# ALARMING TUBERCULOSIS RATE AMONG PEOPLE WHO INJECT DRUGS (PWID) IN VIETNAM

0719

NIDA ROI DA041978 / ANRS 12353

Nicolas Nagot[1], Vinh Vu Hai[3], Thuy Dong Thi Thu[2], Oanh Khuat Thi Hai[4], Delphine Rapoud[1], Giang Hoang Thi[5], Catherine Quillet[1], Khue Pham Minh[5], Roselyne Vallo[1], Thanh Tuyet Thi Nham[4], Jean-Pierre Moles[1], Don C Des Jarlais[6], Lan Nguyen Phuong[2], Hoi Le[7], Luan Vo[2], Huong Duong Thi[5] and Didier Laureillard[1,8]

[1] Pathogenesis and control of chronic infections, INSERM, Etablissement Français du Sang, University of Montpellier, Montpellier, France; [2] Friends for International TB relief, Hanoi, Vietnam; [3] Dept of Infectious and Tropical Diseases, Viet Tiep Hospital, Haiphong, Vietnam;

[4] Supporting Community Development Initiatives, Hanoi, Vietnam; [5] Haiphong University of Medicine and Pharmacy, Haiphong, Vietnam; [6] New-York University, NY, USA;[7] National Lung Hospital, National TB control program, Hanoi, Vietnam; [8] Infectious Diseases Department, Caremeau University Hospital, Nîmes, France ;

## Background

Tuberculosis (TB) remains a major public health threat in South-East Asia despite international and national efforts to reach TB elimination. The epidemic is not homogeneous but presents high transmission clusters, such as People who inject drugs (PWID).

## Objective

**To estimate the prevalence of TB among PWID in Hai Phong city, Vietnam**

## Methods

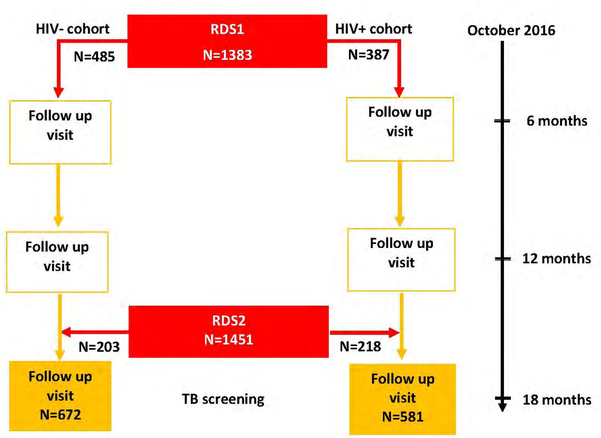
We conducted 2 large community-based **respondent-driven sampling (RDS) surveys** [1] in October 2016 and October 2017 among PWID, which fueled a prospective **cohort of HIV positive** participants and a prospective **cohort of HIV negative** participants who were not on methadone.

The RDS eligibility criteria were: aged 18 years or more, currently injecting drug, positive urine for heroin or methamphetamine and recent skin marks of injection.

The 2 cohorts had similar follow-up visits every 6 months, including questionnaires (sexual behaviors & drug use behaviors), HIV and HCV testing.

The **study design was a cross-sectional survey** during a cohort follow-up (12 and 6 months after the first and second RDS, respectively).

Figure 1. Flow chart of the 2 cohorts




**All participants from both cohorts were screened for TB**

The screening algorithm started with a set of question on TB symptoms: Fever, cough >1 week, night sweats, weight loss, intense fatigue.

—> If at least **one symptom** was present, the participants were invited to have a chest X-ray.

—> If the X-ray was **abnormal**, a sputum was collected for genexpert® MTB/RIF assay

—> All participants with a positive genexpert® MTB/RIF were confirmed to be **TB infected** and were treated according to national guidelines

**OUTCOME**

- We estimated the **prevalence of active TB** with a 95% confidence interval.

- In a sensitivity analysis, we assumed that all participants who dropped from the screening cascade had a similar probability to have a confirmed TB than those who completed the screening and we calculated the corrected prevalence of active TB.

## Results

Figure1. TB algorithm

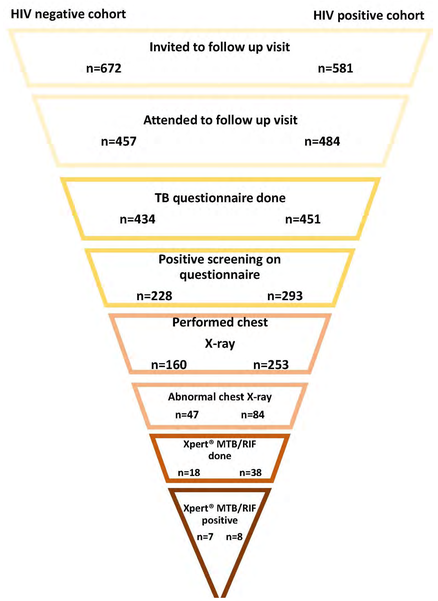



Table 1. Participant characteristics who have answer the questionnaire:

| | HIV negative PWID (n=434) | HIV positive PWID (n=451) | Total (n=885) |
|---|---|---|---|
| **Socio demographic** | | | |
| Median age [IQR] | 42.5 [35.0;50.0] | 41.0 [37.0;45.0] | 42 [36.0;47.0] |
| Gender %: | | | |
| Female | 9.2 | 5.8 | 7.5 |
| Male | 90.3 | 94.2 | 92.3 |
| Transgender | 0.5 | 0.0 | 0.2 |
| Marital status %: | | | |
| Single | 27.6 | 41.9 | 34.9 |
| Legally married | 34.8 | 30.2 | 32.4 |
| Living in couple | 3.9 | 4.7 | 4.3 |
| Divorced/Separated | 31.8 | 21.7 | 26.7 |
| Widowed | 1.8 | 1.6 | 1.7 |
| Salaried/work %: | 82.0 | 74.5 | 78.2 |
| **Drug Use in last 6 months** | | | |
| Heroin use% | | | |
| No more | 38.2 | 32.4 | 35.3 |
| Recreative only | 25.1 | 36.6 | 31.0 |
| Regular/frequent | 36.6 | 31.0 | 33.8 |
| On methadone% | 50.7 | 75.2 | 63.2 |
| **Health%** | | | |
| Previous TB episode reported | 8.6* | 33.7 | 21.4* |
| Cough> 1 week | 0.6 | 1.2 | 0.0 |
| Night sweats | 28.8 | 37.7 | 33.3 |
| Weight loss | 17.1 | 23.1 | 20.1 |
| Chest pain/ Difficulty breathing | 34.8 | 41.7 | 38.3 |
| Fever | 9.2 | 12.9 | 11.1 |
| Fatigue | 38.5 | 49.0 | 43.8 |

* 2 missing value

Among HIV-positives: **90%** were on **ART**, **82%** had a viral load **below 1000 copies/mL**, their median CD4 count was 472 cells/µL

### Estimation of TB prevalence:

**Conservative approach:**

HIV positive: 1.8%[95%CI: 0.8;3.5]

HIV negative: 1.6%[95%CI: 0.6;3.3]

**Sensitivity analysis:**

HIV positive: 4.4%[95%CI: 2.7;6.8]

HIV negative: 5.8%[95%CI: 3.8;8.4]

## Conclusion

The prevalence of TB among PWID is very high, ranging from **1.6% to 5.7%.** PWID are **30 to 100 times more at risk of active TB than the general population.**

Interestingly, the TB burden is very similar between HIV-positive and HIV negative PWID.

**In this cross sectional study, we showed that community-based screening was feasible and highly effective to identify TB cases in this hard-to-reach population.**

**Urgent dedicated interventions including large TB screening, contact tracing of cases, improved referral for care or treatment of latent TB are needed to control TB among PWID, not only to reduce morbidity and mortality, but also to impact on the TB dynamics in the rest of the population.**

## References

*[1] Des Jarlais, D., Duong, H.T., Pham Minh, K., Khuat, O.H.T., Nham, T.T.T., Arasteh, K., Feelemyer, J., Heckathorn, D.D., Peries, M., Moles, J.P., Laureillard, D., Nagot, N., (The Drive Study Team), 2016. Integrated respondent-driven sampling and peer support for persons who inject drugs in Haiphong, Vietnam: a case study with implications for interventions. AIDS Care 28, 1312–1315. https://doi.org/10.1080/09540121.2016.1178698*