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## HIV AND AIDS IN POLAND IN 2011

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### ABSTRACT

**INTRODUCTION.** From 1985 until the end of 2012 16,314 cases of HIV infection, 2,848 AIDS cases and 1,185 deaths of AIDS patients were registered in Poland.

**OBJECTIVE.** To analyze the epidemiological situation of newly diagnosed HIV infections and AIDS cases in Poland in 2011.

**MATERIALS AND METHODS.** Descriptive analysis of newly detected HIV cases and incident AIDS cases was performed based on routine notifications by clinicians and laboratories. Data on the number of HIV tests from annual survey among laboratories were also used.

**RESULTS.** In 2011 there were 1,105 HIV cases diagnosed in Poland (detection rate 2.87 per 100,000 population), including 23 among non-Polish citizens. The total number of AIDS cases was 175 (incidence 0.45 per 100,000) and 65 AIDS patients died.

Compared to 2010, there was an increase in infections diagnosed among men who have sex with men (MSM) (from 51.9% to 67.1% of cases with known transmission mode). HIV infection is mainly detected among people aged 20 to 39 years (69.9%) and among males (82.2%). The percentage of late presenters (defined by the time between HIV and AIDS diagnoses of less than 3 months) remained at the same level as in 2010 (9.2% of newly diagnosed HIV infections).

**CONCLUSIONS.** Assessment of epidemiological situation is limited by the missing data on the probable transmission route in a large percentage of reports of newly diagnosed HIV cases.

The significant increase of HIV infections among MSM call for strengthened prevention measures in this group.

**Key words:** AIDS, HIV infection, epidemiology, Poland, 2011

### INTRODUCTION

Since the implementation of epidemiological surveillance of HIV/AIDS in Poland in 1985 to the end of 2012, there were 16,314 HIV cases, 2,848 AIDS cases and 1,185 deaths of AIDS patients recorded in Poland. From mid-2000. a significant increase in the frequency of HIV detection is observed.

Assessment of the epidemiological situation of HIV and AIDS cases in Poland in 2011 and compare this to the preceding years.

### MATERIALS AND METHODS

Assessment of the epidemiological situation in 2011 was based on the analysis of the routine notifications

of newly diagnosed HIV infections and incident AIDS cases, delivered by physicians and/or laboratories to provincial sanitary – epidemiological stations and verified by the end of December 2012. Reported cases are classified according to the HIV and AIDS case definition for epidemiological surveillance system established by the decision of the European Commission of 19 March 2002 (under Decision No 2119/98/EC of the European Parliament and the European Council). The data on the number of HIV tests performed in 2011, were obtained from a voluntary survey conducted annually among laboratories, who offer HIV screening tests in Poland. In addition, the preliminary data about deaths due to diseases caused by HIV infection (ICD-10 code: B20 - B24) were used from Demographic Research Department in the Central Statistical Office.

## RESULTS AND DISCUSSION

**HIV infection in 2011.** In 2011, at least 1,519,102 screening tests for HIV in Polish citizens were performed (Table I). This corresponds to the 39 tests per 1000 residents, and excluding testing of blood donors - approximately 8 tests per 1000 residents. The testing rate increased in comparison to 2010 by 5%. In addition, there was an increase specifically in the number of HIV tests among men who have sex with men (MSM), people reporting risky heterosexual contacts, tissues, organs and semen donors and among injecting drugs users (IDU). Number of newly diagnosed HIV cases among Polish citizens in relation to the number of tests performed was 0.07 per 100 tests and was comparable to the value from the previous years. However, there was an increase in this indicator among men who have sex with men: from 10.36/100 in 2009 to 43.8 in 2010 and 44.8 in 2011. Moreover there was a small increase among IDU, from 5,5 to 6.8/100.

Overall in 2011, 1,105 HIV infections were diagnosed (2.87 per 100,000). This was 15.8% (151 cases) more than in 2010 and approximately 36.6% more than the median for 2005-2009 years. From all newly

Table I. Testing for HIV and newly diagnosed HIV infections in Poland in 2011

Tested group	Number of lab tests	Newly detected HIV infections	
		number of cases	Frequency*
Men who have sex with men (MSM)	669	300	44,84
Injecting drug users (IDUs)	884	60	6,79
Sex workers (SW)	16	0	0,00
Blood, semen, tissues and organs recipients	1 473	0	0,00
Patients with hemophilia	15	0	0,00
People who have high risk heterosexual contacts	6 243	78	1,25
The above groups (total)	9 300	438	4,71
Blood donors	1 204 003	54**	0,004
Semen, tissues and organs donors	1 341	0	0,00
Other / unknown	304 458	590	0,19
Polish citizens (total)	1 519 102	1 082	0,07
Foreigners	2 187	23**	1,05

\*newly detected HIV cases with respect to number of screening tests (per 100 tests)

\*\*known transmission route for blood donors: MSM - 7, heterosexual - 1; for foreign citizens: MSM - 1, heterosexual - 5, vertical - 2

Table II. Newly diagnosed HIV infections and AIDS cases in Poland in 2005-2011, by province

Province	Newly diagnosed HIV infections*						AIDS cases*							Deaths of AIDS cases*						
	median 2005 - 2009		2010		2011		median 2005 - 2009		2010		2011		total in years 1986-2011	median 2005 - 2009		2010		2011		total in years 1986-2011
	n**	i	n	i	n	i	n**	i	n	i	n	i		Total	n**	m	n	m	n	
1.Dolnośląskie	117	4.07	102	3.55	128	4.39	47	1.63	35	1.22	34	1.17	605	16	0.56	15	0.52	12	0.41	240
2.Kujawsko-pomorskie	29	1.40	37	1.79	29	1.38	5	0.24	6	0.29	5	0.24	168	4	0.19	4	0.19	6	0.29	84
3.Lubelskie	15	0.69	20	0.93	38	1.75	7	0.32	7	0.32	4	0.18	77	2	0.09	3	0.14	2	0.09	30
4.Lubuskie	23	2.28	24	2.37	28	2.74	6	0.59	10	0.99	12	1.17	114	2	0.20	3	0.30	4	0.39	47
5.Łódzkie	47	1.84	53	2.09	61	2.40	10	0.39	19	0.75	19	0.75	176	3	0.12	3	0.12	3	0.12	63
6.Małopolskie	31	0.95	38	1.15	59	1.77	7	0.21	6	0.18	6	0.18	92	4	0.12	4	0.12	3	0.09	42
7.Mazowieckie	117	2.24	201	3.84	294	5.57	9	0.17	11	0.21	19	0.36	398	5	0.09	1	0.02	6	0.11	188
8.Opolskie	15	1.43	14	1.36	30	2.95	3	0.29	6	0.58	6	0.59	67	2	0.14	0	0.00	1	0.10	31
9.Podkarpackie	13	0.62	10	0.48	17	0.80	9	0.43	4	0.19	4	0.19	37	6	0.12	1	0.05	2	0.09	21
10.Podlaskie	8	0.67	22	1.85	19	1.58	6	0.79	2	0.17	6	0.50	53	1	0.08	0	0.00	3	0.25	20
11.Pomorskie	36	1.62	57	2.55	59	2.59	13	0.77	20	0.89	11	0.48	276	4	0.18	11	0.49	4	0.18	118
12.Śląskie	46	0.99	117	2.52	136	2.94	16	0.11	17	0.37	11	0.24	312	5	0.10	4	0.09	3	0.06	117
13.Świętokrzyskie	8	0.63	10	0.79	13	1.02	2	0.24	1	0.08	4	0.31	29	1	0.08	0	0.00	1	0.08	15
14.Warmińsko-mazurskie	34	2.38	21	1.47	38	2.62	9	0.56	8	0.56	7	0.48	91	2	0.14	0	0.00	3	0.21	23
15.Wielkopolskie	41	1.21	64	1.87	92	2.67	8	0.24	11	0.32	16	0.46	130	4	0.12	3	0.09	8	0.23	65
16.Zachodniopomorskie	30	1.77	32	1.89	33	1.92	3	0.30	10	0.59	11	0.64	125	1	0.06	1	0.06	4	0.23	46
Unknown	244		132		31		0		0		0			0		0		0		
POLAND	809	2.12	954	2.50	1105	2.87	152	0.40	173	0.45	175	0.45	2750	61	0.16	53	0.139	65	0.17	1150

\* HIV/AIDS cases or deaths by place of residence;

\*\* n - number, i - incidence, m - mortality per 100,000 population

Table III. Newly diagnosed HIV infections in Poland in 2011, by sex, age and province of residence

Age group (years)	Province																													
	dolnośląskie			kuj.-pom.			lubelskie			lubuskie			łódzkie			małopolskie			mazowieckie			opolskie			podkarpackie					
	M**	F	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T			
<20	2	0	2	1	0	1	0	1	1	0	0	0	0	0	0	0	0	0	4	2	6	0	0	0	1	0	1			
20-29	35	18	53	5	0	6*	12	3	15	5	1	6	16	7	23	18	1	19	96	15	111	6	1	7	7	1	8			
30-39	33	4	37	10	4	14	11	2	13	10	1	11	16	6	22	21	3	24	98	9	107	10	4	14	5	0	5			
40-49	18	7	25	2	2	4	7	1	8	7	2	9	7	1	8	7	1	8	41	4	46*	5	0	5	1	0	1			
50-59	7	0	7	4	0	4	1	0	1	0	2	2	3	1	4	2	1	3	10	2	12	2	2	4	0	0	0			
≥60	4	0	4	0	0	0	0	0	0	0	0	0	2	0	2	1	1	2	8	0	8	0	0	0	1	0	1			
Unknown	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	0	0	3	2	0	4	0	0	0	1	0	1			
Total	99	29	128	22	6	29*	31	7	38	22	6	28	45	16	61	49	7	59*	259	32	294*	23	7	30	16	1	17			
Age group (years)	Province																		Unknown			POLAND								
	podlaskie			pomorskie			śląskie			świętokrzyskie			warm.-maz.			wielkop.			zachodniop.			M	F	T	M	F	UNK	T		
	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F	T	M	F	UNK
<20	0	0	0	1	0	1	2	0	2	0	0	0	1	0	1	2	1	3	0	0	0	0	1	1	14	5	0	19		
20-29	6	3	9	13	0	13	43	8	51	4	0	4	15	3	18	20	2	22	11	1	12	9	1	11*	321	65	2	388		
30-39	4	0	4	14	1	15	46	7	53	6	0	6	10	2	12	23	1	24	13	0	13	7	3	10	337	47	0	384		
40-49	2	0	2	9	1	10	14	1	15	3	0	3	4	0	5*	14	2	16	2	0	2	2	0	3*	145	22	3	170		
50-59	2	1	3	4	1	5	2	1	3	0	0	0	1	0	0	3	0	3	4	1	5	2	0	2	47	12	0	59		
≥60	1	0	1	4	0	4	2	1	3	0	0	0	1	0	1	0	0	0	0	1	1	3	0	3	27	3	0	30		
Unknown	0	0	0	3	0	11*	8	0	9	0	0	0	0	0	0	2	0	24*	0	0	0	0	0	1*	17	1	37	55		
Total	15	4	19	48	3	59*	117	18	136*	13	0	13	32	5	38*	64	6	92*	30	3	33	23	5	31*	908	155	42	1105		

\* includes cases with missing data for sex

\*\* M-male; F - female; UNK - unknown; T - total

diagnosed HIV infections in 2011, 135 cases (12.2% of the total) were reported with a delay, already in 2012.

The highest number of newly diagnosed HIV infections in 2011 was reported in Mazowieckie - 294 (5.57 per 100,000 population in this province) and the lowest in Podkarpackie (0.80 per 100,000) and Świętokrzyskie (1.02 per 100,000). In comparison to 2010 there was a significant increase in HIV diagnosis rate in 8 provinces: Dolnośląskie, Kujawsko-Pomorskie, Łódzkie, Opolskie, Mazowieckie, Śląskie, Warmińsko-Mazurskie and Wielkopolskie, while a decline occurred in three provinces: Lubuskie, Małopolskie and Podkarpackie (Table II). The HIV was most often detected in the age group between 20 and 39 years - 772 (69.9%). The highest percentage of HIV diagnoses in the age group of over 30 was reported in Lubuskie (78.6%), Opolskie (76.7%), Kujawsko-Pomorskie (75.9%). On the other hand 19 HIV infection were diagnosed in people under the age of 20 (1.7%), including three babies <1, four children aged 1-8 years and 12 HIV teenagers aged 17-19 years (Table III). In 2011, as in previous years, the predominant group were men - 908 cases (82.2%). There were 155 HIV infections diagnosed among women (14.0% of the total). The diagnoses among women were relatively more common in Łódzkie province (26.2%). In contrast they constituted less than 6% of all new diagnoses in provinces: Podkarpackie (5.9%), Pomorskie (5.1%) and Świętokrzyskie (0%) (Table III).

Table IV summarizes the newly detected HIV infections in different regions in Poland in 2011, ac-

Table IV. Newly diagnosed HIV infections in Poland in 2011, by province and transmission group

Province	Transmission group*						Rate per 100,000	Infections among blood donors
	MSM	IDU	Het	MtC	O/Unk	Total		
POLAND	308	60	84	7	646	1105	2.9	54
1.Dolnośląskie	2	6	5	0	115	128	4.4	9
2.Kujawsko-pomorskie	4	4	2	0	19	29	1.4	7
3.Lubelskie	15	0	5	1	17	38	1.7	1
4.Lubuskie	2	4	0	0	22	28	2.7	2
5.Łódzkie	19	7	19	0	16	61	2.4	5
6.Małopolskie	11	2	3	0	43	59	1.8	3
7.Mazowieckie	149	10	16	2	117	294	5.6	4
8.Opolskie	1	2	2	0	25	30	3.0	1
9.Podkarpackie	4	3	2	1	7	17	0.8	2
10.Podlaskie	4	3	5	0	7	19	1.6	1
11.Pomorskie	11	2	9	0	37	59	2.6	4
12.Śląskie	25	8	2	0	101	136	2.9	8
13.Świętokrzyskie	1	0	3	0	9	13	1.0	0
14.Warmińsko-mazurskie	12	4	3	1	18	38	2.6	0
15.Wielkopolskie	37	3	6	1	45	92	2.7	6
16.Zachodniopomorskie	4	2	2	0	25	33	1.9	1
Unknown	7	0	0	1	23	31		0

\* MSM - men who have sex with men, IDU - injecting drug users, Het - heterosexual contact, MtC - child of HIV+ mother, O/Unk - other/unknown

ording to the likely transmission route. As previously, the information on transmission route was not reported for the majority of cases (646 - 58.5% of the total), but this percentage significantly decreased as compared to 2010 (68.7%). Among those with known transmission route the largest group were men who have sex with men - 308 (67.1% of cases with known transmission route) and persons infected through heterosexual contact - 84 (18.3%). The third most numerous group of HIV infected were injecting drug users - 60 people (13.1%). Compared with 2010, there was an increase of infections among MSM by 100% and in IDU by 62.2%. There are differences in the distribution of transmission routes between provinces. Among the cases with a known transmission route, the infection among MSM dominated in the provinces: Mazowieckie (84.2%), Wielkopolskie (78.7%), Śląskie (71.4%) and Lubelskie (71.4%), and infections through heterosexual contact were more frequently reported in Łódzkie (42.2%). In particular, a high percentage of cases without a likely transmission mode was recorded in the province: Dolnośląskie (89.8%), Opolskie (83,3%) and Lubuskie (78.6%).

**AIDS in 2011.** In 2011, 175 AIDS cases were diagnosed in Poland (0.45 per 100,000), 2 more cases than in 2010 and 23 cases (12.5%) more than the median number for the years 2005-2009. 37 (21.1%) AIDS cases diagnosed in 2011 were reported in 2012, as a result of the verification process according to the case definition. Among cases reported in 2011, there was one case diagnosed in each year: 1990, 1996, 2000, 2001, 2003, four cases diagnosed in 2007, 16 in 2008, 20 in 2009 and 81 cases diagnosed in 2010. In provinces the number of cases ranged from 4 in Podkarpackie and Lubelskie to 34 cases (19.4% of all diagnosed cases) in Dolnośląskie. In 2011, the increase in AIDS incidence occurred in five provinces, and the decline was observed in 2 provinces: Pomorskie i Śląskie (Table II).

Table V. AIDS cases in Poland in 2011 by sex, age\* and transmission group

Age group (years)	Sex		Transmission group					Total
	M	F	MSM	IDU	Het	MtC	O/Unk	
<20	2	1	0	0	0	3	0	3
20-29	21	9	8	8	12	0	2	30
30-39	63	16	20	32	13	0	14	79
40-49	30	9	9	16	7	0	7	39
50-59	13	2	5	2	6	0	2	15
60 i >	7	2	2	0	4	0	3	9
Total	136	39	44	58	42	3	28	175

\* age at AIDS diagnosis; M - males, F - females; MSM - men who have sex with men, IDU - injecting drug users, Het - heterosexual contact, MtC - mother-to-child, O/Unk - other/unknown

Table VI. AIDS cases in Poland in 1986-2011, by the year of diagnosis and time lapse between the diagnosis of HIV infection and AIDS

Year of AIDS diagnosis	Time lapse between detection of HIV infection and AIDS diagnosis:				Total*
	AIDS within 3 months of HIV diagnosis	3 months or more after HIV diagnosis, but no later than 1 year	between 1 to 3 years	3 years or later	
1986-1995	143	28	98	150	419
1996	40	4	10	60	114
1997	34	10	21	63	128
1998	42	5	24	59	130
1999	43	1	19	74	137
2000	52	5	13	57	127
2001	61	7	7	58	133
2002	43	10	18	54	125
2003	66	4	11	65	146
2004	96	7	14	58	175
2005	83	4	13	51	151
2006	90	5	14	54	163
2007	72	5	15	49	141
2008	102	6	12	54	174
2009	77	6	9	33	125
2010	87	6	15	60	168
2011	102	5	13	50	170
Total	1294	120	334	1076	2824

\* excludes 24 cases with missing date of HIV diagnosis

In 2011, AIDS was diagnosed in 136 men (77.7%) and in 39 women (22.3%). The highest number of cases were observed in people between 30 and 39 years of age - 79 cases (45.1% of the total), while more than 17.1% of the AIDS cases were reported among young people between 20 and 29 years of age (Table V).

Injecting drug use was reported as the predominant route of transmission in 58 cases (33.1% of the total). More than half of the HIV cases in IDU (55.2%) were reported among people aged 30 - 39 years. Among people under the age of 30 the proportion of infections attributed to this transmission route was lower (13.8% cases in IDUs) (Table V).

All 175 AIDS cases were diagnosed based on at least one AIDS indicator diseases, 56 patients (32.0%) were diagnosed with 2, 9 (5.1%) with three and 3 (1.7%) with 4 AIDS indicator diseases. The number of people with specific AIDS indicator diseases is presented in Figure 1. Notably there was a large number of patients who were diagnosed with HIV wasting syndrome - 51 cases (29.1% of all cases). The wasting syndrome is a late stage condition, which should be avoided through timely diagnosis and treatment.

The number of CD4 cells at time of AIDS diagnosis was reported for 148 patients (84.6% of the total). For 71

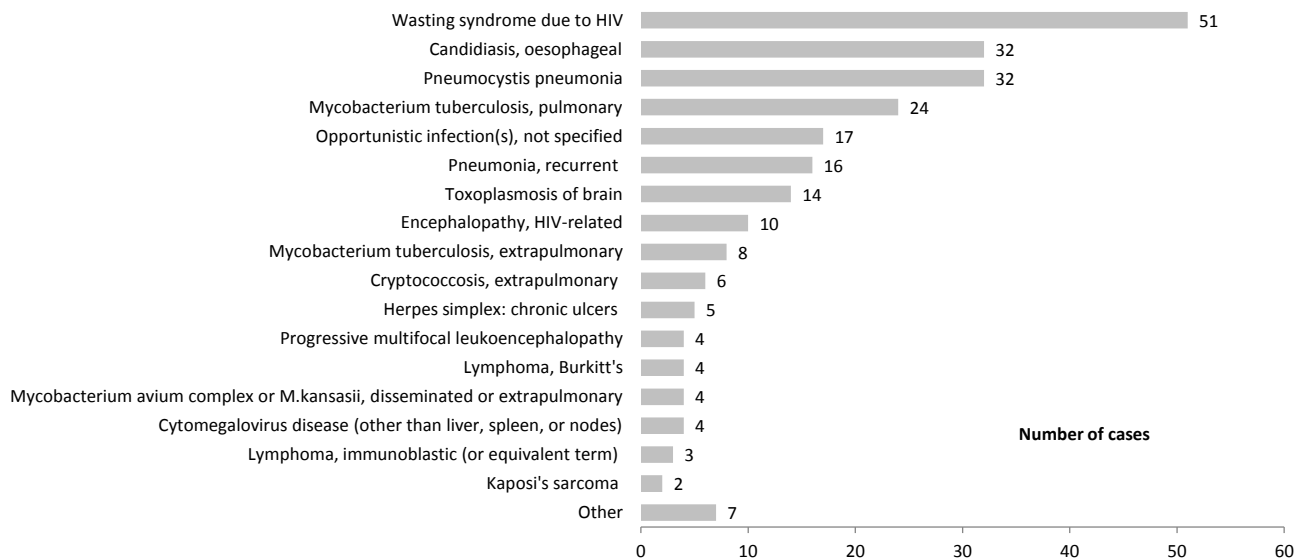


Fig.1. Indicator diseases among AIDS cases diagnosed in 2011. Number of cases.

cases (48.0%) it was lower than 50 cells per microlitre. Among 50 persons (33.8%) the number of CD4 cells ranged from 50 to 199 cells. For 27 patients (18.2%) the level of CD4 cells was higher than 200 per microlitre.

Of the 175 patients who were diagnosed with AIDS in 2011, only 36 persons (20.6%) were treated with *antiretroviral therapy* (any attempt) before AIDS was diagnosed. More than half of AIDS cases (58.3%, 102 people) were late presenters (HIV infection and AIDS diagnosed less than 3 months apart). It should be noted that the upward trend in the incidence of AIDS relates only to persons with previously undiagnosed HIV infection, and not those who knew their serostatus before (Table VI).

According to reports received by the Department of Epidemiology NIPH - NIH by the end of 2012, there were 65 deaths of AIDS patients in 2011 - mortality rate 0.17 per 100 000. The number of deaths in each province ranged from 1 to 12, and the mortality rate ranged from 0.06 per 100 000 in Śląskie to 0.41 in Dolnośląskie province (Table II). Among the death cases the predominant transmission route was injecting drug use - 26 people (40.0% of all deaths). There were 49 deaths among males (75.4%) and 16 among women (24.6%). Most patients died at the age of 30 to 50 years - 49 patients (75.4%).

Deaths from AIDS-related causes accounted for 83.1% all deaths (54 people). The most common cause of death were multiple infections (6 persons), tuberculosis (6 persons), pneumonia caused by *Pneumocystis carini* - 5 persons and other medical conditions - 12 people (ICD-10 code: B23.8). Among 175 AIDS cases diagnosed in 2011 51 deaths were reported until the end of 2012 including 36 patients who died within six months from AIDS diagnosis (early fatality in AIDS - 20.6%).

According to the preliminary data from the Central Statistical Office, 123 people died due to illness caused by HIV (ICD-10 B20 - B24) in 2011. If we assume that these data is complete, the proportion of deaths due to HIV/AIDS reported to the State Sanitary Inspection is 43.9% (54/123).

## SUMMARY

In 2011 there was a more than 15% increase in the number of newly diagnosed HIV infections with respect to 2010. Taking into account lack of the significant changes in the frequency of HIV testing – evidenced both in the above described annual laboratory surveys and in the general population surveys conducted in the framework of evaluation of the National Programme for HIV Prevention and AIDS Control - this increase most likely indicates the increasing spread of HIV in Poland. There is a continuously growing trend in the number of infections among men who have sex with men (MSM), especially in Mazowieckie province. Importantly, we also noted an increase in the number of infections among IDU, in which group for many years, there was a downward trend. However this increase could be a consequence of higher completeness of the information on probable transmission route (41.5% in 2011, 31.3% in 2010).

Despite this improvement, transmission route was unknown for the majority of newly HIV infections. Among the reasons for this situation we can point at insufficient co-operation between sanitary inspection and physicians involved in the care for people living with HIV/AIDS. The next problem is the lack of question about transmission mode on the current notification form.

Effective antiretroviral therapy can prevent AIDS, so at present AIDS incidence is an indicator of the effectiveness of diagnostics and care system for people living with HIV. More than half of AIDS cases in 2011 were diagnosed in late presenters. A huge problem with unrecognized HIV infection and a low number of HIV tests suggests the need for modification of testing policies, in order to increase its accessibility of HIV diagnosis. However, more than half of previously untreated AIDS cases were among patients with HIV infection diagnosed earlier. This may indicate difficulties with treatment implementation, even if the infection is already diagnosed.

### CONCLUSIONS

1. Current increasing trend requires intensification of prevention measures, especially in the groups most affected by HIV - MSM and IDU, as well as the promotion of HIV testing.
2. It is necessary to improve system to monitor the HIV/AIDS epidemiological situation, especially in terms of the completeness of reported cases. Also a behavioral and sero-prevalence studies in key populations are necessary to improve the understanding of epidemiological situation. More detailed data would allow appropriate targeting of prevention and reducing the risk of spread of infection in the population.
3. It is advisable also to improve the exchange of information between people who provide health care to HIV infected patients and people who monitor the epidemiological situation on HIV infection, especially at the local level. This could help to assess the epidemiological situation and implement appropriate prevention activities at the local level.

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