Universidad de Alcalá

# Doctoral Thesis

# HIV/AIDS in migrant population in Europe: epidemiology, testing strategies and access to antiretroviral treatment.

## VIH Y SIDA EN POBLACIÓN INMIGRANTE EN EUROPA: EPIDEMIOLOGÍA, ESTRATEGIAS DE LA PRUEBA Y ACCESO AL TRATAMIENTO ANTIRRETROVIRAL


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To all those who fell migrant, even if they live in their home countries

*"I came to America because I heard that streets here were paved with gold.*
*When I came I learned three things:*
*First: streets in America are not paved with gold;*
*Second: streets in America are not paved at all;*
*Third: I am expected to pave them"*

**Italian migrant.** *Recollections of 1900's immigrant*. Ellis Island Immigration Museum. New York

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*Débora*

**LIST OF ABBREVIATIONS**

| | |
|---|---|
| AHD | Advanced HIV disease |
| AIDS | Acquired Immunodeficiency Syndrome |
| ART | Antiretroviral therapy |
| cART | Combination Antiretroviral Therapy |
| CBOs | Community-Based Organizations |
| CD4 | T4 Lymphocytes |
| CDC | Centers for Disease Control and Prevention |
| ECDC | European Centre for Disease Control and Prevention |
| EEA | European Economic Area |
| EEC | European Economic Community |
| EFTA | European Free Trade Association |
| EU | European Union |
| GO | Geographical origin |
| HAART | Highly Active Antiretroviral Therapy |
| HIV | Human Immunodeficiency Virus |
| IDU | Injecting drug user/injecting drug use |
| ILO | International Labour Organization |
| IO | International Organizations |
| IOM | International Organization for Migration |
| IUSTI | International Union against Sexually Transmitted Infections |
| LA | Latin-American |
| LHD | Late HIV disease |
| MSM | Men who have sex with men |
| NGO | Non-Governmental Organisation |
| PITC | Provider-initiated HIV testing and counselling |
| SSA | Sub-Saharan Africa |
| STD | Sexually Transmitted Diseases |
| TESSy | The European Surveillance System |
| UNAIDS | Joint United Nations Programme on HIV/AIDS |
| UNHCR | United Nations High Commissioner for Refugees |
| WHO | World Health Organization |

# 1. Summary/Resumen



## 1.1. Summary (English version)

HIV is a major public health problem in the European Union (EU) and the European Economic Area (EEA). The HIV epidemic in the EU/EEA is predominantly masculine and its epidemiological characteristics vary within the different regions that conform the EU/EEA. While in Central and Western Europe the transmission among men who have sex with men (MSM) and heterosexuals is the most prevalent route of infection, in the Eastern European countries heterosexuals and intravenous drug users (IDU) are the most affected groups.

Migrant populations are exposed to experiences that could potentially affect their health in a negative way; they face greater vulnerability to HIV infections and its consequences and face specific barriers to access health care. The objective of this Doctoral Thesis is to analyse the HIV epidemic in migrant populations in the EU/EEA, as well as the strategies developed by the countries to increase HIV testing uptake. Finally, our position regarding the importance of real access to antiretroviral therapy (ART) by this population is stated.

A search of national policy documents and a survey to EU countries representatives was conducted to analyse national policies on HIV testing in migrant population. The documents published by different international organizations (IOs) on HIV testing were reviewed to assess specific recommendations for migrants and ethnic minorities. Furthermore, a systematic review of the available scientific literature was developed to analyse the barriers to HIV testing and access to health care and prevalence of HIV testing in migrants. In addition, a qualitative study was conducted with key informants to identify challenges in the implementation of these policies and

propose innovative interventions to promote HIV testing. European Surveillance data on new HIV diagnosis in the EU/EEA were analysed according to geographical origin and sex to determine the relative importance of this group in the epidemic. Finally, the available information on magnitudes and trends of migrant population recorded in European data sources such as Eurostat were analysed.

The availability of ART since 1996 has been a turning point in the HIV epidemic in Europe. Many countries acknowledge the benefits of early diagnosis in their policy documents, both at individual and at community level and most of them identify migrants as vulnerable populations to HIV infection and its consequences. This vulnerability is related to social, economic and legal issues, as well as cultural differences and gender imbalances. However, not all countries specifically recommend HIV testing in migrants.

International Organizations such as UNAIDS, recognize the importance of HIV testing in migrant population and emphasize the need to link HIV testing with universal access to ART. In addition, IOs unequivocally indicate the test must always be voluntary and with informed consent, and call against mandatory testing practices at the country entry done in some places.

The main barriers to access health care and HIV testing are related to poverty, low social status and inequality, and to the fear that the test results may negatively affect their visa application. HIV testing rates varies greatly in the different studies analysed. Specific initiatives aimed at increasing HIV testing in this population, especially those that take place in community settings, are proposed.

HIV testing strategies targeting specific groups are able to reach individuals at high risk, but are perceived as discriminatory. While general population HIV testing

strategies are more likely to prevent discrimination, they may not reach some groups of migrants. In general, the importance of developing innovative strategies and using community settings to increase the number of HIV tests conducted in migrants are stressed.

Migrants account for two-fifths of new HIV diagnoses in the EU/EEA. The relative and absolute numbers show a decline in new HIV reports between 2007 and 2012 which may be reflecting a true decline in the number of infections or a decrease in the number of the HIV tests performed or a decrease in the number of migrants. In Western Europe, migrants from Sub-Saharan Africa, Latin America and other Western European countries are the most common among new HIV infections, while migrants from Eastern Europe are the most common in Central Europe.

Regarding population registries, available data on cumulative numbers of migrants are heterogeneous and incomplete and do not allow to confirm what has happened with migrant flows in the current scenario of financial constraints. However, migrant flows show a deceleration and this could be one of the explanations for the decrease in the number of new HIV diagnoses in migrant populations.

These results are key to understand the specific vulnerability to HIV of migrants in order to develop policies aimed at promoting HIV testing and to ensure access to ART in these populations.

## 1.2. Resumen

El VIH es un problema de Salud Pública clave de en la Unión Europea (UE) y el Espacio Económico Europeo (EEE). La epidemia de VIH en la UE/EEE es fundamentalmente masculina y sus características epidemiológicas varían en las distintas regiones que conforman la UE/EEE. Mientras que Europa Central y Occidental la transmisión entre hombres que tienen sexo con hombres (HSH) y personas heterosexuales son las vías de transmisión predominantes, en los países de Europa del Este las infecciones adquiridas por vía heterosexual y entre usuarios de drogas interparenterales (IDU) son las que, en mayor medida, caracterizan la epidemia.

La población inmigrante, expuesta a experiencias que potencialmente pueden afectar de forma negativa a su salud, sufre una mayor vulnerabilidad a la infección por VIH y sus consecuencias y presenta barreras específicas de acceso al sistema sanitario. El objetivo de esta Tesis Doctoral es analizar la epidemia del VIH en población inmigrante en la UE/EEE, así como las estrategias desarrolladas por los países para incrementar el acceso a la prueba de VIH. En último término, se realiza una reflexión acerca de la importancia del acceso real al tratamiento antirretroviral (TAR) de dicha población.

Se realizó una búsqueda de documentos de políticas nacionales y un sondeo con cuestionario a los representantes de los distintos países de la UE/EEE para analizar las políticas nacionales sobre la prueba de VIH en población inmigrante. Se revisaron los documentos sobre prueba de VIH publicados por distintas Organizaciones Internacionales (OI) para evaluar las recomendaciones específicas para inmigrantes y minorías étnicas. Por otro lado, se desarrolló una revisión sistemática de la literatura

científica disponible para analizar las barreras de acceso y la prevalencia de la prueba de VIH en inmigrantes. Además, se realizó una investigación cualitativa con informantes clave para identificar los retos en la implementación de este tipo de políticas y para definir propuestas innovadoras para promover la prueba de VIH. Se analizaron los datos de vigilancia europea del VIH en la UE/EEA para conocer en función del origen geográfico y el sexo la importancia relativa de este grupo en la epidemia. Finalmente, se analizó la información disponible sobre población inmigrante registrada en Europa, de fuentes de datos secundarios como Eurostat.

La disponibilidad de TAR desde 1996 ha supuesto un punto de inflexión en la epidemia de VIH en Europa. Varios países reconocen en los documentos de políticas sanitarias revisados en este trabajo los beneficios del diagnóstico temprano de la infección por VIH, tanto a nivel individual, como a nivel comunitario y la mayoría identifican a los inmigrantes como población vulnerable a la infección por VIH y sus consecuencias. Dicha vulnerabilidad se relaciona con los problemas sociales, económicos y legales y, también, con las diferencias culturales y las desigualdades de género. Sin embargo, no todos los países recomiendan específicamente la prueba del VIH en inmigrantes.

Las Organizaciones Internacionales, como UNAIDS, reconocen la importancia de realizar la prueba a la población inmigrante, insistiendo en la necesidad de vincular la prueba con el acceso universal al TAR. Además, estas organizaciones señalan que la prueba siempre ha de ser voluntaria y con consentimiento informado, por lo que se muestran en contra de la obligatoriedad de la realización de pruebas de VIH a la entrada del país que se practica en algunos lugares.

Las principales barreras de acceso al sistema sanitario y a la prueba están relacionadas con la pobreza, el bajo estatus social y la desigualdad, además del miedo a que el test afecte de forma negativa a una solicitud de visado. La prevalencia del test es muy distinta en los diferentes estudios analizados y se proponen iniciativas específicas para incrementar el test en esta población, especialmente aquéllas que se efectúan en entornos comunitarios.

Las estrategias de la oferta de la prueba de VIH dirigidas a grupos específicos son capaces de alcanzar a individuos a riesgo, pero son percibidas como discriminatorias, mientras que las estrategias de oferta a la población general minimizan la discriminación, pero no alcanzan a algunos grupos de inmigrantes. De forma general, se subraya la importancia de desarrollar estrategias innovadoras y en entornos comunitarios para incrementar el número de pruebas de VIH realizadas a inmigrantes.

Los inmigrantes representan dos quintas partes de los nuevos diagnósticos de VIH en la UE/EEE. Las cifras relativas y absolutas muestran un descenso de nuevos diagnósticos de VIH entre 2007 y 2012, pudiendo estar reflejando un descenso verdadero del número de infecciones, un descenso en el número de pruebas de VIH realizadas o un descenso del número de inmigrantes. En Europa occidental, los inmigrantes provenientes de África Subsahariana, América Latina y Europa Occidental son los más comunes entre las nuevas infecciones de VIH, mientras que los inmigrantes de Europa del este son los más comunes en Europa central.

Con respecto a los registros de población, cabe señalar que la información disponible sobre el número acumulado de inmigrantes es heterogénea y está incompleta, por lo que no es posible saber qué está pasando con los flujos migratorios

en el escenario actual de crisis económica. Sin embargo, los flujos migratorios muestran una ralentización que podría explicar el descenso del número de nuevos diagnósticos de VIH en la población inmigrante.

Estos resultados son importantes para conocer la vulnerabilidad específica de los inmigrantes con respecto al VIH, y respaldan la necesidad de desarrollar políticas orientadas a promover la prueba del VIH y a garantizar el acceso al TAR en estos grupos poblacionales.

# 2. Background



# 2.1. Epidemiology of HIV and AIDS in migrants in the HAART era in Europe (1996-2010)

## 2.1.1. Epidemiology of HIV/AIDS in Europe

The HIV epidemic is a key public health issue in the European Union (EU) and the European Economic Area (EEA). The number of HIV infections has grown steadily since the HIV reporting mechanisms were put in place in Europe in 1999.

In 2010[a], the incidence of HIV in the EU/EEA countries was 5.7 per 100,000 population, corresponding to a total of 27,116 new HIV diagnoses[b]. In that same year, 4,666 cases of AIDS were reported[c], leading to an incidence rate of 0.9 cases per 100,000 population. From the beginning of the epidemic up to 2010, 319,913 individuals were diagnosed with AIDS in the EU/EEA [1].

The trend of HIV diagnoses rates reported by the EU/EEA countries in the period between 2004 and 2010 was moderately stable. In fact, the rate of HIV diagnoses per 100,000 population slightly decreased from 6.5 per 100,000 in 2004 (27,996 cases) to 6.2 per 100,000 in 2010 (29,556 cases, estimated rate adjusted by reporting delay).

In 2010, 11% of new HIV diagnoses were reported among young people (15-24 years) and the male-to-female ratio was 2.8[1]. The main transmission mode was MSM (38%, 10,251 diagnoses) followed by heterosexual contact (10,328 diagnoses). A very

[a] This section describes the Epidemiology of HIV/AIDS in Europe since 2010, the year in which this Doctoral Thesis has been started.
[b] No data from Monaco, Liechtenstein, Russia, Uzbekistan; countries with no data on age and transmission mode are excluded
[c] No data from Sweden and Liechtenstein

significant part of the heterosexually acquired cases were people originating from sub-Saharan African countries with a generalised HIV epidemic (17%, 4,116 cases).

Before 2004, between 1999 and 2004, the trend of the total number of new HIV diagnoses reported in the 20 EU countries with surveillance data increased steadily[d]. HIV diagnosed rates were not reported by the EU, but the total numbers shown how HIV new infections increased from 11,918 new cases in 1999[e], to 21,164 cases in 2004[f]. In this period, AIDS incidence decreased slowly, by an average of around 7% per year (2000-2004) from 10,635 cases in 1999 to 7,236 AIDS new cases in 2004[2].

### *HIV and AIDS in the WHO European regions*

The WHO organizes the HIV Epidemiological data within Europe classifying countries in three different areas: East, Centre and West. The following map shows the areas classification:

[d] "Consistent HIV reporting system for the last 4 years", ie. all EU countries in 2004 excluding France, Italy, Malta, Netherlands and Spain.
[e] In 1999 data not available for France, Malta, Portugal, Spain.
[f] In 2004, data not available for Spain and Italy.

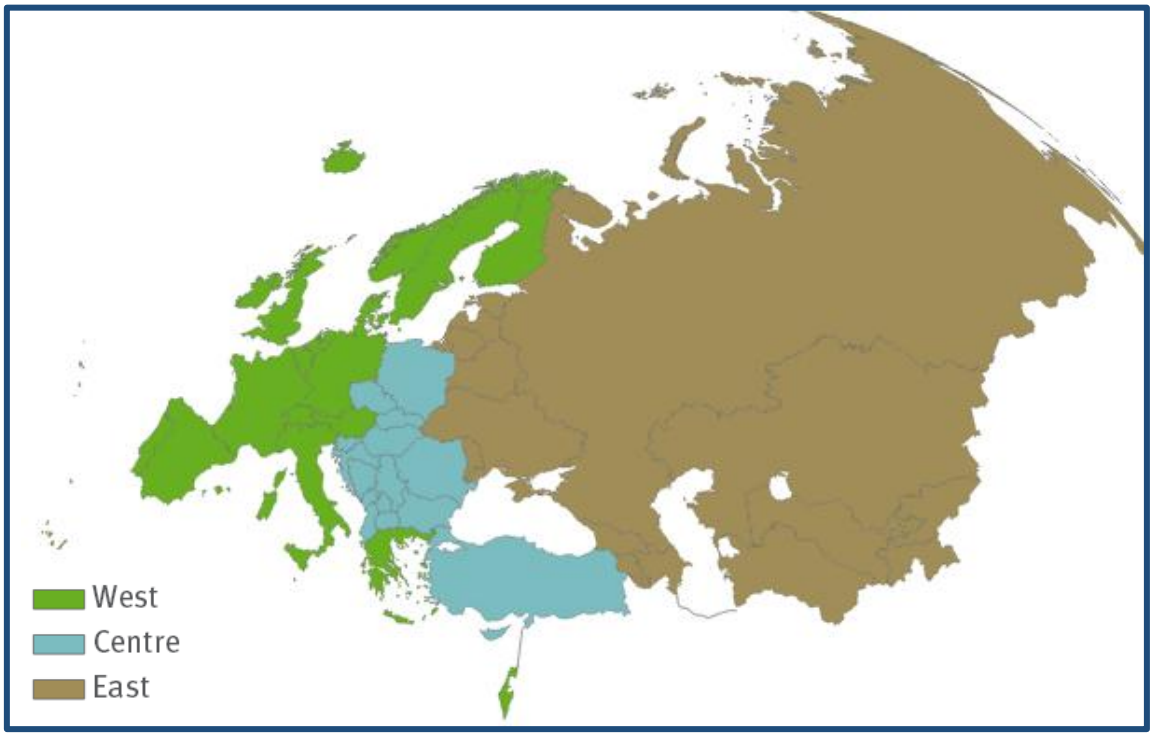



**Figure 1.** Geographical representation of countries: WHO European Region, West, Centre and East[g]. Extracted from "**HIV/AIDS surveillance in Europe 2010"**[1]

Table 1 summarises HIV and AIDS cases diagnosed in the WHO European region by areas and mode of transmission in 2010[1]. This table shows different patterns depending on the European region of HIV reporting country.

[g]West (23 countries): Andorra, Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Israel, Italy, Luxembourg, Malta, Monaco, Netherlands, Norway, Portugal, San Marino, Spain, Sweden, Switzerland, United Kingdom.
Centre (15 countries): Albania, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Hungary, the former Yugoslav Republic of Macedonia, Montenegro, Poland, Romania, Serbia, Slovakia, Slovenia, Turkey.
East (15 countries): Armenia, Azerbaijan, Belarus, Estonia, Georgia, Kazakhstan, Kyrgyzstan, Latvia, Lithuania, Moldova, Russia, Tajikistan, Turkmenistan, Ukraine, Uzbekistan

| Area | HIV cases | Rate *(per 100 000)* | Heterosex. transmission | IDU | MSM | MTCT | Other/ Unknown |
|---|---|---|---|---|---|---|---|
| **Eastern Europe** | | | | | | | |
| HIV | 90 198* | 31.7 | 48% | 43% | 0,7% | 1,4% | 7,3% |
| AIDS | 2881 | 2.0 | 38% | 52% | 1,1% | 1,6% | 7,1% |
| **Central Europe** | | | | | | | |
| HIV | 2478 | 1.3 | 24% | 4,3% | 29% | 0,6% | 42% |
| AIDS | 584 | 0.3 | 36% | 16% | 23% | 1,9% | 23% |
| **Western Europe** | | | | | | | |
| HIV | 25659 | 6.6 | 40% | 3,6% | 39% | 0,9% | 16% |
| AIDS | 4249 | 1.0 | 46% | 14% | 29% | 0,4% | 11% |

**Table 1.** HIV and AIDS cases diagnosed in the WHO European region by areas and mode of transmission in 2010 (table based on "HIV/AIDS surveillance in Europe 2010"[1]. (*)Transmission mode only reported for 27617 cases, Russia has been excluded.

In Eastern Europe, heterosexual transmission of HIV was the principal mode of HIV transmission (48% HIV cases) in 2010, followed by the IDU category (43%). In this region, historically, the predominant category of HIV transmission was IDU which increased by 42%: from 8,256 reported cases in 2004 to 11,690 reported cases in 2010. This trend appears to have changed in 2010 as in that same period, the number of HIV cases acquired through heterosexual contact grew by 151%: from 5,252 HIV reported cases in 2004 to 13,192 HIV cases in 2010, thus explaining the higher number of heterosexual transmission in 2010. Among AIDS cases, IDU category remains the principal mode of transmission in the Eastern European WHO Region (52%).

The Central and the Western countries of the European Region show similar patterns although different rates. In Central Europe we observe a very high proportion of cases with unknown mode of transmission (42% among HIV and 23% among AIDS new diagnosed). In Central Europe, while the main HIV transmission category is MSM

(29%) followed by heterosexuals (24%), AIDS was mostly diagnosed among heterosexuals (36%) than MSM (23%) or other groups of importance. In Western European countries on the other hand, HIV heterosexual transmission and MSM transmission had the same importance (40%), while AIDS cases were more frequent among heterosexuals (46%) than among MSM (29%) or other groups. In both areas, Central and the Western Europe, IDU had a limited importance in 2010 comparing with the observed in the Eastern countries.

Regarding changes in the epidemiological trends, HIV cases among MSM in Central Europe had more than tripled in the period between 2004 and 2010 (170 cases in 2004 to 720 cases in 2010). The report in which this section is based also highlights that in Western countries "Forty percent of the HIV cases were acquired through heterosexual contact (10,214 cases). However, when cases (4,105) originating from countries with generalised epidemics were excluded, the percentage decreased to 24%"[1].

### 2.1.2. Migrants' vulnerabilities to HIV/AIDS

The migration experience can potentially have a negative impact on migrants' health. Previous studies have shown that economic migrants are a selected population of healthy and young people[3]. However, available evidence suggest that migrant are more vulnerable to certain communicable and non-communicable diseases[4]: migrants' health depends on different factors such as the migratory process itself, individual characteristics (such as sex, age or country of origin), socioeconomic circumstances in the host country, migration status and access to health services[5]. This means that migrants' physical and mental health is affected from the moment they leave the

country of origin. Health outcomes depend on migrants' experiences of social exclusion and vulnerability, and other factors related to their migration itinerary and to their integration process after arrival to the new country[6;7].

The negative consequences are different depending on migrants' gender. Migrant women may face specific gender stressors that may increase their vulnerability. Llácer et al.[8] addressed in their 2006 paper how migrant women are more exposed to violence and also to differential health effects of the migrant specific stressors. The sexual division of the labor market derives in a differential value of women's productive work. Additionally, women should exclusively take charge of the unpaid reproductive work (i.e. domestic work), increasing their vulnerability associated with their living and working conditions.

All these factors support the importance of studying migrants' health from the perspective of social inequality, focusing on the consequences of social exclusion and vulnerability on their physical and psychological wellbeing[9;10].

Regarding HIV and AIDS, the United Nations considers migrants as vulnerable populations for HIV and addresses the need of ensuring their access to HIV prevention, treatment and care[11]. Migrant populations suffer an increased risk or HIV related to economic deprivation, social inequality as well as human rights abuses, more frequent in women, who become even more vulnerable to HIV[12].

UNAIDS 2013 Global Report acknowledged how migrant women are more vulnerable to sexual abuse and how their fear of social stigmatization impedes them from reporting these incidents. These women have to face the psychological and physical consequences of the abuse and the anxiety derived from HIV exposure[13].

Migrant populations living with HIV/AIDS also show higher rates of late diagnosis, barriers to health care and antiretroviral treatment access, lower treatment adherence and higher comorbidity[14-16].

### 2.1.3. Epidemiology and trends of HIV/AIDS in migrants in the HAART era in Europe

***HIV trends***

The report "Epidemiology of HIV and AIDS in migrant communities and ethnic minorities" led by Del Amo et al.[17] had the objective of determining the burden of HIV infection in migrant populations and ethnic minorities and its contribution to the epidemiology of HIV in Europe in the period 1999 to 2006. First of all, it is necessary to acknowledge that surveillance data are limited in its generalizability by the large number of missing data on two important variables; transmission category and geographical origin.

The Figure 2 shows the geographical origin of the HIV cases reported in EU-27 plus Norway and Iceland during the period between 1999 and 2006.

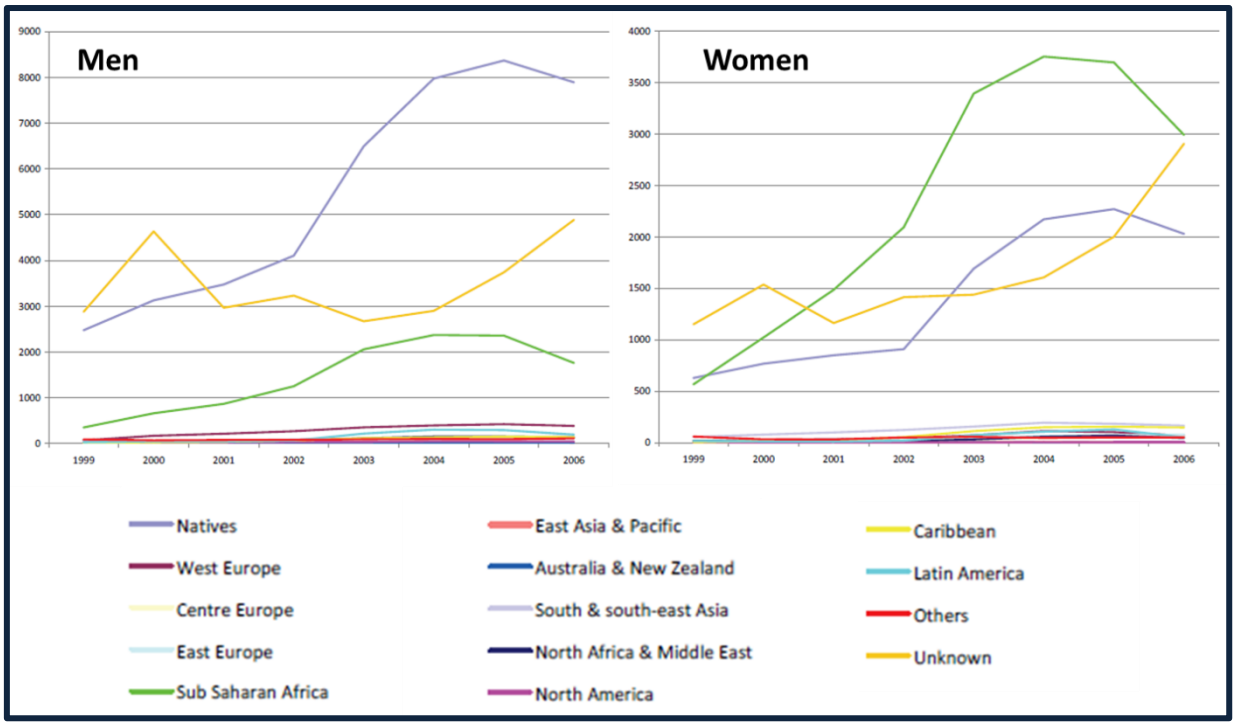



**Figure 2.** Absolute number of HIV cases in males and females reported in EU27 plus Norway and Iceland according to geographical origin, 1999–2006. Extracted from: "Migrant health: Epidemiology of HIV infection and AIDS"[17]

This figure shows a differential pattern among males and females. Among men, the native group –people originating from the same country of report- is the most important, followed by the group from SSA. Nevertheless, among women, those from SSA account for the largest group, surpassing native women.

In 2006, 26,712 cases of HIV infection were reported by 23 EU countries plus Norway and Iceland (except Bulgaria, Italy, Malta and Romania): 17,646 in males (66%) and 9,066 in women (34%). Regarding the country of birth of these new diagnoses, 29% were missing values[17].

In 2006, SSA were the second largest group of new HIV infections (5,046 cases), just after the cases in people originating from the same country of report (11,195). Women among SSA were disproportionally affected by HIV (3,145 cases, 62%). The HIV epidemic feminisation among SSA could be related with biases derived from the high

rate of cases with unknown "country of origin" and selective HIV testing of women during pregnancy may be taking place, but unlikely to explain all the observed differences compared with men. People originating from Western Europe (539 cases) represented the third major group, followed by Latin American (456 cases) and Caribbean migrants (329 cases). Figure 3 shows the relative distribution of the geographical origin of HIV cases reported in 27 EU countries plus Norway and Iceland in each transmission category in 2006[17].

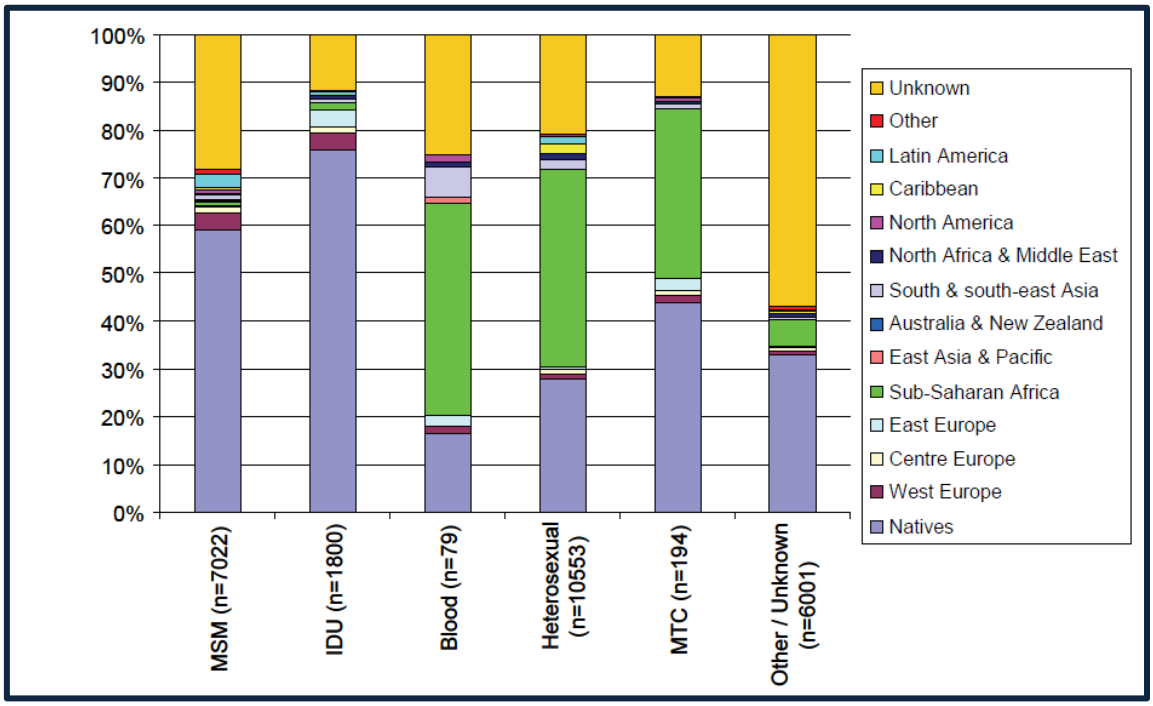



**Figure 3.** Relative distribution of the geographical origin of HIV cases reported in 27 EU countries plus Norway and Iceland in each transmission category in 2006. Extracted from: "Migrant health: Epidemiology of HIV infection and AIDS[17]"

The 2010 surveillance report at European level, "HIV/AIDS surveillance in Europe 2010"[1] showed that among the 27,116 HIV diagnoses reported in the EU/EEA, half of the cases were among people from the country of report (13,724, 51%) and 17% (4,520 cases) in people from countries from Sub-Saharan Africa. In all, 993 cases

were reported in people from Central & Eastern Europe (4%) and 797 cases in people from Western Europe (3%).

Regarding HIV trends, this report also shows that the number of infections clearly increased between 1999 and 2004. Unfortunately, the issues related with changes in the European HIV Reporting System and the large number of HIV cases without geographical origin information (47% of all new reports in 1999 and 32% of these in 2006) complicates establishing an accurate picture of HIV trends in Europe in both, people from the country of report and people born overseas[1].

The 2010 ECDC and WHO surveillance report[1], shows how the majority of the HIV cases in people originating from SSA countries (4,431 cases) was acquired through heterosexually contacts (3,905 cases, 88%). SSA represented a disproportionally large group in both heterosexually acquired HIV infections (38% of the total infections in EU/EFTAS countries) and MTCT (49% of the total MTCT) in 2010.

In migrants from Central & Eastern Europe, the proportion of new HIV diagnoses acquired through injecting drug use was comparatively high (150 cases, 12% of all HIV diagnosis in people originating from this area), compared with the 881 cases due to injection drug use (6% of the total of diagnoses performed) in people whose geographical origin was the country of report[1].

### ***AIDS trends***

Regarding AIDS, the countries of origin of reported cases in men and women between 1999 and 2006 are displayed in the Figure 4.

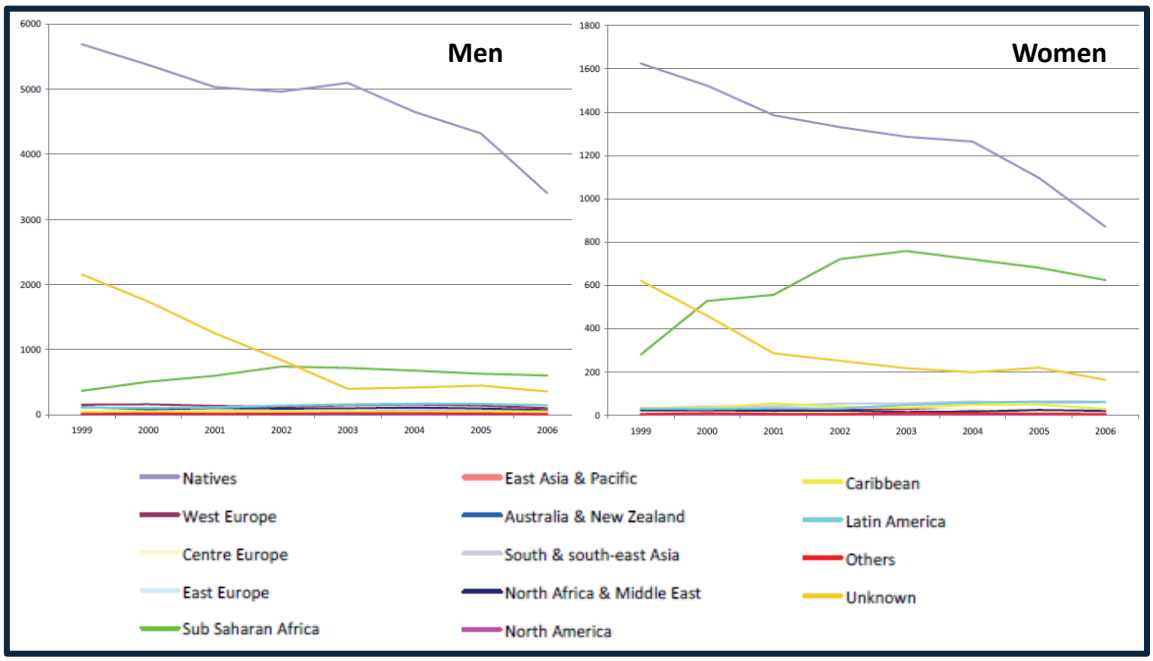



**Figure 4.** Absolute number of AIDS cases reported in EU27 plus Norway and Iceland according to geographical origin, 1999–2006. Extracted from: "Migrant health: Epidemiology of HIV infection and AIDS"

In this period, a total of 75,021 AIDS cases were reported in the area, 27% of them in women; 26,098 cases were in migrants (34% of them were females). After native populations, the largest group among AIDS cases were SSA migrants, which increased by 89% from 1996 to 2006. Reported AIDS cases among women SSA increased by 123% between 1999 and 2006.

The 2010 European Surveillance report[1] shows how AIDS cases in people originating from the same country of report and in migrants from other Western European countries decreased from 1999 to 2006. The decline ranges between 42% in the former and 40% in the latter. This reduction is related, in this report, with the effectiveness of antiretroviral treatment in the population. An important increase in the period between 1999 and 2006 was observed in AIDS reported cases in people whose geographical origin was Eastern Europe (by 200%), SSA (by 89%) or Latin America (by 50%).

In total, 6,746 AIDS cases were reported in the EU plus Norway and Iceland in 2006[17]; 4,885 (72%) in men and 1,861 (28%) in women. The reported AIDS infections in people from SSA (1,225 cases) represented the second largest group, after native population. Among SSA, the burden of AIDS infection disproportionally affected women: 623 cases were reported in women versus 602 cases reported in men. The third largest group, with 209 AIDS cases, were people originating from Latin America.

Figure 5 shows the distribution of the geographical origin of AIDS cases reported in 27 EU countries plus Norway and Iceland in each transmission category in 2006.

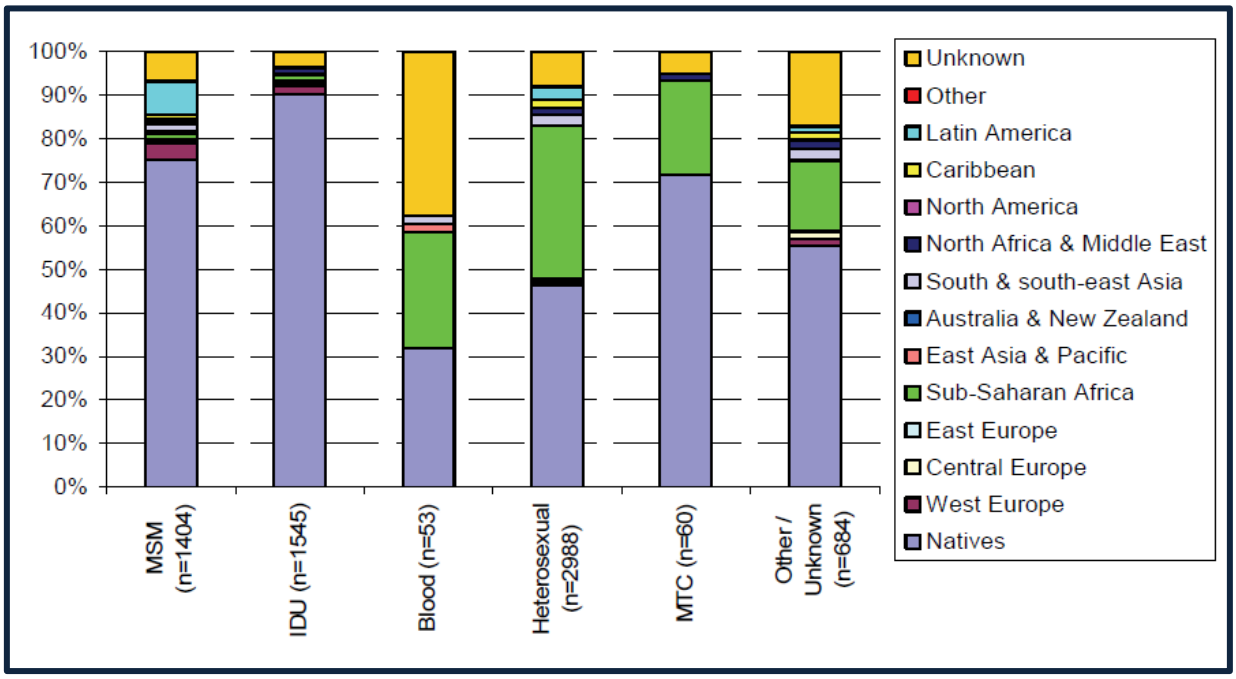



**Figure 5.** Relative distribution of the geographical origin of AIDS cases reported in 27 EU countries plus Norway and Iceland in each transmission category in 2006. Extracted from: "Migrant health: Epidemiology of HIV infection and AIDS[17]"

Transmission categories vary substantially depending on migrants' country of origin. The ECDC report "Epidemiology of HIV and AIDS in migrant communities and ethnic minorities"[17] showed that in 2006 the largest number of migrants was found among heterosexually transmitted cases. Half of the AIDS cases within the

heterosexual contacts and with known geographical origin (2,988 cases), were from a country different to that reporting the case (1,373 cases, 50%), and the majority of these cases (1,050 cases) were from Sub-Saharan Africa (38% of total cases).

The AIDS cases due to MTCT in SSA migrants were also very high: of the 60 cases of AIDS with known geographical origin, 13 cases (23%) were in children with mothers from SSA. 1,404 AIDS cases were diagnosed in MSM in 2006. Close to 20% of the total MSM cases (244 cases) were migrants, largely from Latin America (106 cases, 8% of the total) and from Western Europe (52 cases, 4% of the total). Finally, among the 1,545 IDU cases, 7% (100 cases) were observed in foreign people, and the most common regions of origin were other Western European countries and North Africa & Middle East.

### *Probable country of HIV acquisition*

Different studies support the thesis that people from foreign origin are increasingly becoming infected with HIV in EU countries. Burns et al. reported that as many as a quarter of HIV infections diagnosed among heterosexuals and half among MSM from Africa may have been acquired in the UK[18]. Fenton et al documented the high proportion of people engaging in unprotected sex when travelling to home countries[19]. There is evidence from seroconversion studies that a large proportion of HIV-positive MSM from Latin America have been infected in Spain[5].

However, the majority of HIV infections in people from SSA are thought to have occurred in the countries of origin, when comparing the average duration of stay in Europe with the value of the CD4 cell count at HIV diagnosis[20].

Country of HIV acquisition has important implications for Public Health, especially for prevention programs. The variable “Probable country of infection” has

been collected since 2008 for the European Surveillance reports issued by WHO and ECDC, but it is a subjective variable and the level of completion is below 25%[1].

### 2.1.4. Migration and HIV in the European Agenda

In 2004, representatives of States and Governments from Europe and Central Asia signed the "Dublin Declaration on partnership to fight HIV/AIDS in Europe and Central Asia"[21] that underlines that poverty, underdevelopment and illiteracy are among the principal contributing factors to the spread of HIV/AIDS. In this document, migrants "which have close links to high prevalence countries" were identified as vulnerable for HIV. The signatory countries, among other requests, asked the Global Commission on International Migration to take into account in its work the threat of exposure to HIV/AIDS particularly to migrant women and unaccompanied and orphaned children.

As a further step, in 2007 the Portuguese Presidency of the EU chose as their main theme "migration and health". In response to this arising priority, the European Centre for Diseases Prevention and Control (ECDC) commissioned a series of reports[17;21-24] on migration and HIV: HIV/AIDS Epidemiology, Testing and early diagnosis or barriers to access health services, among others. Table 2 summarises these reports and the main findings of each one:

| Title | Year | Authors | Type | Main findings |
|---|---|---|---|---|
| ***Barriers to HIV testing in Europe: a systematic review*** | 2008 | ***Deblonde J. et al*** | Article | Some barriers to HIV testing and counselling have been identified. There is no structured information considering:<br>- Legal, administrative and financial factors<br>- Attitudes and practices of health care providers<br>- Perception of patients |
| ***Migrant health: Access to HIV prevention, treatment and care for migrant populations in EU/EEA countries.*** | 2009 | ***Bröring G et al.*** | Technical report | -The most relevant migrants in terms of HIV are from SSA, Eastern Europe, Asia, Latin America and the Caribbean<br>- HIV migrant vulnerability is due to language barriers, marginalisation and social exclusion, legal obstacles, cultural attitudes, religion, fear of discrimination and low HIV knowledge in migrant communities<br>- Barriers to health services access are related to policies and laws, service delivery, migrant communities themselves and wider society |
| ***Epidemiology of HIV and AIDS in migrant communities and ethnic minorities in EU/EEA countries*** | 2009 | ***Del Amo J et al.*** | Technical report | -Migrant populations, largely people from SSA, represent a considerable fraction of AIDS/HIV cases in the EU/EFTA countries (1999–2006)<br>-The feminisation of the HIV/AIDS migrant epidemic in the EU is taking place.<br>-It is necessary to acknowledge the sexual diversity of migrants living with HIV/AIDS; increasing number of MSM among migrant HIV/AIDS reports<br>-Late HIV diagnosis is an important issue even greater for the HIV-positive migrant population of non-Western origin<br>- Data have limitations given the heterogeneity in the implementation of the HIV reporting systems and the poor completion of the variable 'geographical origin' in EU Member States |
| ***Testing in Europe: from policy to effectiveness*** | 2010 | ***Kall M et al.*** | Technical report | -HIV testing strategies are failing (a high proportions of undiagnosed and late diagnosed infections remain)<br>- HIV testing barriers are mainly related to low risk perception, fear and stigma around HIV, and lack of knowledge about HIV testing policies and information around the test itself<br>- Normalisation of HIV testing may help to reduce stigma around the test<br>-Verbal informed consent can replace written informed consents |

**Table 2.** Reports issued by ECDC and main findings.

Finally, the report "Implementing the Dublin Declaration on Partnership to Fight HIV/AIDS in Europe and Central Asia: 2010 Progress Report"[25] revealed how near to two thirds of the EU/EFTA countries considered migrants as a key sub-population in their response to HIV, showing the importance of migration and HIV in the EU/EFTA member countries' agenda (29 countries, 59%). Figure 6 shows the extent to which countries identify migrants as an important subpopulation in the national response to HIV and AIDS.


**Figure 6.** Map showing the extent to which countries identify migrants as an important subpopulation in the national response to HIV and AIDS. Extracted from "Implementing the Dublin Declaration: 2010 progress report"[25]

## 2.2. Migration in Europe.

### 2.2.1. Looking for a definition for "migrants"

Various international documents acknowledge the difficulties of defining migrants and ethnic minorities and state the operative definitions to be used according to the available sources of information[17;23;24]. The definition of "migrant" used by EuroHIV surveillance was based on nationality and country of birth but did not make any reference to ethnic minorities[26]. Ethnic minorities include established minorities as well as those resulting from recent migratory waves.

Migrants and their descendants, sometimes termed second-generation or third-generation migrants, often become part of the ethnic minority community[17]. Bhopal and others define ethnicity as a construct reflecting the community's shared ancestral and geographical origins as well as cultural traditions, religions and languages[26].

In the IOM report "World Migration Report"[27], "economic migrant" is defined as "a person leaving his/her habitual place of residence to settle outside of his/her country of origin in order to improve his/her quality of life. In its technical document "Recommendations on statistics of international migration", the United Nations defined a migrant as a "person who moves to a country other than that of his or her usual residence for a period of at least a year"[28]. This term is often loosely used to distinguish migrants from refugees fleeing persecution and is also similarly used to refer to persons attempting to enter a country without legal permission and/or by using asylum procedures without bona fide cause. It may equally be applied to persons leaving their country of origin for the purpose of employment".

The report from ECDC and IOM "Improving HIV data comparability in migrant populations and ethnic minorities" pointed out the difficulty to define "migrants" and "ethnic minorities" specifically for surveillance purposes. The most commonly used definitions for migrants are based on the following variables: "country of birth", "country of origin" (previously collected as "region of origin"), "country of nationality", "ethnicity or ethnic origin", "migration status", "length of stay in current country". The report did not provide a consensus definition but recommends surveillance and researchers to provide a clear definition when reporting their results and explicitly say how migrants were defined. Nevertheless, the report recommends using definitions based on "country of birth" or "country of nationality" rather than "region of origin" [29].

### 2.2.2. Migratory trends in Europe between the 1990s and 2007

The Twentieth Century was characterized by great economic, social and political changes. These changes have been closely related to migration trends and changing migration flows over the years.

After the post-World War II reconstruction period (1940s-1950s) an important economic boom took place in Europe and countries such as Germany, United Kingdom and France demanded workers. This period was characterized by intra-European movements between the 1950s-1960s and 1973. These workers came from the Southern European countries (Italy, Spain and Portugal) and also from the former colonies of the countries demanding work force[30].

The Oil Crisis of 1973 and the financial crisis that would follow started a new period of "closed doors" and European countries expected migrant workers to leave. In the period between 1974 and the mid-1980s, countries such as Greece, Spain and

Portugal joined the Economic European Community (EEC) making these new countries attractive destinations for immigrants.

After the 1970s, migration was characterized by flows from developing countries into Europe. Total net migration in the European Union Member States increased from 1.1 million in the 1960s to almost 10 million in the 1990s, due to the influx of migrant flows from non-European areas and wide range of origins.

The period between mid-1980s and 2001 was characterized by political disorders after the collapse of communism and the growth of the asylum seekers and refugees. Difficulties in obtaining residence permits or refugee status caused many migrants to enter countries without documentation[31].

Between 1981 and 2000, most UE Member States, particularly Scandinavia, Italy, Spain and the Netherlands, received an increasing number of foreigners from Africa or Asia[31]. These migration patterns were even more pronounced during the period from 2002 to 2007, when migration flows in EU were particularly high[32]. Internal EU migration flows were also very important: 36% of migrants to EU-27 Member States in 2008 were intra-European migrants[33].

## 2.3. Migration policies in the European Union.

### 2.3.1. Classification of migrants regarding their category of entry

The report "The migration development Nexus" issued by IOM and UN[30] in 2003 classified migrants in four categories of entry:

- Labour migration: composed by long and short-term migrant workers and seasonal workers.
- Family reunification: composed by the close relatives of long terms migrants
- Undocumented migrants: composed by people that entry the country without the official permits.
- Asylum seekers: composed by people that has asked for asylum, and who become refugees when asylum is conceded.

The IOM has developed in 2011 a glossary of concepts in the field of migration entitled "Key Migration Terms"[34]. In this, migrant are classified as follows;

- Documented migrant. A migrant who enters the host country observing the laws of that country.
- Economic migrant. A migrant who leaves his country of origin to improve his or quality of life.
- Irregular migrant. A migrant who meet one or more of the following: entered to the country without authorisation, does not meet any of the entry criteria, his/her visa has expired, or do not have a legal status in the country of transit or destination.

- Skilled migrant. A migrant who due to his/her professional's skills receives a preferential treatment in the admission process.
- Temporary migrant worker. A migrant who is skilled, semi-skilled or unqualified worker and remains in the host country for a definite period.
- Refugee. A person who owing to a well-founded fear of persecution for reasons of race, religion, nationality, membership of a particular social group or political opinions, is outside the country of his nationality and is unable or, owing to such fear, is unwilling to avail himself of the protection of that country.

Migrants living with HIV can be found in any of these groups, but particularly among economic migrants, temporary migrant workers and irregular migrants.

On the other hand, regarding refugees, United Nations High Commissioner for Refugees (UNHCR) has recognized sexual orientation among the causes the nations may persecute their citizens. Actually, UNHCR recognizes that an asylum seeker can based their claim on his/her sexual orientation if "fears persecutory harm on account of his or her actual or perceived sexual orientation, which does not, or is seen not to, conform to prevailing political, cultural or social norms"[35]. Following this principle, MSM living with HIV in a country where their sexual orientation is punished or are heavily exposed to homophobia could claim for asylum in another country where this situation is not found.

### 2.3.2. Models for migrant integration

In a succinct way, three main models for migrant integration have been developed in Europe in the second half of the 20th Century[36-38]:

- “Gastarbeiter” model or “guest worker model". This has been the integration model adopted by Germany, seeking migration as part of a formal guest worker programme (“Gastarbeiterprogramm”). The host country expects migrants to return to their home countries once the migration period is finished and family reunification is not contemplated. The migrant worker is considered as “Rotational migrant”. Following this model the worker was never integrated, since his/her stay in the host country was considered temporary, and subsequently the host country did not provide them with the necessary services and resources to help them in their integration process[36;39].
- Assimilation, the model followed by France. This model was based on the collective abandonment of migrant culture in favour of the culture of the host country. In the case of France, the population is expected to give up their culture and religious beliefs in favour of a civic culture of secularism, where religion and practices derived from a different culture is reserved for private space. The result is not just the integration of migrants in the strict sense, but the explicit renunciation of migrants to their habits and customs of origin and the segregation derived from it[38].
- Multiculturalism, the model developed in United Kingdom, was based on respect for the cultures of foreign people, respect for their own practices and promoting such practices. In practice, this model also leads to the integration of the migrants; however it has resulted in a high segregation in neighbourhoods and spaces, margined of the native population[36].

Finally, in the most recent years the "Interculturalism" approach has been developed. It has arisen as a criticism to the issues related with multiculturalism. This approach is based on the cross-cultural interaction where all cultures enrich each other, and their identity and their diversity are socially legitimized[36;40].

### 2.3.3. Migration policies in Europe from the 1950s to 2007.

According to Joaquin Arango, migration policies include different rules and laws that comprise the following[36;41]:

- ✓ Rules and practices aimed to migratory flows regulation and control
- ✓ Regulations and practices related to application for asylum
- ✓ Measures aimed at the integration of immigrants and ethnic minorities, including the definition of citizenship and access to it
- ✓ Policies developed to combat racism and discrimination experienced by foreign people living in the host country.

Migration policies reflect the integration approaches assumed in each context. Migration policies and recommendations have changed in Europe over the years. The first migratory policies started in the mid-1970. After the initial period of open borders previously described in which workers came from the Southern European countries during the 1950s and the 1960s, receptor countries decided to close the borders. When countries realized that a substantial part of these migrants had decided to remain in the host country, the inevitability of also developing integration policies became evident in order to avoid social conflict and support social cohesion[36;42].

In fact, the need to develop migrant policies was driven by the limited absorption capacity of European States. This resulted in integration policies aimed at migrants already established in the country as well as for those who could acquire the right to remain. In this context, access to rights in equal terms to nationals became the standard and access to health care services was one of these fundamental rights. At the same time, complementary policies intended to eliminate the economic drivers of migration in countries of origin, through international cooperation and macro-economic co-development[42].

In this section, European policies are described. It is important to note that, throughout the period described, European countries maintained the power to develop their own migration laws, although the European Union set the guidelines that each single country should contemplate.

Migration policy in the European Union has evolved over the years. In 1957, the Treaty of Rome created the European Economic Community (EEC). This treaty allowed a given citizen from one member state to work or to seek work in another member state.

In 1976, the Trevi Group ("Terrorism, Radicalism, Extremism and Violence International") was created as a framework for cooperation in laws and terrorism in the EEC area. After 1986 the group started to consider migration issues and in 1990 the `Programme of Action' for the control of organised illegal migration'[43] was approved.

In 1985 the Schengen Agreements were signed, firstly by France, Germany, Belgium, Luxembourg and the Netherlands. The idea of this agreement was to abolish internal border checks and strengthen external borders[44].

In 1987, through the Single European Act, the EEC Member States planned the creation of a unified market and to cooperate on foreign policies. In 1992, The Maastricht Treaty, the treaty that created the European Union (EU), defined the terms of the political cooperation among Member States, including foreign policies and in 1999 the Treaty of Amsterdam incorporated the Schengen Agreements into the EU and intended to achieve a minimum agreement in asylum policies and practices by 2004. The Nice Treaty issued in the 2000 considered that non-EU citizens with residence or work permit could have the same freedom of movements as EU nationals.

**1957.** Treaty of Rome. European Economic Community (EEC) creation. This treaty allowed a given citizen from one member state to work or to seek work in another member state

**1976.** Trevi Group creation. It was created as a framework for cooperation in laws and terrorism in the EEC area. In 1986 the group started to consider migration issues.

**1985.** Schengen Agreements. This agreement was aimed to abolish internal border checks and strengthen external borders.

**1987.** Single European Act. The EEC Member States planned the creation of a unified market and to cooperate on foreign policies.

**1992.** Treaty of Maastricht. This treaty created the European Union (EU) and defined the terms of the political cooperation among Member States, including foreign policies.

**1999.** Treaty of Amsterdam. Incorporated the Schengen Agreements into the EU and intended to achieve a minimum agreement in asylum policies and practices by 2004.

**2000.** Treaty of Nice. Considered that non-EU citizens with residence or work permit could have the same freedom of movements as EU nationals.

**2001.** Extraordinary Council of Justice and Internal Affairs. European Commission recommended their Member States to deny the admission of third-country citizens in cases of public or internal security.

**2004.** Hague Program. Proposed measures regarding migration control included: the definition of a common approach for the management of migration, an integrated management of external borders, the establishment of a common asylum procedure and the maximization of the positive impact of migration.

**Box 1. Summary of treaties and milestones of the EU.**

Finally, it is necessary to acknowledge that European migration policies changed after the terrorist attacks of September 11, 2001. In the Extraordinary Council of Justice and Internal Affairs held on 20$^{th}$ September 2001, the European Commission

issued a document recommending their Member States to deny the admission of third-country citizens in cases of public or internal security. This included legal migration, family reunification, long-term residence and student-visa demands. In this sense, the 11th September to led improvements in countries' security in the migratory movements but also forced a more restrictive approach to migration and therefore, a greater difficulty for policy convergence among the EU Member States[45].

In 2004 The Hague Program was signed, with the objective of advancing in setting justice, freedom and security in the EU. Proposed measures regarding migration control included: the definition of a common approach for the management of migration, an integrated management of external borders, the establishment of a common asylum procedure and the maximization of the positive impact of migration[46].

### 2.3.4. Health care access and integration policies for migrant populations.

Integration policies defined also migrants' rights in the host country. The Universal Declaration of Human Rights (UDHR)[47] issued in 1948 states in its Article 2 that all persons have the same rights "without distinction of any kind, such as race, color, sex, language, religion, political or other opinion, national or social origin, property, birth or other status". This Declaration in its Article 22 indicated that "Everyone, as a member of society, has the right to social security and is entitled to realization, through national effort and international co-operation and in accordance with the organization and resources of each State, of the economic, social and cultural rights indispensable for his dignity and the free development of his personality". However, the migrants' access to general rights and specifically the access to health care rights are not occurring in equal terms comparing with nationals. The Platform for

International Cooperation on Undocumented Migrants (PICUM) published the Report of the International Conference on Access to Health Care for Undocumented Migrants in Europe developed in Lisbon in 2007[48]. This report classified countries in five main groups regarding the health access provided to undocumented migrants at the time of this report, bearing in mind these policies change over time to more or less restrictive access depending on the political and social climate:

- Countries that provided healthcare on a payment basis (Austria, Sweden).
- Countries that did not provide free of charge care and public health officials were required to report undocumented migrants to authorities (Hungary and Germany).
- Countries that generally provided better access but entitlements were unclear to both recipients and providers (Portugal and the UK).
- Countries that had adopted parallel administrative systems to address payment issues for undocumented migrants (France, Belgium, Netherlands).
- Countries offered universal access to migrants (Spain, Italy).

Entitlement to cART, feature unique to migrant populations, challenges the effectiveness in the application of the pro-active HIV testing approaches that rely on the pillar that HIV testing must be linked to care as declared by different international organizations[49-51].

## 2.4. Access to HIV testing, treatment and care for migrant populations in Europe (1997-2010)

### 2.4.1. HIV testing barriers in migrants

Several barriers to access HIV testing and care by migrants and ethnic minorities have been published[22;52;53]: time or financial constraints, administrative, legal, language and cultural barriers and living and working conditions[54]. Other barriers are HIV-specific such as insufficient knowledge of HIV, fear of stigmatisation, low risk perception, lack of knowledge about testing sites and concerns about confidentiality.

Barriers to HIV prevention and treatment for migrants in the EU were covered by Bröring et al. who looked into the practices, and especially the barriers, to access HIV treatment among migrant populations, including undocumented migrants, and ethnic minorities in the EU[23].

Munier-Jack et al. in the document "Testing Times: Unmet need in testing, treatment and care for HIV/AIDS in EUROPE"[55] raised that few studies in Western Europe had investigated HIV testing behaviour in migrants. Among the few which have, Fenton et al.[56] conducted a survey in London among SSA; 30% of men and 26% of women reported having had an HIV test in the preceding five years. The study developed by Stolte et al. in the city of Amsterdam[57] showed that overall, 38% of heterosexual migrants reported ever being tested for HIV, with greater differences by sex due to antenatal testing programmes (27% men versus 47% in women).

### 2.4.2. Access to HIV treatment and care

The different epidemiological patterns of HIV infection in migrants and ethnic minorities in Europe and the migrants' unique barriers to HIV testing and care may compromise pro-active HIV testing approaches based on the premise that HIV testing must be linked to care[21;49;58]. The report of "HIV in Europe"[59] showed that in 2007 only 11 out of 24 countries participating in the survey had laws that provided universal access to cART to undocumented migrants. A number of other countries also provide in the practice cART to migrants of uncertain status, but through non-official initiatives, often Non-Governmental Organizations (NGOs) and Community-Based Organizations (CBOs).

As previously acknowledged, some EU countries do not provide HIV care for people of uncertain legal status[48]. Therefore, the lack of any medical benefit for individuals found to have HIV, in addition to the fear of deportation may hamper public health initiatives promoting HIV testing in migrants.

The report "Implementing the Dublin Declaration: 2010 progress report"[25] did show how in 2010 approximately all (94%) of the participant countries had promoted comprehensive HIV treatment, care and support for people living with HIV/AIDS. Four of the five countries with this strategy specifically addressed barriers among women and highly vulnerable subpopulations; although half of them reported that the country had laws, regulations or policies that presented obstacles to effective HIV treatment, care and support for these specific subpopulations. Indeed, 54% of these countries identified obstacles for migrants.

## 2.5. HIV testing strategies in Europe.

### 2.5.1. The importance of late diagnosis of HIV infection

Prioritisation of HIV within the global European health policies and of the HIV testing interventions effectiveness could be measured through late diagnosis rate. Expert consensus defines as late diagnoses people diagnosed with CD4 cell count <350/mm$^3$ or AIDS defining event, while presentation with advanced HIV disease (AHD) is defined as presentation with CD4 <200/mm$^3$ or AIDS[60].

In Europe, cases with information on CD4 cell counts at the time of diagnosis were limited and this information was only available for 18 of the 29 EU/EFTA countries in 2010 (15 882 cases, 59% of all reported cases)[1]. Half of these cases (49%) were late diagnoses and 29% had been diagnosed in a stage of advanced HIV infection.

The 2010 surveillance report[1] highlighted there was no information about subpopulations most affected by late diagnosis. Nevertheless, in the surveillance report of 2011[61] late diagnosis was higher among the following subpopulations:

- ✓ Heterosexually acquired cases among SSA (63%)
- ✓ IDU (48%)

On the other hand, the proportion of late presenters was lower among MSM (38%) and in MTCT cases (21%).

Late diagnosis has important implications for individuals' health, as it delays initiation of cART and thus increases the risk of developing AIDS and death.

Late diagnosis represents a failure on HIV testing strategies. Understanding that HIV may have no signs or symptoms for many years, early diagnosis can only be reached through accurate HIV testing strategies, aimed to early referral individuals for

treatment and care[62]. Besides, avoiding new HIV infections generated from people who are not aware of being HIV positive is the other major advantage of early HIV diagnosis.

Diverse approaches for HIV prevention and testing have been assumed during the last years. Geoffrey Rose in his classic 1992 book "The strategy of preventive medicine"[63] describes two different strategies aimed for prevention in general, not specifically for HIV:

- ✓ The "high risk strategy", based on an approach designed to identify individuals with special needs (or at high risk). The strategy to be put in place implies controlling the level in which the subjects are exposed to the cause and/or by providing protection against the effects of this exposure, in order to prevent for additional complications.
- ✓ The "population strategy", based on the principle of common diseases implies that mass exposures call for mass interventions. Every single society has their own characteristics that are related with specific health outcomes. A wide prevention population approach is needed to respond to these population exposures.

The different HIV testing strategies designed by the different countries have these dual preventions approaches, to avoid late diagnosis: a "high risk strategy" and a "population strategy" for HIV testing.

In order to understand the changes in the relative importance of each of these two approaches it is indispensable to take into account the evolution on the paradigm of HIV from a historical perspective.

### 2.5.2. From the paradigm of the AIDS excepcionalism to HIV normalization.

AIDS exceptionalism was a term developed in the beginning of the HIV epidemic which aimed for "an exceptional" treatment for HIV infection as compared to other infectious diseases[64-66]. AIDS exceptionalism emphasized clinical confidentiality, documented informed consent for HIV testing and anonymous surveillance. The reasons behind this movement, which emerged at a time when antiretroviral treatment had not been discovered, were to protect people living with HIV from abuse and discrimination. AIDS exceptionalism was the "Western response to an epidemic that threatened the lives and rights of specific populations in the developed world"[67].

However, when antiretroviral treatment became available and numbers of new infections did not cease to increase, some public health professionals started questioning whether this approach was still a valid paradigm.

Actually, De Cock and Johnson discussed in a 1998 paper[68] that the therapeutic advances in the treatment of HIV had shown effects in altering the clinical course of the infection and proved successful in reducing MTCT, which had a population approach. The authors acknowledged the benefits of the exceptional strategy in that it increased patient's autonomy and strengthened confidentiality. Nevertheless, based on the therapeutic advances, they proposed to extend HIV testing to areas where HIV prevalence was high, as well as in hospital settings, STD clinics and as a routine practice in antenatal care. According to these authors, these strategies should not compromise informed consent and confidentiality therefore being a model for other areas of medicine.

Later Frieden et al., in a classical paper published in 2005[69], argued that due to the advances in the HIV/AIDS treatment and the antidiscrimination interventions, it

was necessary to call for an end to exceptionalism. They supported the idea of applying public health principles to control the HIV epidemic; case finding, interrupt transmission, ensure treatment and case management, monitor infection and control efforts at population level.

### 2.5.3. The HIV normalisation era: fighting stigmatization.

In 2006, the Centers for Disease Control and Prevention (CDC) published the document entitled "Revised recommendations for HIV testing of adults, adolescents, and pregnant women in health-care settings" with the aim to increase HIV testing and expand the role of health-care providers in the testing process[70]. This publication explicitly assumed the end of AIDS exceptionalism.

The rationale was to de-stigmatize HIV testing. The CDC aimed for a new testing strategy based on the following characteristics:

- ✓ Routine HIV testing
- ✓ Voluntary HIV screening for all persons aged 13-64
- ✓ Performed in health care settings independently of any HIV risk assessment.
- ✓ In places with local undiagnosed HIV prevalence higher than 0.1%
- ✓ Without a separate signed consent for HIV testing as part of the pre-counselling

The recommendations indicated that specific sites for HIV testing for MSM and other groups at risk should not be stopped, but rather complemented by the above opt-out strategies. The document stressed the need to diminish missed testing opportunities in non-traditional health care settings, in particular among

disadvantaged populations. For people with known HIV risk, tests should be repeated at least annually.

In this same line, WHO published in 2007 "Guidance on provider-initiated HIV testing and counselling (PITC) in the health facilities"[71]. Until that publication, the approach for HIV testing and counselling had been voluntary counselling and testing. In following this approach, individuals had to actively seek an HIV test in health or community testing sites. This strategy had its limitations as highlighted by low coverage of services, fear of stigma and discrimination, and the perception by many people that they were not at risk for HIV. PITC aimed for the health care provider specifically recommending an HIV test to patients attending health facilities. Testing remains strictly voluntary, consented and confidential and patients have the right to decline. Under this recommendation, pre-test counselling is replaced by pre-test information and post-test counselling remains as a key intervention. WHO underlines testing must be linked to appropriate HIV prevention, treatment, care and support services in an adequate supportive social, policy and legal framework that has to guarantee the positive outcomes and minimize the potential harm. This guidance, built on the evidence that PITC had already been successfully implemented in both low- and middle-income countries as well as in pre-natal care in many high-income countries, was an important step compared to previous positions.

By the end of 2007, AIDS Action Europe and WHO Europe organised in Brussels the conference *"HIV in Europe 2007: Working together for optimal testing and earlier care"* to put together HIV advocates, clinicians, public health professionals and policy makers[59]. The overall objective of HIV in Europe was, and still is, to ensure that HIV positive patients enter care earlier in the course of their infection, as well as to study

the decrease in the proportion of HIV positive persons presenting late for care. Based on the 'call to action' of the Conference previously mentioned, a Roundtable in the European Parliament in September 2008 initiated a discussion that resulted on the European Parliament adoption of the "Joint Resolution on HIV/AIDS: early diagnosis and early care"[72].

Together with these innovative initiatives, challenges to implement and monitor these new interventions were also put forward. Various authors[73;74] had highlighted some of the challenges that these key elements of the CDC guidelines could rise.

### 2.5.4. HIV testing policies and practices in Europe

In 2007, ECDC commissioned the International Centre for Reproductive Health (ICRH) from Ghent University a study on HIV testing policies, practices and barriers in the EU. By January 2008, an expert meeting *"HIV Testing in Europe: From policies to effectiveness"*[54] took place in Stockholm to discuss critical issues regarding HIV testing and counselling and to contribute to the previously mentioned commissioned project[24].

The priorities for prevention in the EU were to increase uptake of HIV testing and counselling, to decrease the number of undiagnosed, to improve prevention and care in high-burden countries, to develop innovative prevention approaches for MSM and to provide specific services for migrant communities[26].

However, at this time, no European recommendations about HIV testing had been published. In fact, ECDC started to raise the question on how to build an European level HIV testing recommendations guidance and needed to collect evidence

on this topic. Additionally, the 2006 CDC recommendations for HIV testing had changed the paradigm launching a new approached based on the idea to expand and normalize HIV testing[58;62;75-77].

Increasing HIV testing at population level was a challenge, and doing so in migrants and ethnic minorities posed additional difficulties.

# 3. Objectives

**Objective 1.** To describe EU/EFTA Member States' policies and recommendations regarding HIV diagnosis and testing in migrant populations and ethnic minorities in 2010.

**Objective 2.** To describe International Organizations recommendations (WHO, UNAIDS, IOM, ILO and IUSTI) regarding HIV diagnosis and testing in migrant populations and ethnic minorities in 2010 and analyse its content.

**Objective 3.** To analyse available scientific evidence on HIV testing and counselling strategies targeting migrants and ethnic minorities in high-income countries and to describe migrant-specific barriers to HIV testing and counselling (2005-2010).

**Objective 4.** To examine the challenges for implementing and expanding HIV testing and counselling strategies targeting migrants in 2010.

- **Objective 4.1.** To assess feasibility and objective benefits of the different approaches aimed at expanding HIV testing in migrant populations.
- **Objective 4.2.** To evaluate how the specific HIV testing recommendations are being implemented at national level.

**Objective 5**. To describe trends in new HIV diagnosis and risk factors for presentation with Late HIV Disease between 2007 and 2012 in male and female migrant populations in Europe and to analyse the changes of migratory trends in Europe between 2007 to 2012.

# 4. Subjects and methods

## 4.1. Methods for Objective 1: To describe EU/EFTA Member States' policies and recommendations regarding HIV diagnosis and testing in migrant populations and ethnic minorities in 2010

### 4.1.1. Survey to EU/EEA/EFTA Member States policies and recommendations review.

***Survey to EU/EEA/EFTA country representatives (2010)***

An on-line survey based on a brief questionnaire was conducted among 31 EU/EFTA Member States in 2010. Key informants were selected by ECDC within the competent health authorities (Ministries of Health and Public Health institutions) and are listed in the APPENDIX 1. Various e-mail reminders were sent to encourage participation between February and September 2010. The country representatives were asked to send the official documents describing HIV testing in migrant/ethnic minorities.

***Search and review of guidelines, policies and other publications on HIV testing & counselling from the EU/EEA/EFTA Member States in 2010.***

An additional search in the web pages of the different competent bodies of the EU/EFTA Member States (National AIDS Plans, Ministries of Health, Public Health Agencies etc.) for national recommendations, guidelines or any other policy documents was performed in 2010. Search strategy is listed in APPENDIX 2. Documents in English, Spanish, Italian, Portuguese, German and French were reviewed.

### 4.1.2. Instruments for collecting information

#### *Questionnaire for the survey to the country representatives*

The content of the questionnaire sent to the country representatives included the following items:

- Existence of specific HIV testing & counselling recommendations targeting migrant population and/or minorities
- Year of publication of these recommendations
- Special mention of any particular geographical origin in the recommendations.

The most recent document where these recommendations were contained was requested too. Questionnaire full content is shown in 9.2.3.

#### *Data collection form for the documents review*

A preliminary data extraction form was designed and piloted. Changes from the pilot were incorporated and the final data collection form is included in the APPENDIX 4. The data collection form contained the following information:

- Type of document (HIV testing guideline, Health Plan etc.)
- Year of publication.
- Institution issuing the publication.
- Whether background information on reasons to improve and expand HIV testing, in general and in particular for migrants and ethnic minorities, was mentioned.
- If definitions (if any) of migrants and ethnic minorities were stated.
- Whether migrants and ethnic minorities were identified as vulnerable populations for HIV infection.
- Whether there were recommendations to test these groups.

- Whether routine and universal HIV testing strategies were being recommended
- If there are targeted HIV testing strategies for migrants and ethnic minority groups.
- Frequency and the site for HIV testing.
- Recommendations for pre and post counselling (or pre and post-test discussion), paying special attention to specific recommendations for migrant and ethnic minorities.
- Novel strategies for HIV testing for migrants and ethnic minorities within the community.
- Issues on HIV testing on arrival, about legal consequences for testing migrants and gender dimension of the testing policies.

***Response rate***

The response rate was very high; 29 of 31 country representatives responded the survey (94%).

### 4.1.3. Review strategy

Teams of two independent researchers read the full documents and collected the information in the designed data collection form.

Additional collaboration from the national representatives was demanded when the documents were in other languages than English, French, German, Italian, Portuguese or Spanish. However, in three European countries (Poland, Slovakia and Netherlands) documents could not be reviewed and only responses from national key informants were used.

### 4.1.4. Data entry and analysis.

The responses from the country representatives were collected in a database in excel, in order to organize all the information. The information contained in the data collection form was coded and organized in the database. A descriptive content analysis was carried out.

### 4.1.5. Results of the search strategy

The research flow chart is described in Figure 7. Overall, 28 documents from 27 EU/EFTA Member States were identified: sixteen HIV/AIDS National Strategies, three HIV testing Guidelines, four miscellaneous documents about HIV testing recommendations, two internal working documents, one piece of legislation, one National Strategy on Communicable Diseases and one national communicable diseases surveillance bulletin. This heterogeneity, derived from the different Member States context, hampers an exclusively quantitative approach.

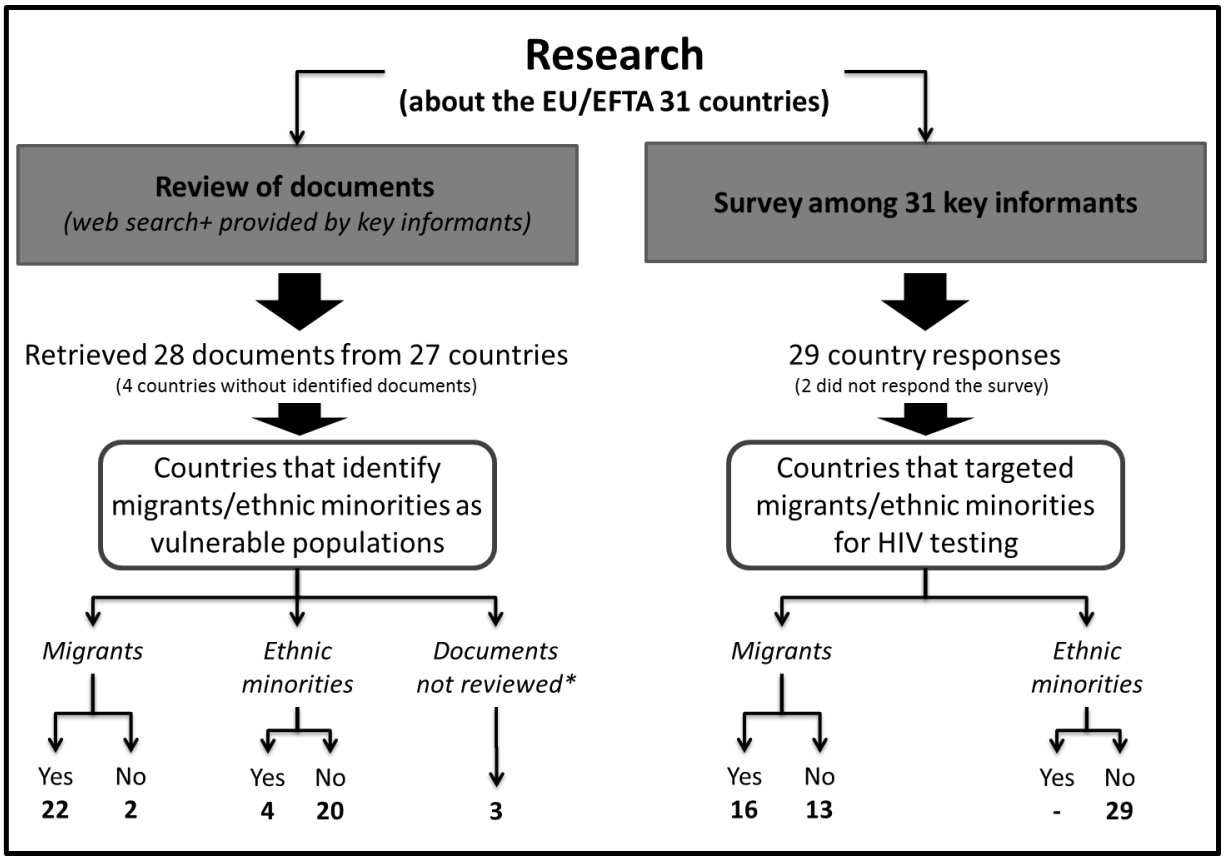



**Figure 7.** Research flow chart. (*) Documents in languages other than English, French, Spanish, Italian, German or Portuguese and translation not provided by FP

Regarding country representatives responses, of the 31, the research team received 29 responses from the participants already listed in APPENDIX 1. All the retrieved documents are recorded in APPENDIX 5.

## 4.2. Methods for Objective 2: To describe International Organizations recommendations (WHO, UNAIDS, IOM, ILO and IUSTI) regarding HIV diagnosis and testing in migrant populations and ethnic minorities in 2010 and analyse its contents.

### 4.2.1. Search of guidelines, policies and other publications on HIV testing & counselling from International Agencies/Organizations/Societies in 2010.

A search of documents published by the most significant International Organizations (WHO, UNAIDS, IOM, ILO, IUSTI) was carried out by accessing all relevant webpages listed in the APPENDIX 6.

### 4.2.2. Instrument for collecting information

The same data extraction form used for countries' policies and recommendations review was used. The final data collection form is included in the APPENDIX 7.

### 4.2.3. Search strategy

Teams of two independent researchers read the full documents and collected the information in the designed data collection form.

All retrieved documents were in English.

### 4.2.4. Data entry and analysis.

The information contained in the data collection form was coded and organized in an Excel database. A descriptive content analysis was carried out.

## 4.3. Methods for Objective 3: To analyse available evidence on HIV testing and counselling strategies targeting migrants and ethnic minorities in high-income countries and to describe migrant-specific barriers to HIV testing and counselling.

### 4.3.1. Methods: Systematic review of the literature

To reach Objective 3, a literature search in Pubmed, Embase, CRD York database, Cochrane and Web of Knowledge was performed.

### 4.3.2. Inclusion criteria of the articles

The inclusion criteria to consider the articles eligible for inclusion were the following:

- Written in English language.
- Published between 2005 and 2009.
- Published in or about research or interventions conducted in similar western contexts: European countries, Canada, United States of America or Australia.
- Including at least one keyword of any of these groups (i) ethnic groups, minority groups, transients and immigrants, refugees; (ii) mass screening, diagnosis, AIDS Serodiagnosis, public policy, prevention and control, Centres for Disease Control and Prevention (USA), counselling; and (iii) Acquired immunodeficiency syndrome, HIV, HIV Infections.

**Mesh terms used in data bases that use Mesh indexing system (Pubmed, Cochrane):**
*(("Minority Groups"[Mesh] OR "Transients and Migrants"[Mesh] OR "Emigrants and*

*Immigrants"[Mesh] OR "Refugees"[Mesh]) AND ("Mass Screening"[Mesh] OR "Diagnosis"[Mesh] OR "AIDS Serodiagnosis"[Mesh] OR "Public Policy"[Mesh] OR "prevention and control"[Subheading] OR "Centres for Disease Control and Prevention (U.S.)"[Mesh] OR "Counselling"[Mesh]) AND ("Acquired Immunodeficiency Syndrome"[Mesh] OR "HIV"[Mesh] OR "HIV Infections"[Mesh]). In the rest of the cases we used "topics" related with: migrants and minorities (migrant workers, minority, asylum or refugee status) AND testing or linked issues (mass screening; diagnosis; AIDS serodiagnosis; public policy; prevention and control; counselling) AND HIV/AIDS (Acquired Immunodeficiency Syndrome (AIDS), HIV).*

### 4.3.3. Articles screening: the systematic review results.

***Stage 1. Databases search results***

As described in Figure 8, 1,185 articles were identified in the searched databases, and of those, 151 were duplicates. Figure 8 shows the complete results of the systematic review performed, in terms of number of articles screened in each stage of the systematic review.

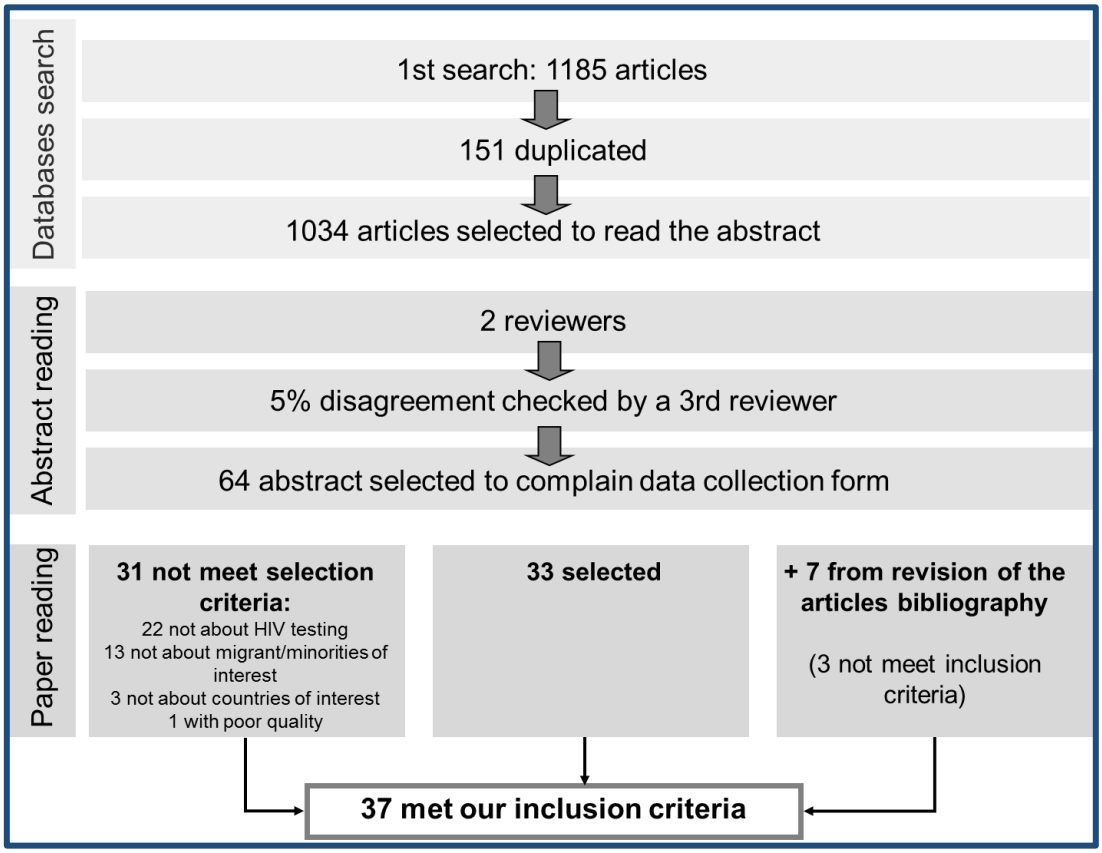



**Figure 8.** Systematic review process

### *Stage 2. Abstract read results*

Two members of the research team read all the 1,034 abstracts to disregard those who did not meet the inclusion criteria. A conservative strategy in this second stage has been used and only abstracts that did not refer to migrants or ethnic minorities in Europe, USA, Canada and Australia and HIV testing and/or counselling were eliminated at this stage. Therefore, articles not meeting these inclusion criteria were excluded in a second phase.

Agreement on which articles to include was 95% among the two researchers and in the 5% on which there was disagreement, a third reviewer was responsible for the final decision. After steps 1 and 2, 970 articles were discarded and 64 selected for full review.

### *Stage 3. Full paper read results*

In this third step, eligibility criteria were applied again to the 64 papers given the conservative selection strategy for the abstracts phase. Teams of two people read the 64 articles and applied eligibility criteria; 31 articles were rejected for not dealing with either HIV testing (n = 22), migrants or ethnic minorities (n = 13), countries not meeting the criteria (n=3) or for them being of poor quality (n = 1). The review of these 64 articles bibliography identified seven new manuscripts, from the manuscripts' references, of which four met inclusion criteria. Finally, the analyses were based on 37 articles.

### 4.3.4. Instrument for collecting data

A preliminary data extraction form was designed and piloted in 14 articles. After incorporating the changes suggested by the pilot, teams of two independent researchers read the full 64 papers and extracted the information in the template. Complete data collection form is included in APPENDIX 7.

The data collection form inquired about the following aspects:

- Objective of the paper
- Brief summary of the paper, describing the main findings
- Year of the study
- Setting and populations studied
- Definition (if any) of “migrants” and “ethnic minorities”
- Key methodological questions such as the type of design and the sample size.
- If the paper described barriers to HIV testing, a description of those barriers was collected, so were the recommendations suggested to overcome those barriers.
- A question on whether there was a justification on why to study certain groups of migrants and ethnic minorities was included and gathered if gender issues were explicitly mentioned.
- Mention of the consequences of HIV diagnoses in migrants of uncertain legal status and criminalization of HIV was also looked for.

### 4.3.5. Quality assessment of the articles

The data collection form also included an evaluation of the quality of the paper based on the Carlson et al. article "Study design, precision, and validity in observational studies"[78] and organized in 5 main aspects:

1. A clearly defined research question
2. Internal validity: the study is well designed, according to its characteristics, allowing, where appropriate, to minimize bias.
3. Results are well described, are useful and accurate
4. External validity. The results are generalizable to the population and context in which they are expected to be applied
5. Overall quality rating of the article

The article quality was evaluated using the following scale:

- Very good
- Good
- Poor
- Very poor

The categories "Without information" and "Does not apply" were also included.

### 4.3.6. Data entry and analysis.

To organize all the data, all the information was coded and recorded in an Excel database. A descriptive content analysis of the collected qualitative information was performed.

## 4.4. Methods for Objective 4: To examine the challenges for implementing and expanding HIV testing and counselling strategies targeting migrants.

### 4.4.1. Methods

Qualitative methodology was developed to reach the Objective 4. Semi-structured interviews to key stakeholders and group interviews were carried out.

***Semi-structured interviews to key stakeholders***

On one hand, semi structured interviews to 13 key informants described below in Table 3 were carried out.

The participants were from both governmental and non-governmental organizations and were chosen because of their knowledge on HIV testing & counselling, their knowledge on migrants and ethnic minority health issues and, preferably, knowledge on both topics. The research team aimed for a pan European representation and for a balance between governmental and non-governmental organizations.

11 interviews in which 13 expert participated (in Italy three experts participated at the same interview) was determined by logistic restrictions as well as by "saturation criteria", that is, after a given number of interviews; most information does not add more to the research and starts becoming redundant.

| Participants | Position | Institution | Country |
|---|---|---|---|
| ***Maureen Louhenapessy*** | Project Manager | *Sid Aids migrants-Siréasasbl* | **Belgium** |
| ***Jessica Deblonde*** | Researcher | *International Centre for Reproductive Health, Ghent University* | **Belgium** |
| ***Olivier Scemama*** | Deputy Head, Economic and Public Health Assessment Department | *National Health Authority* | **France** |
| ***Ramazan Salman*** | Executive Managing Director | *Ethno-Medical Centre* | **Germany** |
| ***Laura Camoni*** | Research Assistant, AIDS Operational Centre | *Department of Infectious, Parasitic and Immunomediated Diseases, National Institute of Health* | **Italy** |
| ***Anna Colucci*** | Researcher, Research Coordinator, Operational Unit of AIDS Telephone of Information | *Department of Infectious, Parasitic and Immunomediated Diseases, National Institute of Health* | **Italy** |
| ***Anna Maria Luzi*** | Researcher, Scientific Chief, Operational Unit of AIDS Telephone of Information, and Italian National Focal Point AIDS & Mobility | *Department of Infectious, Parasitic and Immunomediated Diseases, National Institute of Health* | **Italy** |
| ***Henrique Barros*** | National Coordinator | *National AIDS Coordination* | **Portugal** |
| ***Olivia del Castillo*** | Head, Prevention and Coordination of the Department for National AIDS Strategy | *Ministry of Health and Social Policy* | **Spain** |
| ***Ferrán Pujol*** | Project Manager, NOMS-Hispanosida and BCN Checkpoint | *Hispanosida* | **Spain** |
| ***Bryan Teixeira*** | Chief Executive | *Naz Project London* | **UK** |
| ***Ibidun Fakoya*** | Research Associate | *Centre For Sexual Health and HIV Research, University College London* | **UK** |
| ***Kevin Fenton*** | Director, National Centre for HIV/AIDS, Viral Hepatitis, STD and TB Prevention | *Centres for Disease Control and Prevention* | **USA** |

**Table 3.** Participants in the interviews

A number of interviews (6) were conducted face to face and some others (5) over the telephone.

### *Group interviews*

Two group interviews were done seizing the opportunity of a two day meeting held in ECDC, Stockholm. Each group comprised 15 interviewees, chosen as to obtain

the views of the different actors in the field, and were chaired by a member of the research team. The two group interviews were face to face. The participants of the group interviews are listed in the APPENDIX 8.

### 4.4.2. Instruments for collecting data.

A structured script was prepared for both, the individual and the group interviews. For the group interviews, although open discussion was encouraged, the groups were asked basically the same questions than in the individual interviews.

The complete script used for Group interviews (APPENDIX 9) and the scripted used for the key informants interviews (APPENDIX 10) are shown in the Appendix section.

Key areas for exploration included:

- Perceptions about general population HIV testing approaches (based on opt-out HIV routine screening with no lengthy pre-test counselling);
- Opinions on how health care providers are implementing more active approaches for HIV testing and how migrants perceive targeted pro-active HIV testing strategies;
- Considerations of ethical issues related with performing HIV testing to migrants with uncertain status in countries where HIV care and treatment are not granted;
- Awareness and description of novel initiatives that promote HIV testing at community levels targeting migrants and ethnic minorities, in particular, those who do not access regular health care settings;

- Awareness of initiatives targeting heterosexual men in general and migrant and ethnic minority men in particular and innovative proposals to engage men in health care.

### 4.4.3. Analysis of the information

Data collection was performed between March and September 2010. Information was tape recorded, transcribed and analysed.

A descriptive manifest content analysis approach was carried out. The content analysis method was defined by Leedy and Ormrod[79] as "a detailed and systematic examination of the contents of a particular body of materials for the purpose of identifying patterns, themes, or biases".

In order to systematize the analysis, the information was classified by the themes addressed following the questions asked to the participants.

## 4.5. Methods for Objective 5. European HIV surveillance data and Eurostat European migration data analysis.

### 4.5.1. Epidemiological data analysis

***Study design and methods***

A cross sectional study with surveillance data from all the new HIV cases reported in the EU/EEA countries was carried out. Data from 29 countries within EU/EEA were analysed. Data reported between 2007 and 2012 were analysed.

The TESSy database was used. All EU Member States (28) and the 3 EEA countries report their available data on communicable diseases to the TESSy. The database was provided by ECDC. All new HIV cases reported to the European Surveillance System (TESSy) were analysed.

***Variables definition***

- **"Migrant status"**, was defined based on information on either the country of birth, country of nationality and/or region of origin of the cases which has been systematically collected from 1998 onwards.
- **"Geographical origin" (GO).** A new variable on geographical origin was generated combining the information provided by the previously cited primary variables. When more than one primary variable was available, country of birth was the preferred one. If country of birth was not available, country of nationality was used as the second best option. Only when neither country of birth nor countries of nationality were available, region of origin was then used.

Geographical origin was classified as native if the reporting country was the same as the country of birth or country of nationality and for the rest of the cases as European (Western Europe, Central Europe, Eastern Europe), Sub Saharan Africa (SSA), Latin America (LA), East Asia and Pacific, Australia and New Zealand, South and South East Asia, North Africa and Middle East, North America, the Caribbean, and unknown. SSA was further divided into Western, Central, Eastern and Austral Africa using the classification provided by UNAIDS[80]. An additional category "Unknown" was used for cases from SSA with no data on the actual country or sub-region of origin. LA was also divided into Central, Andina and South America. Similarly to SSA, an additional category of "Unknown" was also created. Countries' classification is included in APPENDIX 11.

- **"Late HIV disease" (LHD)**. Was defined according to the definition proposed by the European Late Presenter Consensus Working group[60] as both, having a CD4 count below 350 cells/$mm^3$ or an AIDS defining event in the six months following diagnosis.

### *Missing data*

Of the 181,881 HIV diagnoses reported to the European Surveillance System during the period 2007-2012, 738 had no information on sex (0.5%) and 32,328 (18%) had no data on geographical origin. Table 4 shows missing information on Geographical Origin, that varied widely by country of reporting. In 18 of the 29 countries, missing data were less than 10%, while others like Estonia and Latvia were 75% and 68%, respectively. Belgium, Norway and France had GO missing values in approximately 30% of their cases. Italy had no reported data since 2010.

| Country | Cases and GO availability | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 |
|---|---|---|---|---|---|---|---|
| **Austria** | Total | 335 | 345 | 301 | 317 | 309 | 306 |
| | Unknown GO | 5 | 4 | 1 | 0 | 2 | 0 |
| **Belgium** | Total | 1063 | 1087 | 1127 | 1196 | 1182 | 1226 |
| | Unknown GO | 290 | 287 | 313 | 317 | 297 | 338 |
| **Bulgaria** | Total | 126 | 123 | 171 | 163 | 201 | 157 |
| | Unknown GO | 0 | 2 | 0 | 0 | 0 | 0 |
| **Cyprus** | Total | 46 | 37 | 38 | 41 | 54 | 58 |
| | Unknown GO | 0 | 0 | 0 | 0 | 0 | 1 |
| **Czech Republic** | Total | 121 | 148 | 156 | 180 | 153 | 212 |
| | Unknown GO | 0 | 0 | 0 | 0 | 0 | 0 |
| **Germany** | Total | 2776 | 2826 | 2869 | 2908 | 2881 | 2950 |
| | Unknown GO | 445 | 456 | 414 | 458 | 429 | 243 |
| **Denmark** | Total | 306 | 285 | 236 | 275 | 266 | 200 |
| | Unknown GO | 8 | 1 | 2 | 8 | 4 | 2 |
| **Estonia** | Total | 633 | 545 | 411 | 376 | 366 | 315 |
| | Unknown GO | 633 | 545 | 374 | 220 | 221 | 0 |
| **Spain** | Total | 2671 | 3188 | 3340 | 3575 | 3244 | 3210 |
| | Unknown GO | 4 | 2 | 1 | 1 | 1 | 3 |
| **Finland** | Total | 187 | 147 | 172 | 184 | 172 | 156 |
| | Unknown GO | 2 | 6 | 3 | 4 | 14 | 13 |
| **France** | Total | 5659 | 5743 | 5428 | 5527 | 5374 | 4066 |
| | Unknown GO | 1463 | 1491 | 1444 | 1505 | 1598 | 1396 |
| **Greece** | Total | 551 | 603 | 592 | 626 | 940 | 1059 |
| | Unknown GO | 19 | 21 | 28 | 33 | 58 | 61 |
| **Hungary** | Total | 98 | 119 | 122 | 151 | 133 | 200 |
| | Unknown GO | 1 | 0 | 0 | 0 | 0 | 1 |
| **Ireland** | Total | 391 | 404 | 395 | 330 | 323 | 339 |
| | Unknown GO | 100 | 88 | 86 | 53 | 62 | 121 |
| **Iceland** | Total | 13 | 10 | 15 | 24 | 23 | 19 |
| | Unknown GO | 3 | 0 | 7 | 1 | 4 | 3 |
| **Italy** | Total | 1960 | 2038 | 2563 | 3925 | 3748 | 3896 |
| | Unknown GO | 1960 | 2038 | 2563 | 116 | 30 | 35 |
| **Lithuania** | Total | 106 | 95 | 180 | 153 | 166 | 160 |
| | Unknown GO | 0 | 1 | 0 | 0 | 6 | 5 |

**Table 4.(I)** Distribution of HIV total diagnoses and HIV diagnoses without information about geographical origin according to reporting country of the UE/EEA (I).

| Country | Cases and GO availability | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 |
|---|---|---|---|---|---|---|---|
| **Lithuania** | Total | 106 | 95 | 180 | 153 | 166 | 160 |
| | Unknown GO | 0 | 1 | 0 | 0 | 6 | 5 |
| **Luxemburg** | Total | 44 | 57 | 54 | 49 | 48 | 54 |
| | Unknown GO | 0 | 0 | 0 | 1 | 0 | 1 |
| **Latvia** | Total | 350 | 358 | 275 | 274 | 299 | 339 |
| | Unknown GO | 246 | 266 | 172 | 179 | 208 | 234 |
| **Malta** | Total | 14 | 4 | 8 | 18 | 21 | 30 |
| | Unknown GO | 4 | 0 | 0 | 0 | 3 | 0 |
| **Netherland** | Total | 1219 | 1288 | 1173 | 1157 | 1083 | 976 |
| | Unknown GO | 2 | 3 | 3 | 1 | 0 | 2 |
| **Norway** | Total | 248 | 299 | 282 | 258 | 269 | 242 |
| | Unknown GO | 1 | 0 | 2 | 155 | 152 | 152 |
| **Poland** | Total | 727 | 762 | 883 | 865 | 1073 | 1058 |
| | Unknown GO | 28 | 19 | 172 | 211 | 244 | 201 |
| **Portugal** | Total | 1861 | 1900 | 1708 | 1511 | 1218 | 721 |
| | Unknown GO | 23 | 26 | 26 | 30 | 11 | 9 |
| **Romania** | Total | 173 | 259 | 253 | 274 | 427 | 489 |
| | Unknown GO | 0 | 0 | 0 | 0 | 0 | 0 |
| **Sweden** | Total | 472 | 414 | 409 | 448 | 382 | 362 |
| | Unknown GO | 12 | 14 | 18 | 19 | 16 | 30 |
| **Slovenia** | Total | 37 | 48 | 48 | 35 | 55 | 45 |
| | Unknown GO | 1 | 1 | 1 | 0 | 1 | 1 |
| **Slovakia** | Total | 39 | 53 | 53 | 28 | 49 | 50 |
| | Unknown GO | 0 | 1 | 1 | 1 | 0 | 0 |
| **United Kingdom** | Total | 7381 | 7268 | 6672 | 6358 | 6211 | 6358 |
| | Unknown GO | 1525 | 1251 | 737 | 806 | 861 | 1469 |
| **Total** | **Total** | **29607** | **30453** | **29934** | **31226** | **30670** | **29253** |
| | **Unknown GO** | **6775** | **6523** | **6368** | **4119** | **4222** | **4321** |
| **Total included in the analysis** | | **22832** | **23930** | **23566** | **27107** | **26448** | **24932** |

**Table 4 (II).** Distribution of HIV total diagnoses and HIV diagnoses without information about geographical origin according to reporting country of the UE/EEA (II).

## *Statistical methods*

Absolute numbers and calculated proportions of interest were examined and plotted and medians and their Interquartile ranges (IQR) were calculated.

Differences in socio-demographic characteristics were assessed through the Mann-Whitney test for continuous variables and the chi squared test for independence

for categorical variables. Relative changes in the number of HIV reports from 2007 to 2012 were calculated.

A linear regression was performed to calculate the change in the average cases per year in the different geographical origins.

Logistic regression was used to examine the association between Geographical Origin and LHD for men and women. Crude Odds Ratios (OR) and their 95% Confidence Intervals (95%) were calculated, as well as adjusted OR (ORa), controlling for the confounding effect of age and transmission category. Interactions by sex (a priori effect modifier) through Likelihood Ratio Tests (LRT) were assessed. Analyses did not take into account notification delay. Analyses were performed using Stata version 13.0[81].

***Sensitivity analysis***

Additional sensitivity analyses were performed to test the presence of potential misclassification of the main exposure variable and rerun the analyses using nationality instead of country of birth as the first option.

Separate analyses were performed for the two countries (Italy and Spain) which had experienced changes in their HIV reporting systems during the study period.

### 4.5.2. Migrant population data in EU/EEA registries

***Data sources***

In order to retrieve data of migrant population living in the EU/EFTA countries two main have been explored:

- **Eurostat database.** Eurostat is the EU statistical resource that contains, among other, data on migration and citizenship, including information on population stocks by citizenship and country of birth.
- **National Statistical Institutes.** NSI were contacted by email and asked to provide total population living in the country between 2007 and 2010 and migrant population by country of birth (or country of citizenship if not available) in the period 2007-2012. Data was claimed for both men and women separately. An example table about that requested was provided to avoid confusion.

### ***Data retrieved***

Sources and availability of demographic data by country are explained in APPENDIX 12. From the 29 countries of interest, 17 (59%) had information on native population and global foreign population for the full period 2007 to 2012 (See Table 5).

| Country | Native population/foreign population data available for 2007-2012 |
|---|---|
| Austria | All data |
| Belgium | 2007-2011 |
| Bulgaria | All data |
| Cyprus | 2010-2012 |
| Czech Republic | 2010-2012 |
| Denmark | All data |
| Estonia | 2011 |
| Finland | All data |
| France | 2009-2010 |
| Germany | All data |
| Greece | All data |
| Hungary | All data |
| Iceland | 2008-2012 |
| Ireland | All data |
| Italy | 2007-2011 |
| Latvia | All data |
| Lithuania | All data |
| Luxembourg | All data |
| Malta | 2008-2011 |
| Netherlands | All data |
| Norway | All data |
| Poland | All data |
| Portugal | 2008-2012 |
| Romania | 2007-2009 and 2012 |
| Slovakia | 2012 with missing data |
| Slovenia | All data |
| Spain | All data |
| Sweden | All data |
| United Kingdom | 2009-2012 |

**Table 5.** Information on native population and global foreign population by each of 29 reporting countries (Sources: Eurostat and National Statistical Institutes)

Information of foreign population by country of birth/ country of nationality/ country of origin, is shown in Table 6 for each reporting country. Only half of all 29 countries (14 countries, 48%) reported data on migrants specifying country of origin.

| Country | Foreign population by country available for 2007-2012 | Variable |
|---|---|---|
| Austria | All data | Country of birth |
| Belgium | 2007-2011/different groups each year | Nationality |
| Bulgaria | All data | Nationality |
| Cyprus | 2011 | Country of birth |
| Czech Republic | 2010-2012 | Nationality |
| Denmark | All data | Country of origin |
| Estonia | 2011 | Country of birth |
| Finland | All data | Country of birth |
| France | 2009-2010 | Country of birth |
| Germany | All data | Nationality |
| Greece | Not provided | - |
| Hungary | 2007-2011 | - |
| Iceland | 2008 and 2010-2012 | Nationality |
| Ireland | All data | Country of birth |
| Italy | 2007-2011 | Nationality |
| Latvia | 2007-2011 | Country of birth |
| Lithuania | All data | Country of birth |
| Luxembourg | Not provided | - |
| Malta | Not provided | Country of birth |
| Netherlands | All data | Nationality |
| Norway | All data | Nationality |
| Poland | All data | Nationality |
| Portugal | 2008-2012 | Nationality |
| Romania | 2007-2009 and 2012 | Country of birth |
| Slovakia | All data | Nationality |
| Slovenia | All data | Country of birth |
| Spain | All data | Country of birth |
| Sweden | All data | Country of birth |
| United Kingdom | Not provided | - |

**Table 6.** Data on country of origin of foreign population by reporting country. (Sources: Eurostat and National Statistical Institutes)

## *Data analysis*

All the data provided was recoded into UNAIDS geographical areas and restructured in a unique Excel database. Descriptive trends analyses were performed for the two main variables retrieved. Two different analyses were performed:

a) Trend analysis of cumulative number of global foreign population only. Countries with complete information for all years within 2007-2012 were included.

b) Trend analysis of cumulative number of foreign population by country of origin. Only countries with complete information for all years within 2007-2012 and without major changes in the classification of migrant groups were included.

Due to data availability restrictions, analyses were repeated only for the years 2008 to 2011.

# 5. Results

## 5.1. Results for Objective 1: To describe European countries' policies regarding HIV diagnosis and testing in migrant populations and ethnic minorities in 2010.

The content of the documents retrieved was organized and described following these sections:

- ✓ Rationale for early HIV testing
- ✓ Migrants and ethnic minorities vulnerable populations for HIV
- ✓ Reasons for considering migrant and ethnic minorities vulnerable to HIV.
- ✓ HIV testing recommendations addressing migrants and ethnic minorities
- ✓ HIV testing sites: importance of community settings for migrants and ethnic minorities
- ✓ Legal consequences of HIV testing for migrants

### 5.1.1. Rationale for early HIV testing

Documents from seven countries (Denmark, France, Norway, Portugal, Spain, Switzerland and the United Kingdom) discuss the benefits of early HIV diagnosis at both individual and community levels.

At the individual level; cART reduces HIV related morbidity and mortality. At the community level, HIV testing and counselling may reduce transmissibility through a reduction in high risk practices and through identifying subjects who can undergo HIV treatment, thus reducing HIV potential infectivity.

Testing and counselling are also reported to be linked to positive behavioural change, which is linked to a reduction in high-risk practices, although the French

Guidelines underline this has only been documented for HIV-positive individuals. The UK Guidelines describes that long pre-counselling can be replaced by brief pre-test information about the benefits of testing, its voluntary nature and the need of requesting informed consent.

Post-test counselling content depends on test results. In case of a positive test, some documents stress that the person should receive information about HIV transmission and safe behaviours to decrease the risk of transmission to others. At the same time, adequate referral to specialized services in order to evaluate the initiation of cART is mentioned in most documents.

### 5.1.2. Migrants and ethnic minorities as vulnerable populations for HIV

Table 7 summarizes if countries consider or not migrants and ethnic minorities as vulnerable populations for HIV, based on their national policy documents (provided by Country Representatives or found trough the web search). Some countries, but not all, identify migrants and/or ethnic minorities as groups at risk for HIV infection (see Figure 7). The arguments are based on migrant/ethnic minorities' high HIV prevalence and/or on high risk behaviours (sexual behaviour and injecting drug use).

The higher proportion of delayed HIV diagnosis in migrants is also mentioned, linking this to barriers to access health care and increased social vulnerability.

| Approach | Countries |
|---|---|
| Identify **migrants** as vulnerable to HIV | Belgium, Bulgaria, Denmark, Finland, France, Germany, Iceland, Ireland, Italy, Lithuania, Luxembourg, Malta, Netherland, Norway, Poland, Portugal, Romania, Slovakia, Spain, Sweden, Switzerland and UK |
| Do not identify **migrants** as vulnerable to HIV | Cyprus and Slovenia |
| Identify **ethnic minorities** as vulnerable to HIV | Bulgaria, Slovakia*, Romania** and UK*** |
| Do not identify **ethnic minorities** as vulnerable to HIV | Belgium, Cyprus, Denmark, Finland, France, Germany, Iceland, Ireland, Italy, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovenia, Spain, Sweden and Switzerland |
| No data (no documents provided by country representatives or found in web research) | Austria, Czech Republic, Hungary, Estonia, Greece, Latvia and Liechtenstein |

**Table 7.** Countries identifying migrants or ethnic minorities as vulnerable populations to HIV infection (from both documents provided by National Representatives or found trough the web search).*(*) It considers some marginalized groups coming from different ethnic or social environments (Roma, homeless, refugees)(**) Roma people are identified as part of disadvantaged communities(***) In the UK, Black and Ethnic Minorities (BME) are identified as vulnerable to HIV in the National Strategy although the UK National Guidelines of HIV Testing 2008 does refer to migrants rather than BME.*

In the documents, migrants are mainly defined based on their region of origin. Overall, 22 of the 31 countries (71%) identify migrants as populations at risk for HIV infection and specifically mention people from high HIV prevalence regions such as SSA and the Caribbean, and some specific groups from Eastern Europe, Asia and South America.

The specific groups of migrants mentioned in the documents are contained in Table 8.

| Country | Groups mentioned |
|---|---|
| **Belgium** | Migrants |
| **Bulgaria** | Migrants and mobile populations |
| **Denmark** | Migrants from Africa, Asia, South America and Eastern Europe. Anyone who has had sex with persons from high risk areas or has been in such areas |
| **Finland** | Migrant populations |
| **France** | People originating from regions of high prevalence countries (SSA and the Caribbean) |
| **Germany** | People with migration background; specifically those coming from high prevalence countries (>1%) (SSA, Asian and Eastern Europe). |
| **Iceland** | Migrants |
| **Ireland** | High prevalence countries |
| **Lithuania** | Migrant populations |
| **Luxembourg** | People from SSA, Asia, Eastern Europe. Target groups of residents with foreign origin (especially Luxophon community) |
| **Malta** | Migrant populations |
| **Netherlands** | High HIV prevalence countries (SSA) |
| **Norway** | Asylum seekers, refugees and people with a migrant background from high prevalence countries |
| **Poland** | Migrants |
| **Portugal** | Migrants, Refugees and Displaced persons |
| **Romania** | Roma communities |
| **Slovakia** | Migrants- all foreigners coming to Slovak Republic for a long time |
| **Spain** | Migrants |
| **Sweden** | People from foreign backgrounds |
| **Switzerland** | People from countries with a generalized epidemic |
| **UK** | High HIV prevalence countries |

**Table 8.** Groups of migrants considered as vulnerable for HIV

Some documents only use the term “migrant” and fewer documents refer to ethnic minorities. Only Bulgaria, Slovakia, Romania and the UK identify ethnic minorities as vulnerable to HIV. The Romanian Guidelines published on 2007 explicitly acknowledge the vulnerability of Roma people given their high prevalence of risk contexts and behaviours. The Bulgarian HIV National Program also supports this and the Slovakian program goes as far as to consider Roma community as part of

marginalized groups coming from different ethnic or social environments. Black and minority ethnic groups (BME) are identified as vulnerable for HIV infection in the UK National Strategy although the National HIV Testing Guidelines, issued on 2008, refer to migrants rather than BME.

### 5.1.3. Reasons for considering migrant and ethnic minorities as vulnerable to HIV groups.

The reasons for increased vulnerability to HIV infection included in the documents reviewed were: the social, economic and legal problems these groups are confronted with and the issues arising from culture and gender differences. Regarding social vulnerability, documents mention stigma, lack of community support and isolation, as well as racism and discrimination (double discrimination for being a migrant and HIV-positive).

These are key issues, since social networks are fundamental for supporting, both emotionally and economically, the migrant population. Legal vulnerability for migrants is related to fear that disclosure of HIV status could affect migrant status and visa application process. In some countries, test on arrival is compulsory to enter the country.

On the whole, the documents justify these recommendations to provide early and appropriate HIV counselling, referral and care. Four documents (from France, Italy, Spain and the UK) mention the higher proportion of delayed HIV diagnosis in migrants, attributed to barriers to access health care such as stigma, lack of community support, isolation, racism and double discrimination for being an HIV-positive migrant. Cultural vulnerability arises from different concepts of health in general and HIV in particular.

Other cultural aspects, such as religion and language, represent additional barriers to access prevention and care.

A disadvantaged socio-economic situation (poverty, low education, unemployment or poor working conditions) is also taken into account in a number of documents (from Bulgaria, Germany, Italy, Luxembourg, Romania and Spain) together with the higher vulnerability of some migrant women due to their deprived socioeconomic conditions and low status and empowerment.

Since migrants largely come from traditional societies, double moral standards to judge female and male sexual behaviour take place. In addition, the French Guidelines and the Spanish Plan on HIV/AIDS describe how women may be exposed to gender violence, a source of vulnerability for HIV infection; women in abusive relationships have increased risk of HIV infection because of fear to oppose coercive sex.

### 5.1.4. HIV testing recommendations addressing migrants and ethnic minorities

Even though 22 country representatives or national documents explicitly acknowledged that migrants were vulnerable to HIV infection (Table 7), not all explicitly recommend HIV testing for migrants (Table 9).

| Approach | Countries |
|---|---|
| Recommend HIV testing for **migrants** | Belgium, Bulgaria, Denmark, Finland, France, Iceland, Lithuania, Luxemburg, Netherlands, Norway, Poland, Romania, Slovakia, Sweden, Switzerland and UK |
| Do not recommend HIV testing for **migrants** | Austria, Cyprus, Estonia, Germany, Greece*, Hungary, Ireland, Italy, Latvia, Malta, Portugal, Slovenia and Spain |
| Do not recommend HIV testing for **ethnic minorities**** | Austria, Belgium, Bulgaria, Cyprus, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxemburg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and UK |
| No data | Czech Republic and Liechtenstein |

**Table 9.** Countries recommending HIV testing for migrants and ethnic minorities (information provided by National Country Representatives).*(*) Country representative informed that by 2013 Greece would publish new HIV testing procedures that recommend HIV testing for migrants. (**) None of the countries with data provided by National representatives recommend HIV testing for ethnic minorities.*

On the whole, 16 countries explicitly recommend HIV testing in migrant population while none recommend it in the case of ethnic minorities. The groups expressly stated in each country's document to be offered testing are described in Table 10. Some countries refer generically to "migrant populations" while others are more specific with their recommendations and mention "migrants originating from high prevalence countries".

| Country | Groups mentioned |
|---|---|
| **Belgium** | Migrant population |
| **Bulgaria** | Refugees and asylum seekers; persons from high HIV prevalence countries and their sexual partners |
| **Denmark** | Persons from Africa, Asia, South America and Eastern Europe |
| **Finland** | Migrant populations |
| **France** | High HIV endemic countries, especially SSA, Caribbean |
| **Iceland** | All migrants intending to stay for over 1 year in Iceland as part of general health screening |
| **Lithuania** | Migrant populations |
| **Luxembourg** | People from SSA, Asia, Eastern Europe. Target groups of residents with foreign origin (especially Luxophon community) |
| **Netherlands** | High HIV prevalence countries (SSA, Surinam, Netherlands Antilles, South America, Eastern Europe and Asia); partners of people from HIV endemic area |
| **Norway** | People from high HIV endemic countries |
| **Poland** | All migrants are offered to have a voluntary HIV test on arrival as part of general health screening. |
| **Romania** | Migrant populations |
| **Slovakia** | All migrants to have an HIV test on arrival as part of general health screening |
| **Sweden** | People from high endemic areas |
| **Switzerland** | People from countries with generalized epidemic |
| **UK** | People from high HIV prevalence countries |

**Table 10.** Groups of migrants targeted for HIV testing. *(*) Country representative informed that by 2013 Greece would publish new HIV testing procedures that recommends HIV testing in individuals originated from generalized epidemic countries (Sub-Saharan Africa) and men and women who report sexual contacts with individuals originated from high prevalence countries*

Documents from Denmark, France and the UK recommended frequency of HIV testing for migrants. Denmark recommends testing on the first contact with the health care system (regardless of the reason), whereas France and the UK recommend to perform systematic screening for people originating from regions of high HIV prevalence. French Guidelines also suggest repeating HIV testing every year for persons with multiple partners originating from sub-Saharan Africa and the Caribbean.

### 5.1.5. HIV testing sites: importance of community settings for migrants and ethnic minorities

Documents from various countries highlight the importance of identifying the most appropriate setting and the need to broaden the scope of health services performing the test to be able to scale up HIV testing in migrant populations (Belgium, Bulgaria, France, Luxembourg, Norway, Portugal, Romania, Spain, Switzerland and the UK). In this line, documents from Belgium, Bulgaria, France, Norway, Portugal, Spain, Switzerland and the UK mentioned the benefits of HIV testing in community settings where people who would not be reached through conventional services can be accessed. In this regard, NGOs and Community Based Organizations (CBOs) are settings explicitly identified as suitable. The use of rapid HIV tests in community settings is also mentioned in six documents (Bulgaria, France, Portugal, Spain, Switzerland and the UK) as being progressively accepted to increase HIV testing uptake in people who would not be reached otherwise.

The participation of the community is also identified as essential in the design of interventions aimed at increasing HIV testing in these populations. Trust in "community pairs" can contribute to success if initiatives are developed with the community. The use of rapid HIV tests in community settings is being progressively accepted as it allows reaching people who would not be reached otherwise, and gives the chance to know the result immediately.

### 5.1.6. Legal consequences of HIV testing for migrants

Fear that disclosure of HIV status would affect migrant status and Visa application process is mentioned in Ireland as a disincentive to testing. In France, a law[82] allows irregular migrants to obtain the residence permit if they are diagnosed

with a serious disease as HIV and treatment is not accessible in their country of origin. The German Guidelines state that migrants of uncertain status involved in a deportation process will not be deported if antiretroviral treatment is not available in their home country. Iceland, Poland and Slovakia offer HIV testing upon arrival as part of general health screening claimed to provide early and appropriate HIV counselling, referral and care.

In Slovakia, all foreigners staying for a period longer than three months due to studies or work are required to undergo an HIV test. An HIV-negative result is required for their sojourn permit and they can be requested to undergo HIV-testing by the police if they cannot provide a document confirming HIV-negativity.

## 5.2. Results for Objective 2: To describe International Organizations recommendations regarding HIV diagnosis and testing in migrant populations and ethnic minorities in 2010.

A review of the documents is summarized in Table 11, published by international organizations (WHO, UNAIDS, IOM, ILO, IUSTI).

| Document | Organizations | Year of publication | Populations identified as most-at-risk |
|---|---|---|---|
| **Dublin Declaration on partnership to fight HIV/AIDS in Europe and Central Asia** | Country representatives | 2004 | *Migrant populations which have close links to high prevalence countries* |
| **IOM Guide for HIV Counsellors** | International Organization for Migration (IOM) | 2006 | *Migrants and refugees* |
| **HIV and International Labour Migration.** | International Labour Organization (ILO), International Organization for Migration (IOM), Joint United Nations Programme on HIV/AIDS (UNAIDS) | 2007 | *International labour migration, or the movement of people across national borders for employment* |
| **2008 European Guideline on HIV Testing** | The International Union against Sexually Transmitted Infections (IUSTI) | 2008 | *People from countries with a high prevalence of HIV infection* |
| **Guidance on provider-initiated HIV testing and counselling in health facilities.** | World Health Organization (WHO), Joint United Nations Programme on HIV/AIDS (UNAIDS) | 2007 | *Migrants and refugees.* |
| **Scaling up HIV testing and counselling in the WHO European Region.** | World Health Organization (WHO) | 2010 | *Some migrant and mobile populations; national minorities* |

**Table 11**. Identification of migrants and ethnic minorities at risk for HIV infection in International documents

### 5.2.1. Data on HIV testing in migrant in the International Organizations (IO) documents.

Data about HIV testing in migrant contained in these documents have been organized in the following sections:

- ✓ The importance of encouraging HIV testing
- ✓ The importance of counselling, pre and post-test information
- ✓ HIV testing sites: importance of community settings for migrants and ethnic minorities
- ✓ Legal issues regarding access to treatment
- ✓ Legal issues related with HIV testing at arrival

### 5.2.2. The importance of encouraging HIV testing

Most documents explicitly identify the benefits of HIV testing at individual and community level. The benefits derived from cART uptake are noted; overall increase of life expectancy, decrease of morbidity and mortality and reduction of mother to child transmission; testing HIV positive can also lead to behaviour change and prevention of further HIV transmission. On the same line, the reduction in HIV viral load - and thus transmission risk - derived from cART uptake is one of the main benefits at community level. The 2010 WHO Guide[49] states: "the importance of this for HIV prevention is enhanced in settings where antiretroviral treatment (cART) is available and accessible to all who need it, given its value in reducing viral load and the amount of virus circulating in the community". WHO guidelines support the implementation of Provider-initiated HIV testing and counselling in health care settings (PITC) in countries with generalized HIV epidemics and a favourable context, and in selected health care settings in countries with low prevalence or concentrated epidemics. PITC is based on

the recommendation of test performance by health providers to people attending health services.

This recommendation is not necessarily directed towards the whole population, but can target people with high risk exposure when the HIV epidemic is concentrated in "key populations at risk".

All these international guidelines identify migrants as at risk for HIV infection but only three[49;71;83] explicitly recommend testing them for HIV infection, as seen in Table 12.

| Document | Subjects identified as candidates for HIV test |
|---|---|
| **2008 European Guideline on HIV Testing (IUSTI, 2008)** | *Individuals who had sexual exposure in countries with a high HIV prevalence* |
| **Guidance on provider-initiated HIV testing and counselling in health facilities. (WHO, UNAIDS, 2007)** | *Migrants and refugees.* |
| **Scaling up HIV testing and counselling in the WHO European Region.(WHO, 2010)** | *Migrants/mobile populations; ethnic /national minorities. Healthcare settings and other community settings* |

**Table 12.** Documents that recommend HIV testing migrants and ethnic minorities

### 5.2.3. The importance of counselling, pre and post-test information

Guides elaborated by IUSTI, IOM, WHO and UNAIDS collect practical information about the desirable contents of Pre and Post counselling. IOM has developed a specific document for counsellors: IOM Guide for HIV Counsellors[84], in which the characteristics and content of counselling process are carefully specified.

Regarding pre-counselling, IUSTI states that the main objective of this phase is to obtain informed consent and establish a pre-test discussion about HIV issues with the client, while IOM considers that pre-counselling is the best opportunity to educate

and inform individuals on HIV and AIDS. In the IOM guide, this moment is weighed up as a process that can help to reduce stigma in the community. Guides developed by WHO and UNAIDS are based on PITCS, and the principal aim of this stage is to discuss with the patient the reasons of HIV testing recommendation. This guide states that counselling can be performed both individually and in a group session.

Guidelines consider post-test counselling as a part of HIV testing process regardless of test result, although content varies depending on the result. Overall, for those testing negative, this moment would be employed to stress health benefits of prevention strategies. For positive results, post-counselling has to satisfy all questions related with care referral, information about transmission routes and risk behaviours. Moreover, at this stage the individuals should be given information on key institutions or other resources that can provide them with emotional support to cope with the result.

### 5.2.4. HIV testing sites: importance of community settings for migrants and ethnic minorities

The document "Scaling up HIV testing and counselling in the WHO European Region"[49] points out the existing barriers to access traditional health services for most-at-risk populations. Strategies aimed at increasing access and uptake of HIV testing has to be developed. The community's participation in the design of interventions is necessary in order to identify adequate and acceptable practices related with HIV testing[71]. Examples proposed by documents, based on client-initiated strategy, include outreach programs: services by mobile clinics or in community settings. The principle behind it is to offer the HIV test "where they are", through non-governmental and community-based organizations.

ILO guide addresses the importance of "ensuring, through funding public-health services, non-governmental and private organizations that international labour migrants and their families have the same access as nationals to HIV prevention, treatment, care and support programmes which are sensitive to gender and culture, and in a language or medium the migrant worker can understand".

### 5.2.5. Legal issues regarding access to treatment

One of the objectives proposed by the Dublin Declaration (2004)[21] was "By 2005, provide universal access to effective, affordable and equitable prevention, treatment and care including safe anti-retroviral treatment to people living with HIV/AIDS in the countries in our region". Despite efforts made in this direction, there are still many countries in which migrants of uncertain status have no formal access to HIV treatment.

The 2010 WHO guide states that testing by itself is not the goal: "The ultimate goal is not simply to increase access to and uptake of HTC, but to support HIV prevention and provide treatment (including ART), care and support to all who need it". Countries have to ensure care and referral to those individuals tested. The document expresses concern about the lack of treatment in many countries of the region, especially for the most marginalized populations like migrants, and stresses the need to expand cART coverage to these vulnerable populations.

### 5.2.6. Legal issues related with HIV testing at arrival

In some countries, migrant populations and asylum seekers are required by law to have an HIV test upon arrival in the country. In other countries HIV test at arrival is

recommended but remains voluntary. The 2010 document from the WHO denounces that “The purpose of such testing is not to provide access to HIV prevention, treatment, care and support, but most often to exclude people with HIV from access to certain services, or otherwise impose restrictions on them. Such mandatory or compulsory forms of testing violate ethical principles and basic rights of consent, privacy and bodily integrity; they cannot be justified on public health grounds”. In the same document, WHO demands the abolition of any law, policy or regulation that contemplates any mandatory HIV test, based on the ethical principle of voluntariness of the HIV test.

## 5.3. Results for Objective 3. To analyse available evidence on HIV testing and counselling strategies targeting migrants and ethnic minorities in high-income countries.

The selection of available evidence on HIV testing and counselling strategies resulted, on the whole, on the inclusion of 37 articles in the in-depth analysis of the systematic review. The majority of the studies were conducted in Anglo-Saxon countries – 12 in the United States (US), four in Canada, 13 in the UK, and eight from other European countries. None of the articles were from Australia. Most studies (n=35) were conducted in a single country, most (n=20) had a local scope. Studies were conducted in health settings (n=15) and community settings (n=11). All the articles description is included in APPENDIX 14.

Regarding methodological approaches used, 25 studies (68%) used quantitative methodology, two combined quantitative and qualitative methodology, six used qualitative methodology and four were literature reviews.

Operational definitions for “migrant”, “race” or “ethnicity” (understood as concept defining racial/ethnic minorities) that were present in all papers are collected in Table 13.

In the articles, more than one definition was often present. 14 articles defined migrants based on country of origin, 13 on country of birth, and three on nationality. As regards to race and ethnicity, eight studies (mostly from US) defined subjects on self-reported ethnicity and nine on documented ethnicity (n=7), ethnic origin (n=1) or race (n=1).

| Migrant/ethnic minority definition | n |
|---|---|
| **Country of origin** | 14 |
| **Country of birth** | 13 |
| **Self-reported ethnicity** | 8 |
| **Ethnicity** | 9 |
| **Country of nationality** | 3 |
| **Ethnic origin** | 1 |
| **Race** | 1 |

**Table 13.** Migrant/ ethnic minority definition

Migrant populations studied in EU countries were mostly Sub-Saharan Africans[52;53;85-88], Latin-Americans[86] and South Asians[89]. In the US studied populations were Hispanics or Latinos[90-94], Southeast Asians[95] and Africans[96]. Three papers studied asylum seekers, visa applicants and refugees[97-99] in Canada and one studied adopted foreign children[100] in the US. Racial/ethnic minorities studied were largely "Black communities" in the UK[101-104]. One study developed in the US refers to generic "racial minorities"[105].

The 37 studies addressed heterogeneous aspects of HIV testing and counselling in migrants and ethnic minorities which could be grouped as follows:

a. Prevalence and risk factors for HIV infection
b. Barriers to HIV testing
c. HIV testing uptake
d. Late HIV diagnosis
e. Interventions to encourage HIV testing.

### 5.3.1. Prevalence and risk factors for HIV infection in migrants and ethnic minorities

HIV prevalence and risk factors in migrants and ethnic minorities came up frequently. However, the objective of this research was not to systematically review

HIV prevalence. Many articles include general references to this topic and studies which report data about differential prevalence of HIV have been included in Table 14.

| Authors | Country/ Date | Sample size | Target population | HIV prevalence/ incidence | Design |
|---|---|---|---|---|---|
| **Monge-Maillo B et al** | Spain (2009) | 2198 | *Immigrants referred to the Tropical Medicine Unit of Ramón y Cajal Hospital (Madrid) over a 20-year period.* | Incidence: Total population: 97 (4.4%); Sub-Saharan Africans: 82 (5.2%); Latin-Americans: 15 (2.4%) | Cross Sectional Study |
| **Forbes KM et al.** | UK (2008) | 30 | *Patients attending an outreach clinic for those under 25 y.o (Jun-Oct. 2007) in an area where Black and minority ethnic groups comprise the majority of the local population* | There were no cases of HIV | A retrospective case-notes review was undertaken of those attending community-based sexual health services. (Note: Not clear if all respondents were from minorities) |
| **Zencovich M et al.** | Canada (2006) | 634958 | *All applicants in Canada, 15 years of age and older, for permanent residency between 2002-2003* | Incidence: 932 (0.146%). Prevalence of 3% among applicants from six African countries (Zimbabwe, Burundi, Rwanda, Uganda, Zambia and Chad) | National data collected by Public Health Agency of Canada |
| **Schmid J et al.** | Denmark (2005) | DK | *Children <16 years in Denmark in 2003.* | Incidence: 89 (5.77 per 100,000 children). Of the 89 newly diagnosed: 48% born in Denmark, 43% in Africa, 9% in other places. | Data from the national surveillance system and HIV-infected children from the Danish Paediatric HIV Cohort Study |
| **MacPherson DW et al.** | Canada (2006) | 256970 | *Residency applicants <15 years of age between 2002-2005.* | 36 (0.014%), most of them from Africa (89%) | Data from the Canadian migration medical examination register |
| **Perez-Molina JA et al.** | Spain (2009) | 1609 | *Immigrants referred to the Tropical Medicine Unit of Ramón y Cajal Hospital (Madrid) during 1997-2006* | 77 (4.8%). By geographic groups: Sub-Saharan Africans (5.6%); South-Central Americans (3.2%) | Non-interventional retrospective medical chart review |
| **Dougan, S et al.** | UK (2005) | 1040 | *Men who have sex with men aged 16–44 in England and Wales in 2002* | Prevalence: 7.4% of black and minority ethnic MSM; 3.2% white MSM | Cross-sectional study with the data from the Survey of Prevalent HIV Infections Diagnosed that estimates the number of individuals living with diagnosed HIV infection in E&W since 1995 |

**Table 14.** HIV prevalence in migrants and ethnic minorities

High HIV prevalence was identified among the following groups: Sub-Saharan Africans in Europe, Black Africans and Black Caribbean in London, and Sub-Saharan Africans, Latinos and Blacks in US.

Some authors conclude that most HIV infections in migrants are imported, based on epidemiological patterns in countries of origin and clinical presentations in countries of destination. This approach is largely applied to migrants from SSA in Europe (Denmark[106], France[107], Spain[86;93], UK[87;102;103]) and Canada[97-99]. However, other studies consider some migrants may have acquired HIV in countries of destination due to unfavourable environment to encourage preventive behaviors[52;108;109]. In this line, some migrants are described as having high risk behaviours; multiple sexual partners, low and inconsistent condom use, high alcohol consumption and drug use[90;92;110;111].

Migrant women and ethnic minority men who have sex with men (MSM) are considered as especially vulnerable sub-populations. Female migrants are affected by a disproportionate burden of HIV infection derived from difficulties in negotiating condom use[90] and sexual exploitation[97]. The invisibility of ethnic minority MSM, who go unnoticed by the stigma of being MSM, is thought to be key to their vulnerability to HIV infection. Some studies show how migrant MSM have high HIV prevalence, unsafe sex[108] and high prevalence of late HIV diagnosis[95;101].

### 5.3.2. Barriers to HIV testing in migrants and ethnic minorities

Barriers to HIV testing occur at the structural, health care provider, health care user and community levels.

Structural barriers to HIV testing are related to poor living conditions, legal and administrative status and discrimination in countries of destination. Among barriers to

HIV testing and care are mentioned high levels of unemployment and poverty in migrants and ethnic minorities, low social status, and inequalities[52;53;88;89;93;100]. Studies from Canada, US, Spain and the UK mentioned that legal status, which ranks among the highest priorities, and concerns about implications of testing positive are the main barriers. According to these studies, migrants are reluctant to be tested in contexts where an HIV diagnosis may adversely affect visa or residence application or where there is a fear of deportation[52;88;112].

Lack of entitlement to health care for undocumented immigrants is another barrier, largely but not solely, mentioned in the US[95;101;112]. Lack of clarity among health care providers on migrants' rights to health care is highlighted[53].

On the subject of stigma and discrimination, African people tested for HIV in London in the 1990s were twice as likely as whites to be concerned about being discriminated against[88]. Structural racism is also mentioned by Fakoya et al.[53] drawing attention to the disproportionate number of Sub-Saharan Africans prosecuted for allegedly transmitting HIV infection in the UK.

Within health care structures, communication, language problems and lack of cultural sensitivity and underinvestment in culturally competent services lead to misconceptions about migrants and minority groups by health-care providers[89;93-96;110]. *'If you don't speak English they just ignore you, or you can't even understand your name when they call it'.* (extracted from Foley et al[96]).

Some migrants and ethnic minorities prefer to visit medical practitioners from their own community[100]. Although some communities are described as having good knowledge about where to go for HIV testing, Sub-Saharan Africans in the UK[52] for

example, other studies ascertain poor knowledge among migrant and ethnic minorities regarding where to get tested for HIV anonymously and free of charge[52;88;91;98].

Other barriers at health user level include the low priority migrants assigned to health care[52;112] and their low perception of HIV risk[88;91;95;101;113]; migrants give priority to basic needs but knowing their HIV status ranks low[112]. Low HIV risk perception at individual level is mentioned, even in people with community risk awareness[88;91;95;101;113]. Researchers note there is often a gap between risk perception and individual risk behaviours[95]; some studies describe low risk perception among those who test HIV positive[52;88;113].

At the community level, cultural and gender norms may discourage migrant heterosexual men and women and MSM from seeking HIV testing. Loss of status and community support and social isolation following confidentiality gaps are among the main reasons given for not testing[52;53;85;88;91;92;96;98;102;112-114].

Prost et al[88] quote Erwin and Peters[115] who reported that in the nineties, Africans testing for HIV in a London hospital feared to be discriminated against twice as likely as whites.

*"There will be hurdles for me to jump through, for me to say 'look, accept me, I am me. I may be HIV positive, but don't look at me on that surface.' So, I think, you know, there's a lot in terms of stigma that I feel still needs to be dealt with. (T8, woman, early 30's)".*Extracted from Flowers et al[102].

This is a particular concern for individuals who need to bring a relative or friend to help with translation[100]. Olshefsky et al.[92] report -"machismo" as a barrier among Latino men; Foley[96] reports that women from SSA have difficulty seeking HIV testing or treatment without partners' approval and economic support.

*''People's biggest fear is their result being known in their particular community, (…) the fear of 'do they know my auntie, do they know my…' even if they are supposed to be confidential, that for me would be the biggest concern.''* Extracted from Prost et al[87].

### 5.3.3. HIV testing uptake in migrants and ethnic minorities

The HIV testing uptake is shown in the following table.

| Authors | Country/ Date | Sample size | Target population | Test prevalence/test acceptance prevalence | Design |
|---|---|---|---|---|---|
| **Forbes KM et al.** | UK (2008) | 117 | *Outreach clinic for those under 25 in an area where Black and minority ethnic groups comprise the majority of the local population* | 23% ever tested | A retrospective case-notes review was undertaken of those attending community-based sexual health services. *(Note: Not clear if all respondents were from minorities)* |
| **Conaty SJ et al.** | UK (2005) | 443 | *Sub-Saharan women in antenatal care* | 86% accepted an HIV test | Cross sectional study. HIV test acceptance. *(Note: Prevalence calculated by our research team based on showed article data)* |
| **Fernandez MI et al.** | US (2005) | 244 | *Hispanic migrant/seasonal farm workers in southern Miami-Dade County, Florida.* | 21% (51/244) had been tested for HIV; 39% (94/244) declared they would accept on the day of the interview; 69% (134/193 never tested) declared they would accept if recommended by a provider | Cross-sectional study: questions about HIV test performance and intention to test |
| **Sadler KE et al.** | UK (2006) | 114 | *Black Africans (+16 y.o.) living in London* | 82% (93/114) accepted HIV testing in the survey | Cross-sectional study with offer of HIV-test |
| **Dowling T et al** | US (2007) | 627 | *Participants at Black gay, Hispanic gay or gay pride events* | 24% (133) of those with unknown or negative HIV status (543) accepted HIV testing | Cross-sectional study with offer of HIV-test. *(Note: Not clear if all respondents were from ethnic minorities. Of all persons willing to be tested, not all were finally tested for several reasons, mainly resource limitations)* |
| **Ostermann J et al.** | US (2007) | 146868 | *Adult participants in the survey aged 18-64 years* | Tested in past 12 months (by ethnicity): White non-Hispanic, 8.1%; Black non-Hispanic, 19.0%; Hispanic, 11.7%; Other, 9.6%. Plan to test in next 12 months: White non-Hispanic, 5.2%; Black non-Hispanic, 19.8%; Hispanic, 12.7%; Other, 7.1% | Cross-sectional analysis of data from 146 868 participants aged 18 to 64 years in the 2000-2005 National Health Interview Surveys. HIV test in the past |

| Authors | Country/ Date | Sample size | Target population | Test prev./test acceptance | Design |
|---|---|---|---|---|---|
| **Tariq S et al.** | UK (2007) | 458 | *Cases were defined as the first 125 new GU clinic attendees who self-identified as South Asian. Controls were defined as subsequent new presentations self-identified as non-South Asian.* | Ever tested: Cases: 60% (148/229); Controls 64% (154/229) | A retrospective case–control study was performed at a GU Clinic in London: HIV test in the past |
| **Huang ZJ et al.** | US (2008) | 604 | *Self–identified as Cambodian, Laotian, or Vietnamese, + 18 y.o. and residence in Washington, DC* | Ever tested: Total sample, 31% (186/604); Laotians, 22% (44/196); Vietnamese, 37% (72/197); Cambodians, 38% (79/211) | Cross sectional study. Have had an HIV test |
| **Southgate J et al.** | UK (2008) | 1586 | *Pregnant women from ethnic minority groups* | Prevalence ratio of HIV test acceptance: White, 91% (1094/1214); Black African, 92% (145/158); Asian, 90% (138/153); Chinese, 80% (4/5) | Cross sectional study. Antenatal HIV screening routinely proposed |
| **López Quintero C et al.** | US (2005) | 4261 | *Hispanic subgroups living in the United States* | Ever tested: Total sample, 34% (1444/4261); Puerto Ricans, 44% (197/444); Mexicans, 28% (419/1480); Mexican Americans, 33% (355/1079); Cubans+Cuban Americans, 29% (80/277); Central/South Americans, 41% (259/640); Other Hispanics, 39% (133/341) | Cross sectional study. Have had an HIV test *(Note: Prevalence by our research team based on showed article data)* |
| **Dougan S et al.** | UK (2005) | 1040 | *Black and minority ethnic men who have sex with men in England and Wales* | Prevalence ratio of HIV test acceptance: Caribbean, 52% (138/265); Central/South America, 60% (593/993); Sub-Saharan African, 54% (473/870); Asia, 56% (417/739) | Cross-sectional study with offer of HIV-test |

**Table 15.**Uptake of HIV testing in migrant and ethnic minorities

These studies describe an HIV testing uptake in migrants and ethnic minorities ranging from 21% to 73% in the US and 23% - 64% in Europe[89;91;95;111;116]. Overall, a higher proportion of ethnic minority and migrant women have been tested for HIV compared with men; this is partially due to women's acceptance of routine HIV screening during antenatal care[104;111;114;117]. However, beyond this, several studies support a gender difference in HIV testing uptake, with migrant men being not only less exposed to HIV testing but also less willing to be tested[53].

Among important determinants of test acceptance is the context in which testing is offered and who offers the test. For example, in a US study, 70% of Hispanic migrant farm workers reported they would accept HIV testing recommended by a health care provider, with women more likely than men to accept testing[29]. In contrast, MSM from ethnic minorities in the US were more prone to accept HIV testing outside health settings; rapid HIV testing of MSM in racial/ethnic minority groups in settings such as gay pride events is a useful way to enable HIV-infected MSM to learn their HIV status.

### 5.3.4. Late HIV diagnosis in migrants and ethnic minorities

High prevalence of delayed diagnosis of HIV infection in migrants and ethnic minorities was reported, in the UK[52;53;87;88;109;112], Spain[86] and France[107] largely among Sub-Saharan Africans and in the US[92;95] and Canada[118] among Latinos and Asian-Americans.

López-Quintero et al.[91] report that delayed HIV diagnoses is more frequent among Hispanics than whites and Afro-Americans. The article of Prost et al.[88] cite the Health Protection Agency and the Mayisha II Study[119] which estimate that by 2005,

approximately 21,500 Africans were living with HIV in the UK and that one-third of them were undiagnosed. Fakoya et al.[53] report that most SSA people diagnosed with HIV in the UK acquired the infection in the countries of origin and tend to present with advanced disease. Chadborn et al.[112] also in the UK, report high prevalence of late diagnosis in heterosexual whites (36%), black Caribbean (36%) and black Africans (43%). This article describes lower rates of delayed diagnosis in women diagnosed through antenatal testing than other people diagnosed elsewhere. For SSA, late diagnosis was present in 21% of women diagnosed during antenatal care, 44% of women diagnosed elsewhere, and 50% of men. In France, though women were less likely to be diagnosed late because of routine prenatal testing, this was not the case among migrants. Acquisition of HIV infection at early ages prior to arrival to France could underlie these differences[107].

### 5.3.5. Interventions to encourage HIV testing in migrants and ethnic minorities

The literature identified two main approaches to HIV testing: general population approaches in health care settings and targeted approaches aimed to HIV vulnerable populations, including migrant and/or ethnic minorities. In both cases, specific interventions to encourage the participation of migrants and ethnic minorities are discussed. Finally, voluntary or compulsory HIV testing strategies are analysed.

Antenatal screening is mentioned as an example of a population-wide approach. Various studies support routine antenatal testing for all pregnant women as an effective strategy for achieving good coverage of HIV testing in migrant and ethnic minorities[114]. Along these lines, a study in Canada found that women from HIV-endemic countries prefer non-targeted strategies integrated within health services[98] to

avoid discrimination. Some countries have taken targeted approaches to HIV testing in antenatal care. For example, Denmark substituted routine antenatal HIV testing to HIV selective antenatal screening in 1995. Following this approach, HIV testing was only offered to women from high prevalence countries since almost all HIV-positive pregnant women identified were migrants or married to migrants from high prevalence countries[106]. However, a few HIV-positive babies were born subsequently, resulting in the reintroduction of universal screening.

Health care provider endorsement was identified as a significant predictor of HIV testing. A number of authors recommend mixed approaches; introducing HIV screening in routine medical practice in addition to targeted strategies in place, particularly in areas with high HIV prevalence and a concentration of migrant population[98;111;113;114].

Many authors stated that culturally sensitive HIV testing and counselling interventions are needed to improve institutional access to health services and to promote HIV testing among migrants and ethnic minorities[52;98;111]. Community partnerships and participation are identified as critical to increase HIV testing uptake. The Burns et al. study developed in the UK, calls for community involvement in promoting testing along with the benefits of accessing cART[52]. In other studies, provision of testing services in client's language is also mentioned[98;110].

Innovative targeted approaches to reach people who might not otherwise use testing services are also mentioned. Among other interventions, the provision of HIV rapid testing in non-traditional health care settings outside normal working hours[111] is included. Provision of Point of Care Testing by NGO and CBO and testing by outreach services, mobile clinics and in venues such as barber shops and hair salons, social clubs,

sporting events or street corners[92;105] are recommended. To increase uptake among MSM are considered interventions such as offering HIV testing at gay pride events[105], saunas[113] and other venues.

Finally, some studies described the HIV screening on arrival in the host country, which is specific for migrants. US policy requires HIV testing for asylum seekers[120] and in 2008, when the Jones et al. article was published, those who were HIV-infected could only obtain temporary admission to the US. Children who arrive in the US needing a permanent visa are required to be screened for HIV, hepatitis B and C, and tuberculosis, and screening is repeated 6 months after arrival. The implications of HIV test results for visa status are not discussed[100]. In Canada HIV testing is also mandatory for migrants and asylum seekers entering in the country. Screening includes clinical referral and information that is sensitive to the gender, cultural and linguistic profile of the client[97;99]. This approach is reported to have resulted in an increased number of cases of HIV diagnosed in immigrants and uptake of health care in this country[118]. Delpierre et al. article recommends offering HIV testing to migrants on arrival to reduce late diagnosis[107].

## 5.4. Results for Objective 4. To examine the challenges for implementing and expanding HIV testing and counselling strategies targeting migrants.

The aim of this section is to evaluate how the key informants felt the recommendations regarding HIV testing in migrants and ethnic minorities were being implemented and intends to identify best practices in terms of increasing testing uptake in migrants and ethnic minorities ensuring high quality services in the EU/EFTA Member states.

### 5.4.1. Perceptions about general population HIV testing approaches, opt-out HIV routine screening with no lengthy pre-test counselling

Interviewees felt that recommendations aiming for a general population HIV testing approach with no lengthy pre-test counselling in areas with a high HIV prevalence would increase the number of HIV tests performed in migrant populations and ethnic minorities, but also described both advantages and disadvantages to this approach. Participants insisted on legal and administrative barriers specific to migrants only.

This general population approach is viewed as having the advantage of not selecting people on the bases of their skin colour or region of origin which can be perceived as discriminatory by service users and to being uncomfortable for service providers. Indeed, health care providers in general medicine settings do not like, on the whole, screening by other than medical reasons; they are happier recommending

an HIV test for someone with tuberculosis, but feel less comfortable asking a black woman from Sub-Saharan Africa because of her origin.

*"Migrants don't like being offered an HIV test because they are black or foreign-looking so, from that point of view, a general strategy in primary care seems good. However, communities do not necessarily know that they are being offered the test on a routine bases together with the general population so, there is a need to communicate this message"*
**Academic researcher**

Among the disadvantages interviewees described were: danger of coercive testing with implications on their residency permits, fear of deportation and lack of rights to access treatment and care for the undocumented migrants. Fear of being discriminated against and of being deported was quoted by various interviewees as the strongest barriers to HIV testing in migrant populations. Discussions around the stigma and fear of discrimination surrounding HIV infection came up and how, for migrants, many of whom rely for day to day survival on the support from their own community network, this had additional implications. Criminalization of HIV transmission was also mentioned and how court case was felt to have disproportionally affected migrants from Sub-Saharan Africa in some countries.

*"Stigma around HIV in the countries of origin of some migrants is very strong and perhaps they bring it with them when they move to a new country. (…) When an HIV-positive result is given, there is a brutal drop in self-esteem, because the previous concept that they had had about HIV was so negative. If this can be true for most of the population, for some immigrants it is even worse."*
**NGO representative**
*"We are not in the game of playing into stigma – we need to reduce late diagnosis and HIV related mortality".*
**Public Health Researcher.**

A number of respondents identified the success of antenatal testing of HIV as a good example of how an opt-out approach was a good strategy that has led to dramatic reduction in mother to child transmission of HIV in Europe. It was also pointed out that issuing recommendations for HIV testing to the general population accessing health care setting is not the absolute solution for reaching the most vulnerable; the people who do not access health care services.

Regarding an abridged pre-test counselling, there were mixed opinions. Many participants felt it was a good strategy as lengthy pre-test counselling may dissuade people from testing. Migrants are usually overwhelmed by the different issues and events related to their adaptation to a new country making them avoid time-consuming activities. Besides, the concept of counselling might not necessarily be understood by most of them. On the other hand, some participants fear that an abbreviated counselling might be insufficient to tackle migrants' misconceptions regarding HIV infection.

*"I am ambivalent about the idea of shortening the pre-test counselling as migrants and ethnic minorities. At least in London, migrants and ethnic minorities still need discussion to discard misconceptions about HIV and fight stigma at community level."*

**Academic researcher**

*"Although I see the advantages of shortening testing time, I fear the most vulnerable will not benefit from HIV counselling".*

**Policy maker**

*"Counselling skills should be acquired by any health professional working in HIV testing sites. Our institute has been conducting counselling training courses for many years. The relationship established between the person and the information and helping line operator is a professional one and cannot be improvised"*

**Academic researcher**

### 5.4.2. Opt-out routine HIV testing for the general population and targeted approaches; recommendations and implementation issues for migrants and ethnic minorities

Results from studies and initiatives to promote HIV testing in migrants were described by the participants, who also mentioned inconsistencies within one country regarding testing recommendations for migrants and ethnic minorities. Respondents from the UK acknowledged that implementation of their guidelines based on an Opt-Out strategy was a real challenge. In Portugal, preliminary data from Lisbon show very high uptake of HIV tests by Portuguese speaking migrants, highlighting the importance of the language. In The Netherlands, migrants registering at the city hall are provided with HIV testing information but this has failed to increase HIV testing uptake.

Generally, participants underlined the need to place in a global frame all the described initiatives, addressing also other complex issues.

> *"Individual strategies to fight HIV are necessary but not sufficient. We must address the social determinants of health such as poverty, access to health care, racism and discrimination"*
> **Policy maker.**

The misconceptions and assumptions about migrants and ethnic minorities came up in the discussions as a barrier to the correct implementation of testing guidelines. Since each migrant community has its specificities, highlighting the need to incorporate a trans-cultural vision in the implementation of programs was also mentioned.

Targeted approaches are considered as more cost effective interventions. However, a number of participants believed that a general population approach may be more acceptable to service providers and users. Service providers prefer to offer screening for medical reasons.

*"Epidemiologically and financially it makes sense to talk of high prevalence groups – for example, migrants from sub-Saharan Africa and men who have sex with men – but it doesn't make sense in terms in delivering services and the risk of discrimination and stigma. The history of migrants is different from that of men who have sex with men. The latter had a solid network of solidarity that helped them to withstand potential stigma and discrimination, whereas migrants do not. Although it is tempting epidemiologically to target them as a group, the strategy needs to be embedded in the general population"*

**Group interviewee**

### 5.4.3. Promoting HIV testing for migrants of uncertain residency status when access to antiretroviral treatment is not guaranteed.

Participants felt this was a very difficult though timely question that raised a number of ethical issues. On the whole, the unanimous feeling was that HIV testing must be linked to care for the program to be effective. However, they also acknowledged that, unfortunately, even in Europe, there are some migrants of uncertain residency status that are not entitled to antiretroviral treatment. There were mixed views on what to do which ranged from not recommending HIV testing unless access to antiretroviral medication can be guaranteed to recommending the test in spite of this while highlighting the need of trust building and avoidance of paternalism.

*"It is clear that it makes no sense to perform the test when the disclosure of a positive result does not guarantee access to care (...). Denying access to care is opposite to Human Rights Declaration, in which access to health care is guaranteed to all individuals. It is a paradox to allow the person to access the test and then not allowing them to be treated. (...)"*

**Academic researcher**

*"HIV testing on its own has been proven to be good, it has been shown to be beneficial in reducing unsafe sexual behaviour and thus, decreasing HIV transmission. Besides, even if cART may not be entitled, other supportive care aspects can be provided such as prophylaxis and treatment against opportunistic infections".*

**Policy maker.**

*"What is the result if you say to someone you are HIV positive but you don't have access to treatment, to housing, to social help; it is terrible to do this to someone. We have to test people because we have solutions, so we have to defend a package of testing, good access to treatment and access to social rights, and then people can go to hospital, quietly take the treatment. But when you arrive to the country you don't have papers, you don't have anything and then we say to you just that you are an HIV positive, it is terrible to do that".*

**NGO representative.**

*"It is a human rights issue, it hasn't gone away and the nature of this problem has not changed: it is a human rights problem: you shouldn't offer testing to anyone who you then can't treat, and treatment for HIV should be available without any economic implications for the person, to everyone. That is a basic public health concept, we do it for TB, and we do it for other things. Why can't we get this happening for HIV?"*

**NGO representative.**

### 5.4.4. On-going initiatives promoting HIV testing in the community targeting migrants and ethnic minorities

Promoting HIV testing in the community was viewed as one of the key aspects to the success of the implementation of guidelines. Developing POCT (point of care testing) within CBOs and NGOs was seen as an excellent initiative by most respondents.

Participants stressed the need to find strategies that were both flexible, allowing migrants to access HIV tests in their community organizations', and, at the same time, guarantee the maximum quality in the whole testing process; confidentiality, post-test counselling and immediate health care referral should not be compromised and should fulfil all ethnical and technical requirements. Confidentiality concerns are behind some people not wanting to be tested in their own community, preferring to attend an STD clinic far from their homes. Developing more CBO POCTs that provide people with information about where these sites are located is essential.

Unsupervised HIV testing could lead to undocumented migrants being forced into being tested without appropriate counselling and health care referrals.

### 5.4.5. Feminization of the HIV epidemic in migrant women in Europe versus feminization of HIV testing. How to reach heterosexual migrant men?

All respondents agreed that migrant heterosexual males were hard to reach. Those familiar with the high proportion of women among HIV-cases in Sub-Saharan Africans in surveillance reports felt that a diagnostic bias is certainly present, as women get tested during their pregnancy. They admit that there are few initiatives targeting heterosexual men. Strategies proposed by participants were to extend testing sites opening hours, organize outreach activities targeting men such as testing in work and community settings, faith communities and local championships. They also suggested partner services as well as couple testing in antenatal care.

*"The role of caring for the family, caring for the health of the family, getting information about health, accessing health care, you cannot think they should be the same in every culture. In some cultures these roles are more gender-specific defined, and that means it is difficult to reach the men directly, but it doesn't mean you can't reach the men, you may need to reach the men through the women. The solution is not necessarily (and we don't have any project that does that) to target heterosexual men from Sub-Saharan Africa for testing; that may make sense on paper, because you want to increase the number of heterosexual men from Sub-Saharan Africa that take the test, but it may in fact work better if you try to reach these men through the women".*

**NGO representative.**

*"Perhaps, migrant women have less internalized the concept of gender equality between men and women, and this is an additional barrier for defending the rights of girls and women within their communities. It is very important that women have the information on how to access health care, particularly because women are the ones conveying family health care".*

**Policy maker.**

*"It can be dangerous because a lot of women are not happy about disclosing her status to their partners (…) Part of the emphasis of community services is to reach men who don't necessarily go to health services, including STI services, so those point-of-care-in-community testing projects are about looking at what is engaging men in other settings different from health care settings"*

**Group interview 2.**

## 5.5. Results for Objective 5: To describe HIV/AIDS epidemiology between 2007 and 2012 in male and female migrant populations in Europe.

### 5.5.1. Epidemiological characteristics by geographical origin and sex

Of the 148,815 HIV diagnoses reported from 2007 to 2012 with information on GO, 110,103 were males (74%) and 38,712 females (26%). Migrants accounted for 57,133 (38% of the cases). Among males, 32,677 cases (29%) were reported in migrants and among women 24,456 cases (63%) were reported in migrants. Migrants accounted for 56,573 (41%) in Western EE/EEA countries, 530 (5%) in Central EE/EEA countries and only 30 (2%) in Eastern EE/EEA countries (Baltic States).

For all migrant cases with information on GO, the commonest geographical origin, accounting for 52% (29,845) was SSA, followed by 21% (11,933) from other European countries and 13% (7,181) from LA (Table 16).

| GO | Total | Male | Female |
|---|---|---|---|
| **Natives** | 91,682 | 77,426 | 14,256 |
| **Sub Saharan Africa** | 29,845 | 11,960 | 17,885 |
| *West* | 11,689 | 5,316 | 6,373 |
| *Central* | 7,033 | 2,509 | 4,524 |
| *East* | 9,276 | 3,415 | 5,861 |
| *Austral* | 1,575 | 599 | 976 |
| *Unknown* | 272 | 121 | 151 |
| **Europe** | 11,933 | 9,338 | 2,595 |
| *West* | 5,577 | 4,911 | 666 |
| *Central* | 3,803 | 2,835 | 968 |
| *East* | 2,553 | 1,592 | 961 |
| **Latin America** | 7,181 | 5,776 | 1,405 |
| *Central* | 885 | 619 | 266 |
| *Andina* | 2,786 | 2,305 | 481 |
| *South* | 3,453 | 2,814 | 639 |
| *Unknown* | 57 | 38 | 19 |
| **South & south-east Asia** | 2,946 | 1,721 | 1,225 |
| **Caribbean** | 2,265 | 1,401 | 864 |
| **North Africa & Middle East** | 1,583 | 1,23 | 353 |
| **North America** | 648 | 620 | 28 |
| **East Asia & Pacific** | 429 | 339 | 90 |
| **Australia & New Zealand** | 303 | 292 | 11 |
| Total | **148,815** | **110,103** | **38,712** |

**Table 16.** Distribution of cumulative HIV diagnoses between 2007-2012 according geographical origin and gender

Among persons from SSA, 39% were from Western Africa, 31% from Eastern Africa, 24% from Central Africa and 5% from Austral Africa. Migrants from Western Europe represented 47% of the intra-European migrant cases while Central and Eastern Europe accounted for 32% and 21% of the cases, respectively. As for LA, the main geographical sub-region was South America 48%, followed by the Andina region 39%, and Central America, 12%.

The composition of the HIV-positive migrant population varied between countries. SSA accounted for the majority of migrant cases in Western EU/EEA countries except for Spain, where the commonest origin was Latin American (LA).

Eastern European countries from the EU/EEA as well as others such as Ukraine and Russia were the commonest origin of migrants within Central EU/EEA countries.

Of all HIV diagnoses, 74% (110,103) were men. For all origins except for SSA, men accounted for the majority of HIV reports though their proportion varied by GO (Table 16). Women accounted for 60% of reports from SSA and for approximately 40% of diagnoses from South & South-East Asia, Caribbean and Eastern Europe.

MSM represented 51% of the HIV diagnoses among native populations and was also the most frequent route for migrants from Western (64%) and Central Europe (40%), Latin America (61%), East Asia &Pacific (55%), Australia & New Zealand (84%) and North America (81%). Heterosexual transmission was the most common transmission mechanism for cases from Eastern Europe (42%), SSA (87%), South & South-East Asia (56%), North Africa and Middle East (49%) and the Caribbean (64%), Injecting drug use accounted for 25% of new HIV diagnoses in migrants from Eastern Europe (Figure 9).

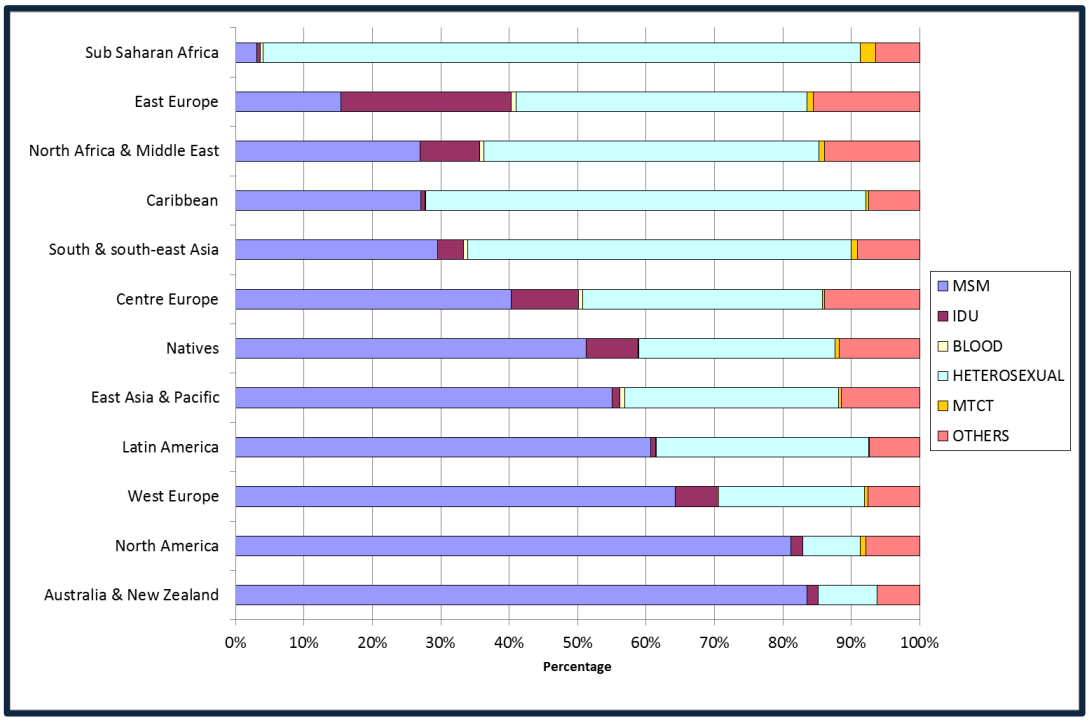



**Figure 9.** Distribution of HIV diagnoses according to category of transmission and geographical origin

There were no statistically significant differences in the age at HIV diagnoses by geographical origin, neither for men nor for women (Figure 10).

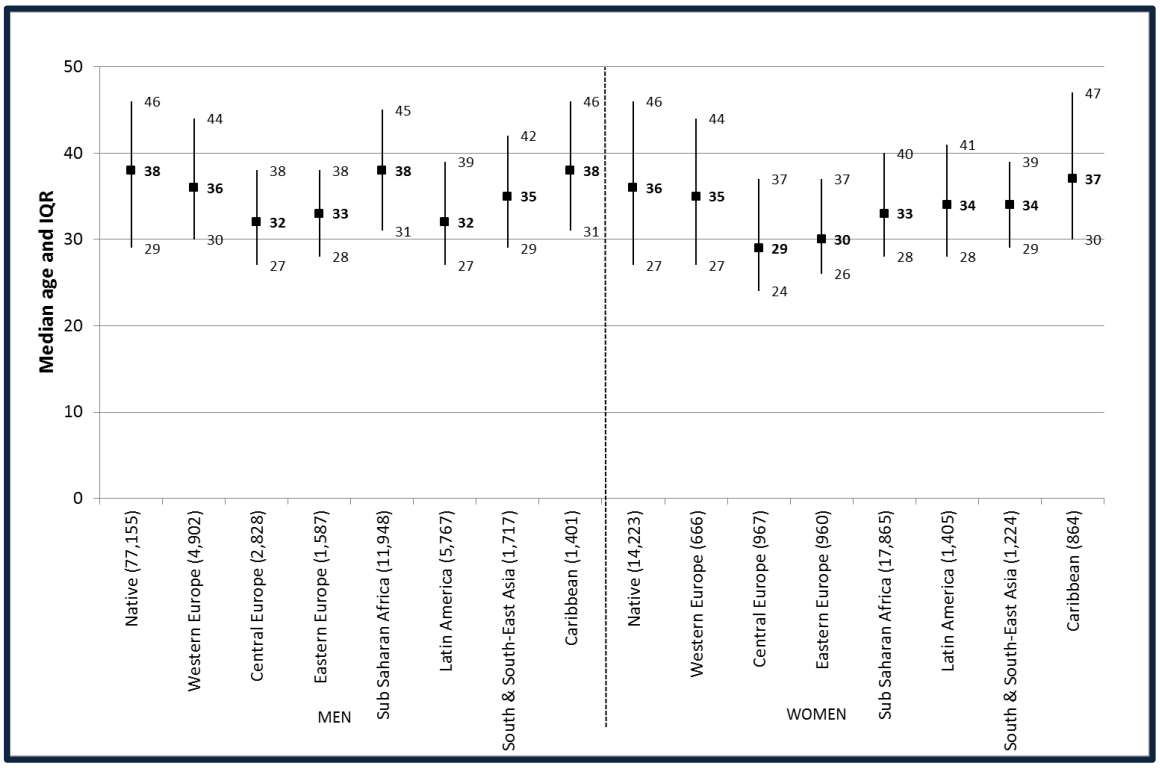



**Figure 10.** Median age at HIV diagnosis (and IQR) for men and women according to category of transmission.

### 5.5.2. Presentation with late HIV disease by geographical origin and sex

For the 92,256 HIV reports with available CD4 cell count data, median CD4 cell count at HIV diagnosis was 379 (IQR: 177-575) for native diagnoses; 360 (162-552) for 68,512 men and 310 (139-510) for 23,744 women. Figure 11 describes median CD4 cell count at HIV diagnosis for male and female migrants from SSA, Western, Central and Eastern Europe and Latin America.

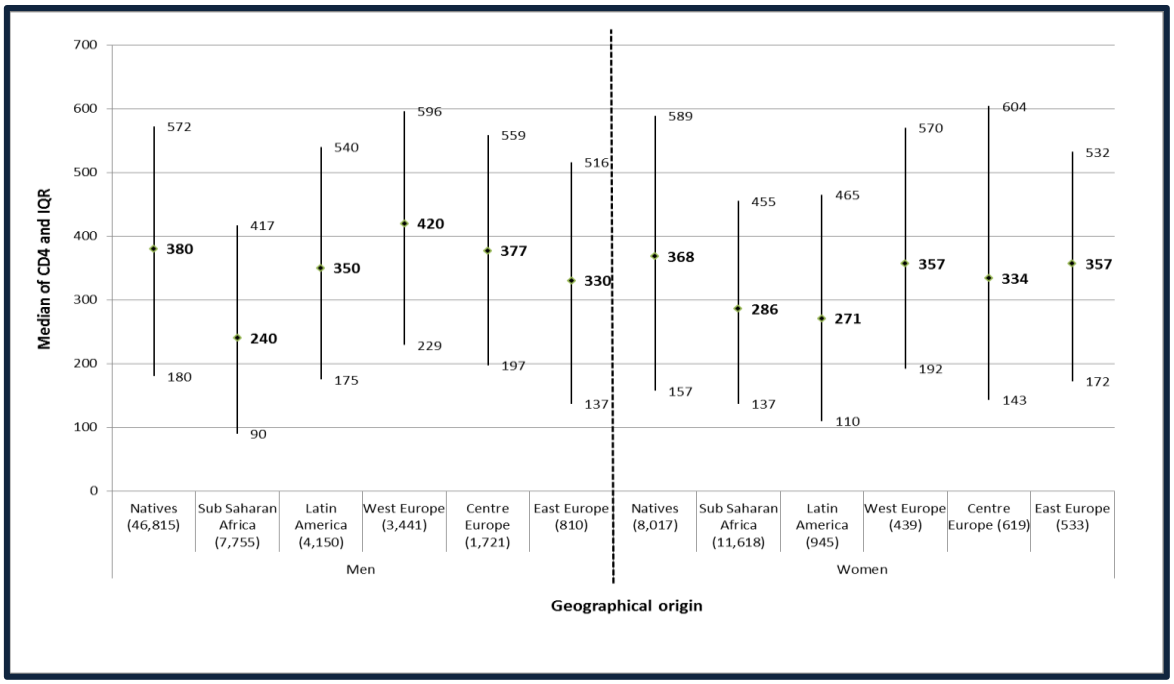



**Figure 11.** Median CD4 count (and IQR) at HIV diagnosis for main migrant groups according to gender

Overall, 35% native HIV reports were LHD; 34% in males and 38% in females (Table 17). Compared to native reports, male migrants from High-income settings had similar proportions of LHD; Western Europe (ORa 0.95, 95%CI: 0.89-1.01), Australia & New Zealand (ORa 0.77, 95%CI: 0.57-1.03) and North America (ORa 0.86, 95%CI: 0.71-1.04), whereas those from Middle and Low-income settings had a higher risk of LHD. For HIV-positive women, nearly all migrant groups – except for Australia & New Zealand and North America who accounted for a very low number – had a higher risk of LHD than natives (Table 17).

| GO | n/N (%) | OR | CI 95% | ORa* | CI 95% |
|---|---|---|---|---|---|
| **Male (110,103)** | | | | | |
| Natives | 24,942/77,426 (32.2) | 1 | | 1 | |
| West Europe | 1,476/4,911 (30.0) | 0.87 | *0.82-0.93* | 0.95 | *0.89-1.01* |
| Centre Europe | 847/2,835 (29.9) | 0.91 | *0.84-0.99* | 1.08 | *0.99-1.18* |
| East Europe | 476/1,592 (29.9) | 0.92 | *0.82-1.03* | 0.95 | *0.85-1.07* |
| Sub Saharan Africa | 5,794/11,960 (48.4) | 2.09 | *2.01-2.18* | 1.62 | *1.54-1.70* |
| East Asia & Pacific | 148/339 (43.7) | 1.80 | *1.43-2.28* | 2.27 | *1.79-2.89* |
| Australia & New Zealand | 66/292 (22.6) | 0.63 | *0.48-0.84* | 0.77 | *0.57-1.03* |
| South & South-East Asia | 787/1,721 (45.7) | 1.97 | *1.78-2.19* | 2.15 | *1.93-2.39* |
| North Africa & Middle East | 496/1,230 (40.3) | 1.44 | *1.27-1.62* | 1.31 | *1.16-1.50* |
| North America | 166/620 (26.8) | 0.80 | *0.66-0.96* | 0.86 | *0.71-1.04* |
| Caribbean | 596/1,401 (42.5) | 1.50 | *1.34-1.68* | 1.34 | *1.20-1.51* |
| Latin America | 2,209/5,776 (38.2) | 1.27 | *1.20-1.35* | 1.67 | *1.57-1.77* |
| | | | | | |
| **Female (38,712)** | | | | | |
| Natives | 4,614/14,256 (32.4) | 1 | | 1 | |
| West Europe | 340/666 (36.0) | 1.21 | *1.02-1.43* | 1.24 | *1.04-1.47* |
| Centre Europe | 350/968 (36.2) | 1.27 | *1.10-1.46* | 1.57 | *1.35-1.81* |
| East Europe | 280/961 (29.1) | 0.91 | *0.78-1.06* | 1.08 | *0.92-1.25* |
| Sub Saharan Africa | 7,597/17,885 (42.5) | 1.61 | *1.54-1.69* | 1.7 | *1.61-1.79* |
| East Asia & Pacific | 36/90 (40.0) | 2.08 | *1.28-3.40* | 2.4 | *1.43-3.89* |
| Australia & New Zealand | 3/11 (27.3) | 0.84 | *0.21-3.36* | 0.99 | *0.24-4.02* |
| South & South-East Asia | 577/1,225 (47.1) | 2.13 | *1.87-2.42* | 2.24 | *1.96-2.55* |
| North Africa & Middle East | 145/353 (41.1) | 1.46 | *1.16-1.83* | 1.49 | *1.18-1.87* |
| North America | 4/28 (14.3) | 0.35 | *0.12-1.04* | 0.36 | *0.12-1.06* |
| Caribbean | 347/864 (40.2) | 1.36 | *1.18-1.58* | 1.28 | *1.10-1.49* |
| Latin America | 615/1,405 (43.8) | 1.56 | *1.39-1.75* | 1.65 | *1.47-1.86* |

**Table 17.** Prevalence of LDH by GO for male and female HIV+ people. Logistic regression models of the OR for LHD for each GO. *(*): Odds Ratio Adjusted by age and transmission category*

### 5.5.3. Trends in HIV cases from 2007-2012 by geographical origin and sex

From 2007 to 2012, the number of all HIV reports in the EU/EEA rose by 9%, largely at the expense of increases of 21% of cases among the native population. The number of male HIV diagnoses in native populations increased by an average of 711 cases per year from 2007 to 2012, whereas the number of female cases remained

fairly stable, rising an average of 10 cases per year with (Figure 12; Figure 14). For all migrant groups globally, a decrease of 8% was observed during the period studied though distinct patterns by geographical origin and sex can be appreciated in Figure 12 and Figure 14.

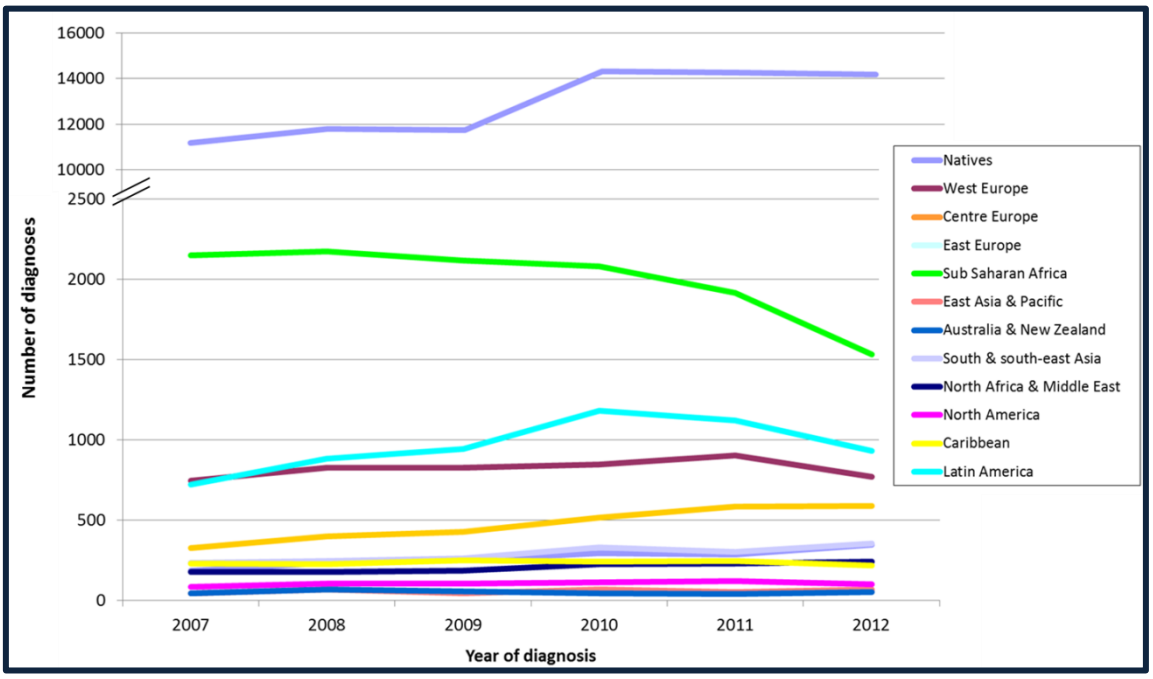



**Figure 12.** Distribution of HIV diagnoses among men according geographical origin

For all male migrant HIV reports, an increase of 84 cases per year was observed from 2007 to 2012 due to growing numbers from LA, Central and Eastern Europe coupled with decreases from SSA (Figure 12). The number of men from LA peaked in 2010 and has decreased since then. These increasing numbers of male HIV migrant cases are largely MSM and, to a lesser extent, IDUs, as male heterosexual migrant diagnoses have decreased at the time rising native heterosexual HIV diagnoses are observed (Figure 13).

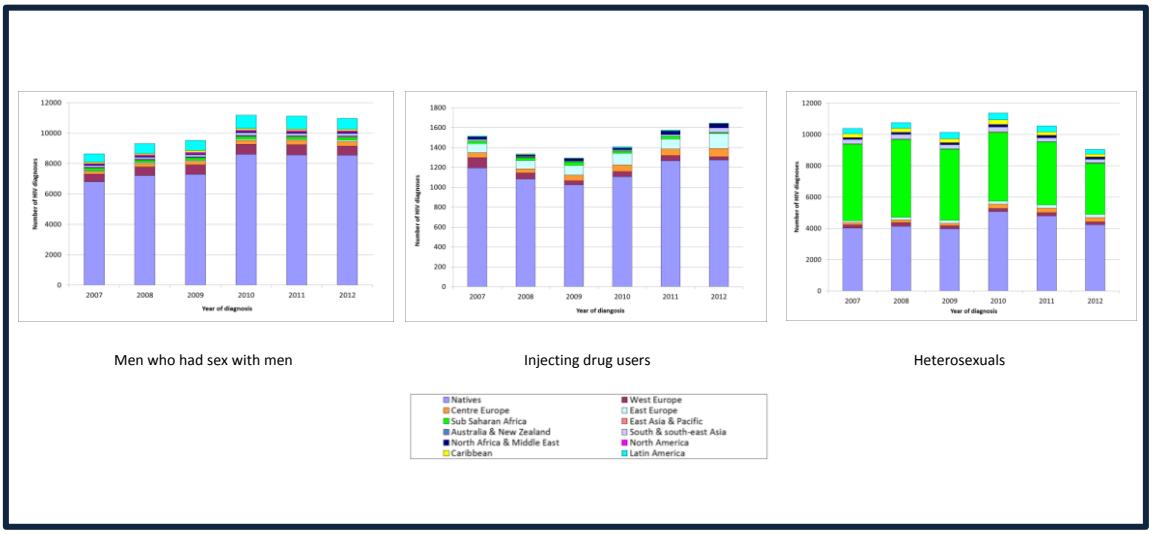



**Figure 13.** Trends in HIV diagnoses by geographical origin and category of transmission**.**

The peak in native and migrant HIV diagnoses in IDU is observed in 2009, likely due to increased inclusion of cases from Italy, disrupting the decreasing trend in this group in the last decade.

Female migrant HIV reports experienced a decrease of 188 cases for year (Figure 14).

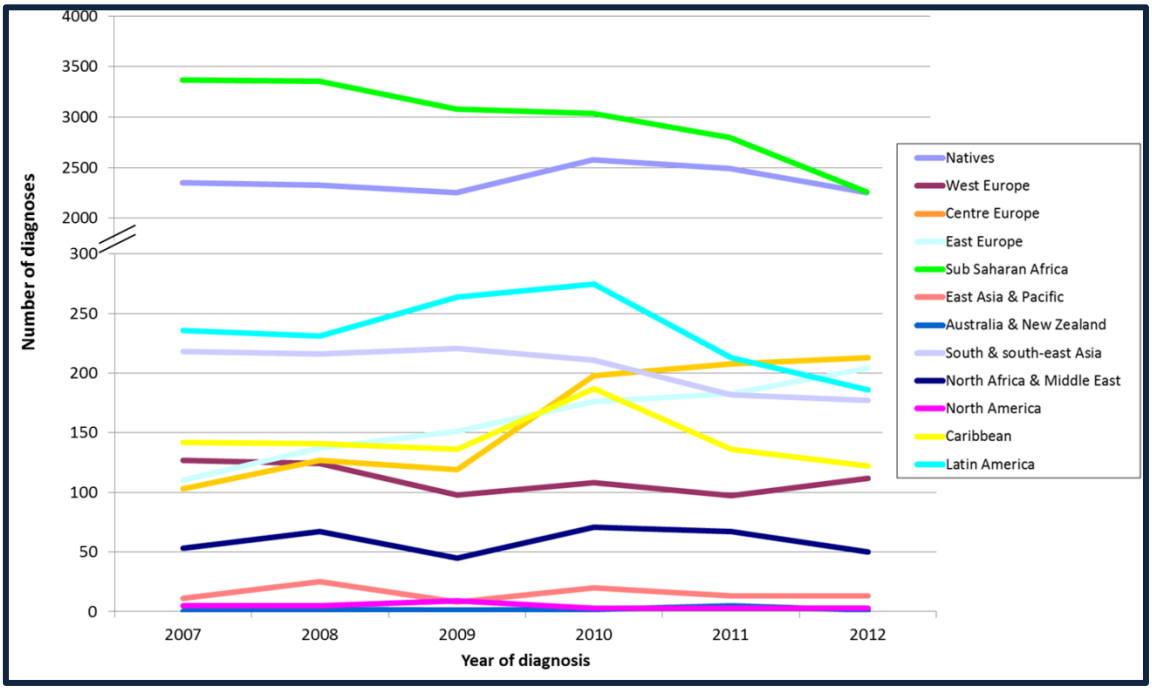



**Figure 14.** Distribution of HIV diagnoses among women according geographical origin

Because migrant women account for a very large proportion of all female reports in the EU/EEA, the net consequence is that the number of HIV reports in women, irrespective of their geographical origin, has experienced a decrease of 178 cases per year in the study period. The group driving this marked decrease is that of heterosexually infected women from SSA, which decreased from 3,364 cases in 2007 to 2,258 in 2012, though decreases for all other geographical origins, namely LA, South East Asia, the Caribbean and Western Europe also took place. Women from LA show a pattern similar to the men from the same origin with cases peaking in 2010 to decrease since then but in both sexes.

### 5.5.4. Data on migrant population living in the EEA/EFTA countries.

This section summarises the available data on migrant population registered in EU/EFTA countries in the period 2007-2012, firstly showing foreign cumulative data and secondly showing foreign data split by country of birth or nationality.

#### *Data on migrant population 2007-2012*

The following figure shows cumulative number of migrants across the 17 countries with complete data and between 2007 and 2012[h].

[h]These countries were: Austria, Bulgaria, Denmark, Finland, Germany, Greece, Hungary, Ireland, Latvia, Lithuania, Luxembourg, Netherlands, Norway, Poland, Slovenia, Spain, Sweden

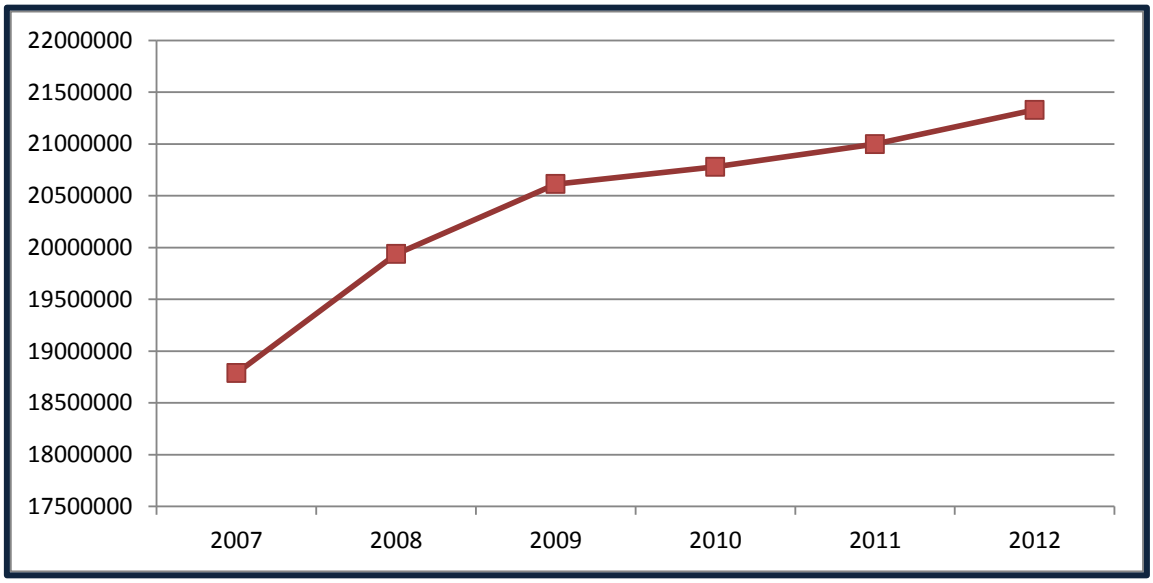



**Figure 15.** Cumulative foreign population registered in 17 EU/EFTA reporting countries with all information available.

Migrant population has not ceased to increase between 2007 and 2012. The most significant increase took placed during 2007-2009. After 2009, the trend continued to grow, but the increase was less pronounced.

This migratory trend could be related with the 2007 EU enlargement. In this year, two countries joined the previous EU of 25 countries: Romania and Bulgaria, becoming the EU-27. In spite of the theoretical "freedom of movements" in the area, the nationals from these two countries were not automatically authorized to work in all EU countries. Restrictions to work were applied depending on the countries and some countries planned to apply these restrictions until January 2014. However, 2007 led to increases in the UE of nationals from Romania and Bulgaria, though these citizens were still considered as part of Central Europe and thus classified as migrants.

The Figure 16 shows cumulative numbers between 2007-2012 by sex in the 17 EU/EFTA countries with all information available. Men have been the largest group over the period, although in the recent years both lines men and women tend to

converge. The slowdown is clearest among men than among women and could be related with the type of work performed by each gender. While traditional male labour has been affected by financial constrains (building sector, for example), some employments traditionally carried out by women were less affected by the crisis (for example, for the sick and the elderly particularly in the EU where the population ageing is growing).

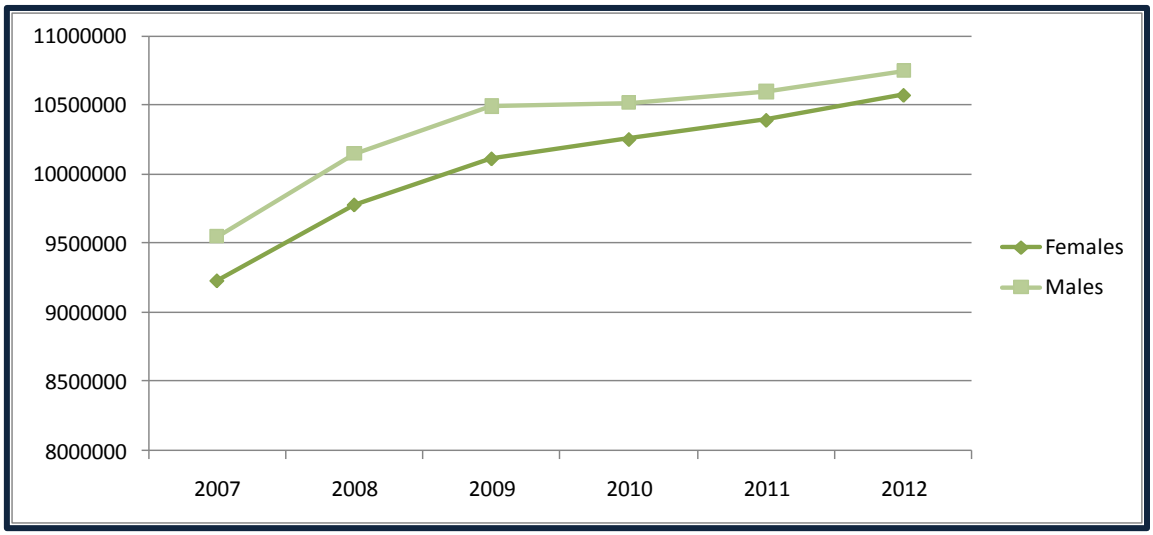



**Figure 16.** Cumulative foreign population by sex living in 17 EU/EFTA reporting countries with all information available[i].

Regarding the area of origin of migrants established in Europe, there was information only for 14 of 29 EU/EFTA countries for the whole period 2007-2012. Figure 17 shows the cumulative number of male migrants by areas of origin over the period described:

[i] These countries were: Austria, Bulgaria, Denmark, Finland, Germany, Greece, Hungary, Ireland, Latvia, Lithuania, Luxembourg, Netherlands, Norway, Poland, Slovenia, Spain, Sweden.

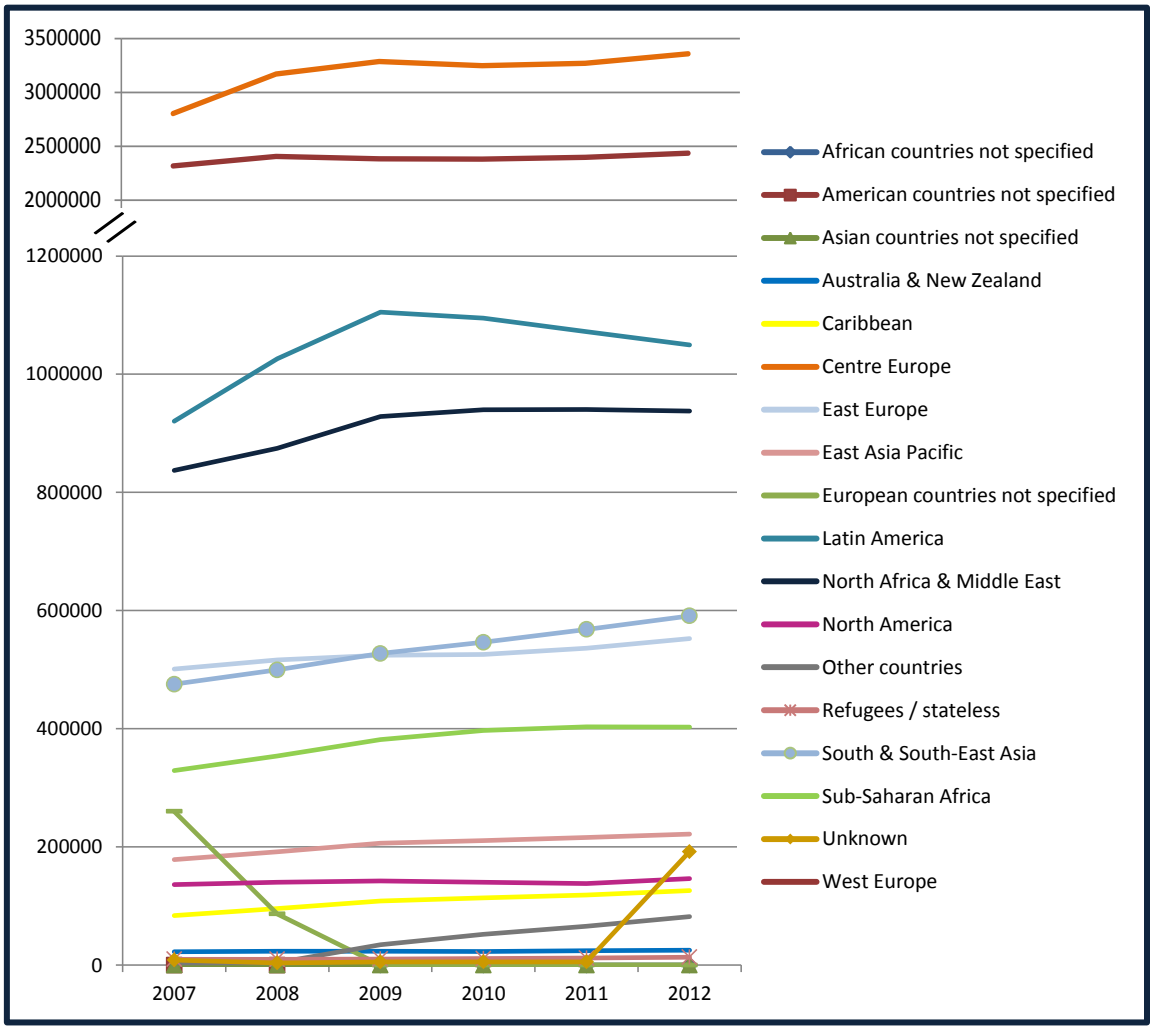



**Figure 17.** Cumulative foreign males by country of birth/nationality in 14 EU/EFTA reporting countries with all information available[j].

Looking at migratory trends by sex and area of origin we can observe that migrants from Central Europe are the most important group among both, male and female migrants, followed by migrants from Western Europe. Migrants from Central Europe drive the trend observed in Figure 16 for the total number of migrants. After the initial increase of migrants from Central Europe between 2007 and 2009, due to the opening borders following the 2007 EU enlargement the trend of migrants coming from Central Europe seems to be stable. In the first two years after 2007, nationals from Romania and Bulgaria did not have free access to the labour market of other EU

[j] These countries were: Austria, Bulgaria, Denmark, Finland, Germany, Ireland, Lithuania, Netherlands, Norway, Poland, Slovakia, Slovenia, Spain, Sweden.

countries. Free labour market access depended on bilateral agreements between specific countries[121].

Among males, LA is the third largest group, followed by North African and Middle Eastern people. The number of migrants from each of these areas, after the period of growth (2007-2009), appears to have stabilized. South and South-East Asia and Eastern Europe are the fifth and the sixth groups in importance among males, showing similar numbers of migrants and slight increases over time.

Regarding female migrants, as previously stated, migrants from Central Europe and Western Europe are the largest groups in the 14 reporting countries. A similar trend to that described in men is also observed in migrant women from Central Europe. The following figure shows the trends among female migrants by countries of birth/nationality over the period. It is also important to state that the "Unknown" category experienced an important increase in 2011-2012, possibly deriving in information bias.

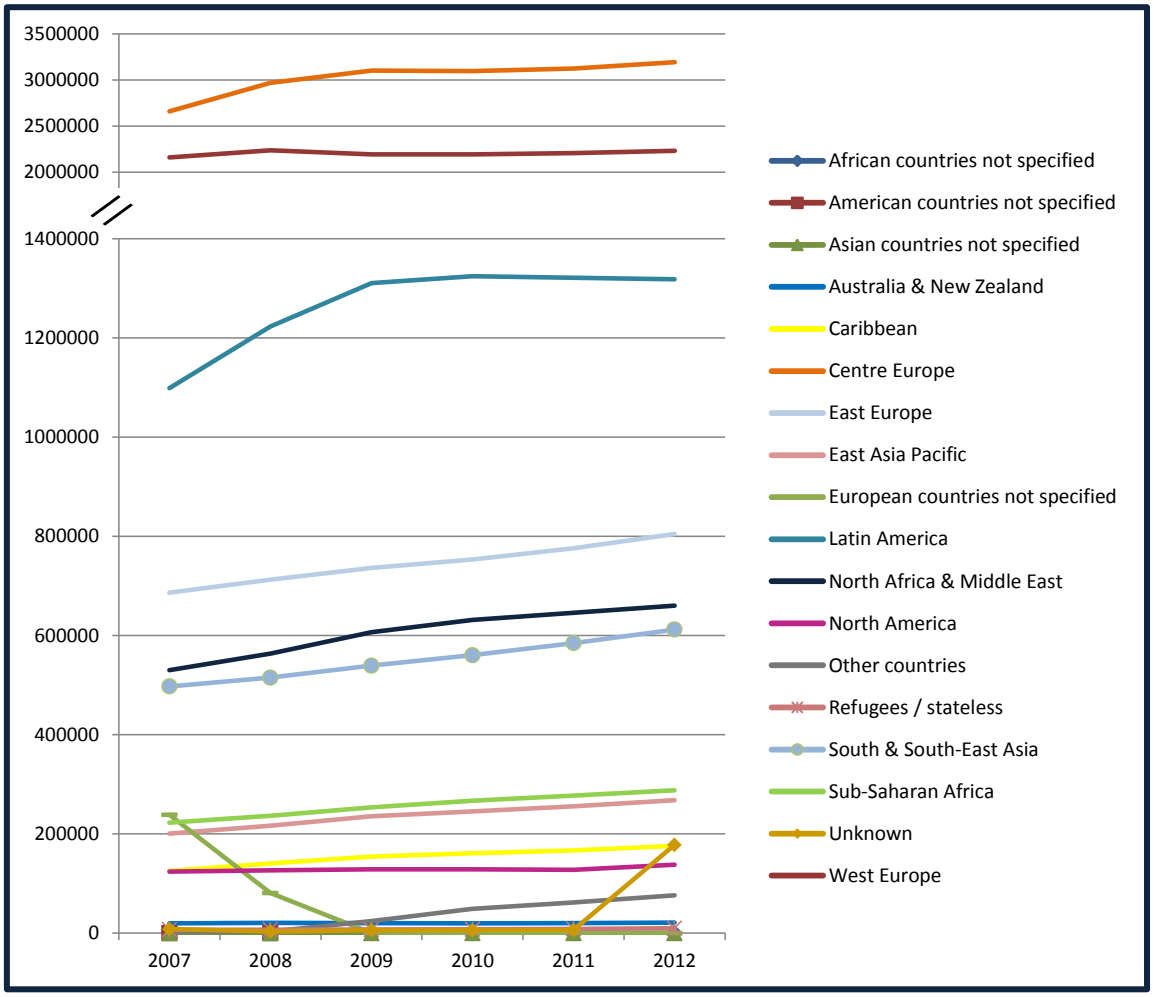



**Figure 18.** Cumulative foreign females by country of birth/nationality in 14 EU/EFTA reporting countries with all information available[k] (I).

Among migrant women, the third largest group is that of Latin Americans, with an initial increase in 2009 and a stable trend after that year. Eastern European women are the fourth largest group, followed by women from North Africa and Middle East and from South and South-East Asian countries. All three groups show a similar trend over the period: a very slight increase over the period.

## *Data on migrant population 2008-2011*

Finally, and in order to provide data from most of the countries, we look at all the countries with available data in the period 2008-2011.

[k] These countries were: Austria, Bulgaria, Denmark, Finland, Germany, Ireland, Lithuania, Netherlands, Norway, Poland, Slovakia, Slovenia, Spain, Sweden.

For the global data[I] on foreign population, only six countries (21%) did have not this information (Cyprus, Czech Republic, Estonia, France, Romania, UK). Figure 19 shows the absolute number of migrants registered in Europe within the period 2008-2011.

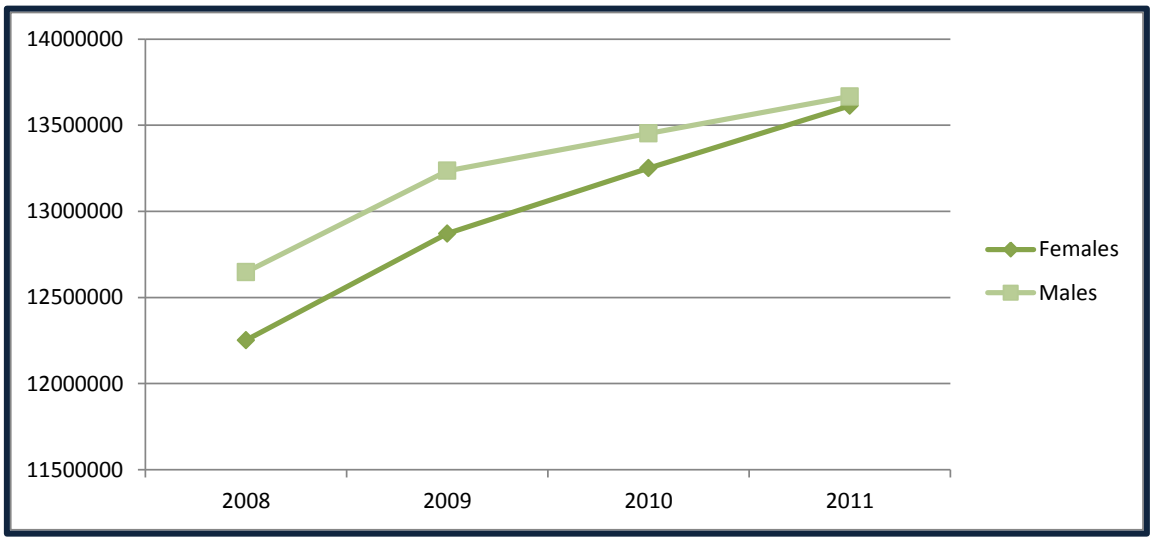



**Figure 19.** Cumulative foreign population by sex registered in 23 EU/EFTA reporting countries with all information available for the period 2008-2012.

In spite of the differences in absolute numbers of males and females migrants at the beginning of the period, both lines seem to converge by 2011. A total of 27,279,381 migrants were registered in the 23 reporting countries in 2011. In general, there are major changes comparing this graph with the one with information about 17 countries: the convergence among men and women seemed to be clearer and the migration slowdown seems to occur.

Information on migrants by area of origin (grouped from country of birth or country of nationality) for the period 2008-2011 was not available for 10 countries

[I] The 23 countries with data available were: Austria, Belgium, Bulgaria, Denmark, Finland, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden,

(34%) (Cyprus, Czech Republic, Estonia, France, Greece, Iceland, Luxembourg, Malta, Romania, UK).

Figure 20 shows the cumulative numbers of male migrants by area of origin within the period 2008-2011 in the 19 reporting countries. Once again, male migrants from Central Europe are the largest group, presenting an increasing trend since 2009. After this, males from Western Europe are the second larger group. North African and Latin American are the third and the fourth groups by importance among male migrants.

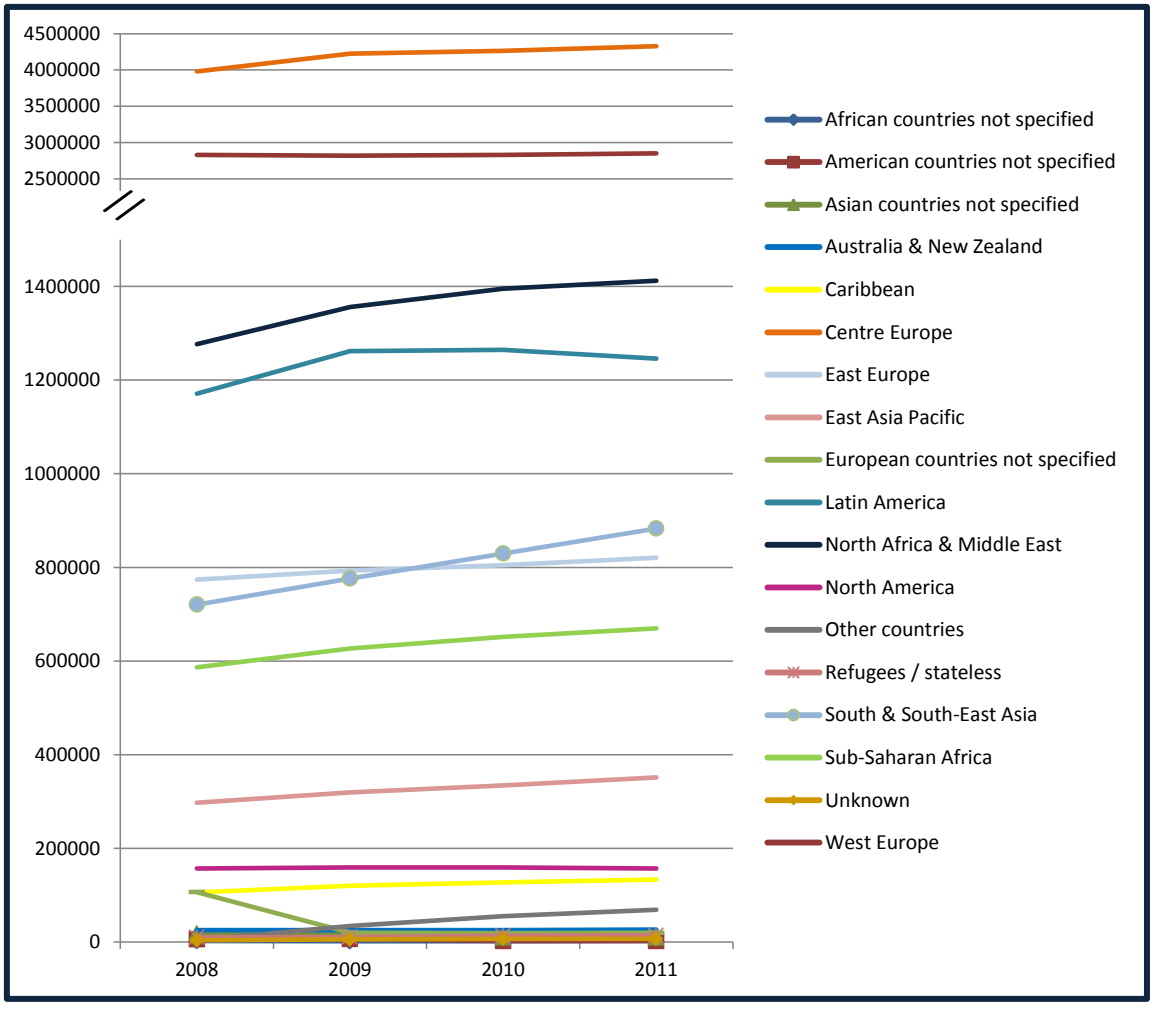



**Figure 20.** Cumulative foreign males by country of birth/nationality in 19 EU/EFTA reporting countries with all information available (2008-2011)[m].

[m] These countries were: Austria, Belgium, Bulgaria, Denmark, Finland, Germany, Hungary, Ireland, Italy, Latvia, Lithuania, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden.

Among migrant women, the largest group was that from Central Europe. This group has not ceased to increase over all the period. After this, the second largest group is that composed by West European foreign females, followed by Latin American (slightly increased) and Eastern Europe (Figure 21).

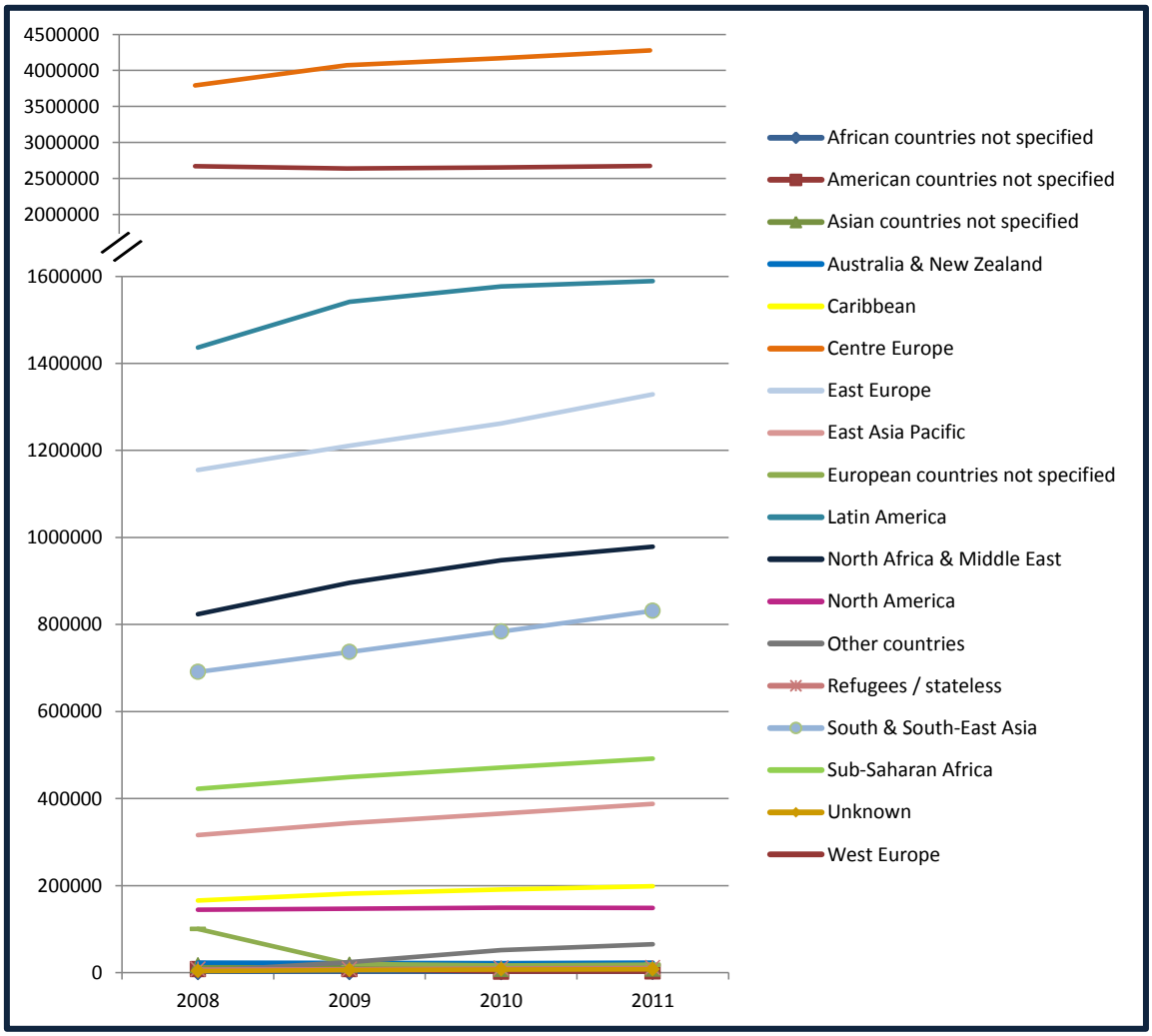



**Figure 21.** Cumulative foreign females by country of birth/nationality in 19 EU/EFTA reporting countries with all information available (2008-2011)[n].

[n] These countries were: Austria, Belgium, Bulgaria, Denmark, Finland, Germany, Hungary, Ireland, Italy, Latvia, Lithuania, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden.

# 6. Discussion

## 6.1. Discussion of results

This Doctoral Thesis provides an in-depth analysis of the HIV testing policies and strategies in migrant populations in Europe and provides evidence on important changes in the epidemiology of HIV infection in these populations. These results are key to design appropriate preventive and diagnostic interventions, as well as health care services that meet the specific needs of migrants in Europe.

All the data sources used in this Doctoral Thesis –surveillance data, literature review, review of HIV testing guidelines, AIDS National Plans and other documents of national and international scope and semi-structured individual and group interviews- identify migrants, largely but not only those from HIV endemic countries, as populations at a higher risk of HIV infection and its consequences. These consequences can be summarized in three aspects: a higher prevalence of HIV infection compared to the general population, a higher frequency of delayed HIV diagnosis compared to other groups and higher social vulnerability. Most of EU/EFTA countries consider migrant population as vulnerable for HIV in their policies or recommendations and specifically mention people from high HIV prevalence regions such as SSA, Eastern Europe, the Caribbean, Asia and South America. However, only half of the countries recommended HIV testing for migrants, showing an important gap between needs and interventions.

The first objective of this study was **“to describe European countries' policies regarding HIV diagnosis and testing in migrant populations”.** We have shown remarkable disparities in the policies and guidelines documents within Europe. This, in some ways, reflects the differential contribution of migrants and ethnic minorities to the total number of HIV and AIDS cases in the countries that conform the EU/EFTA

and, accordingly, HIV testing legislation and practices are bound to vary among Member States.

Seven out of ten policy documents from the 31 EU/EFTA Member States identify migrants as a vulnerable population for HIV infection. It is necessary to remark that the various policy documents used different definitions and concepts of the terms "migrant" and "ethnic minorities"[29;84]. Some countries consider migrants in general as "vulnerable populations for HIV", while others provide a more specific definition. Both, "migrants from HIV endemic countries" and "migrants from Sub-Saharan Africa" are the subgroups most frequently mentioned by the countries, when specified. However, no specific ethnic minorities are cited as vulnerable groups for HIV except in the UK, Bulgaria, Slovakia and Romania.

Reasons for considering migrants as vulnerable populations include the disproportionate burden of delayed presentation to HIV diagnosis and care in this group and also with the disadvantaged socio-economic situation that they experience.

However, regardless of this higher vulnerability acknowledged in the countries' policy documents, only 52% explicitly recommend HIV testing for migrant populations. Once again, "migrants in general" and "migrants from HIV endemic countries" are targeted for HIV testing. Importance of how to perform HIV testing is also highlighted in some documents, particularly the frequency and the more suitable settings. However, the frequency in which HIV testing has to be performed only appears in the documents from three countries, that recommend HIV testing for migrants upon their first contact with the national health system (Denmark) and systematic screening for people from high HIV prevalence areas (France and UK).

Regarding the most adequate sites for HIV testing, the various policy documents call to expand the type of settings performing the test. This can be reached through reinforcement of proactive testing strategies within health services as well as in involving NGOs and Community Based Organizations in the development and implementation of interventions. Such interventions could include offering the test in the places where people live, work or spend their leisure time or expanding testing hours. In these interventions, point of care testing and use of rapid tests are key in order to increase the coverage in difficult to reach migrant populations.

In the UK, Germany, the Netherlands, Norway, Spain and Switzerland[122], General Practitioners remained at the centre of HIV testing strategies aimed at the general population. General Practitioners' proactivity offering HIV testing has proved to be a key factor in increasing the uptake of HIV testing[22]. Actually, regardless of the content of the policy documents, unawareness of national HIV testing policies by health care professionals has been identified as a barrier to put in practice recommendations, and this may explain[123;124] the low and variable coverage of HIV testing in the most vulnerable groups[122].

Universal strategies such as those developed by the UK and France are helping in the normalization and de-stigmatization of HIV testing, even if the documents recommend their application in selected contexts, such as in areas with high HIV prevalence rates. This approach should not substitute HIV testing programmes targeted at HIV more vulnerable groups, as for example migrants from HIV endemic countries, men who have sex with men and injecting drug users. However, the design of interventions should be guided by results from cost-economic analyses in each

context and knowledge about implementation challenges in order to prioritise available resources[125].

Regarding the gender axis in the HIV epidemiology, it is remarkable that epidemiological data shows a higher number of HIV-positive women from SSA compared with SSA men. This fact is probably reflecting the effect of the expansion of universal antenatal HIV screening strategies in Europe that are reaching women. In fact, these strategies researched in-depth by Deblonde et al.[123] are not reaching men and derive in HIV diagnosis diagnostic bias.

Finally, regarding mandatory HIV testing for migrants upon arrival to the host country, policy documents revealed this practice may be facilitated in some European countries. The objective of this research was not to assess the extent of this practise, but this finding raises concerns on whether the general principle that the test must be voluntary is being respected.

The second objective of this study was **"to describe International Organizations recommendations regarding HIV diagnosis and testing in migrant populations".** The six international guidelines reviewed – IOM, WHO, ILO, IUSTI, UNAIDS- identify migrants at risk for HIV infection. However, only half of them recommend testing migrants for HIV infection.

On December 2010, the ECDC published "HIV testing: increasing uptake and effectiveness in the European Union"[62] which described the recommendations on HIV testing at European level. This guideline stated that "migrants, especially from countries with higher prevalence" and their sexual partners were among the groups with higher risk for HIV infection and thus, recommended HIV testing.

In general, International Organizations acknowledge HIV testing benefits at both the individual and the community levels, which are also remarked in the scientific literature[126-130]. IO acknowledged the reduction of the community viral load is the most important benefit at the community level, whereas the benefits at individual level derived from cART uptake include decrease of morbidity and mortality and reduction of MTCT. International Organization's documents also recognize the importance of the way in which HIV test is performed. The setting is the most discussed feature and agreement has been reached in order to promote HIV testing in community settings with the final objective of reaching out to migrants and ethnic minorities at their local points of gathering. The 2010 ECDC Guideline[62] recommends making testing available in a variety of settings, including community services.

On the topic of legal issues related to HIV testing at arrival, the position of these organizations is clearly manifested: documents from ECDC[24;62] and WHO[49], among others, strongly advice against mandatory HIV testing for migrants as it is considered a discriminatory practice. They declare that mandatory HIV testing for migrants and asylum seekers when entering a country, which takes place in some settings, violates the core principles that HIV testing must be confidential, voluntary and performed with informed consent.

The third objective of this Doctoral Thesis was "**To analyse available scientific evidence on HIV testing and counselling strategies targeting migrants and ethnic minorities in high-income countries"**. In this regard, the systematic review has found that migrants, mainly those from HIV-endemic countries, are at high risk of HIV infection and its consequences[52;53;86-88;92;95;107;109;112;118].

Migrants have higher HIV prevalence compared to the general population, higher frequency of delayed HIV diagnosis and they are more vulnerable to the potential negative effects of HIV status disclosure [52;96].

Their socio-economic position in the destination country put migrants, including those from countries with low HIV prevalence, in a position of increased risk of acquiring HIV in host countries[52;108;109]. Burns et al. in collaboration with ECDC have compiled the available scientific evidence on post-migration sexual transmission of HIV among migrants from countries with generalised HIV epidemics[131]. A systematic review was carried out and a number of the retrieved papers show how in many cases HIV transmission had occurred during the post-migration period; the rate of HIV post-migration acquisition ranged from 2% among SSA in Switzerland[132], to 62% among black Caribbean MSM in the UK[133]. Burns et al. show that 15 out of 26 EU/EE countries collected information on probable country of HIV infection of new HIV cases through their surveillance network, either based on interview of the case or through the clinician's reports.

Additionally to their social and economic vulnerability, migrants have to deal with the barriers to HIV testing shared with other groups at risk and also with migrants' specific barriers. These barriers are of diverse nature. Articles described legal and administrative obstacles in accessing general health care services[53;88;96;110] and specifically HIV testing services. This important issue that will be further discussed later derives, among other factors, from the fact that undocumented migrants are not entitled to health care in some countries[95;101;112].

The literature also pointed at other specific barriers such as racism and xenophobia[88], cultural and linguistic barriers[89;93-96;110], criminalization of HIV

transmission[88] and fear of stigma and discrimination from their communities[88].In this line, other barrier that came up is the low priority assigned to health in general, and HIV in particular[77;88] linked with the poverty and socio-economic disadvantage.

General population strategies in health care settings and targeted approaches for specific sub-populations are described as feasible for migrant population. HIV testing interventions aimed at the general population should deal with the heterogeneous sub-populations among migrants and their perceptions about these general interventions. The scientific evidence supports that this strategy is perceived as less stigmatizing; it has been documented that women from HIV-endemic countries prefer general population approaches in health services settings than targeted ones[104;114].

The heterogeneity within migrant populations calls for developing strategies adapted to particular groups rather than one encompassing “all migrant populations”. Further, the role of the Community is key to discuss and implement HIV testing interventions. Innovative HIV testing approaches, as for example test performance in non-traditional settings[92;105;113], during off-hours[111] or rapid tests use[91;105;111] are needed. Indeed, the papers recommend providing HIV testing from a culturally sensitive perspective. On the other hand, it is remarkable that very little information on counselling was retrieved from the literature that might be better found elsewhere, for example in programme-based ‘grey’ literature.

The strong gender differences affecting HIV testing have been also raised from the literature review. The traditional gender roles culturally assigned to men and women in some migrant communities may deter heterosexual men and women as well as MSM from undergoing HIV testing. While routine antenatal HIV testing has worked

very well for all women, irrespective of their geographical origin, testing in other sites needs to acknowledge gender imbalances. Actually, the literature review overall shows HIV testing uptake in antenatal settings in migrants is high and similar to that of non-migrant women, but compared to men, a higher proportion of migrant women have been tested for HIV, partially due to high acceptance of routine antenatal HIV screening. Men are less exposed to HIV testing and are also less willing to be tested[111]. Reaching migrant men, both heterosexual and MSM, remains a challenge. The literature shows that migrant MSM are a hard to reach group and that "machismo" and homophobia are deterrents to HIV prevention[92].

Finally, the literature review has shown how HIV testing can be mandatory for migrants and asylum seekers when entering a country in some settings[97;99;120], even if it violates the previously described core principles.

Regarding the fourth objective **"To examine the challenges for implementing and expanding HIV testing and counselling strategies targeting migrants**", all participants in the interviews recognized the benefits of expanding HIV testing to reach out migrant populations.

Strategies based on 'general population' approaches and 'targeted approaches' are each associated with both benefits and disadvantages. Reaching migrants and ethnic minority populations with HIV testing and counselling programmes is perceived as a challenge. As previously stated in this document, migrants and ethnic minorities are very heterogeneous populations, determined by country of origin, ethnicity, gender, sexual orientation, religion, legal status and time in the country of destination. While some groups of migrants will be reached through general population programmes, other groups of migrants may be reached through targeted approaches.

In settings where these strategies for general population are being implemented, uptake of HIV-test by migrants seems to be successful, though little data are available so far. This strategy avoids the perception of stigmatization associated with risk-group targeted programmes[98]. In many clinical settings HIV testing is currently offered together with pre-test information and no lengthy pre-test counselling. Interviewees expressed ambivalence as to whether this is adequate for migrant populations as it is felt that a lot of misconceptions regarding HIV infection can be tackled during counselling sessions, particularly those related to the stigma within the community.

Once more, the interviews reveal that engagement with the communities and building partnership is fundamental for testing at community sites and for developing culturally sensitive interventions. Difficulties to reach these populations respond to barriers for accessing HIV testing services and these barriers are linked with the overall vulnerability of migrants and ethnic minorities. Innovative strategies are needed to emphasize community participation. Mentioned options include broadening the scope of facilities performing the test, strengthening proactive testing strategies, putting in place outreach programmes based on community approaches, which could rely on POCT and rapid testing, offering the test where people live, work or spend their leisure time, expanding testing hours and involving NGOs and CBOs. Several studies have shown the benefits of this type of interventions and de-stigmatization of HIV testing within the communities[92;111;113]. Innovative interventions have demonstrated their effectiveness particularly among migrant MSM, a mainly at-risk group traditionally invisible to HIV prevention activities and facing various and multiple forms of discrimination[105].

Regarding the gender dimension, the high number of HIV-positive women from SSA as compared to the number of men from SSA and the number of women of European origin is linked by various respondents of this report to the success of antenatal testing which has resulted in a feminization of testing, especially apparent among migrant women. Reaching men is more challenging and various initiatives to stimulate partner testing in the context of antenatal testing have been mentioned.

The HIV treatment cascade–also referred as "HIV care continuum"- developed in 2010 by Gardner et al.[134] aimed to identify chances to improve services for people living with HIV across the HIV continuum of care. The final objective of this model would be to achieve hypothetical scenario in which community viral load is suppressed and infectivity of new individuals does not take place. This model is divided in different stages: People living with HIV, People diagnosed with HIV; People linked to care; People retained in care; People who need antiretroviral therapy; People treated with antiretroviral therapy; and People who has adherence to the treatment and reached viral load suppression. These stages explain final treatment effectiveness at the community level, since not all HIV positive people are diagnosed, linked to care or get into treatment. The benefits of HIV testing at the community level is underlined by the scientific literature and supported also by national and IO Guidelines[49;126-130].

Actually, all major IO HIV testing guidelines acknowledge that HIV testing on its own cannot be the final goal. HIV testing must be linked to care, support and treatment, ensuring a comprehensible referral pathway for positive individuals[49;50;62;70;134]. Additionally, all interviewees also insist on the need of linking HIV testing with care and treatment. Various informants stress that migrant populations should be especially protected from being tested for HIV when access to

cART is not guaranteed and that this fact singles them out from the rest of people living with HIV. HIV/AIDS Epidemiological data also supports the overwhelming agreement in that availability of cART for HIV positive people should be a public health priority for every country, similar to other transmissible diseases such as Sexual transmitted diseases (STI) or Tuberculosis (TB) treatment.

A particularly dramatic situation is that of migrants of uncertain residency status who are not entitled to cART in some countries[48]. After the economic crisis, some countries of the EU/EFTA area reduced the total public spending in medical care or the volume and quality of health care[135;136]. The Organisation for Economic Co-operation and Development (OECD) shows in a recent report how health spending has fallen in 2010[136] for the first time in Europe since 1975. In Spain, for example, in 2012 the Government ruled the Real Decree-Law of 12/2012 of 20th April against universal access to health care for migrants of uncertain legal status[137;138]. Pérez-Molina and Pulido[139] have analysed the consequences of this measure in people living with HIV and pointed out that expected savings in the short term would be lower than expected. Moreover if this measure was applied, the increase in mortality and morbidity due to communicable diseases would increase spending in the medium and long term, questioning not only the ethics of this measure, but also its economic impact. This Royal Decree-Law has not been fully implemented in the HIV field due to civil and medical protests, although some HIV services remain inaccessible for undocumented migrants. Indeed, the European Social Charter (a treaty of the Council of Europe aimed to guarantee social and economic human rights) published in 2014 the "Conclusions XX-2 (2013)"[140] for Spain in which considers that "the Committee states that this denial of access to health care for adult foreigners (aged over 18 years)

present in the country illegally is contrary to Article 11 of the Charter". The Committee has already held that the States Parties to the Charter "have guaranteed to foreigners not covered by the Charter rights identical to or inseparable from those of the Charter by ratifying human rights treaties – in particular the European Convention on Human Rights – or by adopting domestic rules whether constitutional, legislative or otherwise (…)". The opinions of our key informants about whether actively promoting or not HIV testing under circumstances when treatment is not ensured are ambivalent. What is clear from all the sources of information is that if HIV testing is not linked to rights and is viewed as having a potential negative impact on the short term – refusal of residency permit or fear of deportation – these populations will not come forward for HIV testing.

Results derived from this section, and also those from the one dedicated to policies review and the one dedicated to scientific literature systematic review, are in line with the implementation science approach[141]. These studies specifically aimed to assess the implementation of the scientific evidence on the benefits of HIV early diagnosis into policies. Implementation science examines the ways in which healthcare practitioners can use research findings more effectively in routine clinical practice, in order to carry out a more research-informed practice[141] and has been used for our purposes in a wide way, examining the gap between available evidence from researches and real implementation.

The linkage of HIV testing to care is key, specially taking into account the results of the Epidemiological data analysis. The fifth objective of this Doctoral Thesis was **"To describe HIV/AIDS epidemiology between 2007 and 2012 in migrant populations in Europe"**. Our analysis show that migrants represented two fifths of all HIV reports in

the EU/EEA from 2007 to 2012, though their contribution to the HIV epidemics in Central and Eastern EU/EEA countries is very small. Migrants from Sub-Sahara Africa, Latin America and Western Europe, each with distinct epidemiological profiles, are the most common origins in Western EU/EEA whereas migrants from Eastern Europe are the most frequent origin in Central Europe.

Male and female HIV-positive migrants from low and middle-income settings have higher proportions of Advance HIV Disease than native populations. Whereas no differences were observed in these proportions between native men and migrants from high-income settings, namely Australia and North America, women from these origins did also have higher rates of AHD than native women.

The different patterns of the new HIV diagnoses in migrant populations across the EU/EEA require analyses that take into account the gender and the geographical origin for all HIV transmission categories, and not only for the heterosexually infected. Sexual mixing between people of different ethnic and geographical origins is well known to happen among MSM community, and to a lesser extent among heterosexuals[131].

The absolute and relative number of HIV positive migrants has declined from 2007 to 2012 driven by striking decreases in the number of HIV diagnoses in heterosexual women from SSA, and to a lesser extent of men from SSA and by cases in women from other GO. In contrast, increases in male diagnoses in MSM from LA and IDUs from Central and Eastern Europe have also taken place.

The reasons for these changes are largely unknown and a number of hypotheses can be put forward but that may be difficult to test. One of the main hypotheses could be related with changes in the migratory trends over the period.

The HIV epidemiological trends described have to be interpreted in the context of global migration flows in Europe which are heavily influenced by the economic crises in the different parts of the world and the influence of the European policies on migration, control of external borders and asylum.

Regarding EU migration policies, after the 2004 Hague Program, the Stockholm Programme was signed in 2009. This Programme was aimed at provide the legal framework for the EU in the area of justice, freedom and security for 2010-14. However, in this Programme, no new policies about migration have been developed. In this regard, the paper developed by Collett[142] states that the European Union traditional approaches towards developing a policy in the area of migration and asylum have been replaced in the last years by approaches more focused on ensuring coherent and complete implementation of previously agreed policies. The objective of finding ways to develop a common strategy based on the further rapprochement of the 28 national migration and asylum systems has been put on hold. This Doctoral thesis has been written during this period characterized by the increase in specific efforts to maintain external borders control.

Available data on migration flows are heterogeneous and incomplete and do not allow to confirm what has happened with migrant flows, in particular when looking at different geographical origins, in the current scenario of financial constraints. However, the IOM report "Migration and the Economic Crisis in the European Union: Implications for Policy" considers that the current economic crisis has had an important impact on migration flows in Europe during 2008-2010. This report shows a deceleration in migration flows, predominantly in countries that received a large number of migrants during the pre-crisis period (Ireland, Spain and the UK)[143]. Along

this same line of thought, the Eurostat document "Demography report 2010. Older, more numerous and diverse Europeans"[144] shows how in 2009, the EU Member States issued 2.3 million new residence permits, 8% less new residence permits for nationals of non-EU countries compared to 2008.

The IOM "World Migration Report"[27] described in 2013 four migration pathways in the word: South–North and South–South (that represents the two major migratory flows in the word), North-North and North-South. This report analyses migration flows in the world using three different country-based classifications: United Nations Department of Economic and Social Affairs (UN DESA), the World Bank (WB) and the United Nations Development Programme (UNDP). This IOM report describes two important changes in the traditional migration flows: a new migration flow from Europe to Africa, Latin America and the Caribbean and a return migration flow -the returning of migrants to their country of origin- both due to the financial crisis in the Western countries.

Though our data does not allow to fully understanding the nature and the causes of the changes in migratory trends in the HIV positive populations, we think that a shift in the migratory trends is likely to be occurring. This is possibly derived from decreases in migration flows, increased remigration to countries of origin or to places less affected by the economic crisis together with hardening of immigration laws and restrictions to access to health care and social rights, largely but not solely, for the undocumented migrants.

Further, the decreases in new HIV reports of SSA origin, particularly in women, may be the consequence of a true reduction in HIV incidence – either in countries of origin and/or in countries of destination, or may reflect lower uptake of HIV testing. A

closer look into the evolution of LHD overtime could shed some light into these aspects. Additionally, scaling up ART coverage in many low and middle-income countries may have favoured HIV-positive migrants in the context of the European crisis to re-migrate to their countries of birth.

Indeed, some of these questions can be tested while some others may remain speculative in the absence of data. Analysing population registries would allow comparing fluctuations of populations of given geographical origins – or at least attempting to do it given the poor quality of these data sources -. We could also explore if the patterns observed are more marked in the Southern European countries, most hardly hit by the economic crisis, than in Central and Northern EU/EEA countries. Exploring trends in the prevalence of AHD by gender, transmission category and geographical origin would also provide indirect evidence of changes on HIV testing practices.

## 6.2. Methodological discussion

The results presented in this Doctoral Thesis need to be interpreted in the line of its methodological limitations.

First of all and regarding the policy review, the analyses of policies and recommendations about HIV testing and counselling collected by official documents has been complex, given their heterogeneity. Not all countries have specific documents on HIV testing and when documents exist, they have different structures and often were only available in local languages. Countries' representatives were contacted in order to overcome translation issues, but not all were located and subsequently there is missing information from two countries. In spite of this, data provided by the key informants was very useful and especially valuable in the cases of countries with languages unknown by the research team.

Regarding country representative's response rate, the majority responded to the survey and only representatives from Czech Republic and Liechtenstein did not reply. This high response rate allows us to consider that information provided was representative for the EU/EFTA Member States.

Policies and recommendations show inconsistencies within a single country according to the source of information. Several countries had no guidelines for HIV testing, a few others were planning to develop them and some were updating their AIDS Plans. Because of this, some reviewed documents may have been out-dated even if we asked country representatives to provide us with the most updated versions. This fact could also contribute to explain the inconsistencies found between the information provided by country representatives and the information retrieved from documents. National policies and recommendations often not reflecting the reality of

practice and, in addition, due to decentralisation, many countries have sub-national policies which have a stronger influence on such issues.

Regarding the methodological limitations arisen in the systematic review, we found a high number of articles on HIV prevalence and risk factors in migrants and ethnic minorities which, although not conceptualized as a primary aim, were included in the review. Nevertheless, as we had not aimed primarily to address this objective, we may have missed a number of relevant articles as the search strategy used did not specifically contemplate this. On the other hand, according with the designed search strategy the research team only included articles in English. Further, grey literature documents and conference -abstracts were not included either.

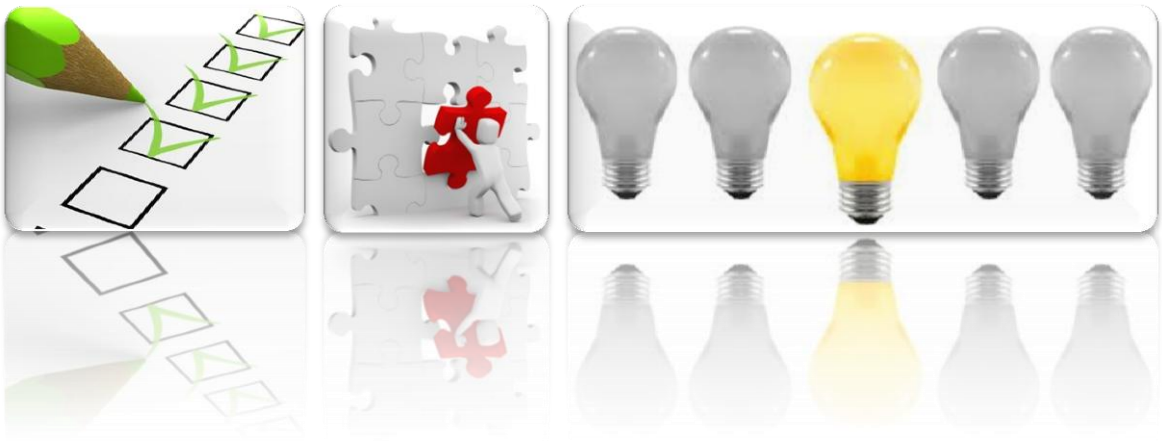
The qualitative research also presented several methodological limitations that must be addressed. Since a semi-structured script was used in the interviews, the answers of the respondents may have been strongly determined by the areas of interest of the researchers. Furthermore, the selection of interviewees was made based on feasibility criteria. Therefore, although the research team tried to have a balanced representation of the different profiles (academic researchers, policy makers, and NGO's representatives) the respondents' testimonies refer to very different contexts and different realities. Even if the respondents' experiences were not representative of the European Union reality on the topic of interest, some similar experiences were shared and different point of view emerged. However, no respondents from Central and Eastern Europe were interviewed and the point of view of experts working in these areas was not collected.

Regarding epidemiology data, the principal limitation was the missing data on the GO variable, particularly in Eastern European Countries and Central European

Countries, that changed over time for certain countries. Similarly, we also identified an important lack in the CD4 cell count availability. For missing data, performing multiple imputation using Chain equations (MICE) was not an option given there were not enough variables that could predict missing data.

Regarding population data, the heterogeneity of the information provided by the different sources does not allow us to fully understand the migratory trends over the period. Additionally, it is necessary to take into account the underestimation of migrant populations living in some countries, due to the nature of population registries which are largely available only for legal migrants or with the registration process itself (people less willing to register themselves). In the same line, overestimation could occur in other places, where population registries are not reviewed and updated within the periods between censuses and allow for people to remain registered over after their departure.

# 7. Conclusions



**Conclusion 1.** Migrants are disproportionately affected by HIV infection. Migrants, largely but not only those from HIV endemic countries, are identified as populations at a higher risk of HIV infection and its consequences. These consequences can be summarized as: higher prevalence of HIV infection compared to native population, higher frequency of delayed HIV diagnosis and higher social vulnerability.

**Conclusion 2.** There is overwhelming evidence and consensus on the benefits of HIV testing both for the individual and the community which is particularly relevant for migrant populations in Europe. At an individual level, knowledge of HIV-positive status will lead to treatment and, consequently, to a reduction of HIV associated morbidity and mortality. At the community level, knowledge of HIV-positive status has been associated to safer sex practices and, through treatment (when clinically indicated) to a reduction in HIV viral load and thus, reduction of HIV transmission.

**Conclusion 3.** Though most of EU countries consider migrants as vulnerable for HIV, not all specifically recommend HIV testing in this sub-population**.** Some national policy documents recommend voluntary HIV testing for migrants as the first step to decrease the higher undiagnosed fraction in this population in the EU/EFTA region.

**Conclusion 4.** That said, how to reach migrants and ethnic minorities populations within HIV testing and counselling programmes remains a challenge. Some groups of migrants could be reached through general population programmes; but another sector may not, and will need specific approaches. In this respect, engagement with

the communities is fundamental through building partnerships for testing at community sites.

**Conclusion 5.** IOs Guidelines identify migrants at risk for HIV infection, but not all specifically recommended HIV testing. International Organizations acknowledge HIV testing benefits at both the individual and the community levels and strongly advise against mandatory HIV testing for migrants as it is considered a discriminatory practice.

**Conclusion 6.** HIV testing is affected by gender differences. The traditional gender roles culturally assigned to men and women in some migrant communities may deter heterosexual men and women as well as MSM from up taking HIV testing. While routine antenatal HIV testing has worked very well for all women, irrespective of their geographical origin, testing in other sites needs to acknowledge gender imbalances.

**Conclusion 7.** HIV testing approaches relies on the pillar that testing must be linked to care. The fact that there are countries which do not provide universal HIV prevention, treatment and care for migrants of uncertain legal status challenges the ethics and the effectiveness in the application of the pro-active HIV testing and are a deterrent for the control of an important public health problem in the region.

**Conclusion 8.** New HIV diagnoses in migrant populations in the EU/EEA have declined from 2007 to 2012, especially among SSA women. Reasons for this reduction are largely unclear but could be related with changes in migratory trends, a reduction of

HIV incidence both in origin and destination or may be reflecting a lower uptake of HIV testing secondary to legal restrictions to access health care.

**Conclusion 9.** In spite of data limitations, migrants' flows shows a deceleration and this could partly explain the decrease in new HIV diagnosis among migrants.

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# 9. Annexes

## 9.1. ANNEX 1. Scientific communications related to this doctoral thesis.

### 9.1.1. Presentations at scientific meetings

***POSTER COMMUNICATIONS***

. Álvarez-del Arco D, Monge S, Caro AM, Teymur N, Del Amo J. Recomendaciones sobre prueba VIH en población inmigrante y minorías étnicas: implementación en la UE. XIX Scientific Meeting of the Spanish Epidemiology Society (SEE). Madrid (Spain), 6-8 of October 2011.

. Álvarez-del Arco D, Azcoaga A, Alejos B, Monge S, González-Blázquez C, Hernando V, Caro AM, Pérez-Cachafeiro S, Ramírez-Rubio O, Del Río I, Belza MJ, Bolumar F, Del Amo J. Current recommendations regarding HIV testing & counselling targeting migrants and ethnic minorities in the EU/EEA/EFTA Member States. 6th IAS Conference on HIV Pathogenesis, Treatment and Prevention. Rome (Italy), 17-20 July 2011.

. Álvarez-del Arco D, Monge S, Azcoaga A, Alejos B, González-Blázquez C, Hernando V, Caro AM, Pérez-Cachafeiro S, Ramírez-Rubio O, Del Río I, Bolumar F, Del Amo J. HIV testing and counselling for migrants/ethnic minorities; a systematic review. 6th IAS Conference on HIV Pathogenesis, Treatment and Prevention. Rome (Italy), 17-20 July 2011.

***ELECTRONIC POSTER***

. Álvarez-del Arco D, Monge S, Caro AM, Del Amo J. Implementation of the recommendations regarding HIV testing & counselling targeting migrants and ethnic minorities in Europe. 6th IAS Conference on HIV Pathogenesis, Treatment and Prevention. Rome (Italy), 17-20 July 2011.

. Hernando V, Pharris A, Alvarez D, Rivero Y, Monge S, Noori T, del Amo J. Changes in the Epidemiology of HIV Infection in Migrants in the EU/EEA, 2007-2011. 14th European Conference. European AIDS Clinical Society: (EACS). Brusels (Belgium), 16-19 October 2013.

***ORAL PRESENTATIONS***

. Álvarez-del Arco D, Azcoaga A, Alejos B, Monge S, González C, Hernando V, Caro AM, Pérez-Cachafeiro S, Ramírez-Rubio O, Del Río I, Belza MJ, Bolumar F, Noori T, Del Amo

J. Consejo y prueba de VIH dirigida a inmigrantes y minorías étnicas: Recomendaciones actuales en los países de la UE/EEE/AELC.Spanish. XIX Scientific Meeting of the Spanish Epidemiology Society (SEE). Madrid (Spain), 6-8 of October 2011.

. Álvarez-del Arco D, Monge S, Azcoaga A, Alejos B, González C, Hernando V, Caro AM, Pérez-Cachafeiro S, Ramírez-Rubio O, Del Río I , Bolumar F, Noori T, Del Amo J. Evidencia científica sobre el consejo y la prueba VIH en población inmigrante y minorías étnicas. XXIX Scientific Meeting of the Spanish Epidemiology Society (SEE). Madrid (Spain), 6-8 of October 2011.

.Hernando V, Alvarez D, Sandgren A, Pharris A, Sobrino P, Alejos B, Gonzalez C, Jarrin I , Amato-Gauci AJ, del Amo J. Tuberculosis as initial AIDS defining conditions in HIV-positive migrant populations in the European Union and European Economic Area (EU/EEA) 2007-2011. 5th European Conference on Migrant and Ethnic Minority Health. Granada (Spain), 10-12 April 2014.

Hernando V, Pharris A, Alvarez D, Rivero Y, Monge S, Noori T, Amato-Gauci AJ, del Amo J. HIV among migrants in the EU/EEA: epidemiological trends 2007-2011. 5th European Conference on Migrant and Ethnic Minority Health. Granada (Spain), 10-12 April 2014.

### 9.1.2. Scientific publications

***PUBLISHED PAPERS***

. Alvarez-Del Arco D, Monge S, Caro-Murillo AM, Ramírez-Rubio O, Azcoaga-Lorenzo A, Belza MJ, Rivero-Montesdeoca Y, Noori T, Del Amo J; the Study Working Group. HIV testing policies for migrants and ethnic minorities in EU/EFTA Member States.Eur J Public Health. 2013. [Epub ahead of print].

. Alvarez-del Arco D, Monge S, Azcoaga-Lorenzo A, Rio I, Hernando V, Gonzalez C, Alejos B, Caro AM, Perez Cachafeiro S, Ramirez-Rubio O, Bolumar F, Noori T, Del Amo J. HIV testing and counselling for migrant populations living in high-income countries: A systematic review. Eur J Public Health. 2012 Sep 23. [Epub ahead of print]

***PAPER CURRENTLY UNDER REVIEW***

. Alvarez-Del Arco D, Monge S, Rivero-Montesdeoca Y, Burns F, Noori T, Del Amo J; Challenges for implementing and expanding HIV testing & counselling in migrant populations: a qualitative approach among the experts.

***REPORTS***

. Del Amo J, Alvarez-del Arco D, Azcoaga A, Alejos B, Monge S, González-Blázquez C, Hernando V, Caro AM, Pérez-Cachafeiro S, Ramírez-Rubio O, Del Río I, Belza MJ, Noori T, Bolumar F. HIV Testing and Counselling in Migrant Populations and Ethnic Minorities in EU/EEA/EFTA Member Status. European Centre for Disease Prevention and Control.

## 9.2. ANNEX 2. Materials and other contents of the study

### 9.2.1. APPENDIX 1. List of National representatives.

| Country | Country representative | Position | Institution |
|---|---|---|---|
| **Austria** | Jean-Paul Klein | Technical expert HIV/AIDS, tuberculosis, immunisation | *Ministry of Health* |
| **Belgium** | André Sasse | Epidemiologist | *Scientific Institute of Public Health* |
| **Bulgaria** | Tsvetana Yakimova | Chief Expert | *Ministry of Health* |
| **Cyprus** | Anna Nouska | AIDS Programme Manager | *Ministry of Health* |
| **Denmark** | Susan Cowan | Medical Consultant, Public Health | *Department of Epidemiology, Epidemiology Division* |
| **Estonia** | Aljona Kurbatova | Researcher | *Infectious Diseases and Drug Abuse Prevention Department, National Institute for Health Development* |
| **Finland** | Henrikki Brummer | Research Manager | *HIV Laboratory, National Institute for Health and Welfare* |
| **France** | Caroline Semaille | Medical Epidemiologist | *Institut de Veille Sanitaire* |
| **Germany** | Osamah Hamouda | Researcher | *Federal Ministry of Health* |
| **Greece** | Georgios Nikolopoulos | Epidemiologist | *HIV Infection Office, Hellenic Centre for Diseases Control and Prevention* |
| **Hungary** | Maria Dudas | Epidemiologist | *Hungarian National Centre for Epidemiology* |
| **Iceland** | Sigurlaug Hauksdóttir | Social Consultant | *Centre for Infectious Disease Control, Directorate of Health* |
| **Ireland** | Aidan O'Hora | Consultant in Public Health Medicine | *Health Protection Surveillance Centre* |
| **Italy** | Anna Maria Luzi // Anna Colucci | Scientific Chief. Communication and Training Operating Unit and Italian National Focal Point for Infectious Diseases and Migrant // Research Coordinator. Communication and Training Operating Unit. | *Department of Infectious, Parasitic and Immunomediated Diseases, National Institute of Health* |

| Country | Country representative | Position | Institution |
|---|---|---|---|
| **Latvia** | Inga Upmace | Head of AIDS Programme Department | *Infectology Centre* |
| **Lithuania** | Oksana Strujeva | Epidemiologist | *HIV/AIDS/STI and Hepatitis Epidemiological Surveillance Department, Centre for Communicable Diseases and AIDS* |
| **Luxemburg** | Robert Hemmer | Chairman, National AIDS Committee | *National Service of Infectious Diseases, Centre Hospitalier de Luxembourg* |
| **Malta** | Jackie Melillo | Public Health Physician | *Infectious Disease Prevention and Control Unit, Health Promotion and Disease Prevention Directorate, Ministry for Social Policy* |
| **Netherlands** | Eline Op de Coul | Epidemiologist | *Centre for Infectious Disease Control, National Institute for Public Health and the Environment* |
| **Norway** | Hans Blystad | Deputy Director | *Department of Infectious Disease Epidemiology, Norwegian Institute of Public Health* |
| **Poland** | Anna Marzec-Bogusławska | Director | *National AIDS Centre* |
| **Portugal** | Sónia Dias | Assistant Professor, International Health Department | *Institute of Hygiene and Tropical Medicine, University of Lisbon* |
| **Romania** | Mariana Mardarescu | Consultant in Infectious Diseases, Head of Paediatric and Adolescents Immunosuppression Department, Coordinator Compartment for Monitoring and Evaluation of HIV/AIDS | *National Institute for Infectious Diseases "Prof. Dr. Matei Bals" of Bucharest* |
| **Slovenia** | Mario Poljak | Head of Laboratory for Molecular Microbiology and Slovenian HIV/AIDS Reference Centre | *Institute of Microbiology and immunology, Faculty of Medicine, University of Ljubljana* |

| Country | Country representative | Position | Institution |
|---|---|---|---|
| **Slovakia** | Danica Stanekova//Alexandra Zampachova | Head, National Reference Center for HIV/AIDS Prevention // Epidemiologist | *National Reference Center for HIV/AIDS Prevention//Public Health Authority* |
| **Spain** | Olivia Castillo | Head, Prevention and Coordination, Department for National AIDS Strategy | *Ministry of Health and Social Policy* |
| **Sweden** | Robert Jonzon | Senior Programme Officer, National Coordination of HIV/STI Prevention Unit | *National Board of Health and Welfare* |
| **Switzerland** | Luciano Ruggia | Project Manager, International Affairs | *Federal Department of Home Affairs, Federal Office of Public Health, Division of Communicable Diseases. Prevention and Promotion Section* |
| **UK** | Valerie Delpech | Consultant Epidemiologist and Head of HIV and AIDS Reporting Section | *Centre for Infections, Health Protection Agency* |

## 9.2.2. APPENDIX 2. National websites searched

| Country | Website |
|---|---|
| **Austria** | www.bmg.gv.at |
| **Belgium** | www.sante.cfwb.be |
| **Bulgaria** | www.undp.bg<br>www.ncaids.government.bg |
| **Cyprus** | www.moh.gov.cy |
| **Czech Republic** | www.mzcr.cz |
| **Denmark** | www.ssi.dk |
| **Estonia** | www.tai.ee |
| **Finland** | www.stm.fi |
| **France** | www.sante.gouv.fr<br>www.cns.sante.fr<br>www.invs.sante.fr<br>www.has-sante.fr |
| **Germany** | www.bmg.bund.de |
| **Greece** | www.ermis.gov.gr |
| **Hungary** | www.eum.hu |
| **Iceland** | www.eng.heilbrigdisraduneyti.is |
| **Ireland** | www.dohc.ie |
| **Italy** | www.ministerosalute.it |
| **Latvia** | www.vm.gov.lv |
| **Liechtenstein** | www.liechtenstein.li |
| **Lithuania** | www.undp.org |
| **Luxembourg** | www.ms.public.lu |
| **Malta** | www.ehealth.gov.mt |
| **Netherlands** | www.minvws.nl |
| **Norway** | www.norad.no |
| **Poland** | www.aids.gov.pl |
| **Portugal** | www.min-saude.pt |
| **Romania** | www.unicef.org/romania |
| **Slovakia** | www.uvzsr.sk |
| **Slovenia** | www.mz.gov.si |
| **Spain** | www.msc.es |
| **Sweden** | www.sweden.gov.se |
| **Switzerland** | www.bag.admin.ch |
| **United Kingdom** | https://www.gov.uk |

### 9.2.3. APPENDIX 3. Questionnaire for the EU/EFTA country representatives

Dear colleague,

In the framework of the ECDC project " HIV testing and counselling inventory of good practices in migrant populations & ethnic minorities in the EU/EEA/EFTA Member States " we would like to kindly ask you 3 questions focusing specifically on migrants and ethnic minorities additional to the testing questionnaire you received a while ago:

1. Does your country currently have specific HIV testing & counselling recommendations targeting migrant population and/or minorities?

- ✓ Yes
- ✓ No
- ✓ Other comment _____

2. If you have answered yes to question 1, please state the year of publication of those recommendations? _____

3. If you have answered yes to question 1, are there any particular geographical origins specifically mentioned (ie: Sub-Saharan Africa, Caribbean). Please, provide detail below

_____

Finally, we would like to access these recommendations so, we kindly ask you to send us a copy of the document. If the document is written in a language different to English, French, Portuguese, Italian or Spanish, we ask you to please highlight the section where migrants and ethnic minorities are mentioned.

Thank you very much for your help, we know you are very busy and sincerely appreciate the time dedicated to this.

## 9.2.4. APPENDIX 4. Data collection form on HIV testing and counselling guidelines in the EEU/EFTA countries and IO

### Data collection form on HIV testing & Counselling Guidelines in the EEU/EFTA countries

| **Name of the document:** | | | |
|---|---|---|---|
| **Country:** | | Number of document: | **Date of publication of the document**: |
| **Source of document (website):** | **Sent under request: Contact:** | **Languages of publication:** | **Date of information collection:** |

### A. General information

**1. Type of document (ie, guidelines, health plan, other…).**

_____

**2. Organization issuing the document**

| | ***Specify organization*** |
|---|---|
| Public Health Body: | |
| Professional Association: | |
| Other | |

**3a. Does the document contain background information on WHY test for HIV infection?**

| | ***Mark "X"*** |
|---|---|
| Yes | |
| No | |
| NA | |

**3b.** *If yes in P3a.* **What arguments are presented for WHY test?**

| | ***Mark "X"*** |
|---|---|
| High frequency of late diagnosis | |
| Good uptake shown in previous studies | |
| Cost-economic | |
| Testing as prevention strategy | |
| Other (specify): | |

## 4. Types of benefits of early test

| | ***Specify*** |
|---|---|
| At individual level | |
| At community level | |

## 5. Does the document identify any vulnerable or most-at-risk group regarding HIV?

| | ***Mark "X"*** | ***Which? Please specify if further details*** |
|---|---|---|
| MSM | | |
| IDU | | |
| Migrants | | → ***specify*** |
| Ethnic Minorities | | → ***specify*** |
| Pregnant women | | |
| Sex workers | | |
| Male sexual workers | | |
| Transsexual people | | |
| Truck drivers | | |
| Prisoners | | |
| Young people | | |
| General population | | |
| Other populations | | → ***specify*** |

## 6. Does the document justify why migrants and ethnic minorities are vulnerable populations? Please, summarize briefly

| |
|---|
| |

## 7. Who to test? Please, tick the groups where HIV testing is recommended

| | ***Mark "X"*** | ***Which? Please specify if further details*** |
|---|---|---|
| MSM | | |
| IDU | | |
| Migrants | | → ***specify*** |
| Ethnic Minorities | | → ***specify*** |
| Pregnant women | | |
| Sex workers | | |
| Male sexual workers | | |
| Transsexual people | | |
| Truck drivers | | |
| Prisoners | | |
| Young people | | |
| General population | | |
| Other populations | | → ***specify*** |

**10. Who, where, how often to test, and which testing strategy?** Please, if group no targeted for HIV testing state "No policy on this group".

| Population | How often? | Where? | Define testing strategy |
|---|---|---|---|
| MSM | | | |
| Female contacts of MSM | | | |
| IDU or History of IDU | | | |
| Migrants. **Please, specify migrants groups targeted:** _____ | | | |
| Contacts of migrants | | | |
| Contacts of HIV-positive people | | | |
| Ethnic Minorities. **Please, specify minority groups targeted:** | | | |
| People with an STI | | | |

| | | | |
|---|---|---|---|
| Pregnant women | | | |
| Sex workers | | | |
| Male sexual workers | | | |
| Transsexual people | | | |
| Truck drivers | | | |
| Prisoners | | | |
| Young people | | | |
| General population | | | |
| Population attending STI Clinics | | | |
| Population attending TB Clinics | | | |
| Population attending TOP Clinics | | | |
| Population attending Drug programmes | | | |
| People with clinical suspicion of HIV | | | |
| Other populations | | | |
| | | | |
| | | | |

**11. Where to test?**

| Opt-out strategy | VTC strategy |
|---|---|
| | |

**12. Are novel testing approaches mentioned?**

| | ***Specifications: who, where, when…*** |
|---|---|
| Rapid test | |

| | |
|---|---|
| Home test | |
| Others | |

**13. Please, describe briefly any recommendation about pre and post counselling. Pay special attention to <u>specific recommendations for migrant and ethnic minorities</u>**

| |
|---|
| |

## B. Specific issues for migrant or minorities populations

**14. Please, provide the <u>definition of migrant and ethnic minority</u> (if available)**

| |
|---|
| |

**14a.** *(If migrant or ethnic minority definition available)* **In case of migrant definition, it refers…**

| | *Mark X* |
|---|---|
| Country of birth | |
| Country of nationality | |
| Country of origin | |
| Other (***specif.***)_____ | |
| No one | |

**15. Does the document address testing in community setting <u>for migrant populations</u>?**

| |
|---|
| |

**16. Does the document mention testing barriers for migrant/ethnic minorities? Please, summarize briefly.**

| |
|---|
| |

**17. Does the document mention HIV screening migrants on arrival?**

| | *Mark X* |
|---|---|
| 1. Yes | |
| 2. No | |
| 3. DK | |

**17.a***(If Yes in 17).* **Please, summarize the information about testing on arrival**

| |
|---|
| |

**18. Please, summarize the information about consequences of testing results in migrant legal status**

| |
|---|
| |

**19. Are there references to the gender dimension of testing policies?**

| |
|---|
| |

**20. Other issues**

| |
|---|
| |

## 9.2.5. APPENDIX 5. List of documents used (provided by National informants or found in web search)

| Country | Document | Type | Language |
|---|---|---|---|
| **Belgium** | *Les strategies concertées du secteur de la prévention des IST/SIDA en Communauté française de Belgique; Les migrants (2009). Proactief HIV-testen en –counselen voor subsah (2010)* | Recommendations issued by French and Flemish Communities | French |
| **Bulgaria** | *National Programmes for Prevention and Control of HIV and STIs (2008-2015)* | HIV National strategy | Bulgarian |
| **Cyprus** | *Strategic plan 2004 – 2008 HIV/AIDS Cyprus (in drafting a new version)* | HIV National strategy/National plan | English |
| **Czech Republic** | *Národní program řešeníproblematiky HIV/AIDS v Českérepublice v období let 2008 – 2012 (dálejen program)* | HIV National strategy/National plan | Czech |
| **Denmark** | *EPI-news. National surveillance of communicable diseases. No. 46, 2009* | Communicable diseases unit communiqué | English |
| **Estonia** | *Eesti riiklik HIV ja AIDSi strateegia aastateks 2006 – 2015* | HIV National strategy/National plan | Estonian |
| **Finland** | *Suomenhiv-strategia 2013-2016 Pakolaisten jaturvapaikanhakijoiden infektio-ongelmienehkäisy.* | Recommendations | Finnish |
| **France** | *HIV screening in France – Public health guidelines, 2009* | Guide | French |
| **Germany** | *Action Plan to implement the Strategy of the Federal Government to fight HIV/AIDS, 2007* | HIV National strategy/National plan | English |
| **Hungary** | *Nemzeti AIDS stratégia 2004 –2010* | HIV National strategy/National plan | Hungarian |
| **Iceland** | *Procedures for the Medical Examination of Immigrants to Iceland. 2007* | Law | English |
| **Ireland** | *HIV and AIDS Education and Prevention Plan 2008 – 2012* | HIV National strategy/National plan | English |
| **Italy** | *Aggiornamento delle conoscenze sulla terapia dell'infezione da HIV -Documento Complementare su Specifiche Materie, Febbraio 2008* | Work document | Italian |

| Country | Document | Type | Language |
|---|---|---|---|
| **Lithuania** | *National HIV / AIDS and STI Prevention and Control Programme for 2010- 2012* | HIV National strategy/National plan | English |
| **Luxembourg** | *Strategie et plan action sida 2006-2010* | HIV National strategy/National plan | French |
| **Malta** | *Communicable disease control strategy for Malta. 2003* | National strategy | English |
| **Netherland** | *Regeling. Aanvullende Curatieve Soa-bestrijding. 2008* | Work document | Dutch |
| **Norway** | *Strategy: Acceptance and coping. National HIV strategy 2009-2014 (2009)* | HIV National strategy/National plan | English |
| **Poland** | *Polskie Towarzystwo Naukowe AIDS. REKOMENDACJE PTN AIDS 2006 Zasady Opieki Medycznej nad Osobami Zakażonymi HIV* | Recommendations | Poland |
| **Portugal** | *Programa nacional de prevenção e controlo da infecçãovih/sida. 2007-2010* | HIV National strategy/National plan | Portuguese |
| **Romania*** | *National strategy for surveillance, control and prevention of HIV/AIDS 2004-2007* | HIV National strategy/National plan | English |
| **Slovakia** | *ODBORNÉ USMERNENIE nazabezpečenieprevencieinfekciespôsobeneivírusomimunitnejnedostatočnostičloveka v Slovenskejrepublike.* | HIV National strategy/National plan | Slovak |
| **Slovenia** | *Strategija prepreevanja in obvladovanjaokužbe s hivzaobdobje 2010–2015* | HIV National strategy/National plan | Slovene |
| **Spain** | *Plan Multisectorial frente a la infección por VIH y el sida España 2008-2012* | HIV National strategy/National plan | Spanish |
| **Sweden** | *Nationell strategi mot hiv/aids och visa andra smittsamma sjukdomar. National Strategy to Combat HIV/AIDS and Certain Other Communicable Diseases (2007)* | HIV National strategy/National plan | Swedish/ English |
| **Switzerland** | *Recommandations de l'OFSP sur le conseil et le dépistage volontaire du VIH (VCT) au moyen d'un test VIH rapide dans les centres de dépistage* | Guide | French |
| **UK** | *UK National Guidelines for HIV Testing 2008* | Guide | English |

## 9.2.6. APPENDIX 6. International websites searched

| International Organization | Website |
|---|---|
| **WHO** | www.who.int |
| **UNAIDS** | www.unaids.org |
| **ILO** | www.ilo.org |
| **IUSTI** | www.iusti.org |
| **IOM** | www.iom.int |

## 9.2.7. APPENDIX 7.Data collection form for the systematic review

| Data collection form for the systematic review | | |
|---|---|---|
| PERSON WHO FULFILS THE FORM: | Nº of reference<br>/___/___/___/ | Year of paper publication: |
| Title of the paper: | | Date of data collection:<br>/____/____/ /____/____/ 2.010 |

**SECTION 0.Paper validation.**

**P.0.Please, mark the criteria the article fulfils.** *Mark with X where necessary*

| | *Mark with "X"* |
|---|---|
| About migrant/ethnic minorities populations | |
| About HIV testing | |
| In English | |
| Is an original paper | |
| In the selected countries (Europe, US, Canada or Australia) | |

**Si all marked go to P1**

**P0B**. *(Only if not all marked in P0).* **Although the article does not meet all of the inclusion criteria, do you think it's interesting collect relevant information?**

| | |
|---|---|
| Yes | |
| No | |

→ *Go to P1: Data collection form*
→ *Go to P1b and then END*

**P0C**. (Only if *P0B is "No").* **Please make a brief description of the paper (objectives, target population) and argue why do you think you should not collect information on it.**

| |
|---|
| **Brief description of the paper:**<br><br>**Reasons for not collecting information:** |

**Data collection form**

**P1.- (***For all selected articles).***Brief summary of the aim of the article, including a brief description of the methodology.**

| |
|---|
| |

**P2. Theme/s.** *Mark withX where necessary. Multiple responses are possible.*

| | *Mark with "X"* |
|---|---|
| Policies/ recommendations at policies level | |
| Recommendations derived from a research | |
| Migrants/ethnic minorities as group most at risk | |
| Barriers to access to the HIV test/health services | |
| Research about interventions | |
| Evaluation programs | |
| Economic evaluations | |
| HIV testing acceptance prevalence | |
| Risk behaviours | |
| VIH prevalence | |
| Other (specify)_____ | |

**P3.- Place where has been made the study / research.** *Mark with X where necessary. Multiple responses allowed.*

| | *Mark with "X"* | | ***Specify country*** |
|---|---|---|---|
| Europe | | → **Where?** | |
| USA | | | |
| Canada | | | |
| Australia | | | |
| Other | | → **Where?** | |

**P4. In which year have been carried out the fieldwork/data collection?** *We refer to the dates of fieldwork or data collection, NOT to the year of article publication.*

**Year** /_/_/_/_/

**If different years or longitudinal researches collect here the dates:_____

**P5a.Research type**

| *Mark with "X"* | **Research type** | *Mark with "X"* | **Instrument for data collection** | *Mark with "X"* |
|---|---|---|---|---|

| *Select an option* | | | | | | |
|---|---|---|---|---|---|---|
| | **1. Qualitative** | | In depth interview | | Script | |
| | | | Focus group | | Semi-structured questionn. | |
| | | | Life story | | Structured questionnaire | |
| | | | Participant Observation | | Other***(specify)*** | |
| | | | Other***(specify)*** | | Not know | |
| | | | **How the interviews have been done?** | | **How the questionnaire has been applied?** | |
| | **2. Quantitative** | | Telephone | | Self-administered | |
| | | | Personal | | With interviewers | |
| | | | Mail | | There are not interview | |
| | | | Prevalence study | | Other ***(specify)*** | |
| | | | Other ***(specify)*** | | Not know | |
| | **3. Narrative:** *description of events or interventions. Paper in which there are not field work nor is there a systematic review of documentation* | | ***Describe the methodology*** | | | |
| | **4. Systematic review** | | ***Describe inclusion criteria and methodological details*** | | | |

**P5b.Methodological characteristics of the study.**

| | | | | |
|---|---|---|---|---|
| **Research design:** *Brief summary of research design: indicate whether transversal or longitudinal, etc. .* | | | | |
| **Population (universe):** *target description* | | | | |
| **Sample strategy:** *Sample size and sampling distribution, contact strategies with participants ...* | | | | |
| **Scope of investigation and type of sample** | Clinic | | Sample from population | |
| | Street | | Convenience sample | |
| | Home | | Other (Specify) | |
| | Other (Specify) | | | |
| **Scope of the study** | 1.International | | → ***Specify*** _____ | |
| | 2.National | | →***Specify*** _____ | |
| | 3.Local | | →***Specify*** _____ | |
| | 5.Other | | →***Specify*** _____ | |
| **Comments** | | | | |

**P6a. Definition of migrant / minority in the article.**

| |
|---|
| |

**P6b. In the definition of migrant the article refers to ...**

| | *Mark X* |
|---|---|
| Country of birth | |

| | |
|---|---|
| Country of nationality | |
| Country of origin | |
| Other (***Specify***)_____ | |
| None | |

**P7. Justification of the authors of the reasons why the publication is specifically about migrants / minorities.**

| |
|---|
| |

**P8a. Do the authors consider explicitly migrants as a most at risk group regarding to HIV?** *We refer to explicitly consider whether this is a more vulnerable population to HIV.*

| | *Mark with "X"* |
|---|---|
| Yes | |
| No | |

**P8b.** *(if P8a=Yes.)* **Why migrant are considered as most at risk populations regarding to HIV?**

| |
|---|
| |

**P9.***(If it is about HIV testing prevalence).***HIV testing prevalence data.***Indicate numerator and denominator of the estimation. We have included several columns for the case there would be disaggregated data for different targets (Indicate in the column header or target profile of the group referred to: e.g. general population, migrants ...)*

| | ***Target 1 (specify)*** | ***Target 2 (specify)*** | ***Target 3 (specify)*** | ***Target 4 (specify)*** |
|---|---|---|---|---|
| *Prevalence of acceptance* | | | | |
| *Numerator* | | | | |
| *Denominator* | | | | |

**P10.** *(If is about testing barriers).* **Testing barriers in migrant/ethnic minorities and causes of these barriers**

| | |
|---|---|
| Barriers: | |
| Causes of the barriers: | |

**P11. Specific interventions/policies recommended improving HIV testing and counselling.** *Specify indicating the specific interventions proposed.*

| | |
|---|---|
| *Testing interventions* | |
| *Counselling interventions* | |

**P12. Main finding (explained briefly)**

| |
|---|
| |

**P13. Add other questions that the researcher consider relevant**

| |
|---|
| |

**P14a. Quality assessment.** *Mark with "X"*

| | *Very Good* | *Good* | *Poor* | *Very Poor* | *Without information* |
|---|---|---|---|---|---|
| **1. The article is based on a clearly defined research question** | | | | | |
| **2. Internal validity: the study is well designed, according to its characteristics, allowing, where appropriate, to minimize bias.** | | | | | |
| **3. Results are well described, are useful and accurate** | | | | | |
| **4. External validity. The results are generalizable to the population and context in which they are interested in be applied** | | | | | |

| | *High* | *Medium* | *Low* |
|---|---|---|---|
| **5. Overall quality rating for the article** | | | |

**P14b. Comments about the quality assessment.**

| |
|---|
| |

**15. Does the article include any reference to gender specific issues?** *Please, explain it briefly.*

| |
|---|
| |

**P16. Does the article include any reference to the legal implications of the HIV testing uptake and the results of the test for immigrants?** *If yes, please briefly explain what kind of implications*

| |
|---|
| |

**P17. References in the bibliography of the article to articles of interest for our research**

| |
|---|
| |

## 9.2.8. APPENDIX 8.Participants in the group interviews.

| Participants | Organization | Country |
|---|---|---|
| **Group 1** | | |
| Ana M. Caro | Instituto de Salud Carlos III | Spain |
| Fiona Burns | University College London | UK |
| Georg Bröring | Netherlands | Former AIDS & Mobility |
| Wilhelm Miebach | Ministry of Health | Germany |
| Robert Jonzon | National Board of Health and Welfare | Sweden |
| Valerie Delpech | Health Protection Agency | UK |
| Kevin Fenton | Centre for Disease Control | USA |
| Ann Singleton | University of Bristol | UK |
| Debora Alvarez | Instituto de Salud Carlos III | Spain |
| Mary Haour-Knipe | Consultant – HIV Data Project | Switzerland |
| Maria Jose Peiro | IOM Brussels | Belgium |
| GiedriusLikatavicius | ECDC | Sweden |
| Tobias Bergroth | KarolinskaInstitutet | Sweden |
| **Group 2** | | |
| Julia del Amo | Instituto de Salud Carlos III | Spain |
| Brian Rice | Health Protection Agency | UK |
| Olivia Castillo | Ministry of health | Spain |
| Dermot Gorman | University of Edinburgh | UK |
| Maureen Louhenapessy | AIDS & Mobility focal point | Belgium |
| IbiFakoya | University College London | UK |
| Jonathan Elford | University College London | UK |
| Roger Drew | Dublin Declaration consultant | UK |
| Sonia Dias | Instituto de Higiene e Medicina Tropical | Portigal |
| RoumyanaPetrova-Benedict | IOM Brussels | Belgium |
| Susana Monge | Instituto de Salud Carlos III | Spain |

| | | |
|---|---|---|
| Mika Salminen | ECDC | Sweden |
| Johann Fontaine | ECDC | Sweden |

## 9.2.9. APPENDIX 9. Group interview script

1. How are HIV testing recommendations being implemented in migrants? How are migrants and ethnic minorities in the community perceiving this implementation?

2. What are the implications of a more active HIV testing promotion for those not entitled to ART (irregular migrants)

3. Could public health criteria to treat TB also be applicable to treatment for HIV?

4. Are you aware of any HIV testing initiative targeting migrant men?

5. Key issues regarding late presentation?

6. Other issues

## 9.2.10. APPENDIX 10.Script for the key informants interviews.

Person and his institution: Short presentation.

**1.** Recent guidelines issued by CDC, France or UK have a general population testing approach, opt-out routinely screening with no lengthy pre-test counselling. Do you think this strategy is a good strategy to improve uptake of testing in migrants and ethnic minorities? Please, expand your answer (yes or no). In particular, most studies suggest that uptake of testing, when testing is universal, has increased. Do you think this is also the case for migrants and ethnic minorities?

**2.** Over the last few years, a more active approach to HIV testing is being adopted by most Public Health Bodies; most recommend an opt-out approach for the general population given certain HIV prevalence values. What is your perception about:

1) How are health care providers implementing this strategy? In general and in particular for migrants and ethnic minorities.

2) How do migrants perceive this move towards more pro-active testing? Are there any differences in their perception you want to highlight according to geographical origin, gender or sexual orientation? In particular, how are migrants of uncertain residence status taking the new recommendations?.

**3.** We tell people: “we want to test you, we want to treat, we want to retain you”. In some settings though, migrants of uncertain status are not entitled to antiretroviral treatment. What are your thoughts about promoting active testing in settings where the law does not guarantee universal access to treatment?

**4.** Are you aware of any novel initiatives that promote HIV testing at community levels targeting migrants and ethnic minorities, in particular, those who do not access health care settings? If so, can you describe them?

**5.** When examining the number of HIV infected women from sub Saharan Africa in Europe the number nearly doubles the number of reported sub Saharan men. We are progressively speaking about "Feminization of the epidemic" but this may also reflect feminization of testing, as most women are been diagnosed in prenatal care. So, one would have the impression that we have more African women diagnosed than men. Are you aware of any initiative targeting heterosexual men in general and migrant and ethnic minority men in particular? Could you think on innovative ways to engage men to use health care systems?

**6.** For UK only…recommendations state to offer test to people registering in GP practices… what about those already registered.

## 9.2.11. APPENDIX 11. Main countries classification

| Western Europe | Turkmenistan | North Africa & Middle East | North America |
|---|---|---|---|
| Andorra | Ukraine | Algeria | Canada |
| Austria | Uzbekistan | Bahrain | United States of America |
| Belgium | | Egypt | |
| Denmark | | Iraq | **Caribbean** |
| Finland | **Sub-Saharan Africa** | Jordan | Antigua and Barbuda |
| France | Angola | Kuwait | Bahamas |
| Germany | Benin | Lebanon | Barbados |
| Greece | Botswana | Libya | Cuba |
| Iceland | Burkina Faso | Libyan | Dominican Republic |
| Ireland | Burundi | Morocco | Grenada |
| Israel | Cameroon | Oman | Haiti |
| Italy | Central African Republic | Qatar | Jamaica |
| Luxembourg | Chad | Saudi Arabia | St. Vincent & Grenadines |
| Malta | Comoros | Sudan | Trinidad and Tobago |
| Monaco | Congo | Syria | |
| Netherlands | Dem. Rep. Congo | Tunisia | **Latin America** |
| Norway | Cote d'Ívore | United Arab Emirates | Argentina |
| Portugal | Djibouti | Yemen | Belize |
| San Marino | Equatorial Guinea | | Bolivia |
| Spain | Eritrea | **Eastern Asia Pacific** | Brazil |
| Sweden | Ethiopia | China | Chile |
| Switzerland | Gabon | Fiji | Colombia |
| United Kingdom | Gambia | Hong Kong | Costa Rica |
| **Central Europe** | Ghana | Japan | Ecuador |
| Albania | Guinea | Korea Democratic | El Salvador |
| Bosnia & Herzegovina | Guinea Bissau | Korea Republic of | Guatemala |
| Bulgaria | Kenya | Mongolia | Guyana |
| Croatia | Lesotho | Papua new guinea | Honduras |
| Cyprus | Liberia | | Mexico |
| Czech Republic | Madagascar | **South & S-East Asia** | Nicaragua |
| Hungary | Malawi | Bangladesh | Panama |
| Macedonia | Mali | Bhutan | Paraguay |
| Montenegro | Mauritania | Brunei | Peru |
| Poland | Mauritius | Cambodia | Suriname |
| Romania | Mozambique | India | Uruguay |
| Serbia | Namibia | Indonesia | Venezuela |
| Slovakia | Niger | Iran | |
| Slovenia | Nigeria | Laos | |
| Turkey | Rwanda | Malaysia | |
| **Eastern Europe** | Sao Tome and Principe | Maldives | |
| Armenia | Seychelles | Myanmar | |
| Azerbaijan | Sierra Leone | Nepal | |
| Belarus | Somalia | Pakistan | |
| Estonia | South Africa | Philippines | |
| Georgia | Swaziland | Singapore | |
| Kazakhstan | Tanzania | Sri Lanka | |
| Kyrgyzstan | Togo | Thailand | |
| Latvia | Uganda | Vietnam | |
| Lithuania | Zambia | | |
| Moldavia | Zimbabwe | **Australia & New Zea.** | |
| Moldova, Republic of | Cape Verde | Australia | |
| Russian federation | Senegal | New Zealand | |
| Tajikistan | Seychelles | | |

## 9.2.12. APPENDIX 12. Population data sources

| Country | Variable | Data available | Source | Contact | Comments |
|---|---|---|---|---|---|
| **Austria** | Country of birth | 2007-2012 by sex | Statistik Austria | Dagmar Lentsch | - |
| **Belgium** | Nationality | 2007-2011 | DirectiongénéraleStatistique et Information économique | Cécile Cuypers | **Period changes are due to changes in the aggregation provided by the source |
| **Bulgaria** | Nationality | 2007-2012 | National statistical Institute of Bulgaria | Generic response | - |
| **Cyprus** | Country of birth (broad groups) | 2010-2012 | Statistical Service of Cyprus | Loukia Makri | Population by citizenship and country of birth is only available for the years 2010-2012. Countries of citizenship and birth are only available by broad groups, i.e. Nationals, EU, non-EU etc. |
| **Czech Republic** | Nationality | 2010-2012 | Czech Statistical Office | Barbora Serbusova | Population from reporting country / foreign population: own calculations based on the total population and disaggregated data |
| **Denmark** | Country of origin | 2007-2012 | Statistics Denmark | Anna Dorthe Bracht | - |
| **Estonia** | Country of birth | 2011 | Statistics Estonia | Evelin Oimandi | Official statistics about population by country of birth only available from Housing Census once every 10 years. Total population data differs among years because we use two different sources (census vs. population register) |

| Country | Variable | Data availabl e | Source | Contact | Comments |
|---|---|---|---|---|---|
| **Finland** | Country of birth | 2007-2012 | Statistics Finland | Irma Pitkanen | - |
| **France** | Country of birth | 2009-2010 | Institut National d'Etudes Demographiques | Martine Deville | The last results are for the year 2010. The previous results 2006-2008 are not available because technical problems. Population from reporting country / foreign population: own calculations based on the total population and disaggregated data |
| **Germany** | Nationality | 2007-2012 | Eurostat | Daniela Glock | Information provided by country was not disaggregated by sex |
| **Greece** | Nationality | 2007-2012 (aggrega ted) | ELSTAT | Nektaria Tsiligaki | Available only by grouped citizenships |
| **Hungary** | Nationality | 2007-2012 (not disaggre gated) | Hungarian Central Statistical Office | Edit Pék | Very grouped into continent's countries. Population from reporting country / foreign population: own calculations based on the total population and disaggregated data |
| **Iceland** | Nationality | 2008, 2010-2012 | Eurostat | No response | Not available for 2007 and 2009 |
| **Ireland** | Country of birth | 2007-2012 (not disaggre gated) | Eurostat | Neil Nugent | . |
| **Italy** | Nationality | 2007-2011 | Istat | Antonella Ciccarese | Not available for 2012. Population from reporting country / foreign population: own calculations based on the total population and disaggregated data |

| Country | Variable | Data availabl e | Source | Contact | Comments |
|---|---|---|---|---|---|
| **Latvia** | Country of birth | 2007-2011 | Eurostat | Baiba Zukula | Country representative didn't send disaggregated data. We take information from Eurostat |
| **Lithuani a** | Country of birth | 2007-2012 | Statistics Lithuania | Vilma Malinauskienė | - |
| **Luxemb ourg** | Nationality | 2007-2012 (only aggrega ted data) | Eursotat | No response | Data by single country are not available |
| **Malta** | Country of birth | 2008-2011 (aggrega ted only) | National Statistics Office of Malta | Margaret Zammit | They don't have data on immigrants by single countries. |
| **Netherl ands** | Nationality | 2007-2012 | Statistics Netherlands | Cor Kooijman | To calculate the total population we used the disaggregated data, and the result is not the same that total population data provided by country representative |
| **Norway** | Nationality | 2007-2012 | Statistics Norway | Jan Bruusgaard | - |
| **Poland** | Nationality | 2007-2012 | Central Statistical Office of Poland/Eurostat | Halina Dabrowko | They have also people they consider migrants born in Poland. Finally we use data from Eurostat |

| Country | Variable | Data availabl e | Source | Contact | Comments |
|---|---|---|---|---|---|
| **Portugal** | Nationality | 2008-2012 | Instituto Nacional de Estadística (Portugal) | Generic response | - |
| **Romania** | Country of birth | 2007-2009; 2012 | Eurostat | No response | - |
| **Slovakia** | Nationality | 2007-2012 | Eurostat | No response | - |
| **Slovenia** | Country of birth | 2007-2012 | Statistical Office of the Republic of Slovenia/Eurostat | Barica Razpotnik | - |
| **Spain** | Country of birth | 2007-2012 | Instituto Nacional de Estadística/Eurostat | Not contacted | We use data from Eurostat, because in the INE data appears also "Spain" as country of birth |
| **Sweden** | Country of birth | 2007-2012 | StatisticsSweden | Inge Göransson | Population birth on reporting country based on own calculate |
| **UK** | Country of birth | 2007-2012 (only aggrega ted) | Office for National Statistics /Eurostat | Claire Burridge | They have data split only for the 50 main nationalities (and are estimations). Finally we use aggregated data from Eurostat |

## 9.2.13. APPENDIX 13. Distribution of HIV total diagnoses about geographical origin according to reporting country of the UE/EEA.

| | | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 |
|---|---|---|---|---|---|---|---|
| Austria | Total | 335 | 345 | 301 | 317 | 309 | 306 |
| | Unknown GO | 5 | 4 | 1 | 0 | 2 | 0 |
| Belgium | Total | 1063 | 1087 | 1127 | 1196 | 1182 | 1226 |
| | Unknown GO | 290 | 287 | 313 | 317 | 297 | 338 |
| Bulgaria | Total | 126 | 123 | 171 | 163 | 201 | 157 |
| | Unknown GO | 0 | 2 | 0 | 0 | 0 | 0 |
| Cyprus | Total | 46 | 37 | 38 | 41 | 54 | 58 |
| | Unknown GO | 0 | 0 | 0 | 0 | 0 | 1 |
| Czech Republic | Total | 121 | 148 | 156 | 180 | 153 | 212 |
| | Unknown GO | 0 | 0 | 0 | 0 | 0 | 0 |
| Germany | Total | 2776 | 2826 | 2869 | 2908 | 2881 | 2950 |
| | Unknown GO | 445 | 456 | 414 | 458 | 429 | 243 |
| Denmark | Total | 306 | 285 | 236 | 275 | 266 | 200 |
| | Unknown GO | 8 | 1 | 2 | 8 | 4 | 2 |
| Estonia | Total | 633 | 545 | 411 | 376 | 366 | 315 |
| | Unknown GO | 633 | 545 | 374 | 220 | 221 | 0 |
| Spain | Total | 2671 | 3188 | 3340 | 3575 | 3244 | 3210 |
| | Unknown GO | 4 | 2 | 1 | 1 | 1 | 3 |
| Finland | Total | 187 | 147 | 172 | 184 | 172 | 156 |
| | Unknown GO | 2 | 6 | 3 | 4 | 14 | 13 |
| France | Total | 5659 | 5743 | 5428 | 5527 | 5374 | 4066 |
| | Unknown GO | 1463 | 1491 | 1444 | 1505 | 1598 | 1396 |
| Greece | Total | 551 | 603 | 592 | 626 | 940 | 1059 |
| | Unknown GO | 19 | 21 | 28 | 33 | 58 | 61 |
| Hungary | Total | 98 | 119 | 122 | 151 | 133 | 200 |
| | Unknown GO | 1 | 0 | 0 | 0 | 0 | 1 |
| Ireland | Total | 391 | 404 | 395 | 330 | 323 | 339 |
| | Unknown GO | 100 | 88 | 86 | 53 | 62 | 121 |
| Iceland | Total | 13 | 10 | 15 | 24 | 23 | 19 |
| | Unknown GO | 3 | 0 | 7 | 1 | 4 | 3 |
| Italy | Total | 1960 | 2038 | 2563 | 3925 | 3748 | 3896 |
| | Unknown GO | 1960 | 2038 | 2563 | 116 | 30 | 35 |
| Lithuania | Total | 106 | 95 | 180 | 153 | 166 | 160 |
| | Unknown GO | 0 | 1 | 0 | 0 | 6 | 5 |
| Luxemburg | Total | 44 | 57 | 54 | 49 | 48 | 54 |
| | Unknown GO | 0 | 0 | 0 | 1 | 0 | 1 |
| Latvia | Total | 350 | 358 | 275 | 274 | 299 | 339 |
| | Unknown GO | 246 | 266 | 172 | 179 | 208 | 234 |
| Malta | Total | 14 | 4 | 8 | 18 | 21 | 30 |
| | Unknown GO | 4 | 0 | 0 | 0 | 3 | 0 |
| Netherland | Total | 1219 | 1288 | 1173 | 1157 | 1083 | 976 |
| | Unknown GO | 2 | 3 | 3 | 1 | 0 | 2 |
| Norway | Total | 248 | 299 | 282 | 258 | 269 | 242 |
| | Unknown GO | 1 | 0 | 2 | 155 | 152 | 152 |
| Poland | Total | 727 | 762 | 883 | 865 | 1073 | 1058 |
| | Unknown GO | 28 | 19 | 172 | 211 | 244 | 201 |
| Portugal | Total | 1861 | 1900 | 1708 | 1511 | 1218 | 721 |
| | Unknown GO | 23 | 26 | 26 | 30 | 11 | 9 |
| Romania | Total | 173 | 259 | 253 | 274 | 427 | 489 |
| | Unknown GO | 0 | 0 | 0 | 0 | 0 | 0 |
| Sweden | Total | 472 | 414 | 409 | 448 | 382 | 362 |
| | Unknown GO | 12 | 14 | 18 | 19 | 16 | 30 |
| Slovenia | Total | 37 | 48 | 48 | 35 | 55 | 45 |
| | Unknown GO | 1 | 1 | 1 | 0 | 1 | 1 |
| Slovakia | Total | 39 | 53 | 53 | 28 | 49 | 50 |
| | Unknown GO | 0 | 1 | 1 | 1 | 0 | 0 |
| United Kingdom | Total | 7381 | 7268 | 6672 | 6358 | 6211 | 6358 |
| | Unknown GO | 1525 | 1251 | 737 | 806 | 861 | 1469 |
| | Total | 29607 | 30453 | 29934 | 31226 | 30670 | 29253 |
| | Unknown GO | 6775 | 6523 | 6368 | 4119 | 4222 | 4321 |
| | Total included in the analysis | 22832 | 23930 | 23566 | 27107 | 26448 | 24932 |

## 9.2.14. APPENDIX 14. Description of articles included in the systematic review

| Author/ date | Main objective | Location | Design | Sample size | Study population | Setting |
|---|---|---|---|---|---|---|
| Monge-Maillo B et al. (2009) | To determine which infectious diseases were most common among two mobile immigrant groups (sub-Saharan Africans and Latin Americans) in Spain. Two aims of the study were to improve awareness among clinicians of emerging infections associated with human mobility and to provide additional information about imported diseases. | Spain (Madrid) | Cross-sectional | 2198 | Latin American and sub-Saharan African immigrants seeking health care at TMU | Health (hospital) |
| Boyd AE et al. (2005) | To establish whether there were ethnic differences in demographic characteristics, the stage at HIV diagnosis and reasons for and location of HIV testing between 1998 and 2000 in a large ethnically diverse HIV-1-infected clinic population in south London in the era of highly active antiretroviral therapy. | UK (London) | Medical history review | 494 | Patients with new HIV-1 diagnoses attending a hospital between January 1998 and December 2000 | Health (hospital) |
| Vissman AT et al. (2009) | To explore the experiences of male Latino LHAs (Lay Health Advisers) within an HIV and STD prevention intervention: psychosocial and sociocultural influences on HIV risk, settings for risky behaviour, and personal changes from serving as Navegantes. | US (South Carolina) | Life histories | 9 | "Navegantes": Latinos men trained to advise about STD and HIV risk behaviours | Community (Association) |
| Forbes KM et al. (2008) | To explore STI test acceptability and patient socio-demographic characteristics in a local STI clinic for young people. | UK (city not specified) | Medical history review | 117 | Young people under 25 years attending a sexual health clinic in an area populated mostly by "non-white people" | Health (Health centre/ clinics/ GU's) |
| Fakoya I et al. (2008) | To describe the major cultural, social, and structural barriers to testing for HIV in black African immigrants (SSA) in western Europe (particularly in the UK and Netherlands). The article includes a brief literature review. | UK and Nether-lands | Documents/reports review | Not applicable | Migrant black Africans | Not applicable |
| Olshefsky AM et al. (2007) | This article describes the development, implementation and evaluation of an 8 week culturally specific Spanish-language social marketing campaign targeting Latinos living on the California-Mexico border. | US (Califor-nia) | Cross-sectional+ focus group | 5 focus group (40 Latinos), 429 media exposure surveys | As the campaign was in Spanish, the targeted audience was Latinos living near the California-Mexico border, including high-risk Latinos, transborder, farm workers, youth sex workers and MSMs | Community (various) |

| Author/ date | Main objective | Location | Design | Sample size | Study population | Setting |
|---|---|---|---|---|---|---|
| Ehrlich SF et al. (2007) | To identify the characteristics of Latino migrant day labourers that are related to their intentions to test for HIV. | US (Berkeley, Oakland and Richmond) | Cross-sectional | 290 | Sexually active, male Latino migrant day labourers who were 18 years of age or older. | Community (Street) |
| Delpierre C et al. (2007) | To develop new strategies aimed at reducing the delay in seeking HIV diagnosis, the authors proposed to identify correlates of late diagnosis of HIV infection in France. The survey aimed to describe the impact and determinants of HIV infection on the social situation of persons living with HIV-AIDS. | France (National) | Cross-sectional | 1077 | Patients diagnosed with HIV1-infection for at least 6 months, aged 18 or older, and living in France for at least six months. Patients with very poor understanding of the French language were excluded | Health (several hospitals) |
| Zencovich M et al. (2006) | Results of the first two years of an active, migration medical screening program for HIV antibodies in applicants for permanent or temporary residency in Canada. Implications for immigrant health outcomes, program impacts at the national and regional public health level, and the considerations for global public health policy related to HIV/AIDS are presented. | Canada (National) | Cross-sectional | 634958 | Applicants for long-term visas or asylum in Canada during 2003 and 2002 who were over 15 years of age | Not applicable |
| Mitra D et al. (2006) | To describe the decision support needs of immigrant and refugee women from HIV endemic countries regarding decision-making about voluntary counselling and testing for HIV (VCT) in Canada; and the needs of practitioners who support these women in making this decision, in a culturally appropriate manner. | Canada (Ottawa) | In-depth interviews | 12 practitioners and 8 patients | 1) Informant group consisted of adult, English-speaking, immigrant and refugee women from HIV-endemic countries presently living in Ottawa; 2) The practitioner informant group consisted of VCT providers from diverse clinical backgrounds who primarily worked with immigrant populations. | Health (Health centre/clinics/GU's) |
| Conaty SJ et al. (2005) | Audit of three obstetric units serving typically diverse multi-ethnic inner city populations regarding antenatal HIV testing with the aim of assessing progress towards the NHS target of 90 per cent uptake and characterizing women who declined HIV screening. | UK (London) | Cross-sectional | 2710 | All pregnant women that accessed antenatal care in the three maternity units during the study period. | Health (hospital) |

| Author/ date | Main objective | Location | Design | Sample size | Study population | Setting |
|---|---|---|---|---|---|---|
| Chadborn TR et al. (2006) | To describe the proportion of heterosexual individuals diagnosed late, to identify factors associated with this, and to estimate the level of short-term mortality that could have been prevented had heterosexual individuals been diagnosed earlier. | UK (England and Wales) | Cross-sectional | 15523 | HIV-infected heterosexual individuals (aged 15 years and over) newly diagnosed in England and Wales between January 2000 and December 2004 (reported by the end of June 2005). | Not applicable |
| Fernandez MI et al. (2005) | To examine the predictors of HIV testing and the factors associated with intention to accept a free HIV test in a community sample of 244 Hispanic migrant/seasonal farm workers recruited in South Florida. | US (South Florida) | Cross-sectional | 244 | Participants were 18 years of age or older, self-identified as Hispanic/Latino, and employed as farm workers | Community (public places) |
| Foley EE (2005) | This qualitative study explores the perspectives of HIV service providers who are treating this new patient group, and it examines the cultural and structural barriers African women face in the area of HIV prevention, testing, and treatment in the city of Philadelphia | US (Philadelphia) | Focus Group + in-depth interviews | 8 focus groups, 3 in depth interviews in HIV-positive African women | African immigrants infected with HIV in the Philadelphia area and healthcare providers | Community (Home and African community associations) |
| Levy V et al. (2005) | To evaluate HIV risk behaviour and access to medical care and HIV testing among low-income Hispanic immigrant men, comparing recent immigrants with more established immigrants, in 3 northern California counties. The authors compare HIV risk-related behaviours and access to care and testing among recent (in the U.S. less than 5 years) versus established (in the U.S. more than 5 years) Latino immigrants. | US (North-California) | Cross-sectional | 410 | Hispanic immigrant men 18-35 years residing in low-income census block group in 3 northern California counties (US) | Community (Home) |
| Schwarzwald H (2005) | To summarize the major infectious diseases commonly diagnosed in children newly arrived in the U.S., with particular interest in children internationally adopted by U.S. citizens. | US (National) | Documents/reports review | Not applicable | Children under 16 years, immigrants in the U.S. With special emphasis on children adopted by U.S. citizens | Not applicable |

| Author/ date | Main objective | Location | Design | Sample size | Study population | Setting |
|---|---|---|---|---|---|---|
| Schmid J et al. (2005) | To describe the socio-demographic and clinical characteristics of children <16 years with HIV infection in Denmark. This is a descriptive analysis of a paediatric cohort that includes all children <16 years with HIV in Denmark. Estimation of the prevalence and incidence of HIV in this population. | Denmark (National) | Cohort study | 89 | Children diagnosed with HIV infection before the age of 16 | Health (hospital) |
| MacPherson DW et al. (2006) | To describe the results of the first 3 years of a medical screening program for HIV antibodies in selected children who were applicants for residency in Canada. Personal Information and migration medical screening data were provided by Citizenship and Migration Canada. | Canada (National) | Cross-sectional | 256970 | The HIV-tested migrant groups included children (identified as being at risk) of applicants for permanent residence (immigrants and refugees) and those who filed refugee or asylum claims in Canada. Migration medical screening, including routine HIV testing for those >15 years of age is also required for some other persons arriving in Canada, including visitors staying >6 months from certain locations. | Not applicable |
| Sadler KE et al. (2006) | Pilot study to assess the feasibility and acceptability of conducting anonymous HIV testing using oral mucosa samples within a population survey on sexual habits and lifestyles in communities of "black Africans" in London. To estimate prevalence of HIV in this community in relation to potential risk practices and habits. | UK (London) | Cross-sectional+ in-depth interviews | 114 | “Black African communities” over 16 years of age living in London | Community (associations) |
| Dowling T (2007) | To describe and present results of rapid behavioural assessments and rapid HIV testing conducted in racial-ethnic minority men at 11 at gay pride events in 9 US cities between 2004 and 2006. | US (9 cities) | Cross-sectional | 627 | MSM from social or racial minorities participating in gay pride events (Detroit, Baltimore, Jackson, Charlotte, St. Louis, District of Columbia, Oakland, San Francisco, Chicago) | Community (gay pride events) |
| Ostermann J et al. (2007) | To describe longitudinal trends in HIV testing rates in the US population and differences between planned and actual testing across demographic and risk groups | US (National) | Cohort study | 146868 | Participants aged 18 to 64 years in the 2000-2005 National Health Interview Surveys | Community (Home) |

| Author/ date | Main objective | Location | Design | Sample size | Study population | Setting |
|---|---|---|---|---|---|---|
| Tariq S et al. (2007) | The objective of the study was to evaluate: mode of referral, number of sexually transmitted infections (STIs) and the uptake of HIV testing in patients of South Asian ethnicity compared with non-South Asians attending two London genitourinary (GU) medicine clinics. | UK (London) | Case-control | 458 | New clinic attendees between January and September 2003 in two London genito-urinary (GU) medicine clinics. Cases were defined as the first 125 new clinic attendees self-identified as South Asian. Controls were defined as subsequent new presentations self-identified as non-South Asian. Each case–control pair was matched for gender and centre. | Health (Health centre/clinics/GU's) |
| Huang ZJ et al. (2008) | To examine self–reported HIV/STI testing behaviours and their correlates among a sample of Southeast Asians living in an urban setting in the United States. | US (Washing-ton) | Cross-sectional | 604 | Self–identified as Cambodian, Laotian, or Vietnamese; age 18 years or older; and residence in the Washington, DC metropolitan area. | Community (public places) |
| Prost A et al. (2008) | To describe and summarize the literature on social, behavioural, and intervention research among African communities affected by HIV in the UK and other European countries in order to make recommendations for future interventions. | Europe | Literature review | Not applica-ble | Studies of people of sub-Saharan African origin, both recent migrants and second and third generation migrants | Not applicable |
| Southgate J et al. (2008) | To analyse whether women belonging to ethnic groups at high risk for HIV reject performing the test during pregnancy in a higher percentage than other groups. | UK (London) | Cross-sectional | 1586 | Women delivering at Milton Keynes hospital between January-June 2005 | Health (hospital) |
| Carnicer-Pont D et al. (2009) | To identify predictors of late detection of HIV infection in a European city with increased migration. and determine The effects of HAART era in HIV infection detection | Spain (Barcelona) | Epidemiological surveillance data | 6186 | All patients detected through the AIDS registry of Barcelona, over 13 years of age, during the period 1987 to 2006 | Not applicable |

| Author/ date | Main objective | Location | Design | Sample size | Study population | Setting |
|---|---|---|---|---|---|---|
| Krentz H and Gill MJ (2009) | To evaluate the impact of changing Canadian migration law in 2001 on the epidemiology of HIV in immigrants and refugees in Alberta. | Canada (Southern Alberta) | Cohort study | 692 | All HIV-positive individuals enrolled in care at the Southern Alberta Cohort between 2001 and 2007 were included and subdivided by self-reported country of birth. | Health (hospital) |
| Perez-Molina JA et al. (2009) | To describe the clinical and epidemiological characteristics of HIV positive immigrants who come for the first time to a Tropical Medicine Unit in Madrid between 1997-2006 and compare their clinical features according to their place of origin. | Spain (Madrid) | Medical history review | 1609 | HIV infected immigrants attending the Department of Infectious Diseases at the Ramón y Cajal Hospital in Madrid | Health (hospital) |
| Udayaraj UP et al. (2009) | To analyse patient characteristics, clinical presentation, potential cost implications and short-term mortality of patients admitted with HIV-related illnesses | UK (West Berkshire) | Medical history review | 64 | All patients aged over 18 years with either a pre-existing diagnosis of HIV infection or with a newly diagnosed HIV infection | Health (hospital) |
| Burns FM et al. (2007) | To identify the key issues and barriers affecting utilization of HIV services for Africans in Britain | UK (national) | In-depth interviews | 11 | The sampling frame consisted of the key constituencies in the field of HIV and African communities and organizations within these. By focusing down to the organizational level key people became identifiable, as the field of HIV and African communities in the UK is comparatively small. | Not specified |
| Jones KG and Jones SG (2008) | To provide a brief overview of U.S. travel policies and migration laws related to HIV | US (National) | Review of documents/reports | Not applicable | Not applicable | Not applicable |
| Lopez-Quintero C et al. (2005) | To analyse HIV-test barriers, intention to have an HIV test and HIV risk perception in Hispanic subgroups living in the US. | US (National) | Cross-sectional | 4261 | Hispanic population was selected from the National Health Surrey, non-institutionalized adults (+18) | Community (Home) |

| Author/ date | Main objective | Location | Design | Sample size | Study population | Setting |
|---|---|---|---|---|---|---|
| Flowers P et al. (2006) | To explore the social and psychological impacts of an HIV diagnosis on Black Africans living in the UK, in the broader context of the participants' lives. | UK (London) | In-depth interviews | 30 | HIV positive Black-Africans living in the UK | Health (Health centre/ clinics/ GU's) and Community (associations) |
| Prost A et al. (2007) | To explore the feasibility and acceptability of translating a successful voluntary counselling and testing (VCT) service model from Kenya to African communities in London. | UK (London) | Focus groups | 5 focus groups (42 participants from 14 African countries). A workshop with 28 key informants. | African population and key informants of this population living in London | Not specified |
| Dougan S et al. (2005) | To examine the epidemiology of HIV among black and minority ethnic men who have sex with men in England and Wales. | UK (England and Wales) | Epidemiological surveillance data | 1040 | MSM living in England & Wales, with HIV diagnosed between 1997-2002 | Not applicable |
| Manzardo C et al. (2008) | To evaluate some epidemiological aspects and the main public health issues of communicable diseases in Barcelona's immigrant population | Spain (Barcelona) | Cross-sectional | 2464 | Migrants from tropical and subtropical areas and Eastern Europe who were seen in a tropical medicine unit from 2001 to 2004. | Health (hospital) |
| Eisenhut M et al. (2008) | To determine whether HIV-infected mothers knew the HIV status of their children, enabling the offer of targeted testing of children at risk. | UK (Luton) | Cross-sectional | 297 | All HIV-positive women attending the GUM outpatient clinic of a district general hospital in the UK over a 4-month period in 2006 | Health (hospital) |

## 9.3. ANNEX 3. Articles published

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# HIV testing and counselling for migrant populations living in high-income countries: a systematic review

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**Background:** The barriers to HIV testing and counselling that migrants encounter can jeopardize proactive HIV testing that relies on the fact that HIV testing must be linked to care. We analyse available evidence on HIV testing and counselling strategies targeting migrants and ethnic minorities in high-income countries. **Methods:** Systematic literature review of the five main databases of articles in English from Europe, North America and Australia between 2005 and 2009. **Results:** Of 1034 abstracts, 37 articles were selected. Migrants, mainly from HIV-endemic countries, are at risk of HIV infection and its consequences. The HIV prevalence among migrants is higher than the general population's, and migrants have higher frequency of delayed HIV diagnosis. For migrants from countries with low HIV prevalence and for ethnic minorities, socio-economic vulnerability puts them at risk of acquiring HIV. Migrants have specific legal and administrative impediments to accessing HIV testing—in some countries, undocumented migrants are not entitled to health care—as well as cultural and linguistic barriers, racism and xenophobia. Migrants and ethnic minorities fear stigma from their communities, yet community acceptance is key for well-being. **Conclusions:** Migrants and ethnic minorities should be offered HIV testing, but the barriers highlighted in this review may deter programs from achieving the final goal, which is linking migrants and ethnic minorities to HIV clinical care under the public health perspective.

## Introduction

Migrant populations, largely from sub-Saharan Africa (SSA), represent a considerable proportion of HIV infections in Europe and are heavily affected by late HIV diagnoses.[1,2] A similar situation occurs in ethnic minorities in the USA.[3] In 2006, the US Centers for Disease Control and Prevention published their revised recommendations for HIV testing, which aimed for routine voluntary HIV screening for all persons aged 13–64 years in health-care settings independently of HIV risk assessment unless the local HIV prevalence falls below 0.1%. Under the new recommendations, neither pretest counselling nor separate signed consent forms are required.[3] Since then, other recommendations have been issued to expand HIV testing and normalize testing.[4–8] Although increasing HIV testing at population level is a challenge, doing so in migrants and ethnic minorities may pose additional difficulties. Whereas some barriers to HIV testing are shared by other groups, others, such as administrative,[9–12] legal,[1,13,14] language[14–18] and cultural barriers,[9,11,14,16,18–20] are not. Some European Union (EU) countries do not provide HIV care for people of uncertain legal status. Therefore, the lack of any medical benefit for individuals found to have HIV combined with the fear of deportation may hinder public health initiatives promoting testing in migrants.[21]

The different epidemiological patterns of HIV infection in migrants and ethnic minorities in Europe and the migrants' unique barriers to HIV testing and care may compromise proactive HIV testing approaches that rely on the statement that HIV testing is linked to care.[4,5,22] Given that the translation of policies into practice requires deep knowledge of target populations, we have conducted a systematic review of the literature on HIV testing and counselling targeting migrants living in high-income countries.

## Methods

We performed a literature search in PubMed, EMBASE, CRD York database, Cochrane and Web of Knowledge of articles published in English between 2005 and 2009 in Europe, North America and Australia. To be eligible, articles had to include at least one keyword from: (i) ethnic groups, minority groups, transients and immigrants, refugees; (ii) mass screening, diagnosis, AIDS Serodiagnosis, public policy, prevention and control, Centers for Disease Control and Prevention (USA), counselling; and (iii) Acquired immunodeficiency syndrome, HIV, HIV Infections.

After piloting in 14 articles, the final data collection form included information on year and country of the study, 'migrants' and 'ethnic minorities' definition, setting, study design and sample size. Information on gender, criminalization of HIV transmission and legal consequences of HIV disclosure in migrants with uncertain status was also collected.

As described in figure 1, 1185 articles were identified; 151 were duplicates. The remaining 1034 abstracts were read, and only abstracts not referring to migrants or ethnic minorities in Europe, USA, Canada and Australia and HIV testing and/or counselling were

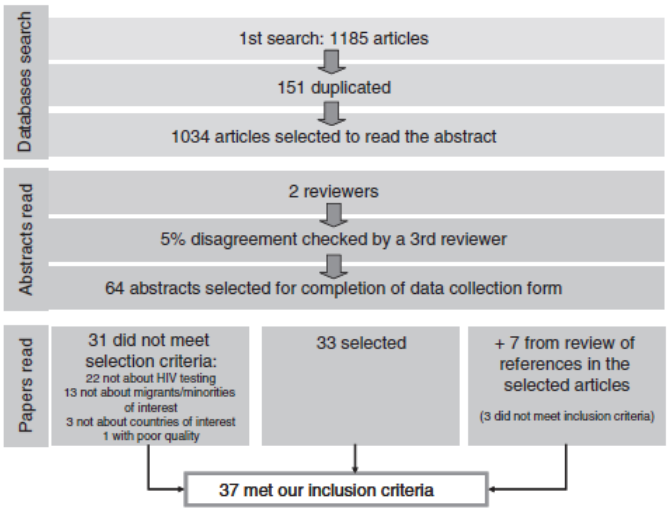


**Figure 1** Flow diagram

eliminated at this stage; 970 articles were discarded and 64 selected for full review.

Teams of two people read the 64 articles and applied eligibility criteria; 31 articles were rejected because they did not deal with HIV testing ($n=22$), they did not deal with migrants or ethnic minorities ($n=13$), countries did not meet criteria ($n=3$) or they were of poor quality ($n=1$). The review of these 64 articles identified seven new manuscripts, from the manuscripts' references, of which four met inclusion criteria. Final analyses were based on 37 articles.

## Results

Most studies were conducted in Anglo-Saxon countries—12 in USA, 4 in Canada, 13 in the UK—and 8 from other European countries. None of the articles was from Australia. The majority ($n=35$) was conducted in one country, most ($n=20$) with local scope. Studies were conducted in health ($n=15$) and community settings ($n=11$) (supplementary table). Overall, 25 studies (68%) used quantitative methodology, two combined quantitative and qualitative methodology, six used qualitative methodology and four were literature reviews. Operational definitions for 'migrant', 'race' or 'ethnicity' (understood as concept defining racial/ethnic minorities) were present in all articles; more than one definition was often present; 14 defined migrants based on country of origin, 13 on country of birth and 3 on nationality. With regards to race and ethnicity, eight studies (mostly from USA) defined subjects on self-reported ethnicity and nine on documented ethnicity ($n=7$), ethnic origin ($n=1$) and race ($n=1$).

Migrant populations studied were largely sub-Saharan Africans,[10,11,23–26] Latin Americans[23] and South Asians[20] in EU countries, and Hispanics or Latinos,[12,15,17,27–29] Africans[16] and Southeast Asians[14] in the USA. Three articles from Canada studied asylum seekers, visa applicants and refugees[9,30,31], and one from the USA studied adopted foreign children.[19] The racial/ethnic minorities were largely 'Black communities' in the UK.[32–35] One study in the USA refers to generic 'racial minorities'.[36]

The 37 studies addressed heterogeneous aspects of HIV testing and counselling in migrants and ethnic minorities, which could be grouped as follows: (i) prevalence and risk factors for HIV infection; (ii) barriers to HIV testing; (iii) HIV testing uptake; (iv) late HIV diagnosis; and (v) interventions to encourage HIV testing.

### *Prevalence and risk factors for HIV infection in migrants and ethnic minorities*

Although our aim was not to systematically review HIV prevalence and risk factors in migrants and ethnic minorities, this topic came up frequently. Although many articles include general references to this issue, studies that report data about differential prevalence of HIV have been included in table 1. The groups identified as having high HIV prevalence were sub-Saharan Africans in Europe, black Africans and black Caribbeans in London and sub-Saharan Africans, Latinos and blacks in USA.

Epidemiological patterns in countries of origin, together with clinical presentations in countries of destination, led some authors to conclude most HIV infections in migrants are imported. This approach is largely applied to migrants from SSA in Europe (Denmark,[37] France,[38] Spain[18,23] and UK[25,32,34]) and Canada.[9,30,31] Other studies consider some migrants may have acquired HIV in countries of destination because of unfavourable environment to fostering preventive behaviours.[11,39,40] Some migrants are described as having high-risk behaviours: multiple sexual partners, low and inconsistent condom use, high alcohol consumption and drug use.[17,27–29]

Migrant women and ethnic minority men who have sex with men (MSM) are considered especially vulnerable; female migrants suffer disproportionate burden of HIV infection derived from difficulties negotiating condom use[28] and sexual exploitation.[31] The invisibility of ethnic minority MSM, who go unnoticed by the stigma of being MSM that would involve their country or ethnic group of origin, is thought to be key to their vulnerability to HIV infection; they have high HIV prevalence, unsafe sex[39] and high prevalence of late HIV diagnosis.[14,35]

### *Barriers to HIV testing in migrants and ethnic minorities*

Barriers to HIV testing exist at the structural, health-care provider, health-care user and community levels.

Structural barriers to HIV testing relate to poor living conditions, legal and administrative status and discrimination in countries of destination. High levels of unemployment and poverty in migrants and ethnic minorities, low social status and inequalities are mentioned as barriers to HIV testing and care.[10,11,18–20,24] Legal status, which ranks among the highest priorities, and concerns

**Table 1** HIV prevalence in migrants and ethnic minorities

| Authors | Country/Date | Sample size | Target population | HIV prevalence/incidence | Design |
|---|---|---|---|---|---|
| Monge-Maillo B et al | Spain (2009) | 2198 | Immigrants referred to the Tropical Medicine Unit of Ramón y Cajal Hospital (Madrid) over a 20-year period | Incidence: total population: 97 (4.4%); sub-Saharan Africans: 82 (5.2%); Latin Americans: 15 (2.4%) | Cross-sectional study |
| Forbes KM et al. | UK (2008) | 30 | Patients attending an outreach clinic for those <25 years between June and October 2007, in an area where black and minority ethnic groups comprise the majority of the local population | There were no cases of HIV | A retrospective case-notes review was undertaken of those attending community-based sexual health services. (Note: not clear if all respondents were from minorities) |
| Zencovich M et al. | Canada (2006) | 634958 | All applicants in Canada, 15 years of age and older, for permanent residency between 2002 and 2003 | Incidence: 932 (0.146%). Prevalence of 3% among applicants from six African countries (Zimbabwe, Burundi, Rwanda, Uganda, Zambia and Chad) | National data collected by Public Health Agency of Canada |
| Schmid J et al. | Denmark (2005) | Does not know (Unknown) (DK) | Children <16 years in Denmark in 2003 | Incidence: 89 (5.77 per 100 000 children). Of these 89 newly diagnosed: 48% born in Denmark 43% in Africa and 9% in other places | Data from the national surveillance system and HIV-infected children from the Danish Paediatric HIV Cohort Study |
| MacPherson DW et al. | Canada (2006) | 256970 | Residency applicants <15 years of age between 2002 and 2005 | 36 (0.014%), most of them from Africa (89%) | Data from the Canadian immigration medical examination register |
| Perez-Molina JA et al. | Spain (2009) | 1609 | Immigrants referred to the Tropical Medicine Unit of Ramón y Cajal Hospital (Madrid) during 1997–2006 | 77 (4.8%). By geographic groups: sub-Saharan Africans (5.6%); South-Central Americans (3.2%) | Non-interventional retrospective medical chart review |
| Dougan, S et al. | UK (2005) | 1040 | Men who have sex with men aged 16–44 years in England and Wales in 2002 | Prevalence: 7.4% black and minority ethnic MSM; 3.2% white MSM | Cross-sectional study with the data from the Survey of Prevalent HIV Infections Diagnosed that estimates the number of individuals living with diagnosed HIV infection in England and Wales (E&W) since 1995 |

about implications of testing positive are the main barriers in studies from Canada, USA, Spain and the UK. According to these studies, in contexts where an HIV diagnosis may adversely affect visa or residence application or where there is a fear of deportation, migrants are reluctant to be tested.[10,11,13] Lack of entitlement to health care for undocumented immigrants is another barrier, largely but not exclusively, mentioned in the USA.[13,14,35] Lack of clarity among health-care providers on migrants' rights to health care is highlighted.[24] Regarding stigma and discrimination, African people tested for HIV in London in the 1990s were twice as likely as whites to be concerned about being discriminated against.[10] Structural racism is also mentioned by Fakoya et al.,[24] who drew attention to the disproportionate number of sub-Saharan Africans prosecuted for allegedly transmitting HIV infection in the UK.

Within health-care structures, communication, language problems and lack of cultural sensitivity and underinvestment in culturally competent services lead to misconceptions about migrants and minority groups by health-care providers.[14–18,20] Some migrants and ethnic minorities prefer to visit medical practitioners from their own community.[19] Whereas some communities are described as having good knowledge about where to go for HIV testing, for example, sub-Saharan Africans in the UK,[11] other studies identify poor knowledge among migrant and ethnic minorities regarding where to get tested for HIV anonymously and free of charge.[9–12] Other barriers at health-care user level include the low-priority migrants assigned to health care[11,13] and their low perception of HIV risk[10,12,14,35,41]. Migrants give priority to basic needs, but knowledge of their HIV status ranks low.[13] Low HIV risk perception at individual level is mentioned, even in people with community risk awareness.[10,12,14,35,41] Researchers note there is often a gap between risk perception and individual risk behaviours[14]; some studies describe low risk perception among those who test HIV positive.[10,11,41]

At the community level, cultural and gender norms may dissuade heterosexual men and women and MSM from seeking HIV testing. Loss of status and community support and social isolation after confidentiality gaps are among the main reasons given for not testing.[9–13,16,24,26,27,34,41,42] This is a particular concern for individuals who need to bring a relative or friend to help with translation.[19] Olshefsky et al.[27] report 'machismo' as a barrier among Latino men; Foley[16] reports that women from SSA have difficulty seeking HIV testing or treatment without partners' approval and economic support.

### *HIV testing uptake in migrants and ethnic minorities*

Several studies describe an HIV testing uptake in migrants and ethnic minorities to range from 21% to 73% in the USA and from 23% to 64% in Europe[12,14,20,29,43] (table 2). Overall, a higher proportion of ethnic minority and migrant women have been tested for HIV compared with men; this is partially owing to women's acceptance of routine HIV screening during antenatal care.[29,33,42,44] However, beyond this, several studies support a gender difference in HIV testing uptake, with migrant men being not only less exposed to HIV testing but also less willing to be tested.[24]

The context in which testing is offered and who offers the test seem to be important determinants of test acceptance. For example, in a US study, 70% of Hispanic migrant farm workers reported they would accept testing recommended by a health-care provider, with

**Table 2** Uptake of HIV test in migrants and ethnic minorities

| Authors | Country/Date | Sample size | Target population | Test prevalence/test acceptance prevalence | Design |
|---|---|---|---|---|---|
| Forbes KM et al. | UK (2008) | 117 | Outreach clinic for those <25 years in an area where black and minority ethnic groups comprise the majority of the local population | 23% ever tested | A retrospective case-notes review was undertaken of those attending community-based sexual health services. (Note: not clear whether all respondents were from minorities) |
| Conaty SJ et al. | UK (2005) | 443 | Sub-Saharan women in antenatal care | 86% accepted an HIV test | Cross-sectional study. HIV test acceptance. (Note: prevalence calculated by our research team based on presented article data) |
| Fernandez MI et al. | USA (2005) | 244 | Hispanic migrant/seasonal farm workers in southern Miami-Dade County, Florida | 21% (51/244) had been tested for HIV; 39% (94/244) declared they would accept on the day of the interview; 69% (134/193 never tested) dedared they would accept if recommended by a provider | Cross-sectional study: questions about HIV test performance and intention to test |
| Sadler KE et al. | UK (2006) | 114 | Black Africans (>16 years old) living in London | 82% (93/114) accepted HIV testing in the survey | Cross-sectional study with offer of HIV test |
| Dowling T et al | USA (2007) | 627 | Participants at black gay, Hispanic gay or gay pride events | 24% (133) of those with unknown or negative HIV status (543) accepted HIV testing | Cross-sectional study with offer of HIV test. (Note: not clear if all respondents were from ethnic minorities. Of all persons willing to be tested, not all were finally tested for several reasons, mainly resource limitations) |
| Ostermann J et al. | USA (2007) | 146 868 | Adult participants in the survey aged 18–64 years | Tested in past 12 months (by ethnicity): white non-Hispanic, 8.1%; black non-Hispanic, 19.0%; Hispanic, 11.7%; Other, 9.6%. Plan to test in next 12 months: white non-Hispanic, 5.2%; black non-Hispanic, 19.8%; Hispanic, 12.7%; Other, 7.1% | Cross-sectional analysis of data from 146 868 participants aged 18–64 years in the 2000–05 National Health Interview Surveys, HIV test in the past |
| Tariq S et al. | UK (2007) | 458 | Cases were defined as the first 125 new Genito-Urinary (GU) clinic attendees who self-identified as South Asian. Controls were defined as subsequent new presentations self-identified as non-South Asian | Ever tested: cases: 60% (148/229); controls: 64% (154/229) | A retrospective case–control study was performed at a GU Clinic in London: HIV test in the past |
| Huang ZJ et al. | USA (2008) | 604 | Self-identified as Cambodian, Laotian or Vietnamese; >18 yearsold and residents in Washington, DC | Ever tested: total sample, 31% (186/604); Laotians, 22% (44/196); Vietnamese, 37% (72/197); Cambodians, 38% (79/211) | Cross-sectional study. Have had an HIV test |
| Southgate J et al. | UK (2008) | 1586 | Pregnant women from ethnic minority groups | Prevalence ratio of HIV test acceptance: white, 91% (1094/1214); black African, 92% (145/158); Asian, 90% (138/153); Chinese, 80% (4/5) | Cross-sectional study. Antenatal HIV screening routinely proposed |
| López Quintero C et al. | USA (2005) | 4261 | Hispanic subgroups living in the USA | Ever tested: total sample, 34% (1444/4261); Puerto Ricans, 44% (197/444); Mexicans, 28% (419/1480); Mexican Americans, 33% (355/1079); Cubans + Cuban Americans, 29% (80/277); Central/South Americans, 41% (259/640); other Hispanics, 39% (133/341) | Cross-sectional study. Have had an HIV test (Note: prevalence by our research team based on presented article data) |
| Dougan S et al. | UK (2005) | 1040 | Black and minority ethnic men who have sex with men in England and Wales | Prevalence ratio of HIV test acceptance: Caribbean, 52% (138/265); Central/South America, 60% (593/993); sub-Saharan African, 54% (473/870); Asia, 56% (417/739) | Cross-sectional study with offer of HIV test |

women more likely than men to accept testing.[29] In contrast, MSM from ethnic minorities in the USA were more prone to accept HIV testing outside health settings; rapid HIV testing of MSM in racial/ethnic minority groups in settings such as gay pride events is a useful way to enable HIV-infected MSM to learn their HIV status.

### *Late HIV diagnosis in migrants and ethnic minorities*

High prevalence of delayed diagnosis of HIV infection in migrants and ethnic minorities was reported, largely among sub-Saharan Africans in the UK,[10,11,13,24,25,40] Spain[23] and France[38] and among Latinos and Asian Americans in the USA[14,27] and Canada.[45]

López-Quintero et al.[12] report Hispanics to be more likely to have delayed HIV diagnoses than whites and Afro-Americans. Prost et al.[10] cite the Health Protection Agency and the Mayisha II Study,[46] which estimated that by 2005, approximately 21 500 Africans were living with HIV in the UK and that one-third of them were undiagnosed. Fakoya et al.[24] report that most people from sub-Sahara diagnosed with HIV in the UK acquired the infection in the countries of origin and tend to present with advanced disease. Also in the UK, Chadborn et al.[13] report high prevalence of late diagnosis in heterosexual whites (36%), black Caribbeans (36%) and black Africans (43%). They describe lower rates of delayed diagnosis in women diagnosed through antenatal testing than other people diagnosed elsewhere. For sub-Saharan Africans, late diagnosis was present in 21% of women diagnosed during antenatal care, 44% of women diagnosed elsewhere and 50% of men. In France, although women were less likely to be diagnosed late because of routine prenatal testing, this was not the case among migrants. Acquisition of HIV infection at early ages before arrival to France could underlie these differences.[38]

### *Interventions to encourage HIV testing in migrants and ethnic minorities*

The literature identified two main approaches to HIV testing: general population approaches in health-care settings and targeted approaches directed to at-risk populations, including migrant and/or ethnic minorities. In both cases, specific interventions to encourage the participation of migrants and ethnic minorities are discussed. Among the targeted approaches, voluntary or compulsory HIV testing strategies are analysed.

Antenatal screening is an example of a population-wide approach; various studies support routine antenatal testing for all pregnant women as an effective strategy for achieving good coverage of HIV testing in migrant and ethnic minorities.[42] Regarding preferences of immigrant women, a study in Canada found that women from HIV-endemic countries prefer non-targeted strategies integrated within health services.[9] Some countries have taken targeted approaches to HIV testing in antenatal care. For example, Denmark switched from routine to HIV selective antenatal screening in 1995; HIV testing was only offered to women from high prevalence countries since almost all HIV-positive pregnant women identified were migrants or married to migrants from high prevalence countries.[37] However, a few HIV-positive babies were born subsequently, resulting in the reintroduction of universal screening.

Health-care provider endorsement was identified as a significant predictor of HIV testing. Some authors recommend mixed approaches; introducing HIV screening in routine medical practice in addition to targeted strategies in place, particularly in areas with high HIV prevalence and a concentration of migrant population.[9,29,41,42]

Many authors indicated that culturally sensitive HIV testing and counselling interventions are needed to improve institutional access to health services to promote HIV testing among migrants and ethnic minorities.[9,11,29] Community partnerships and participation are identified as critical to increase testing uptake. A UK study calls for community involvement in promoting testing along with the benefits of accessing antiretroviral therapy.[11] Provision of testing services in client's language is also mentioned.[9,17]

Innovative targeted approaches to reach people who might not otherwise use testing services include the provision of HIV rapid testing in non-traditional health-care settings outside normal working hours.[29] Provision of point-of-care testing by non-government and community-based organizations and testing by outreach services, mobile clinics and in venues such as barber shops and hair salons, social clubs, sporting events or street corners[27,36] are recommended. Offering HIV testing at gay pride events[36], saunas[41] and other venues was also considered to increase uptake among MSM.

Another approach specifically targeting migrants is screening on arrival in the country. US policy requires HIV testing for asylum seekers,[47] and in 2008, when the mentioned article was published, those who were HIV-infected could only obtain temporary admission to the USA. Children who arrive in the USA needing a permanent visa are required to be screened for HIV, hepatitis B and C and tuberculosis, and screening is repeated 6 months after arrival. The implications of HIV test results for visa status are not discussed.[19] HIV testing is also mandatory for migrants and asylum seekers entering Canada. Screening includes clinical referral and information that is sensitive to the gender, cultural and linguistic profile of the client.[30,31] This approach is reported to have resulted in an increased number of cases of HIV diagnosed in immigrants and uptake of health care in this country.[45] A French study recommends offering HIV testing to migrants on arrival to reduce late diagnosis.[38]

## Discussion

This systematic review has found that migrants, largely those from HIV-endemic countries, are at high risk of HIV infection and its consequences.[10,11,13,14,25,27,38,40,45] Their HIV prevalence is higher than that of the general population, they have a higher frequency of delayed HIV diagnosis and are more vulnerable to the negative effects of disclosure of HIV status.[11,16] For migrants from countries where HIV prevalence is low, their socio-economic vulnerability puts them at risk of acquiring HIV in destination countries.[11,39,40] In addition to their socio-economic vulnerability and the barriers to HIV testing shared with other groups at risk, migrants have specific legal and administrative impediments to accessing health services[10,16,17,24] and thus HIV testing facilities—in some countries, undocumented migrants are not entitled to health care[13,14,35]—as well as cultural and linguistic barriers,[14–18,20] racism and xenophobia[10]; criminalization of HIV transmission has disproportionately affected migrants from SSA.[10] Migrants also fear stigma and discrimination from their communities, fundamental for their well-being in a foreign country.[10]

Testing migrants for HIV may take place either in the context of general population strategies in health-care settings—such as antenatal testing—or targeted approaches among specific populations. HIV testing uptake in antenatal settings in migrants is high and similar to that of non-migrant women. Women from HIV-endemic countries prefer general population strategies that are integrated within health services.[33,42] Overall, a higher proportion of migrant women have been tested for HIV compared with men, partially because of high acceptance of routine antenatal HIV screening, but men, although less exposed to HIV testing, are also less willing to be tested.[29] Reaching migrant men, both heterosexual and MSM, is a challenge. The literature shows that migrant MSM are a hard-to-reach group and that 'machismo' and homophobia are deterrents to HIV prevention.[27] Mandatory HIV testing for migrants and asylum seekers when entering a country, in place in some settings,[30,31,47] violates the core principles that HIV

testing must be confidential, voluntary and performed with informed consent.

A key aspect—often undermined—is the heterogeneity of migrant populations, which requires tailored strategies for some groups. It is essential to discuss and implement interventions in partnerships with the communities. Test performance in non-traditional settings[27,36,41] and during off-hours,[29] the use of rapid tests[12,29,36] and providing test services from a culturally sensitive perspective appear to be positive interventions. It is remarkable that little information on counselling was retrieved from the literature.

There are a number of study limitations that merit discussion. Although our aim was not to review studies on HIV prevalence and risk factors in migrants and ethnic minorities, these subjects came up in a large number of studies. However, we realize that the search strategy used provides only a partial view on these topics. We are also aware this search covers only articles in English; research in other languages, the grey literature and conference abstracts are not included. The methodology used in this systematic review does not permit a comprehensive assessment of the extent to which mandatory HIV testing is applied to migrants.

There is increasing evidence in recent years of the benefits of HIV testing at the individual and community levels.[5,48–52] There is also overwhelming consensus that HIV testing cannot be the final goal, and it is essential to link testing with care, support and treatment so as to ensure a referral pathway for those who test positive. In December 2010, the European Centre for Disease Prevention and Control (ECDC) launched 'HIV testing: increasing uptake and effectiveness in the European Union'[8] in which migrants receive considerable attention. The results from this systematic review may help to design interventions targeting migrants, so that ECDC guidance may influence national recommendations.

## Supplementary Data

Supplementary Data are available at *EURPUB* online.

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## Key points

- Migrants, mainly from HIV-endemic countries, are at high risk of HIV infection and its consequences. Their HIV prevalence is higher than in the general population, they have higher frequency of delayed HIV diagnosis and are more vulnerable to the negative effects of disclosure of HIV status. For migrants from countries with low HIV prevalence, socio-economic vulnerability puts them at risk of acquiring HIV in destination countries.
- Migrants have specific legal and administrative impediments in accessing health services and HIV testing—in some countries, undocumented migrants are not entitled to health care—as well as cultural and linguistic barriers, racism and xenophobia. Migrants fear stigma from their communities, yet community acceptance is key for well-being.
- Although there is increasing evidence of the benefits of HIV testing at both the individual and community levels, the barriers highlighted in this systematic review may prevent programs from achieving the final goal, which is linking migrants and ethnic minorities to HIV clinical care under the public health perspective.

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# HIV testing policies for migrants and ethnic minorities in EU/EFTA Member States

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**Background:** In the context of an European Centre for Disease Prevention and Control (ECDC) research project, our objective was to describe current recommendations regarding HIV testing and counselling targeting migrants and ethnic minorities in the European Union/European Economic Area/European Free Trade Association (EU/EEA/EFTA) Member States. **Methods:** An on-line survey was conducted among 31 EU/EEA/EFTA Member States. The survey inquired on the existence of specific HIV testing and counselling recommendations or policies for migrants and/or ethnic minorities and the year of their publication. Additionally, we performed a review of national recommendations, guidelines or any other policy documents retrieved from an Internet search through the different countries' competent bodies. **Results:** Twenty-nine (94%) country representatives responded the survey, and 28 documents from 27 countries were identified. National guidelines on HIV testing are heterogeneous and tailored, according to the epidemiological situation. Twenty-two countries identify migrants and four countries identify ethnic minorities as particularly vulnerable to HIV. Sixteen countries explicitly recommend offering an HIV test to migrants/ethnic minorities. Guidelines especially target people originating from HIV endemic countries, and benefits of HIV early detection are highlighted. HIV testing is not mandatory in any country, but some countries overtly facilitate this practice. **Conclusion:** Benefits of HIV testing in migrants and ethnic minorities, at both individual and community levels are recognized by many countries. In spite of this, not all countries identify the need to test these groups.

## Introduction

The HIV epidemic is a major public health problem in Europe[1]; 27 116 newly diagnosed cases of HIV infection were reported in 2010 by 28 countries of the European Union and European Economic Area (EU/EEA).[2] Migrant populations, largely from Sub-Saharan Africa (SSA), represent a considerable proportion of AIDS cases and HIV infections, especially among women.[1] Also, migrants are considered an important sub-population in the national response to HIV in most countries of the European Union and the European Free Trade Association (EU/EFTA).[3] Definitions of migrants and ethnic minorities are heterogeneous between and within countries and throughout the different time periods,[4–7] showing the lack of a standardized definition that is valid for any context. Migrants and ethnic minorities are not equivalent in term of populations although some migrants become part of established ethnic minorities.[5–7]

Most migrant groups, specially people of sub-Saharan African origin, have higher rates of late HIV diagnosis[8] and, to some extent, the decline in AIDS incidence that followed the advent of combined Antiretroviral Therapy (cART) has not been observed.[1,9–11] Barriers for migrants to access HIV testing and care can be placed at individual, health services, community and structural levels.[9,11–13] Although migrants may share some of these barriers with disadvantaged native-born subjects, including ethnic minorities, those related to administrative and legal status affect migrants differently,[14] establishing a population subgroup different to the native-born.[15] Furthermore, some countries in the European context do not provide HIV care for people of uncertain legal status.[16]

The European Centre for Disease Prevention and Control (ECDC) issued its HIV testing Guidelines in December 2010 and recommended that all migrants from countries with high HIV prevalence should be offered an HIV test under the premises that testing should be voluntary, confidential and undertaken after previous informed consent.[17] These guidelines acknowledge that the single biggest benefit of HIV testing is access to treatment and that the provision of cART should be the cornerstone of national HIV testing strategies. However, there may be vast differences in HIV testing policies between EU/EFTA country which are, ultimately, the ones that dictate local practice. We aim to describe recommendations and its rationale regarding HIV testing and counselling for migrants and ethnic minorities issued by the EU/ EFTA Member States up to the publication of the ECDC HIV testing Guidelines in December 2010.

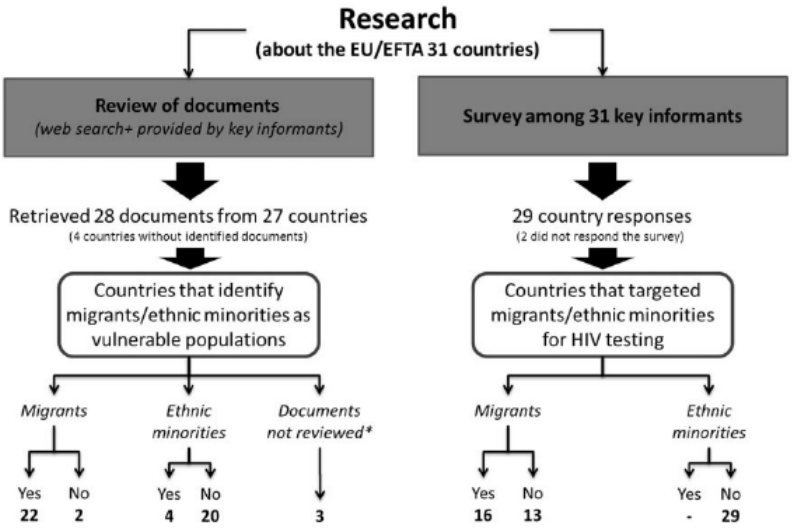


**Figure 1** Research flow chart

## Methods

An online survey was conducted among 31 EU/EFTA Member States. Key informants were selected by ECDC within the competent health authorities (Ministries of Health and Public Health institutions) listed in the Appendix (Supplementary File S1). The survey inquired on the existence of specific HIV testing and counselling recommendations or policies for migrants and/or ethnic minorities and the year of their publication. Respondents were also asked to provide the most up-to-date document containing these recommendations. Various e-mail reminders were sent to encourage participation between February and September 2010. Overall, 29 (94%) countries responded. Data on participating countries are provided in the Appendix (Supplementary File S1).

We performed an additional search in the web pages of the different competent bodies of the EU/EFTA Member States (National AIDS Plans, Ministries of Health, Public Health Agencies, etc.) for national recommendations, guidelines or any other policy documents. Retrieved documents are listed in the Appendix (Supplementary File S2).

A data extraction form was designed and piloted. Teams of two independent researchers read the documents and extracted information on the publication date, issuing body and type of document (guidelines, health plan, piece of legislation, etc.). The data extraction form also contained information on the rationale for HIV testing at individual and community levels, on the definition of migrants and ethnic minorities, on whether their vulnerability to HIV infection was acknowledged, and/or if these populations were identified as groups to be offered HIV testing. In the cases where HIV test was recommended for migrants and ethnic minorities, information on the frequency and the site for HIV testing was recorded as well as recommendations for pre- and post-test counselling. Special attention was paid to whether the country recommended HIV testing on arrival of migrants and to any reference to the legal consequences of testing.

Additional collaboration of the national representatives was requested when the documents were in languages different to English, French, German, Italian, Portuguese or Spanish. However, in three central European countries, documents could not be reviewed and only responses from national key informants were used.

## Results

Research flow chart is described in figure 1. Overall, 28 documents from 27 EU/EFTA Member States were identified: sixteen HIV/AIDS National Strategies, three HIV testing Guidelines, four miscellaneous documents about HIV testing recommendations, two internal working documents, one piece of legislation, one National Strategy on Communicable Diseases and one national communicable diseases surveillance bulletin.

### *Rationale for early HIV testing*

Documents from seven countries (Denmark, France, Norway, Portugal, Spain, Switzerland and the UK) discuss the benefits of early HIV diagnosis at individual and community levels when testing is linked to adequate referral to specialized services and treatment. Reduction in HIV viral replication and decreased HIV transmission from patients on treatment is presented as part of the rationale. Testing and counselling are also reported to be linked to positive behavioural change, although the French Guidelines remind this has only been documented for HIV-positive individuals. The UK Guidelines describe long pre-counselling as not necessary and recommends replacing it by brief pre-test information addressing the benefits of testing, its voluntary nature and the request of informed consent.

### *Migrants and ethnic minorities as vulnerable populations for HIV*

In these documents, migrants are mainly defined based on their region of origin. Overall, 22 of the 31 countries (71%) identify migrants as populations at risk for HIV infection (table 1) and specifically mention people from high HIV prevalence regions such as SSA and the Caribbean, and some specific groups from Eastern Europe, Asia and South America. Some documents only use the term 'migrant', and fewer documents refer to ethnic minorities. Only Bulgaria, Slovakia, Romania and the UK identify ethnic minorities as vulnerable to HIV. The Romanian Guidelines published in 2007 explicitly acknowledge the vulnerability of Roma people, given their high prevalence of risk contexts and behaviours; the Bulgarian HIV National Program also supports this, and the Slovakian program goes as far as to consider Roma

**Table 1** Countries identifying migrants or ethnic minorities as vulnerable populations to HIV infection (from documents provided by National Representatives or found trough the web search)

| Migrant/ethnic minorities identification as vulnerable populations to HIV | Countries |
|---|---|
| Identify migrants as vulnerable to HIV | Belgium, Bulgaria, Denmark, Finland, France, Germany, Iceland, Ireland, Italy, Lithuania, Luxembourg, Malta, Netherland, Norway, Poland, Portugal, Romania, Slovakia, Spain, Sweden, Switzerland and UK |
| Do not identify migrants as vulnerable to HIV<br>Identify ethnic minorities as vulnerable to HIV | Cyprus and Slovenia<br>Bulgaria, Slovakia[a], Romania[b] and UK[c] |
| Do not identify ethnic minorities as vulnerable to HIV | Belgium, Cyprus, Denmark, Finland, France, Germany, Iceland, Ireland, Italy, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovenia, Spain, Sweden and Switzerland |
| No data (no documents provided by country representatives or found in web research) | Austria, Czech Republic, Hungary, Estonia, Greece, Latvia and Liechtenstein |

[a]It considers some marginalized groups coming from different ethnic or social environments (Roma, homeless, refugees).
[b]Roma people are identified as part of disadvantaged communities.
[c]In the UK, BME are identified as HIV vulnerable in the National Strategy although the UK National Guidelines of HIV Testing 2008 does refer to migrants rather than BME.

**Table 2** Countries recommending HIV testing for migrants and ethnic minorities (information provided by National key Informants)

| Recomendation of HIV testing for migrants/ethnic minorities | Countries |
|---|---|
| Recommend HIV testing for migrants | Belgium, Bulgaria, Denmark, Finland, France, Iceland, Lithuania, Luxemburg, Netherlands, Norway, Poland, Romania, Slovakia, Sweden, Switzerland and UK |
| Do not recommend HIV testing for migrants | Austria, Cyprus, Estonia, Germany, Greece[a], Hungary, Ireland, Italy, Latvia, Malta, Portugal, Slovenia and Spain |
| Do not recommend HIV testing for ethnic minorities | Austria, Belgium, Bulgaria, Cyprus, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxemburg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and UK |
| No data | Czech Republic and Liechtenstein |

[a]By the beginning of 2013, Greece will publish new HIV testing procedures that recommend HIV testing for migrants.

community as part of marginalized groups coming from different ethnic or social environments. Black and minority ethnic groups (BME) are identified as vulnerable for HIV infection in the UK National Strategy although the National HIV Testing Guidelines, issued in 2008, refer to migrants rather than BME.

Four documents (from France, Italy, Spain and the UK) mention the higher proportion of delayed HIV diagnosis in migrants, attributed to barriers to access health care such as stigma, lack of community support, isolation, racism and double discrimination for being an HIV-positive migrant. Cultural aspects, for instance religion and language, are described as additional barriers to access prevention and care. A disadvantaged socio-economic situation (poverty, low education, unemployment or poor working conditions) is also taken into account in a number of documents (from Bulgaria, Germany, Italy, Luxembourg, Romania and Spain) together with the higher vulnerability of some migrant women owing to low social status and double moral standards to judge female and male sexual behaviour. The French Guidelines and the Spanish Plan on HIV/AIDS describe how women may be exposed to gender violence, a source of vulnerability for HIV infection; women in abusive relationships have increased risk of HIV infection because of fear to oppose coercive sex.

### *HIV testing recommendations addressing migrants and ethnic minorities*

Even though 22 country key informants or national documents explicitly acknowledged that migrants were vulnerable to HIV infection (table 1), six of them—Germany, Ireland, Italy, Malta, Portugal and Spain—do not explicitly recommend HIV testing for migrants (table 2). Overall, 16 countries recommend HIV testing in migrant population whereas none recommends it in the case of ethnic minorities. Table 3 describes the groups specifically mentioned in each country's document to be offered testing. Some countries refer generically to 'migrant populations' whereas others are more specific and limit the recommendation to migrants originating from high prevalence countries.

The recommended frequency of HIV testing for migrants is specified in documents from Denmark, France and the UK. Denmark recommends testing on the first contact with the health care system regardless of the reason, while France and the UK recommend systematic screening for people originating from regions of high HIV prevalence. French Guidelines also suggest repeating HIV testing every year for persons with multiple partners originating from sub-Saharan Africa and the Caribbean.

Documents from various countries (Belgium, Bulgaria, France, Luxembourg, Norway, Portugal, Romania, Spain, Switzerland and the UK) highlight the importance of identifying the most appropriate setting and the need to broaden the scope of health services performing the test to be able to scale up HIV testing in migrant populations. Accordingly, documents from Belgium, Bulgaria, France, Norway, Portugal, Spain, Switzerland and the UK state the benefits of HIV testing in community settings where people who would not be accessed through conventional services can be reached. In this regard, NGOs and Community-Based Organizations (CBOs) are settings explicitly identified as suitable. The use of rapid HIV tests in community settings is also mentioned in six documents (Bulgaria, France, Portugal, Spain, Switzerland and the UK) as being progressively accepted to increase HIV testing uptake in people who would not be reached otherwise.

### *Legal consequences of HIV testing for migrants*

Fear that disclosure of HIV status would affect migrant status and Visa application process is mentioned in Ireland as a deterrent to testing. The German Guidelines state migrants of uncertain

**Table 3** Groups of migrants targeted for HIV testing

| Country* | Groups mentioned |
|---|---|
| Belgium | Migrant population |
| Bulgaria | Refugees and asylum seekers; persons from high HIV prevalence countries and their sexual partners |
| Denmark | Persons from Africa, Asia, South America and Eastern Europe |
| France | High HIV endemic countries, especially SSA, Caribbean |
| Iceland | All migrants intending to stay for >1 year in Iceland as part of general health screening |
| Lithuania | Migrant populations |
| Luxembourg | People from SSA, Asia, Eastern Europe. Target groups of residents with foreign origin (especially Luxophon community) |
| Netherlands | High HIV prevalence countries (SSA, Surinam, Netherlands Antilles, South America, Eastern Europe and Asia); partners of people from HIV endemic area |
| Norway | People from high HIV endemic countries |
| Poland | All migrants are offered to have a voluntary HIV test on arrival as part of general health screening. |
| Slovakia | All migrants to have an HIV test on arrival as part of general health screening |
| Sweden | People from high endemic areas |
| Switzerland | People from countries with generalized epidemic |
| UK | People from high HIV prevalence countries |

*By the beginning of 2013, Greece will publish new HIV testing procedures that recommends HIV testing in individuals originated from generalized epidemic countries (Sub-Saharan Africa) and men and women who report sexual contacts with individuals originated from high prevalence countries.

status involved in a deportation process will not be deported if antiretroviral treatment is not available in their home country. In France, a law[18] allows irregular migrants to obtain the residence permit if they are diagnosed with a serious disease as HIV and treatment is not accessible in their country of origin. Iceland, Poland and Slovakia offer HIV testing on arrival as part of general health screening claimed to provide early and appropriate HIV counselling, referral and care. In Slovakia, all foreigners staying for a period >3 months owing to studies or work are required to undergo an HIV test. An HIV-negative result is required for their sojourn permit, and they can be requested to undergo HIV testing by the police if they cannot provide a document confirming HIV negativity.

## Discussion

Although >68% of the policy documents from the 31 EU/EFTA Member States identify migrants as a vulnerable population for HIV infection, only 52% recommend HIV testing for migrant populations. The definitions and concepts of the terms migrants and ethnic minorities are extremely heterogeneous in the various policy documents retrieved.[6,7] Some countries refer to migrants while others provide more detail—migrants from HIV endemic countries, migrants from Sub-Saharan Africa, etc. Ethnic minorities are not mentioned in general as groups most at risk for HIV, the UK, Bulgaria, Slovakia and Romania being the notable exceptions.

The overwhelming evidence of the benefits of HIV testing both at the individual and the community level described in the scientific literature is also mentioned in these policy documents.[19–23] As all major international testing guidelines acknowledge, HIV testing on its own cannot be the final goal, and it is essential to link testing with care, support and treatment, ensuring a clear referral pathway for those who test positive.[17,24–26] This is not the case across the region, especially for migrants of uncertain legal status.[16] As the economic crisis has worsened across the European region, some countries have implemented a reduction in their expenditure through different policies like decreasing the total public spending in medical care or the volume and quality of care.[27,28] Recent data from OECD show that health spending per person and as a percentage of GDP fell across the European Union in 2010.[28] This is the first time that health spending has fallen in Europe since 1975. In Spain, health spending fell 0.9% in 2010, compared with an average annual growth rate of 4.6% between 2000 and 2009. Governments find themselves under pressure to protect funding for acute care and are cutting other expenditures such as public health and prevention programmes. In Spain, for example, measures in 2012 have been proposed to deny health care to migrants of uncertain legal status.[29] Pérez-Molina and Pulido[30] have carried out an analysis about the consequences of this measure and stated that the expected savings in the short term would be much lower than expected savings in the long term. They showed its impact on the country's public health would be negative, increasing mortality and morbidity owing to communicable diseases and increasing spending in the medium and long term. Owing to this expertise initiative, finally the policy has not been implemented. This type of policy is thought to undermine health system goals[27]; therefore, comprehensive and coherent policies are needed to improve health.[31,32]

Unawareness of national HIV testing policies by health care professionals could be a barrier to put in practice recommendations and could explain[31,33] the low and variable coverage of known groups at risk.[34]

The EU/EFTA is a heterogeneous area conformed by 31 countries with different cultural, socio-economic, political, legal and migratory contexts. Besides, there are important differences in the epidemiology of HIV between countries, as well as remarkable disparities in the health systems and social welfare structures. Because the absolute and relative contribution of migrants and ethnic minorities to the number of HIV and AIDS cases also varies greatly between different Member States, the legislation and the practices towards testing these groups for HIV must, necessarily, be different too. Also, it is likely that fear of further stigmatization may have deterred countries' public health authorities to identify migrants as key populations for HIV testing. Nevertheless, migrants from high HIV prevalence settings should be included as a key group to be offered HIV testing and care in national policy documents as the first step to decrease the undiagnosed fraction among migrants in the EU region, provided that core principles of HIV testing programmes are guaranteed.

In analysing policies and recommendations from different countries, we observed inconsistencies within single countries. A number of countries have no guidelines for HIV testing; others are planning to develop them; and some are in the process of updating their HIV/AIDS Plans. This may explain the discrepancies between the information provided directly to us by the country representatives and the information we retrieved from the documents. Data provided by the key informants were invaluable, as it was a direct source of information, especially relevant in the case of countries with languages unknown by the research team.

Moving towards the normalization of HIV testing with universal strategies in selected contexts, as for example promoting universal HIV testing in some areas with high HIV prevalence rates, should

not substitute HIV testing programmes for groups more at risk, such as migrants from HIV endemic countries. Nevertheless, a prioritization of resources based on cost-economic analyses and knowledge about implementation is needed.[35]

The various documents reviewed call to broaden the scope of health settings performing the HIV test, to strengthen proactive testing strategies, to put in place outreach programmes based on community approaches, like offering the test where people live, work or spend their leisure time, expanding testing hours and involving NGOs and Community Based Organizations through Point of care testing and rapid testing. The UK Health Protection Agency (now Public Health England) recommended giving support to primary care practitioners to assess the need for HIV testing in migrants.[36] In fact, General Practitioners are also at the centre of HIV testing strategies in Germany, the Netherlands, Norway, Spain and Switzerland,[34] and their perseverance has proved to be a key factor in increasing the uptake of HIV testing.[37]

The objective of this study was not to exhaustively assess to what extent mandatory HIV testing is applied to migrants. However, in reviewing policy documents, it can be concluded that policies in some countries may more or less inadvertently facilitate this practice. A number of international testing guidelines, particularly those from ECDC[17] and WHO,[24] strongly advice against mandatory HIV testing for migrants.

In summary, most documents consider migrants as disproportionately affected by HIV infection, and the benefits of early diagnosis are highlighted. National policy documents should recommend voluntary HIV testing for migrants as the first step to decrease the higher undiagnosed fraction in this population in the EU/EFTA region. Although national HIV testing policies are heterogeneous across the countries in the European region, HIV testing approaches must rely on the pillar that testing must be linked to care as clearly stated in the ECDC HIV testing Guidelines.[17] The fact that there are countries which do not provide universal HIV prevention, treatment and care for migrants of uncertain legal status challenges the ethics and the effectiveness in the application of the pro-active HIV testing and are a deterrent for the control of an important public health problem in the region.

## Supplementary data

Supplementary data are available at *EURPUB* online.

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### Key points

- Country guidelines content is heterogeneous, according to each epidemiological context and vulnerability situation of migrant and ethnic minorities.
- Many countries are aware of the benefits of HIV testing in migrants and ethnic minorities for HIV, at both individual and community levels.
- Countries need to offer strategies and structures to provide adequate and accessible HIV testing according to their specific context, to be able to reduce the higher fraction of undiagnosed infection in this population.
- Linking HIV testing with treatment and care, regardless of migrants' legal status, is key to ensure the effectiveness of pro-active testing strategies and to guarantee the benefits of timely treatment.

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# Appendix 1

## Study working group

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