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The growing HIV epidemic in Central Europe: a neglected issue?

Deniz Gökengin[1], Cristiana Oprea[2], Serhat Uysal[3] and Josip Begovac[4]

[1] Department of Infectious Diseases and Clinical Microbiology, Faculty of Medicine, Ege University, Izmir, Turkey
[2] 'Victor Babes' Clinical Hospital for Infectious and Tropical Diseases, 'Carol Davila' University of Medicine and Pharmacy, Bucharest, Romania
[3] Department of Infectious Diseases and Clinical Microbiology, Buca Seyfi Demirsoy State Hospital, İzmir, Turkey
[4] University of Zagreb School of Medicine, University Hospital for Infectious Diseases, Zagreb, Croatia

Abstract

The number of new cases of HIV infection has been decreasing in some parts of the world (e.g. sub-Saharan Africa) with the highest burden of disease in recent years. However, other regions are showing a different trend, such as Eastern Europe, the Middle East, North Africa and Central Asia. This trend seems also to apply to the Central European region. This article analyses HIV data for Central Europe derived from annual surveillance reports of the European Centre for Disease Prevention and Control (ECDC) and gives an overview of the recent status of the epidemic in this specific region. We show that, although still at a low level, the HIV epidemic in Central Europe continues to grow and requires more resources and interventions to curtail the ongoing epidemic.

Keywords: HIV infection, AIDS, Central Europe, epidemiology

Introduction

Within the past decade, new HIV infections and AIDS-related deaths have declined significantly globally [1]. However, trends in new infections may vary between regions, countries within a single region, and among key populations (KPs). While the annual number of new HIV infections in sub-Saharan Africa has declined by 33% since 2005, new infections have been on the rise in Eastern Europe, the Middle East, North Africa and Central Asia. In 2014, 142,197 individuals were newly diagnosed with HIV in 50 out of 53 countries in the World Health Organization (WHO) European Region with a cumulative number reaching 1,840,136 since the 1980s [2]. While Central and Western Europe accounted for 3% and 19% of the new HIV diagnoses in 2014, respectively, 77% occurred in the Eastern part [2]. Similarly, Eastern Europe had the highest infection rate with 43.2 per 100,000 population, followed by Western (6.4 per 100,000) and Central (2.6 per 100,000) Europe regions [2].

Central Europe is diverse and includes a mixture of high- and middle-income countries with considerable social, cultural, political and economic variation. The WHO definition for HIV/AIDS surveillance in Central Europe includes 15 countries: Albania, Bosnia and Herzegovina, Bulgaria*, Croatia*, Cyprus*, the Czech Republic*, Hungary*, the former Yugoslav Republic (FYR) of Macedonia, Montenegro, Poland*, Romania*, Serbia, Slovakia*, Slovenia* and Turkey [3]. This list includes European Union (EU) members (marked with an asterisk) and non-EU countries.

Due to its prolonged low-prevalence status in the Central European region, there was a lack of interest and attention from researchers and donors. However, recent data indicate that although slow, there is a steady increase in the number of new diagnoses, and in fact, on a logarithmic basis, the highest increase in Europe is in the Central European region. The rate of new infections increased by 115% in Central Europe between 2005 and 2014 [2].

The aim of this article was to analyse data regarding the Central European HIV epidemic derived from annual surveillance reports of the European Centre for Disease Prevention and Control (ECDC) and give an overview of the recent status of the epidemic in this specific region.

Methods

The definition of the WHO for Central Europe was used for these analyses. Data for new HIV diagnoses extracted from the ECDC annual reports for Central Europe for the last 10 years (2005–2014) were analysed descriptively and graphically. Penalised B-splines were used to fit a smooth curve through data from individual countries using the *pbspline* option of *proc sgplot* from the SAS/GRAPH version 9.4 software package (SAS Institute, Cary, NC, USA). A linear regression line was presented for the total numbers or rates of new HIV diagnoses for the whole region of Central Europe. The trend in the increase rate of HIV/AIDS over the years was assessed by linear regression. In addition, a literature search relevant to this region was run for the last 10 years and UNAIDS country reports for the Central European countries were reviewed.

Results

A total of 32,275 new HIV diagnoses were reported to the ECDC for Central Europe between 2005 and 2014, with a cumulative number of 63,056 since the first reported case in 1986 (Figure 1). Three countries – Poland (29%), Turkey (22%), and Romania (20%) – accounted for more than 70% of the total number of cases reported in the region during the period. Overall, the average annual rate of increase in new infections was 0.17 per 100,000 population from 2005 to 2014. The highest increases occurred in Albania and Romania (0.27 and 0.24 per 100,000 population, respectively) and the lowest in Serbia and Slovenia (0.06 per 100,000 population each) (Figure 2).

Overall, the gender of the reported cases was available in 31,580 (97.8%) individuals with 24,600 males (77.9%) and 6980 females

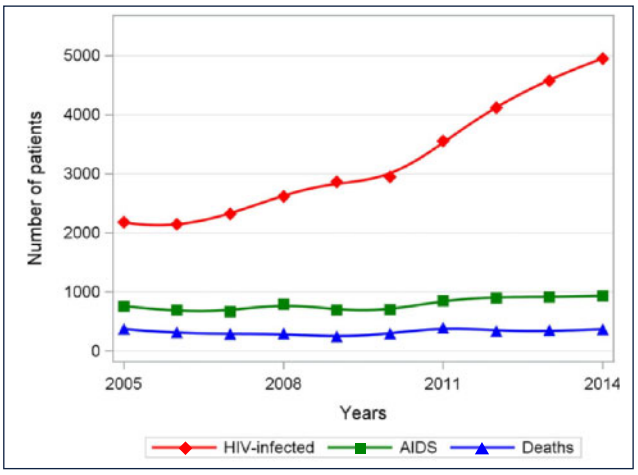

Figure 1. Total number of newly diagnosed HIV/AIDS cases and number of deaths per calendar year in the period 2005–2014 in the WHO region of Central Europe in the period 2005–2014 (ECDC data)

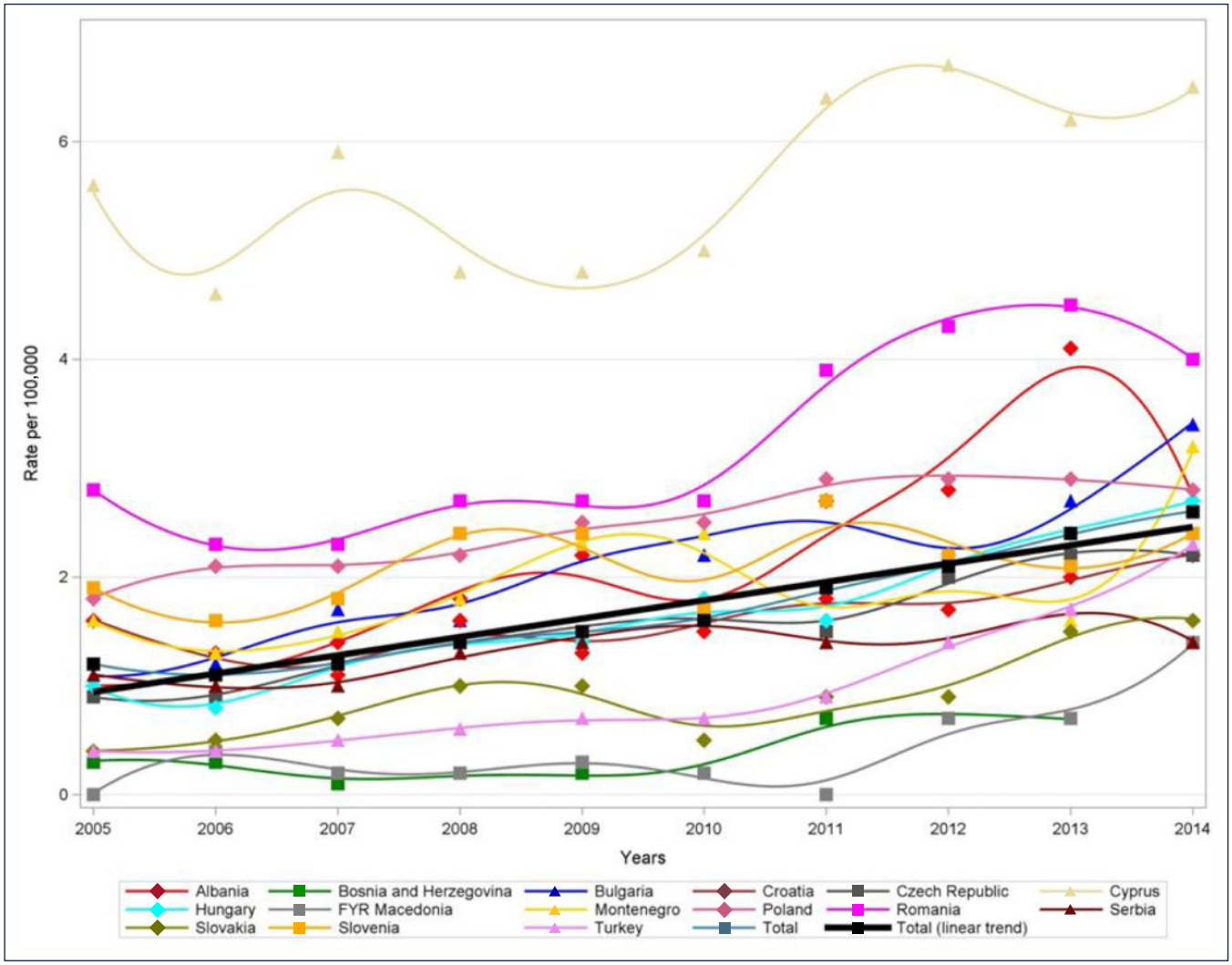

Figure 2. Rate of new diagnoses per 100,000 population by country and year of diagnosis in Central Europe (ECDC data)

(22.1%) (male-to-female ratio of 3.5). The male-to-female ratio increased from 2.2 in 2005 to 4.4 in 2014 and showed fluctuations in several countries, mainly due to an overall small number of new diagnoses (Figure 3). Only three countries (Albania, FYR of Macedonia and Romania) had less than 80% of males among newly diagnosed individuals in at least one calendar year. One country (Croatia) had more than 95% of males in three calendar years among new HIV diagnoses, whereas in eight countries (Croatia, Bosnia and Herzegovina, Cyprus, Hungary, Montenegro, Serbia, Slovenia, Slovakia) the percentage of males was above 90% in at least one calendar year and in three countries (Croatia, Hungary and Slovenia) in at least five calendar years.

Among those cases whose age was reported, the highest numbers were in the 30–39 years age group (10,695) followed by the 25–29 years (7287) and 40–49 years (5145) age groups. On an arithmetic scale, the fastest increase was among those aged 30–39 years old. The number of new diagnoses among children <15 years showed a relatively steady trend between 2007 and 2011 after a significant decline in 2006 but increased slightly after 2011 (Figure 4).

The mode of HIV transmission was reported for 48% of the cases. The most common ones were men who have sex with men (MSM) (35.3%) and heterosexual contact (34.8%). In 17.3% of cases it was unknown. The rate of mother-to-child transmission was low (0.17%). The most prominent increase was among MSM (Figure 5). The highest number of reported cases among MSM was in Turkey with a more than 10-fold increase between 2005 and 2014 (from 25 in 2005 to 272 in 2014). In Romania, the number of newly diagnosed cases who were infected through injecting drug use increased sharply by almost eight-fold in 2011 and, although at a slower pace, the trend continued to increase until 2014.

From 2005 to 2014, a total of 7895 AIDS cases were reported, reaching a cumulative number of 18,497. Overall, the rate of AIDS cases per 100,000 population has been quite stable (0.4 and 0.5 per 100,000 population in 2005 and 2014, respectively). The highest rates in 2005 were in Cyprus (1.5 per 100,000 population) and Romania (1.8 per 100,000 population). While Romania showed a stable trend from 2005 to 2014, the rate in Cyprus decreased by almost 50% within 10 years (Figure 6). Although low in 2005, the rate of AIDS diagnoses increased almost two-fold in 2007 in Albania, reaching 2.3 per 100,000 population in 2013, the highest rate among all Central European countries.

A total of 3212 deaths was reported between 2005 and 2014, with the highest number being from Romania (1800 cases) followed by Poland (545 cases).

Discussion

The 10-year data between 2005 and 2014 provided by the ECDC show that the Central Europe region as defined by the WHO still has a low level HIV epidemic with signs of an increasing trend in new diagnoses, especially among key populations such as MSM and people who inject drugs (PWID). An up-to-date and accurate understanding of the Central European epidemic is being slowly understood mainly due to the relatively low prevalence in the

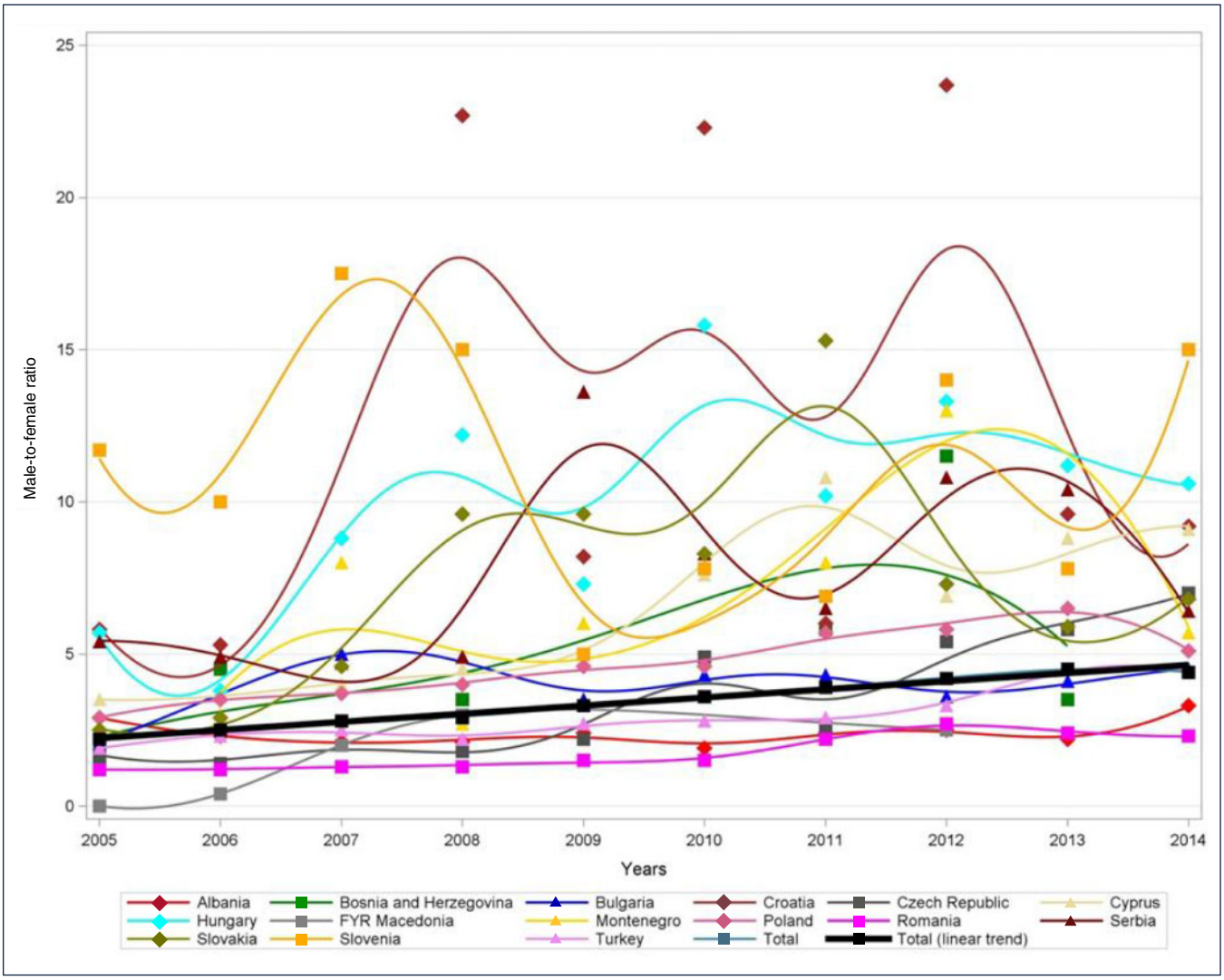

Figure 3. Male-to-female ratio by country and year of diagnosis in the WHO region of Central Europe in the period 2005–2014 (ECDC data)

general population, insufficient surveillance systems, delayed or inadequate reporting and lack of information on key populations, together with a small number of published studies in the region. However, the number of relevant publications in indexed journals has increased substantially in recent years and several countries have run integrated bio-behavioural surveys (IBBS) to characterise their epidemics with the endorsement of the Global Fund to Fight AIDS, Tuberculosis and Malaria (GF) [4–10]. Bozicevic *et al.* [11] have reported a significant increase in the number of newly diagnosed HIV cases in Central Europe over a 5-year (2007–2011) and a 10-year period (2002–2011) as compared to the Western region, where a decline in numbers seemed to have occurred over the same 5-year period. However, the overall prevalence remains still lower as compared to Western and Eastern Europe [2].

Although the largest number of cases are clustered in the 30–39 age group, the slight but steady increase in the number of reported cases below 15 years of age after 2011 is worth mentioning. The rate of mother-to-child transmission cases has not changed significantly over the past decade and there is no significant increase in the 15–19 years age group. Therefore, it is difficult to attribute this increase to early sexual transmission and we believe that these results require further investigation.

The main mode of transmission, which was heterosexual in 2005, has gradually changed over time, with MSM becoming the most commonly reported mode of transmission after 2010. However, the reported number of MSM transmissions may underestimate actual numbers due to intense stigmatisation of same-sex behaviour that contributes to the non-disclosure of homosexual orientation in the region [12,13]. The rapidly increasing male dominance among new diagnoses also supports this idea. The highest increase among MSM in the Central European region was in Turkey. In a recent article, Sargın *et al.* [14] did not highlight a significant increase in the number of reported MSM cases between 2000 and 2014 in a large HIV cohort in Istanbul. However, the numbers from the ECDC definitely point to a significant rise within the last decade. Istanbul, which is a highly urbanised and culturally cosmopolitan city, is not representative of the whole country and MSM transmission rates may show variations over time in other regions. The significant increase in the reported MSM cases may be attributed to the higher testing rates among this population or a newly developing epidemic. Unfortunately, there is no available data on behavioural or testing trends for key populations in Turkey. The rate of MSM transmission in Romania also seems to have increased substantially in the past few years from four reported cases in 2007 to 261 in 2013; however, these numbers do not correlate to numbers quoted in the ECDC report, and this may be attributed to underreporting or reporting delays [15].

Countries that have conducted several rounds of IBBS or other types of behavioural surveys have reported high levels of risky behaviours among MSM, such as early sexual debut, high number of sex partners, low level of condom use and transactional sex

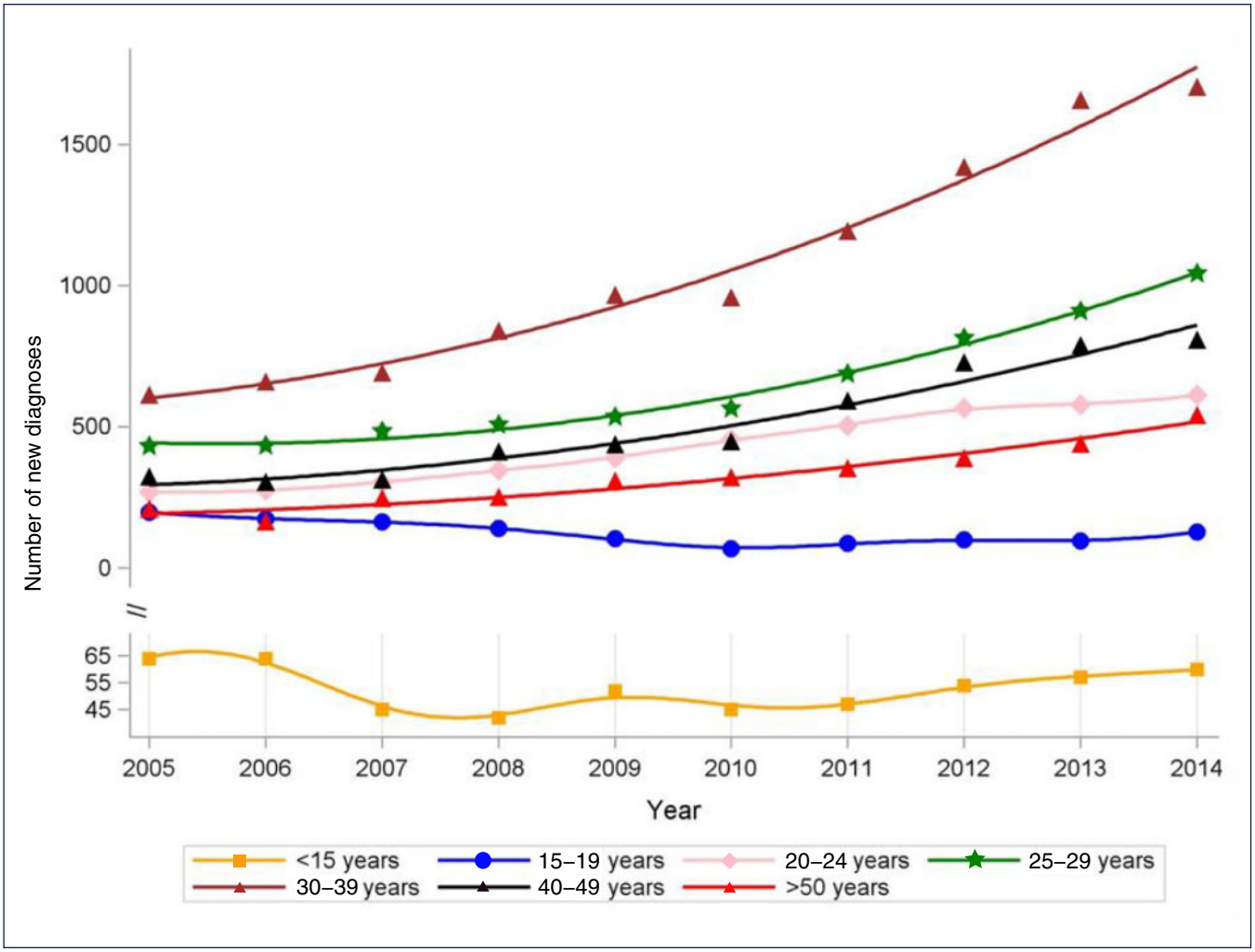

Figure 4. New HIV diagnoses by age group and year of diagnosis in the WHO region of Central Europe in the period 2005–2014 (ECDC data)

[4,7,8,15–19], which may account for the recently rising number of diagnoses among MSM. Of note, in some surveys a relatively high number of MSM also reported frequent commercial sex activities and sex with women [20].

Transmission through injected drug use (IDU), which displayed a relatively steady state level until 2010, increased significantly thereafter, almost exclusively due to the significant increase in the number of new diagnoses among PWID in Romania. In 2011, Romania reported an over six-fold increase in the number of new HIV cases infected through IDU (18.1%) compared to 2010 (2.6%) and 2009 (1.4%). The increasing trend has persisted throughout 2012 and 2013, reaching 30.6% and 29.23%, respectively [21]. This rising epidemic was largely attributed to the recent change in drug use patterns. New psychoactive drugs had reached the market under the generic terms of 'bath salts' or 'plant food', which were considered legal until 2013. These new and affordable drugs, with a short half-life, were highly addictive and increased the injection frequency up to 6–10 times a day [22]. Data from the 2014 report on Romania have indicated that PWID represent 29.23% of the new HIV/AIDS cases diagnosed in 2013 (compared to 3% in 2010) [23]. In Central Europe, injection with heroin remains the major type of drug used in this way; however, reported injected amphetamine use is also high (30–51%) [24–29]. The frequency of injections varies widely throughout the region while available data still remain limited.

Although the overall number of AIDS cases seems stable over the 10-year period, there were significant differences between countries. While Cyprus, which had one of the highest rates in 2005, had managed to decrease the number by 50% by 2014, overall numbers have remained stable but at a relatively high rate in Romania throughout the years (Figure 6). On the other hand, the rate of reported AIDS cases increased significantly in Albania, being the highest rate among all Central European countries in 2013. Xhensila *et al.* [30] have reported a very high prevalence (92.6%) of late presenters in Albania between 2005 and 2012. Age (30–39 years), male gender, heterosexual contact, migration status and level of education were independent risk factors for late presentation. This type of presentation to care, which includes cases diagnosed with AIDS, is a common problem across Europe with almost half of newly diagnosed individuals being late presenters [31–37].

Death rates also seem to have remained stable over time, probably due to the wider availability of effective antiretroviral drugs, acceptable adherence levels, and consequently high levels of viral suppression [38,39].

Conclusions

There are major limitations in the interpretation of data on the HIV epidemic as reported to the ECDC. Not all countries provide consistent data, and testing practices may vary between countries and over time. Information regarding several parameters may be missing, which makes it difficult to compare countries, and delays occur in the reporting process. Nevertheless, although at a much slower pace compared to the Eastern part, available data indicate an increasing trend in the number of new HIV diagnoses in Central Europe. Men seem to be more affected than women. Although

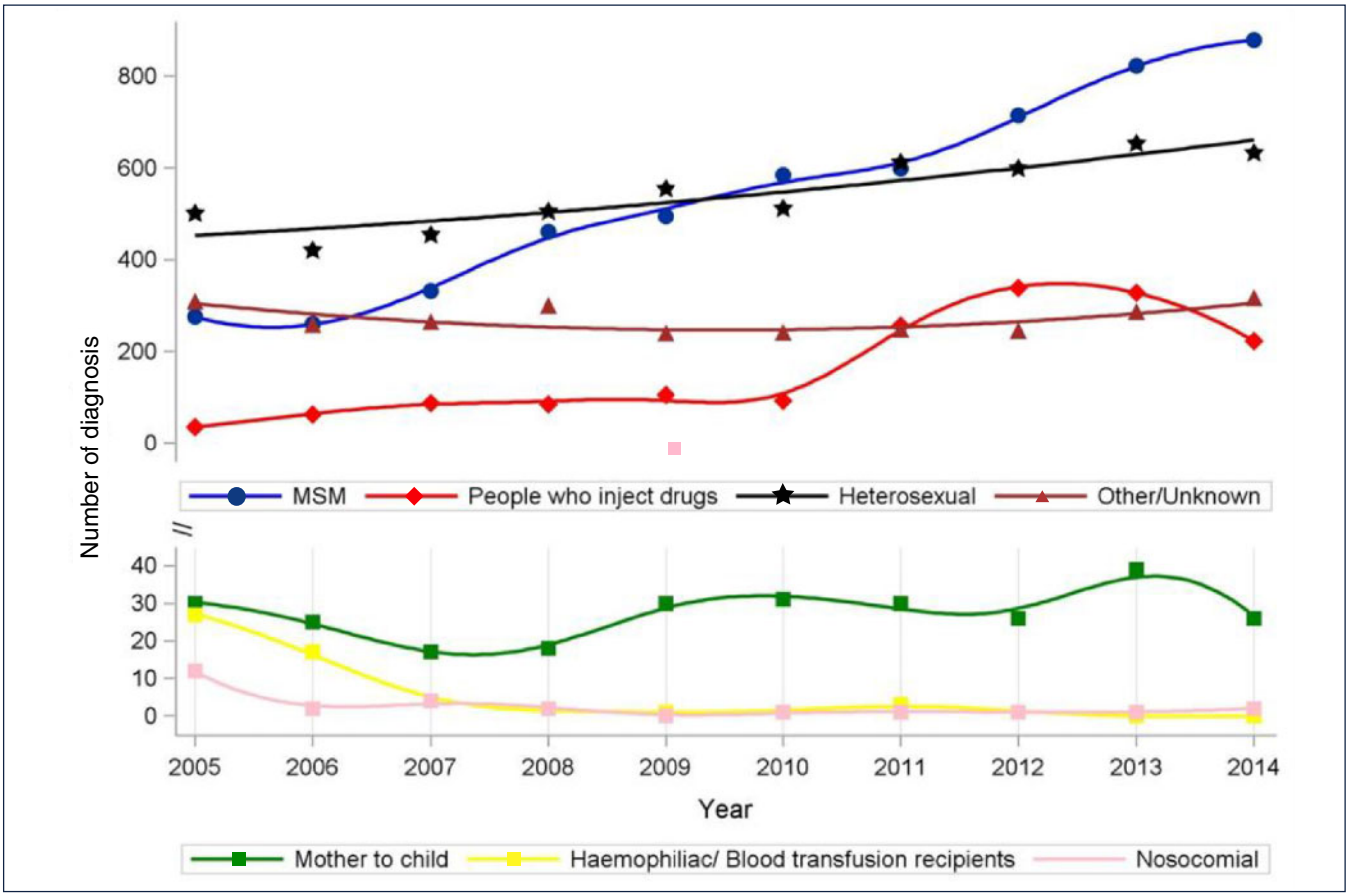

Figure 5. New HIV diagnoses by transmission mode and year of diagnosis in the WHO region of Central Europe in the period 2005–2014 (ECDC data)

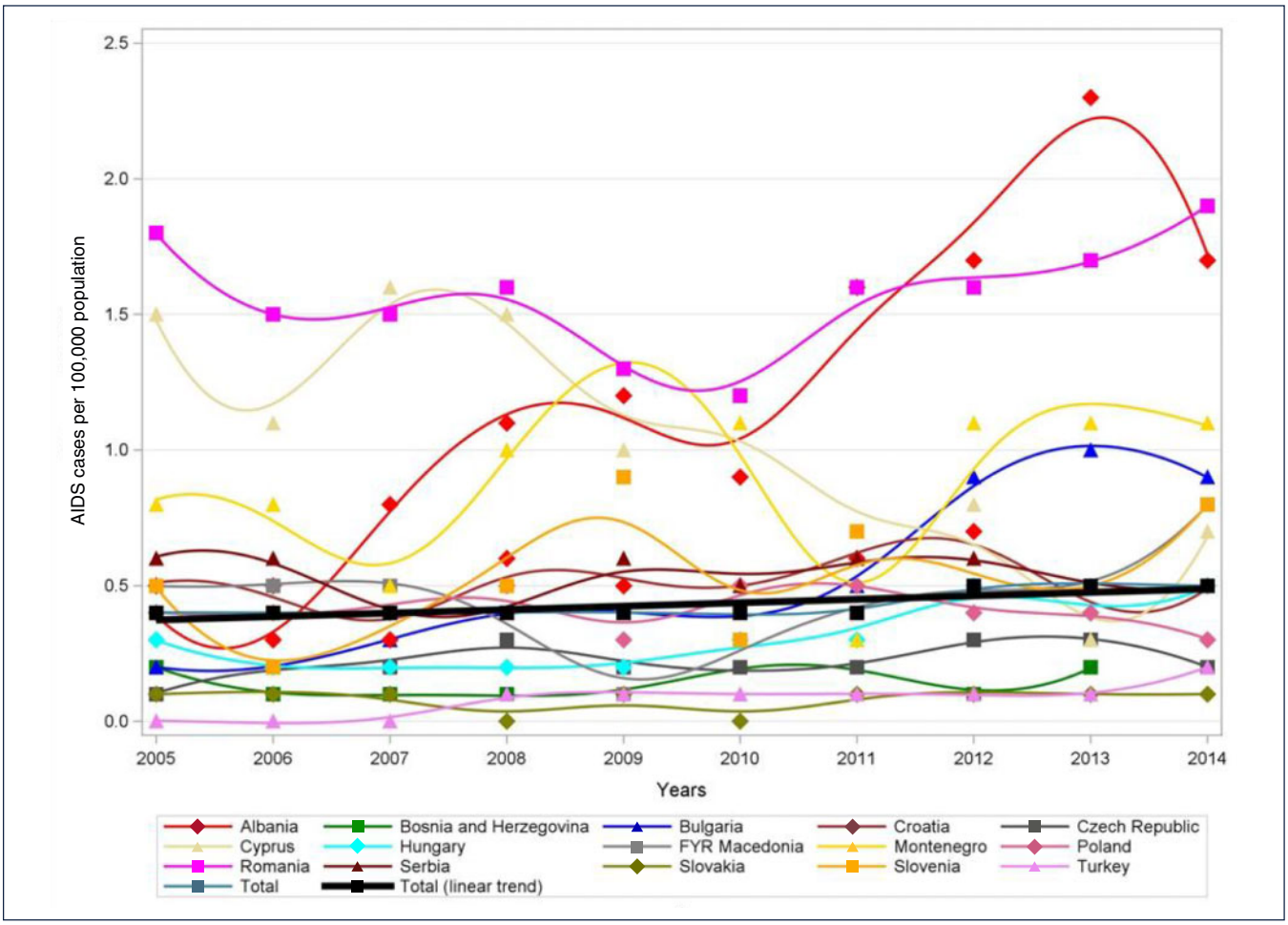

Figure 6. AIDS cases per 100,000 population by country and year of diagnosis in the WHO region of Central Europe in the period 2005–2014 (ECDC data)

a significant number of heterosexually transmitted cases was reported, there is a striking increase of new infections among MSM. There is also a strong consensus that the reported number of MSM cases is underestimated due to high levels of stigmatisation towards MSM in many countries. The high number of cases with unknown transmission mode in several countries like Poland and Turkey strongly supports this hypothesis [2,40].

In the last two decades, many countries in the region have been affected by social and political unrest and conflict, which may have contributed to economic decline, unemployment and poverty, and consequently the adoption of high-risk behaviours such as early sexual debut, injected drug use, transactional and condomless sex, as well as low testing rates. [7,8,17,19,41,42]. Cumulatively, these may have potential serious implications for the region's HIV epidemic.

Despite these unfavourable conditions, many countries in the region have put significant effort into scaling up their response with the support of the GF, which has been effective in reducing the number of transmissions through IDU and keeping rates of mother-to-child transmission stable in several countries [6,19,40,43]. However, the response remains slow, most probably due to the low level of commitment from governments in some countries and the low level of attention that the region attracts from the international community as compared to other regions with faster-growing or larger epidemics.

In conclusion, although still at a low level, the HIV epidemic in Central Europe continues to grow and we need to use all our national and international resources to contain it and reverse this increasing trend of new cases.

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