate HIV burden in the Carolinas driven by our states' unique intersection of stigma, poverty, and limited resource allocation. Fifty-one attendees then had the opportunity to participate in a collaborative discussion with a CFAR, Ending the HIV Epidemic (EHE) Supplement awardee of their choice. Dr. Kate MacQueen introduced the distinguished awardee panel, which included; Tonia Poteat, PhD, MPH, PA-C, Lisa Hightow-Weidman, MD, MPH, Felicia Browne, ScD, MPH, Courtney Peasant Bonner, PhD and Katryna McCoy, PhD, FNP. Our panelists represented UNC-Chapel Hill, UNC-Charlotte, RTI International, Durham, and Atlanta. The presentations included topics related to different approaches to ending the HIV Epidemic, such as "Preparing to End the Epidemic for Transgender People of Color in the Carolinas," "Implementing PrEP into Non-Title X Settings to Reduce HIV Disparities Among African American Women" and "Enhancing Strategies to Engage Providers in Efforts to Eliminate HIV: Project EnSTEP." The event provided a unique opportunity for many CFAR investigators to think together about an overall strategy for fighting the HIV epidemic in North and South Carolina. Attendees particularly enjoyed the small group discussions. One attendee stated, "Brainstorming ideas as a group is highly valuable," and another stated, "This event showed the greater intent of the CFAR initiative as well as all of the sub-projects that have been created and implemented to reduce the HIV epidemic." As these events aim to help researchers meet each other and foster collaborations, it was exciting to note that over 65% of attendees said they met a potential future collaborator at the networking event. The UNC CFAR SBS Core is looking ahead and discussing options for their 2022 Spring Networking Event. "While clearly not quite as beneficial as when we were able to meet in person, these CFAR Networking Events continue to provide an important forum for HIV scientists to gather, exchange ideas, and form collaborations," said SBS Core Director, Carol Golin, MD. "In the spring, we hope to be able to meet in person but will likely continue to have a hybrid option as this facilitates the participation of people from broader geographic locations."

UPCOMING DATES AND CONFERENCES

AWARENESS DAYS

FEBRUARY 7TH

National Black HIV/AIDS Awareness Day **#NBHAAD**



MARCH 10TH

National Women and Girls HIV/AIDS Awareness Day **#NWGHAAD**

MARCH 20TH

National Native HIV/AIDS Awareness Day **#NNHAAD**



CONFERENCES

29th Conference on Retroviruses and Opportunistic Infections (CROI)

February 12-16, 2022 *Hybrid* Denver, CO, USA and Virtually

Palm Springs Symposium on HIV/AIDS

March 3-5, 2022 *In-Person* Palm Springs, CA, USA

Next Generation HIV Vaccines & Therapies

March 27-30, 2022 *In-Person* Banff, AB, Canada

The 9th Annual Interdisciplinary Autoimmune Summit

April 21-24, 2022 *Virtual Only*

The 24th International AIDS Conference

July 29-August 2, 2022 *Hybrid* Montreal, Canada, and Virtually

2022 National Ryan White Conference on HIV Care & Treatment

August 23-26, 2022 *Participation options are undetermined at the time of this publication*