

## *CIRA International HIV Research Seminar Series*

### ***“App-based HIV Risk Alerts to Drive Safer Behaviors in Internet Social Networks of Men Who Have Sex with Men”***



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Dr. Hu is a CIRA International Visiting Fellow working with Sten Vermund, MD, PhD, Dean Yale School of Public Health. Dr. Hu is currently Associate Professor in the Department of Child and Adolescent Health and Maternal Care at Capital Medical University, China. She obtained her PhD in Epidemiology in 2014 from the Chinese National Center for AIDS/STD Control and Prevention (NCAIDS), Chinese Center for Disease Control and Prevention. She also holds an MD from Tong Medical University and an MS in Child and Adolescent Health from the Institute of Child and Adolescent Health, Peking University Health Science Center. Dr. Hu was formerly Associate Professor at NCAIDS from 2003-2015 as well as the National Technical Officer for the World Health Organization China Representative Office from 2005-2008. At present, Dr. Hu's research focuses on emerging risk factors that may drive the HIV epidemic, including recreational drug use of amphetamine-type stimulants and nitrite inhalants, internet-based social networks apps, and bridging populations.

*Light refreshments will be provided. Contact [dini.harsono@yale.edu](mailto:dini.harsono@yale.edu) for questions or if you will be joining by video/telephone conference.*

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Sponsored by the Center for Interdisciplinary Research on AIDS (CIRA). CIRA supports innovative, interdisciplinary research that combines behavioral, social and biomedical approaches, focused on the implementation of HIV prevention and treatment and the elimination of HIV disparities. CIRA is supported by National Institute of Mental Health Grant No. P30MH062294, Paul D. Cleary, Ph.D., Principal Investigator.

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### **Presentation Abstract**

Men who have sex with men (MSM) are disproportionately driving the rise of HIV incidence among key populations that are the focus of China's HIV response. Online social networking brings new types of aggregation of HIV transmission risk. Previously we found that the internet-derived social network was the main approach for seeking sexual partners among MSM. We investigated whether this finding could be the basis for designing targeted interventions. We are using risk predicting modeling via analysis of large datasets to capture the high-risk clusters in the online social network. The modeling is based on HIV sero-sorting, risky behaviors and dating frequency in order to detect high risk persons who might be potential HIV transmitters. Using the model, we are in the process of identifying 10,000 sexually higher risk persons within the pool of >1 million users. These at-risk persons will be sent recruitment information via a pop-up dialogue box or banner in the main page of the mobile Yiyou dating App. We will survey and HIV-test 2000 willing participants and all HIV positive specimens will be further analyzed with high-throughput sequencing to detect HIV subtype and drug resistance mutations. Based on HIV transmission risk clustering characteristics, we expect to develop an integrated intervention strategy that harmonizes App users' interests and information needs to generate an innovative way of HIV preventive information dissemination by personalized App-push. The identified highest risk persons will be recruited and mobilized to disseminate information on condom use, HIV testing, and adherence to antiviral therapy. We are seeking to inform policymakers of the utility of a personalized Internet-adapted intervention to reduce the alarmingly high HIV incidence rate among MSM.

One component of the Yiyou dating App is that persons can self-select partners of same sero-status. We will work on a new HIV risk-sorting model to provide a timely “risk alert” to App users that highlights potential risks in a given proposed sexual relationship, reminding users to use condoms, especially with partners at higher risk. We are collaborating with three community-based organizations in Harbin (Northeast China), Qingdao (East China), and Hefei (East-central China) to conduct the surveys. We also seek to respond to concerns of the Ministry of Education and National Health Commission regarding MSM students who incur risk of HIV acquisition via sexual liaisons with non-students who are usually older adults.

I will present our preliminary results on social networking of the students and their sexual partners with network mapping of HIV/syphilis. In addition, I will briefly introduce my MSM cohort in Beijing, based in an STI hospital, as a field site derived from a previous NIH collaborative research grant (S. Vermund, PI).

**Funding:** Supported in part by the China National Scientific Fund Commission (NSFC) for Development of Intervention Strategy Based on HIV Hyper-transmitter screening among Men Who Have Sex with Men via Online Social Network and Epidemiological Verification [grant # 81673232/H2609].