

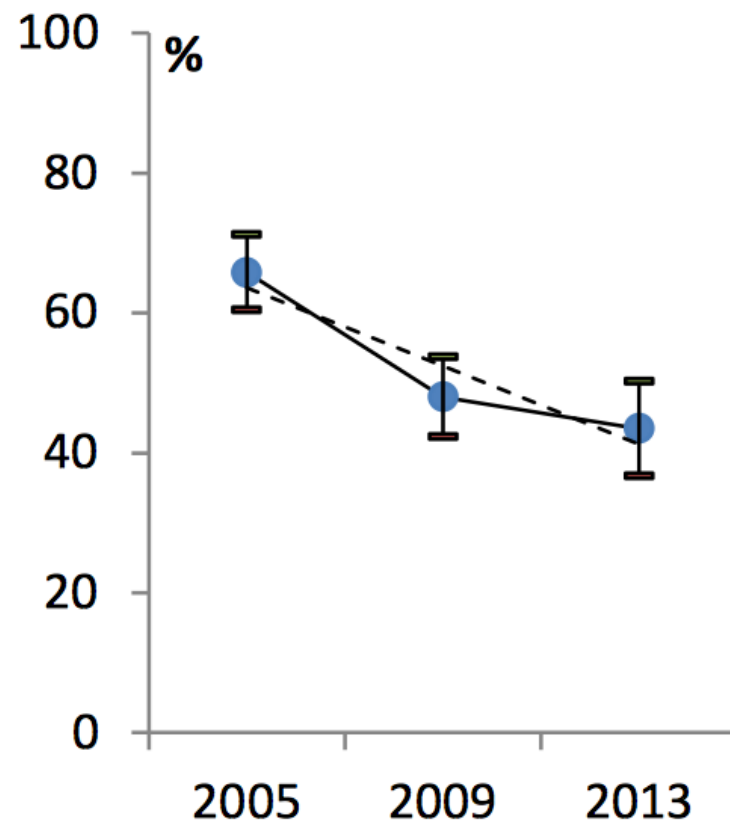
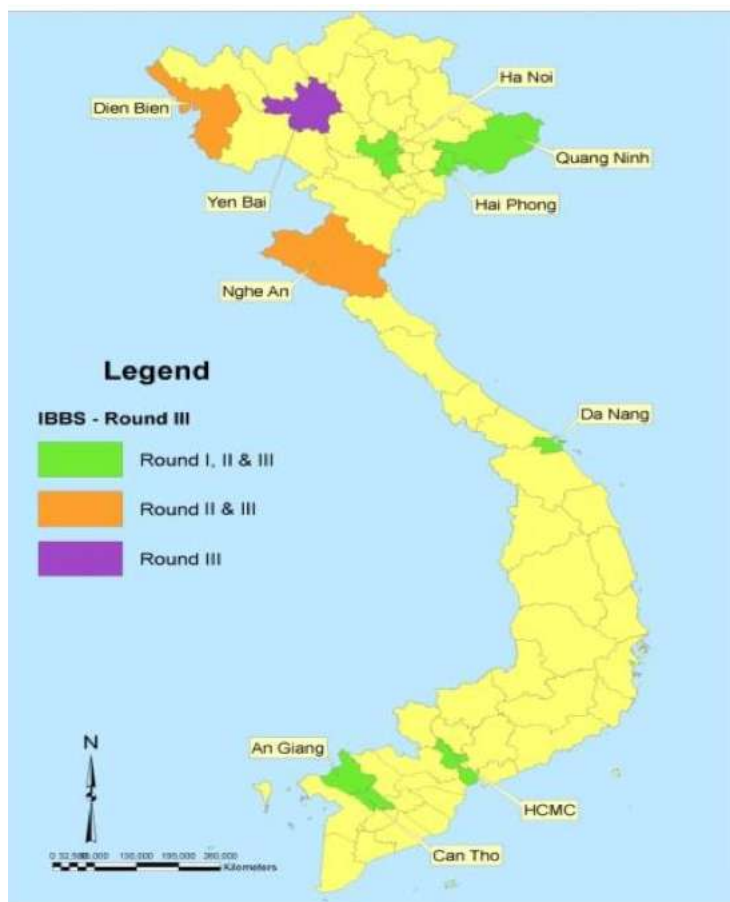
# Low HIV incidence but high HCV incidence among people who inject drugs in Haiphong, Vietnam: Results of the DRIVE-IN study (ANRS 12299/NIDA P30DA011041)

J.P. Moles, M.K. Pham H. Duong Thi, T. Nguyen Thi, G. Hoang Thi, T.T. Nham Thi, V. Vu Hai, H.O. Khuat Thi, R. Vallo, M. Peries, K. Arasteh, C. Quillet, J. Feelemyer, L. Michel, T. Hammett, N. Nagot, D. Des Jarlais, **D. Laureillard**, for DRIVE study group



# Background

Initial spread of HIV among persons who inject drugs (PWID) occurred in 1990s in Hai Phong



**Hai Phong**, p-value for overall trend <0.001

## Background (2)

- Early national response relied on compulsory ‘rehabilitation centers’ → **Not Effective**
- Then, for about 10 years, HIV control programs targeting persons who inject drugs (PWID)
- Interventions implemented targeting PWID:
  - Needle/syringe exchange program started in 2007
  - Methadone maintenance started in 2008, with increased coverage until 2017
  - Antiretroviral therapy (ART) for HIV seropositive started in 2005, with increased coverage since 2015
- HIV prevalence declined from 30% in 2009 (66% in Hai Phong) to 10% in 2013 among PWID, with high geographical disparities.
- No information on current HIV or HCV incidence

# Background (3)

## HAI PHONG:

- ~ 2 millions inhabitants
- ~ 10,000 PWID, >90% males
- ~ 14 MMT clinics,
- ~ 3500 PWID initiated on methadone since 2008.
- ~ 13 ART outpatient clinics
- ~ Community self-support groups: risk reduction, syringes, community detox, income-generating activities



# Background (4)

## DRIVE

- Started in 2016
- 5 years project funded by NIDA & ANRS
- Aim: Ending HIV epidemic among PWID in Hai Phong
- 4 RDS (1/year → 1500 PWIDs) + 1 cohort of 800 HIV positive PWIDs and 1 cohort of 800 HIV negative PWIDs
- Routine harm reduction activities and support for large access to MMT/HIV care by community-based organizations (CBO)

# Background (4)

## DRIVE

- Started in 2016
- 5 years project funded by NIDA & ANRS
- Aim: Ending HIV epidemic among PWID in Hai Phong
- 4 RDS (1/year → 1500 PWIDs) + 1 cohort of 800 HIV positive PWIDs and 1 cohort of 800 HIV negative PWIDs
- Routine harm reduction activities and support for large access to MMT/HIV care by community-based organizations (CBO)



**DRIVE-IN: Feasibility phase (2014-2015)**

# Objectives

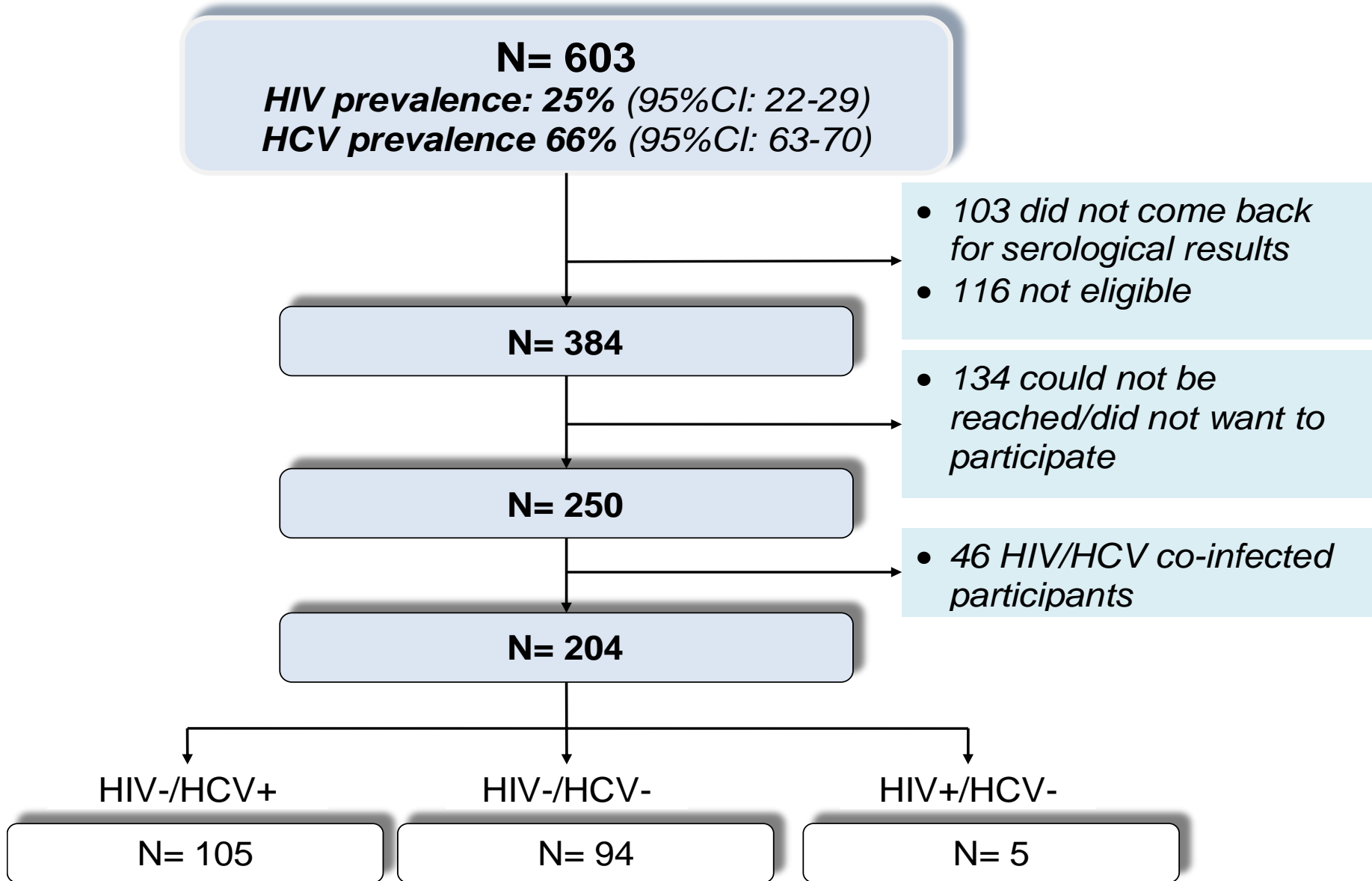
- To estimate HIV and HCV prevalence and incidence among active PWID in Hai Phong, Vietnam
- To identify the determinants of HCV seroconversion among this group

# Study design

- Community-based respondent driven sampling (RDS) survey among 'active PWID' in Haiphong, with HIV and HCV testing, implemented in October 2014
- Active PWID = positive urine test for heroin + injection marks
- Longitudinal follow-up: HIV-negative participants and HCV-negative participants not on methadone maintenance therapy (MMT) were eligible for 1 year follow-up
- HIV/HCV testing, behavioral questionnaire at 6 and 12 months
- Routine harm reduction activities and support to access MMT/HIV care by community-based organizations (CBO)
- Estimation of HIV and HCV incidence and identification of risk factors associated with HCV seroconversion



# Results



# Results (2)

## Baseline characteristics among PWID in Hai Phong

|                                     | HIV negative<br>N=199 | HCV negative<br>N=99 |
|-------------------------------------|-----------------------|----------------------|
| Male sex                            | 179 (89.9%)           | 89 (89.9%)           |
| Age (median [IQR])                  | 37 [30-45]            | 36 [30-43]           |
| Having ever been arrested           | 127 (63.8%)           | 63 (63.6%)           |
| Number of year of injection         | 6[2-12]               | 5[1-9]               |
| Number of injection in last month   | 90[60-90]             | 78[60-90]            |
| Meth use in last 3m/urine detection | 56 (28.1%)            | 27 (27.3%)           |
| Injection with used needle/syringe  | 7 (3.5%)              | 2 (2.0%)             |
| HIV-positive serology               |                       | 5 (5.1%)             |
| HCV-positive serology               | 105 (52.8%)           |                      |

## Results (3)

- 45/204 (22%) participants did not reach 12 months f-up: 3 withdrew, 4 died, 22 were arrested and 16 moved out
- **No HIV seroconversion** during the 206 pers-yrs of follow-up (**HIV incidence 95%CI: 0-1.8/100 pers-yrs**).
- **18 participants seroconverted for HCV → HCV incidence of 19.4/100 pers-yrs** [95%CI; 11.5-30.7]

# Results (4)

## Factors associated with HCV seroconversion

|  | Crude OR<br>(95%CI)    | Adjusted OR<br>(95%CI) |
|--|------------------------|------------------------|
| Sex* (female vs male/transgender)                | 1.9 (0.3-9.6)          |                        |
| Age* (>27years)                                  | 0.4 (0.1-2.2)          |                        |
| Time of injection ( $\leq$ 2 years)              | 1.8 (0.6-5.1)          |                        |
| <b>&gt;73 injections per month</b>               | <b>11.4 (3.6-36.9)</b> | <b>13.7 (3.3-71.6)</b> |
| Use of methamphetamine <sup>§</sup>              | 0.5 (0.2-1.3)          | 0.3 (0.1-1.4)          |
| Accepted used syringe*                           | 4.2 (0.1-341.5)        |                        |
| Having shared syringe*                           | 0.6 (0.1-3.4)          |                        |
| Having one new sexual partner every 3 months*    | 0.3 (0.1-1.2)          | 0.3 (0.1-1.6)          |
| Having a primary sexual partner injecting drugs* | 3.5 (0.3-34.0)         |                        |
| Have been arrested during the at-risk period*    | 4.6 (0.6-38.0)         | 6.4 (0.5-87.4)         |
| Being under methadone during the at-risk period* | 2.9 (0.2-27.7)         |                        |

§ normal model; \* exact model

# Conclusions

- **Very low HIV incidence** among active PWID in Haiphong  
→ Larger data to confirm HIV elimination among active PWID
- **HCV incidence is unacceptably high.** HCV seems to be associated with numbers of injection but very low manipulations (no need for cooking, no filter, no spun,...)
- More investigations is required to understand the routes of HCV transmission
- Large access to HCV treatment is now a priority given the efficacy and safety of the DAA
- Further implementation studies are required to define an appropriate model of HCV testing and cure among PWID in Vietnam → **DRIVE-C**

# Acknowledgements

**Funding agencies: ANRS and NIDA**

**Haiphong Provincial Health authorities**

**DRIVE team:**

**Vietnam**

- **University of Medicine & Pharmacy, Hai Phong**  
Duong Thi Huong  
Pham Minh Khue  
Hoang Thi Giang
- **Laboratory of the Provincial HIV Center, Hai Phong**  
Nguyen Thi Thoa
- **Viettiep Hospital, Hai Phong**  
Vu Hai Vinh
- **Hanoi medical University**  
Le Minh Giang  
Nguyen Thu Trang
- **SCDI, Hanoi & Hai Phong**  
Khuat Thi Hai Oanh  
Nham Thi Tuyet Thanh
- **Community Base Organisations**  
Friendship Arm & Light House

**The DRIVE scientific advisory board:**

Vu Van Cong, Bikas Gurung, Tom Kerr, Abu Abdul-Kader Gavin Bart, Laurence Weiss, Perrine Roux, Jean-Pierre Daulouède

**All the participants enrolled in the study**

**USA**

- **Beth Israel Medical Center, New York**  
Don Des Jarlais  
Jonathan Feelemyer
- **Abott**  
Ted Hammett

**France**

- **INSERM U1058 Montpellier**  
Nicolas Nagot  
Jean-Pierre Moles  
Catherine Quillet  
Delphine Rapoud  
Marianne Peries  
Roselyne Vallo  
Didier Laureillard
- **Centre Pierre Nicole, French Red Cross, Paris**  
Laurent Michel
- **UMR 988, Université Paris Descartes, Paris**  
Marie Jauffret-Roustide

# Acknowledgements



NIDA  
authoriti

ong



rk



→ Centre P  
Laurent  
→ UMR 98  
Marie Ja

**The DRIVE scientific advisory board:**

Vu Van Cong, Gavin Bart, Laurence Weiss, Perrine Roux & Jean-

**All the participants enrolled in the study**

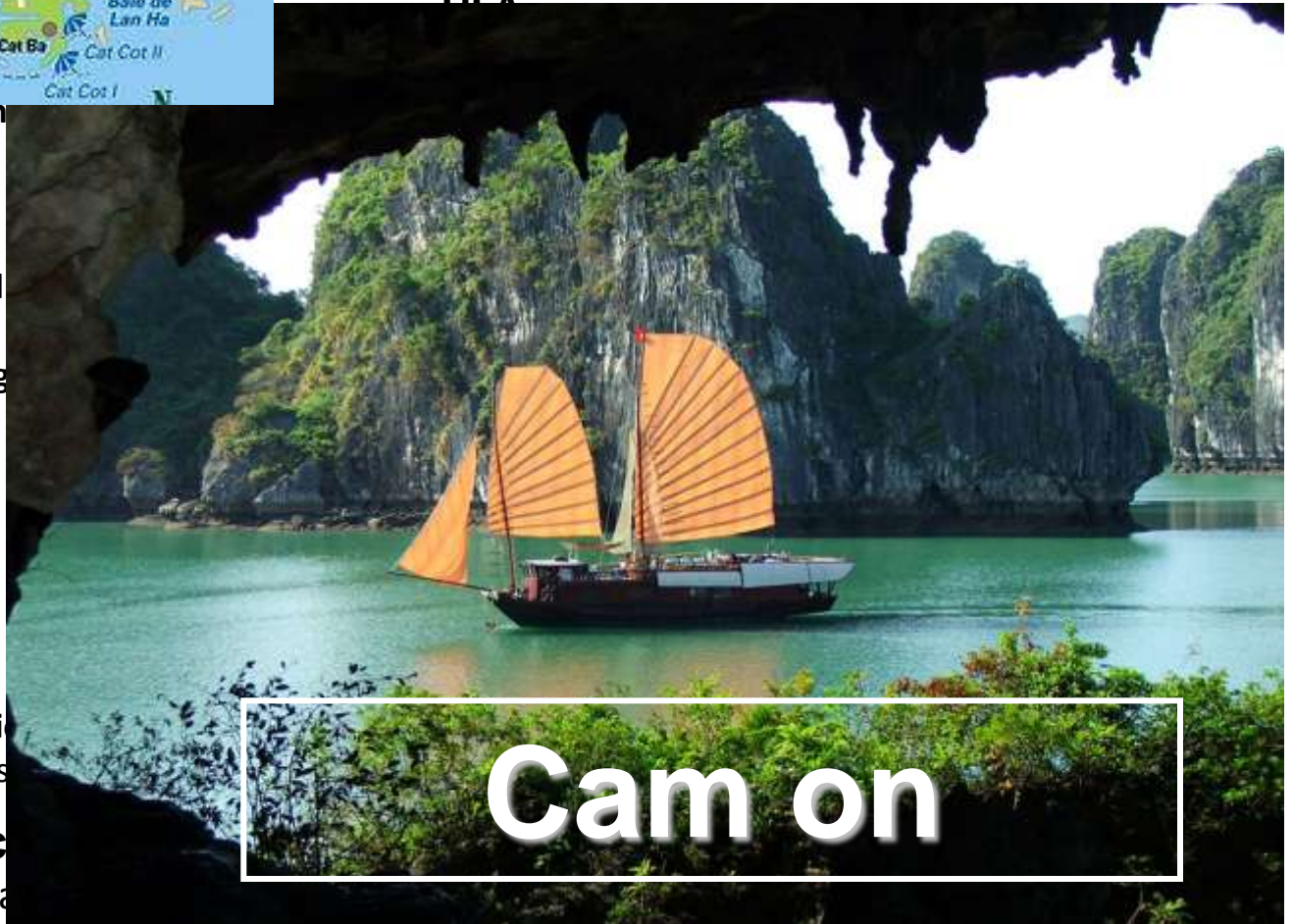


# Acknowledgements

NIDA  
Authorities



- **University of Medicine & Pharmacy**  
Duong Thi Huong  
Pham Minh Khue  
Hoang Thi Giang
- **Laboratory of the Provincial**  
Nguyen Thi Thoa
- **Vietiep Hospital, Hai Phong**  
Vu Hai Vinh
- **Hanoi medical University**  
Le Minh Giang  
Nguyen Thu Trang
- **SCDI, Hanoi & Hai Phong**  
Khuat Thi Hai Oanh  
Nham Thi Tuyet Thanh
- **Community Base Organisation**  
Friendship Arm & Light House



Cam on

**The DRIVE scientific**  
Vu Van Cong, Gavin Bart, La

**All the participants enrolled in the study**