InCHIP Researchers Make Major Scientific Contributions in the Fight Against HIV

By Beth Krane

Since HIV/AIDS emerged in 1981 as an alarming new public health threat, biomedical breakthroughs have transformed it from a death sentence to a manageable chronic disease in those countries with adequate resources. However, those advances alone are not responsible for the remarkable in-roads with the epidemic.

Until the advent of antiretroviral therapies (ART) in 1996, there were no truly effective biomedical treatments for HIV. And until the relatively recent roll-out of pre-exposure prophylaxis (PrEP) in 2012, there were no effective biomedical means of preventing HIV transmission. The only effective way to prevent HIV transmission was behavior change. And even taking PrEP requires practicing certain behaviors regularly.

“The story of HIV is all about behavior,” InCHIP Principal Investigator (PI) and UConn Distinguished Professor of Psychological Sciences Blair Johnson said. “More money has been spent on HIV-related behavior change than on changing behaviors tied to any other public health threat apart from smoking.”

InCHIP’s world-renowned behavioral science researchers have dedicated their careers to fighting HIV/AIDS and have made major scientific contributions to the field during each distinct stage of the epidemic. Since 2002, InCHIP behavioral scientists have received more than $100 million in external grants to support their HIV-related research, mostly from the National Institutes of Health (NIH).

The Early Years of the HIV/AIDS Epidemic
Throughout much of the 1980s, misinformation, fear, and alarming discrimination surrounded HIV/AIDS. It was during these early years of the epidemic that InCHIP Founding Director and UConn Distinguished Professor of Psychological Sciences Jeffrey Fisher and his brother, William Fisher, began to collaborate and apply their backgrounds in social psychology, including in sexual behavior and behavior change, to the overwhelming public health crisis of HIV/AIDS.

“At the time, the state of AIDS prevention science consisted largely of best guesses of people other than psychologists who generally thought that simply informing the public about AIDS (“Abstinence or condom use can prevent becoming infected”) or using people (“You could die from AIDS if you’re not careful”) were the best ways to prevent it,” the Fishers wrote in Pioneers in AIDS. The Fisher brothers’ focus has been on conceptualizing the determinants and dynamics of HIV risk behavior and on designing, implementing, evaluating, and disseminating effective HIV risk behavior change interventions.

The IMB Model of AIDS Preventive Behavior
“We had the chutzpah to sit at the feet of major theorists and say, ‘In the context of AIDS prevention, existing conceptual models are missing some critical components,’” said Bill Fisher, a Distinguished University Professor of Psychology and of Obstetrics and Gynecology at University of Western Ontario.

The Fisher brothers identified some of “the missing puzzle pieces” in 1988. Now used internationally to conceptualize and change HIV risk behavior and many other unhealthy behaviors, the Information-Motivation-Behavioral Skills (IMB) Model they developed together asserts that easy to enact, script-like HIV prevention information, personal and social motivation to act on HIV prevention information, and objective and perceived behavioral skills for enacting HIV preventive behaviors are all essential to initiate and maintain HIV preventive action. According to the IMB Model, HIV prevention information and HIV prevention motivation typically will work through the application of HIV prevention behavioral skills to result in HIV preventive behaviors, but sometimes information and motivation may have di-
rect effects on preventive behavior.

Jeff and Bill Fisher conducted the earliest tests of the IMB model with college students and men who have sex with men. They found support for the structure of the model and that information, motivation and behavioral skills account for significant variance in HIV risk and preventive behaviors in these two populations. The brothers and others around the world have tested the IMB model in the context of HIV risk and preventive behaviors a substantial number of times. The Fishers also have conducted randomized controlled trials of IMB Model-based interventions to change HIV risk behavior and found that those interventions produced significant and sustained increases in HIV preventive behavior in university students, urban minority high school students, and people living with HIV (PLWH) in both the U.S. and South Africa. At least 50 published, rigorously evaluated HIV prevention interventions have used the IMB Model to reduce HIV risk behavior in different populations around the world, and the model has been adopted widely by public health entities that do HIV prevention work internationally. IMB-model-based interventions also have been developed and adopted to change behaviors in a number of other health areas, including medication adherence, medical protocol initiation and maintenance, diabetes self-management, and obesity prevention.

Jeff Fisher started CHIP (later renamed InCHIP) in 1989 with his first NIH HIV prevention grant with Bill Fisher. As its Director, he recruited other outstanding behavioral scientists working in HIV prevention to CHIP and built what would become an internationally known group of HIV prevention researchers. He also established CHIP as an exceptional program for training new HIV prevention researchers who have gone on to do important work in the field.

**The Influence of Peers**

During the early 1990s, UConn Sociology Professor Robert Broadhead, who later would become a CHIP PI and is now a Professor Emeritus, introduced a novel and controversial approach to HIV prevention with injection drug users (IDUs). Broadhead’s Peer-Driven Intervention (PDI) relied on IDUs to reach out to their IDU peers and educate them in the community about HIV prevention and risk behaviors. These “educators” then recruited their peers to a local storefront for additional HIV prevention services, for which the educators received a nominal cash reward for their efforts. The reward was based on how well they did educating their peers on a body of HIV prevention information, as measured by a brief test administered to each peer recruit. To extend the impact of the PDI, each peer recruit also was offered the opportunity to become an educator and to recruit up to three new peers.

“We blurred the lines between service providers and clients. In the PDI, drug users were our collaborators and we paid them for their well-earned efforts,” Broadhead said. “The reward system occasionally met with resistance from various officials and members of the public. Some argued the reward enabled drug users to buy more drugs, but the PDI couldn’t have operated without rewarding IDUs for their efforts. The nominal cash rewards were an integral part of its methodology, both literally and symbolically.”

The PDI proved highly successful. Having initially demonstrated the PDI’s effectiveness in Connecticut through a five-year National Institute on Drug Abuse (NIDA) grant, Broadhead received an additional NIDA grant to implement the model in multiple sites in Yaroslavl, Russia, where injection drug use remains a driving force in the spread of HIV. He also received additional funding from NIDA, the Global Fund to Combat HIV, Malaria and Tuberculosis, and other sources to disseminate the PDI globally - in Russia, Ukraine, China, and Vietnam.

**Close Relationship Risk**

In 1997, the Fisher brothers along with Stephen Misovich, then a graduate student, published an important review paper calling attention to a major source of HIV risk: close relationship partners. They found that heterosexuals and homosexuals,
adolescents and adults, minorities and non-mi-
norities, IDUs, and commercial sex workers all
were less likely to practice safer sex with close
relationship partners, or partners they knew
well, compared to more casual sexual partners.
This pattern was highly problematic, the Fish-
ers cautioned, because many close relationship
partners had engaged in HIV risk behavior over
an extended period of time, did not know their
HIV status, and therefore had the potential to
contract HIV from or transmit HIV to such part-
ners.

Jeff and Bill Fisher echoed their warning about
close relationship risk in a video series they de-
developed and filmed at UConn called People Like
Us. The videos featured six attractive, primarily
heterosexual high school and college students
who had never been particularly risky and who
contracted HIV from their relationship partners.
In the videos, the students discussed their ill-
ness, their suffering and how others treated
them post-diagnosis. Within a year of filming, all
six had died from AIDS.

“Every time we showed the video series on cam-
pus, we received calls from local HIV testing
sites asking if we had shown the videos again,”
Jeff Fisher wrote in Pioneers in AIDS. “It was that
effective in motivating behavior change.”

InCHIP’s Strength in HIV-Related Meta-Analysis
Blair Johnson, recruited by Jeff Fisher to UConn
from Syracuse in 1999, received continuous fund-
ing from the National Institute of Mental Health
(NIMH) to conduct meta-analyses of published
HIV prevention studies from 1998 through 2016.
His Synthesis of HIV/AIDS Research Project or
SHARP (now Systematic Health Action Research
Program) focused on adolescents, women, mi-
orities, IDUs, and PLWH, and assessed poten-
tial barriers to intervention success, such as
substance use, depression, discrimination, and
lack of resources. Johnson’s meta-analyses also
have provided support for using theory-based
approaches when developing HIV prevention
interventions and have identified the strongest
theories for doing so.

In 2009, Johnson’s team published a meta-anal-
ysis in the Journal of Acquired Immune Defi-
cency Syndromes (JAIDS) that showed intensive
safer sex interventions consistently increased
condom use among African Americans. In fact,
the interventions actually decreased the num-
ber of sexual partners over the long term for
African American teens – a finding that refuted
the “boomerang effect” argument made by ab-
stinence-only proponents that teaching youth
about safer sex would increase sexual activity.
In 2012, Johnson and then UConn Psychological
Sciences graduate student Carter Lennon pub-
lished findings in Social Science & Medicine that
HIV prevention interventions were more likely to
reduce sexual risk behavior in women, especial-
ly minority women, when as a possible byprod-
tect of HIV risk reduction, women reduced their
levels of depression significantly compared to
their baseline levels. In 2014, Johnson and for-
mer SHARP team member Allecia Reid showed
that negative attitudes of whites toward blacks
and residential segregation between the two ra-
cial groups significantly hindered African Amer-
cans’ success at behavior change with proven
HIV interventions. Johnson and Reid's findings,
which also were published in Social Science &
Medicine, reflected SHARP’s growing emphasis
over time on how social structures and environ-
mental contexts impact individuals’ ability to
benefit from HIV prevention interventions.

Prevention with PLWH
During the late 1990s, Jeff and Bill Fisher and
InCHIP PI and UConn Professor of Psychological
Sciences Seth Kalichman were among the first
behavioral scientists to focus on an underres-
searched but critical source of HIV transmission –
oral transmission of HIV through sex and in-
jection drug use. With about one-third of PLWH
reporting potential exposure events, working
with PLWH to practice safer sex and drug use
presented opportunities to reduce new infec-
tions.

“We moved gingerly into prevention with peo-
ple living with HIV. The last thing we wanted to
do was stigmatize them more than they already
were,” Bill Fisher said.

In 2001, one year before Jeff Fisher recruited him
to UConn, Kalichman published results from one
of the first interventions for HIV-positive men
and women in the American Journal of Preven-
tive Medicine. The intervention, Healthy Rela-
tionships, helps PLWH develop skills to cope
with HIV-related stress, to navigate risky sexual
situations, and to weigh disclosing HIV status
to sex partners. Healthy Relationships has been
proven to reduce PLWH’s instances of condom-
less sex and number of HIV-negative or status
unknown sex partners and to increase their con-
dom use and refusal of unsafe sex. It is included
in the U.S. Centers for Disease Control and Pre-
vention (CDC)’s Compendium of Evidence-Based
Interventions and Best Practices for HIV Prevention and remains one of the CDC’s most widely disseminated interventions to date.

In 2004 and again in 2006, the Fisher brothers and their research team, including InCHIP Associate Director Deborah Cornman, and InCHIP Affiliate K. Rivet Amico, in collaboration with Yale University physician Gerald Friedman, published findings from their Options for Health intervention for PLWH in JAIDS. Options was integrated within PLWH’s routine clinical care visits and consisted of brief conversations between the patient and her/his clinician. Clinicians used the IMB model and motivational interviewing techniques to elicit strategies from patients for making needed changes in risk behavior or maintaining safer behaviors. Then each clinician and patient agreed on an individual behavior change goal that the patient was to achieve by the next visit; the goal was written on a prescription pad, which was handed to the paint at the end of the visit. Evaluated at two large HIV clinics in Connecticut, Options significantly reduced unprotected anal and vaginal sex. The intervention was subsequently implemented at 15 demonstration sites in New York State and included in the CDC’s Compendium of Evidence-Based Interventions for HIV Prevention. The intervention also was adapted for South Africa (see InCHIP in Africa section on page 24).

In 2009, a full decade after they secured their first grant for prevention with PLWH and more than 25 years into the HIV epidemic, the Fisher brothers with graduate student Taylor Kohut reviewed how many published HIV prevention interventions were designed for PLWH. They found that, even at that point in the epidemic, only six percent, or 58 out of 898, focused on this important population. InCHIP became internationally known for its intervention research with PLWH. More broadly, its interventions to help PLWH change risk behavior have been widely used and saved lives.

Adherence to ART
The development of effective ART in 1996 changed HIV from a death sentence to a treatable disease, but the initial formulations’ side effects and other barriers to proper medication adherence created a looming threat. If patients could not reach near perfect rates of adherence to demanding regimens, they could both develop and transmit to others drug-resistant strains of the HIV virus. InCHIP investigators responded with novel interventions to address barriers to and improve medication adherence.

Life Windows and the IMB Model of Adherence
In 2003, the Fisher brothers, Cornman, and Amico received a NIMH grant to design, implement, and evaluate a computer-based ART medication adherence intervention called Life Windows, which assessed patients’ IMB barriers to consistent ART adherence and then provided them with 20 interactive intervention activities to address the diverse ART adherence barriers that the team had identified. Life Windows was tested in a randomized control trial at five Connecticut HIV clinics, where it was integrated into patients’ regular care visits. The team found that compared to a control group, those using Life Windows were more likely to have perfect or optimal adherence and that their adherence was more likely to improve over time. The intervention also was adapted for African countries (see InCHIP in Africa section on page 24).

In 2006, the Fisher brothers, Amico, and then UConn Psychological Sciences graduate student Jennifer Harman published an IMB Model of Adherence to ART. Similar to the Fishers’ original IMB Model, the IMB Model of Adherence asserts that adherence to therapy and subsequent health outcomes are directly linked with an individual’s levels of adherence-relevant information, motivation, and behavioral skills. The model also identified individual and situational moderators of ART adherence success, including psychological health, chemical dependency, stability of living conditions, and access to medical care, and posits a feedback loop between health outcomes and subsequent adherence. The model’s structure has been supported, and its IMB components account for significant variations in ART adherence behavior. It has been used by researchers and public health officials in adherence promotion interventions for ARV and other drugs, including clinical trials of new drugs.

CDC-Recognized Medication Adherence Interventions
Among Kalichman’s large body of work in the area of medication adherence are two CDC-recognized interventions: Phone-Delivered Support Counseling for HIV Treatment Adherence and In the Mix. Both interventions were initially implemented and evaluated in Atlanta, where Kalichman’s Southeast HIV and AIDS Research and Evaluation (SHARE) project is based.

Phone-Delivered Support Counseling for HIV Treatment Adherence is an effective and cost-ef-
efficient individual intervention for HIV clinic patients who have past experience taking ART and who self-report less than 95 percent adherence. The intervention includes one 45-minute in-person counseling session followed by four biweekly counseling sessions delivered via phone. The intervention, which used motivational interviewing techniques and provided corrective feedback and problem solving strategies, significantly improved medication adherence and viral suppression in patients receiving it.

*In the Mix* is a fully integrated intervention for PLWH targeting both sexual risk reduction and medication adherence. The intervention includes individual and group counseling sessions, and the final session includes creating a personalized plan for treatment decisions, adherence, and safer sex. Kalichman measured intervention outcomes including sexual behaviors, medication adherence, self-reported sexually transmitted infections (STIs), and self-reported viral load. *In the Mix* has been proven to significantly reduce sex with HIV-negative or status unknown partners, reduce unprotected sex, and increase medication adherence. Participants also were less likely to report new STIs.

**Measurements of and Barriers to Adherence**

Kalichman’s team also has been at the forefront of measuring medication adherence and identifying and conceptualizing individual, social, and structural barriers to adherence. Until SHARE innovated the unannounced phone-based pill counts for assessing ART adherence, there were few reliable, valid, and inexpensive measures of adherence. The team adapted more complex and expensive methods for home-based pill counts to a phone-based count and demonstrated the more efficient, cost-effective phone-based version was as effective. Kalichman said the unannounced phone-based pill count procedures are the foundation for SHARE’s adherence research, and several other research groups around the U.S. are using them as well. SHARE also has examined factors surrounding poverty, such as food insecurity, as significant obstacles to accessing, managing and adhering to treatment.

**InCHIP in Africa**

A number of InCHIP’s HIV-related grants have funded work in some of the African countries hardest hit by the epidemic. Since a global coalition of health providers, researchers, activists, and PLWH successfully campaigned for increasing access to ART in Africa beginning in 2001, InCHIP PIs have worked in South Africa, Mozambique, Ethiopia, Uganda, Kenya, and Botswana.

**A South African Version of Options**

With a substantial NIMH grant, Jeff Fisher and Bill Fisher’s research team including Cornman, Amico, Post doc Paul Shuper, Yale Physician Gerald Friedland, and South African physicians Sandy Pillay and Umesh Laloo, implemented a South African version of its Options for Health intervention, Izindlela Zokuphila, at 16 clinical sites in KwaZulu-Natal where PLWH were receiving ART treatments. One of the adaptations made to Options for South Africa was to train lay counselors to deliver the intervention instead of physicians because of the limited availability of physicians in the region. The randomized, controlled trial of Izindlela Zokuphila included nearly 1,900 PLWH and proved the intervention’s effectiveness in South Africa. At 18-month follow-up, PLWH who received the Izindlela Zokuphila intervention reported greater reductions in HIV transmission risk behaviors, including sex with HIV-negative or status unknown partners, than a standard of care control group.

**HIV Risk Reduction and Medication Adherence in African Militaries**

Cornman, who was part of Fisher’s Options and Life Windows teams, received multiple rounds of funding from the U.S. President’s Emergency Plan for AIDS Relief (PEPFAR) to substantially adapt interventions the team had developed to increase safer sex and ART adherence for HIV-positive members of the military and their families in Mozambique, Ethiopia, and Uganda. HIV infection rates
within the militaries in these three countries far outpaced the already staggering rates found in the civilian population. Among the factors that contribute to risky sexual behavior and suboptimal levels of ART adherence among soldiers with HIV include long separations from their families; availability of commercial sex workers; easy access to alcohol; difficulty accessing, storing and taking medications during deployments; stigma; and high levels of stress associated with being in the military. Cornman developed very successful programs to address these and other factors in Mozambique and Ethiopia that were delivered by people with HIV who were trained to be peer educators. They provided ongoing one-on-one counseling to soldiers and their families with HIV. In addition, they conducted group educational sessions in the waiting areas of the HIV clinics on a wide range of topics to support people with HIV living healthy lives.

Understanding that violence and the threat of violence can increase women’s vulnerability to HIV, PEPFAR also funded Cornman to develop a multi-level gender-based violence prevention program for male soldiers in the Mozambican military. Not only did the intervention teach soldiers about the negative effects of gender-based violence, it provided them with training in effective communication skills, stress management, how to minimize their alcohol use, and safer sex. The intervention was implemented nationwide with the goal to reduce gender-based violence in the military. PEPFAR funded this project because violence and the threat of violence can increase women’s vulnerability to HIV by making it difficult or impossible to negotiate safer sex. Preventing gender-based violence set the terms of an equal relationship.

She developed all of these programs to be sustainable after the PEPFAR funding ended.

Alcohol-Related HIV Risk and Medication Non-Adherence

In 2010, the U.S. Agency for International Development (USAID) published a case study encouraging healthcare providers in developing countries to use one of Kalichman’s highly successful HIV risk reduction interventions he had developed for use with HIV-negative individuals being treated in South African STI clinics. Phaphama, meaning “wise up” in Zulu, effectively targeted the convergence of two severe public health problems – harmful levels of alcohol use and HIV - with a single, 60-minute counseling session. A randomized, controlled trial funded by the National Institute on Alcohol Abuse and Alcoholism (NIAAA) and conducted in Cape Town between 2005 and 2009 showed that Phaphama reduced unprotected sexual acts by 65 percent, a change sustained for at least six months.

“Alcohol and sexual risks are closely associated. There are several reasons why, including clouded decision making, sexual expectations, and social norms, so breaking the alcohol and sexual risk cycle is well recognized as a promising strategy,” Kalichman said. “But for an intervention to work, you have to have people’s attention. That is why an STI clinic offers such a promising opportunity for prevention. When people are diagnosed with an STI, like syphilis or gonorrhea, it can be a wake-up call, a teachable moment that opens the door for a brief intervention to reduce HIV risks. In South Africa, where as many as one in five people have HIV and alcohol use is among the highest in the world, the importance of such an intervention is clear.”

Kalichman’s SHARE team also was the first to discover some PLWH’s reluctance to maintain their
The HIV Treatment Cascade

ART regimen because of inter-toxicity beliefs about the dangers of mixing ART with alcohol or drugs.

Pediatric Disclosure
InCHIP PI and Associate Research Professor Lisa Butler has spent the past two decades developing and implementing interventions focused on maternal and child health in South Africa, Uganda, Kenya and now Botswana. Twice, in 2013 and again in 2016, Butler contributed to World Health Organization (WHO) guidelines for adolescent HIV care and treatment.

Of all her efforts in Africa, Butler’s ongoing work with Ugandan caregivers of children living with HIV stands to have the most profound public health impact. Caregivers are urged by WHO to disclose their children’s status to them by age 12. Due to increasing ART access in sub-Saharan Africa, children born with HIV are now living longer and are reaching an age when they could better manage their health care including medications. They also are approaching adolescence when they may begin to be sexually active and have the potential to transmit the virus. However, for many reasons, including concerns about stigma, a large number of caregivers have not disclosed their children’s HIV status to them, Butler said. Also, in some cases, the caregiver is not the parent because the parent died from AIDS, so a double disclosure - that the caregiver is not the parent and that the child is HIV-positive - is needed. An intervention Butler developed and tested in response to a call from the National Institute for Child Health and Development (NICHD) proved tremendously successful. Caregivers in Butler’s intervention were 30 times more likely to fully disclose their children’s HIV status to them.

“Caregivers really welcomed the intervention,” Butler said. “They called it life changing.”

With additional support from the Boston Children’s Hospital Aerosmith Endowment Fund for Prevention and Treatment of AIDS and HIV Infection, Butler also produced a 12-minute documentary about adolescent disclosure called The Power of Knowing: Experiences of Youth and Caregivers with Pediatric HIV Disclosure. Available on WHO’s website, the documentary has been accessed more than 1,750 times and from 82 countries.

Entry into and Retention in Care
The HIV Care Continuum, also called the HIV Treatment Cascade, is a model for tracking engagement in the stages of HIV medical care from initial diagnosis and linkage to care to retention in care, receiving ART treatment and achieving viral suppression. In 2013, increasing engagement in each stage of the HIV Care Continuum became a key part of the National HIV/AIDS strategy in the U.S. According to 2014 CDC data, of the 1.2 million PLWH in the U.S., 82 percent knew they were infected, 66 percent had been linked to care within a month of diagnosis, 37 percent stayed in care, 33 percent received ART treatment and 25 percent achieved viral suppression. Additionally, a CDC study published in Journal of the American Medical Association (JAMA) Internal Medicine in 2015 found that nine out of 10 new HIV infections in the U.S. could be prevented through early diagnosis of those infected, and followed by prompt ongoing ART treatment to reduce HIV transmissibility in those who are infected. Amid this backdrop, InCHIP PIs have sought to understand barriers to entering and staying in HIV care and getting on ARVs, and so that ultimately, they can develop interventions to improve engagement throughout the entire continuum of care.
Engagement in Care among Black Men Who Have Sex with Men

InCHIP PI and UConn Associate Professor of Human Development and Family Studies Lisa Eaton, an expert on health and stigma, focuses on understanding the massive HIV epidemic among Black men who have sex with men (MSM).

“According to CDC data, if current trends continue, one in two Black men who have sex with men could be living with HIV in their lifetime,” Eaton said at an InCHIP Lecture Series talk she delivered this spring. “It’s unbelievable, at this moment in time in the U.S., we have a public health crisis unfolding every day.”

Black MSM do not report more sexual partners, more unprotected sex or more substance use than other populations, said Eaton, who developed a CDC-recognized HIV risk reduction intervention for HIV-negative Black MSM. However, she said, there does tend to be a higher community viral load among this population, which suggests Black MSM are not accessing treatment at the same rates as others. Viral load refers to the level of viral replication present in a person’s bloodstream. A high viral load indicates the virus is actively reproducing and has greater potential to damage the person’s immune system, and the person has greater potential to transmit the virus. Community viral load groups individual viral load measurements from members of a population together to compare between populations.

“My angle is that stigma affects every point of the HIV Care Continuum,” Eaton said.

In a 2015 article she published in the American Journal of Public Health, Eaton shared that nearly one-third of 550 Black MSM surveyed at a community event reported experiencing racial and sexual orientation stigma from health care providers, and nearly half reported mistrust of medical establishments. Among HIV-negative Black MSM, those who experienced greater stigma and global medical mistrust had longer time gaps since their last medical exam. Among HIV-positive Black MSM, experiencing stigma from health care providers was associated with longer gaps since their last HIV care appointment. Eaton also recently published in the Journal of Behavioral Medicine the first study to assess experiences of stigma among Black MSM before and after HIV diagnosis, which offers a novel understanding of how stigma unfolds over time.

She currently is developing interventions to increase HIV testing and to improve access to PrEP (Pre-Exposure Prophylaxis) among Black MSM.

Maximizing Health Outcomes for Those Already in Care

InCHIP PI and Professor of Allied Health Sciences Michael Copenhaver came to CHIP in 2002 to work on one of Jeff Fisher’s HIV prevention grants after completing his post-doctoral training in clinical psychology at Yale University. Kalichman, who also came to CHIP in 2002, was one of his mentors.

Copenhaver has dedicated his career to HIV prevention among opioid-dependent individuals in treatment, including in methadone maintenance programs and prisons. A major focus of his research has been adapting and streamlining proven interventions to make it easier to put them into practice and sustain them. He also is among the first to study how neuro-cognitive impairment (NCI), a common side effect of pro-
longed drug use and HIV, can affect participants’ ability to retain and utilize intervention content.

“It’s extremely disappointing to see a great intervention sit there, untouched, when it could be widely used,” Copenhaver said. “I focus on how interventions could work best in real-world, resource-strapped settings and make sure using them doesn’t become a burden on staff members.”

The Substance Abuse and Mental Health Services Administration (SAMHSA) within the U.S. Department of Health and Human Services gave Copenhaver’s Community-Friendly Health Recovery Program (CHRP) for HIV-negative IDU its highest rating in its National Registry of Evidence-Based Programs. Copenhaver condensed a proven 12-session intervention into just four sessions based on feedback from patients in methadone maintenance programs and medical providers and demonstrated that the condensed version still significantly increased participants’ HIV risk reduction skills. He also recently completed adapting an effective intervention for HIV-positive opioid-dependent people and has developed HIV prevention interventions for drug-involved soon-to-be-released prisoners transitioning from prison back into the community.

Pre-Exposure Prophylaxis (PrEP)

PrEP was approved by the FDA in 2012 as the first biomedical means of preventing HIV from being contracted when exposed to the virus. Recommended for HIV-negative individuals at very high risk for contracting the disease, PrEP has been shown to reduce risk of HIV infection by up to 90 percent. Still, PrEP is used by fewer than 20 percent of those who could benefit from it most in the U.S.

Amico was on one of the first study teams to study the effectiveness of PrEP and has become a leading expert on it. Eaton, Kalichman and Copenhaver currently are studying PrEP uptake.

Demonstration Trials

Amico was part of the first research team that demonstrated the effectiveness of PrEP for preventing HIV in a clinical trial involving nearly 2,500 HIV-negative men and transgender women who have sex with men. Published in the New England Journal of Medicine in 2010, the team’s report affirmed that taking PrEP provided protection against HIV infection and that detectable levels of the drug in participants’ blood were more highly associated with PrEP’s positive effect. Amico published findings with the same team again in 2014 in The Lancet Infectious Diseases. The team had assessed PrEP uptake, adherence and sexual practices among participants in several PrEP trials and found that the effectiveness of PrEP was increased with greater uptake and greater adherence during periods of higher risk. Amico also has studied whether PrEP use is associated with risk compensation behaviors, such as not using condoms, not disclosing one’s serostatus or not knowing partners’ status, and she did not find increased risk compensation behaviors in PrEP trial participants. Amico’s continued research focus on PrEP includes clinical trials of a new PrEP formulation, measurements of PrEP adherence, and barriers to and facilitators of PrEP uptake in different high-risk populations.

PrEP Uptake in Men and Transgendered Women Who Have Sex with Men

Eaton and Kalichman published findings about PrEP awareness and uptake in AIDS and Behavior in 2017. They surveyed Black and White men and transgender women who have sex with men at a gay pride event in the southeastern United States and reported a significant discrepancy between awareness of PrEP (63 percent) and PrEP use (nine percent). They also found that believing PrEP was for promiscuous people (a stigmatizing belief) was related to low interest in PrEP use. Among Black MSM in Atlanta, 94 percent were aware of PrEP, 76 percent were interested in it yet only three percent were using it.

Earlier this year, Eaton authored an invited editorial for the American Journal of Public Health assessing what needs to be done or changed to encourage greater PrEP uptake among the populations that need it most. She endorsed an article in the same issue which called for shifting the responsibility to start PrEP discussions from patients to providers and making PrEP part of routine preventive medical care. Eaton also called for new models of health care delivery that address social and structural barriers to care.
“With every advancement we make in our treatment arsenal, we must concurrently prioritize how options will be provided to all who would benefit,” Eaton wrote. “If we fail to keep delivery in line with prevention options, we will exacerbate the currently observed health disparities.”

**PrEP and Drug Users**

PrEP has been proven to be 70 percent effective among drug users, but to date, there have been almost no randomized controlled trials assessing PrEP uptake and adherence in this high-risk population. Funded by a $3 million grant from NIDA, Copenhaver will conduct the first PrEP trial within a methadone maintenance program, and it will be among the first PrEP trials in any type of drug treatment setting.

“There’s still reluctance within the medical community to prescribe PrEP to drug-using populations because of stigma. They are viewed as too unstable to properly adhere to the medication,” Copenhaver said. “Some providers see a giant headache with no patient benefit, but others see the potential for tremendous benefit.”

Copenhaver aims to demonstrate the benefit of PrEP with high-risk HIV-negative opioid-dependent people in treatment at the APT Foundation in New Haven, where he has conducted HIV prevention research since 1999. He will test a bio-behavioral intervention he adapted to promote optimal PrEP adherence and reduced sexual and drug-related HIV risk behaviors with up to 250 participants who are enrolled IDUs at the clinic. Among other topics, the intervention will teach participants how to manage PrEP side effects and improve communication with their medical providers. Copenhaver also will address neuro-cognitive impairments that may hinder participants’ intervention success and assess stigma surrounding PrEP use in this population.

**The Future of InCHIP HIV Research**

With PrEP’s potential to curb the spread of HIV and with the current federal funding climate, Copenhaver anticipates needing to advocate for continued research in this area. He also sees mentoring new and junior HIV behavioral scientists as more important than ever.

“If people just dabble with PrEP, they might think they’re protected, but they’re not,” he said. “It’s not just having a pill. That’s never the complete answer. You always need the behavioral piece.”

Eaton underscored the importance of continued research: “We really do still have an HIV epidemic. Our fight isn’t over!”

Just as Copenhaver and Eaton were mentored at InCHIP and have established their own highly successful research careers, they now are mentoring junior faculty members and seeing their careers progress, including InCHIP PI Debarchana (Debs) Ghosh in Geography, recently promoted to Associate Professor and tenured, and InCHIP Affiliate Ryan Watson in Human Development and Family Studies. Kalichman also continues his NIMH Social Processes of HIV/AIDS Training Grant for graduate students.

“Especially now, in this funding environment, if junior researchers don’t have the advantage of someone showing them how to do this kind of work, they are going to hit a wall,” Copenhaver said. “InCHIP does an amazing job of accelerating junior faculty, catapulting them really.”

InCHIP has also been recognized by many of its former graduate students and post docs as a wonderful place to receive their training, which put them well ahead of peers trained at other institutions when they received their doctorates.