

## Barriers for the MSM Population to Access Testing for HIV in France, Poland, the UK and Across Europe: a Qualitative Study

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### Abstract

Many European countries are on track to meeting the 90-90-90 target set out by UNAIDS in 2014. However, it is estimated that 15% of people living with HIV in the EU/EEA area are still unaware of their status and that almost half of the newly reported cases are diagnosed late. To understand the barriers to testing HIV for the men who have sex with men (MSM) population in Europe, as well as the impact of interventions aimed at addressing these barriers, we undertook a qualitative study focusing on the UK, France, and Poland as well as a pan-European overview, consisting of a targeted literature review, a brief survey, and interviews. We found that barriers to accessing testing for HIV at an individual or patient-level were similar across all countries considered, with an incorrect perception of risk, stigma, and fear of a positive test result rated among the top three barriers to testing for HIV. Healthcare provider barriers viewed as having a big impact on access to testing for HIV in the three individual countries were lack of familiarity with recommendations and guidelines, lack of knowledge or training on HIV, and lack of time. Institutional and policy barriers were considered to have the least impact on impeding MSM from accessing testing for HIV, the main one considered to be criminalization of HIV transmission. Interviewees agreed that any intervention aimed at increasing the testing rate of HIV was a positive contribution to reducing the HIV epidemic. Testing in settings other than specialist healthcare services and social marketing media campaigns were considered to have the biggest impact on encouraging testing in all countries and across Europe. Self-testing was considered to be the intervention with the most potential to address barriers that impede MSM from accessing testing for HIV; however, its availability across Europe remains low.

**Keywords:** HIV; Test and treat; Men who have sex with men

## Introduction

Since the discovery of HIV in the 1980s, the HIV/AIDS epidemic has been one of the most serious public health challenges of the world [1, 2]. Great progress has been made in reducing the number of deaths globally due to HIV/AIDS, from a peak of 1.8 million deaths in 2005 to 1.2 million deaths in 2015 [2]. A number of efforts have contributed to this decline including the introduction of antiretroviral therapy (ART); the foundation of the Joint United Nations Programme on HIV/AIDS (UNAIDS); the Global Fund to Fight AIDS, Tuberculosis, and Malaria; and the US President's Emergency Plan for AIDS Relief (PEPFAR) [2]. However, the number of people living with HIV across the world has been steadily increasing throughout the years, reaching an estimated 38.8 million in 2015 [2].

In 2014, UNAIDS set out the global target of 90-90-90: 90% of people living with HIV to know their status, 90% of those diagnosed to receive treatment, and 90% of those treated to have viral suppression by 2020 [3]. Many European countries are on track to meeting the 90-90-90 target [4]. This has partly been influenced by WHO successively updating the treatment guidelines and recommendations, following evidence on the reduction of risk of HIV transmission when ART is initiated early [5–9], to include starting ART for all HIV-positive persons, regardless of CD4 cell count [10].

The new WHO guidelines and recommendations also stress the need for countries to ensure the availability of testing and treatment for HIV infection as early as possible. Focusing on improving access to treatment and building health service capacity, WHO recommendations include: community and self-testing for HIV; 'task-shifting' to less specialized health workers; de-medicalizing the provision of ART to non-hospital settings; and integration of ART into other health services [11]. This update in guidelines has led to the adoption of 'test and treat' strategies, which involve active HIV testing campaigns and then immediately starting ART for asymptomatic people living with HIV irrespective of CD4 count. Despite these efforts, a modelling study estimated that 15% of people living with HIV in the EU/EEA area are still unaware of their status [12]. Furthermore, almost half of the existing cases are diagnosed late, defined as having a CD4 cell count below 350 cells/mm<sup>3</sup> blood at the time of diagnosis [13]. Late diagnosis and unknown HIV status are considered to be indicators of gaps in HIV testing services, with half of all EU/EEA countries reporting gaps in testing services for migrants, men who have sex with men (MSM), and sex workers [12]. While progress in terms of initiation of treatment is noted, 1 in 6 people in the EU/EEA diagnosed with HIV remains

untreated [12]. Therefore, there is a clear gap emerging between policy and implementation.

We undertook a qualitative study to understand the barriers to testing and treating HIV for the MSM population in the EU/EEA, with a specific focus on three countries that are making progress towards the 90-90-90 targets at different rates: UK, France, and Poland, as well as a pan-European overview. We also aimed to explore the different interventions available in the different countries focused mainly on encouraging testing for HIV among the MSM population. This study provides a unique country profile of the barriers to accessing HIV testing and the interventions in place aimed at overcoming these barriers, as well as a view of the wider European context. This work will allow us to identify the national differences that may hinder progress towards achieving the UNAIDS 90-90-90 targets at a European level, focusing on improving access to testing. This qualitative work is complemented by a quantitative study where we developed a conceptual framework and model that includes individual, community, biomedical, and societal determinants to analyze testing and treating HIV in the EU Member States and neighbouring countries. Together, the quantitative and qualitative assessment of the barriers and interventions will enable us to determine the policy interventions that would most benefit the MSM population in the different European countries regarding seeking testing for HIV.

## Methods

This research involved conducting interviews with key stakeholders in the UK, France, and Poland, as well as with individuals from relevant international organizations. The interviews involved the completion of a pre-interview survey which provided a quantitative estimate of the impact of different barriers to HIV testing and treatment for the MSM population and the impact HIV interventions have on overcoming these barriers.

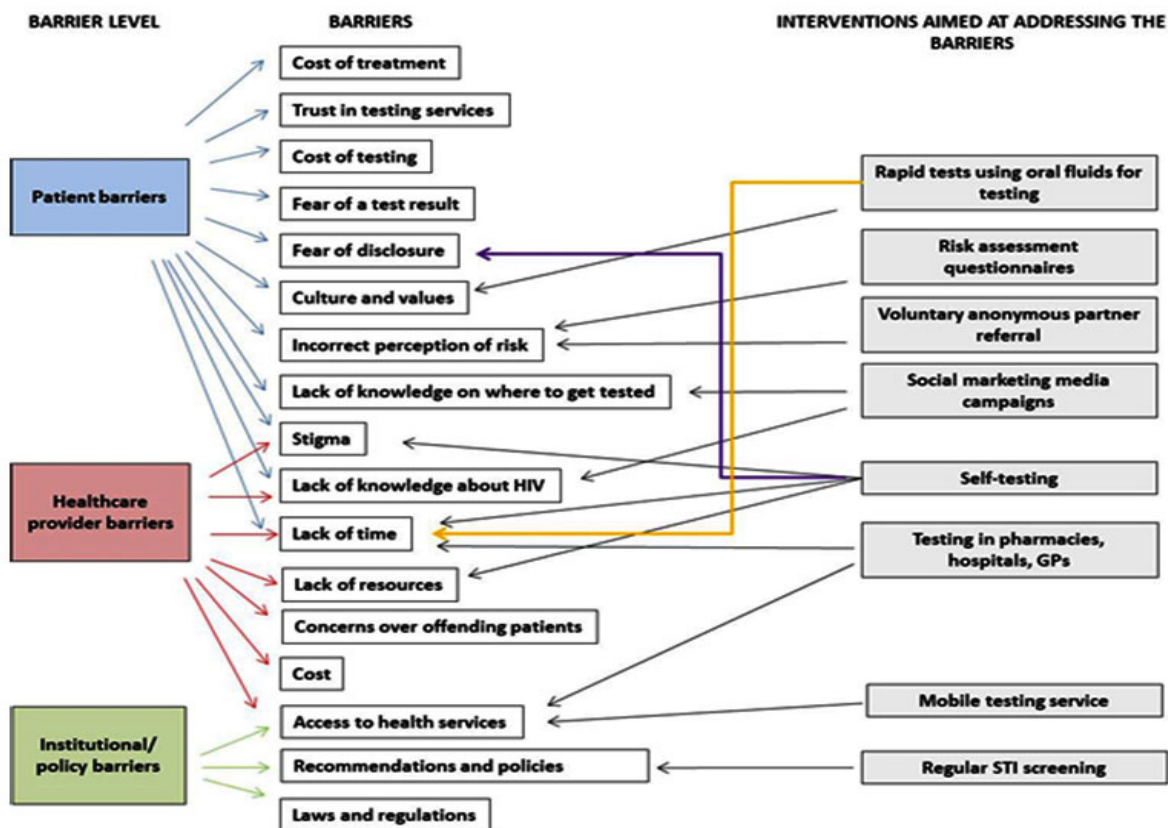
### Development of the survey

A pre-interview survey covering barriers to HIV testing and treatment for the MSM population as well as the interventions in place across Europe was developed through a targeted literature review. To identify the barriers, we focused mainly on two documents provided by ECDC [14,15] which include detailed and up-to-date information related to the barriers faced by MSM across Europe. To identify the interventions and understand the extent of implementation of these across Europe, we conducted two searches on PubMed using the following search terms: "[intervention] for HIV in Europe" (search 1) and "[intervention] for HIV in [Poland OR France OR United Kingdom]"

(search 2). The interventions searched were: self-testing, rapid HIV tests, risk assessment questionnaires, voluntary anonymous partner referral, social media marketing campaigns, mobile testing services, testing in settings other than specialist healthcare services, and regular sexually-transmitted infection screening.

A diagram to illustrate the barriers and interventions (Figure 1) and a short pre-interview survey were developed based on desk research (Supplementary material). The aim of the survey was to provide a rating of the barriers regarding their impact on the MSM population accessing HIV testing and treatment for each individual country and across Europe. It also aimed to provide a rating of the effectiveness of different HIV interventions available across Europe at overcoming these barriers.

Respondents were asked to rate each barrier from 1-4, (1= no impact on accessing testing and treatment of HIV, 2= little impact, 3= some impact and 4= 'significant' impact) based on the impact each has on accessing HIV testing and treatment for the MSM population in their country or across Europe; respondents were also able to select that they didn't know. A description of each barrier can be found in (Table 1). Respondents were also asked to rate the interventions based on their impact on encouraging HIV testing and treatment for the MSM population in their country and across Europe (0=intervention is not available, 1= no impact on encouraging HIV testing for MSM, 2= little impact, 3= some impact and 4= 'significant' impact). Participants were asked to complete and return the survey in advance of their interview to use as the discussion point in the interview. A description of each intervention can be found in (Table 2).



**Figure 1: Barriers to accessing testing and treatment for HIV in MSM and interventions aimed at addressing the different barriers** The barriers are divided into three different levels: patient, healthcare provider, and institutional/policy. The different barriers are connected to each level they affect through arrows (patient=blue, healthcare provider=red, and institutional/policy=green). Each barrier can affect one or more levels. The interventions are linked to the barrier they seek to address through black arrows if identified as such in the literature, or purple and yellow if identified as addressing a barrier through interviews.

Barrier	Description
<b>Patient barriers</b>	
Stigma	Stigma associated with being HIV positive
Culture	Cultural barriers, such as language or religion, preventing patients to seek testing or treatment for HIV
Incorrect perception of risk	Not seeking testing because the patient does not consider themselves to have engaged in any risky behaviours
Cost of testing	Perceived cost of testing
Cost of treatment	Perceived cost of treatment
Fear of test result	Fear of receiving an HIV positive test result
Fear of disclosure	Fear of personal information and/or test results being disclosed to third parties
Trust in testing services	Distrust of testing services
Lack of knowledge about HIV	Lack of knowledge about how HIV is transmitted and how one can become infected
Lack of knowledge about where to get tested	Lack of knowledge about the different ways to get tested
Lack of time	Lack of time for patients to seek testing
<b>Healthcare provider barriers</b>	
Stigma	Concerns from health providers that offering HIV testing to high-risk populations will stigmatise patients
Concerns over offending patients	Concerns from health providers about making assumptions about a patient's risk and therefore worries about offering the test without clinical reason and patient acceptability
Lack of knowledge/training	Lack of knowledge about HIV including symptoms and related illnesses, and health providers not feeling equipped for HIV management after diagnosis
Lack of familiarity with recommendations and guidelines	Health providers not familiar with guidelines and recommendations for HIV testing
Lack of time	Lack of time for healthcare providers to offer and conduct HIV testing outside of traditional sexual health settings, including the time to provide pre- and post-test counselling
Lack of resources	Limited number of staff and/or limited training offered to staff on HIV testing and treatment
Cost	High cost of HIV testing and counselling associated with the test result
<b>Policy/institutional barriers</b>	
Access to health services	Difficulty in accessing testing facilities, mainly related to geographical barriers. This could be due to distance that needs to be covered to reach testing centres.
Recommendations and guidelines	Lack of a national strategy against HIV, resulting in a lack of guidelines and recommendations promoting testing and/or treatment for HIV in MSM.
Laws and regulation	Criminalisation of HIV transmission. This refers to legal ruling on voluntary transmission of HIV to others.

Table 1: Description of each of the barriers to HIV testing and treatment used in the pre-interview survey

Intervention	Description
Self-testing	HIV tests that can be performed by the patient at home
Rapid HIV tests	Rapid tests that can be performed using bodily fluids other than blood
Risk assessment questionnaires	Questionnaires that can be filled in by patients and/or doctors to assess the patient's risk of HIV infection
Voluntary anonymous partner referral	Patients who engage in unprotected sex can refer partners for testing
Social marketing media campaigns	Campaigns targeting at risk populations to encourage seeking testing for HIV
Mobile testing service	Mobile units offering HIV testing services
Testing in various settings	Testing performed in settings other than specialist healthcare services(not only in specialised clinics) but also in pharmacies, hospitals and General Practitioners
Regular sexually-transmitted infection screening	Including regular sexually transmitted infection screenings in national/international recommendations

Table 2: Description of each of the HIV testing and treatment interventions used in the pre-interview survey.

## Interviews

We conducted semi-structured interviews with a range of key stakeholders across the UK, France, and Poland, and from selected relevant pan-European organizations to gain a broader perspective on the European landscape, including clinicians, charity/advocacy groups, policymakers, researchers/academics, and non-governmental organizations. Semi-structured interviews allow standard questions to be asked across interviews, whilst providing the flexibility to explore other areas of interest mentioned by the interviewees. Interviews were conducted by telephone and lasted no more than 60 minutes.

We identified individuals to interview by searching online for those with relevant job roles and experiences, and through snowball sampling, by asking interviewees for recommendations on other individuals to speak with. Interviewees were contacted by email and were sent an invite in English and, if from France or Poland, an invite in their national language. Each interview was assigned a code that is referred to throughout this article when interview data has been referenced, e.g. INT1.

The aim of the interviews was to explore the survey responses in more detail, to gain insight into the context for the barriers and interventions to HIV testing and treatment, validate the barriers and interventions identified from the literature, and to identify any additional barriers and interventions for the MSM population in Europe.

A privacy information sheet was sent to each participant ahead of the interview with a corresponding consent form to confirm the participants' preference for data collection, storage, and destruction, including that the interview could be recorded. An ethical exemption was granted by RAND's Institutional Review Board, the Human Subjects Protection Committee on the basis that participants were interviewed in their professional capacity rather than from a personal perspective.

## Data analysis

Average scores obtained from the survey were calculated using Excel for each of the three countries and for Europe. Qualitative analysis of the interviews was conducted using an extraction template in Excel based on the interview protocol and data was extracted by two interviewees (DRR and LH). This template covered:

Interview code and country; each patient barrier; each healthcare provider barrier; each policy/institutional barrier; the barriers thought to be most important to each interviewee; additional barriers not included in the pre-interview survey; whether the identified barriers can be applied to groups other than MSM; each intervention; the efficacy of the interventions at addressing the barriers; additionally available interventions not included in the pre-interview survey; interventions available in other countries that could address the barriers; Whether the interventions could help to overcome the barriers faced by groups other than MSM; and Any additional comments.

The quantitative and qualitative data were analyzed to create individual country profiles and were then cross-analyzed to identify similarities and differences across European countries with regards to the MSM population accessing HIV testing and treatment and the interventions in place to encourage this.

### The aims of the study

We aimed to understand the barriers to testing and treating HIV for the MSM population in Europe, with a specific focus on the UK, France, and Poland as well as a pan-European overview. We also aimed to explore the different interventions available in the different countries focussing mainly on encouraging testing for HIV among the MSM population. This work will allow us to identify the national differences that may hinder progress towards achieving the UNAIDS 90-90-90 targets at a European level, focusing on improving access to testing. This work will enable us to determine the policy interventions that most benefit the MSM population in the different European countries regarding seeking testing for HIV.

## Results

### Participant recruitment

The number of interviews conducted per stakeholder group and the per-country is provided in (Table 3). The response rates to the interview invite varied for each country: 18% for Poland, 28% for France, and 38% for both the UK and Europe (Table 4). In addition to the initial interview invite, up to two reminders were sent to potential interviewees. A total of 27 interviews were conducted: 9 with individuals from the UK, 5 from France and 4 from Poland, and 9 with individuals from international organizations for the pan-European perspective. Table 5 shows which country each individual was from. Four interviewees did not complete the pre-interview survey as they either were not comfortable or familiar enough with each of the barriers and interventions to provide a rating or did not have quantitative evidence from their role to support their claims. Three of these individuals were from the pan-European perspective (INT12, INT17, INT28) and one from the UK (INT4).

	Re-searcher	Policy-maker	Clinician	NGO/charity	Total conducted
UK	0	3	4	2	9
France	3	2	0	0	5
Poland	1	2	1	0	4
Pan-European	2	5	0	2	9
<b>TOTAL</b>	<b>6</b>	<b>12</b>	<b>5</b>	<b>4</b>	<b>27</b>

**Table 3:** Interview participation by stakeholder group and country

	Number of individuals contacted	Number of interviews conducted	Response rate
UK	24	9	37.5%
France	18	5	27.8%
Poland	22	4	18.1%
Europe	24	9	37.5%

**Table 4:** Response rates for interviews by country

Country	Interview code
UK	INT1
	INT2
	INT4
	INT6
	INT8
	INT13
	INT16
INT19	
France	INT5
	INT9
	INT20
	INT22
	INT23
Poland	INT10
	INT14
	INT24
	INT27
Europe	INT3
	INT7
	INT12
	INT15
	INT17
	INT18
	INT21
	INT25
INT28	

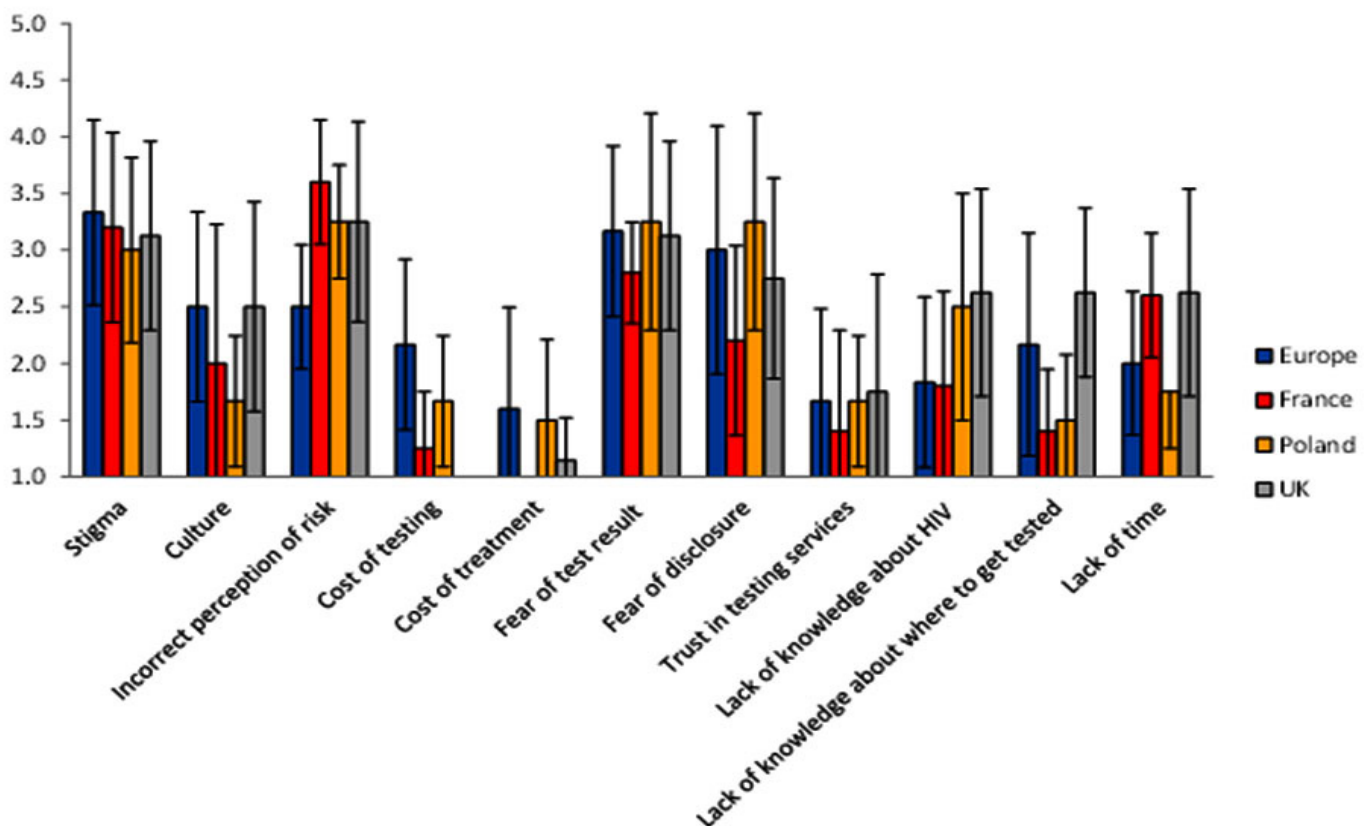
**Table 5:** Location of each interviewee\*

\*INT11 is missing from this list as we scheduled an interview with an individual (and assigned them an interview code) but the interview did not take place

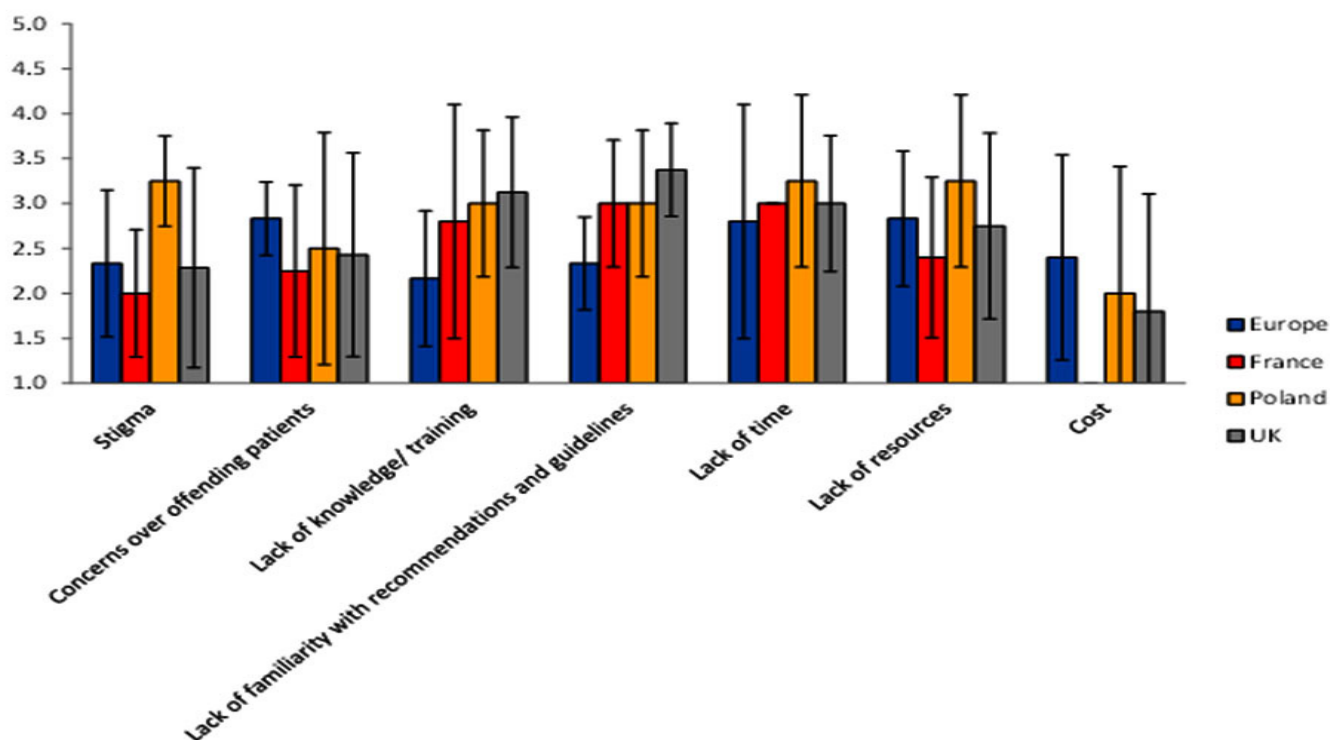
## Survey Responses

Interviewees' responses to the survey were used to determine the overall impact a barrier or an intervention is considered to have on testing or treating HIV in the MSM population in the different countries and across Europe more widely. However, all interviewees described the barriers and interventions as being related to testing, as treatment was considered to be easily accessible once a patient had been diagnosed; although the literature does identify barriers to accessing treatment for HIV as shown in (Figure 1). Therefore, we will only refer to the barriers to accessing testing and the interventions to encourage testing.

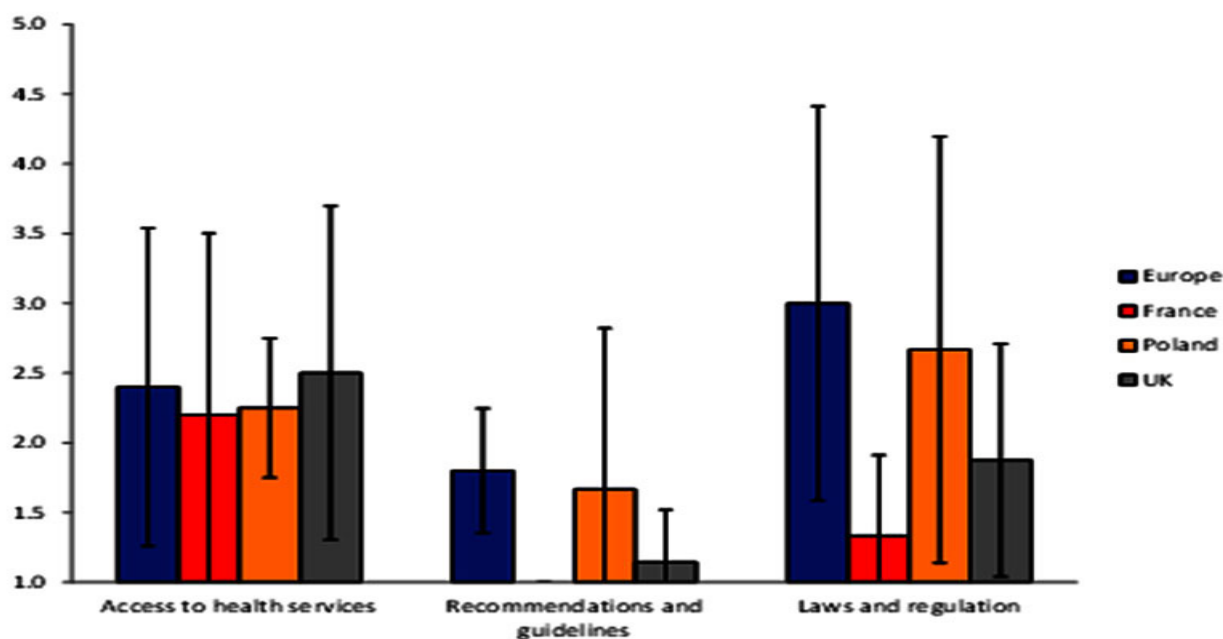
Figures 2-4 show the average scores for each barrier for Europe (based on the views of participants from pan-European organizations), France, Poland, and the UK. Barriers with an average score equal or above 2.5 were considered to have a moderate to 'significant' impact on accessing testing for HIV. Figure 5 shows the average scores for each intervention for pan European organizations, France, Poland, and the UK. Interventions with an average score below 1 were thought by interviewees to not be available in a given country. For some interventions, scores of less than and more than 1 were provided by different interviewees, suggesting uncertainty as to whether an intervention was available, primarily in Poland. The reasons for each are discussed in more detail in the following sections. Interventions with an average score between 1 and 2.4 were considered to have little impact on encouraging testing for HIV, and interventions with an average score equal to or above 2.5 were considered to have a moderate to 'significant' impact on encouraging testing and treatment of HIV.



**Figure 2: Barriers to testing for HIV in the different countries and across Europe at a patient level** Respondents were asked to rate each barrier from 1-4, based on the impact each has on accessing HIV testing and treatment for the MSM population in their country or across Europe (1= no impact on accessing testing and treatment of HIV, 2= little impact, 3= some impact and 4= 'significant' impact); respondents were also able to select that they didn't know. The threshold value for a barrier to be considered to have moderate to 'significant' impact on accessing testing for HIV was 2.5. Each bar represents the mean value with standard deviation of ratings provided by respondents from pan-European organisations who provided a pan-European perspective (blue), France (red), Poland (yellow), and the UK (grey) for the different barriers identified at a patient level.

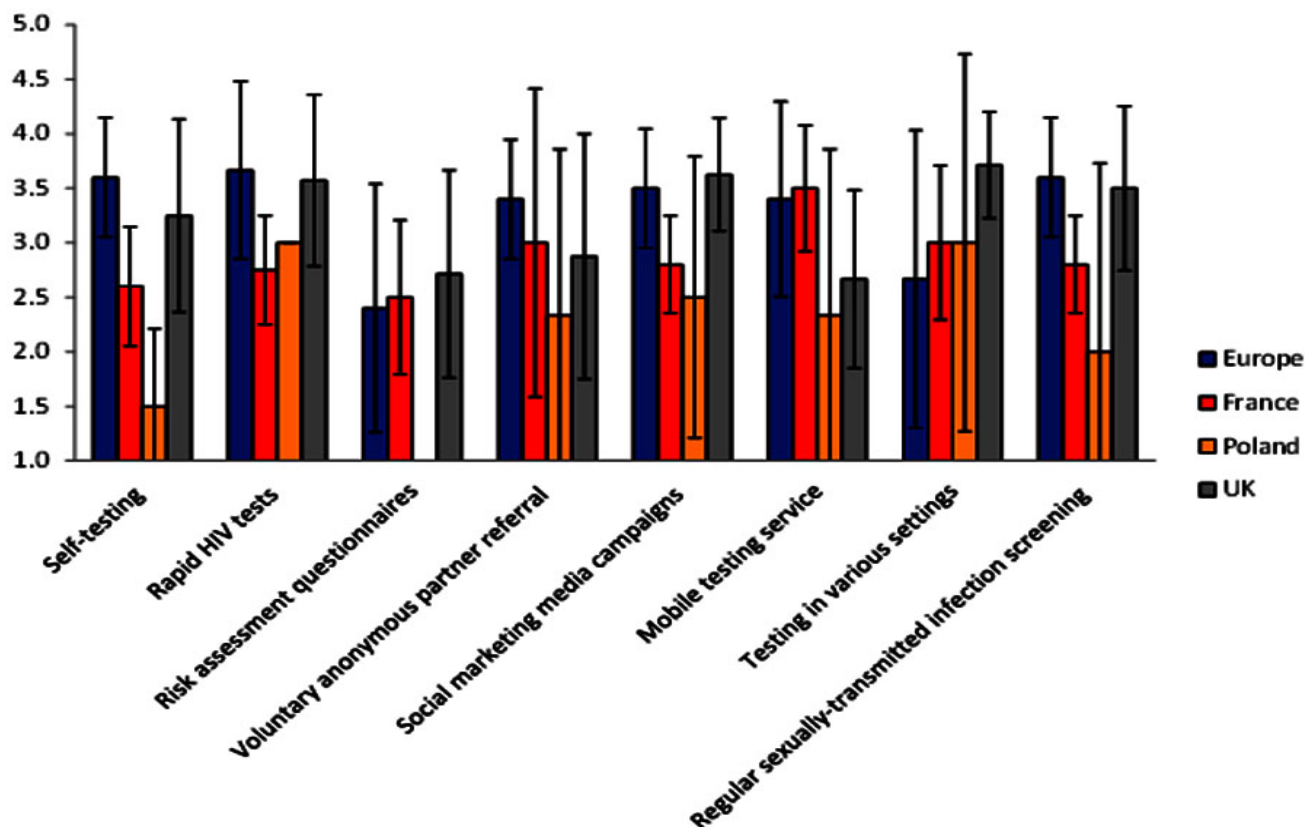


**Figure 3: Barriers to testing for HIV in the different countries and across Europe at a healthcare provider level** Respondents were asked to rate each barrier from 1-4, based on the impact each has on accessing HIV testing and treatment for the MSM population in their country or across Europe (1= no impact on accessing testing and treatment of HIV, 2= little impact, 3= some impact and 4= 'significant' impact); respondents were also able to select that they didn't know. The threshold value for a barrier to be considered to have moderate to 'significant' impact on accessing testing for HIV was 2.5. Each bar represents the mean value with standard deviation of ratings provided by respondents from pan-European organisations who provided a pan-European perspective (blue), France (red), Poland (yellow), and the UK (grey) for the different barriers identified at healthcare provider level.



**Figure 4: Barriers to testing for HIV in the different countries and across Europe at a policy/institutional level** Respondents were asked to rate each barrier from 1-4, based on the impact each has on accessing HIV testing and treatment for the MSM population in their country or across Europe (1= no impact on accessing testing and treatment of HIV, 2= little impact, 3= some impact and 4= 'significant' impact); respondents were also able to select that they didn't know. The threshold value for a barrier to be considered to have moderate to 'significant' impact on accessing testing for HIV was 2.5. Each bar represents the mean value with standard deviation of ratings provided by respondents from pan-European organisations who provided a pan-European perspective (blue), France (red), Poland (yellow), and the UK (grey) for the different barriers identified at an institutional/policy level.





**Figure 5: Interventions to encourage testing for HIV among MSM in the different countries and across Europe.** Respondents were asked to rate the interventions based on their impact on encouraging HIV testing for the MSM population in their country and across Europe (0=intervention is not available, 1= no impact on encouraging HIV testing for MSM, = little impact, 3= some impact and 4= 'significant' impact). The threshold value for a barrier to be considered to have moderate to 'significant' impact on accessing testing for HIV was 2.5. Each bar represents the mean value with standard deviation of ratings provided by respondents from pan-European organisations who provided a pan-European perspective (blue), France (red), Poland (yellow), and the UK (grey) for the different interventions aimed at encouraging testing for HIV among MSM in the different countries.

## Europe

### Barriers to testing for HIV across Europe

Barriers to testing HIV across Europe were identified through the survey responses of and interviews with 9 individuals from pan-European organizations. Interviewees deemed stigma (mean score from participants = 3.3), fear of a positive test result (3.2), fear of disclosure (3), lack of time (2.8), culture (2.5), and incorrect perception of risk (2.5) as having moderate to 'significant' impact on accessing testing of HIV at a patient-level across Europe (Figure 2).

Interviewees considered stigma to be the biggest barrier across all levels (i.e. patient, healthcare, institutional/policy) to seeking testing for HIV in MSM across Europe. They identified stigma as being two-fold: stigma against HIV and stigma against MSM (INT3, INT7, INT12, INT15, INT18, INT21). One interviewee commented that stigma was on occasion self-imposed (INT15). For example, they reported there have been cases where HIV positive men would only choose to engage in rela-

tionships with other HIV positive men due to the stigma around HIV and the difficulty of explaining that an HIV positive person on treatment who has an undetectable level of virus is not able to transmit the virus (INT15) (also known as the 'U=U' campaign for undetectable = untransmissible) [16]. Interviewees viewed stigma as being widespread across Europe with greater stigma in Eastern Europe compared with Western Europe, as well as more stigma in more recent EU member states and rural areas (INT3, INT7, INT12, INT18, INT21).

Fear of a positive test result was seen as the second biggest barrier at a patient level for seeking testing for HIV across Europe. However, one interviewee commented that there was a generational component to this barrier (INT15). This interviewee considered that although testing positive for HIV remained a life-changing issue for all MSM, younger MSM had grown up with HIV being a chronic illness rather than a fatal disease (INT15). Older MSM were thought to be more 'scared' of HIV and sex in general, which meant they were more reluctant to seek testing (INT15). Interviewees viewed this barrier as related to stigma and the fear of judgment and potential concerns that they

may lose their jobs for being HIV positive (INT18, INT21). This last view was also true for the barrier 'fear of disclosure' (INT12, INT18). However, this barrier was not associated solely with an HIV positive status, but simply to be seen in a testing center and that information being shared with others (INT12). Fear of disclosure was considered an issue mainly in Southern and Eastern Europe (INT3).

Culture and inaccurate perception of risk were considered to have some impact on MSM seeking testing for HIV across Europe. Being a migrant (INT7, INT18, INT21), religious conservatism (INT3, INT7) or being from a Central or Eastern European country (INT12, INT17, INT18) were considered cultural barriers to testing across Europe. In fact, migrant MSM were thought by one interviewee to be facing the biggest barriers to testing, and on occasions treating, HIV (INT7). Religion played a role in hindering MSM from seeking testing for HIV mainly in Eastern Europe. One interviewee commented that in Eastern Europe there is a lack of sexual education and people are afraid to buy condoms or talk about sex, particularly at a young age (INT18). Culture and stigma were thought to influence the perception of risk (INT18). Misinformation and a lack of knowledge of HIV meant some MSM were not aware of their risk (INT12, INT17, INT18, INT25) and therefore did not inform doctors of risk behaviours (INT15).

The healthcare provider related barriers identified as having a moderate impact on accessing testing and treatment of HIV across Europe were lack of resources (2.8) and concerns over offending patients (2.8) (Figure 3). Lack of resources was considered an issue mainly in primary care settings. Interviewees commented there was insufficient staff in primary care centres and those that were available were not properly informed or trained on HIV (INT25). One participant mentioned that research in Denmark showed people diagnosed with HIV had an average of 15 visits to their general practitioner (GP) before being offered an HIV test and that this was similar across Europe (INT17). However, this claim could not be independently verified. The reluctance of primary care physicians to offer to test could be related to concerns over offending patients. Interviewees mentioned that many physicians did not bring up the subject of sexuality or HIV testing unless patients enquired for fear of being viewed as making assumptions about the patient (INT15, INT17).

The only institutional barrier viewed as having an impact on accessing testing and treatment of HIV according to pan-European Organizations, was laws and regulation (3.0) (Figure 4). Interviewees mentioned that in many countries, wilful

HIV transmission was criminalized (INT3, INT12, INT21). One interviewee from Poland commented that in some cases MSM would rather not know their HIV status than risk knowingly transmitting the virus and face criminalization (INT24).

### **Interventions to encourage testing for HIV across Europe**

Interventions to encourage testing for HIV across Europe were identified through the survey responses of and interviews with 9 individuals from pan-European organizations. The availability of interventions to overcome the barriers to testing HIV varied across Europe. Overall, interviewees considered that, when available, all interventions with the exception of risk assessment questionnaires (2.4) had moderate to 'significant' impact on encouraging testing for HIV (Figure 5). However, for risk assessment questionnaires, there were mixed views on the impact this had, with scores ranging from 1 to 4. For self-testing, risk assessment questionnaires, voluntary anonymous partner referral, and regular sexually-transmitted infection screening, one interviewee rated each of these as not being available when other participants thought these were available and had an impact on encouraging HIV testing. This may be due to the interviewee's job role which meant they were not familiar with all HIV interventions available across Europe.

Rapid HIV tests were considered to have the most impact at encouraging testing (3.7); however, one interviewee rated this as only a 2 compared to the other interviewees who rated this as a 4. Interviewees commented that these were generally easy to use and affordable and could be used in community-based testing and checkpoints, as well as reducing anxiety around testing (INT3, INT18, INT21). Regular screening for sexually transmitted infections (STI) was considered to encourage testing (3.6) although one interviewee commented that it required MSM to attend centers for STI testing multiple times in a year, which may be a barrier (INT17).

Interviewees felt that self-testing (3.6) would be highly valuable at addressing barriers to testing for HIV, mainly stigma (INT12, INT18). However, self-testing was said to have low availability across Europe and a high cost (INT3, INT7, INT18, INT21, INT25). Interviewees also considered using mobile testing services (3.4) and offering HIV testing in settings other than specialist healthcare services (e.g. community-based testing, in-pharmacy testing) (2.7) to have some impact on encouraging testing for HIV across Europe. For example, checkpoints that offer convenient, rapid HIV tests as well as HIV support and other sexual health advice are available in some Western European

countries and were thought to be very useful (INT3, INT17). However, one interviewee felt there was insufficient training available to carry these out (INT21). There was also variation in the survey responses, both as to whether mobile testing services are available across Europe and the extent of its impact on encouraging HIV testing. One interviewee reported that mobile testing is not available in Europe and variation in scores was provided for those who were aware of its availability, with three interviewees rating it as a 4 for impact and two others rating it as a 2 and a 3. Similarly, testing in settings other than specialist healthcare services also received a mixed response as to the impact on encouraging testing. All interviewees reported that testing in settings other than specialist healthcare services was available across Europe; however, scores for its impact ranged; two interviewees scored it as a 1, two as a 3, and two as a 4. This may be a reflection of a suggested variation in the impact of testing in settings other than specialist healthcare services across different European countries.

In addition to the interventions listed, interviewees commented on the importance of peer support to encourage MSM to seek testing and treatment for HIV (INT7, INT15). Interviewees highlighted that community involvement in any initiative and collaboration between the community and healthcare providers was a key factor in the success of any intervention (INT15). For this reason, targeted marketing campaigns were seen as having a 'significant' impact at encouraging testing and treatment for HIV among MSM (3.5). One participant also felt that there should be an active effort to remove laws that discriminate against HIV positive people, such as non-disclosure for employment purposes (INT7).

## France

### Barriers to testing for HIV in France

Barriers to testing HIV in France were identified through the survey responses of and interviews with 6 individuals from French organizations. Interviewees considered that incorrect perception of risk (3.6), stigma (3.2), fear of a positive test result (2.8), and lack of time (2.6) as having moderate to 'significant' impact on accessing testing for HIV at a patient level in France (Figure 2). However, one interviewee commented that MSM was not a homogenous population and that different barriers affected different groups (INT22).

Inaccurate perception of risk was deemed by interviewees as the main barrier across all levels (i.e. patient, healthcare provider, and institutional/policy) in France (3.6). Interviewees

commented that many MSM in France did not consider they engaged in high-risk behaviour due to being in a monogamous relationship and believing their partner was equally faithful (INT22), engaging in sexual intercourse with men infrequently (INT9), or by being surrounded by people who constantly engaged in high-risk behaviour which led to normalizing this behaviour (INT26). In addition, patients may not always admit to the fact that they had engaged in high-risk behaviour, making it difficult for healthcare providers to recommend an HIV test (INT5, INT9). This problem was partly thought to be related to stigma (INT5). Two interviewees commented that in France stigma could lead to fear of social exclusion or discrimination if they admitted that they were MSM taking risks (INT5, INT9). Stigma was seen to influence fear of a positive test result and fear of disclosure (INT9).

Lack of time was also deemed to be a barrier for MSM seeking testing for HIV in France. Interviewees commented that STI clinics in France had a long waiting time due to a high demand for testing services which typically have limited opening times (for example, only being open for a few hours on weekdays) (INT26). One interviewee mentioned that in France patients must go back to the testing clinic to collect their results, which meant patients had to find time twice, to get tested and then to find out their results (INT22).

For healthcare providers, the barriers judged by experts as having moderate to 'significant' impact on accessing testing of HIV in France were lack of familiarity with recommendations and guidelines (3.0), lack of time (3.0) and lack of knowledge or training on HIV (2.8) (Figure 3).

Lack of familiarity with recommendations and guidelines and lack of time were felt by interviewees to be the biggest healthcare provider barriers to the MSM population being provided access to HIV testing in France (both scored a 3.0). Interviewees felt as though healthcare providers, particularly those in primary care who may not encounter HIV often, were not always up-to-date on HIV-related guidelines (INT9, INT26). For example, one interviewee felt as though GPs were not always aware of recommendations that MSM should be tested for HIV every 3 months, and so were not aware that they needed to offer regular testing to MSM individuals (INT22). This was thought to be linked to a lack of knowledge/training on HIV (INT9, INT26). Lack of time was also thought to be a barrier faced mainly within primary care services in France (INT9), where short GP consultation times were thought to not leave enough time to discuss risk factors for HIV, including for GPs to be made aware that a

patient is MSM, or to offer a test and provide support for positive results (INT9, INT22, INT26).

Interviewees felt that GPs in France were not properly prepared to deal with HIV, as medical training has a small part dedicated to HIV (INT5, INT20). However, interviewees mentioned this was due to the low HIV positive population in the country and the fact that general practitioners may have only one or two patients throughout their career at risk of infection (INT5, INT9). Additionally, interviewees mentioned that in France it was difficult for both GPs and patients to discuss a patient's personal life and sexual history (INT5, INT22). One participant felt GPs lack of knowledge on HIV meant they don't have the knowledge to evaluate the risk a patient faces and act accordingly (INT20). Interviewees for France did not consider there to be institutional or policy barriers to MSM seeking testing or treatment for HIV in the country (Figure 4). However, they did comment that lack of access to health services could hinder MSM from rural areas from seeking testing for HIV (INT20, INT22, INT26). Interviewees agreed that although there was usually a delay between infection and diagnosis, this delay did not exist between diagnosis and treatment (INT9). Interviewees also highlighted that the issue was not in MSM seeking testing once but rather the frequency in which they are recommended to do so (INT5, INT9).

### **Interventions to encourage testing for HIV in France**

Interventions to encourage testing for HIV in France were identified through the survey responses of and interviews with 6 individuals from French organizations. There was variation amongst interviewees as to whether they believed that certain interventions were available in France which may reflect that many of these were only available at an experimental stage or had limitations (Figure 5). For example, only two out of the five interviewees for France reported that risk assessment questionnaires and voluntary anonymous partner referrals were available; the other interviewees did not think these were available. For rapid HIV tests and mobile testing services, one interviewee for each reported these were not available compared to the other four interviewees.

Self-testing (2.6) was said to be legal and available in France, and that the test can be bought online, ensuring anonymity. Interviewees felt that self-testing helps address barriers such as stigma and lack of time to get tested (INT9, INT20, INT26), although individuals have to pay for their own tests, which can become expensive if they self-test regularly (INT5, INT9, INT20,

INT22). For this latter reason, interviewees felt that self-testing did not have a high impact among MSM in France, where the recommendation is for testing every 3 months (INT20, INT22). One interviewee commented that across all individuals there are around 70,000-75,000 self-tests sold or distributed in France annually compared with 5.6 million tests provided in laboratory settings (INT20).

In France, HIV is integrated into regular screening programs carried out at specialized centers alongside other STIs, which interviewees considered to have an impact on addressing the barriers to testing HIV (2.8). However, participants commented that although testing was recommended, it was not mandatory (INT22). Interviewees mentioned that there were ongoing efforts towards improving STI screening by developing guidelines for all STIs (INT26).

One interviewee commented that since 2011, France has provided mobile community-based testing services (INT5) [17], although another interviewee was not familiar with this and reported that this intervention was not available. Interviewees were of the opinion that these were very efficient at reducing the number of people that had never been tested for HIV by reaching people that would otherwise not seek testing but insufficient for engaging people to get tested regularly (INT5). One interviewee mentioned that although mobile testing services were an effective intervention (3.5), lack of financial resources meant they were not as effective as they could be (INT26).

Targeted social marketing media campaigns were also thought to have a positive impact on encouraging testing for HIV (2.8). Interviewees commented that although these were very important, they were not very frequent (INT5, INT26). One interviewee claimed that targeted campaigns for MSM only ran twice a year (INT26).

Survey responses were mixed as to the impact of testing in settings other than specialist healthcare services. Survey response scores ranged from 2 to 4, which may indicate the impact varies across different regions in France.

## **Poland**

### **Barriers to testing for HIV in Poland**

Barriers to testing HIV in Poland were identified through the survey responses of and interviews with 4 individuals from Polish organizations. Interviewees deemed incorrect perception of risk (3.3), fear of disclosure (3.3), fear of test results

(3.3), stigma (3) and lack of knowledge on HIV (2.5) as having moderate to 'significant' impact on accessing testing for HIV at a patient level in Poland (Figure 2).

All four interviewees discussed how there was stigma in Poland, both against MSM and against HIV (INT10, INT14, INT24, INT27). Stigma was suggested to lead many Polish MSM to not recognize or disclose their sexual orientation. It was also thought that MSM felt concerned about facing stigma from healthcare professionals when requesting an HIV test, which may lead them to avoid attending appointments or asking for a test. Interviewees commented that stigma was more pronounced in rural areas of Poland compared with urban centers (INT10, INT14, INT27). One interviewee felt that stigma against MSM had improved over time (INT27) although another interviewee felt progress in this area may have slowed in recent years due to a rise in conservative views in the country (INT10).

Incorrect perception of risk was thought by one interviewee to be related to a lack of knowledge of high-risk behaviours and the infrequency with which some men engage in high-risk behaviours (INT14). Alternatively, one interviewee felt that the MSM population in Poland was aware of the risks of infection with HIV but still partook in these activities (INT27), suggesting they may have felt HIV only happens to other people and perhaps wouldn't happen to them. Regarding fear of disclosure, one interviewee highlighted that MSM may have concerns over their test results being disclosed, particularly if it is positive (INT24). Lack of knowledge about HIV was thought by one interviewee to be, in part, due to the lack of HIV awareness-raising initiatives in Poland or the small scale of these initiatives which are usually run by NGOs (INT10). The lack of initiatives was thought by this interviewee to be partly due to what they perceived as a lack of public funding aimed at addressing the health risks of MSM (INT10). Additionally, one interviewee mentioned that there was a lack of general sex education, including HIV, for the general public in Poland (INT27).

Survey and questionnaire results for the healthcare provider related barriers suggest that this group of barriers has a 'significant' impact on accessing HIV testing for the MSM population in Poland, more so than those at the patient and policy/institutional level. All healthcare provider barriers except the cost of testing and treatment were considered to have a moderate to 'significant' impact on MSM accessing testing and treatment for HIV in Poland (Figure 3).

As with stigma at a patient-level, one interviewee felt that MSM in Poland faces stigma against HIV from healthcare professionals (INT27). Most of our interviewees highlighted that healthcare professionals, often GPs, can lack knowledge of HIV and therefore face difficulties in identifying the symptoms of HIV, as well as the best approaches to testing and treatment (INT10, INT24, INT27). One interviewee felt that this led Polish GPs to only offer an HIV test to patients who requested it, even when risk factors for HIV had been raised (INT10). Interviewees commented that this insufficient knowledge was due to a lack of HIV education in medical training (INT10) and the time and financial constraints of GPs to attend professional development training on HIV in Poland (INT24, INT27).

Lack of time and resources were also considered a barrier at the healthcare provider level in Poland. Lack of time includes time to offer and conduct an HIV test, as well as time to discuss HIV during a regular GP consultation (INT10, INT24). It was raised during the interviews that healthcare providers were under considerable pressure in Poland to reduce costs and were facing a lack of GPs due to many moving abroad (INT10, INT27). For example, one interviewee commented that the National AIDS Centre has testing sites across Poland but struggles to access adequate resources and therefore the sites have limited opening times (INT27).

Interviewees considered laws and regulations to be a barrier to accessing testing at an institutional level (2.7) (Figure 4). Two interviewees discussed how the wilful transmission of HIV is criminalized in Poland if the individual is aware of their positive status (INT10, INT24) which was thought to lead to some patients not getting tested as they don't want to disclose their status to sexual partners (INT24). Interviewees also mentioned that many interventions easily available in other European countries, such as self-testing and rapid testing, are apparently not available in Poland or are very difficult to access due to the small scale (i.e. local initiatives) of the intervention. Access to health services and recommendations and guidelines were not thought to have an impact on accessing HIV testing in Poland.

### **Interventions to encourage testing for HIV across Poland**

Interventions to encourage testing for HIV in Poland were identified through the survey responses of and interviews with 4 individuals from Polish organizations. Survey responses were varied as to whether certain interventions were available in Poland as they were difficult to access because, for example, they

were run on local, rather than national, scales or were not officially available from Poland (INT10, INT27) (Figure 5). There was also variation in survey responses for the impact of the available interventions among interviewees. Interviewees mentioned that the main intervention in place for encouraging HIV testing in Poland is the 32 testing sites run by the National AIDS Centre which use laboratory testing to diagnose HIV (INT10, INT27).

Rapid testing (3.0), testing in settings other than specialist healthcare services (3.0), and social marketing media campaigns (2.5) were thought to have a moderate to large impact on overcoming the barriers to MSM accessing HIV testing. However, interviewees highlighted how these interventions could have more of an impact if certain limitations were overcome (INT14, INT27). One interviewee claimed that rapid testing was not available in Poland, whereas the other three interviewees indicated it was available and has the biggest impact on encouraging HIV testing. Similarly, there were mixed responses from interviewees as to the availability of testing in settings other than specialist healthcare services. One survey response indicated that testing in settings other than specialist healthcare services was not available, with two interviewees highlighting that tests could only be conducted by medical professionals in a healthcare setting (INT24, INT27). Other interviewees thought it was only available outside specialist healthcare settings in two nightclub locations in Poland and that it faced challenges due to a lack of resources and staff (INT10, INT14). The lack of awareness about the testing in nightclubs may be because it might not be legally recognized, which may be why one interviewee reported it was not available. Alternatively, the interviewees may have been aware of the nightclub testing, but as it is not a legally recognized service, reported that it was not available in Poland.

Social marketing media campaigns were thought to have a moderate impact on addressing the barriers to MSM accessing HIV testing, although the scores for impact on encouraging testing ranged from 1 to 4. Some NGOs in Poland run social marketing campaigns targeted at certain MSM populations. However, these were often felt to be too small a scale to tackle the extent of the barriers (INT10, INT14). Additionally, interviewees commented that there had been reductions in government-run social marketing campaigns in recent years, which the interviewees attributed to a political climate that disadvantages MSM populations (INT10). Some social media campaigns, such as those using Grindr, a social networking app for lesbian, gay, bisexual, transgendered, and queer (LGBTQ) people which offers self-testing kits [18], were reported to be raising awareness

of HIV by one interviewee which was thought to be effective at reaching the wider MSM population (INT10).

Interviewees also commented on the potential impact of Pre-Exposure Prophylaxis (PrEP) at encouraging testing. PrEP is a preventative medicine taken daily by those at high risk of develop HIV to lower their chances of becoming infected [19]. However, as this is currently in the roll-out phase they provided no further comment regarding its impact (INT10, INT14).

## UK

### Barriers to testing for HIV in the UK

Barriers to testing HIV in the UK were identified through the survey responses of and interviews with 8 individuals from UK-based organizations. Interviewees deemed incorrect perception of risk (3.3), stigma (3.1), fear of test result (3.1), fear of disclosure (2.8), lack of knowledge on where to get tested (2.6), lack of knowledge about HIV (2.6), and culture (2.5) as having moderate to 'significant' impact on accessing testing for HIV at a patient-level in the UK (Figure 2). The cost of testing and treatment and trust in testing services were not thought to act as barriers to accessing HIV testing or treatment in the UK.

Incorrect perception of risk was thought to be the biggest barrier to accessing testing for HIV by UK interviewees. This was thought to arise in multiple ways: older MSM in monogamous relationships and believing their partner was equally faithful (INT1); MSM identifying as heterosexual not perceiving themselves to be at risk (INT1); and receiving a negative HIV test which can provide a false sense of reassurance, reducing the likelihood of getting future tests (INT23). Incorrect perception of risk was thought to be linked to a lack of knowledge about HIV due to less availability of HIV information, such as transmission and risk behaviour, than in previous years (INT2, INT16, INT23).

Fear of test results and stigma were considered to be the second biggest barriers to accessing HIV testing for the UK MSM population. One interviewee commented that the fear of test results was related to the stigma against HIV and the perception that HIV leads to death, which is no longer the case in the UK. The latter was thought to be a particular concern for older MSM who lived through the 80s HIV epidemic when HIV was a 'death sentence' (INT8, INT13).

Stigma was also considered a significant barrier in the UK. Interviewees deemed stigma around being MSM to be a big-

ger barrier in rural areas, with one interviewee suggesting MSM may feel negative emotions such as shame and guilt when presenting at an HIV clinic as they believe it is evidence of 'dirty behaviour' (INT8). Interviewees also reported stigma associated with HIV, which one interviewee associated with greater risk of depression and suicide in those diagnosed with HIV (INT8). It was thought that MSM may choose to attend clinics further away or pay for private testing to avoid being noticed in local HIV clinics because of stigma (INT4).

Fear of disclosure, lack of knowledge about where to get tested, lack of knowledge about HIV, and culture were all thought to have a moderate impact on accessing HIV testing for the UK MSM population. Interviewees thought that MSM were concerned over having a formal record of their HIV test due to fears of a confidentiality breach and being ostracised as a result (INT6, INT8, INT23). This was also thought to link to fears of disclosure, particularly in heterosexual MSM (INT16). Lack of knowledge, as discussed earlier, was thought to be connected to an incorrect perception of risk (INT16, INT23). One interviewee suggested that MSM who identify as heterosexual may be at particular risk of not having sufficient knowledge of HIV transmission as they tend to be older and have poorer sex education (INT16). Another interviewee discussed that they considered the UK more generally to have poor sex education, with HIV often not included in the curriculum (INT23).

Lack of familiarity with recommendations and guidelines (3.4), lack of knowledge/training (3.1), lack of time (3), and lack of resources (2.8) were thought to have a moderate to 'significant' impact on MSM accessing HIV testing in the UK at a healthcare provider level (Figure 3). Stigma, cost of testing, and concerns over offending patients were not thought to act as barriers.

Lack of familiarity with recommendations and guidelines was thought to be the biggest healthcare provider barrier in the UK. Interviewees were of the opinion that healthcare professionals, particularly those who do not deal with HIV on a regular basis, do not always have up-to-date knowledge on HIV and may, therefore, struggle to recognize the symptoms of and diagnose HIV (INT2, INT6, INT13, INT16). Lack of knowledge and training was also thought to be a considerable barrier to accessing HIV testing. This was suggested to be connected to the lack of awareness of recommendations and guidelines in that healthcare professionals do not recognize the symptoms of HIV and they may not be aware of who is at risk, such as MSM who identify as heterosexuals (INT1, INT6, INT8, INT16). Lack of knowledge

and training was thought to be particularly relevant for healthcare professionals who infrequently see cases of HIV (INT1, INT2, INT6, INT8, INT16). There were also concerns raised by interviewees that healthcare professionals may be aware of their lack of knowledge, leading them to feel uncomfortable and not confident in dealing with HIV (INT4, INT6, INT8, INT23).

Lack of time was also thought to be a considerable barrier to accessing HIV testing in the UK. It was discussed by interviewees that the demand for testing is often greater than the resources available to provide it (INT4). HIV clinics are facing resource constraints which means they are often only open for a short period on weekdays (INT6). In addition, GPs face restricted consultation times and this may lead them to believe (perhaps incorrectly) that they don't have enough time to discuss HIV and offer a test (INT8, INT16, INT23).

Lack of resources was thought to have a moderate impact on accessing HIV testing. This was thought to link to a lack of healthcare provider time in that providers do not have the resources to offer the number of appointments that are needed (INT9).

At a policy/institutional level, only access to healthcare services was thought to act as a barrier to testing for HIV in the UK (2.5) (Figure 4). Interviewees highlighted how it could be difficult for the MSM population to travel to HIV clinics, particularly those living in rural areas, due to the time and cost needed for travel (INT4, INT8, INT19, INT23). HIV clinics also often only provide walk-in appointments, rather than at a set time, which means individuals can be turned away without having a consultation (INT16, INT19). Laws and regulations and recommendations and guidelines were not thought to have an impact on accessing HIV testing in the UK.

## **Interventions to encourage testing for HIV across the UK**

Interventions to encourage testing for HIV in the UK were identified through the survey responses of and interviews with 8 individuals from UK-based organizations. Similarly to results from interviewees for France, interviewees for the UK claimed that all of the interventions included in the survey encouraged the MSM population to access HIV testing in the UK: testing in settings other than specialist healthcare services settings (3.7), social marketing media campaigns (3.6), regular STI screening (3.5), self-testing (3.3), voluntary partner referral (2.9), risk assessment questionnaires (2.7), mobile testing (2.7)

and rapid HIV testing (2.7) (Figure 5).

Testing in various settings, such as hospitals and GP surgeries (INT8, INT16), was thought to have the biggest impact on encouraging HIV testing and was thought to help reduce the number of MSM with undiagnosed HIV, particularly older and MSM who identify as heterosexuals who were thought to be more likely to get tested in a primary care setting (INT13). It was noted by one interviewee that it may be difficult to access testing in non-traditional settings as the coverage across the UK is patchy (INT19) and one survey respondent suggested that testing in settings other than specialist healthcare services was not available in the UK.

Social marketing media campaigns, regular STI screening, and self-testing were also thought to have a large impact on overcoming the barriers to HIV testing. Social marketing media campaigns were thought to have the biggest impact on encouraging HIV testing. Examples of these campaigns in the UK highlighted by interviewees include HIV Prevention England's Testing Week (INT1, HIV Prevention England), the U=U campaign (INT6, INT19, UNAIDS, 2018), and the Grindr campaign to offer free self-testing kits (INT2, McNeil, 2016). Campaigns such as these were thought to be particularly effective for the MSM population in helping to raise awareness, encourage testing, and change attitudes about HIV (INT1, INT6, INT19). However, it was felt that more could be done to reach wider populations with these campaigns, such as clinicians and smaller MSM populations, e.g. those who have not disclosed their sexual orientation (INT6, INT19). Regular STI screening was considered by one interviewee as helping to increase testing rates among MSM and reducing HIV incidence as earlier diagnosis leads to earlier treatment (INT2). However, the scores provided in the survey for the impact of STI screening encouraging HIV testing ranged from 2 to 4. Self-testing was believed to often be targeted to MSM (INT6, INT8, INT13, INT19) and interviewees felt it encouraged testing as it is anonymous and overcomes the barriers of stigma and access to healthcare services (INT6, INT8, INT13, INT23). However, there were some concerns that the anonymity of self-testing meant those that receive a positive test cannot be followed-up to ensure they access support and initiate treatment (INT6, INT13). There can also be a lack of awareness that self-test kits are available (INT8) which maybe because they are a fairly new option (INT2, INT6, INT19). These conflicting comments on the efficacy of self-testing kits at encouraging HIV testing reflect the variation in the survey scores for this intervention which ranged from 2 to 4.

Voluntary partner referral, risk assessment questionnaires, mobile testing, and rapid HIV testing were thought to have a moderate impact on overcoming the barriers to HIV testing. Voluntary partner referral received mixed views on its effectiveness by interviewees, with some thinking it worked well (INT13, INT23) whereas others did not (INT16). This was reflected in the survey responses, with the scores provided for the impact of partner referral ranging from 1 to 4. Although the UK National Guidelines for HIV Testing state that 'consideration should be given to discussion of partner notification' [21], two interviewees claimed that partner referral was not a formal process in the UK and there is a lack of guidelines for healthcare providers to implement it (INT2, INT8), although there are apps and tools available for referrals, albeit mainly in London (INT16 INT23).

The availability and impact of risk assessment questionnaires differed across survey responses, with one interviewee claiming it was not available and others providing varied scores for its impact, from 1 to 4. Risk assessment questionnaires were thought to be used by GPs with the MSM population in the UK (INT2, INT6, INT8) although the impact of these was thought to be limited. However, one interviewee reported that research is currently underway to improve these questionnaires to increase the efficacy in encouraging HIV testing (INT8).

It was believed that the availability of mobile testing is low across the UK which has led to it having a limited impact on encouraging HIV testing (INT2, INT4, INT8, INT16). Mobile testing is available in some high-risk areas, such as saunas (INT4), with one interviewee highlighting the presence of mobile and community pop-up testing in the South West of England (INT16). This was reflected in the survey, with two interviewees reporting that mobile testing was not available in the UK, and for those who reported it was available, the scores for impact on encouraging HIV testing ranged from 2 to 4.

Rapid HIV testing received varied scores from the survey, from 2 to 4. One interviewee reported that rapid testing was not available in the UK; however, they commented that this was because the survey description of this intervention was that non-blood tests were used when the rapid tests used in the UK only use blood (INT16). An example of rapid testing available in the UK provided by interviewees was the 56 Dean Street Clinic in London which was thought to work well in that it offers 'hassle-free' tests that can be taken during work lunch hours (INT1, INT4). It was suggested that rapid testing can reduce the number



of MSM with undiagnosed HIV and allow for a quicker diagnosis (INT2). It was thought by one interviewee that if rapid testing was offered on a larger scale it could help overcome the barrier of lack of healthcare provider capacity in primary care settings (INT8).

Interviewees mentioned an additional intervention available in the UK that was not included in the survey: self-sampling (INT2, INT6, INT23). This is similar to self-testing in that the patient takes their own blood or saliva sample. However, unlike self-testing, this is sent to a laboratory for formal testing (INT23). Some individuals may be eligible for free tests from sites such as *asset.hiv* (dependent on age and location), whereas others can be bought online or from pharmacies [22,23]. This was thought to be more accurate than self-testing kits by one interviewee (INT23) and allows the follow-up of a patient's test results, unlike self-tests (INT6). PrEP was also mentioned by interviewees as an additional intervention available in the UK (INT2, INT4, INT16, INT23). Interviewees commented that an HIV test is required before getting prescribed PrEP and that this was thought to encourage testing in those who had never had one, and to help overcome the incorrect perception of risk (i.e. MSM may see themselves at risk enough to get PrEP but not to get an HIV test) (INT2, INT4, INT23).

## Discussion

Our study has shown that despite global efforts to reduce HIV transmission through early diagnosis and testing, there remain a number of barriers for MSM across Europe to access testing for HIV. This study did not undertake a systematic review of the literature on barriers and interventions for HIV testing and treating across Europe but rather focused mainly on two key documents provided by ECDC [14,15]. Therefore, some information may be incomplete or have been missed. However, all interviewees felt that the survey covered the more important barriers and interventions. Additionally, in this paper, we describe interviewee perceptions on the different barriers and interventions, which may not be exhaustive of all existing barriers or interventions.

Overall, the barriers to accessing testing for HIV at a patient-level were considered by the consulted experts to be similar across all countries assessed in this study. Participants from France, Poland, and the UK rated incorrect perception of risk, stigma, and fear of a positive test result among the top three barriers to testing for HIV in their countries. However, it is important to note that the MSM population is heterogeneous as it includes

gay men, bisexual men, and men who identify as heterosexuals but engage in occasional intercourse with men, and therefore the barriers faced by each group will be different. Additionally, other demographic characteristics such as age were related to the impact a barrier had on preventing MSM from seeking testing or treatment for HIV.

Stigma was considered to be the biggest barrier to accessing testing for HIV across Europe, and as mentioned above was rated as having a 'significant' impact in all three European countries considered. This finding is in agreement with the ECDC evidence brief on stigma and discrimination on access to HIV services in Europe from 2017, which found that two out of three countries in Europe and Central Asia identified stigma and discrimination within key populations (including MSM) to be a barrier to the uptake of HIV testing services [24]. Perceived HIV stigma has been found to result in non-disclosure of HIV status to social networks, impeding healthcare utilization, and receiving treatment [25–28].

Stigma was identified as having two components: there is a stigma against MSM and stigma against HIV [29]. In a European context, the stigma associated with MSM in Eastern Europe was considered to be one of the main factors contributing to the 'hidden HIV epidemic' of the region in the early 2000s [30]. In our study, we found that fear of disclosure associated with being seen seeking testing for HIV in Poland, the UK and Europe more widely (as viewed by interviewees from pan-European organizations) was rated as one of the biggest barriers to testing for HIV, which was associated with both stigma against MSM and stigma against HIV. In France, fear of disclosure was not rated as an important barrier to testing for HIV. In European countries where there is stigma associated with MSM, testing centres do not always record the risk group a patient belongs to or how they were exposed [31], potentially as a way of encouraging testing. For example, 60% of Polish HIV diagnoses in 2017 did not have a recorded route of transmission [31,32].

Although interviewees suggested that stigma was more prominent in Eastern Europe than Western Europe, stigma was still considered one of the main barriers in the West as well, as seen for France (3.2) and the UK (3.1). Evidence of this has also been identified in previous research; for example, a 2015 survey conducted in the UK found that HIV positive men experience stigma related to their HIV status, regardless of their sexual orientation [33]. However, the survey found that gay men were more likely to report worrying about and experiencing stigma and discrimination in various social settings, mainly HIV-related

sexual rejection, and were more likely to avoid engaging in sexual activities [33]. In France, a survey of HIV positive patients, including MSM, found that HIV positive MSM faced discrimination primarily linked to sexual orientation, and this frequently came from colleagues and families. Only 11% of MSM consulted in that study felt as though the discrimination they faced was due to their HIV status [34].

Stigma has also been found to be associated with high-risk behaviours [35, 36]. There is evidence that shows that to cope with their HIV positive status, HIV-positive men may participate in high-risk behaviours such as unprotected sex and drug use [35]. However, interviewees commented that the concept of 'high-risk behaviour' was not always understood by MSM and that many men did not consider themselves to be at risk despite engaging in unprotected sex and other high-risk behaviours. However, incorrect perception of risk has been found to be an issue beyond MSM. For example, a 2017 study in Switzerland found that of 100 patients from the general population being offered testing for HIV in the emergency department, 50% declined testing, of which 82% did so because they considered themselves not at risk [37]. Additionally, interviewees mentioned there were differences between younger and older MSM regarding what constitutes high-risk behaviour. For example, there has been a shift in attitudes towards HIV and risk-taking following increased availability and effectiveness of ART [38], which interviewees felt has led to tensions between younger and older MSM. This view was supported by a study that found that younger HIV-positive men experience antipathy from older gay men who consider that the younger generation should be more responsible in avoiding infection given they have access to greater knowledge and services for HIV [39].

Interviewees also felt that an incorrect perception of risk was an issue in bisexual men and MSM who identify as heterosexuals. This is seen in previous research, with one survey of MSM in Germany finding that bisexual and MSM who identify as heterosexual have a greater chance of never being tested for HIV, which can be used as an indicator for the incorrect perception of risk [40].

Healthcare provider barriers were viewed as having a bigger impact on access to testing for HIV by the three individual countries than across Europe as a whole, suggesting international organizations are not always aware of the specific issues faced by the healthcare systems of different countries. Lack of familiarity with recommendations and guidelines, lack of knowledge or training on HIV, and lack of time were considered to have

a 'significant' impact on access to testing in all three countries. However, this was mainly considered to be an issue in primary care settings. All three countries considered in this study have a healthcare system where a GP is the primary point of contact for health-related issues for an individual [41–43].

GPs receive broad training but in many cases, interviewees felt they lacked sufficient knowledge of HIV as their curriculum has only a small HIV component. A study in the UK of GPs found that 44% of the respondents were unaware of the guidelines on testing HIV [44]. However, 89% of those aware felt comfortable discussing and carrying out an HIV test themselves. Once familiar with the guidelines, 70% felt it would be feasible to follow them in practice. Those who did not think that implementing the guidelines was feasible felt that time implications for conducting the test were the most important reason not to adopt the guidelines [44]. Evidence from a French survey of family physicians (FPs) suggests that 39% of FPs always suggest HIV screening to MSM and only 20% suggest screening to patients presenting with HIV indicators. However, the recommendation for HIV screening is made more difficult for FPs as less than half of newly diagnosed MSM patients inform their healthcare provider about engaging in unsafe sex [45]. This lack of awareness and knowledge can lead to missed opportunities for diagnosis. An audit conducted in 2010 by the British HIV Association found that 10% of patients diagnosed with HIV presenting with an indicator of HIV were not offered a test. This was most common with symptoms less specific to HIV, such as chronic diarrhea and weight loss [46]. Additionally, GP appointments are generally 10-15 minutes per patient, which interviewees considered was enough time to discuss the specific reason that brought a patient to the consultation but insufficient time to explore additional topics such as sexual behaviours or issues. Similar results were obtained in a systematic review of the barriers and facilitators of HIV testing in high-income countries which found evidence that a lack of time, including the time needed to follow-up with patients, acted as barriers to healthcare providers offering tests in hospitals [47].

Institutional and policy barriers were considered overall to have the least impact on impeding MSM from accessing testing and treatment for HIV in the individual countries and across Europe which stands in contrast to an ecologic analysis [48]. The main institutional barrier to testing and treating HIV was considered to be criminalization of HIV transmission. The criminalization of non-disclosure of HIV status or unintentional transmission of HIV is implemented in over 68 countries world-

wide [49]. For example, in Poland, Article 161 of the Criminal Code criminalizes both HIV exposure and transmission, with violations for either punishable by a maximum three-year prison sentence [50]. However, many countries that do not have specific criminal laws against HIV, use general laws to prosecute for HIV transmission, including the UK and, until recently, France. According to a 2011 UNAIDS report on the current landscape for HIV criminalization, in 2011, Europe was the region with the highest number of countries that had used general law to prosecute HIV transmission [51]. For example, in the UK, between April 2013 and October 2015, there were at least six cases of prosecution for HIV transmission using general criminal laws, such as sexual harassment [49]. A study in the UK found that some HIV-positive gay men were reluctant to disclose their HIV status prior to sex that risked exposure for fear of the criminal justice system [52]. Another study from the UK found that 4 out of 18 gay men engaging in high-risk behaviour that were aware of prosecutions had declined an HIV test for fear of prosecution, which we found in our study was also a reason MSM in Poland refused testing [53]. In order to overcome the barrier of people not seeking testing for fear of prosecution, in France in 2019 the French Highest Court confirmed that people living with HIV that had an undetectable viral load could not be prosecuted as the risk of transmission is nil [54].

Many interventions have been developed and implemented across Europe to address the barriers to testing and treating HIV. Although some interventions were rated as having a greater impact at encouraging testing and treatment of HIV across MSM in our study, interviewees agreed that any intervention aimed at encouraging testing and treatment of HIV was a positive contribution to reducing the HIV epidemic. It was interesting that although the majority of the interventions identified were available in France and the UK to varying degrees, mixed views were reported for the availability of the different interventions in Poland. Interviewees from Poland reported very mixed responses as to the availability of self-testing and the impact of most other interventions. This is likely due to the restricted geographical availability of many of the available interventions, meaning most of the population cannot access them; some of the interventions being available but not officially recognized by the government.

Testing in settings other than specialist healthcare services and social marketing media campaigns were considered by interviewees to have the biggest impact on encouraging testing in all countries and across Europe. Testing in various settings

includes community-based testing and testing in pharmacies. The impact of testing in such settings depends on the location where testing is offered. For example, a study in Spain looking at the impact of in-pharmacy testing found that 14.4% of participants were MSM, and 1 in 10 new HIV diagnoses in the region were uncovered [55], suggesting in-pharmacy testing might be efficient at encouraging people to seek testing for HIV. Another study in the Netherlands found that 100% of attendees participated in a quick scan offered by testing services attending the HIV Testing Week 2016 in Amsterdam [7]. The latter study was likely influenced by an effective and active marketing campaign. Interviewees considered however that testing in settings other than specialist healthcare services was limited by the number of trained staff available to perform the tests.

Community-based testing usually relies on the use of rapid testing. In our survey, we defined rapid testing as testing which did not require blood. A study showed that kits that used a blood sample were more popular than those that used saliva due to the perceived higher accuracy of blood-based tests [56]. This may be one of the reasons that participants did not consider this intervention to be highly effective.

The 56 Dean Street Clinic in London was mentioned by interviewees from the UK, France, and Europe as an example of how rapid testing can be highly effective in increasing testing for HIV. This is an NHS run sexual health and HIV/ genitourinary medicine (GUM) clinic in the center of London. The clinic offers HIV test appointments which can be booked online and the results of these are sent to the individual via text message within 10 days [57]. Those requiring PrEP are able to walk-in and request a prescription without needing an appointment [58]. We found that interviewees perceived the main benefits the 56 Dean Street Clinic offered to be anonymity and testing that can be done rapidly over a lunch break, which was very convenient especially for MSM who are recommended to get frequently tested for HIV. However, there are very few clinics of this sort in Europe. Similar to the 56 Dean Street Clinic, interviewees frequently mentioned the use of checkpoints that offer rapid HIV tests across Europe. The checkpoints available across Europe are based on the model introduced in The Netherlands and offer convenient rapid HIV tests and often HIV support and other sexual health advice, primarily focusing on those with unmet testing needs [59,60]. Since the first Checkpoint opened in the Netherlands in 2002, additional centers have opened across Europe, such as in the UK, Spain, and Greece [61,62].

Self-testing was considered to be the intervention with the most potential to address the barriers that impede MSM from accessing testing for HIV. A qualitative study using focus group discussions with MSM in the UK revealed that the convenience and confidentiality of self-testing facilitated testing [56]. However, for self-testing to reach its potential, it would have to be widely available (at the time of this study it was only available online in France and UK, and not available in Poland) and free-of-charge, especially given the frequency with which MSM are recommended to seek testing (i.e. every three months). A study conducted in the US found that men randomized to self-testing reported testing more frequently than those randomized to testing as usual, with an average increase of 1.7 tests per participant over a 15 month period, a statistically 'significant' increase compared to men randomized to testing as usual ( $p < 0.0001$ ) [63].

Participants also mentioned the potential impact of PrEP at encouraging testing for HIV [19]. PrEP guidelines state that a patient will only be given PrEP if they agree to test, which should lead to a rise in testing. However, the full impact of PrEP is not yet known as it is currently being rolled out, although an Irish study suggests that the use of PrEP alone will not be enough to continue to bring down the incidence of HIV and may primarily target those who can attend large HIV clinics and repeat testers [64]. Our findings suggest that PrEP, if not explicitly considered in analyses, is likely to act as a confounder in any study seeking to quantify the impact of different interventions for encouraging testing for HIV.

In order to understand the different barriers and interventions for accessing testing and treatment for HIV, we engaged a number of individuals from a range of backgrounds. However, the number consulted for France and Poland was much lower than that for the UK and Europe. For Poland, this was partly due to our being able to identify only a small number of individuals whose role focused on HIV testing and treatment. Additionally, although participants from a range of backgrounds and roles were consulted, it is unlikely that their views are representative of all views from across Europe and the three individual countries.

Further research into the barriers of the different high-risk populations (other than MSM) to accessing testing for HIV across Europe as well as an evaluation of the impact of interventions aimed at addressing these barriers would enable policymakers to identify the interventions within the different countries that will allow them to achieve the UNAIDS 90-90-90 and, with time, end transmission of HIV.

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## Supplementary Material

### Pre-interview survey

1. Please rate the following barriers on a scale of 1 to 4 in terms of their impact on access to testing and treatment of HIV in the MSM population in your country, with the scale being:

- 0: do not know;
- 1: no impact on access to testing and treatment of HIV;
- 2: little impact on access to testing and treatment of HIV;
- 3: some impact on access to testing and treatment of HIV; or
- 4: 'significant' impact on access to testing and treatment of HIV.



Barrier	Description	Rating				
		0	1	2	3	4
<b>Patient barriers</b>						
Stigma	Stigma associated with being HIV positive					
Culture	Cultural barriers, such as language or religion, preventing patients to seek testing or treatment for HIV					
Incorrect perception of risk	Not seeking testing because the patient does not consider themselves to have engaged in any risky behaviours					
Cost of testing	Perceived cost of testing					
Cost of treatment	Perceived cost of treatment					
Fear of test result	Fear of receiving an HIV positive test result					
Fear of disclosure	Fear of personal information and/or test results being disclosed to third parties					
Trust in testing services	Distrust of testing services					
Lack of knowledge about HIV	Lack of knowledge about how HIV is transmitted and how one can become infected					
Lack of knowledge about where to get tested	Lack of knowledge about the different ways to get tested					
Lack of time	Lack of time for patients to seek testing (e.g. limited opening times of clinics)					
<b>Healthcare provider barriers</b>						
Stigma	Concerns from health providers that offering HIV testing to high risk populations will stigmatise patients					
Concerns over offending patients	Concerns from health providers about making assumptions about a patient's risk and therefore worries about offering the test without clinical reason and patient acceptability					
Lack of knowledge/training	Lack of knowledge about HIV including symptoms and related illnesses, and health providers not feeling equipped for HIV management after diagnosis					
Lack of familiarity with recommendations and guidelines	Health providers not familiar with guidelines and recommendations for HIV testing					
Lack of time	Lack of time for healthcare providers to offer and conduct HIV testing outside of traditional sexual health settings, including the time to provide pre- and post-test counselling					
Lack of resources	Limited number of staff and/or limited training offered to staff on HIV testing and treatment					
Cost	High cost of HIV testing and counselling associated with the test result					
<b>Institutional/policy barriers</b>						
Access to health services	Difficulty in accessing testing facilities, mainly related to geographical barriers. This could be due to distance that needs to be covered to reach testing centres.					
Recommendations and guidelines	Lack of a national strategy against HIV, resulting in a lack of guidelines and recommendations promoting testing and/or treatment for HIV in MSM.					
Laws and regulation	Criminalisation of HIV transmission. This refers to legal ruling on voluntary transmission of HIV to others.					

2. Could you please rate the following interventions on a scale of 1 to 5 in terms of the impact they have on encouraging testing of HIV for MSM in your country, with the scale being:

- 0: to the best of my knowledge this intervention is not available in your country;
- 1: no impact on encouraging HIV testing for MSM in your country;
- 2: little impact on encouraging HIV testing for MSM in your country;
- 3: some impact on encouraging HIV testing for MSM in your country; or
- 4: 'significant' impact on encouraging HIV testing for MSM in your country.

Intervention	Description	Rating				
		0	1	2	3	4
Self-testing	HIV tests that can be performed by the patient at home					
Rapid HIV tests	Rapid tests that can be performed using bodily fluids other than blood					
Risk assessment questionnaires	Questionnaires that can be filled in by patients and/or doctors to assess the patient's risk of HIV infection					
Voluntary anonymous partner referral	Patients who engage in unprotected sex can refer partners for testing					
Social marketing media campaigns	Campaigns targeting at risk populations to encourage seeking testing for HIV					
Mobile testing service	Mobile units offering HIV testing services					
Testing in various settings	Testing performed in settings other than specialist healthcare services(not only in specialised clinics) but also in pharmacies, hospitals and General Practitioners					
Regular sexually-transmitted infection screening	Including regular sexually transmitted infection screenings in national/international recommendations					

### Interview protocol

1. Could you start by telling us a bit about your organisation and role as it relates to HIV test and treat approaches?
2. You ranked [barrier X] as having a 'significant' impact on access to testing and treatment of HIV at the patient level in your country. Could you explain the reasons for this? How is it/are they a barrier in your country?
3. You ranked [barrier X] as having a 'significant' impact on access to testing and treatment of HIV from a healthcare provider perspective in your country. Could you explain the reasons for this? How is it/ are they a barrier in your country?
4. You ranked [barrier X] as a 'significant' institutional/policy barrier(s) to accessing testing and/or treatment to HIV infection in your country. Could you explain the reasons for this? How is it/are they a barrier in your country?
5. Of the barriers rated as having a high impact on access to testing and treatment of HIV across all levels, which would you say is the most 'significant' one?
6. Are there any additional barriers faced by the MSM population to test and treat initiatives for HIV [in your country/across Europe] that we have not identified?
  - a. How important do you consider these to be? (Depending on which they ranked as most important consider

asking: is it a more 'significant' barrier than barrier X?)

7. Are these 'significant' barriers for other high risk populations (e.g. intravenous drug users, prisoners, sex workers)? If yes, which populations in particular?
  - b. Are there additional barriers for different groups?
8. To the best of your knowledge, are any of the interventions listed in our diagram in place in your country? If yes,
  - a. Which ones?
  - b. Are these aimed specifically at the MSM population?
  - c. How long have they been in place?
  - d. How efficient are they at addressing the different barriers?
9. Are there additional interventions not listed in our diagram aimed at promoting testing and treatment that are in place in your country? If yes,
  - a. What are they?
  - b. Which barrier do they address?
  - c. Are these aimed specifically at the MSM population?
  - d. How long have they been in place?
  - e. How efficient are they at addressing the different barriers?
10. Which interventions not currently available in your country would best address the barriers you rated as most important?
  - a. Why do you think those interventions would work (what is it about them that is relevant in your country)?
11. Are these interventions 'significant' for other high risk populations (e.g. intravenous drug users, prisoners, sex workers)? If yes, which populations in particular?
  - a. Are there additional interventions that are relevant for different groups?
12. Is there anything else you think we need to know access to testing and/or treatment of HIV in your country?

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