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# Estimating the ‘PrEP Gap’: how implementation and access to PrEP differ between countries in Europe and Central Asia in 2019

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**In 2019, only 14 European and Central Asian countries provided reimbursed HIV pre-exposure prophylaxis (PrEP). Using EMIS-2017 data, we present the difference between self-reported use and expressed need for PrEP in individual countries and the European Union (EU). We estimate that 500,000 men who have sex with men in the EU cannot access PrEP, although they would be very likely to use it. PrEP’s potential to eliminate HIV is currently unrealised by national healthcare systems.**

The international community has committed to the Sustainable Development Goal of ending the AIDS epidemic by 2030 (SDG 3.3). Pre-exposure prophylaxis (PrEP) for HIV infection involves the use of antiretroviral drugs by people at high risk of acquiring HIV. The efficacy of PrEP is well-documented [1-3]. Research in New South Wales, Australia, indicates that population-level impact of PrEP on HIV can be achieved among men who have sex with men (MSM) with a targeted, accessible programme [4]. To achieve SDG 3.3, the Joint United Nations Programme on HIV/AIDS (UNAIDS) has recommended as one of its global targets that 3 million people access PrEP by 2020 [5].

Following publication of the PROUD [2] and Ipergay [3] studies in 2015, the European Centre for Disease Prevention and Control (ECDC) released an opinion that European Union (EU) countries should consider integrating PrEP into their existing HIV prevention programmes for those most at risk of HIV infection [6]. The World Health Organization (WHO) has made the same recommendation for countries globally [7]. Here we

describe the progress made by countries in Europe and Central Asia (the 53 countries of the WHO European Region plus Kosovo\* and Liechtenstein) in implementing PrEP and estimate the gap between PrEP access and expressed need [8] at country and at EU level.

## Monitoring PrEP implementation in Europe and Central Asia

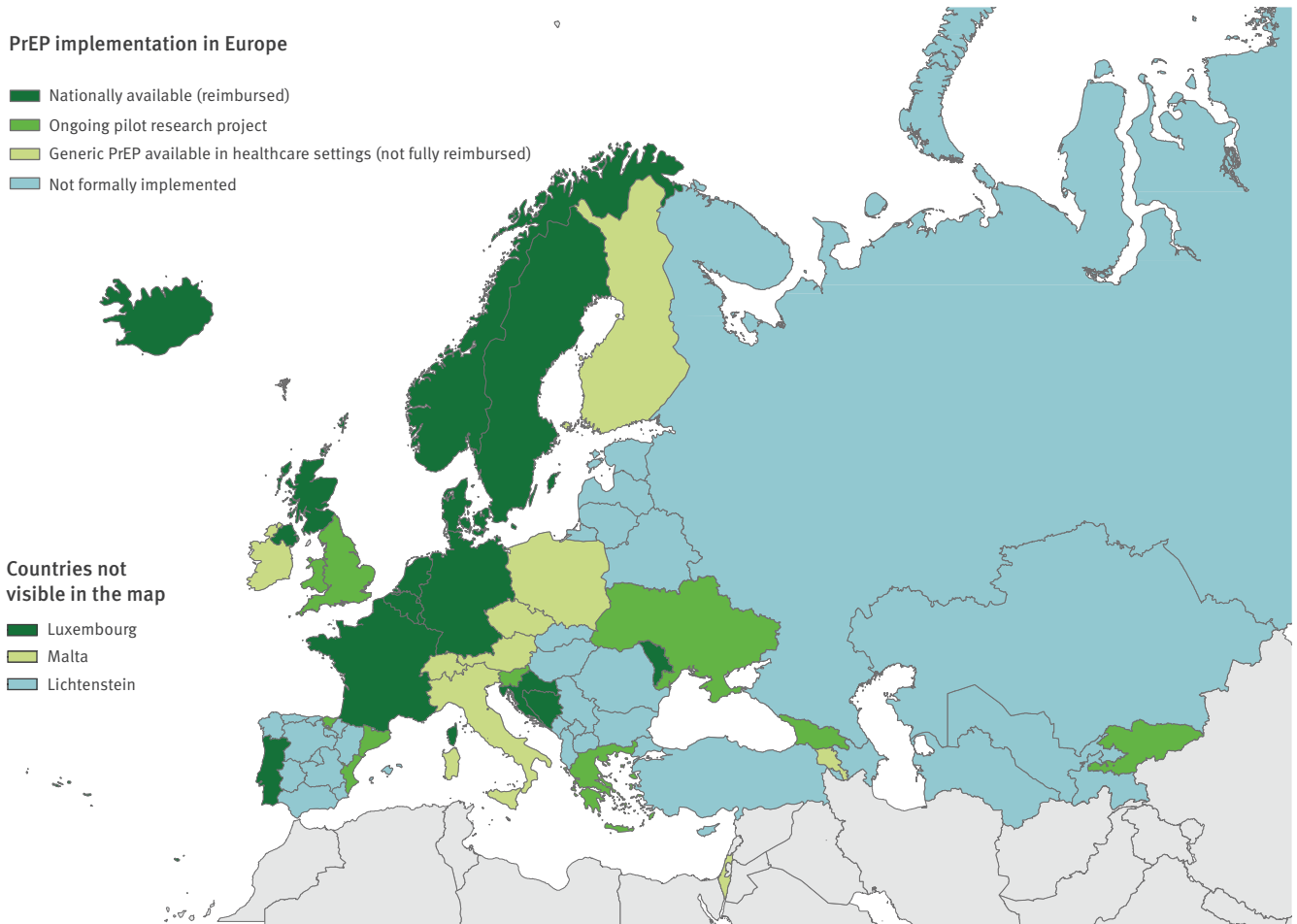
The ECDC disseminates an annual online survey to nominated HIV focal points, usually national health authority representatives, in the 31 countries of the EU and European Economic Area (EEA) to monitor the implementation of the Dublin Declaration on Partnership to Fight HIV/AIDS and progress towards achieving SDG 3.3 [9]. Data for the remaining 24 countries in Europe and Central Asia are supplemented with Global AIDS Monitoring (GAM) indicators collected by UNAIDS. Since 2016, the survey has included questions on PrEP availability, implementation and barriers to implementation.

The most recent survey was conducted between January and March 2019. Countries were asked to respond in relation to the most recent reporting year. Of the 55 countries surveyed by ECDC and UNAIDS, 53 provided data – the exceptions being San Marino and Turkmenistan. Data reported online were validated by the countries and updated accordingly.

We also examined data on self-reported PrEP use and expressed need for PrEP from the European MSM Internet Survey (EMIS-2017), conducted in 33 languages with 127,000 MSM from 47 of the 55 countries

**FIGURE 1**

Status of PrEP implementation, Dublin Declaration monitoring in Europe and Central Asia, September 2019 (n = 53)



PrEP: pre-exposure HIV prophylaxis.

in Europe and Central Asia between October 2017 and January 2018 [10,11]. The eight countries not covered by EMIS-2017 were: Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan. When using EMIS figures, data from the four European microstates Andorra, Liechtenstein, Monaco and San Marino were merged with those from, respectively, Spain, Switzerland, France and Italy.

### Implementation of PrEP in Europe and Central Asia

Data collected via Dublin Declaration monitoring provide a snapshot of a rapidly changing situation on state PrEP provision with substantial diversity across the Region (Figure 1). By 2019, 14 of 53 reporting countries reported that their national health service provided reimbursed PrEP (Belgium, Bosnia and Herzegovina, Croatia, Denmark, France, Germany, Iceland, Luxembourg, Moldova, the Netherlands, Norway, Portugal, Sweden, and Northern Ireland and Scotland within the United Kingdom (UK)), either through insurance or from the public sector. The results show that progress has been made since 2016, when only France

reported that PrEP was nationally available and reimbursed [12].

Ten countries reported that generic PrEP was available in healthcare settings, but it was not fully reimbursed (Armenia, Austria, the Czech Republic, Finland, Ireland, Israel, Italy, Malta, Poland and Switzerland).

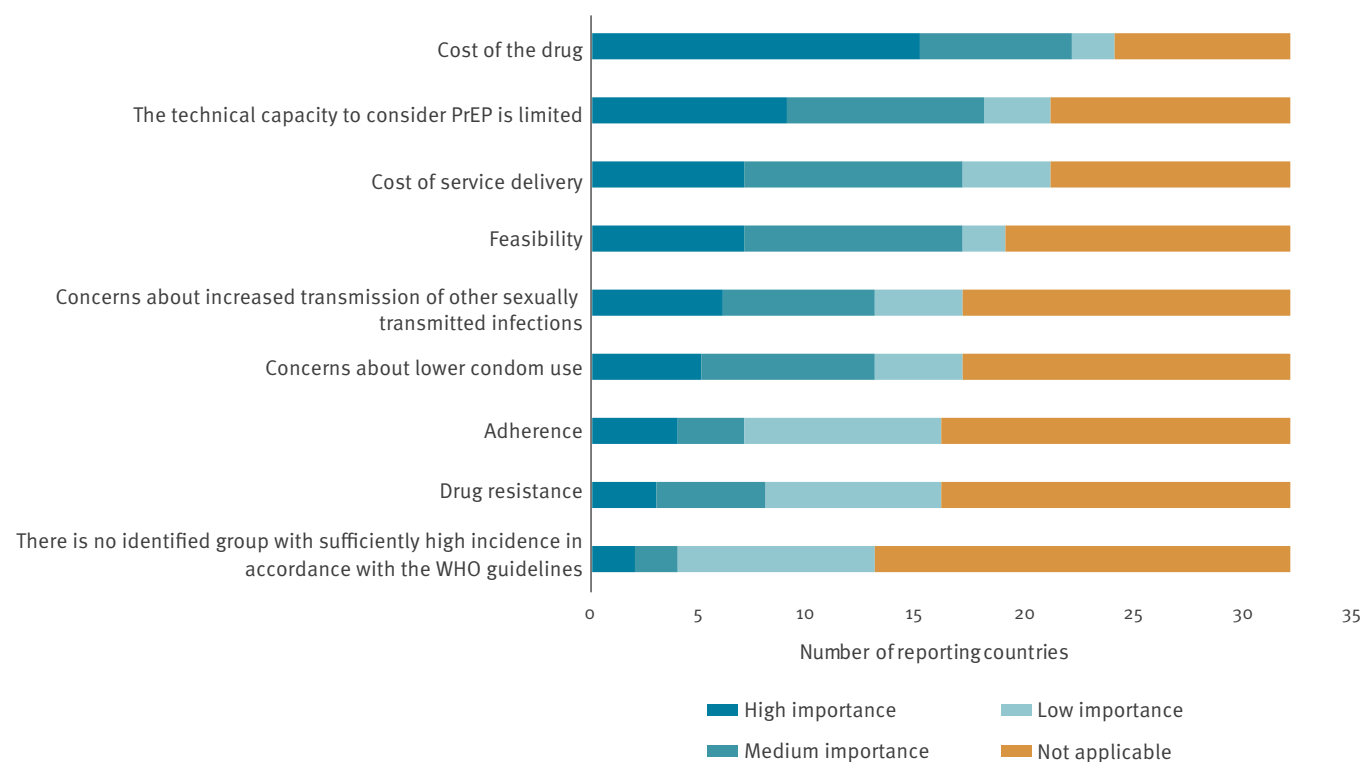
Six countries report PrEP availability only through pilot, research or demonstration projects at national or sub-national level (Georgia, Greece, Slovenia, Spain, Ukraine, and England and Wales within the UK). It is important to note that the degree of access to PrEP in such projects varied considerably. For example, England and Wales saw 6,000 people access PrEP in the 12 months before reporting in 2019, while Ukraine saw 125 people access PrEP in the same period.

### Barriers to implementing PrEP in Europe and Central Asia

Of the 40 countries reporting that PrEP was not nationally available and reimbursed (including the UK because of regional differences), 32 countries provided data on barriers to implementation (Figure 2). The most

**FIGURE 2**

Country reported barriers to implementing PrEP, Dublin Declaration monitoring in Europe and Central Asia, 2018 (n = 32 countries)



PrEP: pre-exposure HIV prophylaxis; WHO: World Health Organization.

Data in this figure are from 2018, as the question on barriers to PrEP implementation was not asked in 2019.

commonly cited barrier to implementing PrEP was the cost of the drug. Of the 24 countries reporting high drug costs, 15 stated that cost was a high-importance barrier with a further seven citing a medium-importance barrier. Although outweighed by concerns relating to cost and service delivery, concerns about the impact of PrEP on sexual behaviours and epidemiology persisted in 18 countries.

### Use of PrEP in Europe and Central Asia

Twenty countries reported national estimates of the number of people using PrEP in the last 12 months (Figure 3). Only Switzerland and Germany reported that they were able to capture or adjust for self-sourced PrEP use within these estimates. The number and rate of people using PrEP at least once varied substantially; the number ranged from one PrEP user (Moldova) to 9,078 PrEP users (France) and the rate ranged from 0.04 to 52.5 per 100,000 adult population (aged 15–64 years). In most countries for which data were provided, the majority of PrEP users had used PrEP for the first time in the last 12 months.

Fifteen of the 20 countries provided data disaggregated by sex and probable transmission route, with 12 reporting that more than 90% of PrEP users were MSM.

Belgium, Denmark, Ireland, Israel, Portugal, Spain and Sweden reported PrEP provision in their country but were unable to provide the number of people using PrEP.

### Estimating the PrEP gap among men who have sex with men

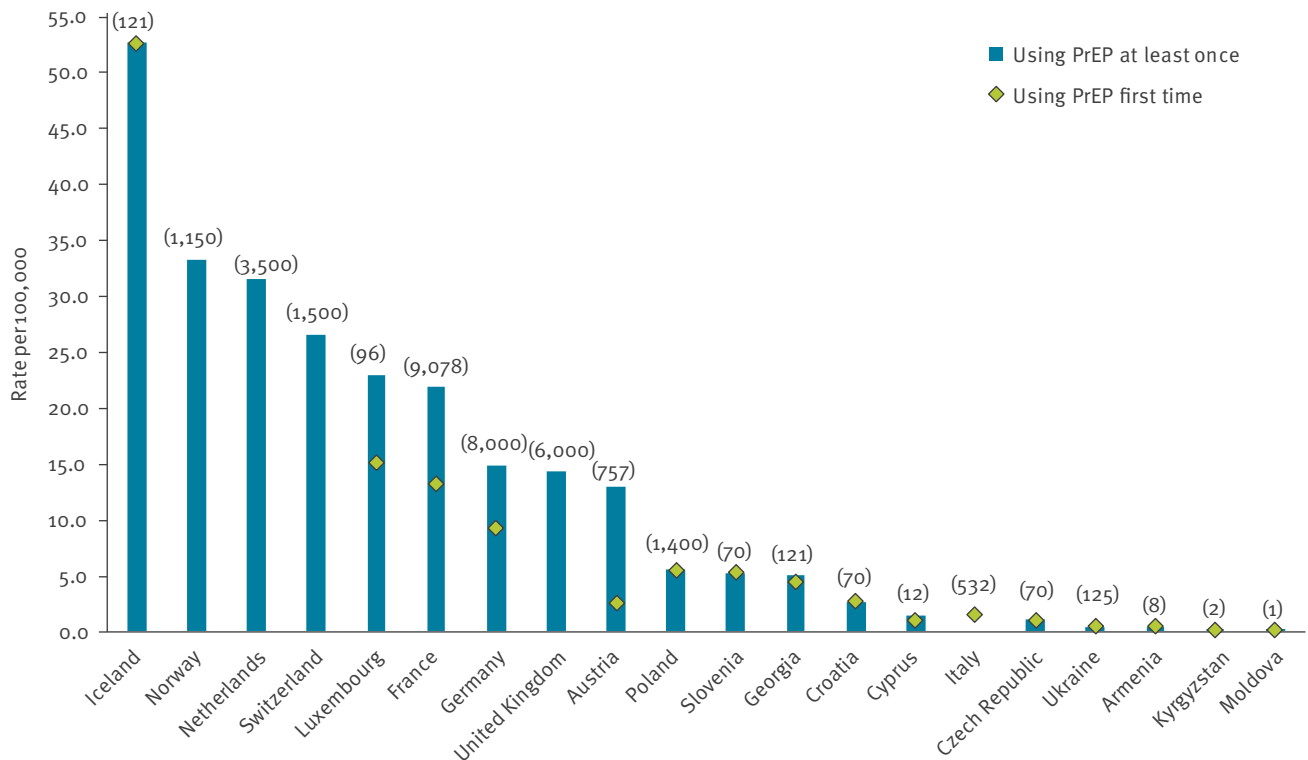
The EMIS-2017 collected data on both the proportion of respondents currently using PrEP and those who would be ‘very likely’ to use PrEP if they could access it. The difference between these two proportions provides an estimate of the ‘PrEP gap’ or the level of unmet need for PrEP in each country.

To calculate the PrEP gap we used EMIS-2017 data on PrEP use rather than country-reported numbers as data on use was available for a wider range of countries from EMIS-2017 and because EMIS-2017 captured PrEP use from any source whereas most country-reported data were not able to capture or adjust for self-sourced PrEP.

We chose to use the proportion of EMIS-2017 respondents who would be ‘very likely’ to use PrEP if it was available to them as the indicator of need. Studies show a positive correlation between the willingness of MSM to use PrEP and an increased risk of acquiring HIV

**FIGURE 3**

People using PrEP in the last 12 months, by rate per 100,000 adult population<sup>a</sup>, Dublin Declaration monitoring in Europe and Central Asia, 2019 (n = 20)



PrEP: pre-exposure HIV prophylaxis.

<sup>a</sup>Adult population here defined as age 15 to 64 years.

The data labels in brackets represent the numbers of people using PrEP at least once in the last 12 months. The Netherlands, Norway, Switzerland and the United Kingdom were unable to provide estimates for the number of people using PrEP for the first time in the last 12 months. Italy was unable to provide an estimate for the number of people using PrEP at least once in the last 12 months so the data label for Italy represents the number of people using PrEP for the first time in the last 12 months.

These data are correct as of March 2019.

sexually [13]. Our measure is therefore of expressed need for PrEP rather than ‘normative need’ (the criteria for PrEP access defined by experts and expressed in guidelines) [8]. As guidelines differ by country, the same group of MSM would be judged to have different levels of normative need depending on which country they lived in.

The estimated PrEP gap ranged from 44.8% in Russia to 4.3% in Portugal (Figure 4). An overall estimate of the PrEP gap for the EU was calculated as 17.4%. Based on the assumption that 2.77% (95% confidence interval (CI): 2.31–3.32%) [14] of the adult male population in the EU are MSM and applying an adjustment factor of 1.6 to counter for self-selection bias [15], an estimated 500,000 (95% CI: 420,000–610,000) MSM are not currently using PrEP but would be very likely to do so if they could access it.

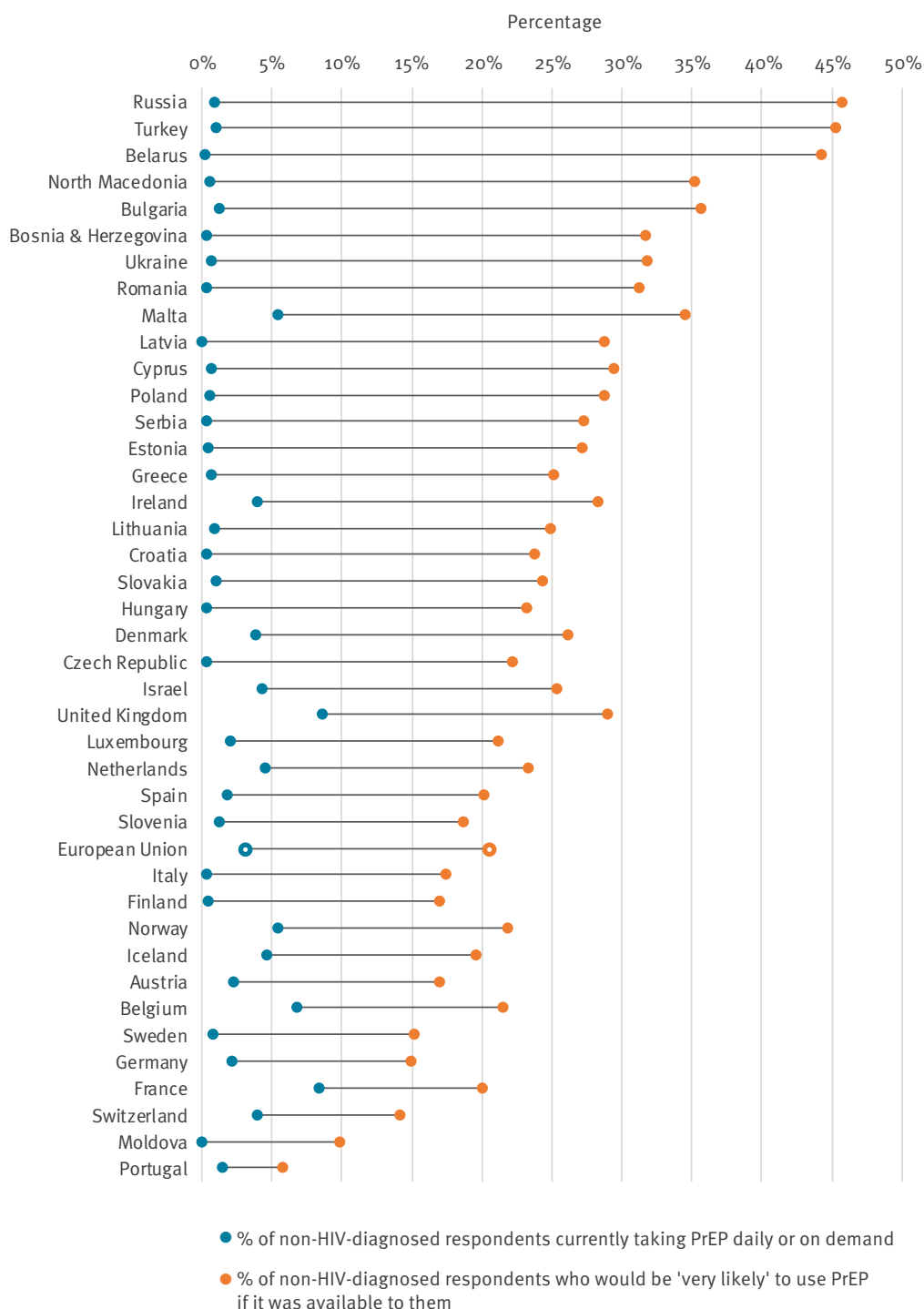
We assume that the fundamental reason for this gap is that in the majority of countries, easy access to free or subsidised PrEP is either not possible or not easy. Figure 4 illustrates that in the countries where formal PrEP provision occurs, the gap was smaller and in countries where there is no formal access, it was larger.

### Limitations

Country-reported data underestimate the actual number of PrEP users in some countries since many countries are not able to capture or adjust for self-sourced PrEP and because many health authorities struggle to systematically capture data on state-provided PrEP because of the diverse institutions providing it, a lack of data exchange between institutions and anonymisation of data (preventing identification of duplication).

**FIGURE 4**

The PrEP Gap – the proportion of non-HIV-diagnosed MSM ‘very likely’ to use PrEP if accessible, compared with the proportion currently using PrEP from any source, EMIS-2017 qualifying countries, January 2018 (n=44 countries; n = 112,748 respondents)



EMIS: European MSM Internet Survey; MSM: men who have sex with men; PrEP: pre-exposure HIV prophylaxis.

Countries with sample sizes <100 respondents (Albania, Montenegro and Kosovo\*) are excluded from this figure.

When calculating the rate of people using PrEP per 100,000 of the adult population (with adult defined as 15–64 years) we were unable to exclude those aged 65 or over as data were not disaggregated by age.

The figure of 500,000 MSM in the EU likely to use PrEP if it were accessible may be an overestimate since EMIS-2017 used an MSM convenience sample which is known to over-represent the more sexually active. However, given that the calculation included only respondents who said they would be ‘very likely’ to use PrEP (as opposed to also including those who were ‘quite likely’) and because we used a factor to adjust for oversampling MSM at higher risk, we believe this is the best available estimate. As intention to use PrEP seemed particularly high in countries with larger populations such as Russia and Turkey and because EMIS-2017 lacks data from Central Asian countries, we restricted the calculation of the absolute numbers to the EU region.

We were able to estimate the PrEP gap only for MSM as we do not have an equivalent data source to EMIS-2017 for other key populations in need of PrEP. Where countries were able to provide disaggregated data on PrEP users, the majority indicated that less than 10% of PrEP users were either women (including trans women) or heterosexual men. Only two countries were able to provide data on PrEP users who inject drugs or engage in sex work.

## Conclusion

This paper represents the first attempt to quantify the PrEP gap for MSM in 47 EMIS-2017 qualifying countries [11] and at the EU level. At a time when provision of PrEP is rapidly increasing, these findings contribute to our understanding of PrEP implementation and use in Europe and Central Asia. Although significant progress has been made since 2016, with 14 countries now providing and reimbursing PrEP within their national health system, PrEP implementation remains variable across the Region. In order to accelerate progress towards SDG 3.3, ending the AIDS epidemic by 2030, much wider implementation of PrEP will be required.

Sex between men remains the predominant mode of HIV transmission reported in Western and Central Europe, accounting for half of all new HIV diagnoses where the transmission route is known [16]. Despite this, ca 500,000 MSM in the EU who are very likely to use PrEP are not currently able to access it. The longer the delay in access to PrEP for these men, the more HIV infections will occur.

In order to facilitate PrEP implementation across Europe and Central Asia, minimum standards on the principles of establishing PrEP programmes, monitoring and surveillance would be beneficial. These should include guidance on identifying and estimating the size of key populations in need of PrEP which can then inform programme targets. National health authorities should

focus on improving accessibility of PrEP to women and heterosexual men at high risk of HIV, as well as an expansion of PrEP availability more generally.

## Note

\*This designation is without prejudice to positions on status, and is in line with United Nations Security Council Resolution 1244/99 and the International Court of Justice Opinion on the Kosovo Declaration of Independence.

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## Conflict of interest

None declared.

## Authors’ contributions

RH, YA, AEB, VD, AP and TN were involved in developing the Dublin Declaration monitoring survey questions on PrEP. Country-specific data and analyses were provided by country members of the Dublin Declaration Monitoring Network. AJS, FH and PW led the design and implementation of EMIS at LSHTM. RH undertook the main writing of the manuscript which was reviewed and revised by AJS, AP, YA, AEB, PW, FH, VD, TN and the Dublin Declaration Monitoring Network. All authors reviewed and approved the final draft.

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