

Provider-initiated vs. client-initiated HIV testing in Autonomous Province of Vojvodina, Serbia, 2000-2008

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Abstract

Background: This paper describes the changes in Human Immunodeficiency virus (HIV) testing rates in Autonomous Province (AP) Vojvodina, Serbia since 2000 and compares provider-initiated with client-initiated HIV testing.

Methodology: Between 2000 and 2008, 66,327 HIV screening tests were reported from AP Vojvodina. During this time HIV testing rates increased from 1.2 per 1,000 inhabitants in 2000, to 7.7 per 1,000 inhabitants in 2008.

Results: The results showed an increase in testing as a consequence of increased mandatory testing of surgical patients as well as an upsurge in the use of Voluntary Counselling and Testing (VCT). Pregnant women that were tested represented less than 5% of the overall sample population.

Conclusion: Public health efforts in AP Vojvodina to increase HIV testing rates lead to a continuous increase in testing rates, but with different limitations. HIV testing in low prevalence middle income countries could be highly affected by procurement difficulties, low motivation of medical professionals to initiate testing, and opportunities for testing limited to large towns and cities.

Key words: HIV; testing; counseling; surveillance; epidemiology; prevention

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Introduction

An estimated 34 million people were living with HIV worldwide at the end of 2010. Approximately 2.7 million people became newly infected with HIV in 2010 [1]. HIV testing is considered necessary to HIV prevention, treatment, and care efforts as the knowledge of one's HIV status is critical for preventing the spread of infection [2].

It is estimated that 30% of people living with HIV are unaware of their infection in the European Union [3] as well as 34% in the United Kingdom [4]. The range is wider in other European countries from 15% in Sweden to 60% in Poland [5]. This situation poses a major challenge in the fight against the HIV infection epidemic as undiagnosed patients cannot benefit from early treatment and may unknowingly transmit HIV to others [6].

HIV testing is the process by which blood or body fluids are analysed for the presence of antibodies or antigens produced in response to the virus, or for presence of viral RNA and pro-viral DNA [7]. Testing provides an opportunity for people to receive counselling and information about risk reduction, and

many who learn they are HIV positive modify their behaviour to reduce risk of transmission [7-12].

There are two main approaches to HIV testing: client initiated and provider initiated [13]. The World Health Organisation (WHO) describes client-initiated HIV testing and counselling (also called Voluntary Counselling and Testing, or VCT) as testing that "involves individuals actively seeking HIV testing and counselling at a facility that offers these services" [13].

Provider-initiated HIV testing and counselling, according to WHO, refers to "HIV testing and counselling which is recommended by health care providers to persons attending health care facilities as a standard component of medical care" [13].

Due to possibility for mother-to-child transmission of HIV infection, HIV testing of pregnant women is particularly important.

In AP Vojvodina from 1985 until the end of 2011 HIV infection was diagnosed in 343 citizens, the majority being men who have sex with men (MSM) – 56%, with an increase of proportion of MSM in total number of newly diagnosed cases annually in the last

decade [14]. From 2002 onwards there is a significant increase in early diagnosis of HIV infection.

The aim of this paper is to analyse HIV testing rates in AP Vojvodina from 2000 to 2008 and to compare changes in HIV testing rates in provider-initiated and client-initiated HIV testing.

Methodology

A descriptive, surveillance based population study was performed. Surveillance data for HIV testing in the Autonomous Province of Vojvodina, Serbia were analysed between 2000 and 2008.

The AP Vojvodina has a population of 2,021,992 (census 2002) and it consists of seven districts. The major South Bačka district includes capital of AP Vojvodina; Novi Sad with a population of about 600,000. The other six districts have population ranging from 150,000 to 350,000.

HIV testing in AP Vojvodina became available in 1985. In the period between 2000 and 2008 HIV testing (with the exception of blood donors and research purposes) was available in seven institutes of public health and in nine hospitals. HIV voluntary counselling and testing centre exists in every institute of public health. HIV testing was also available in private laboratories.

HIV testing algorithm

The indications used for the full surveillance period were:

1. Provider-initiated HIV testing: referred by local health care provider (outpatients) or hospital (inpatients), or “on request of patient”, non-professional exposures to potentially infected fluids, mandatory testing for surgical patients, and testing of patients preparing for artificial insemination.

2. Client-initiated HIV testing: Voluntary Counselling and Testing (VCT) (including health care worker exposures to potentially infected fluids)

3. Pregnancy

4. Other. Emigrants: (HIV testing is required for VISA), repeated testing after potential exposure, testing of patients whose blood and other body fluids health care workers were exposed to.

The standard ELISA tests using venous blood/serum were performed in almost all cases with the use of rapid tests for a very small number (only after exposure to potentially infected blood or body fluids, but there are no data about type of HIV test performed).

In the case of positive ELISA or rapid test (provisionally reactive result), another test was

performed. This second test was done from another blood/serum sample from the same person. In the case of discordant results final confirmation of HIV infection was done by Western blot.

Data collection

Surveillance data about HIV testing were collected at a district level and then consolidated for the whole autonomous province. These data included reports from public and private laboratories on the total number of ELISA HIV screening tests performed, the number of provisionally reactive results, and the number of samples with confirmed positive results. The reports also include indications for testing. Some of the private laboratories do not collect data regarding testing indicators (they report those tests as “On request of patient”). In 2006, new surveillance recommendations were issued, including a modification of the report form (results of hepatitis B, hepatitis C and syphilis testing were included), so in this analysis some clinical indicators or test approaches could not be compared with reports from years previous to 2006.

Data analysis

Testing rates were calculated from 2000 to 2008 with the number of HIV screening tests per 1,000 inhabitants. Comparable data for different indications of provider-initiated HIV testing were available only for 2007 and 2008. Thus the data from those two years were calculated as a percentage in the total number of provider-initiated HIV testing for 2007 and 2008.

Data for the number of pregnant women screened was available for only the last three years. Rates for this type of HIV testing were calculated per number of HIV tested pregnant women for every 100 new-borns.

Prevalence of HIV positive results were calculated per number of confirmed HIV positive samples (by Western blot) for every 100 people tested.

Results

HIV testing in general

In the period between 2000 and 2008 in the AP Vojvodina a total 66,327 HIV tests were carried out. HIV testing rates during this time increased from 1.2 per 1,000 inhabitants in 2000 to 7.7 per 1,000 inhabitants in 2008. Testing rates have increased consistently with the exception of 2001. Rates have increased for all three different types of HIV testing (provider-initiated, VCT, and pregnancy), (Figure 1).

Figure 1. HIV testing rates in AP Vojvodina, Serbia, 2000-2008, by type of testing

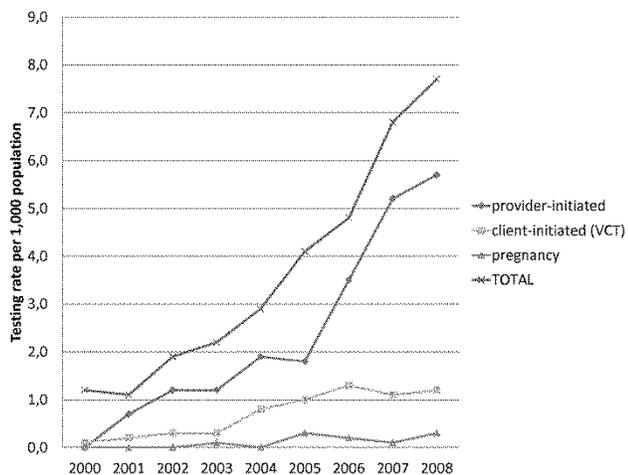


Figure 2. Prevalence of HIV infection in AP Vojvodina, Serbia, 2000-2008, by type of testing.

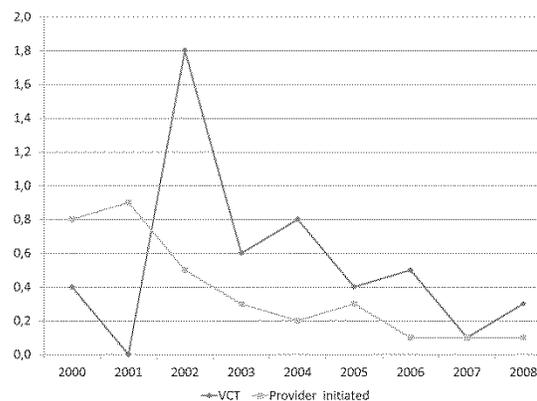


Table 1. Number and rate of HIV tests conducted in AP Vojvodina, Serbia, in 2008, by district.

	Population	Number of HIV tests	Rate/1,000 inhabitants
Southern Bačka	593,666	8503	14.3
Northern Bačka	200,140	868	4.3
Western Bačka	214,011	2185	10.2
Northern Banat	165,881	660	4.0
Middle Banat	208,456	1069	5.1
Southern Banat	313,937	1317	4.2
Srem	335,901	981	2.9
AP Vojvodina - total	2,031,992	15,583	7.7

Prevalence of HIV infection among persons tested in the AP Vojvodina showed a constant trend since 2000. Prevalence was higher only in 2000-2001 for provider-initiated HIV testing and since 2002 it became higher for VCT clients. (Figure 2).

HIV testing rates in 2008 differed considerably between the seven Vojvodinian districts. The HIV testing rate in Southern Bačka, which includes largest Vojvodinian city Novi Sad was 4.9 times higher than in Srem (Table 1).

Provider-initiated HIV Testing

Provider-initiated testing rates have increased continuously since 2000 but have surged drastically since 2005. Testing rates were 9.5 times higher in 2008 than in 2000. Firstly, mandatory testing of surgical patients was dominant in the group of provider-initiated HIV testing, increasing in 2008 as compared with the previous year. Almost half of all provider-initiated testing came from surgical patients and the testing of dialysis patients. Secondly, the testing of inpatients from hospitals which had been referred from outpatient institutions, represented only about 15% of testing in this group in 2008.

Client-initiated HIV Testing - Voluntary Counselling and Testing (VCT)

VCT rates began to increase in 2003, but decreased slightly in 2007. The increase of VCT rates was much lower than the rise of provider-initiated testing rates with 2008 VCT testing rates were 4.8 times lower than provider-initiated rates.

Pregnancy HIV Testing

Testing rates for pregnant women were very low during the years between 2000 and 2008, with only a slight increase in 2005 and 2008. The promotion of the opt-out model of testing in 2002 resulted in a further increase in the number of pregnant women tested. The testing rates were calculated per number of HIV-tested pregnant women for every 100 pregnant women in the last three years. The results were: 2.8% in 2006, 1.4% in 2007, and 4.0% in 2008. Testing rates for the observed period (2006-2008) were calculated per number of pregnant women tested for every 100 new-borns. There were no positive results for tested pregnant women.

Other testing

A certain number of other testing was reported (emigrants required testing for visa purposes, periodical control testing after health care worker

exposures, testing of reservoirs after exposures). Those tests were done in institutes of public health.

Discussion

The testing rate in AP Vojvodina increased from 2000 to 2008. It was 1.2 in 2000 and 7.7 per 1000 inhabitants in 2008. The main reason for this was the increase of provider-initiated HIV testing, most of which was mandatory. Some hospitals started to require mandatory testing for every patient intended to have surgical intervention or invasive diagnostic procedure, despite the fact that such a recommendation was not given by public health authorities. In 2007, Europe had the highest testing rates via reports from Kazakhstan (119 tests per 1000 inhabitants), San Marino (118 / 1000) and Austria (94 / 1000). The lowest rates were reported by Greece (1/1000) and by Turkey (below 1/1000), [15]. Since 2003, the testing rate in the Autonomous Province (AP) of Vojvodina increased to 6.8/1000 in 2007 and 7.7/1000 in 2008 [16]. The 2007 AP Vojvodina rate was just below the rates in the following countries: Greece, Hungary, Poland, Bosnia and Herzegovina, Georgia and Macedonia. It was moderately higher in Croatia (7.4/1000). The rate was 5.8/1000 in the whole of Serbia [15].

Client-initiated HIV testing and counselling (VCT) services are inadequately covered in both high-income and resource-constrained settings [13]. The outcome of low availability of HIV testing and counselling consequently results in a lack of knowledge of HIV status so that the majority of people living with HIV access HIV testing and counselling only when they have the advanced clinical disease [17]. Late testing results represent missed opportunities for prevention and treatment of HIV [18].

VCT testing rates in AP Vojvodina began to increase significantly in 2004. This can be attributed to VCT services being made available in different institutions (mainly institutes of public health) and the intensive public promotion of HIV testing. VCT type HIV testing and public promotion continued in the following two years, resulting in a greater rise in testing rates, with rates highest in 2006 (1.3/1000). The Global fund project was the main source of test kit procurement and enabled the provision of testing free of charge. The end of this project in 2007 resulted in a VCT testing rate decline because of lack of funds to provide VCT services. A new round of the Global fund project in 2008 provided free of charge tests for VCT clients, just slightly increasing the VCT testing rate, as corresponding promotional activities had

stopped in 2007 and did not receive renewed funding. An increase in voluntary HIV testing is identified as one of key priorities requiring a European-wide prevention approach [5].

In previous years, HIV testing in the United States of America (USA) was recommended routinely for persons at high risk for HIV and for those in acute-care settings in which HIV prevalence was $\geq 1\%$. But in late 2006, the USA's Centres for Disease Control and Prevention (CDC) revised its recommendations to increase HIV screening in health care settings in all patients, including pregnant women. This fostered earlier detection of HIV infections allowing health care workers to identify and counsel persons with unrecognized HIV infections, and linking them to clinical and prevention services. Early detection also further reduced perinatal transmission [19].

The World Health Organization (WHO) and the United Nations Joint Programme on HIV/AIDS (UNAIDS) in 2002 issued guidelines on provider-initiated HIV testing and counselling in health care facilities [13]. These guidelines recommended an "opt-out" approach to provider-initiated HIV testing and counselling in health facilities, including simplified pre-test information, consistent with WHO policy options developed in 2003, and with the 2004 UNAIDS/WHO Policy Statement on HIV Testing. With this approach, an HIV test is recommended 1) for all patients, irrespective of epidemic setting, whose clinical presentation might be the result from an underlying HIV infection; 2) as a standard medical care procedure for all patients attending health facilities in generalized HIV epidemics; and 3) more selectively in concentrated and low-level epidemics. Individuals must specifically decline the HIV test if they do not want it to be performed [13].

In AP Vojvodina CDC and WHO recommendations were followed by proposing an expansion of health care provider initiated HIV testing in the beginning of 2007. Guidelines for HIV counselling and testing in health care settings and role of health care workers were provided in the response to HIV epidemic [20-22]. Health care provider initiated HIV testing in 2007, increased (5.2/1000) compared with previous years, with the increase continuing in 2008 (5.7/1000). The majority of those tests were mandatory for patients being prepared for surgical procedures and represent about one third of provider-initiated testing.

Perinatal transmission rates can be reduced to below 2% with universal screening of pregnant women in combination with prophylactic

administration of antiretroviral drugs [23, 24]. The rate of HIV testing of pregnant women in AP Vojvodina is negligible, despite its inherent value and need, and the availability of treatment since 2000. The testing rate is very low in comparison to some USA states where the testing rate for pregnant women is in the range of 25-85% or in Canada with testing rates of 54-98% [25]. The rates were highest in those US states that offered the opt-out approach. Testing rates were below 1% in the AP Vojvodina in 2005, increasing in 2003 as a result of VCT promotion in prenatal care settings. The 2005 promotion of opt-out testing of pregnant women as a part of Global fund project in the AP Vojvodina capitol of Novi Sad, resulted in an increase of testing rates, but with a rate of only 3.3 tests per 100 newborns. The decrease of testing rates for pregnant women after 2005 was caused by lack of funding and the physical capacity to offer such testing in addition to health care providers resistance to what they considered "an unnecessary intervention". The first reported case in the AP Vojvodina of mother to child transmission of HIV was in 2008 with a second case of mother to child transmission reported in 2009 [16]. An increase of HIV testing of pregnant women was observed and was most likely the result of the reported cases. The key finding here is that enhanced training of gynaecologists, a national and local commitment of mother to child transmission prevention, the introduction of a rapid test supported by a legal framework could greatly improve this aspect of HIV prevention.

Key findings in the Vojvodina Districts

HIV testing rates in 2008 differed largely between the Vojvodinian districts. The rate in the South Bačka district, where City of Novi Sad is situated, is five times larger than it is in the Srem district. In some other districts, the results of HIV tests were available 1-2 weeks after receiving the blood samples. None of the laboratories, except the Institute of Public Health of Vojvodina in Novi Sad has the capability to perform confirmatory tests. In the USA, regional differences were also observed, but these were due to racial and ethnic reasons [26]. Increasing the HIV testing rate in the AP Vojvodina entails making patient/client oriented HIV tests accessible on the local level, with the results received on the same day. Introduction of validated, and rapid tests, currently used sporadically and only for post exposure testing, may be of great help to practitioners and enable diagnosis of HIV in persons who might not otherwise have their infection diagnosed [27]. Customizing

HIV testing procedures to local environments may also be more efficient and effective [28].

Public health efforts in the AP Vojvodina with the goal of increasing HIV testing rates and thus early detection of HIV infection, can lead to continuous increase in testing rates, but have different limitations. Most of the testing described in this study was through mandatory testing. VCT and antenatal clinics testing were made difficult by lack of procurement, low motivation of medical professionals to initiate testing, and testing availability limited to large towns and cities.

The adoption of international recommendations regarding limitations of test procurement and ethical issues did not reach the expected goals in the AP Vojvodina. To increase the rate of HIV testing, it is necessary to ensure a general commitment of all involved in referring and testing, in maintaining sustainability of tests procurement and its decentralization, and to shorten the turnaround time for test results.

Conclusion

Measures for testing policy improvement could include: reasonable test procurement; intensive campaigns motivating physicians to refer their patients to HIV testing with the inclusion of training and education; broad availability of HIV tests, including rapid tests; clear patient/client-oriented guidelines to speed and simplify the testing procedure; commitment of political decision makers and health management to the improvement of HIV testing, and the removal of HIV services from centres for diseases control and prevention to insure their independence, sustainability, and strict focus on HIV testing.

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