

Viral load testing to monitor the HIV epidemic among PWID in Vietnam

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Objective

To share Vietnam's experiences piloting the integration of viral load (VL) testing into the national HIV sentinel surveillance (HSS) system to better understand the level of HIV viral transmission among people who inject drugs (PWID).

Introduction

Vietnam initiated the HSS system in 1994 in selected provinces with high HIV burden. The surveillance has two components: monitor HIV sero-prevalence and risk behaviors among key population including PWID. However, no VL data were collected among HIV infected people. In 2016, Vietnam piloted an added component of VL testing to the existing HSS system. The purpose was to test the feasibility of adding VL testing to the HSS so that VL data among PWID would be available. The pilot was conducted in two provinces in southern Vietnam-Ho Chi Minh City and Long An. It was expected that adding the VL testing to the existing HSS would also save resources and help monitor HIV viral transmission among PWID in the community regardless if they are currently on anti-retroviral therapy (ART).

Methods

Male PWIDs were enrolled into 2016 HSS+ following the standard operating procedure (SOP)^[1]. Community-based sampling was based on random selection of wards/communes listed in the sampling frame. In each selected ward/commune, all eligible PWID were invited to voluntarily participate in the survey. Eligibility criteria were males 16 years of age or older, reporting injecting drug in the past month, and residing in the selected area. The survey included an interview using a standardized questionnaire and 7ml blood drawn for HIV testing. Blood specimens were transferred from districts to provincial labs for plasma separation in the same day. Each plasma specimen was divided into three aliquots of 1ml each. One aliquot was used to test for HIV diagnosis at provincial labs, using the national HIV testing strategy III^[2]. The remaining 2 aliquots were stored at provincial labs at 2-8°C and within 5 days, were shipped to Pasteur Institute in Ho Chi Minh City (PIHCM) where the plasma specimens were stored at -80°C. Processing of samples for VL testing was conducted at the end of the survey where all plasma specimen were transferred to PIHCM lab, which was 2 months since the collection of the first blood specimen. VL was undertaken on COBAS AMPLYPREP/COBAS TAQMAM 48, with identification threshold 20 cps/ml and specificity of 100% using Kit CAP-G/CTM HIV-1 V 2.0. The VL testing results were sent back to relevant Provincial AIDS Centers to return to respective participants, within 3 months.

Results

Five hundred male PWID (HCMC: 300; LA: 200) were enrolled into 2016 HSS/HSS+ and agreed to provide blood specimen without any refusal. 84 tested positive for HIV (16.8%. HCMC: 15.0%; LA: 19.5%), 43 (51.2%) specimens had unsuppressed VL (>1000 copies/ml) (HCMC: 66.7%; LA: 33.3%), 35 (41.7%) specimens had

undetected level (<50 copies/ml or undetected) (HCMC: 31.1%; LA: 53.9%), and 7.1% had VL that ranged from 50-1000 copies/ml (HCMC: 2.2%; LA: 12.8%). Among those who had VL < 1000 copies/ml, 22 (53.7%) had ever been on ART.

Conclusions

The pilot survey has measured VL among male PWID, including those who were aware of their HIV status and those who did not know their status before. Findings indicate that a significant proportion of PWID do not have their VL suppressed leading to high-risk of HIV transmission from PWID to their sexual partners^[3] in the community although level of unsuppressed viral load is not a direct measure of HIV viral transmission in itself. This pilot indicated that it was feasible to add VL testing into HSS and Vietnam government can add it as a routine practice in HSS and can be expanded in the coming years.

Table 1. Results of HIV serological testing and VL testing among HSS+ specimens in Ho Chi Minh City and Long An, 2016

| Characteristic | Ho Chi Minh City (n=300) | | | Long An (n=200) | | | Total (n=500) | | |
|---------------------|--------------------------|----|--------------------|-----------------|----|--------------------|---------------|----|--------------------|
| | n | n0 | % | n | n0 | % | n | n0 | % |
| HIV (+) (95%CI) | 300 | 45 | 15.0 (11.2 - 19.6) | 200 | 39 | 19.5 (14.2 - 25.7) | 500 | 84 | 16.8 (13.6 - 20.4) |
| Viral load (cps/ml) | 45 | | | 39 | | | 84 | | |
| >1000 | 30 | | 66.7 | 13 | | 33.3 | 43 | | 51.2 |
| 50-1000 | 1 | | 2.2 | 5 | | 12.8 | 6 | | 7.1 |
| <50 or undetected | 14 | | 31.1 | 21 | | 53.8 | 35 | | 41.7 |
| Known HIV positive | 44 | 14 | 31.8 | 39 | 24 | 61.5 | 83 | 38 | 45.8 |
| Ever on ART | 45 | 12 | 26.7 | 39 | 17 | 43.6 | 84 | 29 | 34.5 |
| VL<1000 cps/ml | 15 | | | 26 | | | 41 | | |
| Ever on ART | 9 | | 60.0 | 13 | | 50.0 | 22 | | 53.7 |

Keywords

Viral load testing; HIV sentinel surveillance; Vietnam; PWID

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