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DRug use and Infections in ViEtnam: ending the HIV epidemic among people who inject drugs in Hai Phong, Vietnam

The DRIVE study Group

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Abt ASSOCIATES
BOLD THINKERS DRIVING REAL-WORLD IMPACT

PIERRE NICOLE CENTRE

Combined Prevention + Large Community Surveys = End of the HIV Epidemic among PWID in Hai Phong, Vietnam

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Successful Combined HIV Prevention and Research in High-Income Settings

- Combined Prevention: including syringe exchange programs, methadone maintenance programs, and antiretroviral treatment for HIV positive persons who inject drugs (PWID)

- New York City (model for DRIVE) has implemented combined prevention, reducing new HIV infections from 4/100 person-years to 0.04/100 person years among PWID. 99% reduction

Special Concerns in Low/Middle Income Settings

- Limited financial resources
- Limited trained personnel
- Often limited research capacity
- Severe stigmatization of HIV and Injecting Drug Use—Difficulties in reaching PWID for services and for research
- Counterproductive practices: Incarceration of PWID in prisons and in detention centers

HIV epidemic among PWID in Hai Phong, Viet Nam

HIV prevalence of 66% in 2006

- Methadone maintenance treatment beginning in 2006
- Harm Reduction (pharmacy sales, later syringe exchange)
- ART for all HIV seropositives in 2014
- Strong community-based organizations of former/current PWID
- Preliminary/feasibility study conducted in 2014: N = 603, HIV prevalence = 25%, estimated HIV incidence 1-2/100 person-years

Criteria for Ending the HIV Epidemic among PWID in Hai Phong

- Reduce HIV incidence to 0.5/100 person years at risk or less
- Reduce percentage of HIV seropositive PWID not at viral suppression to 7.5% or less of PWID in Hai Phong
- Reduce percentage of HIV seropositive PWID not at viral suppression and engaging in distributive sharing of needles/syringes to 2% or less
- Public commitment to criteria (clinicaltrials.gov, Des Jarlais and Duong, Lancet, 2019)

Need for very large surveys of PWID

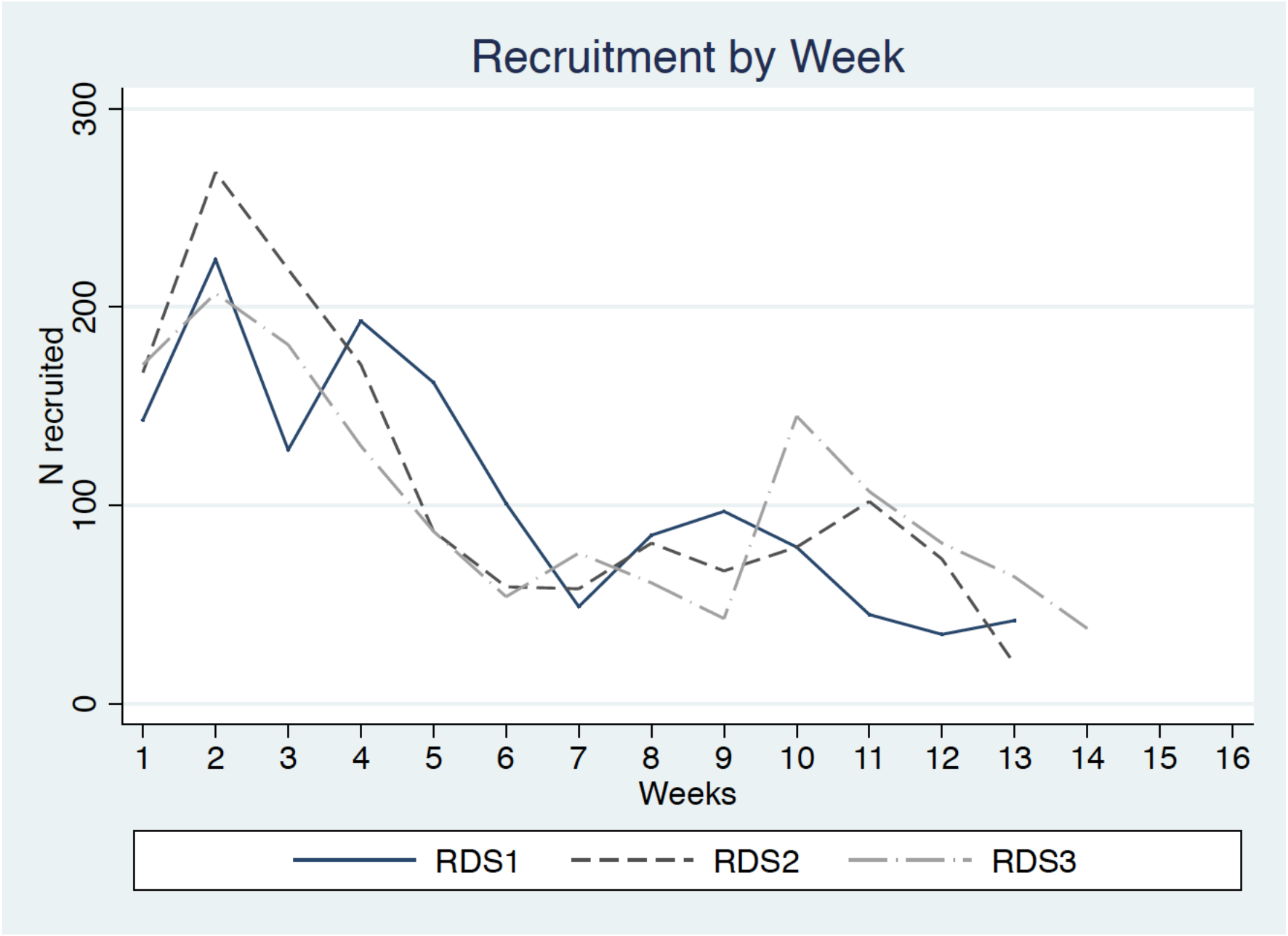
- To identify large numbers of PWID in need of services (syringe access, methadone, and ART) and to assist them PWID in obtaining services
- To follow large numbers of HIV seronegative PWID to measure HIV incidence with precision

Respondent driven sampling (RDS) and “Super-recruiters” (SR) utilized in Hai Phong to recruit PWID

- “Seeds” selected based on having large PWID networks
- Seeds participated in the survey and then were given numbered coupons to recruit additional PWID
- Participants paid for own time and effort and paid for recruiting new participants
- Collaboration with multiple community based organizations (CBOs) to assist in seed identification and RDS recruitment and survey administration

Respondent driven sampling (RDS) and “Super-recruiters” utilized in Hai Phong to recruit PWID

- Fingerprint obtained to prevent multiple participation in each RDS survey and to identify individuals participating in multiple surveys
- Use of 3 coupons per participant—standard RDS procedure—effective up to approximately 800 participants
- Then use of “super-recruiters” to recruit up to 20 additional participants


Recruitment by Week
N recruited
0
100
200
300
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
Weeks
RDS1
RDS2
RDS3

Reasons why RDS was limited in recruiting participants

1. Police suppression of hotspots limiting contacts among PWID
2. Transportation problems to research sites
3. PWID concerns about maintaining confidentiality of drug use
4. Other competing interests of PWID

Surveys treated as convenience samples not RDS samples, RDS weighting not used

RDS Diagnostics

Homophily			Equilibrium
RDS1	HIV Negative	0.121	Equilibrium in 2 waves
	HIV Positive	0.152	
	HCV Negative	-0.001	Equilibrium in 1 wave
	HCV Positive	0.064	
RDS 2	HIV Negative	0.15	Equilibrium in 2 waves
	HIV Positive	0.186	
	HCV Negative	0.066	Equilibrium in 1 wave
	HCV Positive	0.118	
RDS 3	HIV Negative	0.096	Equilibrium in 1 wave
	HIV Positive	0.122	
	HCV Negative	0.039	Equilibrium in 1 wave
	HCV Positive	0.065	

ENROLLMENT OF SURVEY PARTICIPANTS INTO HIV SERONEGATIVE COHORT STUDIES

Total of 896 HIV seronegative PWID enrolled in cohort studies, from the 3 RDS/SR surveys. Visits every 6 months. 766 had at least one follow up visit.

HIV Incidence in repeater survey participants

281 PWID participated in one or more RDS surveys, generating 377 person-years at risk

There were 0 HIV seroconversions in among the repeater survey participants

HIV Incidence in HIV- cohort study participants

There was 1 HIV seroconversion among 766 participants with 1120 person-years at-risk

HIV incidence = 0.1/100 PY

END OF THE HIV EPIDEMIC AMONG PWID IN HAI PHONG

- Reduce HIV incidence to 0.5/100 person years at risk or less: 0.1/100 person-years
- Reduce percentage of HIV seropositive PWID not at viral suppression to 7.5% or less of PWID in Hai Phong: 3.1%, 90-90-90 reached
- Reduce percentage of HIV seropositive PWID not at viral suppression and engaging in distributive sharing of needles/syringes to 2% or less: < 1%

NEXT STEP I: COMPLETION OF THE DRIVE PROTOCOL

- Completion of final cohort studies visits
- RDS4 beginning Oct 2019
- Analysis of change to in-country funding for MMT and ART
- Changes in patterns of drug use—increased methamphetamine use
    - Increased aggressiveness
    - Reduced viral suppression
- Policy impact of potential new outbreak of HIV among PWID in Hai Phong

- NEXT STEP II: TRANSFERING DRIVE METHODS TO NEW AREAS
- Rapid Assessment—analyses of available data and qualitative interviews with key informants, including PWID

- Large scale RDS or RDS/SR (population size estimate, HIV recency testing, assessment of potential biases using RDS analytics, and comparison of RDS vs. SR components

- If ”End of Epidemic” criteria met, monitoring and maintenance of efforts

- If criteria not met, increase combined prevention and care efforts, CBO support for PWID reduce barriers to PWID accessing services

LESSONS OF DRIVE

- Possible to end HIV epidemic among PWID in a middle income setting
- Need for maintenance of efforts
- Need to transfer DRIVE methods to other areas in Viet Nam and elsewhere

DRIVE Publications

- Des Jarlais DC, et al. **Prospects for ending the HIV epidemic among persons who inject drugs in Haiphong, Vietnam**. *International Journal of Drug Policy*. (2016)
- Des Jarlais DC, et al. **Integrated respondent-driven sampling and peer support for persons who inject drugs in Haiphong, Vietnam: a case study with implications for interventions**. *AIDS Care*. (2016)
- Michel L. et al. **Intravenous heroin use in Haiphong, Vietnam: Need for comprehensive care including methamphetamine use-related interventions**. *Drug and Alcohol Dependence*. (2017)
- Des Jarlais DC et al. **Using dual capture/recapture studies to estimate the population size of persons who inject drugs (PWID) in the city of Hai Phong, Vietnam**. *Drug and Alcohol Dependence*. (2018)
- Hammett T. et al. **The relationship between health policy and public health interventions: a case study of the DRIVE project to "end" the HIV epidemic among people who inject drugs in Haiphong, Vietnam**. *Journal of Public Health Policy*. (2018)
- Duong HT. et al. **Risk Behaviors for HIV and HCV Infection Among People Who Inject Drugs in Hai Phong, Viet Nam, 2014**. *AIDS and Behavior*. (2018)
- Feelemyer J. et al. **Increased Methamphetamine Use among Persons Who Inject Drugs in Hai Phong, Vietnam, and the Association with Injection and Sexual Risk Behaviors**. *J of Psychoactive Drugs*. (2018)
- Pham Minh K. et al. **Psychiatric Comorbidities among People Who Inject Drugs in Hai Phong, Vietnam: The Need for Screening and Innovative Interventions**. *BioMed Research International* (2018)
- Nguyen TT et al. **Struggling to achieve a 'normal life': A qualitative study of Vietnamese methadone patients**. *International Journal of Drug Policy*. (2019)

DRIVE Publications

- Jarlais Des DC, Duong HT. **Ending HIV epidemics among people who inject drugs in LMICs.** *Lancet.* 2018;392(10149):714-716.
- National Clinical Trials Registry: **NCT03526939**)