

Misclassification of Men with Reported HIV Infection in Ukraine

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Abstract We analyzed data on reported mode of transmission in case reports of HIV-infections among men in Ukraine. The number of men who were reported to have acquired HIV through heterosexual transmission increased substantially in 2006–2011. However, we estimate that up to 40 % of reported cases of heterosexual transmission among men may actually represent misclassified men who have sex with men or persons who inject drugs. These findings indicate a need to improve the quality of data on reported mode of HIV transmission. Accurate information has important public health implications in planning prevention and treatment services.

Resumen Se analizaron datos sobre el modo de transmisión reportado en los informes de casos de infecciones por VIH entre hombres en Ucrania. El número de hombres quienes fueron notificados haber adquirido el VIH por vía de transmisión heterosexual aumentó sustancialmente en 2006 a 2011. Sin embargo, se estima que hasta un 40 % de casos notificados de transmisión heterosexual entre hombres puede representar en realidad hombres mal clasificados quienes tienen sexo con otros hombres (MSM) o personas

que inyectan drogas (PWID). Estos resultados indican una necesidad de mejorar la calidad de datos sobre el modo informado de transmisión de VIH. Información precisa tiene implicaciones importantes para la salud pública en la planificación de los servicios de prevención y tratamiento.

Keywords HIV · Case reporting · Ukraine · Modes of transmission · Men who have sex with men (MSM) · Persons who inject drugs (PWID) · Heterosexual transmission

Introduction

Ukraine has one of the highest burdens of HIV in the World Health Organization's European Region. It is estimated that 230,000 are people living with HIV infection and the prevalence is 0.9 % in the general population [1]. The early HIV epidemic was driven by persons who inject drugs (PWID). However, the number of cases reported to have acquired HIV through heterosexual intercourse has steadily increased, and in 2011, 43 % of all HIV cases among males older than 15 years were attributed to heterosexual transmission. Several data sources analyzed in a triangulation project conducted in Ukraine from 2009–2012 suggest that the Ukrainian epidemic remains mainly concentrated in key populations (KPs) at higher risk for HIV i.e. men who have sex with men (MSM), PWID and their sexual partners as well as sex workers (SW). However, data on reported HIV cases suggest the increase in the heterosexual mode of transmission and a very low number of HIV cases reported as MSM. The aim of our study was to explore the extent to which mode of transmission of reported male HIV cases in Ukraine in the

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period 2009–2012 might be misclassified. One explanation could be misclassification of MSM and PWID as having acquired HIV infection heterosexually.

Methods

The data interpreted in this paper are sourced through the Ukraine Data Synthesis Project, which was conducted in the period from 2009 to 2012 [2]. We conducted a secondary analysis of HIV and AIDS case reports from the nationally mandated case reporting system, behavioral and demographic data from the Integrated Biologic and Behavioral Surveys (IBBS) conducted in KPs such as MSM, PWID and SW, estimations of population size for KPs, Demographic and Health Survey (DHS), national census data as well as the datasets gathered from the routine monitoring systems on prevention programs for KPs which provided the information on reach, intensity and geographic distribution of various programs. We applied data on HIV prevalence in MSM from IBBS to the estimated size of MSM population in order to estimate the number of HIV-infected MSM and the extent of potential misclassification of reported male HIV cases. The data was compared and interpreted through the methodology known as triangulation. Triangulation is an analytical approach that compares and interprets multiple data sources to improve the understanding of a public health problem and assess the impact of population-level interventions [3].

Results

In this paper we further compared the surveillance data from Ukraine with surveillance data from other countries in Eastern Europe. From the beginning of HIV case reporting until the end of 2011, 170,144 adults and adolescents with HIV infection had been reported to the Ukrainian Centre for AIDS Prevention, which is part of the Ministry of Health of Ukraine. The number of reported heterosexually transmitted HIV in adult and adolescent men increased from 1566 cases per year in 2005 to 4053 cases per year in 2011 and totaling 19,569 for this period. In the same time period, the number of HIV cases reported as MSM remained low, increasing from 20 reported cases in 2005 to 143 in 2011 and totaling 494 cases for the entire period. In contrast to the number of reported HIV cases among MSM, seroprevalence surveys from 2011 estimated that the national HIV prevalence among MSM was 6 %, with the highest prevalence in Donetsk (19 %) and Odessa (17 %) [4]. Out of all MSM participating in the surveys, 38 % reported having been tested for HIV in the previous year [4]. In 2011, the number of MSM in Ukraine was estimated

to be 176,000 [5]. The HIV prevalence and size population data suggest that there were approximately 10,560 HIV-infected MSM alive in 2011 [2]. This in turn, may indicate that of the 19,569 HIV cases among heterosexual men older than 15 years reported from 2005 to 2011, a substantial proportion may have been misclassified MSM.

Out of the 376 MSM found to have HIV infection in nationwide IBBS conducted in 2011, 72 (19 %) reported being under care [4]. This suggests that at least 2006 MSM (19 % of 10,560) might have been reported. After removing 493 cases reported as being due to male-to-male sexual transmission, we estimate that 1513 (8.3 %) male heterosexual cases may have been MSM.

Discussion

There are several limitations to interpretation of data presented in our report. IBBS data collection is done by NGOs, and could have included MSM that are more likely to be their clients and already tested for HIV. However, it is not known whether MSM not reached by NGO prevention services and IBBS could have lower or higher HIV prevalence compared to those reached. Subsequently, it is challenging to estimate the direction of bias in the number of MSM that could be misclassified in the HIV case reporting system though it is more likely to be an underestimate due to a rather conservative estimate of the population size of MSM.

Misclassification of PWID also appears to occur frequently. In a review of data conducted in 2009 that included 4863 newly reported HIV cases among heterosexual males, 25.2 % of cases had antibodies to hepatitis C virus (HCV) [6]. In a bio-behavioral survey HCV antibodies were detected among 73 % of PWID in central Ukraine [6], which suggests that as many as 34.5 % (0.252/0.73) or 6751 cases of men reported as heterosexual from 2005 to 2011 could have been actually PWID. Adding this to the estimated number of misclassified MSM, we estimate that 8369 (42.7 %) men reported as having acquired HIV through heterosexual intercourse have been misclassified (Table 1).

We have observed a possibly similar pattern across Eastern Europe. The number of HIV infections among men reported to be heterosexual in countries of WHO European Region East (this includes the following countries: Armenia, Azerbaijan, Belarus, Estonia, Georgia, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Moldova, Tajikistan, Ukraine) excluding Ukraine increased from 550 cases in 2005 to 1621 cases in 2011, while the number of HIV cases that are MSM increased from only 37 in 2005 to 120 in 2011 [7]. The pattern of reporting high percentages of heterosexual cases among men can be found in several

Table 1 Reported and estimated HIV cases by transmission category, adult and adolescent men, Ukraine, 2005–2011

Case reporting category	As reported	Estimated
Men who have sex with men	493	2006
Heterosexual	19,569	11,305
Persons who inject drugs	38,125	44,876
Other (nosocomial infections, blood transfusion and unclassified)	1343	1343
Total	59,530	59,530

countries in Eastern Europe, such as Georgia, Armenia, Azerbaijan and Estonia [8–10]. Potential underreporting of cases among MSM could be due to stigma and resulting in patients' reluctance to declare themselves as MSM [11]. Alternatively, MSM may not self-identify as gay or bisexual, and may consider themselves to be heterosexual, both to themselves and when responding to any questions about their sexual behaviors. Reciprocally, discomfort and/or misinformation about homosexuality among clinicians completing case reports may result in inaccurate reporting of actual behaviors. An IBBS conducted in Ukraine in MSM in 2011 showed that 31 % of respondents considered themselves bisexual, which could result in their own misreporting of HIV risk behaviors [4].

Conclusion

We conclude that the available data suggest that as many as 8.2 % of men who have been reported as having acquired HIV heterosexually in Ukraine may actually be MSM and an additional 34.5 % may be PWID. While of necessity a rough approximation, the residual 57.3 % of cases may be a more accurate representation of men who acquired HIV heterosexually from females who inject drugs, female sex workers or female sexual partners of infected men not otherwise in recognized key populations. The misclassification of HIV-infected MSM and PWID as heterosexuals has important public health implications in planning prevention and treatment services. We suggest that a sample of men reported as having acquired HIV heterosexually be interviewed in more depth on a repeated basis, with the aim of determining their true risk factors. Skilled non-judgmental interviewers can elicit accurate exposure histories from newly diagnosed HIV patients are crucial for determining the actual risk factors for HIV transmission and need to be trained to create an environment that is

conducive to speaking freely about possible risk behaviors and avoiding misclassification.

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