SPECIFIC AIMS

In the U.S., incidence rates of HIV and sexually transmitted infections (STIs) are disproportionately high among gay, bisexual, and other men who have sex with men—referred to herein as sexual minority men (SMM)—compared to men who have sex with women only.[1,2] Roughly 10% of HIV incidence is attributable to increased transmission due to untreated STIs among SMM,[3] 64% of syphilis cases occur among SMM,[4] and SMM residing in Ending the HIV Epidemic (EHE) priority jurisdictions have nearly 50% greater odds of STIs compared to those residing elsewhere.[5] Oklahoma is an EHE priority rural state with above average yearly cases of chlamydia and ranks in the top 10 for gonorrhea and syphilis infections nationwide. Within these Oklahoma communities, those under the age of 24 account for a quarter of new HIV, chlamydia, and gonorrhea infections.

Less than 28% of rural Oklahomans have received an HIV test during their lifetime and only 5.7% during the past year, the lowest testing rate among the EHE states.[6] Similar to their SMM peers, rural American Indian (AI) men have seen an increase in HIV incidence—where the AI men now account for 9.3% of new infections in Oklahoma compared to 7.8% in 2016.[7-9] Oklahoma has the highest proportion of AIs in the United States (U.S). AI men and SMM living in rural areas of the U.S. are less likely to receive HIV prevention messaging, engage in routine testing, identify HIV testing resources, or receive comprehensive education as compared to their urban counterparts. Rural SMM and AI men in Oklahoma experience many barriers to HIV and STI testing, including worries about HIV-related stigma, low perceptions of risk, difficulty communicating with healthcare providers, and confidentiality concerns,[10-15] requiring expansion of prevention and screening services.

Our proposed research will specifically focus on two EHE pillars: diagnose (i.e., HIV screening) and prevent (i.e., increase condom use; adoption of Pre-Exposure Prophylaxis). In order to effectively engage SMM and AI men in HIV screening and prevention, multi-level approaches are necessary. The use of peer mentors who are Popular Opinion Leaders (POLs) is a promising strategy in order to more effectively engage rural SMM and American Indian men in HIV prevention activities like mobile health technology or mHealth.[16-18] Engaging this cadre of individuals, particularly in resource-limited settings, is essential given their familiarity with local issues and rapport with community members. Leveraging mHealth interventions, informed by rural Peer mentors and stakeholders, may initially work interpersonally by reducing transmission between individuals. Furthermore, as prevention approaches continue, reductions in incidence of disease may contribute to long-term reductions in the overall prevalence of HIV and STIs within rural communities. Concerns surrounding mHealth and community-level interventions have centered about the missed opportunities for testing within resource-limited areas, which could be alleviated by providing rural SMM and AI men access to Insti Multiplex HIV/syphilis duo self-testing kits.

This Supplement builds upon an established partnership between the PI of the Parent grant (U54MD012388) and colleagues at Oklahoma State University and Cherokee Nation Health Services. The goal of the Supplement is to increase HIV and syphilis testing and linkage to care, increase condom use, and promote PrEP uptake. Intervention activities include culturally tailored mHealth modules to address social determinants hindering HIV primary and secondary prevention in rural communities; distribution of HIV and syphilis self-testing kits (Insti Multiplex HIV/syphilis duo) to rural SMM and AI men; training POLs to deliver theoretically guided sessions via telementoring technology to support self-testing and PrEP use among participants and partners; and optimizing PrEP prescribing/referrals and linkage to HIV care through engagement of local community-based organizations and providers. Our specific aims are as follows:

AIM 1 – ***To refine our preliminary intervention strategy in partnership with a Community Advisory Board (CAB) and rural peer mentors.*** In a 4-month formative phase, we will partner with a CAB to finalize *Ending the HIV Epidemic in Rural Oklahoma (e-HERO)* components to be included in an initial intervention prototype. We will then conduct focus groups with rural SMM (n = 30) and American Indian men, and in-depth interviews with key informants from rural based clinics (n = 20; clinicians, clinic managers) to iteratively refine *e-HERO* with the CAB to maximize impact via potential reach, effectiveness, adoption, implementation, and sustainability. The CAB will include rural SMM, rural AI men, healthcare providers, community advocates, and other stakeholders in Oklahoma.

AIM 2 – ***To assess feasibility, acceptability, and preliminary impact of the e-HERO intervention.*** We will pilot and evaluate the finalized intervention in rural Oklahoma using a randomized control trial design to mimic a future statewide implementation. We will recruit rural SMM (n = 100) and AI men (n = 100) between 17-29 years of age. We will use RE-AIM[19] to guide the evaluation, which will entail conducting a convergent mixed-method analysis of surveys (SMM and AI men), HIV/STI testing records, and exit interviews to assess feasibility, acceptability, and preliminary impact of the intervention.