

## Epidemiology of HIV infection in the men who have sex with men (MSM) population of Autonomous Province (AP) Vojvodina, Serbia

*Epidemiologia infekcji wirusem HIV w populacji mężczyzn współżyjących płciowo z mężczyznami (MSM) w Autonomicznej Prowincji (AP) Vojvodina w Serbii*

### **Abstract:**

#### *Objectives*

*To describe the main changes in the HIV epidemic in MSM in AP Vojvodina, influenced by the expansion of HIV testing through voluntary counselling and testing services and the availability of HIV treatment.*

#### *Methods*

*Data about voluntary counselling and testing, treatment and outcome were compared for three periods: I. 1985-1992, when HIV testing was routinely performed only on people with haemophilia and those with manifested HIV infection; II. 1993-2000, when the importance of sexual transmission, particularly among MSM, was recognized, but the absence of treatment possibilities and the fear of stigmatization resulted in the subsequent absence of testing promotion; III. 2001-2008, when highly active antiretroviral therapy (HAART) became available for all HIV patients, and VCT services were established.*

#### *Results*

*One hundred and forty three (143) HIV infections have been diagnosed among MSM in the AP Vojvodina since 1985 with the majority of those specific cases having been diagnosed in the last eight years. This increase in diagnosed HIV MSM infections coincides with the broad promotion of voluntary counselling and testing (VCT) services and accounts for the highest number of HIV diagnoses registered in AP Vojvodina in 2002. MSM visited HIV clinics more regularly and MSM were more likely to be diagnosed in the early stage of HIV infection than other HIV cases.*

*Conclusion Closer collaboration of VCT centres, HIV clinics and primary care in providing continuity and accessibility of all services is necessary in the decentralization process and will form the basis for better surveillance, prevention, treatment and care.*

### **Streszczenie:**

#### *Cele pracy*

*Celem niniejszej pracy jest przedstawienie głównych zmian w epidemiologii infekcji HIV w grupie MSM w AP Vojvodina, uzyskanymi dzięki promocji dobrowolnego poddawania się badaniom diagnostycznym i korzystania z porad, a także dostępności nowoczesnej terapii HIV.*

#### *Metody*

*W oparciu o wyniki badań przesiewowych i skuteczności leczenia zakażenia wirusem HIV porównano dane dotyczące rozprzestrzeniania się tej choroby w grupie MSM, w trzech okresach: I; 1985-1992, kiedy testy na obecność HIV rutynowo wykonywano tylko u ludzi z hemofilią i tych, u których stwierdzono objawy infekcji, II; 1993-2000, tj. w okresie kiedy podkreślono znaczenie możliwości przenoszenia wirusa podczas stosunków płciowych pomiędzy MSM, ale występujący strach przed stygmatyzacją był istotnym czynnikiem hamującym promocję badań na obecność wirusa, III; 2001-2008, tj. w okresie kiedy leczenie przeciwwirusowe (HAART) stało się dostępne dla wszystkich pacjentów HIV dodatnich, jak również ustabilizowały się ośrodki diagnostyczne i udzielające fachowych porad (VCT).*

## Wyniki

Od 1985 stwierdzono w AP Vojvodina u 143 MSM infekcję HIV, z czego większość zdiagnozowano w ciągu ostatnich 8 lat. Wzrost rozpoznań infekcji HIV u MSM zbiega się z dużą promocją dobrowolnego poddawania się badaniom diagnostycznym i korzystania z porad w VCT. Największą liczbę rozpoznań HIV w AP Vojvodina zarejestrowano w 2002 roku. MSM odwiedzali kliniki HIV regularnie i prawdopodobnie z tego powodu MSM byli zdiagnozowani wcześniej niż pozostali chorzy z infekcją HIV.

## Wniosek

W procesie decentralizacji są konieczne: ścisła współpraca ośrodków VCT i klinik HIV, objęcie szczególną troską ciągłości i dostępności wszystkich usług w celu stworzenia podstaw dla lepszego nadzoru, zapobiegania, leczenia infekcji HIV.

**Keywords:** HIV, men having sex with men, epidemiology, prevention, counselling, testing, public health

**Słowa kluczowe:** HIV, mężczyźni współżyjący płciowo z mężczyznami, epidemiologia, zapobieganie, doradztwo, badania przesiewowe, zdrowie publiczne

## Introduction

Despite continued health promotion campaigns among men having sex with men (MSM), the number of newly diagnosed MSM Human Immunodeficiency Virus (HIV) cases in Europe has increased since 2001, underlining the need for inventive and better-targeted prevention in this community [1]. Many European countries reported an increase of HIV infections among MSM in recent years [2-4]. The number of HIV cases among MSM in Central Europe has almost doubled between 2003 and 2007[5]. Sex between men occurs in diverse circumstances and among men whose experiences, lifestyles, behaviours, and associated risks for HIV vary greatly [6]. The exclusion of MSM from surveillance, targeted prevention, and treatment and care still limits the global response to HIV [7].

Although the increase of HIV testing probably contributed to the higher rate of reported HIV infections in MSM in developing countries, limited corresponding data supports the existence of a true increase in MSM HIV incidence in European and North American countries [8].

The first HIV infections were reported in the Autonomous Province (AP) of Vojvodina in 1985, mostly in people with haemophilia [9]. During the 1990s, prevention and testing opportunities were limited because of isolation and socioeconomic sanctions in that province. In the beginning of the 21st century, broad promotion of voluntary counselling and testing (VCT) was initiated and provided opportunities to many people at risk for HIV to know their HIV status. The national strategy for fighting against HIV/AIDS described MSM as a vulnerable population for HIV infection and prioritized the need for a supportive environment in which to create prevention programs for MSM [10].

The goal of our study was to describe major changes in the MSM HIV epidemic in AP Vojvodina since the expansion of HIV testing through voluntary counselling and testing services and available HIV treatment.

## Methods

Study design: Descriptive analysis of the characteristics of HIV epidemic in MSM in AP Vojvodina was done comparing three periods:

- I. 1985-1992. Little was known about the epidemiology of HIV infection in AP Vojvodina. HIV testing was routinely performed only on people with haemophilia and those with manifested HIV infection. There was no public promotion of testing.
- II. 1993-2000. The importance of sexual transmission, particularly among MSM, was recognized, but the absence of treatment possibilities and the fear of stigmatization resulted in the subsequent absence of testing promotion. Only the Institute of Public Health of Vojvodina provided Voluntary Counselling and Testing (VCT).
- III. 2001-2008. Highly Active Antiretroviral Therapy (HAART) became available for all HIV patients, first in the Institute of Infectious and Tropical Diseases in Belgrade, than in the Clinical Centre of Vojvodina. VCT services were established in all institutes of public health, as well as in some prisons and primary care institutions. Public campaigns to motivate people to be tested for HIV began with many health care workers educated in how to offer HIV testing. A guideline for counselling was provided to all health care workers.

Sources of data: Data about treatment were collected in the HIV ward of the Clinical Centre of Vojvodina in Novi Sad. Data concerning HIV testing in AP Vojvodina from VCT services in all institutes of public health and HIV laboratories from the districts have been available since 1996, having been collected in yearly reports by the Institute of Public Health of Vojvodina. Since most of the VCT services had a possibility for referring People Living With HIV/AIDS (PLWHI) to HIV treatment sites, it was an

advantage for continuous follow-up of PLWHI in providing support to them, their partners, and their families during the previous years. However, since 2008, only general physicians have the legal right to refer PLWHI to HIV clinics.

Statistical analysis: Gender specific incidences per 1 million population were calculated for both males and females 15-64 year old and compared for the period 1985-2008. The MSM average age at the moment of diagnosis of HIV infection was compared between three periods: the manifestation of HIV infection (AIDS) during the 12 months after HIV diagnosis and HIV-related deaths during the 18 months after HIV diagnosis.

For the period 2001-2008 the average age at the moment of diagnosis, the manifestation of the HIV infection (AIDS) during the 12 months after an HIV diagnosis and HIV-related deaths during the 18 months after the HIV diagnosis and the regular visits to the HIV clinic (regular treatment) were compared between MSM and non-MSM people with HIV infection.

For the regular visits to the HIV clinic the Hi square test was used.

For HIV testing rates per 100,000 population, the number of the male population between the ages 15-64 was used as the denominator and the number of MSM tested for HIV and tested positive for HIV were used as the numerator.

The R statistical programme was used for calculations of the Kruskal-Wallis rank sum test and the Chi-squared test.

Ethics. Only descriptive data available in the Provincial HIV database and the database of the treatment clinic were used.

## Results

In the period 1985-2008, 136 cases of HIV infection in MSM were reported; out of a total 252 cases of HIV infection gender-specific incidence of new HIV infections

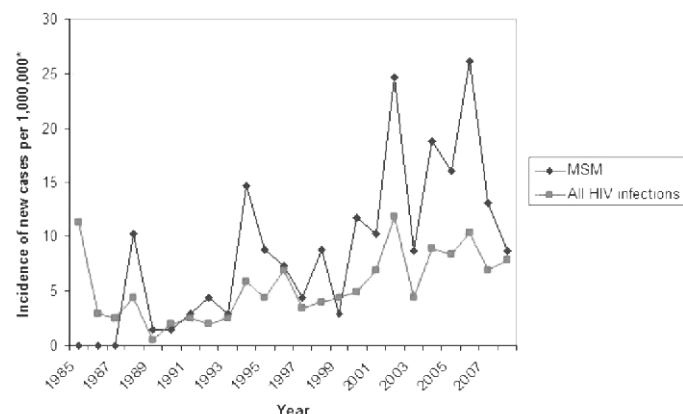


Fig. 1. HIV infections in AP Vojvodina, 1985-2008\*

\*Source of data: Register of HIV infections in AP Vojvodina

per 1,000,000 males aged 15-64 was higher than the overall incidence in the general population in the subsequent years, except for three years at the beginning of the epidemic. In the last decade, the incidence of MSM HIV infections was much higher than the overall incidence, but with broad variations between years (Figure 1).

Most of the HIV infections in MSM population were diagnosed after the year 2000 (60.8% of all HIV infections in MSM in AP Vojvodina). The average age of patients at the time of diagnosis was lower in the last eight (8) years – 34.3, comparing to the previous period where it was 38.6. The age range since the beginning of the epidemic was 18-75 (Table 1).

Tab. 1. Characteristics of HIV infections in MSM in AP Vojvodina (n=143)

Period	Years	Total of reported HIV infections		Average age at HIV infection diagnosis [years]	AIDS diagnosed during the first 12 months after HIV diagnosis [%]		AIDS related deaths during the 18 months after HIV diagnosis [%]	
		Total	%	Total	Total	%	Total	%
I	1985-1992	15	11.0	37.1	7	46.7	6	40.0
II	1993-2000	38	28.0	38.2	14	36.8	12	31.6
III	2001-2008	83	61.0	34.7	24	28.9	10	12.0

No significant differences in the average age of diagnosis were identified among the periods (Kruskal-Wallis rank sum test for: Chi-square=2.816; df=2; p-value=0.2446).

There were no statistically significant differences in the group of people diagnosed with AIDS during the first 12 months (Pearson Chi-square test for=2.1437; df=2; p.....-value=0.3424).

Significant statistical differences were identified for the group of AIDS deaths during the first 18 months. (Pearson Chi-square test=9.9672; df=2; p..-value=0.006849).

Only one out of every four MSM developed AIDS at the moment of diagnosis of HIV infection or in the subsequent 12 months, compared with more than 40% in the years previous to 2002. Since 2002, 11.5% died in the first 18 months, compared with more than 30% in the years previous.

MSM were more likely to have a diagnosis of HIV infection in the early stage (the first 12 month), with no difference in reported AIDS related deaths (Table 2) as compared to HIV infection progress between MSM and other people infected with HIV in AP Vojvodina in the present decade (after HAART became available and VCT promotion was started).

Tab. 2. HIV infection in AP Vojvodina 2001-2008: Compared between HIV infections among MSM and other HIV infections

Variable	Non-MSM	MSM	Test	Results
Number of reported HIV infections	41	83	-	-
Average age of HIV infection diagnosis [in years]	35.2	34.3	T-test	t=0.421; p.-value=0.66; 95%CI=-3.2895;5.0895
Number of reported AIDS cases	22	30	Chi-square	Chi-squared= 3.46; p.-value= 0.063; 95%CI= -0.009; 0.33
AIDS diagnosed during the first 12 months after HIV diagnosis	20	24	Chi-square	Chi-squared= 4.73 p.-value= 0.03; 95%CI=0.017; 0.38
Number of reported AIDS deaths	10	13	Chi-square	Chi-squared = 1.46; p.-value = 0.23; 95%CI= -0.06; 0.24
AIDS deaths during the 18 months after HIV diagnosis (%)	6	10	Chi-square	Chi-squared= 0.16; p.-value= 0.69; 95%CI= -0.1030; 0.1547

There were 143 PLWHI out of the 75 MSM in AP Vojvodina with known HIV status at the end of the year 2008. The MSM attended the HIV clinic more regularly than PLWHI who were not MSM (Table 3).

Tab. 3. PLWHI regular visits to HIV department of Clinical centre of Vojvodina

	MSM		Non-MSM		Significance
	No	%	No	%	
Visited HIV department regularly	42	56.0	24	35.3	Chi-squared = 6.15, p.-value = 0.0131; 95%CI=0.0473; 0.3668
Did not visit HIV department regularly	33	44.0	44	66.7	
<b>Total</b>	<b>75</b>	<b>100.0</b>	<b>68</b>	<b>100.0</b>	

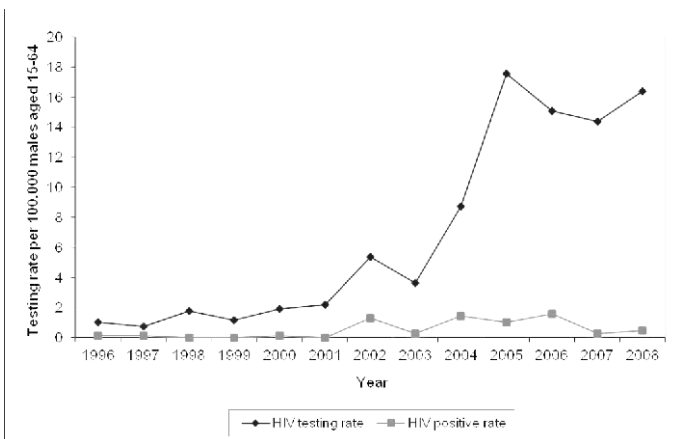


Fig. 2. MSM testing rate in VCT services in AP Vojvodina

Since 2002, the number of MSM tested for HIV in VCT services began increasing, with the number of MSM tested for HIV reaching 143 in 2005 (Figure 2). Increase in testing resulted in the increase of HIV diagnosis in the beginning of the last decade, but it has decreased during the last two years.

## Discussion

Prevention of HIV infection in the 21st century requires multiple approaches to different aspects of the HIV epidemic. These approaches include the need for a non-judgmental harm reduction approach in the prevention of sexual transmission of HIV, the control of viral load, the impact of HAART on condom use, the need for comprehensive services for PLWHA, including positive prevention, shortening the duration of the “unknown infection” period, diversifying and combining HIV testing approaches, and dealing with stigma and discrimination [12].

In the beginning of the HIV epidemic in AP Vojvodina, little was known about the burden of the disease and the absence of treatment. The most vulnerable populations included youth, who faced stigmatization, which limited prevention efforts by health care workers. The diagnoses in the first three years of the HIV epidemic, 1985-1988, were mainly in people living with haemophilia [9]. However, most of the HIV infections in 1988 were diagnosed in MSM, in the years after 1988, HIV infections in MSM in AP Vojvodina were the majority of all newly diagnosed infections.

Although the incidence of HIV infections in MSM were higher in the overall population, with the highest value being 26.1 in 2006, the rate was still much lower than in EU/EFTA countries where it was 56.7 per million men aged 15-64 in the same year. Yet a similar increase in incidence was observed in 23 EU/EFTA countries [13].

A comparable situation to the AP Vojvodina was in Serbia, where 65 out of 114 newly diagnosed HIV infections in 2008 were diagnosed in MSM [14] and in Western Europe where HIV infections in MSM were also the majority – 40% of all infections [15]. In Central Europe, the proportion of MSM HIV infections is almost twice as small as the proportion of HIV infection in heterosexual males [16]. In the AP Vojvodina, about 60% of all HIV infections in MSM diagnosed have been in the last eight years. One of the possible reasons for that increase is the broad promotion and implementation of VCT services in 2001/2002, making it more possible to diagnose HIV in MSM. This intervention included the establishment of VCT centres in all of the larger cities, continuous media campaigns throughout the year, and the promotion of testing through a network of non-governmental organizations. Physicians and nurses, prison staff, and

many other professionals were educated about the importance of VCT and were given instruction in counselling and referring people with high-risk behaviour. Yet recent research [11] showed that only 16% of MSM from Novi Sad stated they had an HIV test in the last 12 months, which is lower than in other studies [16-18]. The HIV prevalence among MSM in Novi Sad in that study [11] was 2.4%. Since one of the main biases in the bio-behavioural survey was the predominance of young MSM in the sample – 48.4[11], the real prevalence of HIV infection is expected to be higher, considering the average year of HIV diagnosis and results from other surveys [19]. These findings correlate with data about the majority of 20-29 year-olds tested in VCT services in AP Vojvodina [9]. In this last HIV test, 45.5% of MSM disclosed their sexual orientation [11].

Various factors influenced the testing rate among MSM, including promotion of testing services and their availability, benefits of testing and early diagnosis, access to treatment, and a supportive environment. Important increases in the testing rate among MSM was observed in 2001/2002 and after a small decline in 2003, testing rates increased more than four times during the next two years. In that period (2004-2005) HIV tests were provided through the Global Fund project. When this project ended in 2006/2007, many VCT centres became unable to provide testing for the following years. This lack of funding resulted in a decline of testing rates. It was only the integration of hepatitis B and C testing in VCT and the procurement of HIV test from alternative sources, which allowed VCT services to be continuous in the Institute of Public Health of Vojvodina. This decline was not dramatic, since the majority of VCT clients had been tested in this institution. Yet the HIV positive rate did decline. Most of the HIV diagnoses in previous years were diagnosed outside of Novi Sad [9]. The other problem was and is that VCT services were and are incorporated in centres for disease control and prevention and staff working in them are often unable to devote themselves completely to VCT services, because of their many other job duties.

It appears that HIV infections have been diagnosed earlier in MSM than in other HIV infected populations. In 2001-2008, 50% of HIV infections in AP Vojvodina in non-MSM population were diagnosed in the stage of manifested HIV infection or manifested HIV infection was diagnosed during the 12 months after HIV diagnosis. This is a much higher rate than the MSM population where 24 out of 87 HIV diagnoses were in the stage of AIDS. Some other studies showed different results [20].

The role of general practitioners and other health care providers became very important in recent years in AP Vojvodina, because of their ability to refer, and order HIV tests, and to give support and care to PLWHI [21,22].

Despite efforts in continuous education of GPs, most of them still do not have enough knowledge or education about HIV infection [23]. Guidelines are needed to advise GPs in thoroughly documenting sexual histories in consultations with their male patients and to use gender neutral terms when talking about sexual partners, i.e., not assuming the patient is heterosexual [24]. The inclusion of HIV counselling and testing in routine health care could help to shorten the duration of the “unknown infection” period and provide HIV treatment and care to all PLWHI [25]. Some articles suggest venue-based outreach testing for HIV [26], but only a small number of MSM in Novi Sad prefer such outreach testing in comparison with health institutions as a place for information about sexually transmitted infections [11].

The quality of the data used seems to be high, as a result of the small number of institutions involved (only one treatment centre in AP Vojvodina) and several counselling services, a long tradition of data collection with regular evaluation and excellent collaboration between all the participating institutions. The lower data quality is possible for HIV related deaths, because some PLWHI have been dying outside hospitals, when the family doctor is unaware of the HIV diagnosis.

Understanding the stigma and discrimination faced by MSM should be a priority for all future interventions among MSM, especially in health care settings. Only then can further decentralization of HIV testing, treatment and care in AP Vojvodina be sustainable. Due to a similar situation in most Central European countries, closer collaboration initiated by international organisations could help in a better understanding of determinants of the HIV epidemic in the MSM population.

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## Cd. Kalendarium

15 maja	<b>Święto Polskiej Niezapominajki</b>
18 maja	<b>Światowy Dzień Rodziny</b>
19 maja	<b>Międzynarodowy Dzień Pamięci Zmarłych na AIDS</b>
22 maja	<b>Dzień Praw Zwierząt</b>
24 maja	<b>Europejski Dzień Parków Narodowych</b>
31 maja	<b>Światowy Dzień Bez Tytoniu</b>
5 czerwca	<b>Światowy Dzień Ochrony Środowiska</b>
5-11 czerwca	<b>Tydzień Ochrony Środowiska</b>
6 czerwca	<b>Dzień Bez Samochodu</b>
14-16 czerwca	<b>Akcja Sprzątanie Świata</b>
18 czerwca	<b>Dzień Europejskiego Protestu Przeciw GMO</b>
21 czerwca	<b>Pierwszy Dzień Lata</b>
23 czerwca	<b>Światowy Dzień Walki z Osteoporozą</b>
24 czerwca	<b>Światowy Dzień Chorych na Osteoporozą</b>
26 czerwca	<b>Międzynarodowy Dzień Zapobiegania Narkomanii</b>
27 czerwca	<b>Światowy Dzień Rybolówstwa</b>