THE CONTINUUM OF HIV CARE IN NORTH MACEDONIA IN 2018

Assessment Report with a Special Focus on Men Who Have Sex with Men

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This assessment was conducted through a collaboration between relevant community-based organizations providing different types of HIV services to men who have sex with men and state institutions responsible for treatment and care and for surveillance. These include: University Clinic for Infectious Diseases and Febrile Conditions; Institute of Public Health; Stronger Together, Association for Support of People Living with HIV; NGO EGAL – Equality for Gays and Lesbians; and NGO STAR STAR – Association for Support of Sex Workers. The assessment is an intervention within the “Right to Health” Program of the Eurasian Coalition on Male Health, financially supported by the Global Fund to Fight AIDS, Tuberculosis and Malaria.

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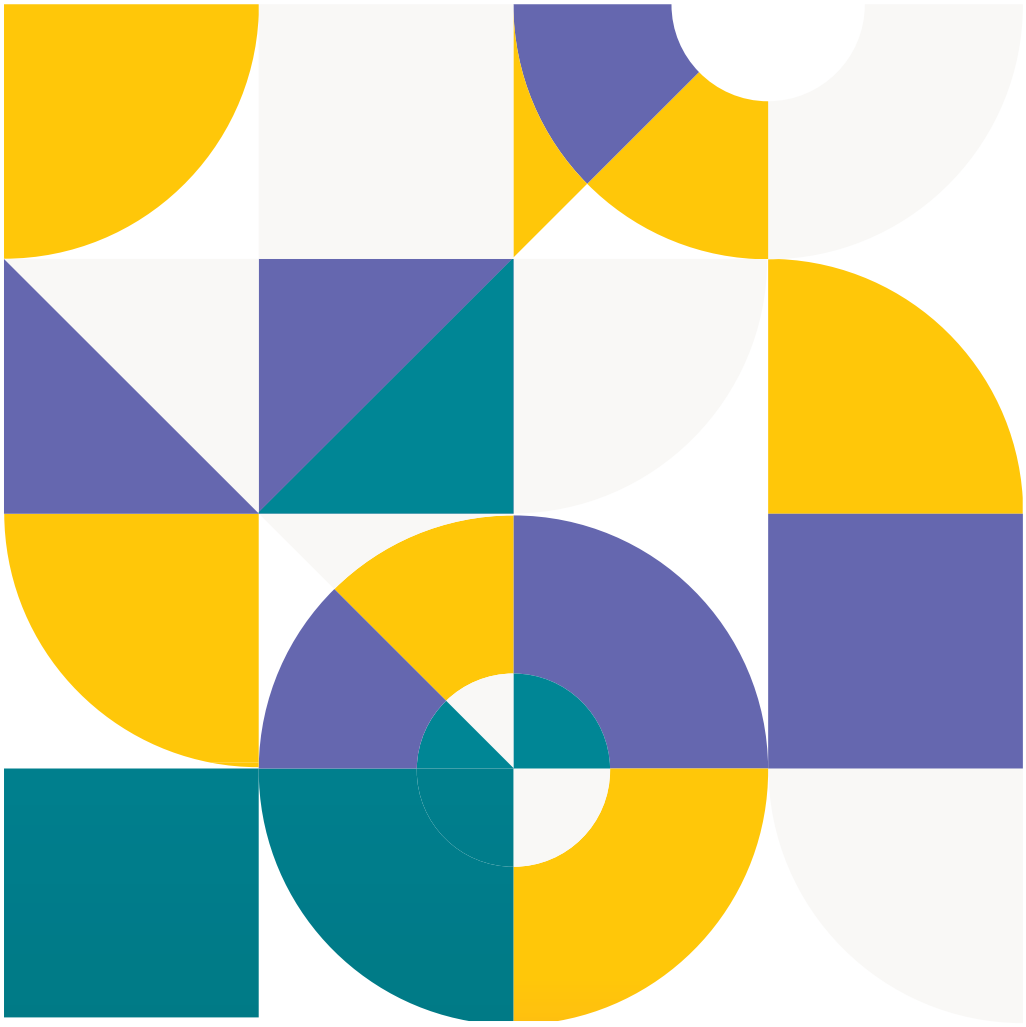
CONTENTS

LIST OF ABBREVIATIONS

AIDS	acquired immunodeficiency syndrome
ART	antiretroviral therapy
HIV	human immunodeficiency virus
IBBS	integrated bio-behavioral survey
MSM	men who have sex with men
PLHIV	people living with HIV
RDS	respondent-driven sampling
UNAIDS	The Joint United Nations Programme on HIV/AIDS



INTRODUCTION

The HIV epidemic in North Macedonia – surveillance data

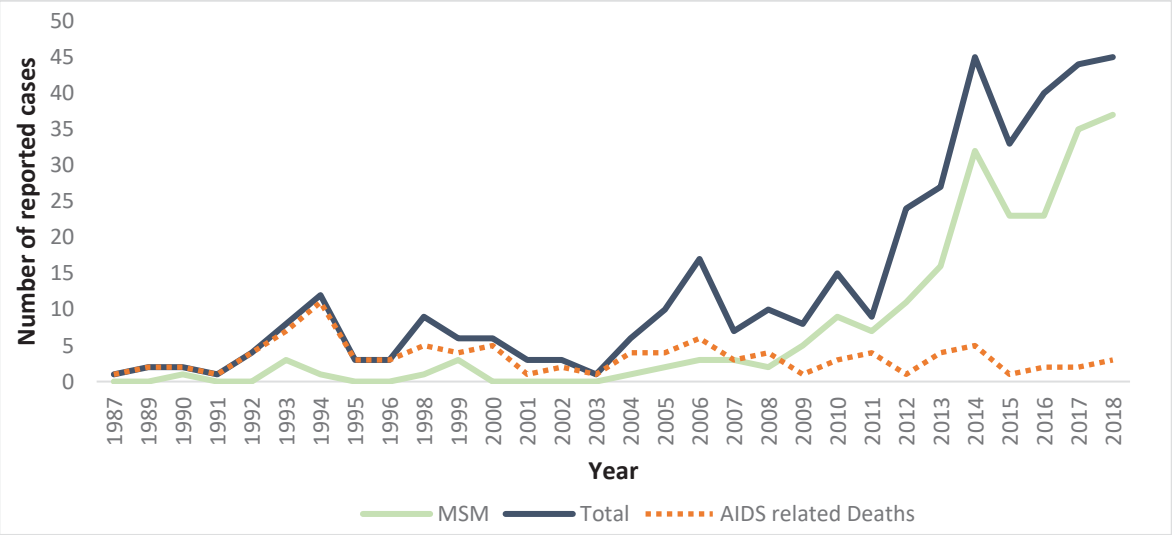
The Republic of North Macedonia has a population of approximately 2.1 million citizens[1] and a low-level, concentrated HIV epidemic [1], with 404 reported cases until 31 December 2018 and 99 reported HIV-related deaths.

There is an increasing trend of new HIV diagnoses with 51.2% of all HIV cases registered in the last five years. For the last 5 years, there is an average number of 41 new diagnoses annually, ranging from 33 in 2015 to 45 in 2018.

Several categories of evidence suggest that the epidemic is under control among people who inject drugs and female sex workers, but prevalence is rising among men who have sex with men (MSM) [2, 3].

Cumulatively, among reported HIV cases, sex between men has been the most frequently reported mode of transmission (54%), with heterosexual contact reported in 37.6%, injecting drug use was reported in 3% of the cases, for 2.5% the mode of transmission was not reported, while other routes of transmission are sporadic. Surveillance data show an increasing proportion of MSM among newly diagnosed HIV cases: for the period between 2013 and 2017 this proportion ranges between 58% to 80% on an annual basis (Figure 1). This trend continues in 2018 when 82% of newly diagnosed cases were MSM. In the last two years (2017, 2018) all newly diagnosed HIV cases were men (n=88).

Figure 1. Number of newly registered HIV cases, number of newly diagnosed HIV among MSM and number of AIDS-related deaths in North Macedonia, 1987-2018 (n=404)

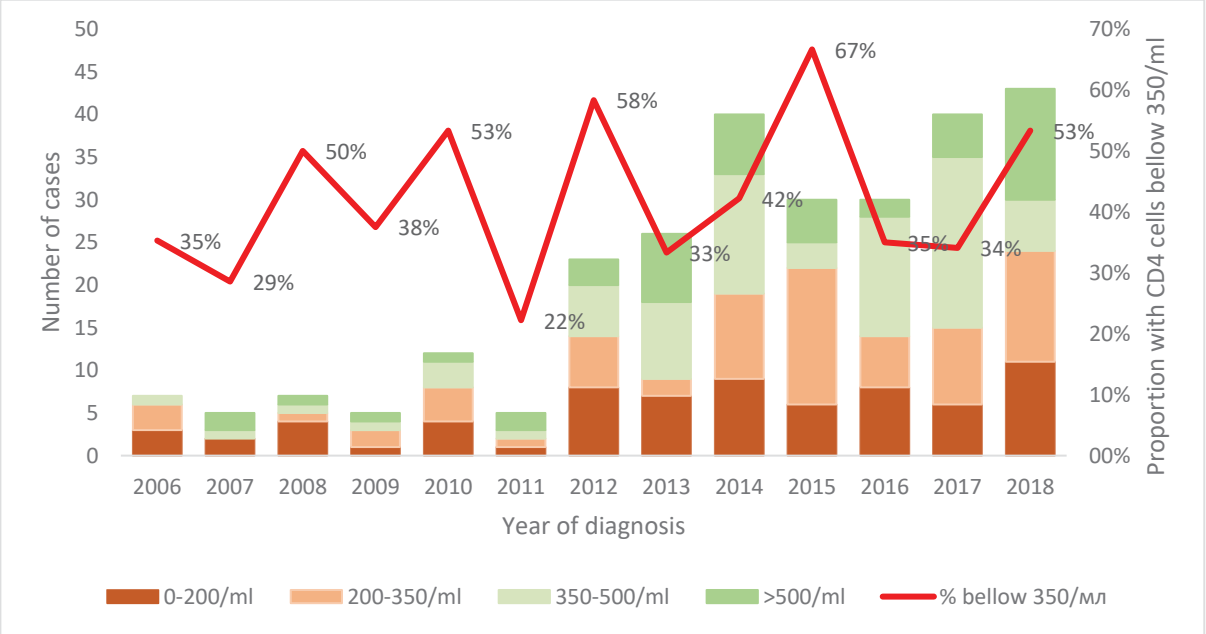


Late diagnosis of the HIV cases is still a significant problem; the median CD4 cell count among those diagnosed in 2018 was 333 cells/μl (ranging from 0 to 1934 CD cells/μl), which is 17% lower compared to the 404 cells/μl of 2017 (Figure 2). Moreover, 53% (n=24) of the cases in 2018 were diagnosed late, with CD4 cell counts less than 350 cells/μl, while 9 cases were diagnosed only during advanced stage of the infection, when AIDS symptoms were present. The median CD4 cell count in 2018 is also lower compared to the five-year average (347 CD4 cells/μl).

The average proportion of cases with late diagnoses (CD4 count below 350 cells/mm^3) in the previous 5 years has been 46.2%, with the lowest proportion of late diagnoses in 2017 (34%) and the highest in 2015 (67%) (Figure 2).

[1] Projections from State Statistical Office available at http://www.stat.gov.mk/KlucniIndikatori_en.aspx

Figure 2. Distribution of HIV cases according to CD4 cell count at diagnosis, 2006-2018, North Macedonia, (n=324)



Data from bio-behavioural surveys among key populations

According to results from the last published bio-behavioural survey conducted with a respondent driven sampling method (RDS) [3] sexual risk behaviours are present among MSM in North Macedonia, while HIV prevalence increased from estimated 0% in 2010, estimated 1.9% in 2014 to 5.4% in 2017/2018. According to the last RDS survey among MSM in Skopje in 2017/2018, for the first time in North Macedonia a concentrated epidemic among MSM was observed. On the other hand, studies conducted among people who inject drugs and female sex workers in 2010, 2014 and 2017/2018 did not discover any cases of HIV infection.

A population size estimation for MSM was performed in 2017/2018 along with the integrated bio-behavioral study in the capital city of Skopje. The estimation was based on the multiplier method [4] with the study population defined as 'all males who have lived in Skopje for at least 3 months, aged 18 to 55 years, and who have had anal sex with a male person within the last 12 months'. The population size in the capital city was estimated at 5,094 or 3.15% of the male population at that age (95% CI 4,286-6,557) and 5,556 (95%CI 4,675-7,152) at ages 18 to 59. Extrapolating this proportion to the whole country for the ages between 18 to 59 years resulted in an estimation of 11,054 (95% CI 9,301-14,229) [3] MSM in North Macedonia.

Estimations of the total number of people living with HIV were performed for 2017 and 2018 by UN-AIDS using the Spectrum modeling tool and official surveillance data as input. The total number of PLHIV in 2017 was estimated at 384 (95%CI = 338-449) [5]. The first evaluation of the continuum of HIV care in the country was done in 2018 using the ECDC modelling tool based on the data until the end of 2017.

Policy context related to HIV and sexual health

The national response to HIV in the Republic of North Macedonia is structured in the National HIV Strategy as the principle policy document adopted by the Government. A multisectoral approach in the national strategic planning, including the participation of civil society and people living with HIV, has been an established practice since 2003. Based on the National Strategy, the Government adopts an annual Program for the Protection of the Population from HIV Infection (National HIV Program), which includes both the treatment and the prevention components of the national response. The Program was substantially up-graded thanks to the Global Fund financial support between 2005 and 2017. Since 2009 opioid substitution therapy became fully funded by the Government (through a separate program of the MoH), while for ART this happened in 2011. Starting from 2018 the Government took over the complete financing of the National HIV Program, including all HIV prevention services targeting key affected populations, which are implemented by civil society organizations.

Based on the epidemiological evidence, the response to HIV in North Macedonia has been focused on people who inject drugs, sex workers, men who have sex with men, as well as people living with HIV, as key affected populations. Some interventions have also been targeting people in detention facilities, the general young population and the Roma population.

Prevention and testing services for men who have sex with men

Prevention services for men who have sex with men were first introduced in 2005 and they are mainly delivered by only one community-based LGBT organization (EGAL – Equality for Gays and Lesbians) active in Skopje with some activities in three other towns, while the HIV testing for MSM is provided within the national voluntary counselling and testing (VCT) program implemented by both NGO EGAL and NGO HERA – Health Education and Research Association and, to a lesser degree, by a community-based organization of people living with HIV, Stronger Together, from Skopje. Among public health institutions the VCT Centre at the Clinic for Infectious Diseases is also popular among MSM as a testing site.

NGO EGAL provides a basic package for prevention defined as two condoms, lubricant and an information material. In addition to the basic package, it offers peer education and peer counselling, as well as counselling from a psychologist/psychotherapist. In 2018 EGAL reached 4,807 unique MSM clients with the basic package, while EGAL, HERA and Stronger Together jointly reached 1,614 [,] men who have sex with men with HIV testing and counselling.

The National HIV Program also partially funds the operation of two youth-friendly centres offering free of charge sexual and reproductive health services to young people, as well as to members of the KAPs. These SRH centres are providing: STI screening (for syphilis, HCV, gonorrhoea and urinary bacterial infections), support from a social worker, counselling and education, counselling by a psychologist and services for prevention of drug use. However, uptake seems to be quite low with only 93 men who have sex with men who received services for STI screening in 2018.

Treatment, care and support for people living with HIV

The treatment and care for people living with HIV in North Macedonia are centralized and provided only at the University Clinic for Infectious Diseases and Febrile Conditions. Since 2015 all people diagnosed with HIV infection are offered antiretroviral treatment upon diagnosis. The Clinic features a small Department on HIV, including a day centre offering medical appointments, dispensing antiretroviral treatment and support services from a social worker and a psychologist. The HIV Day Centre also offers linkage with community-based support services, provided by the community-based organization of people living with HIV – Stronger Together, Association for Support of People Living with HIV.

OBJECTIVE OF THE RESEARCH

The objective of this study is to assess the overall effectiveness of the national response to HIV by evaluating key stages of the continuum of HIV care at the end of 2018, with a focus on men who have sex with men and to assess the progress compared to the findings for 2017.

The findings of the assessment are expected to inform the national strategic planning and the necessary programmatic interventions in response to the HIV epidemic in the Republic of North Macedonia, especially with a view towards improving the prevention, linkage and treatment outcomes for men who have sex with men as the key population that is predominantly affected in the country.

METHODOLOGY

For the evaluation of the national continuum of HIV care, we focused on four priority stages in accordance with the global 90-90-90 targets and as recommended by the European Centre for Disease Control and Prevention for monitoring of the progress towards achieving those targets:

- Stage 1: The estimated total number of people living with HIV in the country ('number living with HIV')
- Stage 2: The number/proportion of all people living with HIV who have been diagnosed ('the number diagnosed')
- Stage 3: The number/proportion of all diagnosed people living with HIV who are on ART ('the number on ART')
- Stage 4: The number/proportion of all people living with HIV taking ART who had suppressed virus (VL <200 copies/ml) at their last visit ('the number with suppressed virus')

In addition, as an intermediary stage we also analysed the number of people living with HIV who are enrolled in care. The four main stages, as well as the intermediary stage, were analysed for people living with HIV overall and in particular for men who have sex with men. The same methods were used for evaluating the stages of the general continuum of HIV care and of the one referring only to men who have sex with men, unless it is otherwise stated.

For determining each of the stages of the HIV continuum, the following definitions and methods were used, in line with those proposed by A. J. Gourlay et al. [8]:

Stage 1, 'number living with HIV': an estimation of all HIV-positive individuals living in the Republic of North Macedonia at the end of 2018. To obtain the total number we used the HIV modelling tool developed by ECDC [9] based on the official surveillance data, disaggregated by stage of diagnosis (either CD4 cell count or non-AIDS/AIDS). We used the incidence method with parameters for the model set according to the ECDC HIV modelling tool manual v. 1.3.0 [10] and with time series adjusted to the time when CD4 cell counts at diagnosis were available in the country.

Stage 2, 'the number/proportion diagnosed': the number of people living with HIV that were diagnosed (knew their HIV status) by the end of 2018, expressed as a number and as a proportion of the total estimated number of people living with HIV (stage 1). This number was determined based on the total number of cases diagnosed by the end of 2018 including those who in-migrated and excluding those who out-migrated or died by the end of the same year.

Stage 3, 'the number on ART': the number of people living with HIV who were taking ART at the end of 2018, expressed as a number, as a proportion of those diagnosed (stage 2) and as a proportion of

the estimated number of all people living with HIV (stage 1). The number on ART was defined as the number of people with at least one record of dispensed ART in 2018 including those who in-migrated and excluding those who out-migrated or died by the end of 2018. This number was determined based on the clinical records at the University Clinic for Infectious Diseases and Febrile Conditions in Skopje.

Stage 4, 'the number/proportion with suppressed virus': the number of people living with HIV whose most recent HIV viral load (HIV RNA in blood) result in 2018 was <200 copies/ml or below the level of detection of the assay, expressed as a number, as a proportion of those on ART (stage 3), and as a proportion of the estimated number of all people living with HIV (stage 1). This number includes those who in-migrated and excludes those who out-migrated or died by the end of the same year and was determined based on the clinical records at the Clinic for Infectious Diseases.

To evaluate the continuum of HIV care specifically for men who have sex with men we, obtained estimates on the total number of MSM living with HIV using the ECDC HIV modelling tool with surveillance data only for HIV cases where same-sex intercourse had been reported. In addition, we compared those estimates to calculations based on the population size estimation for MSM and the estimated proportion of MSM living with HIV obtained from the latest bio-behavioural survey among MSM [3]. The other 3 stages of the continuum were determined according to the same definitions and methods as for the general HIV continuum.

HIV cases known to have died from non-HIV related conditions were accounted as dead, including in a few instances where an official death certificate had not been sent to the Institute of Public Health. HIV cases reported until the end of 2004 that were not retained in care beyond that time point and for which there was no information of death or out-migration were counted as deaths for the purpose of constructing stages 2, 3 and 4 of the HIV continuum. The reason for taking the end of 2004 as a cut-off point was the fact that until this time combination antiretroviral therapy was not regularly available in the Republic of North Macedonia and there was no psychosocial support system established yet. Beyond this cut-off point, i.e. from the beginning of 2005 until the end of 2018, all diagnosed cases that had not shown up for a regular check-up at least once in the last 12 months were accounted as lost to follow-up. Out-migrations were determined based on the patient records and information of the social worker at the Clinic's HIV Day Centre. As out-migrated we only counted those patients for whom there was a reliable information that they had moved out of North Macedonia AND that they were receiving treatment and care through the health system in another country.

Data on the total number of diagnosed HIV cases and the number of people living with HIV enrolled in care and those receiving ART were extracted from patient records of the University Clinic for Infectious Diseases and Febrile Conditions in Skopje, where all diagnosed HIV cases are treated.

We assumed that we had complete data set for the diagnosed people with HIV and for the number on ART, since the surveillance and ART in North Macedonia are centralized. All diagnosed HIV patients on ART are treated at the Clinic for Infectious Diseases and all diagnosed cases are reported to the Institute of Public Health.

During this research we used anonymized data sets with unique identifiers to match the cases between the Institute of Public Health and Clinic for Infectious Diseases. In no case personal data was used nor was the patient identity revealed.

Biases and concerns in the methodology

Having a reliable estimate of a hidden population where data from different sources is scarce is very hard to obtain. Our estimates of the population size directly influence the estimated number of MSM living with HIV, which can be either under- or overestimated.

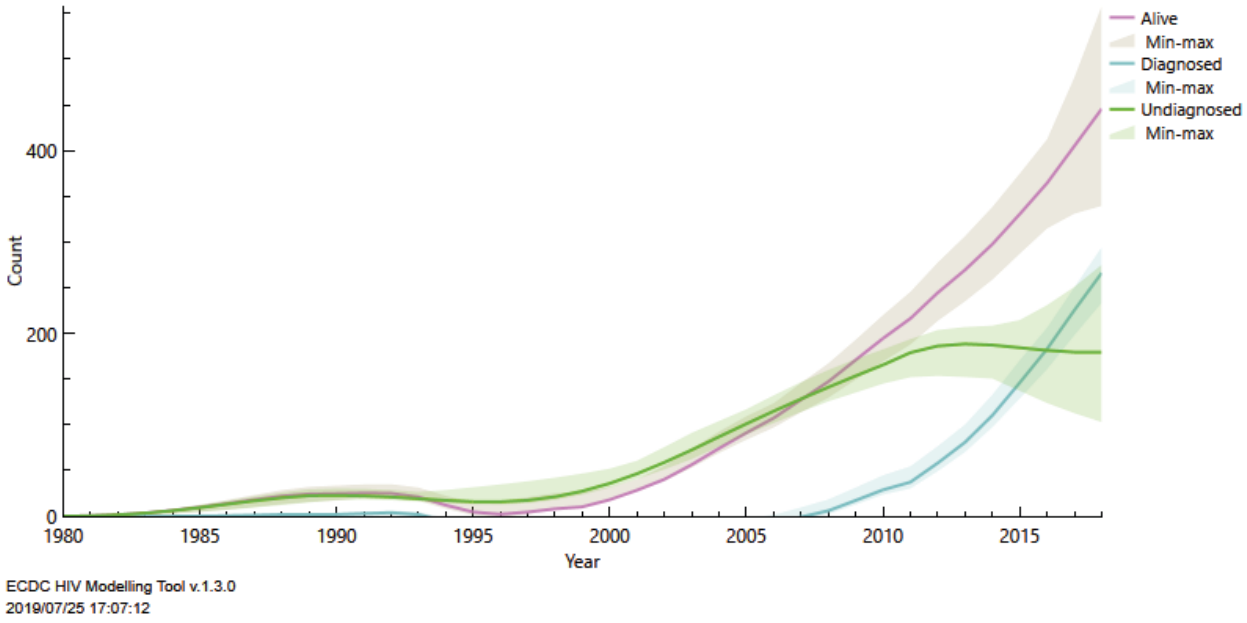
In constructing the continuum of HIV care specifically for men who have sex with men we relied on the officially reported surveillance data on the mode of transmission. However, it can be assumed that a certain number of men diagnosed with HIV never disclosed having same-sex sexual relations, especially in the early years, when no adequate system for psychosocial support existed in the country.

RESULTS

The national continuum of HIV care

Stage 1. The estimated total number of people living with HIV
The HIV modelling tool developed by ECDC [11] relies on surveillance data, new cases disaggregated by stage of diagnosis (either HIV/AIDS or CD4 cell count). We ran the ECDC HIV Modelling tool v1.3.0 with data officially reported to ECDC by 2018 using the incidence method, with diagnostic probabilities set for the period from 1984 to 2018 divided in five time-intervals. Starting from 2004, diagnostic probabilities were calculated using CD4 count at the time of diagnosis. With the above parameters the model produced an estimate of 446 PLHIV (95% CI 340-558) (Figure 3). If we account for those who have out-migrated (n=42), then the estimated total number of people living with HIV at the end of 2018 would be 404 (95% CI 298-516).

Figure 3. Estimated total number of people living with HIV in North Macedonia 2018



Stage 2. Number diagnosed
In North Macedonia reporting and treatment for people living with HIV is centralized. The national database of all reported cases and people on treatment is shared among the Institute of Public Health, where all HIV case are being reported, and the University Clinic for Infectious Diseases, where all patients receive treatment and care. According to the National Annual HIV Report for 2018 prepared by the Institute of Public Health, the total cumulative number of diagnosed HIV cases in North Macedonia was 404 by the end of 2018. In this period 42 people out-migrated, while there were records for 99 deaths.

Taking the above figures into account, by the end of 2018 there were 263 diagnosed people living with HIV in North Macedonia or 65% of the estimated 404 people living with HIV (Table 1, Figure 4).
Taking into consideration the 95%CI of the estimated total number of people living with HIV, the number of undiagnosed people living with HIV ranges from 104 to 180.

Table 1. Number and percentage of PLHIV with diagnosed and undiagnosed HIV infection

Estimated total number of PLHIV (range)	Number of PLHIV diagnosed	% of PLHIV diagnosed	% of PLHIV undiagnosed
404 (95%CI 298 - 516)	**263**	**65.1%**	**34.9%**

Stage 3. Number on ART

From the diagnosed, 236 have shown up for regular check-up within the last 12 months and were considered as enrolled in care. Excluding those who died, those who out-migrated or were lost to follow-up, the number of diagnosed people living with HIV on ART by the end of 2018 was 231, or 87.8% of the diagnosed (n=263) (Table 2, Figure 4). The number on ART constitutes 57.2% (44.8–65.4%) of the estimated total number of people living with HIV.

Table 2. Number and percentage of PLHIV diagnosed who are on ART

Number of PLHIV diagnosed	Number of PLHIV diagnosed on ART	% of PLHIV diagnosed on ART	% of PLHIV diagnosed NOT on ART
263	**231**	**87.8%**	**12.2%**

Stage 4. Number with supressed virus

According to the data from the Clinic for Infectious Diseases for those on ART (n=231), the last available viral load in 2018 was below 200 copies/ml in 195 patients or 84.4% of those on ART (Table 3, Figure 4). Out of those whose virus was not considered suppressed (n=11), 9 had been on ART for less than six months and for 2 data for viral load was missing. The 195 patients on ART represent 48.2% (37.8–65.4%) of the estimated total number of people living with HIV.

Table 3. Number and percentage of PLHIV on ART with suppressed virus

Number of PLHIV on ART	Number of PLHIV with suppressed virus	% of PLHIV on ART with suppressed virus	% of PLHIV on ART without suppressed virus
231	**195**	**84.4%**	**15.6%**

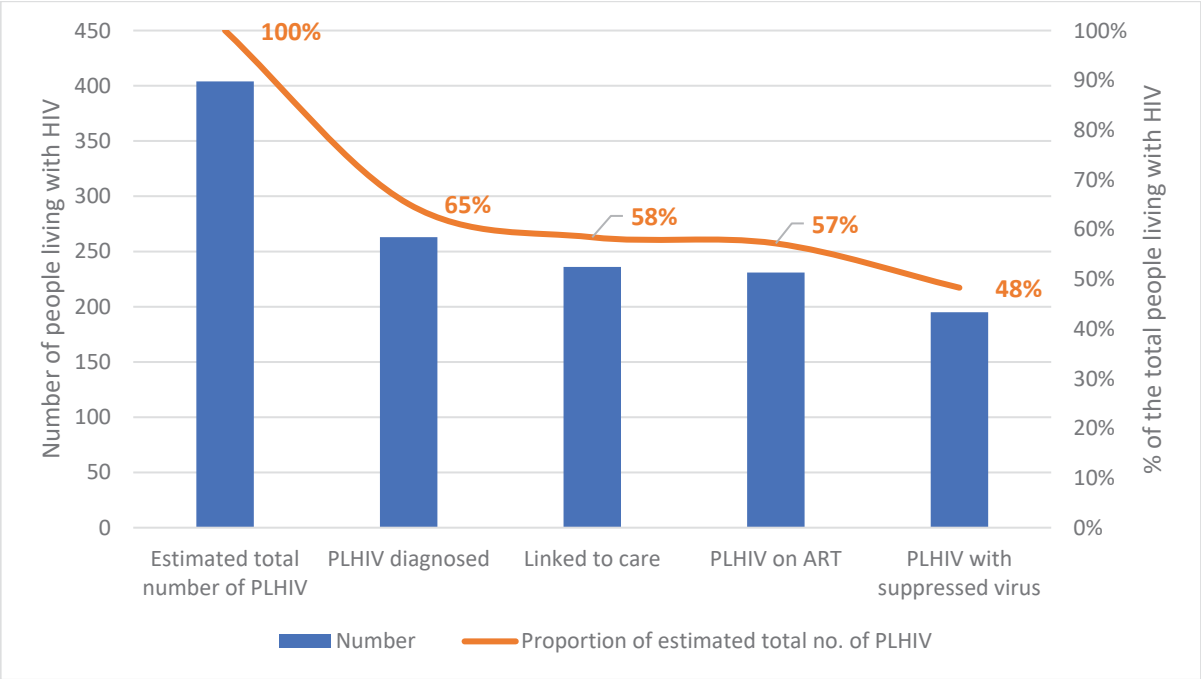
Summary results of the HIV continuum of care in 2018

From the estimated total 404 people living with HIV in North Macedonia at the end of 2018, 263 or 65.1% have been diagnosed, 231 or 87.8% of the diagnosed were on ART, while in 195 people or 84.4% of those on ART the virus was suppressed (Table 4, Figure 4). If as denominator we take the estimated total number of people living with HIV (n=404), then the proportion of those on ART would be 57.2%, while 48.3% would be with suppressed virus in 2018 (Table 4, Figure 4).

Table 4. National continuum of HIV care in North Macedonia in 2018 presented as absolute numbers, percentages out of preceding stage and percentages out of estimated total number of PLHIV

	Estimated total number of PLHIV (95% CI)	PLHIV diagnosed	Linked to care	PLHIV on ART (retained in care)	PLHIV with suppressed virus
Number	**404 (95%CI 298-516)**	**263**	**236**	**231**	**195**
Proportion of previous stage	**100%**	**65.1%**	**90%**	**87.8%**	**84.4%**
Proportion of estimated total no. of PLHIV	**100%**	**65.1%**	**58%**	**57.2%**	**48.3%**

Figure 4. Continuum of HIV care expressed as proportion of the total number of people living with HIV in North Macedonia at the end of 2018

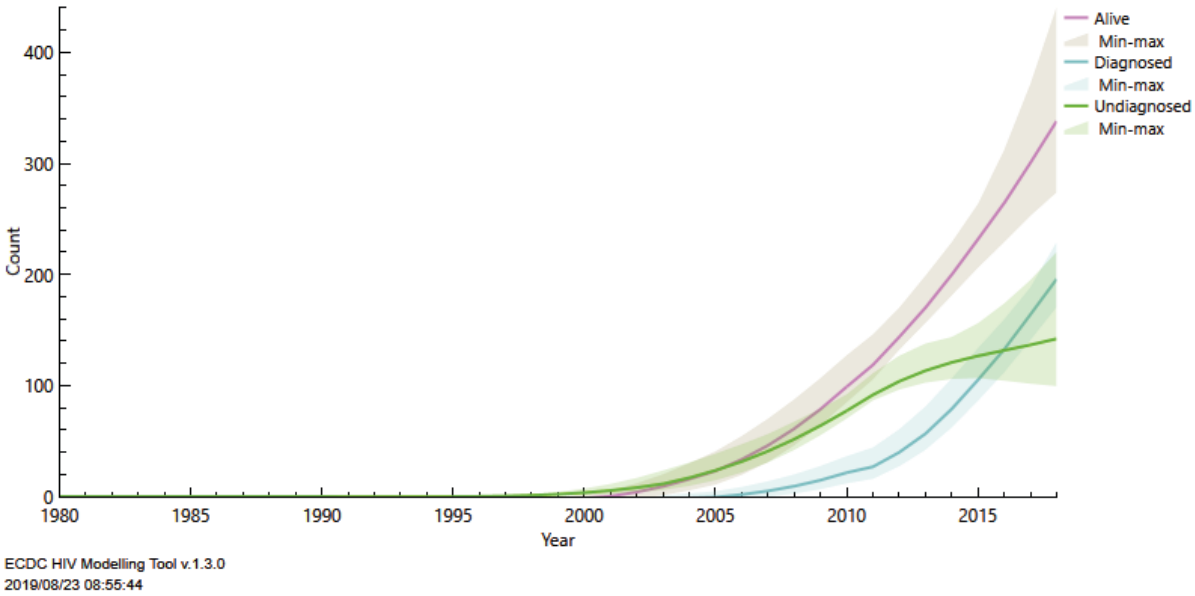


The continuum of HIV care among men who have sex with men

Stage 1. The estimated total number of MSM living with HIV

For the estimated number of MSM living with HIV we used the HIV modelling tool developed by ECDC [14]. The tool relies on surveillance data, disaggregated by the stage of diagnosis and mode of transmission. We ran the incidence model in the modelling tool with time series adjusted for the time of introduction of ART and availability of data for CD4 counts at diagnosis. The estimated number of MSM living with HIV by the end of 2018 based on this approach was 338 (95% CI 274 - 441) (Figure 5).

Figure 5. Estimated total number of MSM living with HIV in North Macedonia in 2018



However, according to the latest population size estimate and bio-behavioural survey among MSM from 2017 (n=11,054; 95% CI 9,301-14,229) the HIV prevalence among MSM in the country was estimated at 5.4% in 2017 [3]. Based on these data on prevalence and on population size, the estimated number of MSM living with HIV would have been at least 597 at the end 2018.

Stage 2. Number of MSM diagnosed

By the end of 2018 the cumulative number of diagnosed HIV cases resulting from sex between men as the mode of transmission was 218 [12]. There were records for 18 MSM who died, while additional 19 migrated outside of the country. Summing up, the total number of diagnosed MSM living with HIV in North Macedonia by the end of 2018 would be 181 or 53.6% of the estimated number of MSM living with HIV (n=338) if we take as relevant the estimation based on the ECDC modelling tool (Table 5).

Table 5. Number and percentage of MSM living with HIV with diagnosed and undiagnosed HIV infection

Estimated total number of MSM living with HIV (range)	Number of diagnosed MSM living with HIV	% of MSM living with HIV who are diagnosed	% of MSM living with HIV NOT diagnosed
338 (274 - 441)	181	53.6%	46.4%

Stage 3. Number of MSM on ART

As enrolled in care we counted those who were diagnosed (excluding out-migrations and those who died), were recorded in the patient registry at the Clinic for Infectious Diseases and had shown for regular check-up in the past 12 months. According to the patient registry, the number of MSM living with HIV that were enrolled in care at the end of 2018 was 167.

The total number of diagnosed MSM patients (excluding deaths, out-migrations and lost to follow-up) on ART by the end of 2018 was 165 or 91.2% of those who know their HIV status (n=181) (Table 6, Figure 6). If as denominator we take the estimated total number of MSM living with HIV (n=338), the proportion of MSM living with HIV on ART would be 48.8%.

Table 6. Number and percentage of diagnosed MSM living with HIV who are on ART

Number of diagnosed MSM living with HIV	Number of diagnosed MSM living with HIV on ART	% of diagnosed MSM living with HIV who are on ART	% of diagnosed MSM living with HIV who are NOT on ART
181	165	91.2%	8.8%

Stage 4. Number of MSM with supressed virus

Of the MSM who are on ART (n=165), according to the data from the Clinic for Infectious Diseases in 134 patients last available viral load data in 2018 the viral load was under 200 copies/ml or 81.2% of those on ART (Table 7). Among cases in whom the virus was not suppressed, 20 cases had been on ART for less than 6 months, while for 2 cases data on viral load were missing.

Table 7. Number and percentage of MSM living with HIV on ART with suppressed virus

Number of MSM living with HIV on ART	Number of MSM living with HIV with suppressed virus	% of MSM living with HIV on ART with suppressed virus	% of MSM living with HIV on ART without suppressed virus
165	134	81.2%	17.8%

Summary results of the HIV continuum of care in MSM in 2018

From the total 338 estimate MSM living with HIV in North Macedonia by the end of 2018, 181 or 53.6% have been diagnosed, 53.6% of the diagnosed (n=167) were linked to care, while 91.2% (n=165) of the diagnosed were on ART. Of those on ART virus was suppressed in 81.2% (n=134) (Table 9, Figure 6). If as denominator we take the estimated total number of MSM living with HIV (n=404), then the proportion of those on ART would be 48.8%, while the virus would be supressed in 39.6% of MSM living with HIV in 2018 (Table 8, Figure 6).

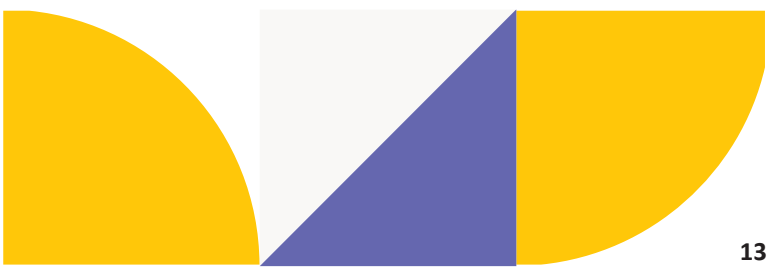
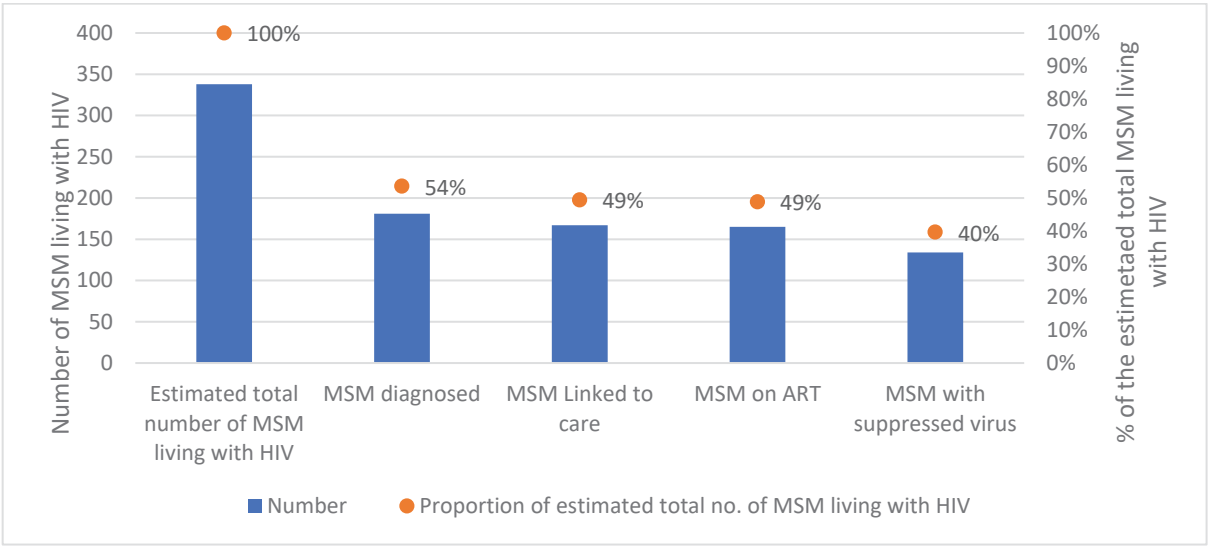


Table 8. The continuum of HIV care for MSM: absolute numbers, percentages out of immediately preceding stage and percentages out of estimated total number of MSM living with HIV (target 90%-81%-73%)

	Estimated total number of MSM living with HIV (range)	MSM diagnosed	MSM Linked to care	MSM on ART	MSM with suppressed virus
Number	338 (274 - 441)	181	167	165	134
Proportion of the preceding stage	100%	53.6%	92.3%	91.2%	81.2%
Proportion of estimated total no. of MSM living with HIV	100%	53.6%	49.4%	48.8%	39.6%

Figure 6. Continuum of HIV care for MSM living with HIV by the end of 2018 with an estimation based on ECDC HIV modelling tool



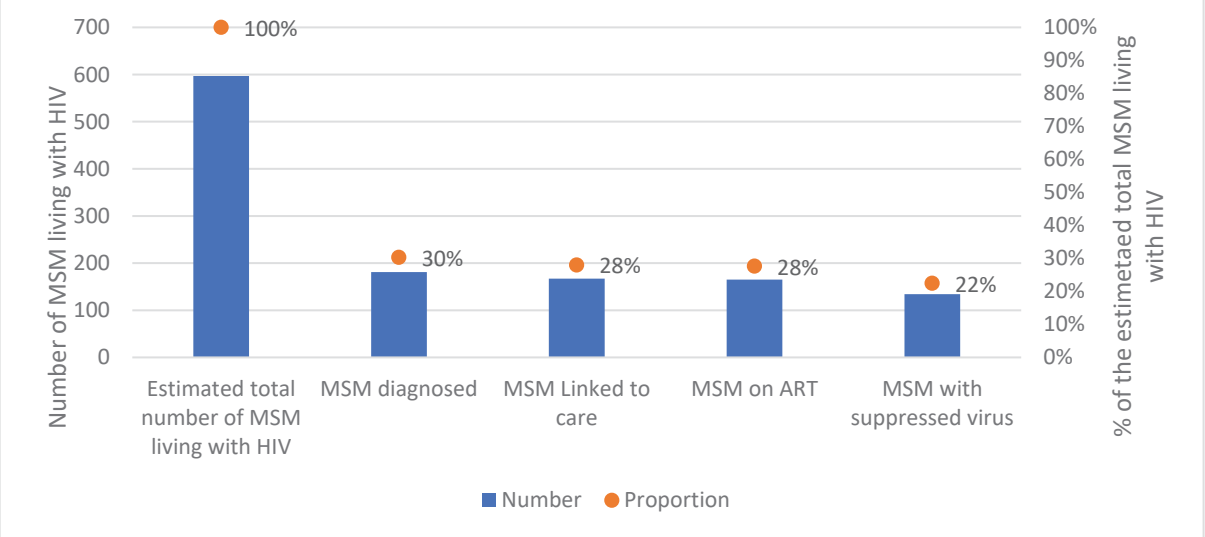
The HIV continuum for MSM based on the data from the bio-behavioural survey in 2017-2018

If we consider the data from the bio-behavioural survey and population size estimation the total number of MSM living with HIV would have been 597, assuming a population size of 11,054 and HIV prevalence of 5.4% in 2017 (3). In this case the proportion of diagnosed MSM living with HIV would be as low as 30.3%, 28% would be linked to care, 27.6% would be on ART while 22.4% would have had suppressed virus at the end of 2018 (Table 9, Figure 6).

Table 9. The continuum of HIV care for MSM according to HIV prevalence and population size estimations from BBS 2017-2018

	Estimated total number of MSM living with HIV	MSM diagnosed	MSM Linked to care	MSM on ART	MSM with suppressed virus
Number	**597**	**181**	**167**	**165**	**134**
Proportion	**100%**	**30.3%**	**28.0%**	**27.6%**	**22.4%**

Figure 7. National HIV cascade, MSM living with HIV by the end of 2018 according population size estimates from IBBS 2017-2018



DISCUSSION

This is a second study to assess the continuum of HIV care in North Macedonia, focusing both on the total population of people living with HIV and on men who have sex with men specifically. The estimates obtained with the ECDC modelling tool on the total number of people living with HIV are comparable to those obtained by UNAIDS using the Spectrum tool based on the same surveillance data. The estimated total number of people living with HIV at the end of 2018 is 404 (in a range from 298 to 516), which is almost the same with the estimated number for 2017 using the same methodology (n=402 95% CI 334 – 445).

On the other hand, estimates for the total number of MSM living with HIV (n=338) have significantly increased compared to the estimated 245 MSM living with HIV in 2017. The increase is in line with the current trend in the HIV epidemic in the country, i.e. the fact that in the previous two years (2018 and 2017) all reported cases have been of male gender, and the vast majority of them have disclosed sex between men as the transmission mode. However, estimates for MSM living with HIV in 2018 are still lower than the estimates obtained based on the last bio-behavioral survey and population size estimation performed at the end of 2017 and the beginning of 2018 (n=597). The limitations of the estimates obtained through the bio-behavioral survey – only MSM living in Skopje were included – may have contributed to overestimating the prevalence of HIV among MSM and accordingly the number of MSM living with HIV. On the other hand, the ECDC HIV modelling tool could have underestimated the number of MSM living with HIV considering that newly diagnosed MSM with HIV may not always have disclosed having had sex with other men.

Considering that there is no significant difference in the estimated total number of people living with HIV for 2018 compared to 2017, this study shows progress in reaching the goal for the first “90”: 65% of the estimated total number of people living with HIV were aware of their status at the end of 2018, meaning a 10% increase compared to 2017. This result, however, is still lower compared to the average result for the first stage of the continuum from the 40 countries reporting data within Europe and Central Asia (80%; range 46-100%) [13]. There is a need for further increase of activities aimed at timely diagnosis, focusing on the key populations in the country. Currently, HIV tests in North Macedonia are performed in medical facilities, in civil society organizations with special permit from the Ministry of Health and with a mobile testing unit. According to programmatic data from 2018, a total of 1,614 MSM were tested through the free-of-charge HIV testing services offered by several civil society and community-based organizations across the country, which is an increase of over 60% compared to 2017. However, this is still a small portion of the total number of MSM in North Macedonia, which again suggests a need for intensified HIV testing among MSM.

As in the previous assessment of the continuum of HIV care, we can conclude that once people living with HIV know their status, the vast majority of them are immediately linked to care. This study shows that in 2018 North Macedonia reached the second of the UNAIDS 2020 targets – 90% of PLHIV who know their status are receiving ART – within the limits set by the insufficient progress in the first stage of the continuum. The proportion of diagnosed people who are on ART is higher than the reported average of 63% in 39 countries of Europe and Central Asia in 2018 [12].

The high coverage with ART (87.8% of those who are diagnosed) can be attributed to the comprehensive system for care with strong linkages between the Clinic for Infectious Diseases, community-based support and the services provided by civil society organizations working in the field of HIV prevention among key populations. However, 12% of people living with HIV who know their status have been lost to follow-up. Having in mind the relatively good system of psychosocial support in place and availability of ART, this may be attributed to stigma and the fear of being potentially exposed as a person with HIV during the visits to the Clinic. In addition to this, a possible explanation may include unreported out-migration.

The third goal – 90% of PLHIV on ART have achieved viral suppression – was also not met in 2018, with 84% of the people on ART having achieved supressed virus, which is lower compared to the 94% in 2017 when 94% had viral suppression. The relatively high proportion of viral suppression can be explained with high adherence to treatment among patients, an individualized approach to the choice of treatment regimens accompanied with psychosocial and peer support services. The team at the Clinic for Infectious Diseases sends regular reminders for the patients who did not show up for regular

check-up in due time, which also contributes to the adherence and success of ART. The significant difference to 2017 may partly be explained by the fact that several cases were diagnosed in the later have of the year and the Clinic had not obtained viral load tests to confirm achieving a suppressed virus. However, this area calls for closer monitoring in order to improve results on the third target.

RECOMMENDATIONS

In order to increase the number and proportion of diagnosed people living with HIV, it is paramount to scale up the HIV testing programmes, especially focusing on men who have sex with men, where HIV prevalence is the highest.

Access to HIV testing should be increased by introducing lay-provider testing within the existing community-based services, options for self-testing and targeted awareness raising among men who have sex with men, including through the social media.

The surveillance of HIV still relies on paper-based reporting, while the patient management software at the Clinic for Infectious Diseases and database at the Institute of Public health have limited functionalities and data extraction requires significant manual input. There is a need to develop integrated electronic database that would allow for precise and easier data exchange between the Clinic for Infectious Diseases and the Institute of Public Health.

There is a need for regular cross-sectional studies among key populations, especially MSM, in order to determine the HIV and STIs prevalence and to determine risk factors, so that the impact of prevention programmes can be evaluated and future activities could be better tailored.

Community-based and other civil society organizations should be proactive in learning from good practises from around the world and should propose innovative strategies to reach out to men who have sex with men, considering their diverse needs and the specific subgroups of MSM.

Taking into consideration the discrepancy between estimations on population size, prevalence and number of people living with HIV obtained through different methodologies, it is crucial that new integrated biobehavioural surveys among MSM be planned in the near future. Seeking additional technical support regarding estimations may need to be considered.

Should new strategies to diagnose more people living with HIV prove to be successful in the next 2 to 3 years, the Ministry of Health must be ready to provide treatment and care for an increased number of patients, in order to maintain the high results in stages 3 and 4 of the continuum of care. Strategies to reduce costs for ARVs should be considered in parallel.

Recommended actions of priority

- Increase testing among men who have sex with men with a targeted strategy.
- Diversify HIV testing by strengthening community-based service delivery, introducing lay providers and self-testing and considering other options.
- Targeted awareness raising and promotion of HIV testing among MSM.
- Up-date and scale up prevention programs for men who have sex with men and offer comprehensive package of services including PrEP and PEP.
- Support innovative strategies to reach out to men who have sex with men considering their diverse needs and the specific subgroups of the population.
- Conduct new integrated bio-behavioural survey and population size estimation within a period of two years in order to reassess trends in the epidemic and in behavior
- Plan for increased need of treatment and care as a result of a strengthened strategy to diagnose more people living with HIV.
- Improve surveillance and flow of information between the Clinic for Infectious Diseases and the Institute of Public Health by introducing a unified electronic database.

LITERATURE

1 The World Bank. 2015. Optimizing Investments in the Former Yugoslav Republic of Macedonia's HIV Response Washington DC: World Bank. License: Creative Commons Attribution CC BY 3.0
2 The World Bank. 2015. Optimizing Investments in the Former Yugoslav Republic of Macedonia's HIV Response Washington DC: World Bank. License: Creative Commons Attribution CC BY 3.0
3 Mikic V. Kuzmanovska G., Kochinski D., Boshevska G., Osmani D., Stoleska-Ilioska R., Jordanov Z., Senih A., Memeti S., Report from the bio-behavioral study among men having sex with men in Skopje, Macedonia and estimation of population size, 2017-2018, Skopje Institute of Public Health 2018, COBISS.MK-ID 109184266.
4 Guidelines on Estimating the Size of Populations Most at Risk to HIV, WHO 2010, available at http://apps.who.int/iris/bitstream/handle/10665/44347/9789241599580_eng.pdf;jsessionid=03A7FC2B6E7019D0E02FF83CDAA0CDEE?sequence=1
5 http://www.unaids.org/en/regionscountries/countries/theformeryugoslavrepublicofmacedonia
6 Programatic data from NGO HERA – Health Education and Research Association
7 Report on implemented activities and achieved results in accordance with the Program for Protection of the Population from HIV Infection in 2018, Institute of Public Health 2019, available at http://iph.mk/wp-content/uploads/2014/09/REPORT-ON-IMPLEMENTED-ACTIVITIES-AND-ACHIEVED-RESULTS-IN-ACCORDANCE-WITH-THE-PROGRAM-FOR-HIV-PROTECTION-IN-2018.pdf
7 Annabelle J. Gourlay, Anastasia M. Pharris, T. Noori, V. Supervie, M. Rosinska, A.van Sighem, G. Touloumi and K. P. Porter, Towards standardized definitions for monitoring the continuum of HIV care in Europe b, AIDS 2017, 31:2053–2058
9 https://ecdc.europa.eu/en/publications-data/hiv-modelling-tool
10 European Centre for Disease Prevention and Control; ECDC HIV modelling Tool User Manual version 1.3.0 https://ecdc.europa.eu/sites/portal/files/documents/HIV-modelling-tool-v1.3.0-manual.pdf
11 https://ecdc.europa.eu/en/publications-data/hiv-modelling-tool
12 Извештај за спроведени активности и остварени резултати согласно Програмата за заштита на населението од ХИВ во 2018 година
13 European Centre for Disease Prevention and Control Special report. Continuum of HIV care Monitoring implementation of the Dublin Declaration on Partnership to Fight HIV/AIDS in Europe and Central Asia: 2018 progress report. Stockholm: ECDC; 2018

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