

Module 5 Unit 2: Communicable diseases

1. Background

- Refugees do not currently represent a threat to Europe with respect to communicable diseases, but they are a priority group for communicable disease prevention and control efforts because they are more vulnerable. The risk to refugees arriving in Europe of contracting communicable diseases has increased due to the current overcrowding at reception facilities, resulting in compromised hygiene and sanitation arrangements.
- The risk to European residents of being affected by outbreaks occurring among refugee populations remains extremely low since the compromised hygiene, overcrowding and limited access to clean water responsible for their transmission are specific to the reception facilities in which they are occurring.



European Centre for Disease Prevention and Control. *Communicable disease risks associated with the movement of refugees in Europe during the winter season* – 10 November 2015, Stockholm: ECDC; 2015.

Table 1. Infectious diseases to consider according to country of origin

Disease	Indicator	Syria	Afghanistan	Iraq	Eritrea	Somalia
Diphtheria [3]	Cases reported to WHO in 2012, 2013, 2014	0, 0, and NA	0, 0, 0	3, 4, and 5	8, 0 and NA	65, 7 and NA
Typhoid fever	Risk of typhoid	✓	✓	✓	✓	✓
Cholera*	Risk	No recent outbreak	Recurrent outbreaks	On-going outbreak in Baghdad, Babylon, Najaf, Qadisiyyah, and Muthanna.	NA	Recurrent outbreaks
Hepatitis A [†]	Risk	High endemicity	NA	High endemicity	High endemicity	High endemicity
Hepatitis E [†]	Risk	NA	NA	High endemicity	NA	High endemicity
Helminthiasis [§]	Risk of soil transmitted helminthiasis (ascaris, whipworm, hookworm)	+	++	+	++	++
	Risk of urinary schistosomiasis	✓	Non-endemic country	✓	✓	✓
Leishmaniasis**	Risk of cutaneous leishmaniasis	✓	✓	✓	✓	✓
	Risk of visceral leishmaniasis	✓	✓	✓	✓	✓
Hepatitis B ^{††}	Prevalence of chronic hepatitis B	Intermediate prevalence: 5.6%	High prevalence: 10.5%	Low prevalence: 1.3%	High prevalence: 15.5%	High prevalence: 12.4%
Hepatitis C ^{††}	Prevalence	High prevalence: 3.1%	High prevalence: 1.1%	High prevalence: 3.2%	High prevalence: 1%	NA
HIV	Prevalence	Low	NA	Low	Low	Low
Malaria ^{§§}	Risk of malaria	Malaria-free	Risk of <i>P. vivax</i> >> <i>P. falciparum</i>	Malaria-free	Risk of <i>P. falciparum</i> >> <i>P. vivax</i>	Risk of <i>P. falciparum</i>
Measles*	Incidence per 100 000 in 2013 and 2014	1.84 and 2.68	1.41 and 1.75	2.09 and 3.02	0.77 and 0.02	2.17 and 9.12
Polio***	Cases reported to WHO in 2012, 2013 and 2014	0, 35 and NA	46, 17, and 28	0, 0, and 2	0, 0, and 0	1, 195 and 5
Tuberculosis ^{†††}	Incidence/100 000	Low: 17	High: 189	Low: 25	High: 40 to 499	High: 285
Antimicrobial resistance	Risk of carriage of multidrug-resistance Gram-negative bacteria	NA	NA	NA	NA	NA
Rabies	Risk level for humans contracting rabies	High	High	High	High	High

The countries highlighted in the table are among the top five countries of origin for migrants entering the EU in 2015, excluding European countries (source: Eurostat). We cannot fully rely on epidemiology from the countries of origin when determining the infectious diseases to be vigilant for. Those who migrate are often younger and healthier and may therefore not be representative of the population of origin. In addition, a longer period in transit from country of origin to final destination, through a number of countries and settings with different disease epidemiology will influence the diseases to consider. Newly-arrived migrants with clinical complaints should receive diagnostic testing guided by their symptoms.

Source: European Centre for Disease Prevention and Control. *Infectious diseases of specific relevance to newly arrived migrants in the EU/EEA – 19 November 2015*. ECDC: Stockholm; 2015.

2. Tuberculosis

- The tuberculosis (TB) notification rate in the European Union and European Economic Area (EU/EEA) declined from 16.8/100,000 population in 2007 to 12.7/100,000 in 2013.
- The increasing percentage of migrant TB among all notified TB cases is largely attributable to the decreasing numbers of native TB cases and cases with unknown origin.
- The level of education, living conditions, low income and unemployment is associated with higher TB rates; this association is stronger in the foreign-born cases.
- Targeted prevention and control efforts (e.g. access to healthcare for all migrants including undocumented migrants, avoiding interruption of treatment) and implementation of active case finding approaches may be needed in order to diagnose cases early, provide adequate treatment and support and reduce the burden of TB among migrants.

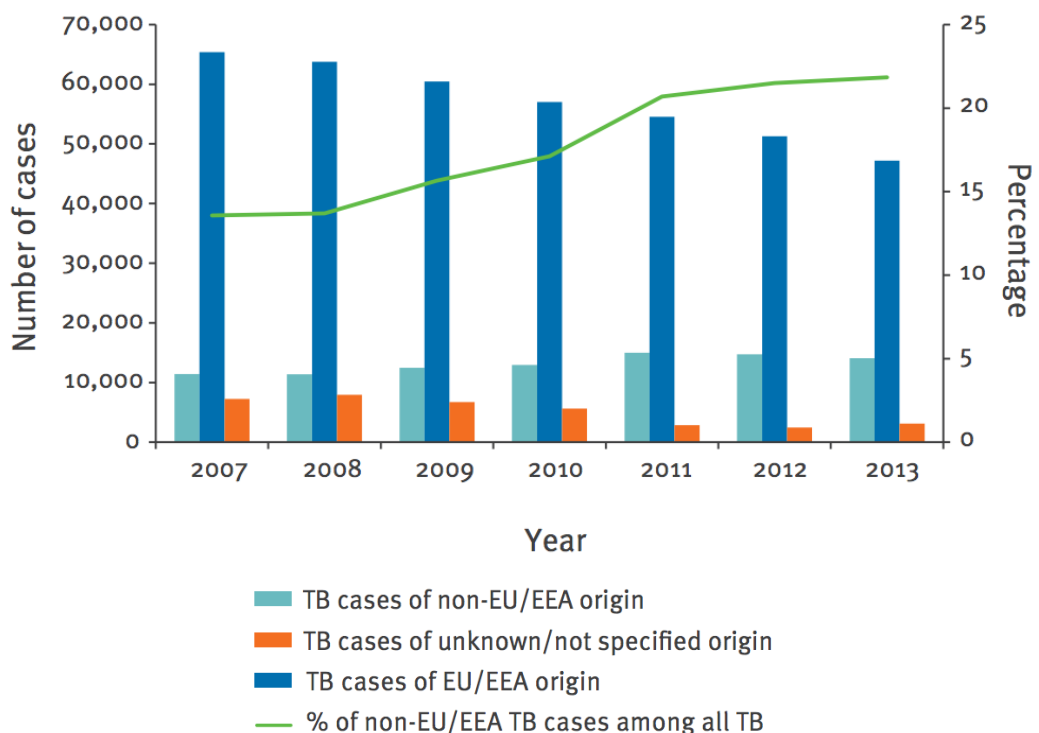


Ködmön C, Zucs P, van der Werf MJ. *Migration-related tuberculosis: epidemiology and characteristics of tuberculosis cases originating outside the European Union and European Economic Area, 2007 to 2013*. Euro Surveill. 2016;21(12):pii=30164.

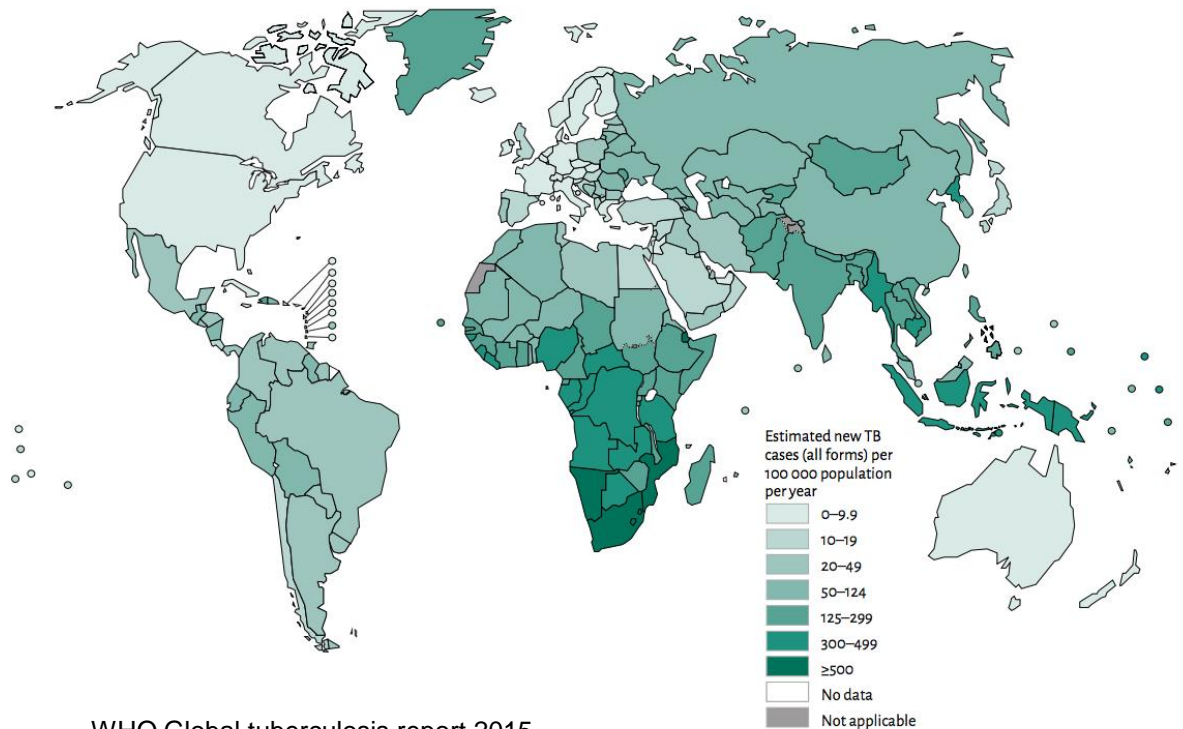
In 2013, the proportion of TB cases of foreign origin in the EU/EEA was 28.0% (range 0.3–94.7%).

Number of tuberculosis cases by year and origin, and percentage of non-European Union/European Economic Area cases among all tuberculosis cases, European Union/European Economic Area, 2007–2013

Ködmön et al. Eurosurveillance March 2016



Estimated TB incidence rates, 2014



WHO Global tuberculosis report 2015

- Many migrants develop TB as a consequence of their socio-economic status in the host country (EASAC, 2007). Migrants who arrive with a history of TB may be at risk of reactivated TB infection because of overcrowded and poorly ventilated living conditions, homelessness and inadequate nutrition (Gandy & Zumla, 2003; Ho, 2003; Gagliotti et al., 2006).
- An increasing amount of evidence based on molecular epidemiological studies is indicating that the risk of TB transmission from migrant to host populations is low. This clearly demonstrates how the issue of TB control among migrants remains primarily a question of individual right to access diagnostic and treatment services for a curable infectious diseases (Cain et al., 2008, Dahle 2007).
- There is a need to balance potential benefits against the risks and costs of screening. The data did not indicate differences in effectiveness between the three main strategies:
 - 1) screening at port of entry.
 - 2) screening just after arrival in reception/holding centres.
 - 3) screening in the community following arrival in European Union countries.
- Some risk groups should always be screened, whereas the prioritization of other risk groups as well as the choice of screening approach depend on the epidemiology, the health-system context, and the resources available.



Klinkenberg E et al. *Migrant tuberculosis screening in the EU/EEA: yield, coverage and limitations*, Eur Respir J. 2009 Nov;34(5):1180-9.

Pareek M et al. *Evaluation of Immigrant Tuberculosis Screening in Industrialized Countries*. Emerging Infectious Diseases 2012 Sep; 18(9)

STATUS OF THE GLOBAL TB EPIDEMIC AND RESPONSE

GLOBAL TUBERCULOSIS REPORT 2015



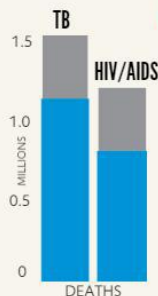
43 MILLION

LIVES SAVED BETWEEN 2000 AND 2014 THROUGH EFFECTIVE DIAGNOSIS AND TREATMENT



47% DECLINE

IN TB MORTALITY RATE SINCE 1990



TB

RANKS ALONGSIDE HIV AS A LEADING CAUSE OF DEATH

1.5 MILLION PEOPLE DIED FROM TB IN 2014, INCLUDING 0.4 MILLION PEOPLE WHO WERE HIV POSITIVE*

TB SITUATION

205 countries reported on their response to TB, guided by WHO's TB strategy



9.6 MILLION

PEOPLE FELL ILL WITH TB IN 2014



1.2 MILLION
people living with HIV developed TB

IN 2014 WITH 0.4 MILLION ASSOCIATED DEATHS



480 000
people developed MDR-TB

IN 2014 WITH 190 000 MULTIDRUG-RESISTANT TB (MDR-TB) DEATHS

Improved TB data from countries reveal that the burden of the disease is higher than previously estimated.

ACTION NEEDED TO CLOSE GAPS



1.4 BILLION
funding gap

ANNUALLY FOR TB IMPLEMENTATION, TB RESEARCH, ALSO UNDERFUNDED



3.6 MILLION
people missed

BY HEALTH SYSTEMS EACH YEAR, AND MAY NOT GET ADEQUATE CARE THEY NEED



MDR-TB
remains a crisis

WITH ONLY ONE IN FOUR MDR-TB CASES DETECTED AND ONLY ONE IN TWO CURED



TB/HIV RESPONSE
needs acceleration

IN COVERAGE OF ANTIRETROVIRAL TREATMENT, TREATMENT OF LATENT TB INFECTION AND OTHER KEY INTERVENTIONS

*Graph shows estimated number of deaths from TB and HIV/AIDS. Deaths from TB among HIV-positive people are in grey. Deaths from TB among HIV-positive people are officially classified as deaths caused by HIV/AIDS in the *International classification of diseases*.

END TB



World Health Organization

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3. HIV

Global summary of the AIDS epidemic | 2014

Number of people living with HIV in 2014	Total	36.9 million	[34.3 million – 41.4 million]
	Adults	34.3 million	[31.8 million – 38.5 million]
	Women	17.4 million	[16.1 million – 20.0 million]
	Children (<15 years)	2.6 million	[2.4 million – 2.8 million]

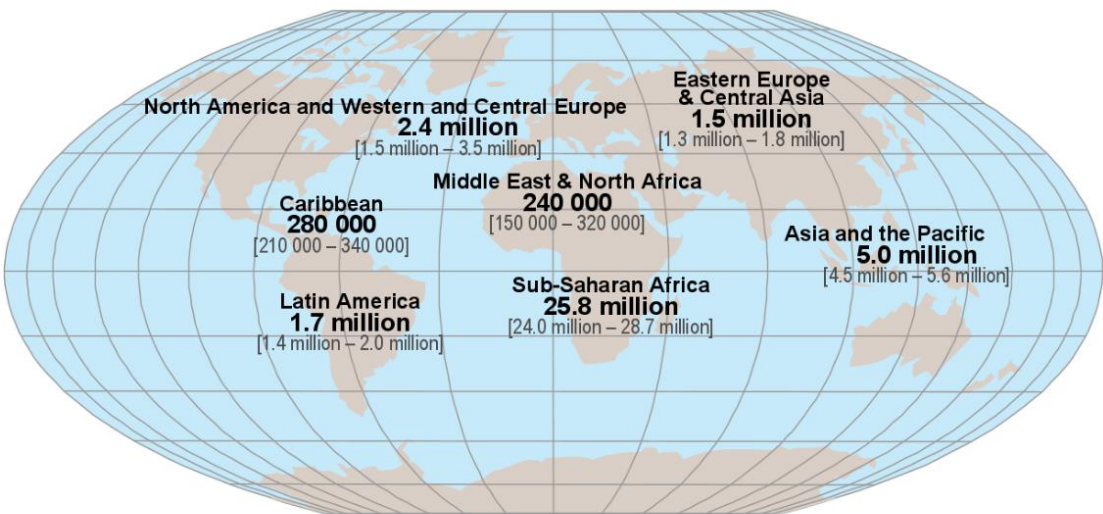
People newly infected with HIV in 2014	Total	2.0 million	[1.9 million – 2.2 million]
	Adults	1.8 million	[1.7 million – 2.0 million]
	Children (<15 years)	220 000	[190 000 – 260 000]

AIDS deaths in 2014	Total	1.2 million	[980 000 – 1.6 million]
	Adults	1.0 million	[890 000 – 1.3 million]
	Children (<15 years)	150 000	[140 000 – 170 000]

WHO – HIV department | July 21, 2015

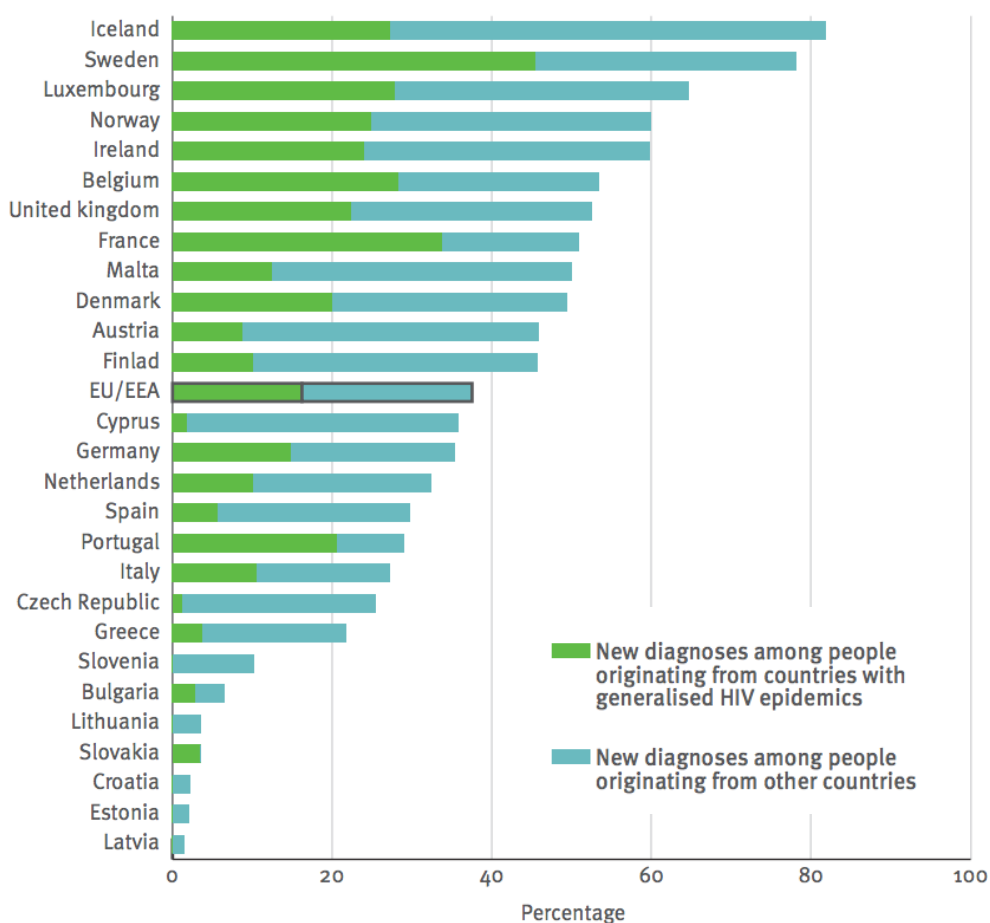


The majority of people living with HIV (25,8 million) are in sub-Saharan Africa, where heterosexual transmission is the main mode of transmission and overall HIV prevalence in the general adult population is estimated to be 4.8%. (UNAIDS, 2014)



Total: 36.9 million [34.3 million – 41.4 million]

Percentage of new HIV diagnoses among migrants out of all reported cases with known information on region of origin, by country of report, EU/EEA, 2014 (n=25 525)



European Centre for Disease Prevention and Control, WHO Regional Office for Europe. *HIV/AIDS surveillance in Europe 2014*. Stockholm: ECDC; 2015.

Remember

- Core principles in the ECDC guidance on HIV testing include ensuring that HIV testing is voluntary and confidential and that informed consent is given.
- It is also recommended that access to treatment, care and prevention services is ensured for those who test positive. It is specified that this should apply to all individuals at risk of or infected with HIV, including irregular migrants.
- Despite this, migrants in many settings across Europe face legal, administrative, cultural and linguistic barriers to accessing HIV testing. Special efforts need to be made to overcome language and cultural barriers for these populations.

4. Viral Hepatitis

- Faecal– oral transmitted infections with Hepatitis A Virus (HAV) usually do not become chronic. There is little evidence to indicate that hepatitis A in Europe is associated with migration.
- Infections with HBV, HCV and HDV are transmitted parentally or sexually and have a higher risk of chronic infection, in some cases resulting in cirrhosis or cancer of the liver.
- The prevalence of chronic HBV (defined as the presence of the hepatitis B surface antigen (HBsAg) for more than 6 months) also shows significant variations, both worldwide and within Europe.

Hepatitis B

Studies in Denmark, Greece, Italy, Spain, Sweden and the United Kingdom showed higher prevalences of chronic hepatitis B in the migrant compared to the non-migrant population.

- Almost 3.5 million migrants and refugees were chronically infected with HBV. The percentage of migrants with chronic hepatitis B infection ranged from 3.7% in Spain to 6.9% in Ireland, with the largest numbers in Germany (284 000 cases), Italy (201 000 cases), the United Kingdom (194 000 cases), Spain (128 000 cases) and France (114 000 cases).



European Observatory on Health Systems and Policies Series. *Migration and health in the European Union*. WHO 2011.

Rossi C et al. *Seroprevalence of chronic hepatitis B virus infection and prior immunity in immigrants and refugees: a systematic review and meta-analysis*. PLoS One. 2012;7(9):e44611.

Hepatitis C

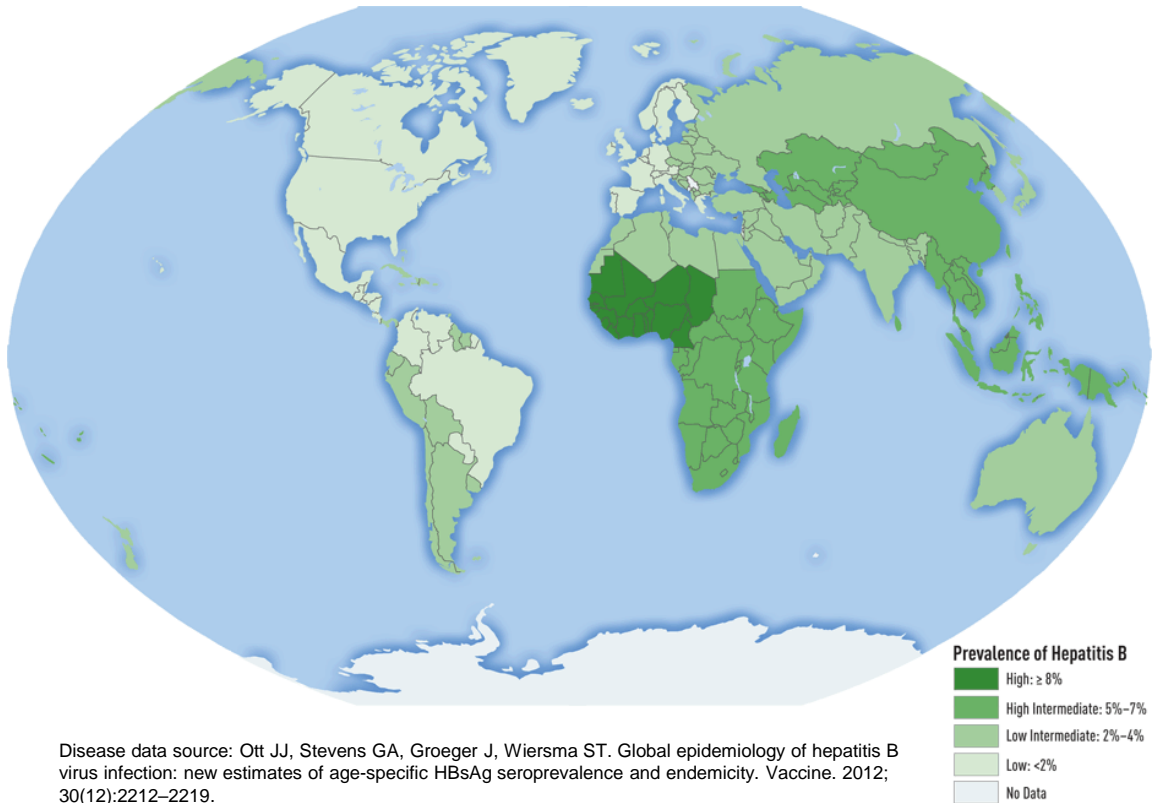
- The HCV is a blood-borne pathogen that affects the liver and is a major cause of morbidity and mortality worldwide (170 million people chronically infected).
- Approximately 75% of acute cases become chronically infected. Chronic HCV infection may result in cirrhosis in upto 35% of individuals, and in these individuals, there is a 3% incidence of hepatocellular carcinoma.

The most commonly reported route of transmission in was injecting drug use, with the percentage being lower among acute cases (29.9%) compared with chronic cases (58.6%). Among acute cases, the other main routes of transmission included nosocomial transmission (26.5%) and transmission among Men Who Have Sex with Men (14.6%).

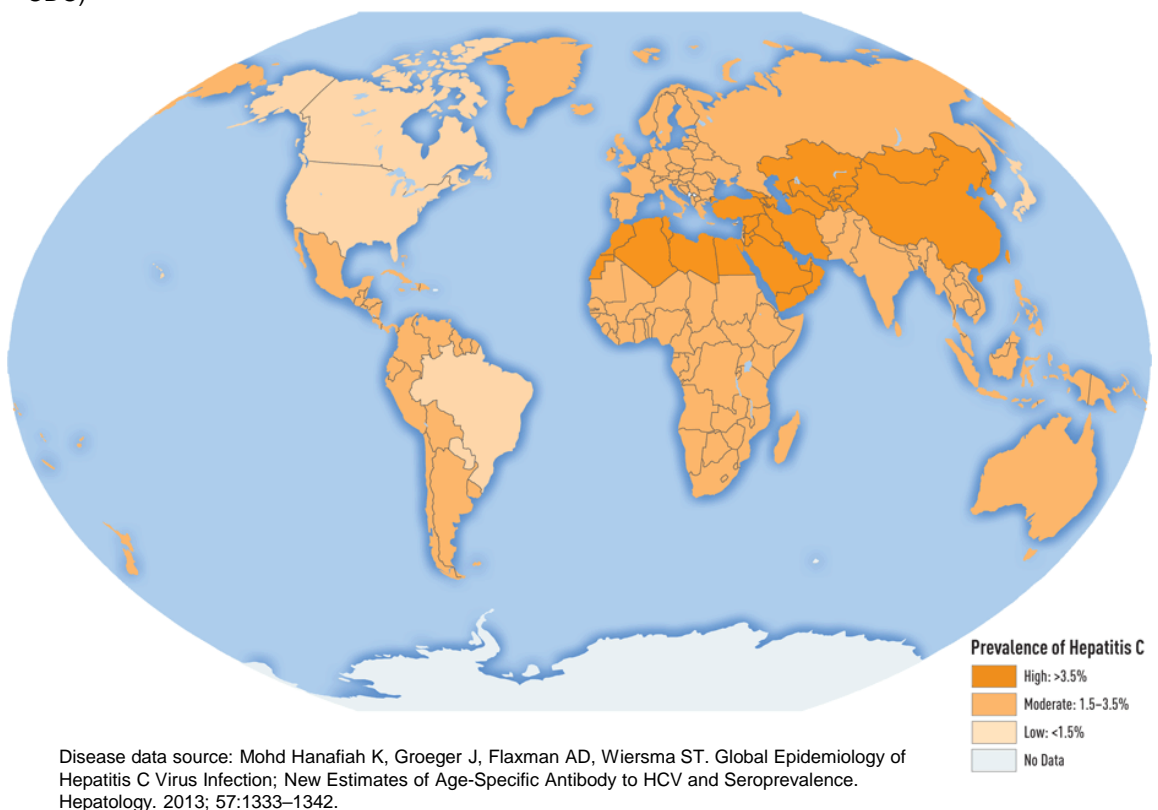


European Centre for Disease Prevention and Control. *Annual epidemiological report 2014 -sexually transmitted infections, including HIV and blood-borne viruses*. Stockholm: ECDC; 2015.

Prevalence of chronic hepatitis B virus infection among adults (Yellow Book 2016, CDC)



Prevalence of chronic hepatitis C virus infection among adults (Yellow Book 2016, CDC)



- HBsAg+ is found in 5-20% of the Sub-Saharan population, 10-15% of the Southeast Asian groups and to a lower extent in other groups.
- AntiHc+ appears in 7-10% of Sub-Saharan groups, 2% of Southeast Asian groups, and <1% of North Africans, Europeans and Americans.

Hepatitis B: Points of intervention

- An EU-wide approach to screening would be beneficial, as would greater efforts to ensure that migrants have access to HBV diagnosis and appropriate follow up.
- Consideration should therefore be given to HBsAg testing of all persons born in countries with HBsAg prevalence of $\geq 2.0\%$, referral of infected persons for treatment care and of close contacts for testing and vaccination.
- This strategy is likely to be cost-effective and to capture a high proportion of foreign-born persons living with chronic hepatitis B in Europe.



European Centre for Disease Prevention and Control. *Assessing the burden of key infectious diseases affecting migrant populations in the EU/EEA*. Stockholm: ECDC; 2014.

5. Sexually Transmissible Infections (STI)

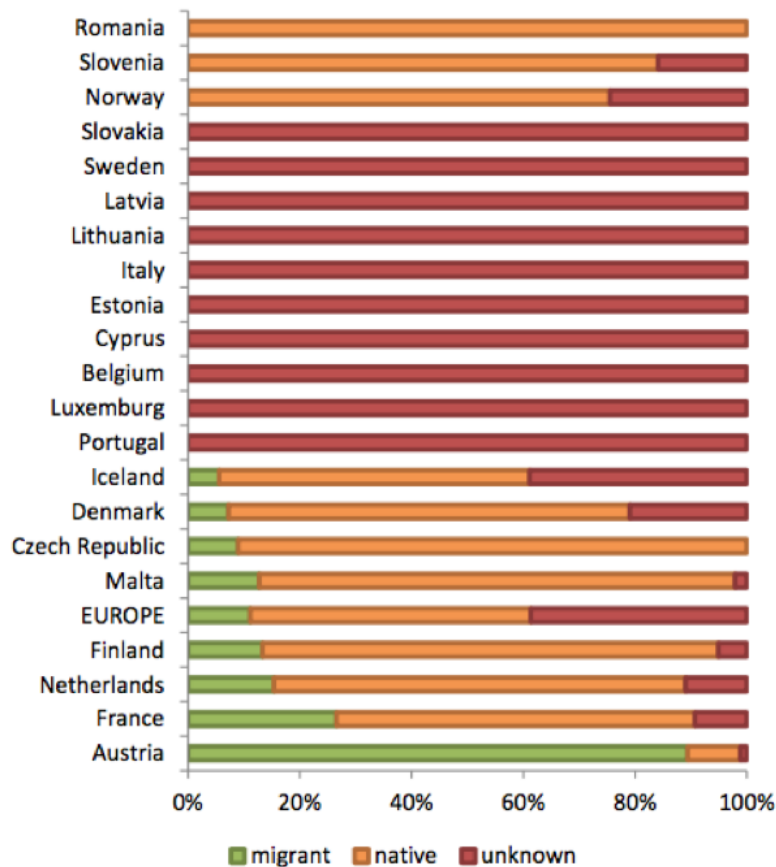
- Sexually transmissible infections should be considered during the new arrival medical evaluation, including medical history and physical examination and, in some cases, diagnostic testing.

Gonorrhoea

Gonorrhoea is STI caused by *Neisseria gonorrhoeae* bacteria. The WHO estimates that 106 million new gonorrhoea infections occur globally every year, with the highest estimated incidence rates in the African and west Pacific regions.

- Most studies found no significant differences in rates of gonorrhoea between migrants and non-migrants in a range of risk populations.
- The majority of gonococcal urethral infections in men produce symptoms. However, among women, more than 30% of infections do not produce recognizable symptoms.

Migrant status of gonorrhoea cases based on 'country of birth'. EU/EEA, 2010



Source: TESSy database

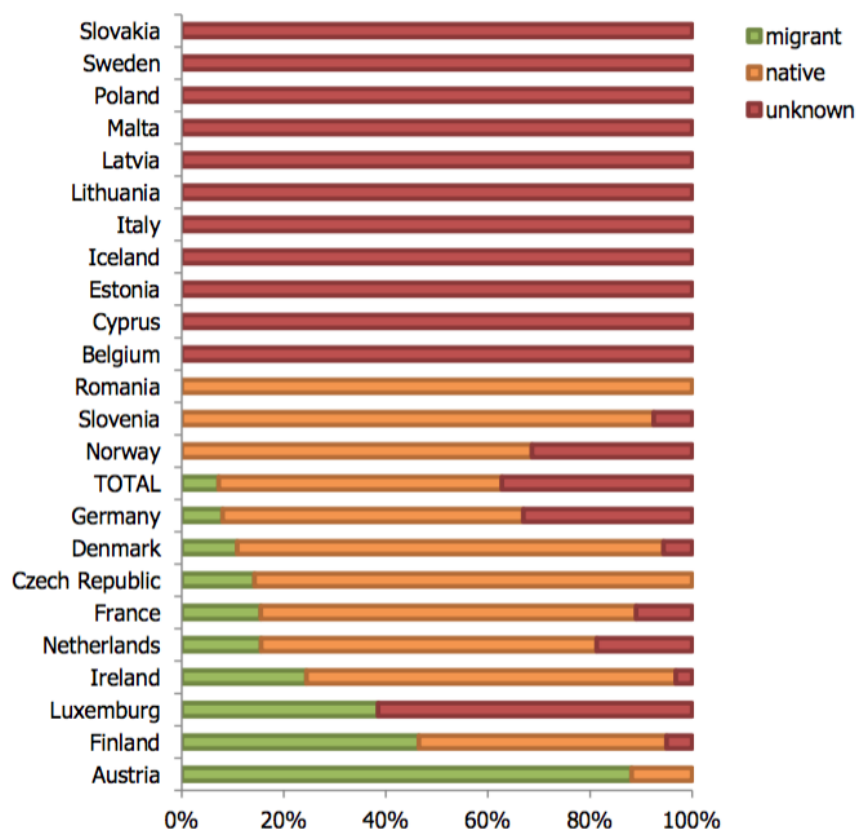
- Analysis of case-based data reported shows that the proportion of gonorrhoea cases among migrants has remained stable at around 8.0% since 2004, and the situation differs considerably between countries.
- In 2010, gonorrhoea cases in migrants were younger than cases in non-migrants (27.5 ± 7.9 years compared with 31.7 ± 11.3 years).
- Cases of gonorrhoea are more frequently reported among males than females: twice as many among migrants.

Syphilis

Syphilis is a sexually transmitted infection caused by the bacterium *Treponema pallidum*. Mother-to-child transmission can result in foetal death, perinatal death or congenital syphilis. Asymptomatic latent infection is detected through serologic screening.

- Studies based on data from STI clinics have found no significant differences in rates of syphilis between migrants and the overall population.
- Some studies found a higher risk of syphilis in migrants from South America and the Caribbean, eastern European countries and sub-Saharan Africa.

Reported syphilis cases by reporting country and migrant status. EU/EEA, 2010



- In 2010, case-based data were reported to TESSY for 9 991 syphilis cases in Europe. Of these cases 7.3% were in migrants.
- The average age of syphilis cases in 2010 was similar in migrants (35.7 years) and non-migrants (36.1 years).
- Notification rates of syphilis are higher in males than in females, around five times higher among migrants.

Syphilis: Points of intervention

- Some guidelines include in the refugee medical examination screening with serologic test (nontreponemal test).



European Centre for Disease Prevention and Control. *Assessing the burden of key infectious diseases affecting migrant populations in the EU/EEA*. Stockholm: ECDC; 2014.

6. Malaria

- Malaria is caused by infection with a parasitic protozoan of the genus *Plasmodium* and transmitted through the bite of an infected *Anopheles* mosquito. Five species of *Plasmodium* can infect humans: *Plasmodium falciparum*, *Plasmodium vivax*, *Plasmodium ovale*, *Plasmodium malariae* and *Plasmodium knowlesi*.
- A migrant's country of origin influences the disease profile. For example, *P. falciparum* malaria occurs mainly in migrants who originate from countries in sub-Saharan Africa.
- Only Greece reported indigenous cases due to transmission by native *Anopheles* vector species.

Malaria is one of the leading global causes of morbidity and mortality, with an estimated 207 million cases and more than 627 000 deaths worldwide in 2012

Some key points

- Malaria is one of the leading global causes of morbidity and mortality, with an estimated 207 million cases and more than 627 000 deaths worldwide in 2012.
- In EU/EEA countries, malaria is now primarily linked with travel to malaria-endemic regions and immigration from these regions to Europe (i.e. imported cases). Sporadic indigenous cases in the EU are linked to airport and baggage malaria, blood transfusion or autochthonous transmission (cases locally acquired from native *Anopheles* vector species).



European Centre for Disease Prevention and Control. *Assessing the burden of key infectious diseases affecting migrant populations in the EU/EEA*. Stockholm: ECDC; 2014.

Malaria: Points of intervention

Recommendations from the Canadian Collaboration for Immigrant and Refugee Health

- Do not conduct routine screening for malaria.
- Be alert for symptomatic malaria in migrants who have lived or travelled in malaria-endemic regions within the previous three months, particularly in the context of fever or migration from sub-Saharan Africa, and perform timely diagnostic inquiry and testing (rapid diagnostic testing and thick and thin malaria smears).