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**Availability of indicators of migration in the  
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**Title:** Availability of indicators of migration in the surveillance of HIV, tuberculosis and hepatitis B in the European Union – a short note

## **Abstract**

### *Background and aim:*

Data regarding infectious diseases in migrant populations in Europe are scarce. We aimed to assess whether information on migration status is collected in countries of the European Union (EU) as part of their national surveillance systems for major infectious diseases (HIV/AIDS, tuberculosis (TB) and hepatitis B infection).

### *Methods:*

Using different electronic sources we collected information about whether indicators of migration status were collected in national infectious diseases surveillance systems in European countries.

### *Results:*

Of 27 EU countries, migration status was recorded in all 27 countries for TB surveillance (100%), in 22 countries for HIV (~82%) and in 23 countries for AIDS (~85%). Eight of 20 countries (40%) recorded migration status in hepatitis B surveillance systems. The most commonly recorded indicator of migration status was country of birth. Among countries which conducted migrant specific surveillance, country of birth was collected in ~82% of TB, ~86% of HIV, and ~83% of AIDS surveillance systems. Other indicators of the migration status were ethnicity (used in HIV and AIDS surveillance) and citizenship (TB surveillance).

### *Conclusion:*

We showed differences in how migration status is recorded in surveillance systems from European countries. This was especially true for tuberculosis and hepatitis B, whereas data collection as part of HIV/AIDS surveillance was nearly uniform. These results suggest the need for a more uniform reporting of migration status as part of infectious disease surveillance in EU countries.

**Keywords:** Migration, HIV/AIDS, tuberculosis, hepatitis B, infectious disease surveillance, European Union

## **Background**

According to recent estimates, the number of international migrants was about 191 million worldwide, which represents about 3% of the world population (United Nations 2006). Europe was the continent hosting the largest number of international migrants. For example, 64 million migrants immigrated to Europe in 2005 compared to 53 million to Asia and 44 million to North America (United Nations 2006).

There are considerable disparities in health status between resident and migrant populations (Bolen et al. 2000; Carta et al. 2005). Several studies indicated also a higher burden of infectious diseases, such HIV (Guillen et al. 2005; Saul et al. 2000), tuberculosis (TB) (Fathoala et al. 2006; Laifer et al. 2007) and hepatitis B (Chiaramonte et al. 1998; Holbach et al. 2004) among migrant populations. These disparities are determined by several factors: first, many migrants come from countries with a higher prevalence of infectious diseases. Second, migrants often represent a socially deprived population, which makes them more vulnerable to certain diseases (Tselmin et al. 2007). Migrants also have a higher risk of acquiring infectious diseases due to poor working and living conditions in the host country, including overcrowding and insufficient housing (Bollini and Siem 1995; Carballo and Nerukar 2001). Third, the risk of HIV and sexually transmitted infections may be higher among specific migrant groups due to a higher prevalence of specific risk behaviours (Kabakchieva et al. 2002). Finally, migrant populations have poor access to health care and therefore might not receive appropriate diagnostic procedures and treatment (Smith 2001). Apart from the effects of the higher burden of infectious diseases in the migrant populations on the migrants themselves, the elevated risk might also affect the whole population. For example, it was estimated that the prevalence of hepatitis B in the Dutch general population was maintained by migrants who acquired the infection in their home countries and introduced it to the Netherlands (Kretzschmar et al. 2002). A similar finding was observed in Germany (Marschall et al. 2005). Thus, monitoring the health status of migrant populations is of great public health importance. It would not only improve the migrants' health situation but also reduce the burden of infectious diseases in the whole population. However, at present detailed data regarding infectious diseases in migrant populations in Europe are scarce.

We aimed to assess whether information on migration status was collected in national surveillance systems in countries of the European Union (EU) for major infectious diseases (HIV/AIDS, TB and hepatitis B infection).

## **Methods**

Information about surveillance systems in Europe was obtained from four electronic sources (i) the websites of the national surveillance institutes in the respective countries, (ii) Eurohiv.org (surveillance of HIV/AIDS in the WHO European Region), (iii) EuroTb (surveillance network for TB in the WHO European Region) and (iv) Eurohep.net project (project of surveillance and prevention of vaccine preventable hepatitis). As indicators of migration background in the European context the following terms were used: country of birth, citizenship and ethnicity (mainly based on country of origin).

## **Results**

### ***Surveillance of HIV/AIDS and migration status in the EU***

Reporting of HIV infection is compulsory in all of the 27 EU-countries except Austria. In Austria, a cohort study (“Austrian HIV Cohort Study”) is used for reporting of HIV cases. In 22 (81.5%) of the 27 countries information on the migration status are collected within the national surveillance systems. However, different countries use varying indicators of migration status (Figure 1). The most frequently used indicator is country of birth (19 countries), followed by ethnicity (11 countries). Both indicators are collected in nine countries. Neither of these indicators is available in Austria, Estonia, Finland, Hungary and Poland.

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AIDS cases are reported in all 27 countries. In 23 (85.2%) of these countries migration specific data are collected. Information on country of birth is available in 19 countries, and information on ethnicity in 12 countries. Both country of birth and ethnicity are collected in nine countries. However, in some countries ethnicity is understood as the country of origin (example: Germany) and in others as an ethnic group (example: UK). All countries are using the same variables for AIDS case reporting as for HIV case reporting, with the exception of Belgium where ethnicity is collected instead of country of birth. The migration status in the Austrian AIDS case reporting system is indicated by country of birth. No information on migration status was collected in Estonia, Finland, Hungary and Poland.

### ***Surveillance of TB and migration status in the EU***

Notification of TB cases exists in all 27 EU countries and in all of them (100%) data on the migration status are collected. With the exception of Austria, Belgium, Bulgaria, Malta and

Poland, which collect information on citizenship as an indicator of migration status, all countries use country of birth as the migration indicator (Figure 2).

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### ***Surveillance of hepatitis B and migration status in the EU***

Measurement and reporting of hepatitis B infection was conducted in 20 countries (Eurohep.net 2009). Migration indicators were collected in eight countries (40%). In all these countries information on country of birth was collected.

### **Discussion**

Collection of indicators of migration status in the surveillance of infectious diseases differs widely among EU countries. Migration status was recorded most frequently in TB surveillance (100%), followed by HIV and AIDS (~82% and ~85%), and was worst in hepatitis B surveillance. For the latter, information on migration status was collected only in 8 countries (40%). Across countries and surveillance systems, the most common indicator of migration status was country of birth, which was collected in ~82% of TB, ~86% of HIV, and ~83% of AIDS surveillance systems. Another frequently used indicator in HIV and AIDS surveillance was ethnicity. However, the definition of ethnicity was not consistent across all countries in which the information labelled as ethnicity was collected. Information on citizenship was collected for TB cases in five countries. Thus, the collected indicators of migration status vary by the definition of migration status and by the infectious disease for which they were collected. Due to different definitions of migration status a comparison of data among countries is difficult. A uniform standardized definition would thus help to making comparisons between countries.

Recently, the term “person with migration background” was introduced in Germany (Schenk and Neuhauser 2005). According to this, a minimum set of indicators has to be used in epidemiological migrant health research for identifying a person with migration background. The suggested set includes information on country of birth of the person and his/her parents, year of immigration, mother tongue, language proficiency and citizenship. Citizenship/nationality alone was repeatedly shown not to identify all migrants correctly (Schenk and Neuhauser 2005). On the one hand, this is based on the fact that the legislation to obtain a new nationality differs between countries, so that data are less comparable. Furthermore, in some countries immigrants from former colonies (e.g. resettlers in Germany and Surinamese in the Netherlands) gained citizenship of the “mother” country which gives

also no information on the ethnic origin or the migration status. Therefore, this indicator should only be used if the others are missing. Also, country of birth does not convey information about second generation migrants, who might still be affected by their parents' culture. A wider definition of migration background allows for a more complete assessment of the migrant population (Schenk et al. 2006). Additionally, the acculturation process, defined as changes in the migrant population due to interaction with the host population and vice versa (Maxwell 2001), may play a role with respect to infectious disease incidence and prevalence. Simple indicators of acculturation such as duration of stay in the host country and language use were proposed (Abraido-Lanza et al. 2006). While the concept of acculturation received also some criticism when applied to research dealing with ethnic minorities (Hunt et al. 2004), acculturation was shown to be related to many health outcomes (Lara et al. 2005). The application of the concept of acculturation to migrant populations therefore appears promising (Mikolajczyk et al. 2008).

The present paper indicates the need for more uniform reporting of migration status in national infectious disease surveillance systems in the EU. In order to make national data comparable, disease surveillance should agree on a minimum set of common indicators. Because parental characteristics may affect health outcomes during childhood, parental migration status should also be recorded. However, as surveillance systems differ by the nature of the societies and the health care systems they were set up for, not all suggestions might apply to all countries.

## **Conclusion**

The study showed differences in how migration status is recorded in surveillance systems from European countries. This was especially true for TB and hepatitis B, whereas data collection as part of HIV/AIDS surveillance was nearly uniform. In order to develop a uniform surveillance system, greater efforts must be made to harmonise data collection.

## **Conflict of interest**

The authors declare that they have no conflict of interest.

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Figure 1. Information about migration status collected in national surveillance systems in the European Union for HIV case reports.

Figure 2. Information about migration status collected in national surveillance systems in the European Union for TB case reports.