

Infectious-disease Screening and Vaccination for Refugees and Asylum Seekers Entering Europe in 2015–16: A Scoping Study of Six European Union Countries

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In 2015, more than 1 million asylum seekers and refugees arrived in Europe. Information on how European countries addressed the prevention and control of infectious diseases among these populations during and after this period is limited. This study is based on 27 semi-structured interviews conducted with first-line staff and health officials in May–June 2016 in first-entry countries (Greece/Italy), transit countries (Croatia/Slovenia) and destination countries (Austria/Sweden). Characteristics of health-service provision for infectious diseases at each stage of reception, with a focus on tuberculosis, viral hepatitis, intestinal parasites and human immunodeficiency virus infections, were

investigated. No major differences in the provision of services in accordance with migration status (asylum seekers vs refugees) were reported. At arrival, interventions were focused on addressing emerging health needs and no major barriers to accessing acute hospital care for infectious diseases were reported. There were shortcomings in interventions to tackle medium- to long-term needs with respect to infectious diseases, including screening for chronic treatable infections and adult vaccination. European evidence-based guidance highlighting the most relevant interventions for infectious diseases during the reception process is needed.

Keywords: Refugee, asylum seekers, infectious diseases, Europe, screening

Introduction

In 2015, the number of migrants worldwide, most of whom were forcibly displaced due to persecution, conflict or human rights violations, reached the highest figure ever recorded (UNHCR 2016). In this context, more than 1 million asylum seekers and irregular migrants entered the European Union, mostly through Greece and Italy, and more than 700,000 illegal border crossings of people headed to Central and North European countries were recorded along the so-called 'Western Balkans route' (Frontex 2015). In 2015, Germany received 441,900 new asylum claims followed, among European Union Member States, by Hungary (174,425), Sweden (156,120), Austria (85,500) and Italy (83,240) (UNHCR 2016; IOM 2017).

Available evidence suggests that some migrant groups, including asylum seekers and refugees, may show an increased vulnerability for certain non-communicable and communicable diseases (Marquardt *et al.* 2016; van Berlaer *et al.* 2016). Asylum seekers and refugees can be at increased risk of acquiring vaccine-preventable diseases such as measles due to sub-optimal vaccination coverage (Jablonka *et al.* 2017). They may also be at higher risk of reactivation of latent infections acquired in their home country, such as tuberculosis (Pareek *et al.* 2016), or of acquisition of infections favoured by poor living conditions, crowded shelters, detention centres (such as relapsing fever due to *Borrelia recurrentis*, scabies, intestinal parasites) (ECDC 2015) or by social vulnerability such as human immunodeficiency virus (HIV) (ECDC 2013). Finally, migrants can also be carriers of chronic infections such viral hepatitis B or C (Ahmad *et al.* 2018; Falla *et al.* 2018). Thus, early identification, linkage to care, prevention and treatment of infectious diseases among asylum seekers and refugees are essential to identify and address their health needs (Semenza *et al.* 2016).

In this analysis, we report information about ground-level practices related to infectious-disease service provision to refugees and asylum seekers collected in a scoping study conducted in 2016 in six European Union Member States, covering three stages of the migration journey (country of first arrival, country of transit and country of destination).

Methods

The study was carried out in six European Union Member States: Greece and Italy, which had the highest number of newly arrived migrants in 2015; Croatia and Slovenia, which had a high number of transiting migrants; and Austria and Sweden, representing two countries of final destination.

Telephone and face-to-face semi-structured interviews with health practitioners providing health services to asylum seekers and refugees were conducted in May–June 2016. In all participating countries, except for Slovenia, a representative of a national health authority responsible for infectious-disease control was included. In the interviews, the three stages of the reception process were considered: at arrival/short-term open/closed reception centres; in reception centres (long-term open/closed centres); and outside reception centres. The interview guide was based on instruments previously applied to survey of care provision to asylum seekers (IOM 2015; Bozorgmehr *et al.* 2016).

Following the 1951 Geneva Convention, we defined asylum seekers as ‘persons seeking to be admitted into a country as refugees and awaiting decision on their application for refugee status’ and refugees as ‘persons who have received legal protection’ in the country under study (UN General Assembly 1951).

A total of 27 semi-structured interviews were conducted: six in Greece, five each in Italy and Croatia, four in Slovenia and Sweden, and three in Austria. All but six were digitally recorded and consent forms were signed by respondents participating in face-to-face interviews. Four out of 27 health professionals (two in Greece, one in Slovenia, one in Austria) were part of non-governmental organizations (NGOs). The interviews were transcribed verbatim and inputted using an ad hoc created Access database. Further details on participants and the questionnaire used are provided elsewhere (Bozorgmehr *et al.* 2018).

In this article, we focus on questions regarding the provision of health services for infectious diseases with special references to screenings and vaccinations. A descriptive analysis was performed using SPSS software ver. 23 (IBM, USA) and the frequency of responses (either as pre-coded or coded by two of us in case of open-ended response) is reported.

Results

Out of the 27 respondents, 12 (44.4 per cent) reported that health-reception procedures with respect to infectious diseases are standardized in their country and eight (29.6 per cent) reported that they are partly standardized. Six reported that, in their country, no standard procedures were available, of whom five were from Greece and one from Austria.

Twenty out of 27 respondents stated that the same services are available for asylum seekers (AS) and refugees entering their countries.

Intervention Performed at Arrival

Interventions performed immediately after arrival and/or upon entrance in reception centres are focused on the identification and care of those acutely ill. Specific interventions for infectious diseases were rarely mentioned: two respondents (one from Italy and one from Austria) mentioned scabies screening and one from Italy reported symptom-based screening for tuberculosis. In general, health-services provision in this phase is mainly based on medical interviews and general physical examinations.

Participants were asked about current practices for dealing with migrants suspected of having an infectious disease. With respect to tuberculosis, nearly all respondents mentioned referral to and isolation in hospitals or specialized centres. One respondent each from Greece and Slovenia reported problems in tuberculosis (TB) care, because of the absence of an active follow-up after hospital discharge.

Persons with suspected viral hepatitis are also referred to specialized hospital services and two respondents from Sweden mentioned the availability of free treatment for chronic hepatitis C.

Persons with HIV infection are referred to specialized centres where they usually receive care as outpatients and where also testing is provided for those with indicative symptoms or with risk factors. One respondent from Greece reported a policy of not testing if they could not provide antiretroviral treatment. Treatment for persons with HIV was reported by respondents in Sweden, Italy and Austria. Two respondents from Greece reported that HIV-specific antiretroviral drugs were not available in the services caring for migrants at arrival. One of them from an NGO reported a policy of not testing if they cannot provide antiretroviral treatment and of referring individuals with suspected infection to specialist centres for testing and treatment.

Persons diagnosed with intestinal parasites or chickenpox are typically treated at reception centres when isolation is feasible; severe cases are generally referred to hospitals.

Screening for Specific Infections

Figure 1 reports how frequently specific measures are performed. Anamnesis for general health problems and specifically for infectious diseases, symptomatic screening for infectious diseases and, to a lesser extent, full physical examination were reported as performed always or often by the majority of respondents in all countries surveyed. Pregnancy test for women of child-bearing age is often not offered according to more than half (18/27, 66.7 per cent) of all interviewees (4/6 in Greece, 4/5 in Italy, 2/5 in Croatia, 4/4 in Slovenia, 2/4 in Sweden, 2/3 in Austria).

Types of screening conducted for different infectious diseases (tuberculosis, HIV, hepatitis C, hepatitis B, intestinal parasites) were investigated and findings are shown in Figure 2 overall and in Table 1 with a country breakdown for AS. For AS, 14/27 (51.9 per cent) reported symptom-oriented screening

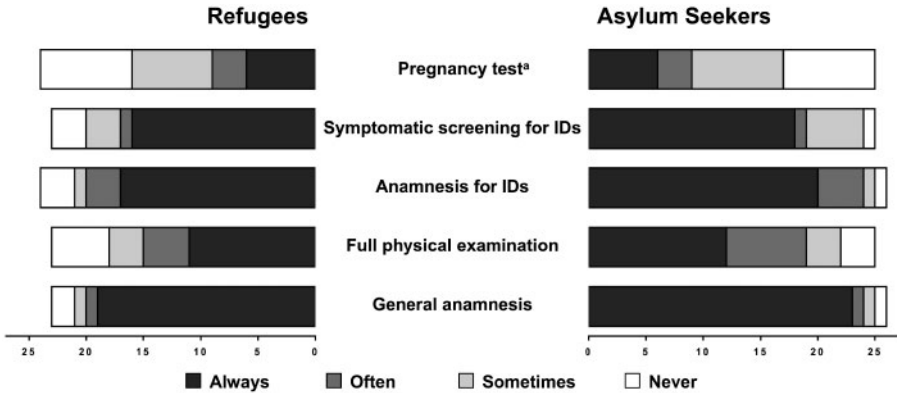


Figure 1
Frequencies of Specific Measures Performed during the Reception Process

Refugees (right) and asylum seekers (left) ($N = 27$ respondents). Breakdown by country is in the text. IDs, infectious diseases. ^a Pregnancy tests for women of childbearing age.

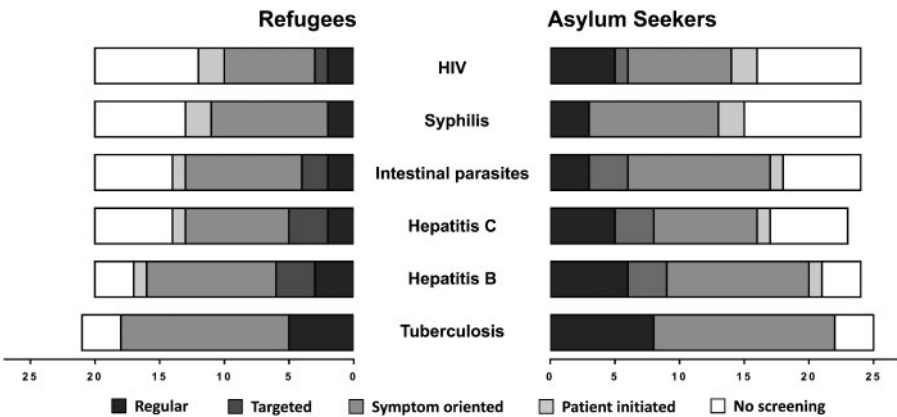


Figure 2
Screening for Specific Infectious Diseases

Refugees (right) and asylum seekers (left) ($N = 27$ respondents). We distinguished between regular compulsory screening (everyone is screened without exceptions), targeted compulsory screening (e.g. based on country of origin or specific age groups), symptom-oriented compulsory screening (i.e. only in specific cases when symptoms are present), patient-initiated screening (requested by the migrant), testing offers and no screenings or offers at all. Breakdown by country is shown in Table1 and in the text.

for tuberculosis (five in Greece, five in Italy, three in Slovenia and one in Sweden), while eight (29.6 per cent) reported regular compulsory screening (three in Sweden, three in Croatia and one each from Slovenia and Austria). A similar pattern was recorded for viral hepatitis B and C, with most

Table 1

Screening for Specific Infectious Diseases among Asylum Seekers According to Country*

		Regular/targeted compulsory	Symptom-oriented	Patient-initiated	No screening
Tuberculosis	Greece (<i>n</i> = 6)		5		
	Italy (<i>n</i> = 5)		5		
	Croatia (<i>n</i> = 5)	3			2
	Slovenia (<i>n</i> = 4)	1	3		
	Sweden (<i>n</i> = 4)	3	1		
	Austria (<i>n</i> = 3)	1			1
	Total (<i>n</i> = 27)	8 (29.6)	14 (51.9)	-	3 (11.1)
Hepatitis B	Greece (<i>n</i> = 6)	1	4		1
	Italy (<i>n</i> = 5)		2	1	1
	Croatia (<i>n</i> = 5)	4	1		
	Slovenia (<i>n</i> = 4)	1	3		
	Sweden (<i>n</i> = 4)	3	1		
	Austria (<i>n</i> = 3)				2
	Total (<i>n</i> = 27)	9 (33.3)	11 (40.7)	1 (3.7)	4 (14.8)
Hepatitis C	Greece (<i>n</i> = 6)	1	3		1
	Italy (<i>n</i> = 5)		2	1	1
	Croatia (<i>n</i> = 5)	3			2
	Slovenia (<i>n</i> = 4)	1	3		
	Sweden (<i>n</i> = 4)	3			
	Austria (<i>n</i> = 3)				2
	Total (<i>n</i> = 27)	8 (29.6)	8 (29.6)	1 (3.7)	6 (22.2)
Intestinal parasites	Greece (<i>n</i> = 6)		4		1
	Italy (<i>n</i> = 5)		2	1	1
	Croatia (<i>n</i> = 5)	2	1		2
	Slovenia (<i>n</i> = 4)	1	3		
	Sweden (<i>n</i> = 4)	3	1		
	Austria (<i>n</i> = 3)				2
	Total (<i>n</i> = 27)	6 (22.2)	11 (40.7)	1 (3.7)	6 (22.2)
Syphilis	Greece (<i>n</i> = 6)		3		2
	Italy (<i>n</i> = 5)		1	2	1
	Croatia (<i>n</i> = 5)	2	1		2
	Slovenia (<i>n</i> = 4)		4		
	Sweden (<i>n</i> = 4)	1	1		2
	Austria (<i>n</i> = 3)				2
	Total (<i>n</i> = 27)	3 (11.1)	10 (37.0)	2 (7.4)	9 (33.3)
HIV	Greece (<i>n</i> = 6)	1	2		2
	Italy (<i>n</i> = 5)		1	2	1
	Croatia (<i>n</i> = 5)	2			3
	Slovenia (<i>n</i> = 4)		4		
	Sweden (<i>n</i> = 4)	3	1		
	Austria (<i>n</i> = 3)				2
	Total (<i>n</i> = 27)	6 (22.2)	8 (29.6)	2 (7.4)	8 (29.6)

* We distinguished between regular compulsory screening (everyone is screened without exceptions), targeted compulsory screening (e.g. based on country of origin or specific age groups), symptom-oriented compulsory screening (i.e. only in specific cases when symptoms are present), patient-initiated screening (requested by the migrant), testing offers and no screenings or offers at all; the sum could not add up to the total because of missing values.

respondents from Greece, Italy and Slovenia reporting symptom-oriented screening (4/5, 3/5 and 3/4 for B; 3/6, 3/5 and 3/4 for C, respectively) and the majority of those from Croatia and Sweden reported regular or targeted compulsory screening (4/5 and 3/4 for hepatitis B; 3/5 and 3/4 for hepatitis C, respectively). Regular or targeted compulsory screening was reported for HIV only by one respondent in Greece, two in Croatia and three in Sweden, and for syphilis by two in Croatia and three in Sweden. Regarding Austria, one respondent mentioned regular compulsory screening for tuberculosis while no other screening was reported. Similar responses were noted vis-à-vis refugees.

Seven respondents (one from Greece, one from Croatia, three from Sweden and two from Austria) reported that they conducted tuberculin skin testing (TST) with generally low three-day reading follow-up (lower than 50 per cent). Lack of interest of individuals, frequent relocation of persons from the centres and logistic problems were mentioned by three respondents as possible factors affecting the rate of return for TST reading. All respondents from Sweden stated that they screen for tuberculosis infection by interferon-gamma release assays (IGRAs) to overcome the problems with TST reading, which needs a second visit. Overall, 18 respondents (66.7 per cent) did not report any active screening for tuberculosis infection or did not respond (one).

Vaccination

Ascertainment of the current state of vaccination was reported as always or often performed by 19 out of the 27 respondents, all of those from Italy, Croatia and Sweden and, to a lesser extent, Austria, Slovenia and Greece, where three out of six stated that they never ascertain the state of vaccination.

Low provision of vaccination in case of uncertain state of vaccination was reported by most countries, with only 12 out of 27 reporting the provision of a vaccination always or often and 10 never providing vaccination in that case, especially for respondents from Greece (4/6) and Slovenia (3/4) (see Table 2).

Routine adult vaccinations are rarely offered. Vaccination directly on arrival was reported for Sweden (one respondent for measles–mumps–rubella (MMR)) and Italy (one respondent for inactivated polio vaccine (IPV)). In reception centres, Croatian respondents refer to performing vaccination for measles (either monovalent or combined), varicella and influenza. In Sweden, vaccination with MMR and influenza is offered both in reception centres and in the community. IPV is provided at reception centres in Italy and in Croatia.

In contrast, fewer than half of the respondents (10 out of 27) stated that vaccinations are not provided to newborns and infants (five from Greece, two each from Croatia and Slovenia, and one from Austria), while routine provision of vaccination for infants and newborns was reported by 13 respondents, all of those from Italy (five) and Sweden (four) (see Table 2 for country

Table 2

Frequency of Provision of Vaccination in Case of Uncertain State of Vaccination and Provision of Vaccination of Newborns or Infants According to Country in Asylum Seekers

	Vaccination in case of uncertain state of vaccination			Vaccination of newborns or infants		
	Always/often	Sometimes	Never	Always/often	Sometimes	Never
Greece (<i>n</i> = 6)		1	4			5
Italy (<i>n</i> = 5)	3	1		5		
Croatia (<i>n</i> = 5)	2	1	2	2	1	2
Slovenia (<i>n</i> = 4)	1		3	1		2
Sweden (<i>n</i> = 4)	4			4		
Austria (<i>n</i> = 3)	2		1	1		1
Total (<i>n</i> = 27)	12 (44.4)	3 (11.1)	10 (37.0)	13 (48.1)	1 (3.7)	10 (37.0)

The sum could not add up to the total because of missing values.

breakdown) but the timing and type of vaccination provided differed sensibly by country.

Vaccination of infants upon arrival is infrequent and was reported by one respondent in Slovenia (for MMR, varicella, influenza, diphtheria and pertussis), one in Italy (MMR, IPV, hepatitis B vaccine (HBV) and diphtheria/tetanus/pertussis (DTP)), one in Greece (MMR, DTP or DTP/IPV) and one in Austria (DTP). In contrast, at least one respondent in all countries except Austria mentioned infant vaccination in reception centres and outside reception centres; vaccination offered included measles vaccine (either monovalent or combined), DTP, HBV, IPV, Haemophilus influenzae (HiB) or other vaccination for specific groups (with Bacillus–Calmette–Guérin (BCG) vaccine according to a Swedish respondent, depending on the country of origin of the migrant).

Needs Arising in the Work with AS and Refugees

Respondents were asked to mention the problems encountered when providing health services to migrants. Among the problems cited, the most frequent was the excessive workload (six respondents). This was particularly evident among respondents from Greece and Italy, who depicted as critical the situation encountered when consistent waves of migrants have to be managed. This results in a dramatic reduction in consultation times and difficulties in providing a timely diagnosis and in implementing control measures.

Others mentioned the lack of interpreters and cultural mediators, and the lack of coordination and exchange of information (five respondents each). One respondent from Greece mentioned a lack of communication among

multiple actors involved in the reception phase, which does not allow quick decisions to be made. The absence of medical documentation is an important issue mentioned by two Croatian respondents where the lack of communication within services among different professionals involved and among different services for migrants along the migration route, forces health professionals to rely only on patients' reports.

Interpretation services are lacking in the hospitals where patients are referred. Respondents mentioned also the fact that socio-economic needs of migrants are not being addressed (three), difficulties in accessing diagnostics (three) and a lack of sufficient financing (three). Lack of proper living conditions and poor social support are perceived by respondents from Greece and Italy as factors favouring the spread of communicable diseases. Swedish respondents highlighted difficulties in the integration of migrants into standard health-care services. One respondent from Greece mentioned the huge need for dental care. Finally, one respondent stated that infectious diseases should not be identified as a problem specifically linked to migrants.

Discussion

This scoping study provides a picture of infectious diseases health-care services for AS and refugees in European countries during a time period characterized by increasing migration flows into the European Union. We collected data through interviews conducted mainly with first-line staff and covered the different stages of the reception process. Taken together, our findings suggest no major differences in the provision of services in accordance with migration status. In our survey, we add this specific differentiation, extensively debated, in order to elucidate whether any difference occurred in service provision for different categories of migration status, finding that all countries, a part of Croatia and Sweden reported no different procedure according to migration status: in Croatia, no intervention is applied in a standard way for transit migrants; in Sweden, differences were mainly reported for economic migrants and families of those admitted to the countries and migrating later as opposed to AS. For these reasons, in general in the article, the same considerations generally apply to both AS and refugees unless differently stated.

Upon arrival, interventions were focused on those acutely ill and no major barriers to accessing acute hospital care for infectious diseases were reported. We identified a number of shortcomings in interventions to tackle medium- to long-term needs with respect to infectious diseases, including screening for chronic treatable infections and adult vaccination.

Our study identified some potential areas of improvement in the provision of health services for infectious diseases for AS and refugees.

In the first phase of the reception process, especially in arrival/transit countries, health interventions appear to be directed mainly at addressing immediate health needs, both in general and with regard to infectious

diseases. This finding is in line with previous reports regarding undocumented migrants who also have access to emergency care in European Union countries (Suess *et al.* 2014). However, we could not document specific interventions to reduce vulnerability to transmissible disease during the reception process (Catchpole and Coulombier 2015). The European Centres for Disease Control have highlighted the need to improve countries' capability to face challenges in preventing and controlling communicable disease transmission, particularly in the event of a sudden influx of migrants. To this end, specific activities should be in place upon arrival in the host countries and should include screenings for transmissible conditions and the appropriate reporting of illnesses identified during screening (ECDC 2016).

Given the pressure of emergencies at reception in arrival countries (Greece and Italy), it is reasonable to assume that screening for infectious diseases and appropriate care provision are far more difficult. A number of screening interventions at reception centres or in the community were reported, although these screenings were mostly symptom-based and a systematic approach for early diagnosis/prevention was less common. For example, screening for active tuberculosis, which is aimed at detecting a prevalent and potentially transmissible disease, is frequently reported in all participating countries. However, in AS, 5/6 in Greece, 5/5 in Italy and 3/4 in Slovenia reported symptom-oriented screening, while regular compulsory screening was reported by 3/4 in Sweden and 3/5 in Croatia. On the other hand, screening by TST or IGRAs for latent tuberculosis infection, which is aimed at preventing future cases of this disease, was reported by fewer than one-third of respondents, in spite of the fact that this intervention is recommended (WHO 2015) for those who can benefit from it, such as asylum seekers/refugees from high-TB-incidence countries who are going to stay in the country of arrival for four to six months. Screening for chronic, treatable infections can be an important opportunity for improving the health of AS and refugees in the medium to long term, provided that a number of criteria including ensuring access to treatment for those screened positive, informed choice, confidentiality and respect for autonomy are met (Andermann *et al.* 2008). A similar pattern was recorded for viral hepatitis B and C, with most respondents from Greece, Italy and Slovenia reporting symptom-oriented screening and the majority of those from Croatia and Sweden regular or targeted compulsory screening.

Current evidence suggests that migrants and refugees in European countries have lower immunization rates compared to European-born individuals (Mipatrini *et al.* 2017), although vaccination is a crucial intervention to protect this population, whose living conditions may increase their vulnerability to vaccine-preventable disease (Semenza *et al.* 2016). Our results suggest that adult vaccination is infrequently performed among newly arrived refugees and AS, while childhood vaccination appears to be performed in all countries during the reception.

Finally, fewer than a half of respondents reported the standardization of interventions for infectious diseases during the health-reception process and the excessive workload and the lack of coordination and exchange of information were the most frequent factors cited as the potentially affective and effective delivery of health services.

Certain limitations as to the methodology and practical aspects of the scoping study should be noted. In particular, the study sample is relatively small, to be representative of the practical aspects of ID service provision for the two migrant groups and only six countries were involved. Moreover, the analysis is entirely based on the responses to the semi-structured interviews and the findings were not cross-checked with official documents and other reports on a single-country level.

In spite of these limitations, the study identifies some areas for improvement, particularly for the identification and treatment of chronic infections and adult vaccination.

In this context, the recently issued European public-health guidance on screening and vaccination for infectious diseases among newly arrived migrant populations is particularly welcome; this guidance provides evidence-based scientific advice to facilitate the effective screening and vaccination for priority infectious diseases including tuberculosis, viral hepatitis, HIV and vaccine-preventable diseases (ECDC 2018).

Redesigning national public-health strategies based on this guidance may eventually result in increased capacity for addressing the health needs of refugees and AS in Europe.

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