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**«ΔΙΕΘΝΗΣ ΙΑΤΡΙΚΗ - ΔΙΑΧΕΙΡΙΣΗ ΚΡΙΣΕΩΝ ΥΓΕΙΑΣ»**

**ΕΘΝΙΚΟ ΚΑΙ ΚΑΠΟΔΙΣΤΡΙΑΚΟ ΠΑΝΕΠΙΣΤΗΜΙΟ ΑΘΗΝΩΝ**

**ΙΑΤΡΙΚΗ ΣΧΟΛΗ**

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**ΘΕΜΑ: ΤΑΣΕΙΣ ΤΗΣ ΠΑΝΔΗΜΙΑΣ ΤΟΥ ΗΙV ΣΤΗΝ ΕΥΡΩΠΗ ΚΑΤΑ ΤΗΝ  
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20180901

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## ΠΡΑΚΤΙΚΟ ΚΡΙΣΕΩΣ

### ΤΗΣ ΣΥΝΕΔΡΙΑΣΗΣ ΤΗΣ ΤΡΙΜΕΛΟΥΣ ΕΞΕΤΑΣΤΙΚΗΣ ΕΠΙΤΡΟΠΗΣ ΓΙΑ ΤΗΝ ΑΞΙΟΛΟΓΗΣΗ ΤΗΣ ΔΙΠΛΩΜΑΤΙΚΗΣ ΕΡΓΑΣΙΑΣ Του Μεταπτυχιακού Φοιτητή Εξηνητάρη Θόδωρου

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- ....., Μέλος
- ....., Μέλος

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Η εξεταστική επιτροπή αφού έλαβε υπ' όψιν το περιεχόμενο της εργασίας και τη συμβολή της στην επιστήμη, με ψήφους ..... προτείνει την απονομή στον παραπάνω Μεταπτυχιακό Φοιτητή την απονομή του Μεταπτυχιακού Διπλώματος Ειδίκευσης (Master's).

Στην ψηφοφορία για την βαθμολογία ο υποψήφιος έλαβε για τον βαθμό «ΑΡΙΣΤΑ» ψήφους ....., για τον βαθμό «ΛΙΑΝ ΚΑΛΩΣ» ψήφους ....., και για τον βαθμό «ΚΑΛΩΣ» ψήφους ..... Κατά συνέπεια, απονέμεται ο βαθμός «(Αριστα/Λίαν Καλώς/Καλώς)& (Βαθμός).....».

Τα Μέλη της Εξεταστικής Επιτροπής

- ....., Επιβλέπων (Υπογραφή).....
- ....., Μέλος (Υπογραφή).....
- ....., Μέλος (Υπογραφή).....

## Abstract

The present dissertation will provide the trends of the Human Immunodeficiency Virus (HIV) epidemic in Europe, following the division of the European Region according to the World Health Organization. The data has been provided by the annual surveillance reports of the European Centre for Disease Prevention and Control jointly with the WHO Regional Office for Europe, the Joint United Nations Programme on HIV/AIDS (UNAIDS), and the relative for each country HIV surveys. As there has been a summary of the HIV trends for the years 2002-2011, the years that are reviewed here are 2012-2020. Analysis is provided on the trends of several parameters of the pandemic such as the means of transmission, the gender, the ages, the origin, AIDS rates and others. The rates of the reported HIV cases show countries with significant decrease, possible reasons of which are going to be examined. The total rate of new diagnoses has been declining for the past five years, and according to the 2020 data, going even lower than rates of 2011. Men to females ratio appears much higher in the European Region, where heterosexual contact leads the transmission mode, mainly due to the heterosexual contact infections in the East.

Tags: HIV, Europe, Ευρώπη, trends, τάσεις, AIDS.

## Περίληψη

Η παρούσα διπλωματική εργασία θα περιγράψει τις τάσεις του HIV στην Ευρώπη, ακολουθώντας την διαίρεση της Ευρωπαϊκής Περιφέρειας σύμφωνα με τον Παγκόσμιο Οργανισμό Υγείας. Τα στοιχεία αντλούνται από την ετήσια έκθεση επιδημιολογικής επιτήρησης του Ευρωπαϊκού Κέντρου Πρόληψης και Ελέγχου Νόσων και του Περιφερειακού Γραφείου για την Ευρώπη του Π.Ο.Υ., του UNAIDS (Ηνωμένα έθνη), καθώς και από έρευνες που σχετίζονται με τον HIV για κάθε χώρα. Η εργασία έρχεται ως συνέχεια παλαιότερης συνοπτικής περιγραφής των τάσεων του HIV στην Ευρώπη για τα έτη 2002-2011 και θα παρουσιάσει τις τάσεις του ιού για τα έτη 2012-2020. Γίνεται ανάλυση των τάσεων διαφόρων παραμέτρων της πανδημίας, όπως οι τρόποι μετάδοσης, το φύλο, οι ηλικιακές ομάδες, η καταγωγή, το AIDS κ.α. Το Πηλίκιο των νέων κρουσμάτων φανερώνει χώρες με σημαντική μείωση. Συνολικά παρατηρείται πτώση νέων κρουσμάτων τα τελευταία πέντε έτη και η ετεροσεξουαλική επαφή αποτελεί την δεσπόζουσα οδό μετάδοσης, λόγω των αντίστοιχων κρουσμάτων στην Ανατολική Περιφέρεια.

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## Introduction

The Human Immunodeficiency Virus (HIV) is a retrovirus which attacks the immune system, destroying the CD4 T lymphocytes, cells that play a significant role in the response of the immune system to foreign antigen. When not treated, HIV can lead to AIDS (Acquired Immune Deficiency Syndrome), advanced HIV condition. Then opportunistic infections cannot be answered by the immune system, as the CD4 cell count is under  $200 \text{ mm}^3$  (by definition). The CD4 cell count is important for the decision of initiation of Anti-Retroviral Treatment (ART) and the evolution of the situation of the infected [1].

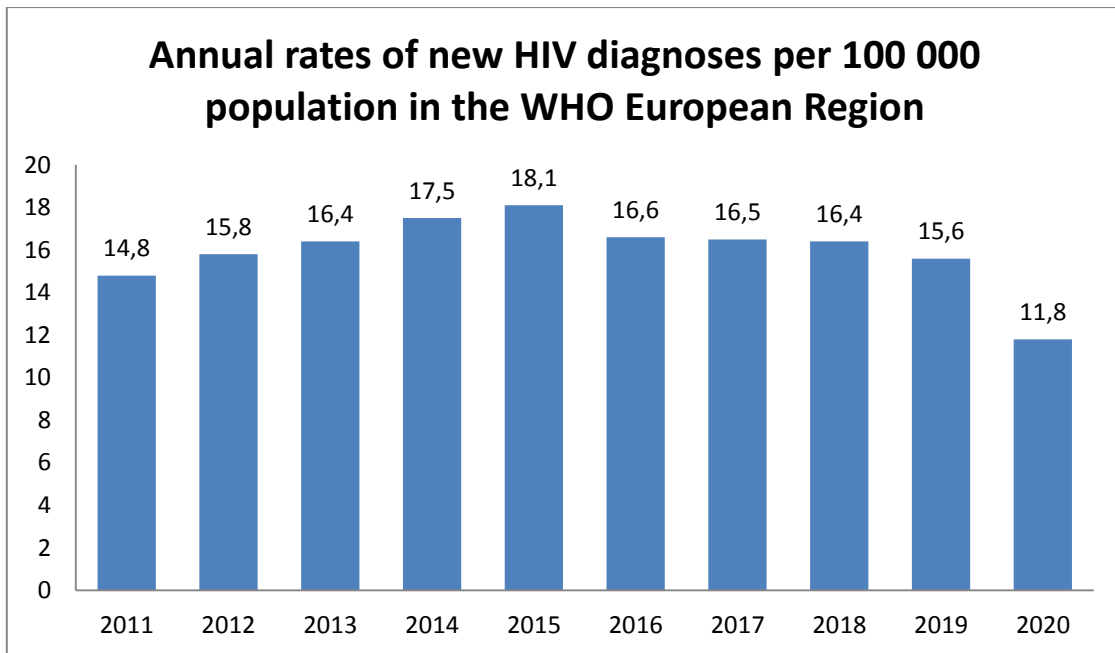
Though SARS-CoV-2 tends to monopolize the interest of the global population, the HIV infection is still a major public health issue, as statistics show: it is estimated that in 2020 37.7 million people were living with HIV globally, 1.5 million people were newly infected and 680 000 died of AIDS-related illnesses [2]. Though not as prominent as in other parts of the world, HIV poses a non-negligible public threat for the European Region. The price in human lives, marginalization and financial burden is of high cost. The administration of ART has changed significantly the lives of the people infected. Being coherent with their medication, HIV positive cases can now live a (medically) normal life. However, this dramatic shift in the previously concrete triplet HIV-AIDS-death, along with other, new public health threats and the global economic recession have switched the interest of the - at least- non-medical population. HIV continues to affect the well-being of thousands of people. Beyond the medical aspect issues, such as drug complications and side effects or easy and free access to medication, the social acceptance of People Living with HIV, in many countries, maintains a rather conservative approach. HIV is still considered a virus that is affecting mainly gay men or drug addicts and many HIV positive people are confronted with neglect and hostility.

It is apparent that HIV influences every part of the lives of the People Living with HIV (PLHIV) and requires constant updates and re-evaluations in the ways that it is followed up. The data collection and processing provide the tools for this direction. There needs to be a reference to the countries that consist the body of data. There are 53 Member States in the European Region of the WHO, that are all subdivided into “three geographical areas

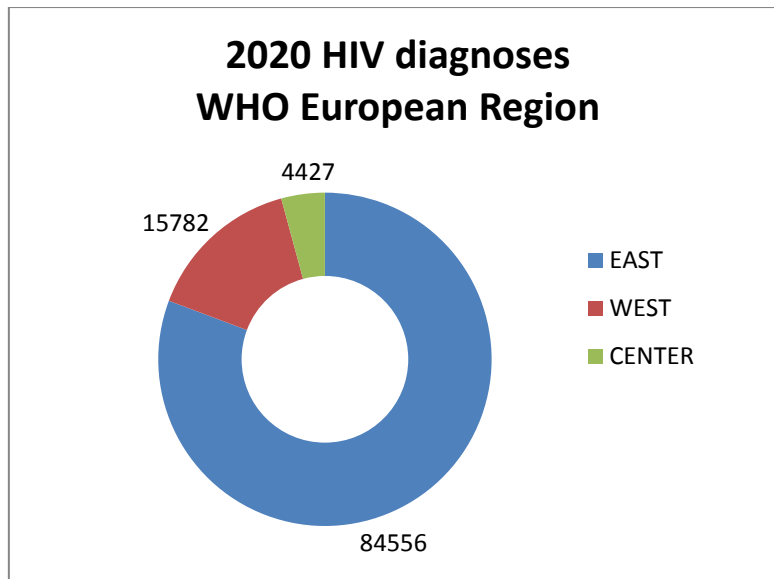
based on epidemiological considerations and in accordance with the division used in previous reports on HIV/AIDS surveillance in Europe: West (23 countries: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxemburg, Malta, Netherlands, Norway, Portugal, Spain, Sweden, United Kingdom, Andorra, Israel, Switzerland, Monaco, San Marino), Centre (15 countries: Bulgaria, Croatia, Cyprus, Czech Republic, Hungary, Poland, Romania, Slovakia, Slovenia, Albania, Bosnia and Herzegovina, Montenegro, North Macedonia, Serbia, Turkey) and East (15 countries: Estonia, Latvia, Lithuania, Armenia, Azerbaijan, Belarus, Georgia, Kazakhstan, Kyrgyzstan, Republic of Moldova, Russia, Tajikistan, Ukraine, Uzbekistan, Turkmenistan)". The United Kingdom is considered a European Union State, as it still was in 2020. For these countries, during the last three decades, over 2.2 million people have been diagnosed with HIV.

The three Regions' data will be presented separately. We shall look into the countries with the higher and lower rates for a number of HIV and AIDS related variables and follow their trends. The reasons behind the extreme values will be examined. Gathering all data since 2012, and 2011 when possible, we shall light the trends of HIV in the European Region, seeking answers about where and how much HIV is declining, where the rates are higher and which are the predictions for the future. Following current HIV variables and their trends of the last decade offers tools to face the pandemic, by analyzing target groups, HIV policy for the diagnosed, and have an overall view on how and why the virus is still spreading and what the next steps for its elimination should be evaluating what has already been done.



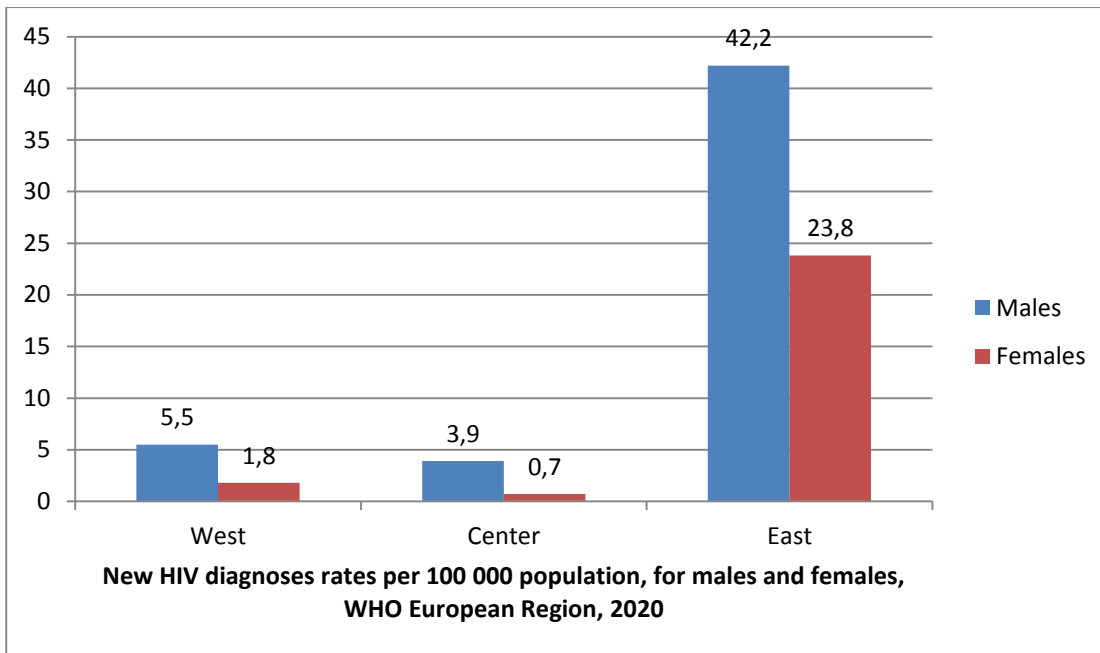


The new HIV infections reported in the European Region for 2020 were 104 765 (in 46 of the 53 Member States – 7 countries did not share data). In 2011 the number of new HIV infections was 125 807. The rate per 100 000 population indeed from 14.8 in 2011 reached 11.8 in 2020. As it can be seen in the chart below, there is a declining trend over the last five years, and an impressive leap of 3,8 during 2020. However, as stated in the annual report of the ECDC/WHO for 2021 (2020 data), surveillance data for 2022 may be significantly affected by the COVID-19 pandemic, leading to substantial underreporting: in a survey that the ECDC sent to all countries of the WHO European Region on the issues of reduced detection and reporting of HIV cases, 21 countries responded; 12 countries indicated a 20% reduction in case detection and 7 estimated on average a 30% reduction in reporting of HIV cases, due to limited surveillance capacity. Thus, the 24% decline in the rate of new HIV diagnoses per 100 000 people, for the year 2020 cannot be claimed that is accurate and indicative [3].



As it can be observed in the chart, there was a 3,3 units increase of new HIV diagnoses during the period 2012-2015 followed by a smooth decline until 2019. The increase is situated predominantly in the East European Region. In 2019, the countries of Eastern Europe and Central Asia presented an incidence to prevalence ratio of 10.1 - a ratio higher than in any other region. The rate for new HIV diagnoses was 32.6 for East Region, 3.7 for the West and 2.3 for the Center. The number of people newly diagnosed with HIV was 84 556 in the East -out of the total 104 765 (81%) - with the 59 598 of them being in Russia and 15 658 in Ukraine – 15 782 in the West (15%) and 4427 in the Center (4%).

The modes of transmission vary according to the Region. Heterosexual sex has been the transmission mode for 58% of the (46) reporting countries, injecting drug use for the 22%, sex between men for the 9% and mother-to-child transmission for the 0.4%. There was, however, a 10% lack of data for the transmission mode (the data is based on thirty seven countries' consistent reports). The male-to-female ratio also varies for every Region, with the highest being in the Centre (5.3), lowest in the East (1.6) and 3.0 in the West. For the total WHO European Region the rate was 15.7 for men and 8.1 for women per 100 000 population.



Concerning the new AIDS diagnoses, the differences are really significant. The East Region presents the 74% (5705) of all new diagnoses (7721), reaching a 5.0 rate. In the Center the rate was kept as low as 0.2 and in the West it reached 0.5. The rate for the new AIDS diagnoses in the whole area was 1.2.

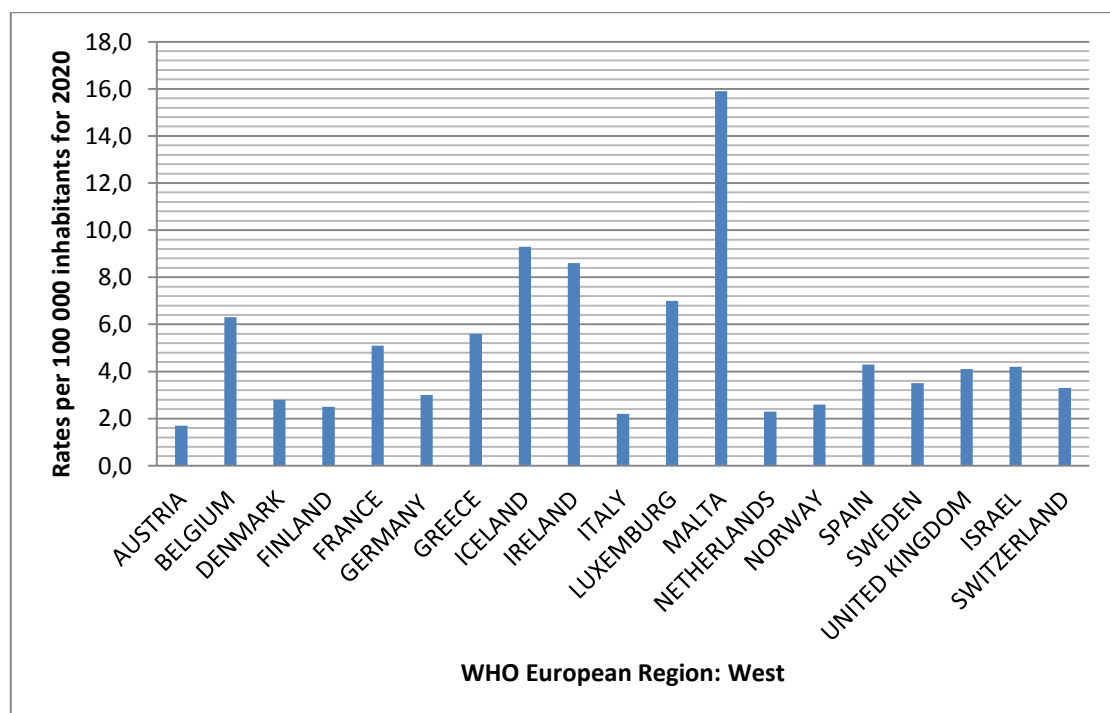
For Center and especially East, the probable region of origin of the cases diagnosed in 2020 was mainly the country of report (60% and 88.5%), while for the West the region of origin is more spread. Still, this data is monitored by few countries, so the trend reflects only a part of the new infection

## Methodology

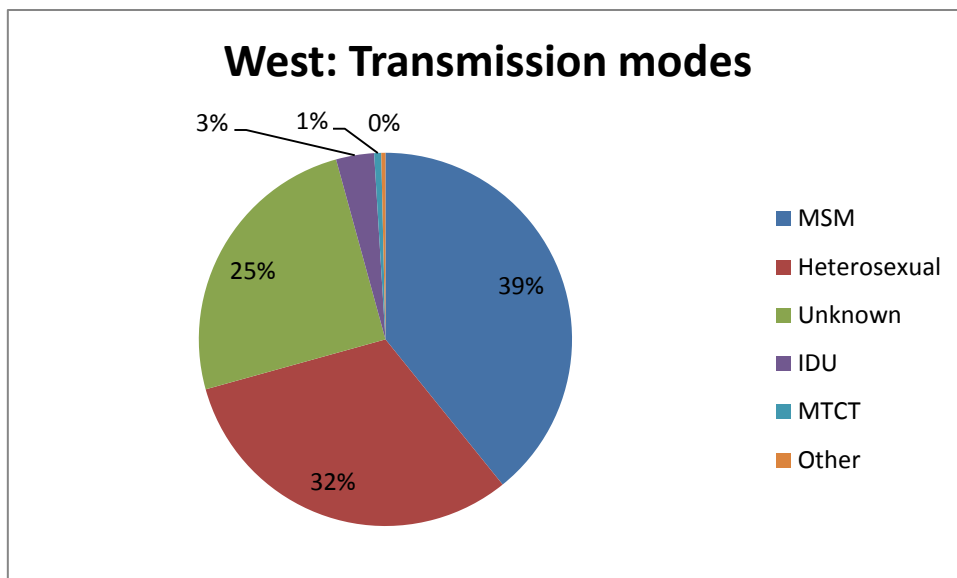
The current research is a descriptive analysis of HIV trends and epidemiological patterns. It will be compiling secondary data. As main data sources we reviewed the HIV surveillance reports of the European Centre for Disease Prevention and Control jointly with the WHO Regional Office for Europe, for the years 2012 to 2020, the UNAIDS reports and United Nations publications on HIV and AIDS. PubMed was used to give results for relevant literature by using terms connected to HIV infection, to enrich the discussion and interpretation of the main findings. In order to narrow the number of studies the search has focused on studies published during the last years of the research, in English language, and for specific countries whose ratios or other characteristics require a further cause analysis. Where the text of the surveillance reports was not harmonized with the statistics for any reason, the statistics were used as the database and comments were added.

## West: Men who have sex with men (MSM) continues to be the highest transmission mode for HIV

The countries that constitute the West Region appear an average rate of 3.7 new diagnoses per 100 000 population for the year 2020, considerably lower than 5.4, which was recorded in 2019. The twenty – out of twenty three – countries have presented 15 782 people newly diagnosed. In 2012 the number of newly diagnosed was 31 407 (rate: 7.6) being the highest ever recorded the last decade. It has to be noted here that due to obvious changes in the recording methods, collective additions or after deadline submissions, there are differences in the absolute numbers of the variables and, eventually, their rates too over the years. In the review “The emerging and re-emerging human immunodeficiency virus epidemics in Europe”, in which HIV is monitored for the years 2002-2011, there is a number of 26 204 new infections and a rate of 6.5 for 2011: they are both different than all subsequent reports until 2020 (The 2012 report refers 28 860 new diagnoses and 7.1 rate, while the 2020 report refers 30 140 new diagnoses and 7.4 rate, for 2011). Having said that, it is crucial to clarify that is safer to compare trends than numbers from different periods and different surveillance reports. The 2020 data recordings for all previous years were used in this research.

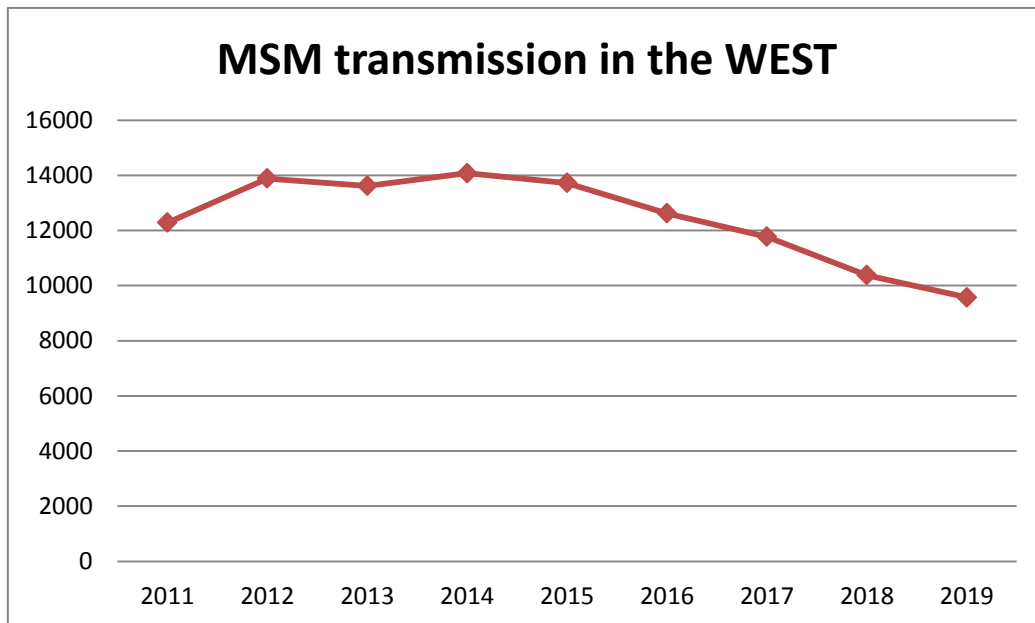


As it can be seen in the chart above, Malta, Iceland and Ireland present the highest rates in the Region: 15.9, 9.3 and 8.6 (in comparison with 2019: 16.2, 7.8 and 11.2). Iceland is the only country of all that has recorded higher rates than 2019, translated to an increase of six diagnoses (28 in 2019). However, the Surveillance report refers that “HIV rate increased (by 10% or more in countries with more than 10 cases in both 2011 and 2020) in three countries – Iceland, Ireland and Malta”. Portugal has requested that the country’s data for 2020 is not shared: a country with 8.8 ratio in 2019, having declined from 17.3 in 2012. Andorra had recorded 3 cases in 2016, 6 cases in 2017 and 12 cases in 2018 (ratio: 15.6). The country has not shared data for the last two years.



Concerning the transmission mode, MSM (men who have sex with men) in the West Region, for 2020, presents 6185 cases out of the 9897 in the whole WHO European Region, which is the 39.1% of the total new diagnoses in the West and the 52% of the new HIV diagnoses with known transmission mode. France, Spain and Germany are the countries with half of the total cases. It should be mentioned that the number of men infected through MSM for 2018 was 10 377 and for 2019 it was 9570. Heterosexual transmission accounted for the 31.5% of new diagnoses in the West (42% of the new HIV diagnoses with known transmission mode – the 31.5% has the total new diagnoses as denominator, while the 42% the new diagnoses for which the transmission mode is recorded), Infections through injecting drug use for the 3.2% (4.3%): Germany and Greece present most of the IDU cases. For 3953 cases (25%) the transmission mode was not

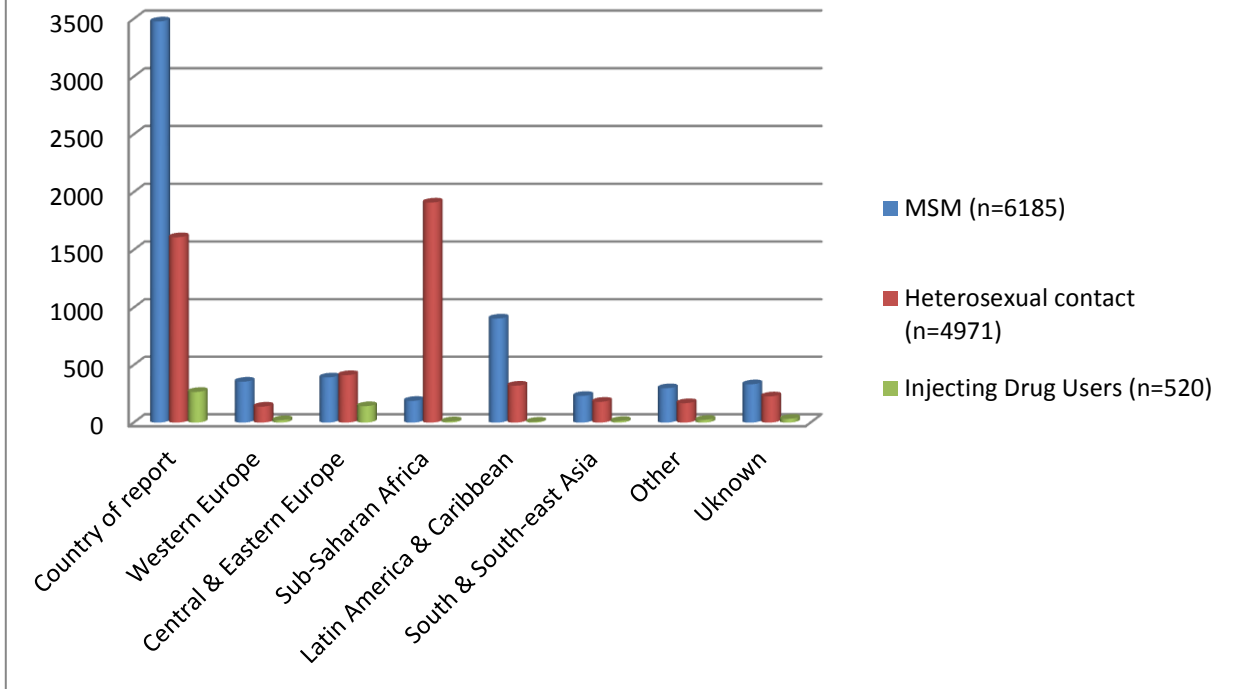
recorded, so heterosexual transmission and MSM together account 94.3% of all cases with a known route of transmission and both modes present 47% decrease each since 2011(50% for IDU transmission mode). The chart below does not include 2020, as Portugal did not wish for the country's data to be published this year.



For 2020, men appear a rate of 5.5 (11734 cases), while women appear a rate of 1.8 (3939 cases). The highest proportion of newly diagnosed infections (30.2%) was in ages 30-39, followed by ages 40-50 and 50+ (22.1% and 23%).

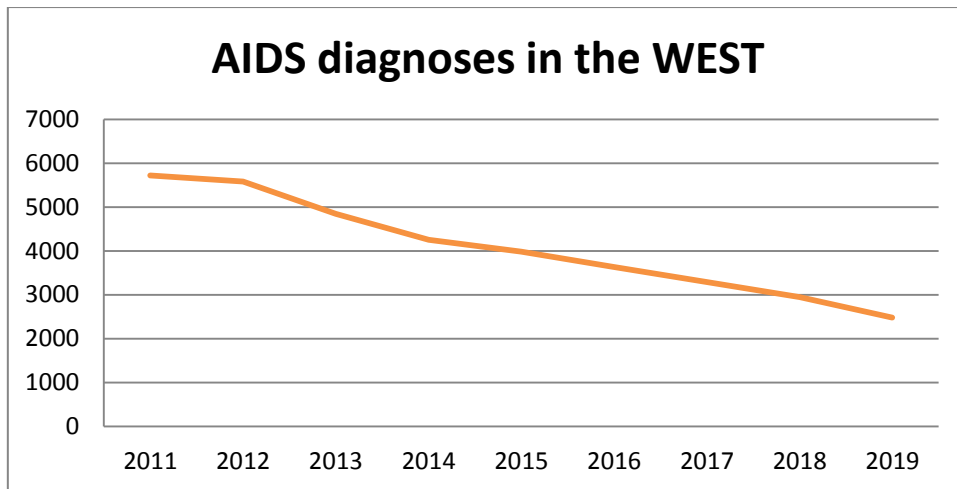
Concerning the probable region of infection, the West presents the lowest rate for the region of infection being the same with the country of report. This low percentage of 33.2% (n=3950) however, refers to the total number of cases whose data was reported in the Region. This means that the total number (denominator) is not the 15 782 new diagnoses in the West: the total number here is 11 912, as some countries did not report for this variable. So, for 3950 cases out of the 11912 the region of infection and the country of report are the same. This, though, includes a high 45.9% (n=5470) of cases stated with unknown origin. So, for the 6442 cases with full data the percentage is 61.3%. The highest proportion from other (probable) region of infection is Sub-Saharan Africa with 888 cases and 7.5% of the 11 912 cases or 13.78% of the 6442 cases with record of region of infection. Concerning the country of origin of the infected, for MSM transmission, 56.2% (n=3478) originate from the country of report.

## HIV diagnoses for West Region according to country or subcontinent of origin

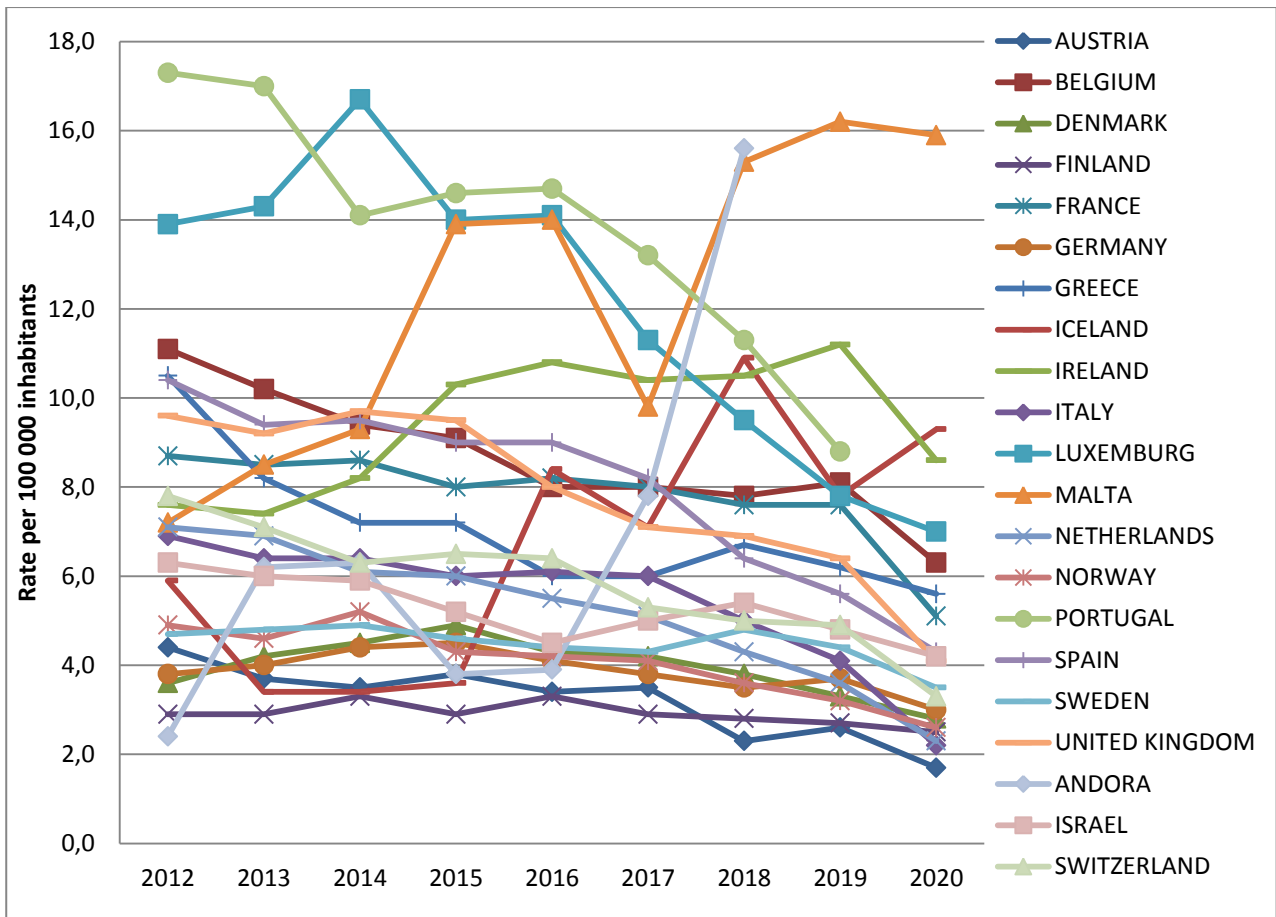


The new AIDS diagnoses were 1549, that is a 0.5 rate, the majority of which (n=1163) were men. Contrary with the transmission mode, the people diagnosed with AIDS were infected mainly through heterosexual contact (48.4%) and MSM (29.3%). The most frequent AIDS-indicative diseases for the Region were Pneumocystis pneumonia (23.6%), oesophageal candidiasis (11.9%) and Kaposi's sarcoma (11.0%), a triplet which remains steady through years in presence and order. The number of AIDS-related deaths for the West Region was 444, of the 3506 total, however many countries did not present data, so both numbers are higher, yet the trend over the decade is significantly declining. It is clearly stated that "these numbers do not reflect the true burden of AIDS-related mortality in the West of the Region due to reporting delays. In particular, there is a risk of deaths being underreported in those countries that do not have the ability to link their HIV/AIDS registries with their vital statistics registries".



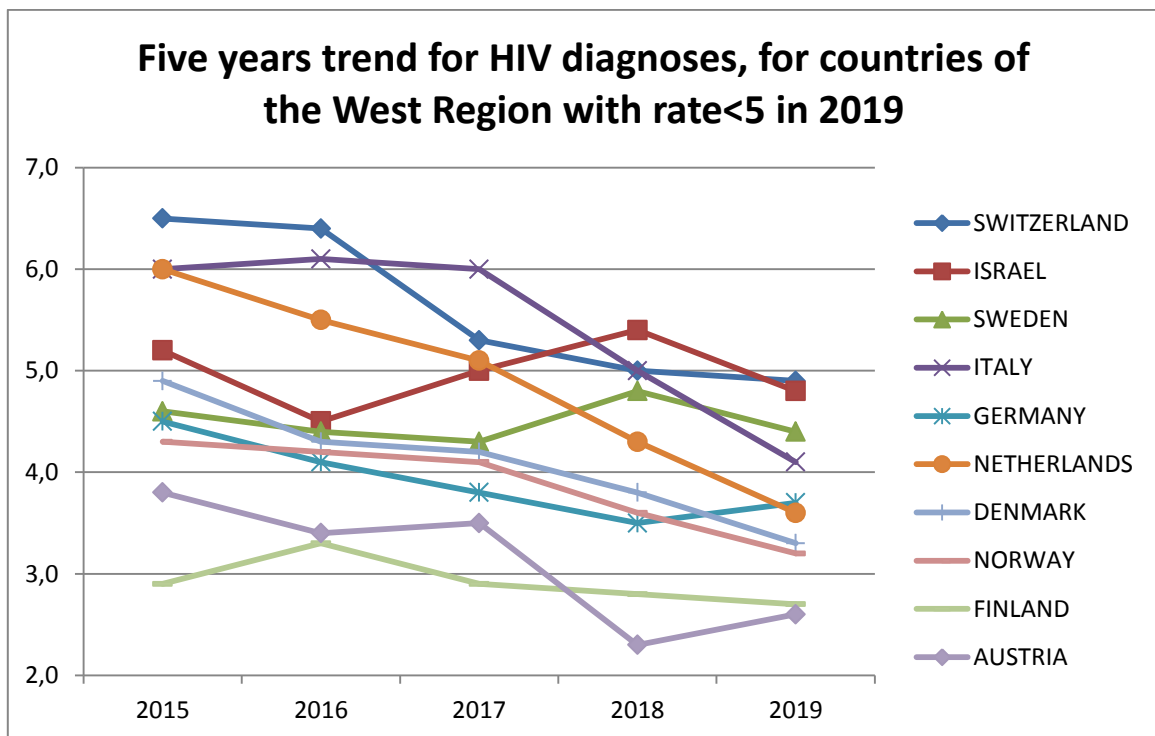
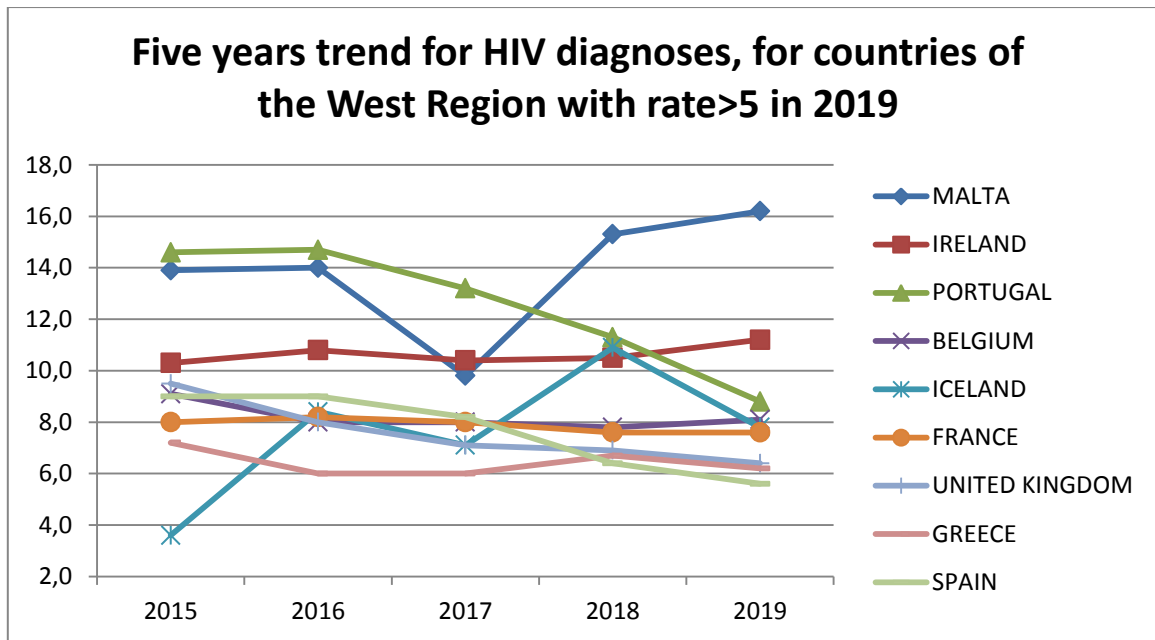


Unfortunately, a very important variable, the CD4 cell count presents a completeness of only 31.4%, according to the Surveillance report of ECDC with the 2020 data, which along with the country of birth or region of origin variable are the ones least completed, for the whole WHO European region. For the West, seventeen countries reported information on CD4 cell count. The number of people was 10 298 (for >14years old), which is 66.5% of the new diagnoses that these countries have reported. A 48.9% of these people were late presenters, with their CD4 cells below 350 per mm<sup>3</sup> (n=5037). This number includes a 29.6%, 3052 people, with advanced HIV infection: CD4 cells below 200 per mm<sup>3</sup>. Of the 5037 people with CD4 under 350 per mm<sup>3</sup>, 59.1% were infected heterosexually, 41.4% through sex with men and 50.6% through injecting drug use. Italy has the highest percentage (60%) for diagnoses with CD4 cells below 350 per mm<sup>3</sup>.



Overall, for all the countries of the Region and according to the data shared, and with the exceptions mentioned, the trend is declining. The reduced HIV detection for some countries was official, but it can well be seen in the reduced number of HIV tests performed, excluding unlinked anonymous testing and testing of blood donations. All the countries who shared data on this variable for 2020 performed less HIV test, with the exception of Kazakhstan which performed exactly the same number. There are data for only 21 countries and four of them (Greece, Portugal, Ireland and Russia) have a different way of counting the tests. Kazakhstan appears the highest number of HIV tests performed, 153.3 per 1000 population, excluding Russia with 247.4 tests, as the country includes blood donors in counting.

Having said these, it would be interesting to see the trend without including the 2020 data. In the charts below there is a division of the countries with the highest and the lowest HIV rates for 2019, so that they can be followed, and for clearer view the trend has been reduced to five years.



Malta appears a rising trend, even since 2004, and is the country with the highest rate in the Region. From a rate of new infections 7.2/100 000 in 2012, Malta reached the peak in 2019, with 16.2, a number of 80 cases, 55 men. For the last two years Malta is not consistent recording the transmission venues and many variables.

Ireland since 2015 had maintained a two digits rate, the peak being in 2019 with 550 new cases, 412 men, and rate 11.2 per 100 000. For 2020 the new HIV cases were 429, with rate 8.6. Ireland as well is not consistent with several variables, so out of these 429 new cases, the 257 do not have the transmission mode recorded. According to the 2018 data, where unknown transmission mode is recorded for only 50 cases, out of the 504 new HIV cases, 284 infections were through the MSM mode and 152 through the heterosexual mode. From 2012 to 2018, average 50% of all the new HIV infections were attributed to MSM. A study after an online, MSM targeted survey in Ireland, showed that, among inequalities, the 36% of men who identified as gays had never tested for HIV, “had the least knowledge about HIV and were least confident in accessing an HIV test. Men who had never tested for HIV were more likely to prefer testing by their general practitioner (GP) or using home sampling HIV kits and less likely to prefer testing in a sexual health clinic”[4].

Belgium had an annual rate of 8.1 for 2019 (n=926), which fell to 6.3 on 2020. The trend throughout the decade has been a declining one, with only exception the year 2019 (7.8 on 2018). The infected men were 510, in a total of 727 cases for 2020. The higher numbers in new HIV diagnoses prior to 2012 were mostly attributable to an increasing epidemic among MSM. Belgium did not keep transmission mode data for a rather high number of new diagnoses, for several years (not at all on 2019), however it seems that there is a balance between MSM and heterosexual infections. The region of origin of the new infected cases was 21% from the country of report and 23% from Sub-Saharan Africa, which is a population at high risk of undiagnosed HIV infection [5].

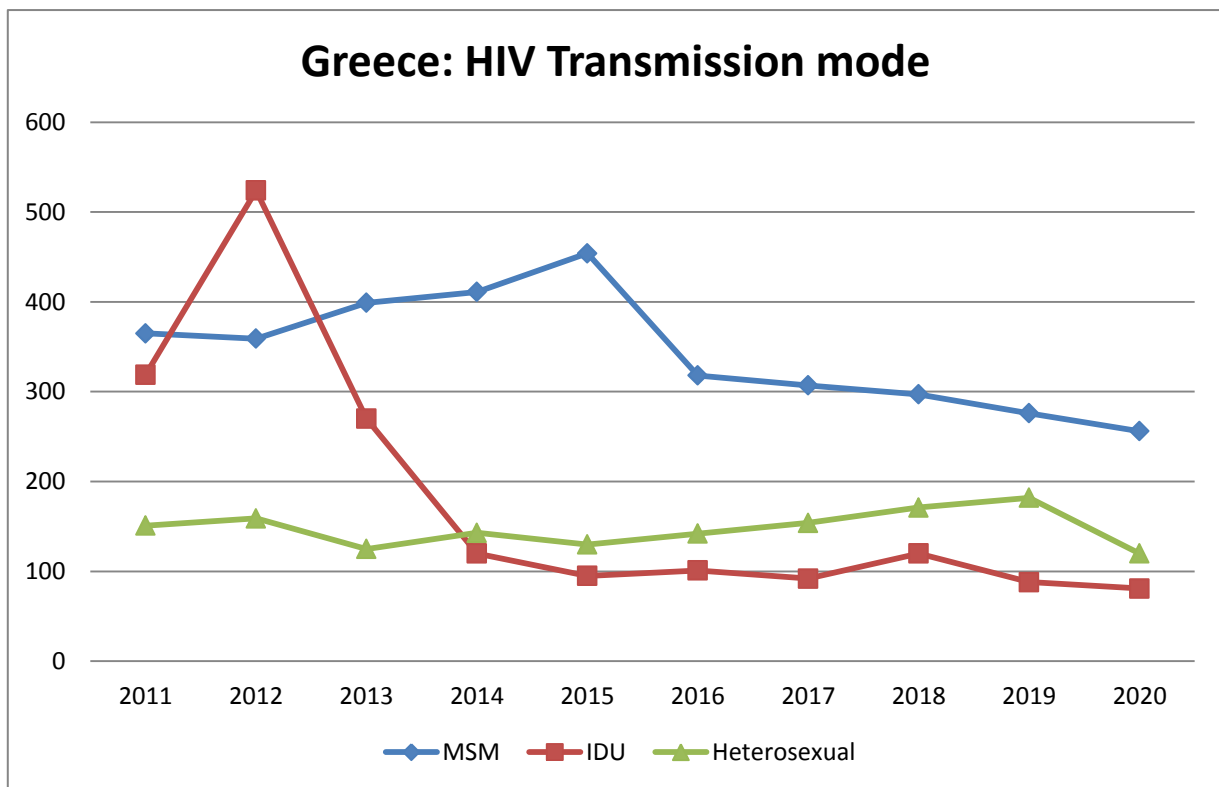
France appears to be in a declining curve since 2017. In 2019, France recorded 5091 new HIV diagnoses, with annual rate 7.6/100 000, which the next year fell to 5.1/100 000 and 3443 newly reported infections. Unknown transmission mode had the 1139 cases (33%), MSM infection 1085 cases (31.5%) and heterosexual infection 1139 cases (33%), while 33.2% originated from France and 23.6% from Sub-Saharan Africa (or 32% of the new diagnoses with origin data: 26.5% unknown). Despite the high prevalence in this population, migrant men from Sub-Saharan Africa/non-French West Indies, inhabiting France and having CD4 cell count higher than CD4 >350/ $\mu$ L at entry into care, were found to be 15% less likely to begin a combination antiretroviral therapy than French MSM, though the access to treatment is free [6]. It is interesting that from 2011 to 2015 the number of AIDS related deaths was reducing, yet a rise was observed for the next years,

from 2016 to 2019, which was not followed by a rise at the annual rate of newly reported infections. Still, the country presents the highest number of AIDS diagnoses in the Region with 388 cases, Italy being second with 352 cases: it is the first time in the decade that Italy does not have the highest AIDS diagnoses. France reports a 52% on late presenters, including 29.6% with CD4<200 per mm<sup>3</sup> (n=584; for the 1972 diagnoses with CD4 data). The 584 late presenters was the highest number in the Region. France has the second highest number in the Region for Mother-to-child transmission (MTCT), with 22 new diagnoses for 2020.

In 2019, the rate of newly reported infections in the United Kingdom was 6.4 and the number of people infected was 4337. Since 2015 the rate of the country has been declining to reach 4.1 on 2020. The United Kingdom used to be among the countries with the higher annual rate in the Region the previous decade as well. The MSM and heterosexual contact are the main transmission modes for the infection (45.7% and 49% of the total recorded transmission mode variable – 607 of the total 2785 cases did not have data). In 2011 the two modes shared the same percentage of infections, however the next years MSM recorded an inclining trend, reaching the peak on 2015, when the MSM cases were 50% higher than the heterosexual infections. Since 2016 the gap begun to decrease significantly each year with the scale-up of PrEP [7]. From the total number of diagnoses, local origin had the 28.7% of the cases and 21.1% originated from Sub-Saharan Africa (20.8% did not have data for origin). The country has provided CD4 cell data (86.8% complete). Out of the 2408 new HIV diagnoses with CD4 cell count level, 1005 cases had CD4 cells under 350 per mm<sup>3</sup>, including 568 cases with CD4 cells under 200 per mm<sup>3</sup>. Connected with the transmission mode, the late presenters were the 50% of IDUs, the 47.5% of the heterosexual contacts and the 34.2% of the Men who have Sex with Men. The number of new AIDS diagnoses was decreased during the decade: 188 new diagnoses and rate 0.3/100 000 for 2020, while it was 0.7/100 00 with 435 new diagnoses in 2012. The United Kingdom has reported 25 new HIV diagnoses in people infected through Mother To Child Transmission (MTCT), a variable which is much lower than the 87 diagnoses of 2012, however remains the highest of the Region.

In Greece, after the outbreak in 2011 among the IDUs, which brought an increase of 35.7% compared with the previous year's rate (the number is according to the review "The emerging and re-emerging human immunodeficiency virus epidemics in Europe", with n=837). The rate, with updated data for the number of new cases in 2011, was 8.7/100

000 and n=966. The rate reached 10.5 in 2012 and then followed a declining curve to 6.2 for 2019. In 2020 the rate was 5.6 with the male to female ratio being 5. For 140 cases there was not data for the transmission mode, so out of the remaining 461, the 256 new HIV diagnoses were associated with MSM, 81 with IDUs and 120 with heterosexual contact. For 2019, the MSM associated infections were 276, 72 for the IDUs and 169 for heterosexual contact.



The chart depicts the rise – and fall – of the IDU HIV reported cases, as well as the main transmission mode being Men who have Sex with Men as a general trend in the country. An intervention that took place during 2012-2013 decreased the prevalence of risky behaviors of IDUs and showed the importance of precise intervention, early detection/follow up and awareness of HIV status [8][9][10]. The region of origin is well recorded: 60.2% of the new HIV diagnoses belong to people from the country of report, 15.6% from Sub-Saharan Africa (n=94) and 13.3% from Central and Eastern Europe (n=80). The region of infection was not monitored at all. Concerning the CD4 cell count, 50.6% of the 423 new diagnoses for which data exists were late presenters, with CD4 cells less than 350 per mm<sup>3</sup>, including a high 31.7% with CD4 cells less than 200 per mm<sup>3</sup>. Contrary to the general trend of the Region, the AIDS diagnoses and rates do not seem to decline as much: From 2012 to 2017, the AIDS rate would move from 1.1 to 1.3/100 000

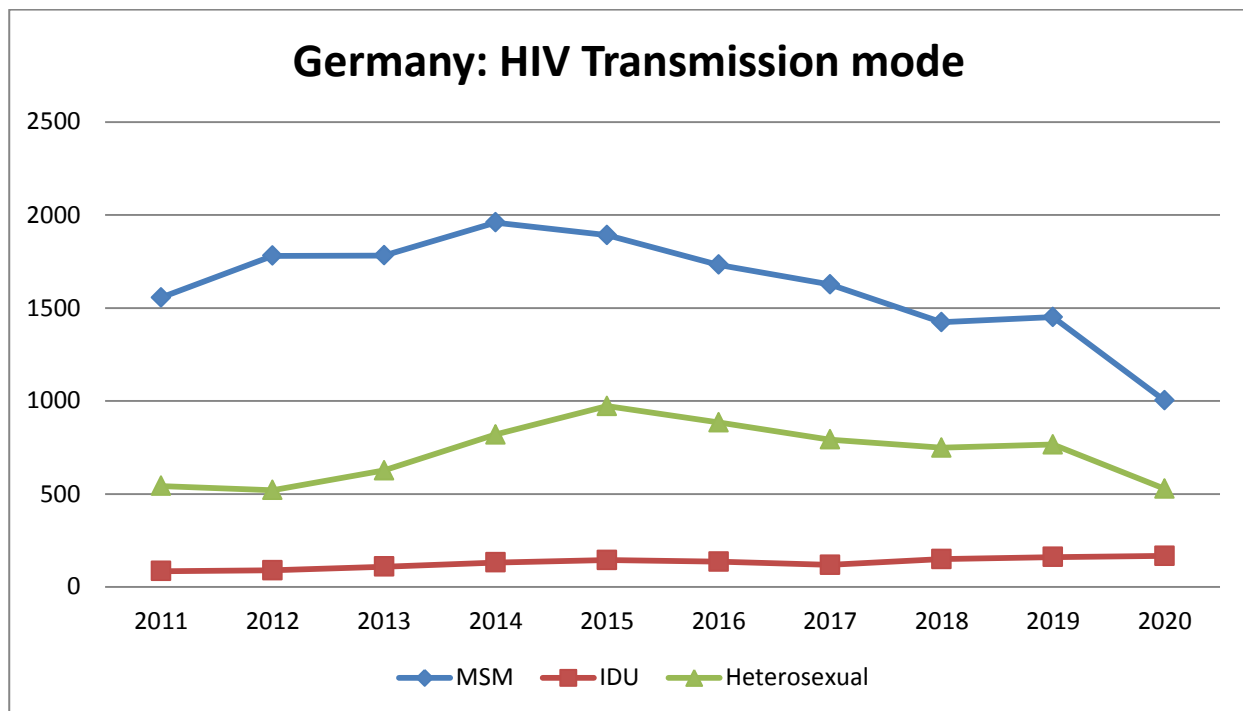
and the last three years, it was stabilized to 0.9 per 100 000, the highest rate in the Region. For 2020, out of the 100 new AIDS diagnoses, 84 were men. The numbers of AIDS-related deaths are also quite stable for the last 5 years, with a small increase from 37 to 41 for 2020. Adherence to ART is a key aspect of the attempt for eradication of HIV, in Greece and globally [11].

Spain has managed to reduce considerably the rate of new HIV diagnoses: The rate for 2012 was 10.4 and for 2020 it was 4.3 (n=1884). Considering the aforementioned reduced detection and reporting of HIV cases, 5.6/100 000 in 2019 (n=2483) is an impressive decline as well. The male/female ratio was 5.3. MSM has been the main transmission mode throughout the past decade; especially in 2014, MSM mode was associated with 2488 new HIV diagnoses and heterosexual contact for 1099 (153 IDUs). In 2020, the gap was 1048 diagnoses for MSM, 527 for heterosexuals and 47 for IDUs. In Spain, besides the 55.3% of the new HIV diagnoses originating for the same country, the second region of origin is not Sub-Saharan Africa, which accounts only for the 3.8% of the total, but Latin America & Caribbean (22.5%). For the 1629 new diagnoses with CD4 cell count, 47.1% were with CD4<350 per mm<sup>3</sup> (n=767), including 27.9% with CD4<200 per mm<sup>3</sup> [12]. The 39.6% of these 767 diagnoses with CD4<350 per mm<sup>3</sup> were MSM mode infections, 55.2% heterosexual contact infections and 54.8% IDU infections. There was also a significant reduction of the AIDS-related deaths, from 376 in 2012 to 28 in 2020 (and 24 in 2019).

Italy has reduced the new HIV diagnoses from rate 6.9/100 000 to 4.1 in 2019 (n=2473) and 2.2 in 2020. Due to the burden of the pandemic, especially in its first phase in Italy, along with the fact that Italy has not shared data concerning the number of the HIV tests performed (for all previous years), it is expected that underreporting might have taken place. The male to female ratio for 2020 was 3.97. The trend for the transmission mode through the previous decade was a diminishing gap between MSM and heterosexual contacts, with the latter being the major mode. In 2011 there were 1285 new HIV diagnoses for MSM and 1823 for heterosexual contacts; for 2020 this was reversed to 596 and 553 respectively. The age trend for 2020 brings exactly the same number of new diagnoses being in the 30-39 group (as it is for the whole Region) along with the 50+ group (n=356), while 321 new cases aged 40-49. Most of the people newly diagnosed with HIV and were not Italians, originated from Latin America and the Caribbean (10.7%). For the 1223 new diagnoses with CD4 cell count, 60% were with CD4<350 per mm<sup>3</sup> (n=767), including a high 41% with CD4<200 per mm<sup>3</sup> (n=502). The 67.6% of these 1223 cases

were heterosexual contacts, 53.3% MSM and 54.8 IDUs. AIDS diagnoses in Italy tend to have as major source the people infected through heterosexual contact: 517 people in 2012 (MSM: 262), 197 in 2020 (MSM: 94). In Italy the social determinants influence the ART of people living with HIV [13].

There were 2454 new HIV diagnoses in 2020 in Germany (rate: 3/100 000), a reduction from the 3111 diagnoses of 2019. Germany reached 4.5 diagnoses per 100 000 people on 2015, going higher each year since 2011 (rate: 3.5). In three years the rate dropped down to 3.5 and a small rise for 2019 to 3.7/100 000. The male to female ratio for 2020 was 3.39 and from the chart below is quite obvious that MSM is the main transmission mode for the country.

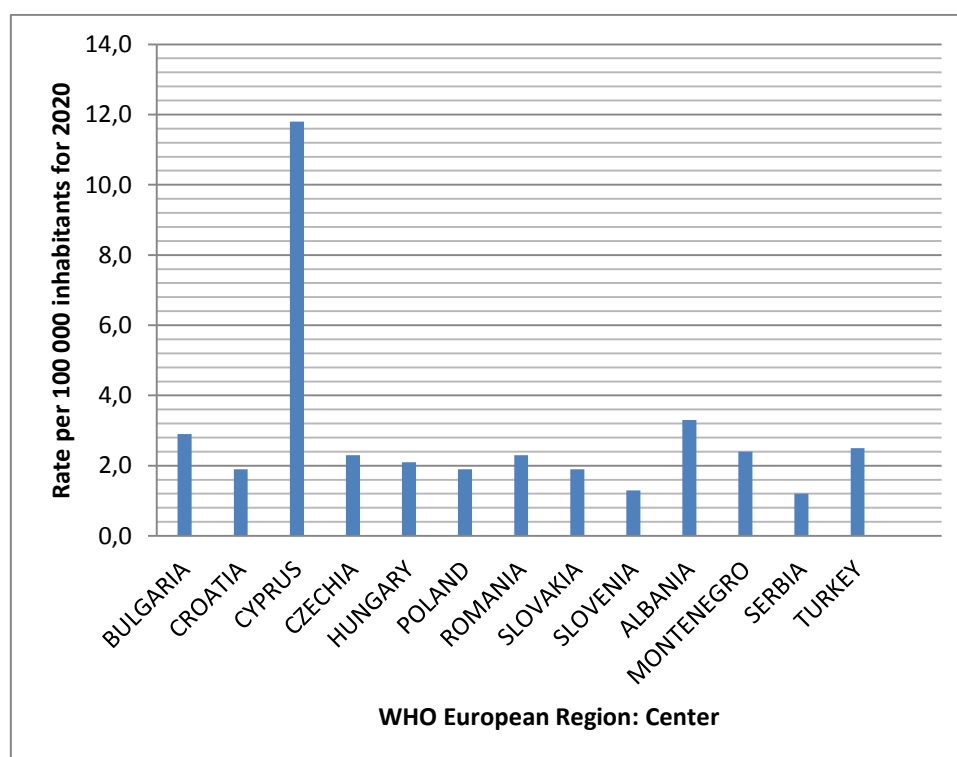


Out of the 2454 new cases, the 1003 were MSM infections, the 528 were heterosexual contact infections and the 167 were IDU infections (the 744 were not categorized to any transmission mode). There 2121 people with data concerning their origin: 58.7% were from the country of report, 14% from Central and Eastern Europe and 12.6% from Sub-Saharan Africa. There were no reports for AIDS diagnoses and AIDS variables in 2020 by Germany.

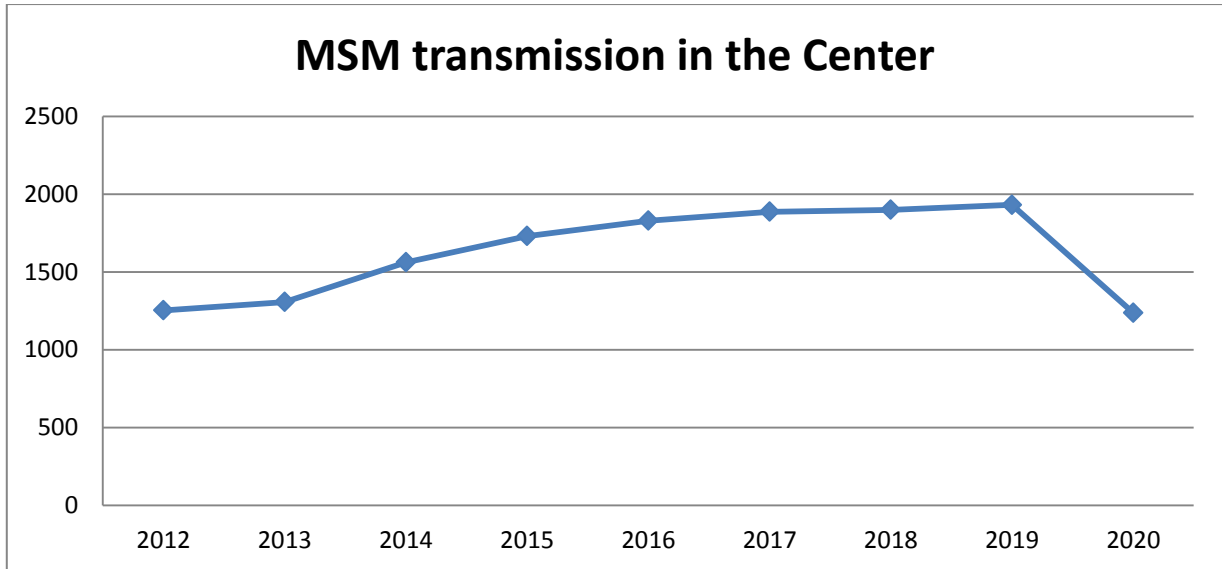


## Center: The lowest HIV rate of the WHO European Region

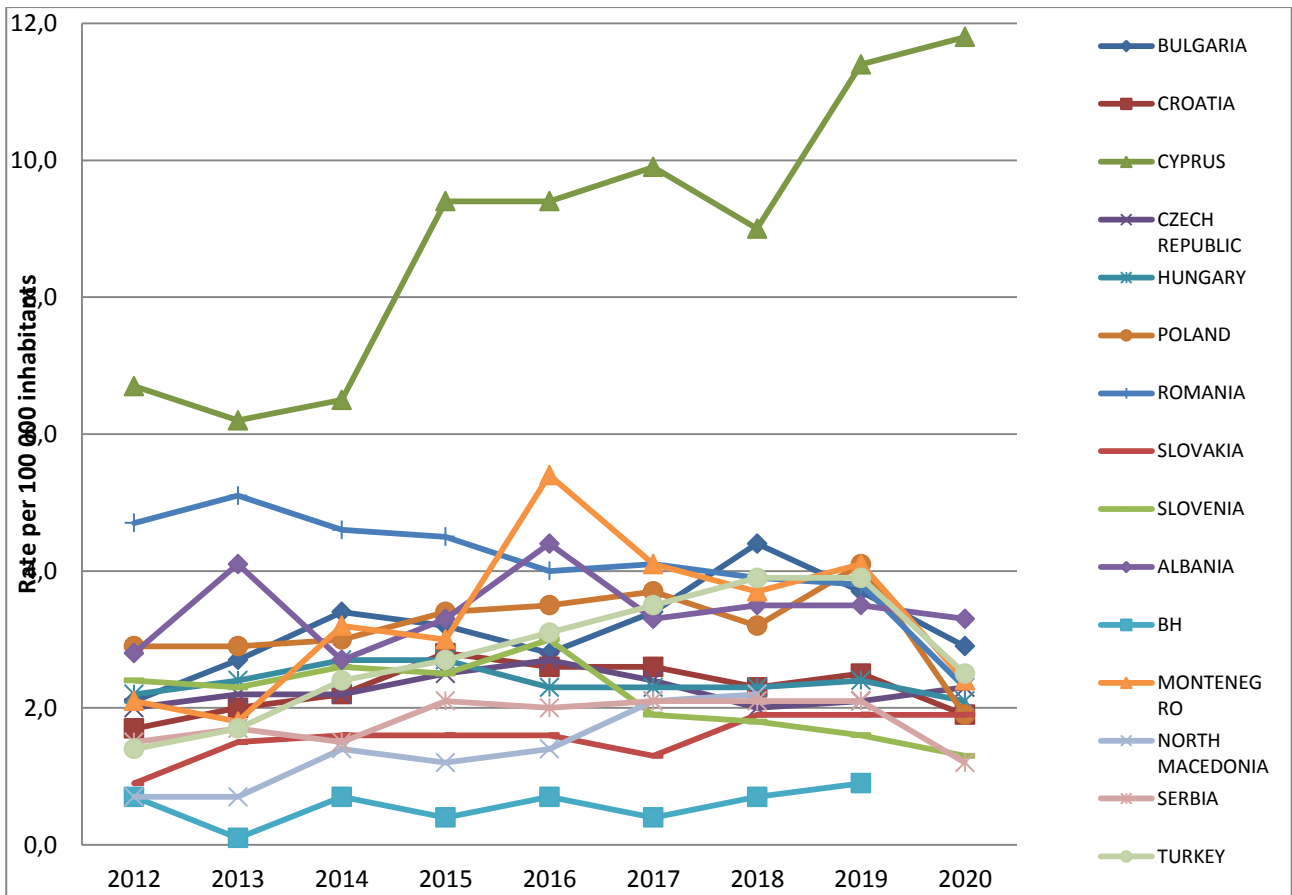
There are 15 countries in the Region described as Center. Bosnia and Herzegovina (BH) and North Macedonia have not shared data for new HIV diagnoses, so the data of the Region is based on thirteen countries. The surveillance report excludes also Poland and Turkey when calculating rates and percentages in certain variables of their analysis, but it does not do so on the tables for all countries, where these countries seem to have reported the major variables. There were also similar exclusions in the West Region. The rates here are calculated based on the tables.



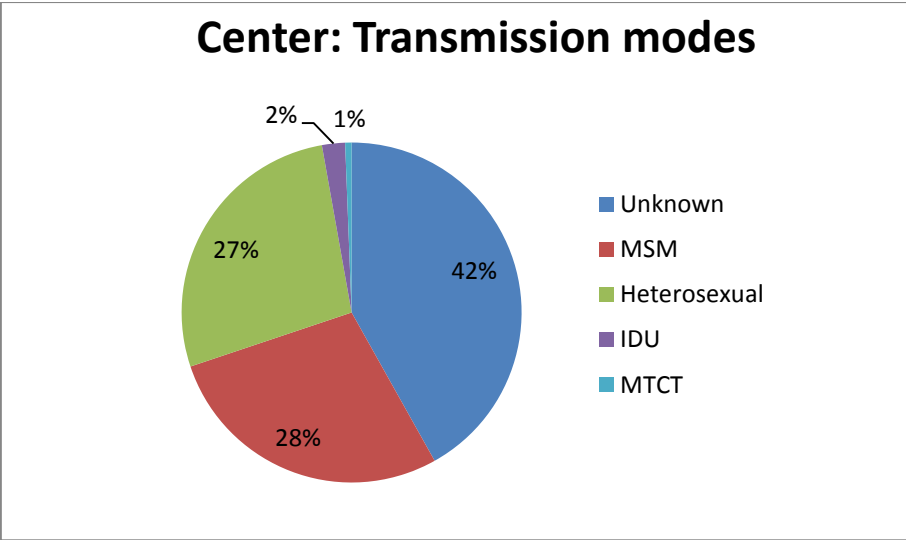
As the charts shows, with the exception of Cyprus, the rates of new diagnoses remain at a relatively low level. The only countries which presented higher new diagnoses rates than 2019 were the Czech Republic, from 2.1 to 2.3/100 000 and Cyprus, from 11.4 to 11.8 per 100 000 inhabitants. The 5.3 male to female ratio was the highest of all Regions. This is combined with the fact that the Region reports the highest percentage of new diagnoses for the age group 15-24, as there is a higher number of young MSM in the 4427 new HIV reported cases in the Region, the lowest number since 2012.



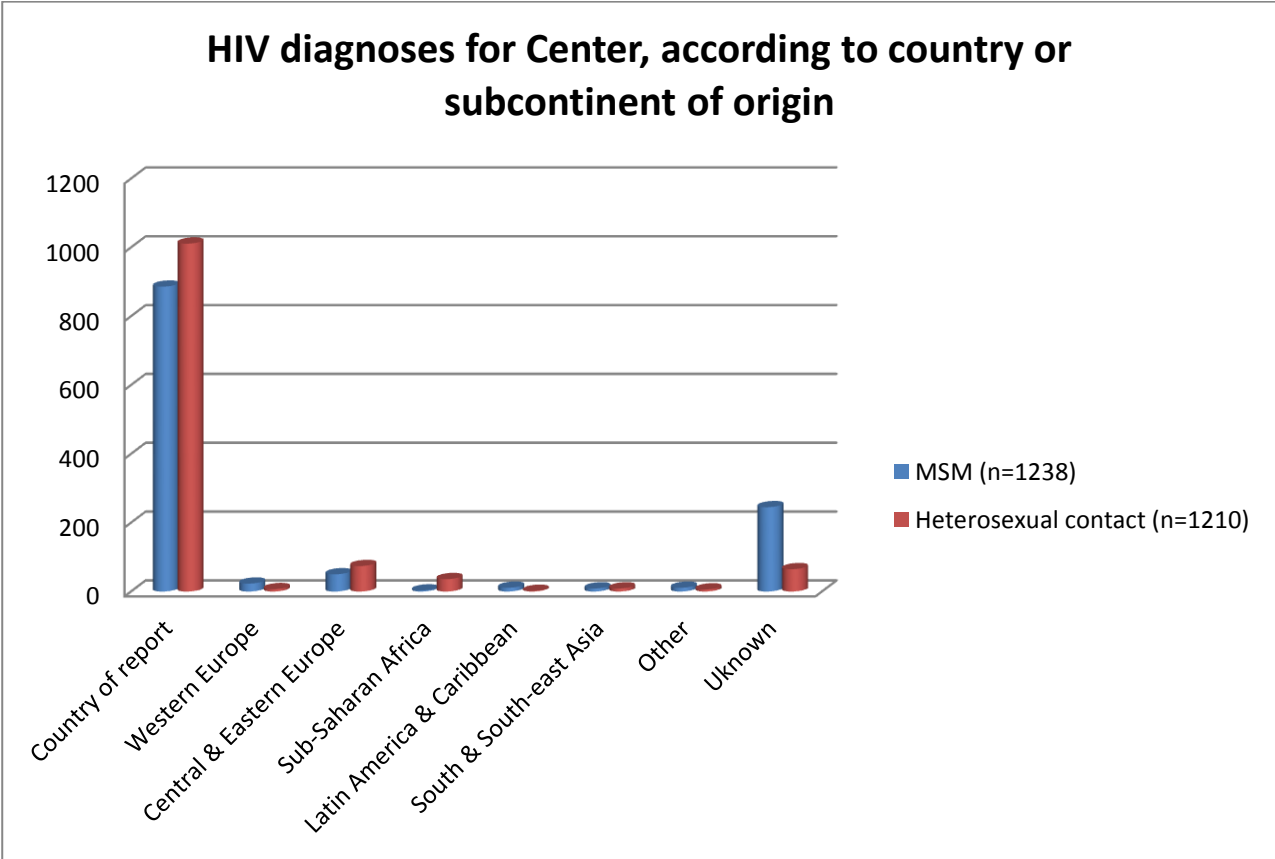
The MSM infections for 2020 were 1238 (998 in 2011, 48% of the recorded transmission mode for 2020), the heterosexual infections were 1210 (1045 in 2011) and the IDU infections were 97 (356 in 2011). Summing the infections, it is obvious that there is a high percentage (42%) of unknown transmission mode of the new diagnoses (n=1853). Most of the countries present MSM as dominant transmission mode. The 30-39 age group presents most of the infections, as in the West Region.



The trend of new diagnoses in the area for the past decade, until 2019, has been an inclining one. On 2011, the Center had recorded rate 1.9, rising every subsequent year, reaching 3.5/100 000 inhabitants on 2019 and dropping to 2.3 (n=4427) for 2020. Besides having the highest male to female ratio of the other three Regions, some countries of the Center present impressively high ratios: Serbia 14.4, Montenegro 14.0 and Hungary 11.1, statistics that link with the transmission mode. The aforementioned countries, along with Croatia (7.4) and Cyprus (4.5) record high MSM transmissions. The trend of the Region is MSM to lead the transmission mode in ten of the thirteen countries, however in the total number this is not visible, as it can be seen in the chart.



The chart below shows a different picture than the West region, as far the origin of the people newly diagnosed. The obvious information is that the origin is underreported, especially for the MSM transmission mode (245 diagnoses out of 1238). Also from the country of report originate the 88.7% of the diagnoses with recorded origin; the 5.8% originates from Central and Eastern Europe.



The probable region of infection was severely underreported and along with the diagnoses recorded as unknown, the statistics are of poor value.

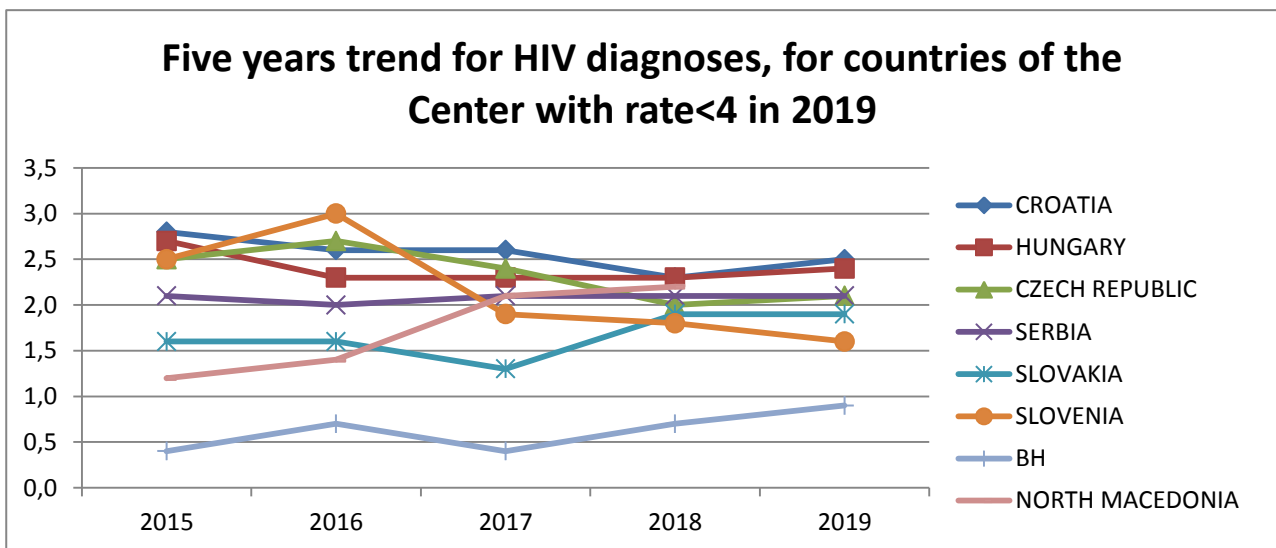
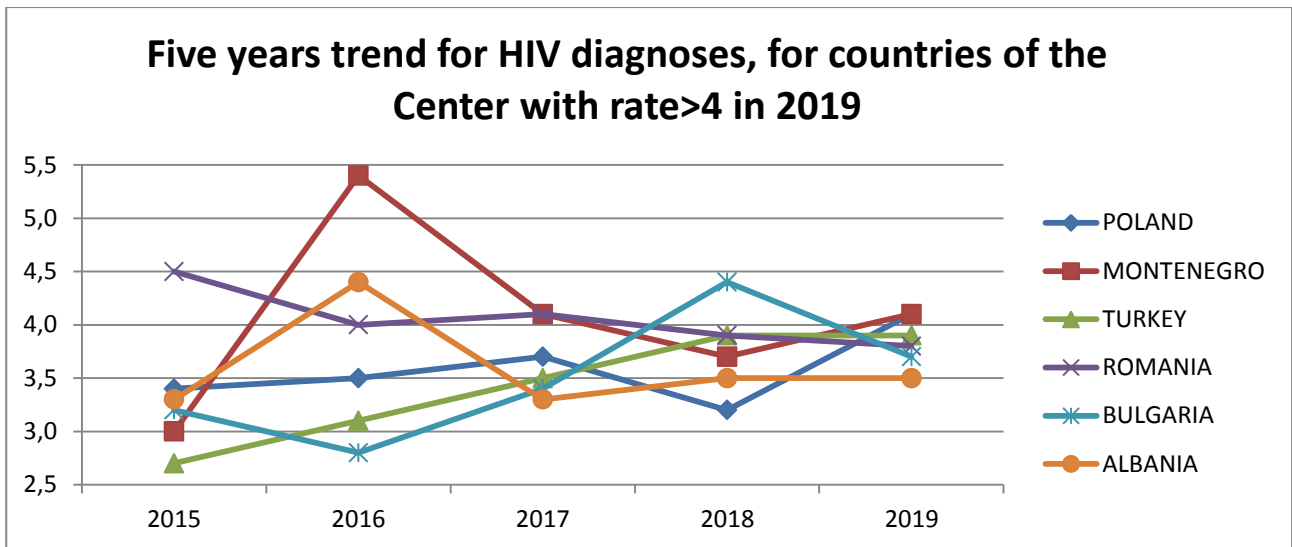
Concerning the CD4 cell count data, eleven countries provided information - 48% of these eleven countries' diagnoses, the lowest of the three Regions. The late presenters with CD4 cells under 350 per mm<sup>3</sup> constitute the 45.6% of the new diagnoses, including 24.3% with CD4 cells under 200 per mm<sup>3</sup> (advanced HIV infection). The highest percentage of new HIV diagnoses with CD4 cells below 350 per mm<sup>3</sup>, for the Region and the whole WHO European Region, is 69.4%, recorded in Albania.

The trend of the AIDS diagnoses is the one showing stability, however at country level the trends are heterogeneous. In 2011 the new AIDS diagnoses in the Center were 882 (rate: 0.5/ 100 000 population) and in 2019 fell to 847 diagnoses. In the year the pandemic started, 2020, the rate declined to 0.2 with 467 reported new diagnoses. The highest rates in the Region were reported in Cyprus (2.0) and in Romania (0.9). For the 404 AIDS diagnoses with known transmission mode, the people infected through heterosexual contact were 53.4%, people infected through MSM were 34.4%, and through IDU were 7.4%.

AIDS mortality in 2011 had reached the peak of the decade with 395 deaths. Since 2014 the numbers followed a very low reduction since 2019, from 378 to 276 deaths. In 2020, there were 185 deaths reported in the Region, However for all Regions, the number of people dying from AIDS is not the actual AIDS-related mortality for several reasons - which are going to be analyzed later – and should not be addressed as such .

The Wasting syndrome due to HIV keeps being the most common AIDS-indicative disease (21.7% of all recorded diseases linked with AIDS), followed by Pneumocystis pneumonia (14.6%) and pulmonary Tuberculosis (12.7%).

As done in the West Region, the Center will be split in two charts according to the 2019 rates. Cyprus will be excluded as the country's curve is easily visible in the total chart. In order to achieve clearer view of the curves, the last five years up to 2019 are shown.



Cyprus seems to be Malta of the Region, in terms that they both have the highest rate in their Regions, and they have presented inclining trend throughout the decade. A difference, however, is that Cyprus has presented rise in the new HIV diagnoses, even for 2020. From a 6.7 rate in 2012, Cyprus reached 11.4 in 2019 and 11.8 in 2020 (n=105). The infections through Men who have Sex with Men were 61 -out of the 99 diagnoses with known transmission mode- and the heterosexual infections were 34. The late presenters were 29.8%, including 21.2% with CD4 cells under 200 per mm<sup>3</sup>. With 2.0 as rate for AIDS diagnoses (n=18), Cyprus has the highest rate in both Center and West Regions, keeping the number of AIDS-related deaths under five during the past decade (4 in 2020).

Albania presents the highest percentage for heterosexual contact infection, in new HIV diagnoses in the Region (90%). The country's rate for 2019 was 3.5/100 000 and in 2020

3.3, with a male to female ratio 2.7, though MSM transmission report only 8 cases (8.3%). This is explained by the male to female ratio in the heterosexual infections: 2.3 (61/26). Two decades back, Albania reported a steady rate increase reaching 2.8 in 2011. During the previous decade the rate touched 4.4/100 000 in 2016 (highest) and 2.7 in 2014 (lowest). The age group with the most cases is 50+ (30.2%) and 40-49 (21.8%), all originating by the country of report. The AIDS diagnoses rate was 0.5 for 2020 (1.4 in 2019) and the number of AIDS-related deaths was 3.

The rate for new HIV diagnoses in Turkey was 2.5 in 2020, while the previous year it was 3.9/100 000 population (n=3229). The male to female ratio was 5.63, and 84.4% of the new diagnoses originated from the country of report. Concerning the transmission mode, there was not data for the 1217 cases of the 2076, based on which the main transmission venue appears to be heterosexual contact (536 cases: 62.3% of the 859 diagnoses), MSM follow with 34.5%. There are also 86 IDU and 12 MTCT cases (the highest MTCT number reported in the Center). Nevertheless, the 41.3% of the new HIV cases (the 859 diagnoses with transmission mode data) is rather low and the statistics should not be accounted of without reservation. The CD4 cell count was even lower (27.4) and the number of AIDS-related deaths was 46 (rate: 0.1) [14], the 28 without been linked to transmission modes.

Poland's 4.1 new HIV diagnoses per 100 000 population in 2019 was the highest rate reported over the last decade for the country (n=1551). In 2011 the rate was 2.9, and in 2020 declined abruptly to 1.9, reporting 709 cases, that is a 54.2% reduction in new HIV diagnoses, which is the highest reduction in the whole WHO European Region for 2020. The transmission mode was only 27% reported, shows however a strong SMS trend for the country, still the percentage is not secure for conclusions. Poland has reduced the new AIDS diagnoses rate from 0.5 in 2011 to 0.3 in 2019 and 0.1 in 2020 and AIDS-related deaths from 68 in 2011 were 11 in 2020 (15 in 2019).

The average rate was 4.0 for the last four years, until 2019, in Romania, declining to 2.3/100 000 in 2020 (n=447). The years 2011-2013 presented a rise in the rate, from 4.2 to 5.1, due to an IDU outbreak. The annual rates of the following years declined and so did the IDUs, from 354 in 2013 to 37 in 2020. The rest 410 cases split between heterosexual contact infections (60.4%), MSM infections (29.7%) and 7 cases of MTCT. The people newly diagnosed with HIV originate from the country of report. The diagnoses with CD4 cells under 350 per mm<sup>3</sup> constitute the 56% -of the 407 cases with CD4 cell count-

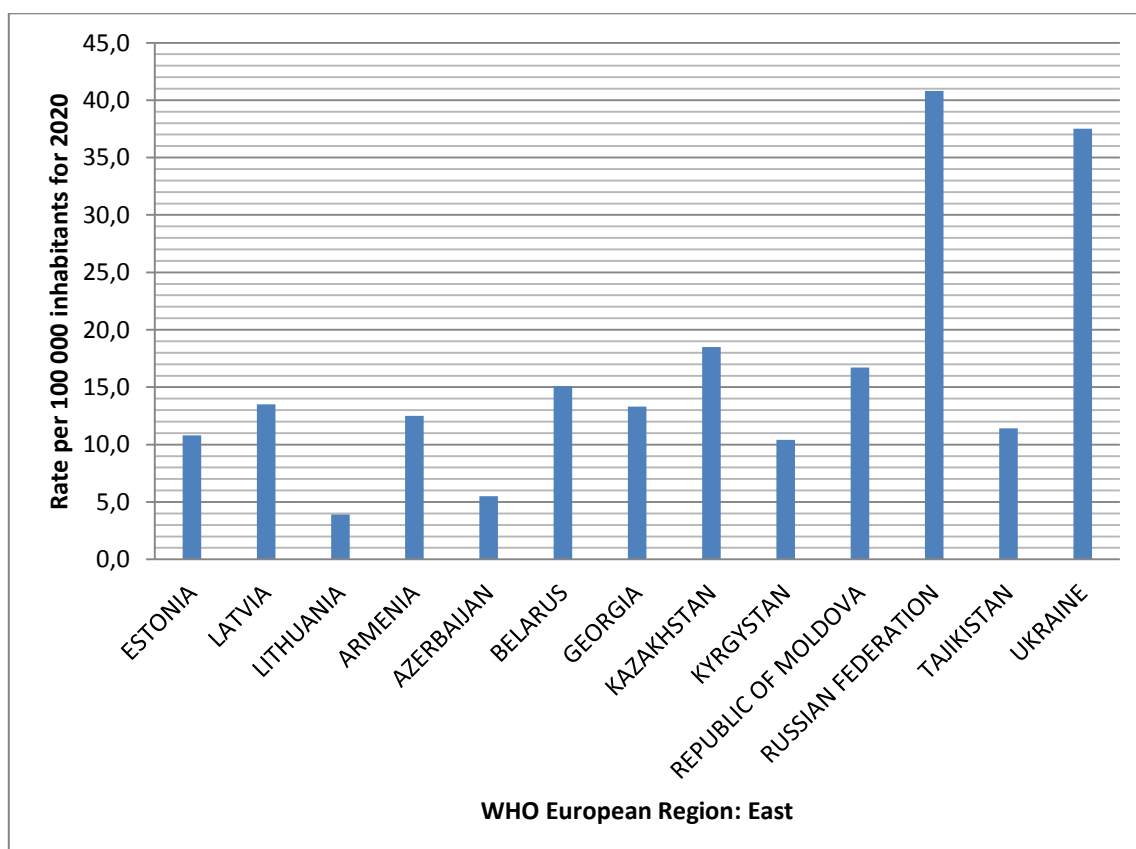
including 34.6% cases with CD4 cells under 200 per mm<sup>3</sup>. The AIDS new diagnoses reduced to 0.9 from 1.6 in 2019, with the 118 out of the 166 cases being heterosexual infections. The number of AIDS-related deaths for 2020 was 107.

The rate curve for Bulgaria has the shape of a wave which the last two years moves downwards. The country reported a 0.8 decline, to 2.9, in 2020 (n=199). MSM transmission modes accounts for the 48.2% of the new HIV diagnoses, heterosexual contact for the 42.7%, IDU for the 7%, and MTCT for the 2%. The male to female ratio was 5.4 and the vast majority of the new cases originated from the country of report. The 56.3% of the cases with CD4 count (158) were late presenters, including the 32.9% with CD4 cells under 200 per mm<sup>3</sup>. There were 67 AIDS cases in 2019 and 43 in 2020: 16 MSM and 20 heterosexuals. AIDS-related deaths in 2019 had reached the max number of the decade (as in 2011), 17 people, and in 2020 was reduced to the lowest of the decade, 6 people.



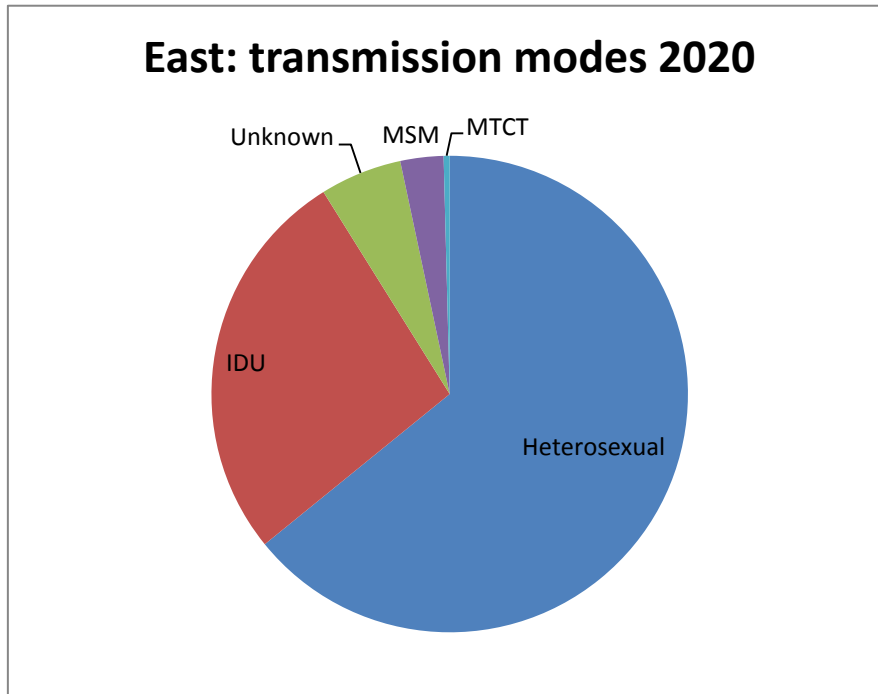
## East: IDUs and heterosexual infections preserve the epidemic

The East Region contributes a totally different landscape in the WHO European Region's map. The 13 countries of the Region who have shared data (Turkmenistan and Uzbekistan did not send data) present a number of 84 556 new HIV diagnoses for 2020, giving a rate of 32.6/100 000 population, which is more than eight times higher than the rate of the West. The 89% of these cases belong to Russia and Ukraine solely; these countries present the highest rates in the Region, 40.8 and 37.5/100 000 population respectively, with the third country presenting a much lower rate: Kazakhstan, 18.5/100 000. The countries with the lowest rate, Lithuania (3.9) and Azerbaijan (5.5), are also the only ones with single digit rate in the Region, as the chart shows.

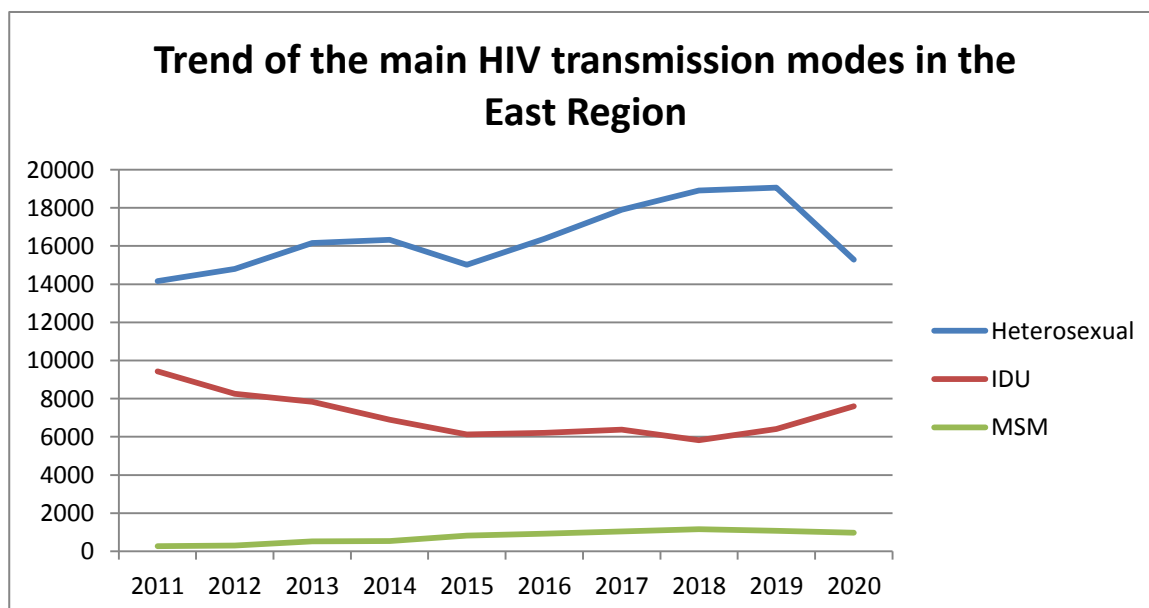


A key characteristic of the 2020 data for the East Region, was that all the countries reported a minor or major decline in their new HIV diagnoses. Though underreporting due to the pandemic has been an issue for the whole WHO European Region, this is the only Region where no data of an inclining country's rate was shared. East during the past decade presented an increase in the new diagnoses -as it did the previous decade as well-

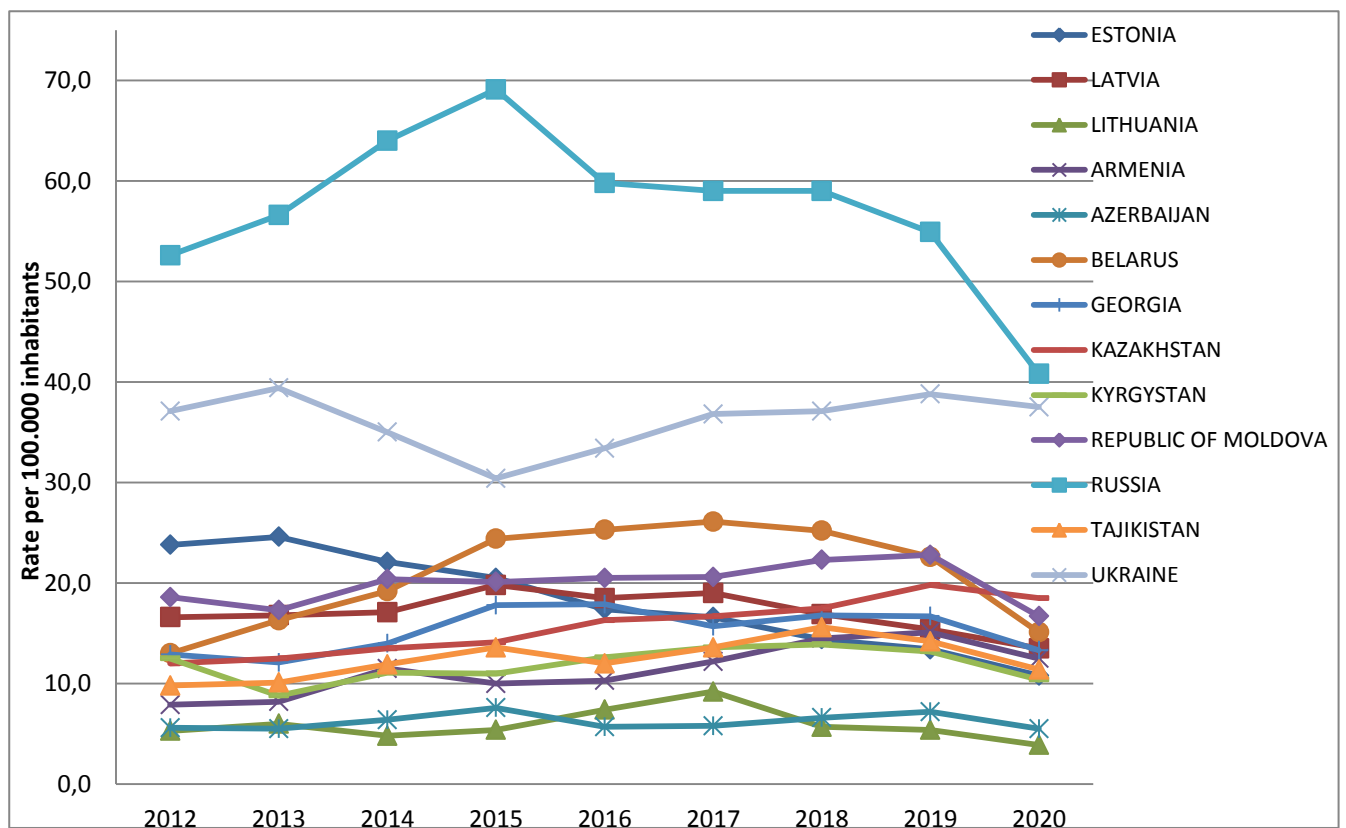
from 2011 (rate: 26.1/100 000) until 2015 (48.1), then three years of an average stability with a rate close to 43.5 and in 2019 the rate decreased to 41.7; the years 2011 and 2020 were the only years when the diagnoses were less than 100 000.



The male to female ratio for 2020 was 1.64, as MSM transmission mode is reported almost 3% of the total diagnoses. The leading transmission mode in the Region is heterosexual contact (68%) and IDUs (28.5%), as it can be seen in the chart above. The East Region during this decade maintained the transmission modes which also prevailed the previous one. The trend of the three major transmission modes can be seen below.



This trend line excludes the data that Russia provided for 2020, as for the first time this year Russia changed the way of data reporting including now more variables, such as transmission mode. For the year 2020, the number of new HIV diagnoses with unknown transmission mode was 4697, the 5.6% of all diagnoses. For 2019 this number was 80 993, the 75.1% of the total in the Region as Russia provided information concerning only the number of new diagnoses and the gender. So, for proper statistic processing, the number of new HIV cases diagnoses in Russia was excluded, when linked with other variables, such as transmission mode. Another example, in the year 2019 the number of Heterosexual contact infections was 12 068 and in 2020 the number was 54 228. Besides the trend of new diagnoses and the gender, this exclusion stands for all other variables.

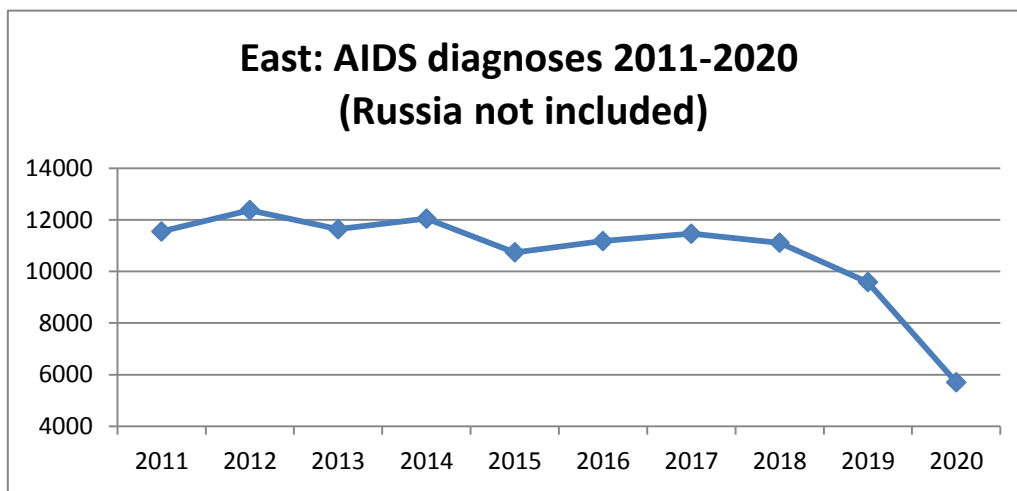


Following the trend of the Region for the past decade, an almost four-fold for transmission through MSM is observed and an 8% increase for heterosexual transmission, which was driven mainly by men (42% increase), while for women there was a 14% decrease. The IDUs throughout the decade showed a 19% decrease, but as the chart shows, was the only transmission mode which presented increase from 2019 [15].

The origin of the people diagnosed with HIV in the East, in the vast majority, is from the country of report. The late presenters were the 34.4% of the new diagnoses, including

17.7% with CD4 cells under 200 per mm<sup>3</sup>. The 56.2% of the heterosexuals were late presenters (with CD4 cells under 350 per mm<sup>3</sup>) and the 42.8% of the IDUs, without including the late presenters from Russia as this variable (CD4 count/transmission mode) was not reported.

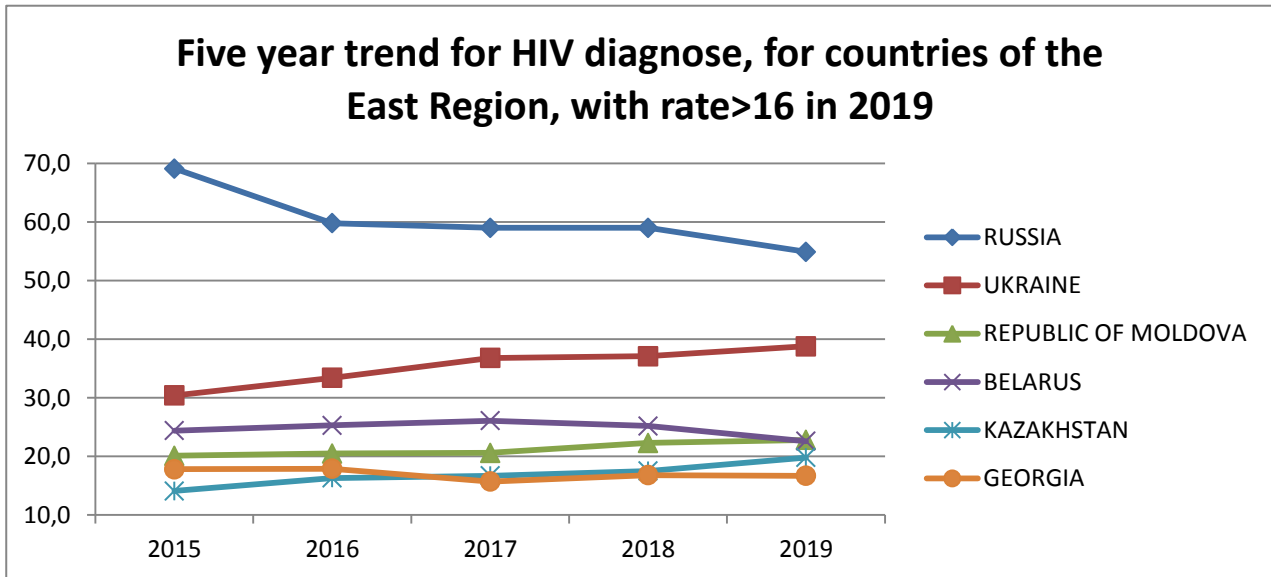
The AIDS diagnoses were 5705 (rate: 5.0/100 000, 8.4 in 2019). The number does not include data from Russia and Ukraine's number covers the 72.5% of the total number of AIDS diagnoses in the Region. The trend, as it can be seen below, is a declining one.



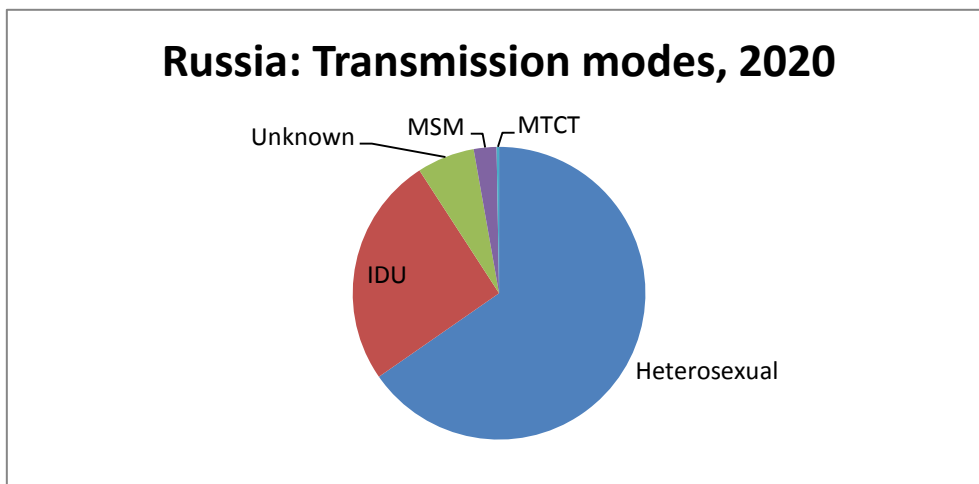
For the 5585 diagnoses with known transmission mode, 65 were MTCT, 109 were due to MSM transmission(2%), 1402 due to IDU (25.1%) and 4006 due to heterosexual contact transmission (71.7%). Mother-to-child transmission in 2011 presented 163 cases, 74 in 2019, so the trend is declining. The MSM linked diagnoses for 2011 were 65, reached 161 in 2016 and 142 in 2019. The AIDS diagnoses in 2011 for people infected through injecting drug use in the East were 6084, reduced to 2430 in 2019, in a decisive reduction. Finally, the AIDS diagnoses for people infected through heterosexual contact were 5071 in 2011. The number kept rising until 7879 in 2018 and dropped to 6824 in 2019. The AIDS-related deaths for 2020 (n=2877) were reduced by 39% since 2012, the year with the highest number of reported AIDS casualties.

The most common AIDS-indicative diseases for the East Region in 2020 were pulmonary tuberculosis (14.8%), oesophageal Candidiasis (11.4%) and wasting syndrome due to HIV (11.2%).

Splitting the Region in two, according the HIV diagnoses rates that the countries presented in 2019, we see that six countries had rates over 16, five countries had rates fewer than 16 and over ten, and two countries had rates less than ten but above five.

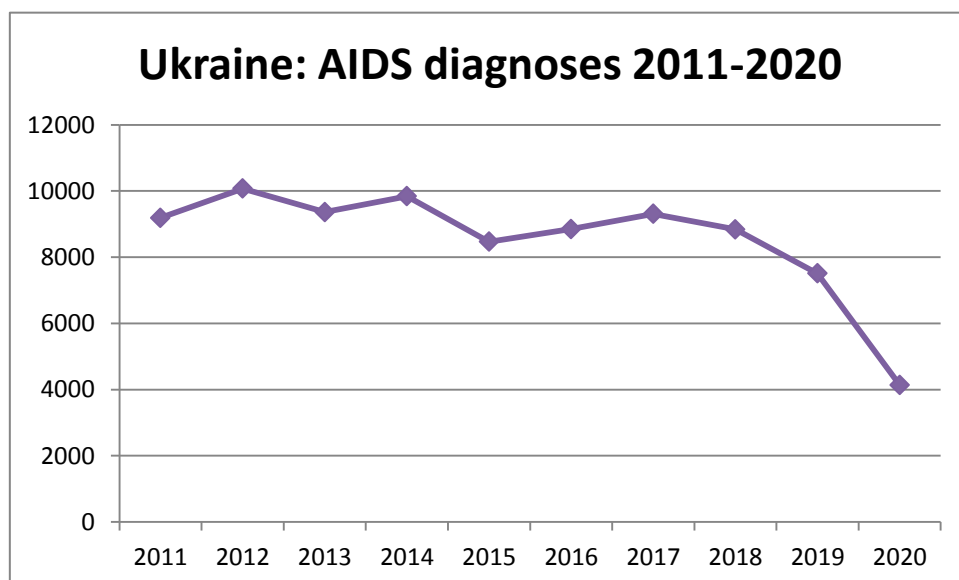


Russia has the highest rate not only in the East Region but in all the WHO European Region. Since 2011, when the rate was 46.8/100 000 population with 67 317 HIV diagnoses (and even lower the previous years), the rate climbed to 69.1 and the diagnoses slightly overstepped the threshold of 100 000, marking the peak of the country's data. In order to realize the importance of this rate, it would be interesting to refer that this annual number for Russia, is also the cumulative number of all HIV diagnoses in the Center, since the start of reporting. The male to female ratio of the 59 598 diagnoses is 1.6, for 2020, the first year that Russia shared data concerning the transmission mode of the HIV diagnoses.



It is easily observed that this chart is almost identical with the Region's transmission modes pie chart, due to the number of diagnoses which dominate the total. The 69.7% of the diagnoses with information concerning the transmission mode (55 801) were infected through heterosexual contact, 27.2% through IDU, 2.6% through Men who have Sex with Men, and a 0.3 (165 cases) were MTCT. Late presenters were the 27.1%, including 12.8% with CD4 cells under 200 per mm<sup>3</sup>. The 42.8% of the diagnoses belong to the age group 30-39 and the 32.6% to the age group 40-49. Russia records the highest number of HIV test in all three Regions (among the 21 countries who have shared data for this variable) with 247.4 tests/1000 population.

Since 2015 Ukraine's new HIV diagnoses rate inclined, until 2019, from 30.4/100 000 population to 38.8/100 000, then dropped to 37.5 in 2020 (n=15 658). There is an impressive 38.1% IDUs in the new diagnoses, 5960 cases, the highest rate in all three Regions, although the predominant transmission mode is the heterosexual contact (58.8%) and the MSM mode was responsible for the 2,5% of the new diagnosed infections. There were 67 cases of MTCT (0.42%). The people diagnosed with HIV were all from Ukraine and the late presenters, the new cases with CD4 cells under 350 per mm<sup>3</sup>, were the 54.5%, including 32.5% with CD4 cells under 200 per mm<sup>3</sup>. The AIDS diagnoses were by far the highest in all Regions (excluding Russia which did not record this variable). Surveys though, have pointed misclassification of transmission modes (MSMs and IDUs to heterosexual contacts), so the trends should be interpreted with caution [16][17].



As it can be seen in the chart above, in 2012 the new cases surpassed the ten thousand (rate: 22.2). In 2020 there were 4139 new AIDS cases and the country's rate decreased below ten for the first time. The 72.5% were heterosexual contact infection and the 24.9% IDUs. The AIDS-related deaths reported by Ukraine were 2114, while in 2018 the number was 3448.

In Kazakhstan, since 2012, when the rate was 12.0/100 000 population, it kept inclining every year until 2019 (19.8). In 2020 the country reported 3472 new diagnoses and rate 18.5/100 000 with 19.5 female to male ratio. The MSM transmission in 2020 was eleven times higher than in 2012: there were 20 new diagnoses in 2012 and 221 new diagnoses in 2020, which was the year with the highest number of reported MSM linked infections (206 in 2019). On the contrary, all other transmission modes declined in 2020 and so did the annual rate of the country. The heterosexual contact is the dominant HIV transmission mode in Kazakhstan (61% of all cases with known transmission mode) and there is also a high IDU number, 1045 cases (31.6%), which was an even higher percentage in 2012 (39.5% of the total diagnoses) [18]. There were also 23 MTCT (0.7%). Almost all diagnoses originated from the country of report, and few from Central and Eastern Europe. Kazakhstan reported the 44.1% of the new cases (with CD4 data, that is 2884) being with CD4 cells under 350 per mm<sup>3</sup>. This percentage also includes a 20.5% with CD4 cells under 200 per mm<sup>3</sup>. The lowest proportion of late presenters in the country was the IDUs (31%). In 2020, Kazakhstan reported 469 AIDS diagnoses, the highest number ever recorded in the country (rate: 2.5), making Kazakhstan the second country, after Ukraine, in numbers of new AIDS diagnoses (Russia is excluded as has not shared data) and number of deaths (317).

As rapidly Belarus inclined from rate 12.7 in 2011 to 26.1 in 2017, as rapidly declined to 15.1 in 2020 (n=1427), and especially 7.5 units lower in its annual rate since 2019. The dominant reported mode of transmission is heterosexual contact (78.2%) and IDUs (15.8%). Since the outburst of IDU diagnoses in 2014-2015, when the 201 diagnoses quadrupled, the number of reported IDU infections reduced to 222 diagnoses, in 2020. The female to male ratio was 1.7 and all cases reported were local ones. Out of the 1105 new HIV diagnoses among persons >14 years reported with information about CD4 cell count, the 36% were with CD4 cells under 350 per mm<sup>3</sup>, including 17.9% with CD4 cells under 200 per mm<sup>3</sup>. Of the men infected through MSM, with information about CD4 count and

CD4 count less than 350 mm<sup>3</sup>, only the 12% were late presenters in Belarus. The AIDS diagnoses dropped from 380 (rate: 4) in 2019 to 220 (2.3) in 2020. The ones infected through heterosexual contact in 2020 were 168 (76.3%) while in 2012 they were 348. The IDU infections in AIDS diagnoses decreased even more: 47 new cases in 2020, while there were 242 cases in 2012. The number of AIDS-related deaths in Belarus was 59.

A 6.1 units decrease from the rate of 2019 by the Republic of Moldova, who reported 675 new HIV diagnoses (rate: 16.7/100 000 population), was not enough to prevent the country from still being listed in the four countries with the highest HIV rate in the Region. Having data only for the two thirds of the diagnoses, we observe that heterosexual contact totally dominates the transmission mode with 89.7% diagnoses. There is also a high MTCT percentage (2.4%), with 11 infections out of the 447 diagnoses, the 51.8% of which were late presenters, including 34.3% with advanced HIV infection. The new AIDS diagnoses were 194 (rate: 4.8), one of the highest in the Region, though the rate in 2011 was 11.0/100 000 population. Nevertheless, the number of AIDS-related deaths in the Republic almost doubled since 2019, making 2020 the year with the highest AIDS morbidity of the decade.

For Georgia, the 530 new HIV diagnoses in 2020 brought a 3.4 units lower rate. The MSM transmission mode is higher in Georgia (19.5%), still the main mode is the heterosexual contact (67.6%). The female to male ratio is 2.35 and the late presenters 51%, including 29.1% with CD4 count less than 200 mm<sup>3</sup>. Though it has dropped since 2011, when it was 11.0, the rate of AIDS diagnoses in 2020 is still as high as 4.5 (n=181). The number of AIDS diagnoses for people infected through IDU is higher than the ones infected through MSM (30 and 22 respectively), though the latter appear a higher percentage in new HIV diagnoses (IDUs rate: 11.8). The number of deaths presented an increase from 77 to 106 casualties.

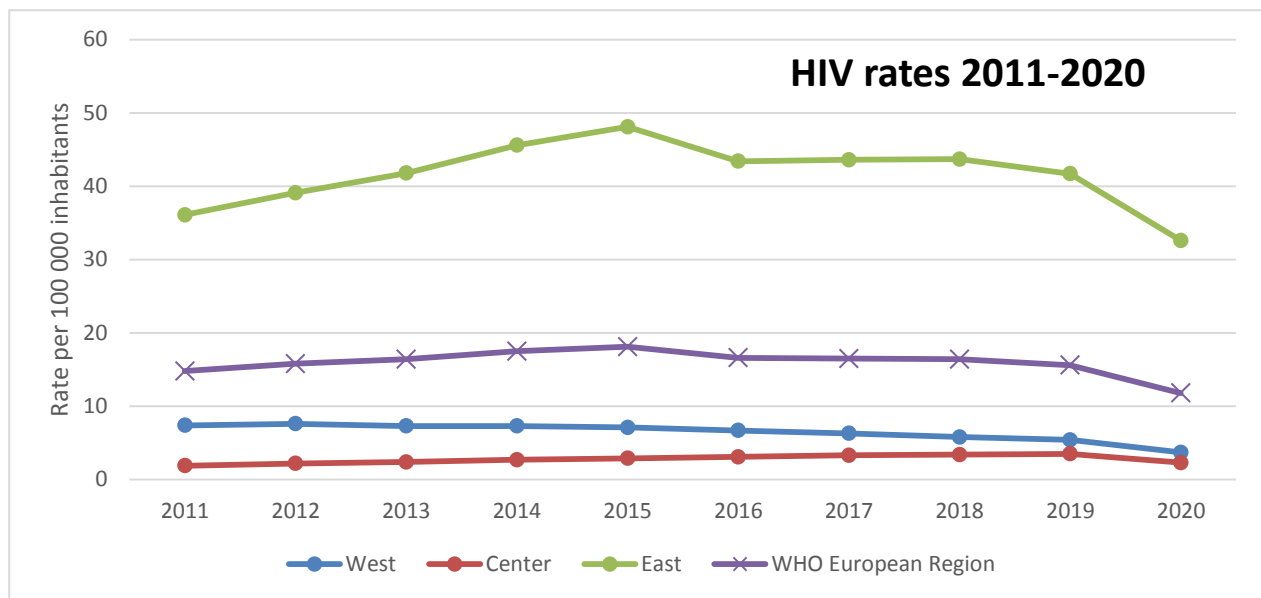
Concerning the second group of countries, whose rates can be seen in the chart, the following should be noted: Estonia has managed to reduce its rate to less than half since 2013, declining every year (rate: 108, n=143). In 2011 Estonia had reported 27.5 HIV cases per 100 000 population while in 2002 the country had reached 66.0/100 000. On the contrary, Armenia since 2015 was inclining every year, until 2020 (rate: 12.5, n=369) when all countries presented lower rates. Tajikistan, with rate 11.4/100 000 population, recorded 1084 new infections in 2020, more than all the other countries from this second group.



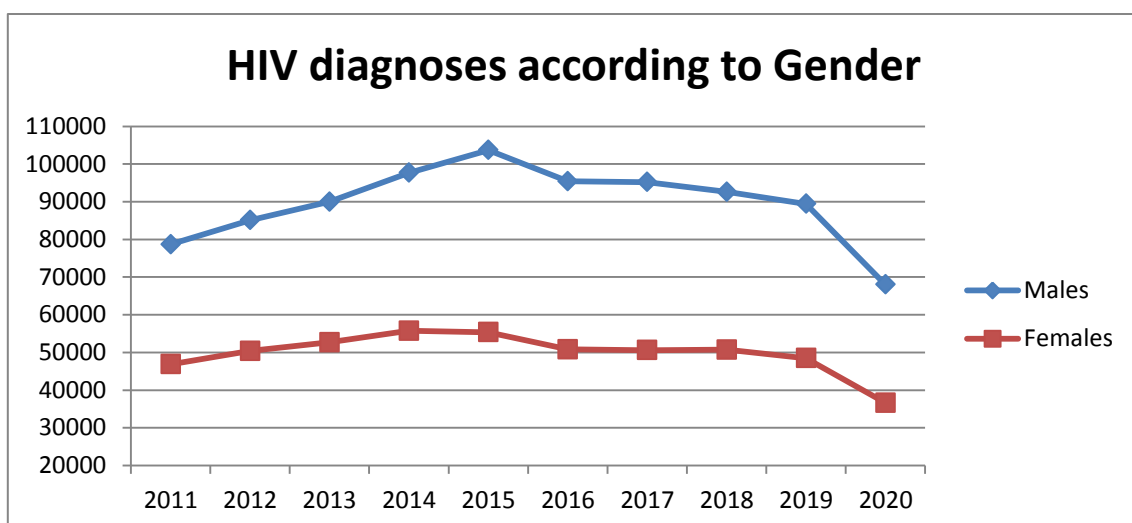
Armenia, Tajikistan and Kyrgyzstan have recorded relatively high MTCT numbers for 2020 (9, 12 and 43 respectively), and Armenia also presents higher MSM percentages than IDU, in its diagnoses – the other countries follow the Region’s trend. Armenia reports 62% late presenters, including 45% with advanced HIV infection (CD4 cells under 200 per mm<sup>3</sup>). For Latvia the percentages were 58.6% and 39.1 respectively, and for Estonia 48% and 32% respectively. There is a 5.1 rate for new AIDS diagnoses in Armenia (n=155), 2.9 in Latvia and 1.7/100 000 population in Estonia. The AIDS-related deaths in Tajikistan were 96 and in Armenia 51.

## WHO European Region

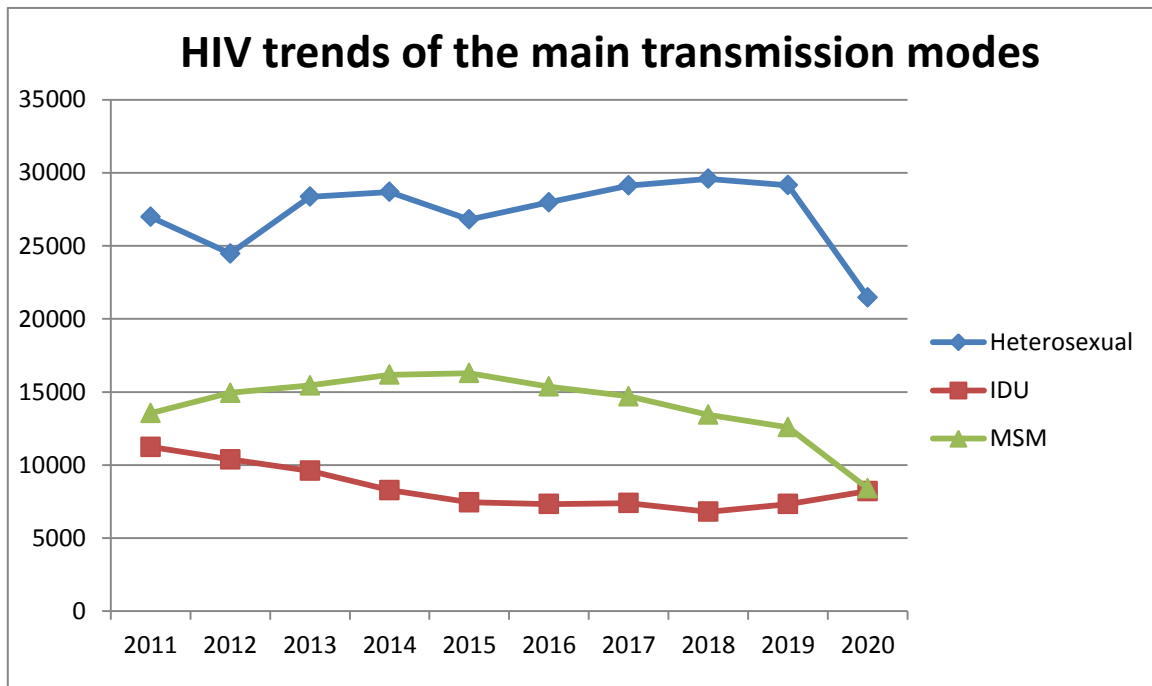
Before commenting on the findings and the trends for each Region and the whole European Region, we shall observe the charts with the HIV variables for the WHO European Region: concerning the HIV rates in the three Regions and the whole European Region, a decline after 2015 is recorded.



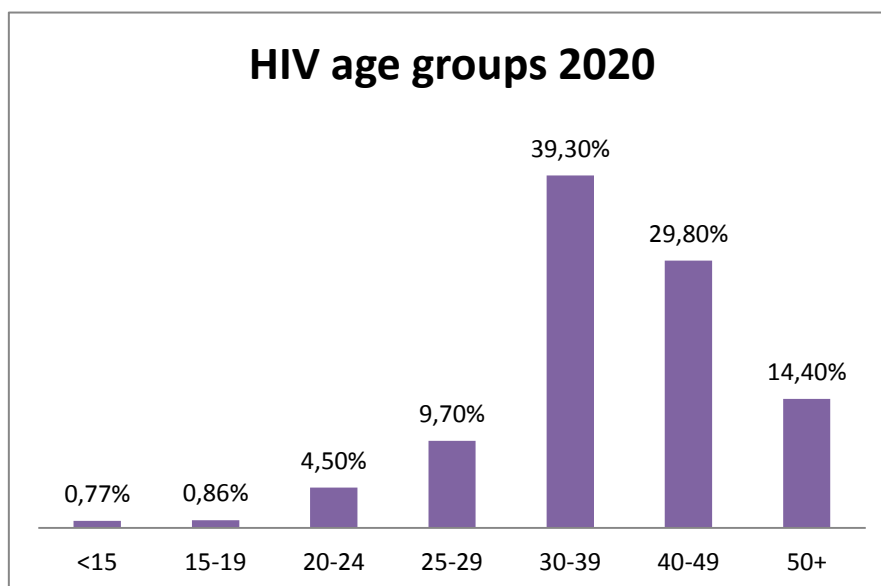
For the HIV diagnoses according to gender, males maintained a significant difference with females, which is expected due to the MSM transmission mode and the IDUs who are predominantly males.



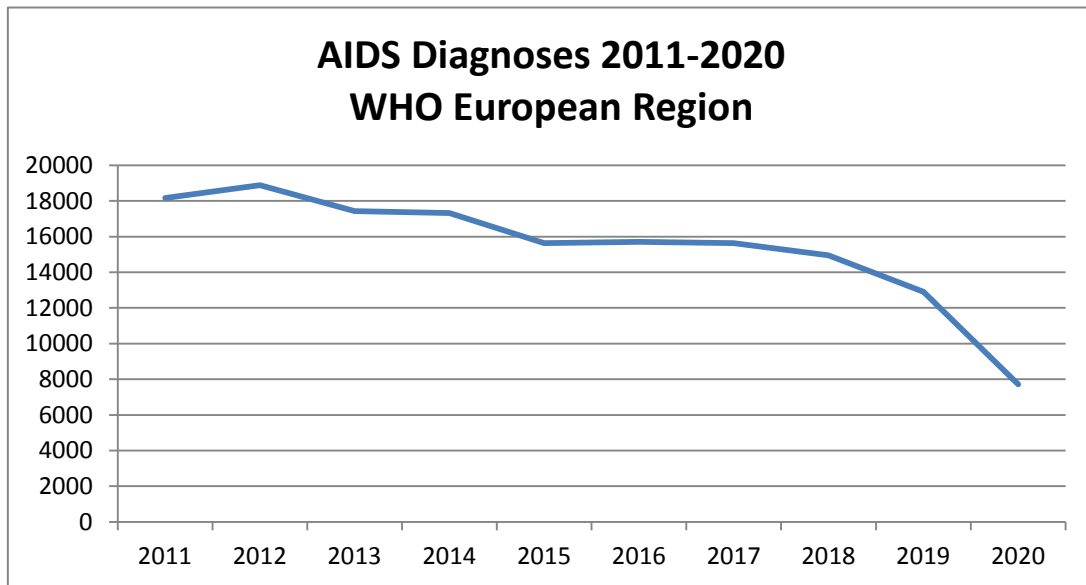
The transmission mode differs for every Region. The numbers of the heterosexual transmission mode in the East set this mode as the dominant one in the whole European Region. Russia has provided transmission mode data for the first time in 2020, so in order to show the trend of the decade the chart does not include the country's data.



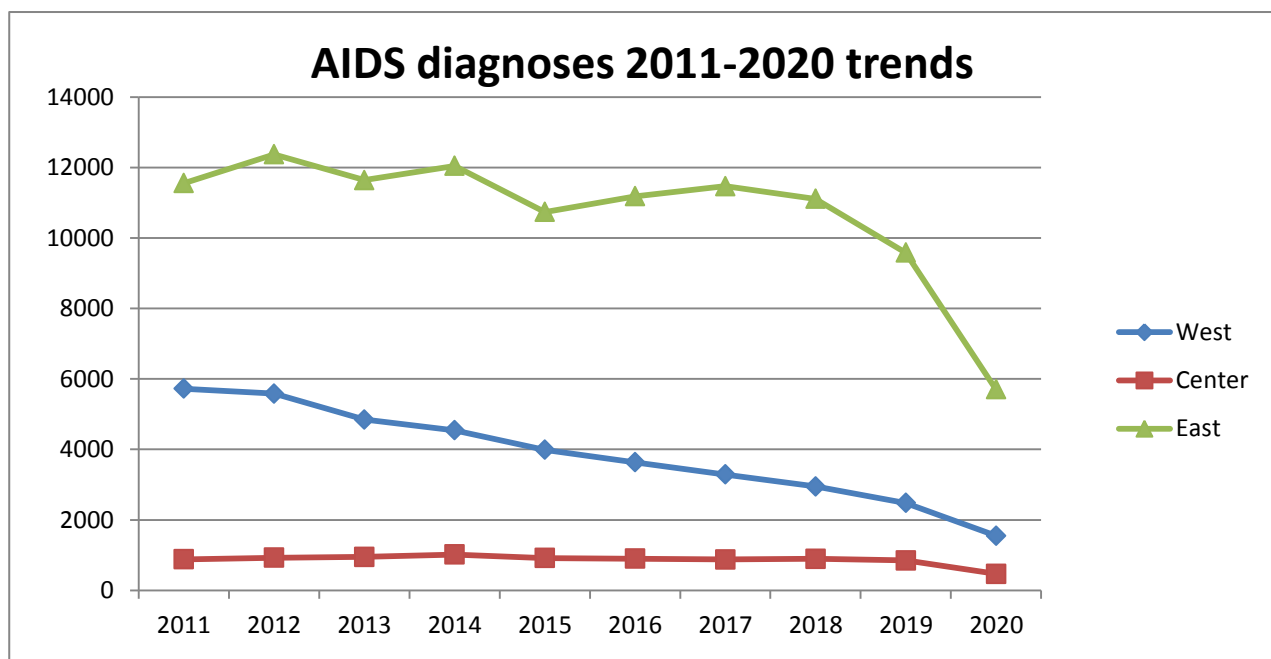
The 30-39 age group is the one counting most of all new HIV diagnoses. The age group 30-49 counts the 70% of all new HIV diagnoses.



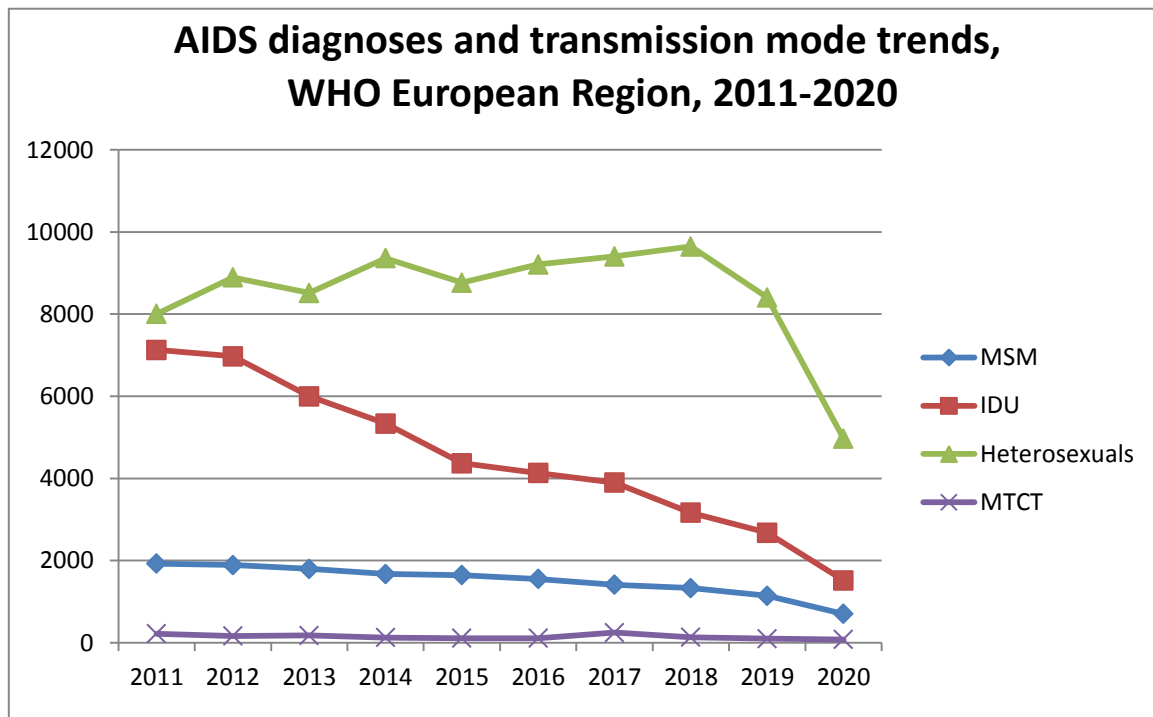
The AIDS diagnoses for the decade have a clear and significant decline, especially towards the end of the decade.



The trend of the three Regions separately can be seen in the chart below, where the similarity between the General trend and the trend of the East is obvious.



Relating the AIDS diagnoses with the transmission modes, the above chart is reflected to the above, as the main transmission mode for each Region is linked with the AIDS diagnoses.



## Comments

It is of high importance to highlight again that underreporting was a fact for 2020, due to the CoVid-19 pandemic. The proportion of this cannot be determined and it varies in every country. The decline in most of the variables of the HIV shared data should be met with some skepticism and as the pandemic keeps claiming lives and resources, it is ambiguous whether there can be a more clear and exact vision of the HIV epidemic over the next two (at least) years.

However, with the existing reports, we focus on the previous decade trends. Concerning the number of diagnoses in the whole WHO European Region, the first five years since 2011 an incline is observed, followed by a decline until 2020. Due to the number of cases of the East (80.7% of the total), many variables present the same picture in both regional and general trend, as in the general annual rate is clearly depicted. The number of diagnoses between 2011 and 2019 increased by 5%, following the upward trend of the East. The West Region tends to decline during the decade, but the Center tends to incline, though in very low rates for almost all countries. The East Region presents continuous incline for the first half – until 2015 – a decline and stability for the next years and then a further decline. Russia and Ukraine report the highest rates of HIV diagnoses in the East, Malta in the West and Cyprus in the Center. The lowest rates are reported by Serbia (1.2) and Slovenia (1.3).

In relation to the trends of the previous decade, for the years 2002-2011, we observe that while the West maintained a steady average rate for the 2002-2011 decade, it presented a decline for the next. The Center and the East both inclined during the 2002-2011 decade. The former kept inclining almost throughout the next decade and the latter for half the decade. It is obvious that the numbers of new diagnoses and rates are very different: the East recorded a sharper incline, with a rate in 2015 sixteen times higher than the one the Center presented.

Males always recorded much higher numbers: the rate for men was 15.7 while for women 8.1 per 100 000 population. Their trend follows the general HIV trend and it is common, with some exceptions, usually connected with MSM or IDU outbursts. The male to female

ratio is mainly depending on the transmission modes of each country. The highest ratio was observed in Serbia (14.4), Montenegro (14.0) and Hungary (11.1) and the lowest in Kyrgyzstan (1.3) and the Republic of Moldova (1.4). The male to female ratio in the whole Region was 1.9, while the highest ratio was in the Centre (5.3) and the lowest in the East (1.6). It is interesting to note that for the Eastern and Southern Africa, the gender ratio is reverse, as for the ages 15-49, females constitute the 65% of new diagnoses, presenting a 1.9 ratio, as “testing and treatment coverage for men continues to be significantly lower than for women”.

The transmission mode is heterogeneous in the Regions, and even more between the Regions. For the whole region, heterosexual contact is the dominant mode, counting 60 409 HIV diagnoses. Considering that 10% of the total diagnoses do not have transmission mode data, heterosexual contact stands for the 64.1% of the total with data, MSM for 10.5% and MTCT for 0.5%. Infections through the IDU transmission mode are the 24.8% of the total diagnoses with transmission data. It is important to know that there is a high 4.3 male to female ratio in IDUs.

In 2019, before Russia entered data, the heterosexual contact percentage of all new HIV diagnoses was 59.2% (64.1% in 2020), MSM was 24.4% (10.5% in 2020) and IDU 15.3% (24.8% in 2020). Besides the clear decrease of the MSM infections, heterosexual transmission is declining the last two years, after having reached a peak in 2018. On the contrary, these two years the Injecting Drug Users tend to incline, after a decrease in their number the previous years. The three Regions present very different transmission modes: the West continues to be the Region with the highest MSM rates, the Center balances between MSM and heterosexual contacts and the East Region has managed to drop the numbers of the IDU diagnoses of the past and is reporting a primarily heterosexual contact transmission mode. The chart shows data for 2020 by the 46 countries who have submitted data. Portugal did not want the data published; data from the previous years is included.

The 50+ age group presented 15 105 cases (14.4%); the age group with the largest proportion of new diagnoses was the 30-39 years (39.7%), though the age group proportions were different in each Region and country. In Albania the 50+ age group was with the most diagnoses, in Croatia the 40-49 age group was with the most diagnoses, in Netherlands, Armenia and the United Kingdom the second group in number of diagnoses

was the 50+ age group, and in Austria, Denmark, Italy and Switzerland the age groups 30-39 and 50+ had the same number of diagnoses. What is notable change is that the group with the third higher percentage has changed over the years; from 25-29 age group there was a shift to 50+.

Among the people diagnosed with HIV and there was data about their origin (n=41 802), the 81.8% originated from the country of report and the 5.6% from a European country other than the country of report. The 12.6% originated outside of the WHO European Region; from them, 6.2% originated from Sub-Saharan Africa and 3.3% from Latin America and Caribbean. This trend does not seem to have changed significantly.

Only thirty countries have reported on probable region of infection. For the 14 780 diagnoses with data on this variable, the 20.6% was outside of the country of report: the 8.9% was infected in another European country and the 11.7% outside of the WHO European Region, 6% of which was from Sub-Saharan Africa and 2.6% from South and South-east Asia [19].

There were 89 407 new HIV diagnoses with CD4 cell count data. The 36.3% of them were late presenters with CD4 cells under 350 per mm<sup>3</sup>, including 19.2% with CD4 cells under 200 per mm<sup>3</sup>. The 64% of these diagnoses were reported by Russia, submitting CD4 cell count data first time since HIV reporting. In the process of following the trend of the decade, the diagnoses coming from Russia are excluded and we observe that the late presenters are the 50% of the diagnoses, very close to the previous years (53.2% in 2019). The highest percentage of late presenters is found in the heterosexual transmission mode (56.7% from the heterosexual diagnoses), 43.2% late presenters were the IDUs and 41.8 the Men who have Sex with Men [20]. It is worth mentioning that late presenters have higher percentage in the 50+ age group (65%) and the percentage gets lower as the people are younger: for the age group 15-19 it drops to 33%. The two genders show similar percentage (52% for women and 50% for men) “which, for men, conceals the difference between MSM (who tend to get diagnoses earlier) and heterosexual men (who tend to get diagnoses later)”, the surveillance report notes. Albania (60%), Armenia (62%), Denmark (61%) and Italy (60%) are the countries with the highest percentages of late presenters. The countries with the lowest percentages of late presenters are Russia (27% - rate of HIV diagnoses: 40.8) and Cyprus (30% - rate of HIV diagnoses: 11.8).



The number of AIDS diagnoses for the WHO European Region, in 2020, was 7721. The data was collected from 43 countries, Russia not being one of them, having the highest rate of new HIV diagnoses. Still, 73.8% of all cases were diagnoses in the East (rate: 5.0 per 100 000 population) and 20% in the West (rate: 0.5). The male to female ration in AIDS diagnoses was 1.9/100 000 population and the 2020 AIDS diagnoses rate for the whole Region was 1.2/100 000. The number of AIDS diagnoses in 2011 was 18 160 (rate: 2.5), so a 57.5% decrease in diagnoses was observed for the whole Region, the past decade (29% from 2011 to 2019). The highest AIDS diagnoses rates were reported in Ukraine (9.9), Armenia (5.1), the Republic of Moldova (4.9) and Georgia (4.5). The lowest rate (0.1) was reported in Ireland, Poland and Slovakia. The East presented a total decrease of 50.6% between the years 2011 to 2020 (from 11554 diagnoses to 5705), the Center 47% (from 882 to 467) and the West the highest, 73% (from 5724 to 1549). According to the Surveillance report, the decrease percentages for the countries with consistent AIDS data are: 53%, 60% and 64% respectively, while the overall rate decrease by 54%.

Concerning the trends of the transmission modes of the people diagnosed with AIDS, during the past decade: the Mother To Child Transmission decreased from 220 to 78 diagnoses during the decade, presenting the peak on 2017 with 247 diagnoses; the Men who have Sex with Men decreased from 1926 to 703 diagnoses; the IDUs decreased from 7128 to 1519 and the heterosexual diagnoses decreased from 8006 to 4972, presenting the peak as late as 2018.

For the total number of AIDS-related deaths of the Region, 41 countries submitted their data. The number of deaths recorded by these countries was 3506 - the number for 2011 was 5963 (for the same number of countries; the real number reported for 2011 was 7055, but this is not comparable), which represents a 41.2% decrease. The 82% of all the AIDS-related recorded deaths in the Region was reported from the East (Ukraine reports 60% of the European Region total) and the 13% from the West (France reports the 32.5% of the West Region). The calculation of the AIDS-related deaths has many parameters, which can utterly change the percentages. Beyond the possible underreporting or reporting delays, the Surveillance report clarifies that the numbers presented should “not be interpreted as representative of the true AIDS mortality burden in the European Region. According to a country survey from 2006, only about one third of countries in the WHO

European Region were able to match their HIV/AIDS registries with their national mortality or vital statistics registries”. The same careful interpretation should also involve the new HIV diagnoses, the official reports of which do not represent true incidence<sup>4</sup>.

For the people diagnosed with AIDS, tuberculosis was reported as an AIDS-defining illness for the 20%; Pneumocystis pneumonia, oesophageal candidiasis, wasting syndrome and Kaposi’s sarcoma are the illnesses also reported as AIDS co-morbidity.

It is notable that only 21 countries have reported the number of HIV testing and none increased the number of testing in the 2020, rather predictable for the first year of the CoViD-19 pandemic [21]. The way of recording, however, differs for every country<sup>5</sup>, and “comparisons between country testing rates should be undertaken with caution”. A total number of 57 671 711 tests were reported in 2020 (anonymous tests are not included), that is a 29% increase since 2011 and a 16% decrease between 2019 and 2020, for these 21 countries with data. Only four countries from the West Region submitted data for the HIV tests, eight from the Center and nine from the East – the latter are the ones with the higher numbers of tests in the whole Region; their number increased by 36% from 2011 to 2020 and for the eight countries from the Center the increase was 23%. It is important to underline that the increase in the numbers of HIV tests does not necessarily generate higher testing yields, if a high proportion of the HIV tests is performed at low risk population.

Overall, different approaches should be followed in each Region and each country, according to the local trends and characteristics. It is without doubt that the major challenge, especially in the East Region, is the late diagnosis. Late diagnosis may suggest remote or no access to health care, fear of stigmatization, lack of knowledge [3]; it means late Anti-Retroviral Therapy and a setback of the 90-90-90 cascade target – an even further setback of the 95-95-95 cascade target that was set in 2021 by the United Nations

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<sup>4</sup> As it is explained in the Surveillance report: “Newly reported HIV diagnoses include recently infected individuals as well as those who were infected several years ago but only recently tested for HIV. The official reports are also influenced by several factors, such as the uptake of HIV testing, patterns of reporting, the long incubation period, and a slow progression of the disease [...]. However, due to under-detection associated with reduced testing for parts of 2020 and 2021, combined with likelihood of a higher reporting delay than usual, numbers and rates presented in this report for 2020 are probably under-estimates of the true number of persons diagnosed with HIV.

<sup>5</sup> HIV tests in Greece, for example, refer only to those performed in reference centers and do not include all tests carried out in public hospitals or private laboratories, while in Russia HIV tests include blood donors. Thus, though Russia has reported the 63% of the total HIV test in the WHO European Region, as the rest of the countries do not record the number of the HIV tests performed as part of blood donor screening, the rates (tests per 1000 population) do not describe the same practice.

for 2025, towards achieving the Sustainable Development Goals[22]. Already, according to UNAIDS data, the 90-90-90 targets were missed, fortunately not by much: “At the end of 2020, 84% of people living with HIV knew their HIV status, 87% of people living with HIV who knew their HIV status were accessing antiretroviral therapy, and 90% of people on treatment were virally suppressed”[2].

The United Nations and ECDC have contemplated the significant parameters which form the trends of HIV globally and locally. It has been acknowledged that it is the key populations, those who are more likely to be exposed to HIV or are living with HIV, are the ones who should be addressed to with tailor made programs; the key populations have been recognized and named: MSM, IDUs, sex workers and clients, transgender people, people in drug dependence treatment, prisons and other closed settings – such as camps: the migrants are an aspect of public health which deserves and demands caution in every local setting and in all migrant health services [23][24], including SRH clinics. It has been acknowledged that Sub-Saharan young females are at elevated risk of HIV infection. It has been acknowledged that stigmatization can both prevent people from being tested and also worsen their everyday life, especially for Injecting Drug Users and Men who have Sex with Men[25][26]; improvement has been made in some countries, but discrimination continues [27].

The new targets seek evidence-based measures for all populations threatened by HIV infection, new strategies adjusted to CoViD 19, call for the involvement of community based organizations [28][29] and active participation key population groups. The necessity for multiple entry points drives the perception of the testing being done at home as self-testing, or by lay providers, or in a routine testing [30], that is considering the patient as someone who does not need to visit only the HIV health care clinics but is offered alternative options, closer to the person and less stigmatizing. Tests to key population will result in: less late diagnoses, lower AIDS rates and AIDS-related deaths, faster initiation of ART and mitigation of transmission.

The significant step for the reduction of AIDS numbers, as it was observed during the last decade, was the treat all approach, irrespective of the stage of the disease. Almost 90% of the WHO European Region countries have a policy of providing antiretroviral therapy, not according to CD4 count; surveys have proved the importance of ART for the person in therapy and the community. Prevention [31][32]is a key word for all infectious diseases.

The use of Pre-Exposure Prophylaxis for HIV, as planned, should be available to all populations at substantial risk of being HIV infected [33]. Nevertheless, though cost effective [34] and having efficacy [35][36][37], “the reported use of PrEP is well below the coverage level expected based on perceived need”, the Surveillance report notes [38]. Especially in the East Region where the highest new diagnoses rates are reported, the initiation of PrEP, the treat all approach for the ART, the integration of new, differentiated HIV testing strategies into national policies are essential for the reduction of HIV incidence and late diagnoses rate. The 2025 targets want to ensure that 90% of the people living with HIV receive preventive treatment for tuberculosis as well, pointing to an 80% reduction of tuberculosis-related deaths, compared to a 2010 baseline.

The strong will for implementing suggestions and decisions in order to fulfill the 2025 targets is powered by the financial support for the low and middle income countries [39] and the attempt to end inequities, which are tightly linked with the spread of HIV globally [40][41]. Funding the new strategies is a crucial step, as the pandemic tends to absorb resources disproportionately. What should not be overlooked are the estimates of underreporting which vary for each country and can range, for AIDS cases, from 10% to 40%, mainly due to the pandemic. In other words, the real numbers for all the HIV variables are higher, depending on the accuracy of the data collection system of each country, the financial capacity, the reporting delay. This realization makes the urge for prompt action even more acute.

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## ΠΕΡΙΛΗΨΗ ΤΗΣ ΔΙΠΛΩΜΑΤΙΚΗΣ ΕΡΓΑΣΙΑΣ

### «ΤΑΣΕΙΣ ΤΗΣ ΠΑΝΔΗΜΙΑΣ ΤΟΥ HIV ΣΤΗΝ ΕΥΡΩΠΗ ΚΑΤΑ ΤΗ ΔΙΑΡΚΕΙΑ ΤΩΝ ΕΤΩΝ 2012-2020»

Ο ιός της ανοσοανεπάρκειας του ανθρώπου (Human Immunodeficiency Virus-HIV) επιτίθεται στο ανθρώπινο ανοσοποιητικό σύστημα, καταστρέφοντας τα CD4+ Τ λεμφοκύτταρα, τα οποία συμβάλλουν στην αντίδραση του οργανισμού σε εισερχόμενα αντιγόνα. Η μη έγκαιρη αντιμετώπιση με αντιρετροϊκή φαρμακευτική αγωγή οδηγεί στο Σύνδρομο Επίκτητης Ανοσολογικής Ανεπάρκειας (AIDS), το τελευταίο στάδιο λοίμωξης από HIV. Σε αυτή την κατάσταση οι ευκαιριακές λοιμώξεις δεν μπορούν πλέον να αντιμετωπιστούν από το ανοσοποιητικό σύστημα, καθώς ο αριθμός των κυττάρων CD4 είναι λιγότερος από 200 mm<sup>3</sup> (εξ' ορισμού). Ο αριθμός αυτός είναι σημαντικός για την απόφαση έναρξης της αντιρετροϊκής θεραπείας (ART) και την βελτίωση της κατάστασης του οροθετικού ατόμου. Η μετάδοση γίνεται μέσω της σεξουαλικής επαφής όλων των οδών χωρίς προφυλακτικό, μέσω της κοινής χρήσης βελόνας και σύριγγας με HIV οροθετικό άτομο και μέσω οροθετικής εγκύου κατά τη διάρκεια της κύησης, του τοκετού και του θηλασμού [1].

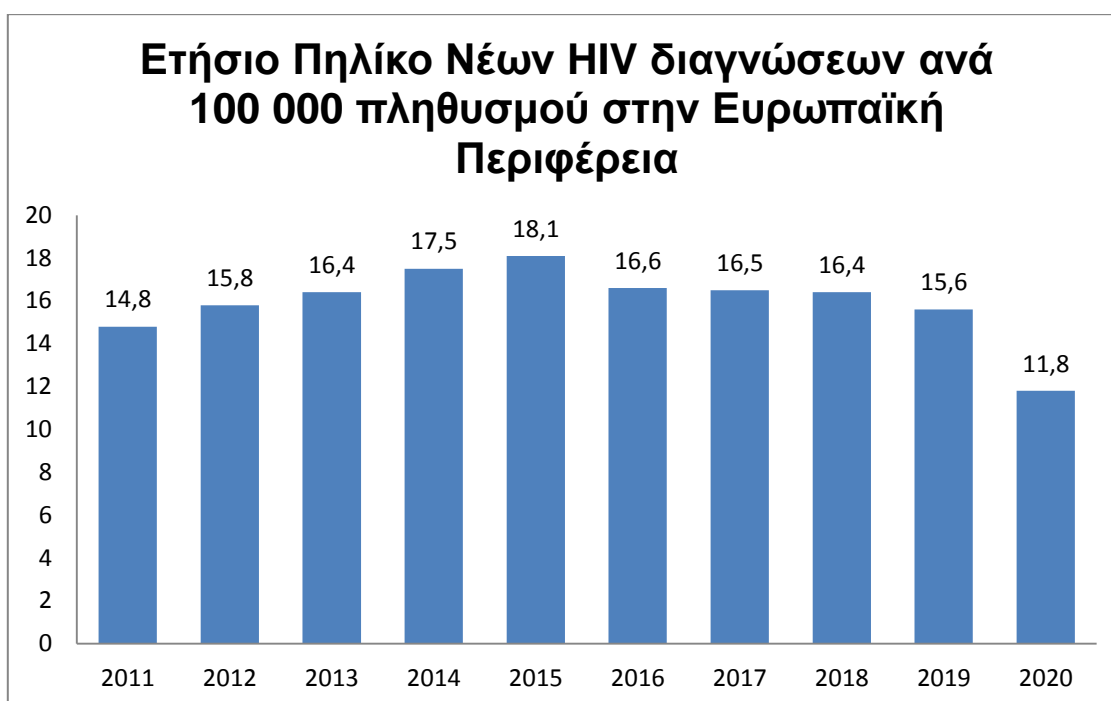
Η πανδημία του SARS-CoV-2 τείνει να μονοπωλεί το ενδιαφέρον του παγκόσμιου πληθυσμού, ωστόσο η μόλυνση από τον ιό του HIV εξακολουθεί να αποτελεί απειλή για την δημόσια υγεία, όπως μαρτυρούν οι αριθμοί των νέων κρουσμάτων: υπολογίζεται ότι το 2020 37.7 εκατομμύρια άνθρωποι ζούσαν με τον HIV παγκοσμίως, 1.5 εκατομμύριο ήταν οι νέες μολύνσεις και 680 000 ήταν οι απώλειες από ασθένειες σχετιζόμενες με AIDS [2]. Η παρουσία του ιού στη Ευρώπη δεν έχει τόσο έντονο χαρακτήρα όσο σε άλλα μέρη του κόσμου, ωστόσο το κόστος σε ανθρώπινες ζωές, η περιθωριοποίηση των οροθετικών και η οικονομική επιβάρυνση είναι υψηλά. Η χορήγηση της αντιρετροϊκής θεραπείας έχει αλλάξει σημαντικά τις ζωές των ανθρώπων που μολύνθηκαν και οποίοι πλέον μπορούν, τηρώντας πλήρως τις οδηγίες της αγωγής τους, να έχουν μια (ιατρικώς) φυσιολογική ζωή. Αυτή η δραματική αλλαγή στην προηγούμενης δεδομένη αλυσίδα HIV-AIDS-θάνατος, σε συνδυασμό με νέες απειλές για την δημόσια υγεία, και την παγκόσμια οικονομική ύφεση

έστρεψαν το ενδιαφέρον του -κυρίως μη υγειονομικού- κόσμου μακριά από τον HIV που συνεχίζει να επηρεάζει το ευ ζην εκατομμυρίων ανθρώπων. Πέρα από τις πιθανές φαρμακευτικές παρενέργειες και την εύκολη και δωρεάν πρόσβαση στην αγωγή, η κοινωνική αποδοχή των ανθρώπων που ζουν με HIV, σε πολλές χώρες, κινείται σε μια μάλλον συντηρητική προσέγγιση. Ο HIV θεωρείται ακόμα ιός των ομοφυλόφιλων και των χρηστών ναρκωτικών ουσιών, και τόσο τα νέα κρούσματα όσο και οι άνθρωποι που ζουν με τον ιό αντιμετωπίζονται με απόρριψη και συχνά με εχθρότητα.

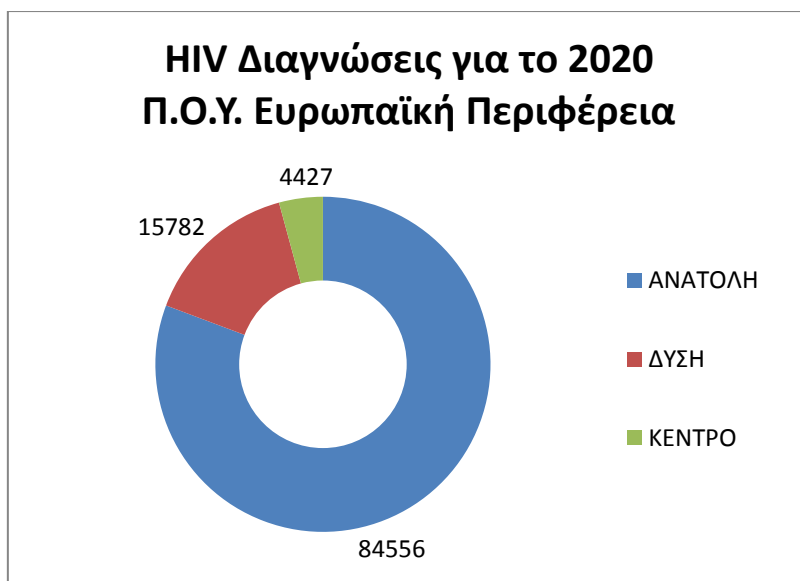
Η συλλογή και επεξεργασία των δεδομένων για τον HIV παρέχουν τα κατάλληλα εργαλεία για την παρακολούθηση τάσεων και νέων συνθηκών, με κεντρικό γνώμονα την καταπολέμηση της πανδημίας και την βελτίωση των συνθηκών ζωής των ανθρώπων που ζουν με τον ιό. Είναι απαραίτητη η αναφορά στις 53 χώρες που υποστηρίζουν το σύστημα δεδομένων και στον τρόπο διαίρεσης της Ευρωπαϊκής Περιφέρειας του Παγκόσμιου Οργανισμού Υγείας, η οποία αποτελείται από 3 γεωγραφικές περιοχές με βάση επιδημιολογικές εκτιμήσεις, και σύμφωνα με την διαίρεση προηγούμενων HIV/AIDS αναφορών επιτήρησης: την Δυτική Περιφέρεια (23 χώρες: Αυστρία, Βέλγιο, Δανία, Φινλανδία, Γαλλία, Γερμανία, Ελλάδα, Ισλανδία, Ιρλανδία, Ιταλία, Λουξεμβούργο, Μάλτα, Ολλανδία, Νορβηγία, Πορτογαλία, Ισπανία, Σουηδία, Ηνωμένο Βασίλειο, Ανδόρα, Ισραήλ, Ελβετία, Μονακό, Σαν Μαρίνο), την Κεντρική Περιφέρεια (15 χώρες: Βουλγαρία, Κροατία, Κύπρος, Τσεχία, Ουγγαρία, Πολωνία, Ρουμανία, Σλοβακία, Σλοβενία, Αλβανία, Βοσνία και Ερζεγοβίνη, Μαυροβούνιο, Βόρεια Μακεδονία, Σερβία, Τουρκία) και την Ανατολική Περιφέρεια (15 χώρες: Εσθονία, Λετονία, Αρμενία, Αζερμπαϊτζάν, Λευκορωσία, Γεωργία, Καζακστάν, Κυργιστάν, Μολδαβία, Ρωσία, Τατζικιστάν, Ουκρανία, Ουζμπεκιστάν, Τουρκμενιστάν). Στις χώρες αυτές έχουν διαγνωστεί με HIV πάνω από 2,2 εκατομμύρια άνθρωποι, τα τελευταία τριάντα χρόνια.

Για το έτος 2020 οι νέες HIV διαγνώσεις στην Ευρωπαϊκή Περιφέρεια ήταν 104 765 (στις 46 από τις 53 χώρες-μέλη – 7 χώρες δεν έστειλαν δεδομένα). Το 2011 ο αριθμός των νέων HIV διαγνώσεων ήταν 125 807. Το πηλίκo ανά 100 000 πληθυσμού, από 14.8 το 2011 έπεσε στο 11.8 το 2020. Όπως φαίνεται στο διάγραμμα, υπάρχει μια πτωτική τάση τα τελευταία πέντε έτη και μια εντυπωσιακή πτώση 3.8 μονάδων για το 2020. Ωστόσο, όπως διευκρινίζεται στην ετήσια αναφορά του ECDC/WHO για το 2021 (δεδομένα για το 2020), τα δεδομένα της επιτήρησης για το 2022 είναι δυνατό να είναι σημαντικά επηρεασμένα από την πανδημία του CoViD-19, οδηγώντας τις χώρες σε ουσιώδες underreporting: σε

έρευνα που διενήργησε το ECDC σε όλα τα κράτη της Ευρωπαϊκής Περιφέρειας κατά τον Π.Ο.Υ., σχετικά με θέματα μειωμένης ανίχνευσης και αναφοράς μολύνσεων από HIV, οι (λίγες) χώρες που απάντησαν κατέδειξαν ένα ποσοστό της τάξης του 20% στην ανίχνευση και 30% στην αναφορά μολύνσεων από τον ιό, οφειλόμενες σε περιορισμένη δυνατότητα επιτήρησης. Συνεπώς, η πτώση 24% στο Πηλίο των νέων διαγνώσεων HIV ανά 100 000 πληθυσμού, για το έτος 2020 δεν μπορεί να υποστηριχθεί ότι είναι ακριβής και ενδεικτική [3].



Το Πηλίο των νέων διαγνώσεων HIV ανά 100 000 πληθυσμού, για το έτος 2020, ήταν 32.6 για την Ανατολική Περιφέρεια, 3.7 για την Δυτική και 2.3 για την Κεντρική. Ο αριθμός των ανθρώπων που διαγνώστηκαν με HIV ήταν 84 556 στην Ανατολική Περιφέρεια – το 81% του συνόλου της Ευρωπαϊκής Περιφέρειας (104 765), εκ των οποίων οι 59 598 διαγνώστηκαν στη Ρωσία και οι 15 658 στην Ουκρανία – 15 782 στην Δυτική Περιφέρεια (15%) και 4427 στην Κεντρική (4%).



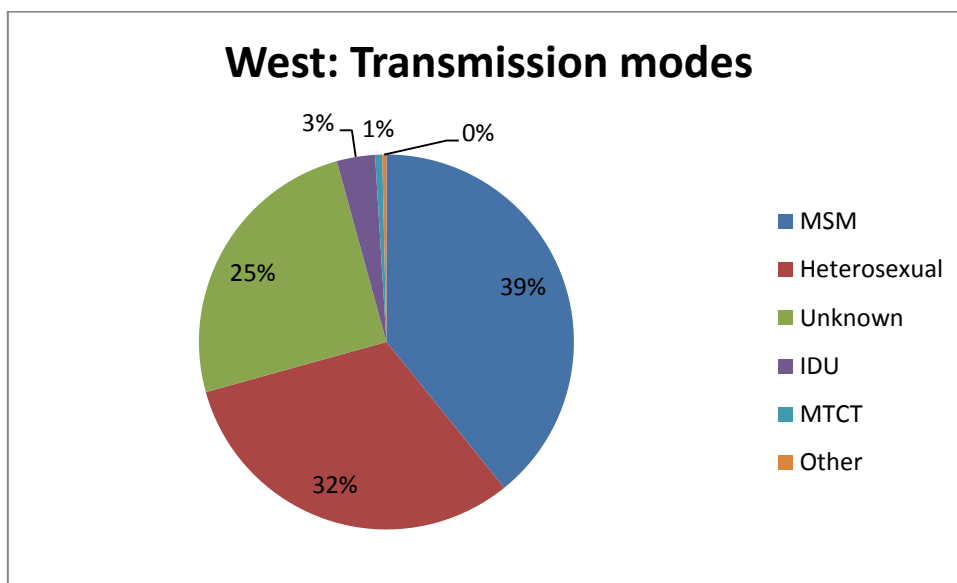
Οι τρόποι μετάδοσης ποικίλλουν ανάλογα με την χώρα και την Περιφέρεια. Η ετεροσεξουαλική επαφή είναι ο τρόπος μετάδοσης του 58% των 46 κρατών που παρουσίασαν δεδομένα, οι χρήστες ενέσιμων εξαρτησιογόνων ουσιών (ΧΕΝ) αφορούν το 22%, οι άνδρες που έχουν σεξουαλικές επαφές με άνδρες (ΑΣΑ) το 9% και η κάθετη μετάδοση από τη μητέρα στο παιδί το 0.4%.

Η αναλογία διαγνώσεων ανδρών-γυναικών επίσης εξαρτάται από την Περιφέρεια: υψηλότερη παρουσιάζεται στην Κεντρική (5.3), χαμηλότερη στην Ανατολική (1.6), ενώ είναι 3.0 στην Δυτική. Σε όλη την Ευρωπαϊκή Περιφέρεια το Πηλίκιο για το 2020 ήταν 15.7 για τους άνδρες και 8.1 για τις γυναίκες ανά 100 000 πληθυσμού.

Στις νέες διαγνώσεις AIDS οι διαφορές είναι εξαιρετικά σημαντικές. Η Ανατολική Περιφέρεια αναφέρει το 74% (5705) όλων των νέων διαγνώσεων AIDS (7721), με Πηλίκιο 5.0. Η Κεντρική Περιφέρεια καταγράφει Πηλίκιο μόλις 0.2 και η Δυτική 0.5. Το Πηλίκιο για όλη την Ευρωπαϊκή Περιφέρεια, για το έτος 2020, ήταν 1.2.

Αναφορικά με κάθε Περιφέρεια ξεχωριστά, η Δυτική Περιφέρεια παρουσίασε πτώση του Πηλίκιου νέων διαγνώσεων από το 5.4 του 2019 (σε 3.7 το 2020), ενώ οι νέες HIV διαγνώσεις των 20 – από τις 23 – χωρών ήταν 15 782. Το 2012 ο αριθμός αυτός ήταν 31 407 (Πηλίκιο: 7.6), ο μεγαλύτερος της προηγούμενης δεκαετίας. Πρέπει να τονιστεί εδώ ότι λόγω αλλαγών σε μεθόδους καταγραφής, αποστολές δεδομένων μετά τις προθεσμίες και άλλους λόγους, παρατηρούνται διαφορές στους απόλυτους αριθμούς των διαφόρων παραμέτρων κατά τη διάρκεια της δεκαετίας. Συνεπώς είναι πιο ασφαλές να συγκρίνουμε τάσεις παρά αριθμούς από διαφορετικές περιόδους και ανόμοιες αναφορές επιτήρησης.

Στην Δυτική Περιφέρεια η Μάλτα, η Ισλανδία και η Ιρλανδία παρουσιάζουν τα υψηλότερα πηλίκια: 15.9, 9.3 and 8.6 (συγκριτικά με το 2019: 16.2, 7.8 και 11.2). Η Πορτογαλία αιτήθηκε να μην δημοσιευθούν τα δεδομένα της χώρας για το 2020: μια χώρα Πηλίκιο 8.8 το 2019, από 17.3 το 2012.



Σχετικά με τον τρόπο μετάδοσης, για τους ΑΣΑ, το 2020 καταγράφονται 6185 νέες διαγνώσεις· σε όλη την Ευρωπαϊκή περιφέρεια ο αριθμός που καταγράφεται για τους ΑΣΑ το 2020 είναι 9897, ενώ το 2019 ήταν 9570 και το 2018 ήταν 10 377. Στην Γαλλία, την Ισπανία και την Γερμανία καταγράφεται το 50% των νέων διαγνώσεων ΑΣΑ της Περιφέρειας. Η μετάδοση του ιού μέσω ετεροσεξουαλικής επαφής καλύπτει το 31.5% των νέων διαγνώσεων στην Δυτική Περιφέρεια, των ΧΕΝ το 3.2% και των ΑΣΑ το 39.1%. Καθώς, ωστόσο, υπάρχουν καταγραφές νέων διαγνώσεων χωρίς αναφορά στον τρόπο μετάδοσης (25%), τα αντίστοιχα ποσοστά με παρονομαστή τον αριθμό των νέων διαγνώσεων που φέρουν αυτήν την πληροφορία είναι: 42%, 52% και 4.3%. Η Γερμανία και η Ελλάδα παρουσιάζουν τον μεγαλύτερο αριθμό ΧΕΝ στην Περιφέρεια. Από την ετεροσεξουαλική μετάδοση και τους ΑΣΑ προκύπτει το 94.3 των νέων διαγνώσεων με γνωστό τρόπο μετάδοσης· και οι δύο παρουσιάζουν πτώση 47% σε σχέση με το 2011 (50% για τους ΧΕΝ).

Τα υψηλότερα ποσοστά στις νέες διαγνώσεις βρέθηκαν στην ηλικιακή ομάδα 30-39 (30.2%) και ακολουθούσαν οι ηλικιακές ομάδες 40-50 και 50+ με 22.1% και 23% αντίστοιχα. Η Δυτική Περιφέρεια παρουσιάζει το χαμηλότερο πηλίκιο στην παράμετρο της γεωγραφικής περιοχής μόλυνσης που ταυτίζεται με την χώρα καταγραφής της νέας



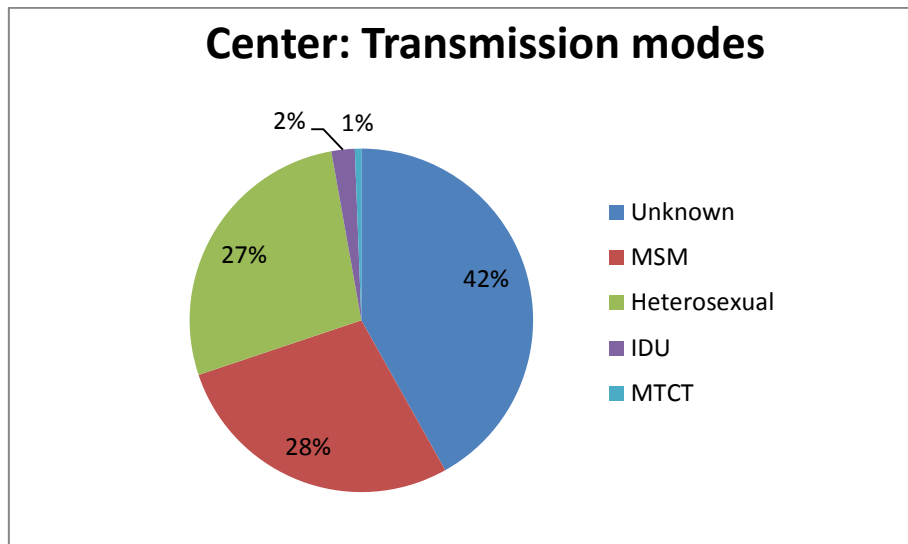
διάγνωσης. Οι νέες διαγνώσεις AIDS ήταν 1549 – πηλίκo 0.5 – η πλειονότητα των οποίων ήταν άνδρες (n=1163). Σε αντίθεση με τον τρόπο μετάδοσης, οι άνθρωποι που διαγνώστηκαν με AIDS, είχαν μολυνθεί κυρίως μέσω ετεροσεξουαλικής έπαφής (48.4%) και οι ΑΣΑ ήταν 29.3%. Ο καταγεγραμμένος αριθμός θανάτων που σχετιζόταν με AIDS ήταν 444, σε Ευρωπαϊκό σύνολο 3506, ωστόσο πολλές χώρες δεν έδωσαν δεδομένα οπότε και οι δύο αριθμοί είναι υψηλότεροι. Ακόμα κι έτσι, ο αριθμός των θανάτων που σχετιζόταν με AIDS κατά τη διάρκεια της δεκαετίας μειώθηκε σημαντικά. Στην αναφορά επιτήρησης διευκρινίζεται ότι «οι αριθμοί αυτοί δεν αντικατοπτρίζουν το πραγματικό φορτίο της θνησιμότητας που σχετίζεται με το AIDS στη Δυτική Περιφέρεια, λόγω καθυστερήσεων στην αποστολή των δεδομένων. Ειδικότερα, υπάρχει ο κίνδυνος του underreporting στους θανάτους στις χώρες που δεν έχουν την δυνατότητα να συνδέσουν τα αρχεία HIV/AIDS με τα αρχεία στατιστικών».

Δυστυχώς, μια πολύ σημαντική παράμετρος, ο αριθμός των κυττάρων CD4, παρουσιάζει γενικότερα στην Ευρωπαϊκή Περιφέρεια χαμηλά ποσοστά συμπλήρωσης δεδομένων (31.4%). Στην Δυτική Περιφέρεια δεκαεφτά χώρες έδωσαν δεδομένα για τον αριθμό των CD4, που αντιστοιχεί στο 66.5% των νέων διαγνώσεων: το 48.9% αυτών είχαν αριθμό κυττάρων CD4 κάτω από  $350/\text{mm}^3$  (n=5037). Ο αριθμός εμπεριέχει 3052 ανθρώπους (29.6%) με CD4 κάτω από  $200/\text{mm}^3$  (AIDS). Η Ιταλία αναφέρει το μεγαλύτερο ποσοστό διαγνώσεων με CD4 κάτω από  $350/\text{mm}^3$  (60%).

Όλες οι χώρες που απέστειλαν δεδομένα σχετικά με τον αριθμό ελέγχων για HIV (21 χώρες), πραγματοποίησαν μικρότερο αριθμό ελέγχων με εξαίρεση το Καζακστάν που πραγματοποίησε τον ίδιο ακριβώς αριθμό. Από τις χώρες αυτές, η Ελλάδα, η Πορτογαλία, η Ιρλανδία και η Ρωσία έχουν διαφορετικό σύστημα καταμέτρησης του αριθμού των ελέγχων. Το Καζακστάν εμφανίζει τον μεγαλύτερο αριθμό ελέγχων για HIV, 153.3 ανά 1000 κατοίκους, με εξαίρεση τη Ρωσία με 247.4 ελέγχους, η οποία όμως προσμετρά και τους ελέγχους των δωρητών αίματος.

Στην Κεντρική Περιφέρεια συγκαταλέγονται 15 χώρες – δεδομένα έδωσαν οι 13. Με εξαίρεση την Κύπρο τα πηλίκα των νέων διαγνώσεων παραμένουν σε ένα σχετικά χαμηλό επίπεδο. Οι μόνες χώρες που παρουσίασαν υψηλότερο πηλίκo νέων διαγνώσεων σε σχέση με το 2019 ήταν η Τσεχία, από 2.1 σε 2.3/100 000 πληθυσμού και η Κύπρος, από 11.4 σε 11.8/100 000 πληθυσμού.

Με μη καταγεγραμμένο τον τρόπο μετάδοσης σε πολύ υψηλό ποσοστό (42%), οι μολύνσεις μέσω ΑΣΑ για το 2020 ήταν 1238 (998 το 2011), μέσω ετεροσεξουαλικής επαφής ήταν 1210 (1045 το 2011) και μέσω ΧΕΝ ήταν 97 (356 το 2011). Οι περισσότερες χώρες αναφέρουν τους ΑΣΑ ως κυρίαρχο τρόπο μετάδοσης. Η ηλικιακή ομάδα 30-39 είναι αυτή με τις περισσότερες διαγνώσεις, όπως και στην Δυτική Περιφέρεια.



Η τάση των νέων διαγνώσεων για την Περιφέρεια την περασμένη δεκαετία, ως το 2019, υπήρξε πτωτική. Το 2011 στην Κεντρική Περιφέρεια το πηλίκο που είχε καταγραφεί ήταν 1.9, αυξανόμενο κάθε χρόνο φθάνοντας το 3.5/100 000 πληθυσμού το 2019 και πέφτοντας στο 2.3 (n=4427) για το 2020. Πέρα από το γεγονός ότι καταγράφει την μεγαλύτερη αναλογία διαγνώσεων ανδρών-γυναικών, κάποιες χώρες της Κεντρικής Περιφέρειας παρουσιάζουν εντυπωσιακά υψηλά ποσοστά: η Σερβία 14.4, το Μαυροβούνιο 14.0 και η Ουγγαρία 11.1, δεδομένα που συσχετίζονται με τον τρόπο μετάδοσης καθώς μαζί με την Κροατία (7.4) και την Κύπρο (4.5) καταγράφουν υψηλά ποσοστά ΑΣΑ. Από την χώρα καταγραφής της νέας διάγνωσης κατάγεται το 88.7% των διαγνώσεων για τις οποίες υπάρχουν δεδομένα της παρούσας μεταβλητής.

Όσον αφορά τον αριθμό των κυττάρων CD4, 11 χώρες έδωσαν δεδομένα που ποσοστιαία καλύπτουν το 48% των νέων διαγνώσεων στις χώρες αυτές, το χαμηλότερο από όλες τις Περιφέρειες. Το 45.6% των νέων διαγνώσεων είχαν κύτταρα CD4 κάτω από 350/mm<sup>3</sup>, ενώ κάτω από 200/mm<sup>3</sup> είχε το 24.3%. Το υψηλότερο ποσοστό νέων διαγνώσεων με κύτταρα

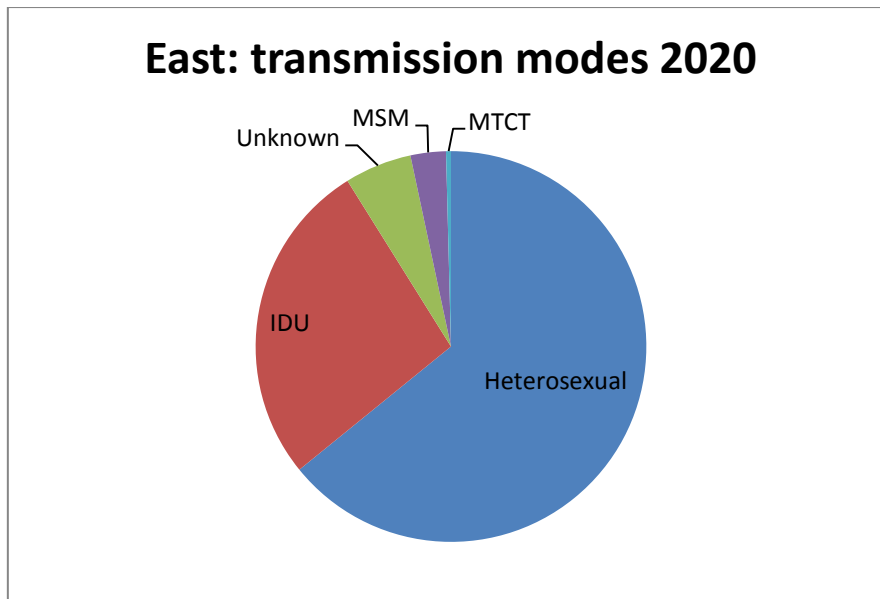
CD4 κάτω από 350/mm<sup>3</sup>, τόσο για την Κεντρική όσο και για όλες τις Περιφέρειες έχει καταγραφεί στην Αλβανία (69,4%)

Η τάση στις διαγνώσεις AIDS παραμένει σταθερή, αν και σε επίπεδο χωρών οι τάσεις είναι ποικίλες. Το 2011 οι νέες διαγνώσεις AIDS ήταν 882 (Πηλίκιο: 0.5/ 100 000 πληθυσμού) και το 2019 ήταν 847. Το 2020, το Πηλίκιο έπεσε στο 0.2 με 467 νέες διαγνώσεις. Τα μεγαλύτερα Πηλίκια στην Περιφέρεια καταγράφηκαν στην Κύπρο (2.0) και στην Ρουμανία (0.9). Για τις 404 διαγνώσεις AIDS με γνωστό τρόπο μετάδοσης, μέσω ετεροσεξουαλικής επαφής μολύνθηκε το 53.4%, μέσω ΑΣΑ το 34.4% και οι μολύνσεις των ΧΕΝ ήταν το 7.4%.

Οι 395 θάνατοι σχετιζόμενοι με AIDS, το 2011, ήταν ο μεγαλύτερος αριθμός της δεκαετίας. Από το 2014 παρατηρήθηκε μια αργή μείωση ως το 2019, με 276 θανάτους, από 378. Το 2020 έγινε καταγραφή 185 θανάτων.

Η Ανατολική Περιφέρεια παρουσιάζει μια εικόνα τελείως διαφορετική από τις άλλες δύο Περιφέρειες. Από τις 13 χώρες που έδωσαν στατιστικά δεδομένα προκύπτει ένας αριθμός 84 556 νέων HIV διαγνώσεων για το 2020, με Πηλίκιο 32.6/100 000 πληθυσμού, υπεροκταπλάσιο από το αντίστοιχο Πηλίκιο της Δυτικής Περιφέρειας. Το 89% των διαγνώσεων ανήκουν στη Ρωσία και την Ουκρανία, οι οποίες καταγράφουν τα υψηλότερα Πηλίκια στην Περιφέρεια, 40.8 και 37.5/100 000 πληθυσμού αντίστοιχα, με την τρίτη χώρα, το Καζακστάν, να παρουσιάζει πολύ χαμηλότερο Πηλίκιο: 18.5/100 000. Οι πιο χαμηλές τιμές παρατηρούνται στη Λιθουανία (3.9) και το Αζερμπαϊτζάν (5.5), οι μόνες χώρες με μονοψήφιο Πηλίκιο στην Περιφέρεια.

Σημαντικό χαρακτηριστικό της Ανατολικής Περιφέρειας ήταν ότι όλες οι χώρες ανέφεραν μικρή η μεγάλη πτώση στις νέες διαγνώσεις HIV, ενώ την προηγούμενη δεκαετία παρουσιάστηκε άνοδος – όπως και την δεκαετία πριν από αυτή – από το 2011 (Πηλίκιο 26.1/100 000) μέχρι το 2015 (48.1). Στη συνέχεια υπήρξαν τρία χρόνια σταθερότητας με Πηλίκιο κοντά στο 43.5 και το 2019 το Πηλίκιο μειώθηκε σε 41.7. Πάντως τα έτη 2011 και 2020 ήταν τα μόνα με αριθμό διαγνώσεων χαμηλότερο από 100 000.



Η αναλογία διαγνώσεων ανδρών – γυναικών ήταν 1.64, καθώς η μετάδοση λόγω ΑΣΑ αντιστοιχεί στο 3% των συνολικών διαγνώσεων της Περιφέρειας. Ο κύριος τρόπος μετάδοσης είναι η ετεροσεξουαλική επαφή (68%) και οι ΧΕΝ (28.5%). Κατά τη διάρκεια της δεκαετίας, και για τις 11 χώρες που έδιναν στατιστικά δεδομένα καθ' όλη τη διάρκειά της, ο αριθμός των ΑΣΑ σχεδόν τετραπλασιάστηκε, ενώ παρουσιάζεται και μια αύξηση της τάξης του 8% για την ετεροσεξουαλική μετάδοση. Οι ΧΕΝ στην δεκαετία κατέγραψαν 19% μείωση, ωστόσο ήταν ο μόνος τρόπος μετάδοσης για τον οποίο παρατηρήθηκε αύξηση από το 2019 [4].

Η καταγωγή των διαγνωσμένων με HIV στην Ανατολική Περιφέρεια, σε πολύ μεγάλο βαθμό είναι από τη χώρα αναφοράς της διάγνωσης. Ο αριθμός των ανθρώπων που βρέθηκαν με κύτταρα CD4 κάτω από  $350/\text{mm}^3$  ήταν το 34.4% των νέων διαγνώσεων, συμπεριλαμβανομένων και αυτών με CD4 κάτω από  $200/\text{mm}^3$  (17.7%).

Οι διαγνώσεις AIDS ήταν 5705 (Πηλίκιο: 5.0/100 000, 8.4 το 2019). Ο αριθμός δεν εμπεριέχει τον αριθμό διαγνώσεων AIDS από τη Ρωσία, και ο αριθμός που κατέθεσε η Ουκρανία καλύπτει το 72.5% του συνολικού αριθμού διαγνώσεων AIDS στην Περιφέρεια. Η τάση, ωστόσο, είναι φθίνουσα. Γνωστός τρόπος μετάδοσης υπήρξε για τις 5585 διαγνώσεις: οι 65 ήταν μετάδοση από μητέρα σε παιδί, οι 109 ήταν ΑΣΑ (2%), οι 1402 ΧΕΝ (25.1%) και οι 4006 οφειλόταν σε ετεροσεξουαλική μετάδοση (71.7%). Μέσω μετάδοσης από μητέρα σε παιδί, το 2011, υπήρξαν 163 διαγνώσεις AIDS και το 2019 ήταν 74, συνεπώς η τάση είναι φθίνουσα. Οι διαγνώσεις AIDS για τους ΑΣΑ το 2011 ήταν 65, έφθασαν τους 161 το 2016 και 142 το 2019. Για τους ΧΕΝ, οι διαγνώσεις AIDS ήταν 6084

το 2011 και 2430 το 2019, ευρισκόμενοι σε αποφασιστική καμπή προς τα κάτω. Ο αριθμός των διαγνώσεων AIDS που συνδέθηκαν με ετεροσεξουαλική μετάδοση ήταν 5071 το 2011, συνέχισε να αυξάνεται ως το 2018 (7879) και παρουσίασε πτώση το 2019 (6824). Οι θάνατοι που συσχετίστηκαν με AIDS, ήταν 2877 το 2020, παρουσιάζοντας μείωση κατά 39% από το 2012, το έτος με τον υψηλότερο αριθμό θανάτων από AIDS.

Σχετικά με την Ευρωπαϊκή Περιφέρεια του Π.Ο.Υ., στα πρώτα πέντε χρόνια από το 2011 παρατηρείται μια άνοδος που ακολουθείται από πτώση ως το 2020. Ο συνολικός αριθμός των νέων διαγνώσεων από το 2011 ως το 2019 αυξήθηκε κατά 5%, ακολουθώντας την ανοδική τάση της Ανατολικής Περιφέρειας. Η Δυτική Περιφέρεια δείχνει πτωτικές τάσεις κατά τη διάρκεια της δεκαετίας – ήταν σταθερή για το 2002-2011 -, ενώ η Κεντρική τάσεις ανόδου, όπως και την δεκαετία 2002-2011, αλλά με πολύ χαμηλούς δείκτες.

Το 2019, πριν δηλαδή η Ρωσία στείλει δεδομένα και για άλλες μεταβλητές πέρα από τον αριθμό των νέων HIV διαγνώσεων, οι μολύνσεις μέσω ετεροσεξουαλικής επαφής κάλυπταν το 59.2% (64.1% το 2020), οι ΑΣΑ ήταν 24.4% (10.5% το 2020) και οι ΧΕΝ 15.3% (24.8% το 2020). Πέρα από την προφανή μείωση του ποσοστού των μολύνσεων από ΑΣΑ, η ετεροσεξουαλική επαφή έχει πτωτική τάση τα δύο τελευταία χρόνια, μετά την κορυφή του 2018. Αντιθέτως, οι ΧΕΝ τα δύο τελευταία έτη παρουσιάζουν αύξηση, ύστερα από συνεχείς πτώσεις τα τελευταία χρόνια. Είναι αξιοσημείωτο ότι μόνο 21 χώρες έχουν αναφέρει τον αριθμό των ελέγχων για HIV και καμία δεν αύξησε τον αριθμό, αρκετά προβλέψιμο για τον πρώτο χρόνο της πανδημίας του CoViD-19.

Συμπερασματικά, κάθε Περιφέρεια πρέπει να προσεγγιστεί με διαφορετικό τρόπο, ανάλογα με τα χαρακτηριστικά και τις ιδιαιτερότητες κάθε χώρας. Αναμφισβήτητα, η καθυστέρηση στη διάγνωση αποτελεί την μεγαλύτερη πρόκληση, ειδικά στην Ανατολική Περιφέρεια. Η καθυστέρηση μπορεί να οφείλεται στην περιορισμένη ή μακρινή πρόσβαση στις αντίστοιχες δομές υγείας, φόβο στιγματισμού ή έλλειψη γνώσης για τον ιό [3].

Τα Ηνωμένα Έθνη και το ECDC έχουν καταδείξει τις σημαντικές παραμέτρους που μορφοποιούν τις τάσεις του HIV παγκοσμίως και τοπικά. Συγκεκριμένοι πληθυσμοί, αυτοί που έχουν τις μεγαλύτερες πιθανότητες να εκτεθούν στον HIV ή ζουν με τον HIV, είναι αυτοί στους οποίους θα πρέπει να γίνονται οι παρεμβάσεις, με μέτρα που εξαρτώνται από την ιδιαιτερότητά τους. Οι πληθυσμοί αυτοί είναι οι ΑΣΑ, οι ΧΕΝ, οι εργαζόμενοι-ες στον τομέα του σεξ και οι πελάτες τους, οι διεμφυλιακοί άνθρωποι, άτομα που βρίσκονται στη

διαδικασία απεξάρτησης από ναρκωτικές ουσίες, οι έγκλειστοι σε φυλακές και άλλες κλειστές δομές όπως τα camp προσφύγων: οι πρόσφυγες είναι μέρος της δημόσιας υγείας και χρήζει μεγάλης προσοχής [5][6]. Ο στιγματισμός αποτρέπει πολλούς ανθρώπους από τον έλεγχο για HIV και δυσκολεύει την καθημερινότητά τους, ειδικά για τους ΑΣΑ και τους ΧΕΝ [7][8].

Οι νέοι στόχοι [9] ζητούν την συμμετοχή οργανισμών που έχουν βάση τις τοπικές κοινότητες [10][11] και την ενεργή συμμετοχή των πληθυσμών που βρίσκονται σε μεγαλύτερο κίνδυνο έκθεσης. Η αναγκαιότητα για πολλαπλούς τρόπους πρόσβασης σε ελέγχους HIV [12], ατομικά ως self-testing, από βοηθούς της κοινότητας ή σε σημεία όπου γίνεται έλεγχος ρουτίνας, πηγάζει από την αντίληψη πως ο ασθενής δεν θα έπρεπε να έχει ως δυνατότητα ελέγχου μόνο τις δομές που είναι εξειδικευμένες για HIV, αλλά να διαθέτει εναλλακτικές οδούς, χωρίς στιγματισμό.

Το σημαντικό βήμα για την μείωση των διαγνώσεων AIDS, όπως παρατηρήθηκε κατά τη διάρκεια της προηγούμενης δεκαετίας, ήταν η προσέγγιση της αγωγής για όλους, ανεξάρτητα από το στάδιο της νόσου. Σχεδόν το 90% από τις χώρες που βρίσκονται στην Ευρωπαϊκή Περιφέρεια του Π.Ο.Υ. εφαρμόζουν την πολιτική της χορήγησης αντιρετροϊκής θεραπείας (ART), όχι όμως με γνώμονα τον αριθμό κυττάρων CD4. Πολλές έρευνες έχουν αποδείξει την σημαντικότητα της ART, τόσο για το υπό θεραπεία άτομο όσο και για την κοινότητα. Η πρόληψη [13][14] είναι βασική αρχή για όλες τις μολυσματικές ασθένειες. Η Χρήση της Προφύλαξης Πριν από την Έκθεση (PrEP), όπως έχει σχεδιαστεί, πρέπει να είναι διαθέσιμη σε κάθε πληθυσμό που βρίσκεται σε ουσιώδη κίνδυνο μόλυνσης με HIV [15]. Αν και η χρήση του PrEP έχει αποδειχθεί ότι είναι οικονομικά αποδοτική και αποτελεσματική [15-19], «η αναφερόμενη χρήση του είναι πολύ κάτω από το προβλεπόμενο επίπεδο, σύμφωνα με τις υπάρχουσες ανάγκες», αναφέρεται στην αναφορά επιτήρησης.

Η ισχυρή θέληση για την εφαρμογή των προτάσεων και των αποφάσεων για την εκπλήρωση των στόχων για το 2025 τροφοδοτείται από την οικονομική υποστήριξη για τις χώρες χαμηλού και μεσαίου εισοδήματος [20], και την προσπάθεια να τερματιστούν οι ανισότητες, οι οποίες είναι στενά συσχετιζόμενες με την διασπορά του ιού παγκοσμίως

[21][22]. Η εύρεση πόρων είναι εξαιρετικά μεγάλης σημασίας, καθώς η πανδημία του CoVid-19 τείνει να απορροφά δυσανάλογα τις πηγές εσόδων.

## Βιβλιογραφία

[1] <https://eody.gov.gr/disease/aids/>

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