

Wars, Migrations, Global Warming and Parasitic Infections



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Wars, Migrations, Global Warming and Parasitic Infections

- According to World Health Organization, 3.5 billion people suffer from parasitic infections. Parasitic infections cause a burden of disease in both the tropics and subtropics as well as in more temperate climates.
- Approximately 2 billion people are infected with soil-transmitted helminths worldwide, while 1 billion people are suffered from Neglected Tropical Diseases (NTDs).

Wars, Migrations, Global Warming and Parasitic Infections

- 3.2 billion people are at risk of malaria, one of the most life-threatening parasitic diseases.
- In 2015, 214 million new cases and 438 000 deaths were reported regarding malaria infection; unfortunately more than two thirds of these deaths were documented in children under 5 years of age.
- As all the infectious diseases, the parasitic infections are also affected by wars, migrations and global warming.
- These horrible three factors affect environmental conditions as well as sanitation and hygienic conditions.

Wars, Migrations, Global Warming and Parasitic Infections

- Parasitic agents and/or vectors, which take part in vector-borne diseases, will likely to be spread more commonly than their average incidences.
- Ecological disturbances exert an influence on the emergence and proliferation of especially malaria and other parasitic diseases like; leishmaniasis, intestinal parasitic infections, pediculosis, scabies, lymphatic filariasis, and schistosomiasis.

Wars, Migrations, Global Warming and Parasitic Infections

- Wars and migrations cause huge mass movements around the world, which also may alter the incidence and epidemiology of parasitic infections by so many factors.
- In 2014 60 million individuals left their homes due to “persecution, conflict, generalized violence, or human rights violations” according to the United Nations.

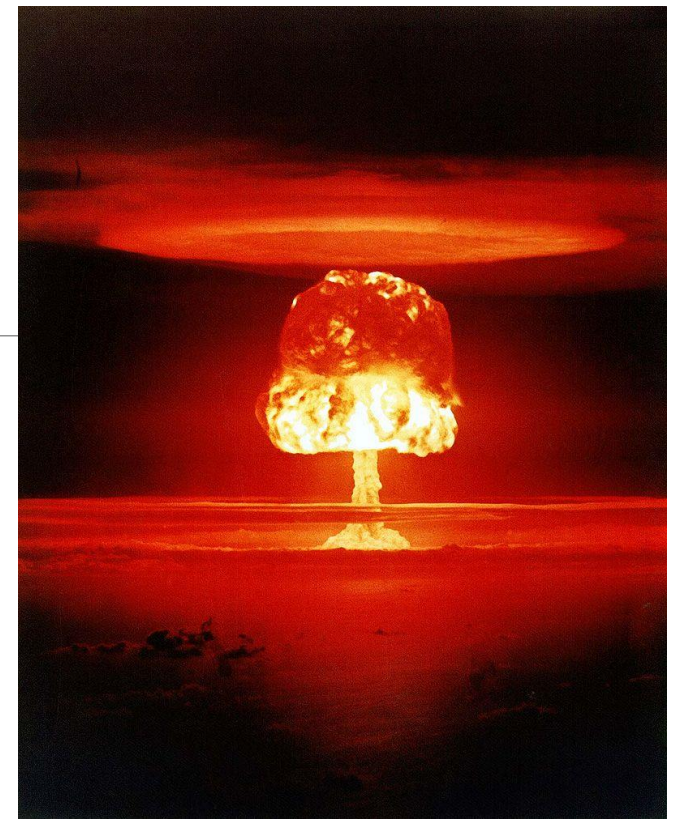
Wars

- War is a state of conflict between societies. It's generally characterized by extreme aggression, destruction and mortality.
- The earliest recorded evidence of war has been determined to be approximately 14,000 years old.



Wars

- With an unfavorable review of an estimate; nearly 1.6 billion people were killed by war throughout the history and pre-history of mankind.
- For comparison, an estimated nearly 1.6 billion people died from infectious diseases in the 20th Century.
- There's no doubt that the wars do not only kill billions of people, but also affect human health, populations, nations, civilization, economy, politics, strategies and also hundreds of issues.





Donald J. Trump 

@realDonaldTrump



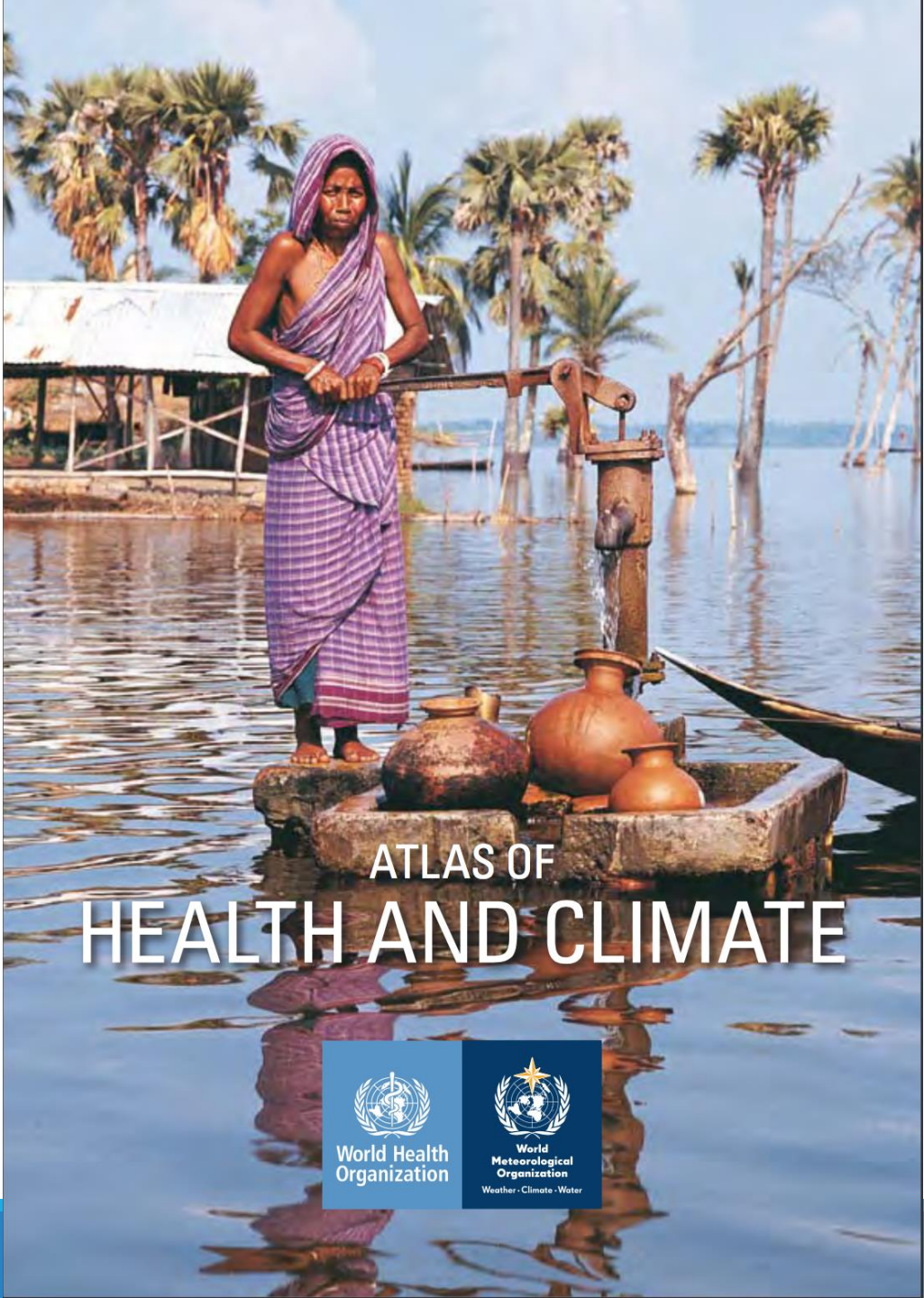
The concept of global warming was created by and for the Chinese in order to make U.S. manufacturing non-competitive.

11:15 - 06 Kas 2012

99,7 B RETWEET

63,5 B BEĞENİ





ATLAS OF HEALTH AND CLIMATE



Gender, Climate Change and Health



Climate Change and Effects on Health

- Climate change affects the social and environmental determinants of health, clean air, safe drinking water, sufficient food and secure shelter.
- Between 2030 and 2050, climate change is expected to cause approximately 250 000 additional deaths per year, from malnutrition, malaria, diarrhoea and heat stress.
- In the last 130 years, the world has warmed by approximately 0.85°C.
- The overall health effects of a changing climate are likely to be overwhelmingly negative. Climate change affects social and environmental determinants of health – clean air, safe drinking water, sufficient food and secure shelter.

Climate Change and Effects on Health

- Climatic conditions strongly affect water-borne diseases and diseases transmitted through insects, snails or other cold blooded animals.
- Changes in climate are likely to lengthen the transmission seasons of important vector-borne diseases and to alter their geographic range.
- Malaria is strongly influenced by climate. Transmitted by *Anopheles* mosquitoes, malaria kills almost 600 000 people every year – mainly African children under 5 years old.
- The *Aedes* mosquito vector of dengue is also highly sensitive to climate conditions, and studies suggest that climate change is likely to continue to increase exposure to dengue.



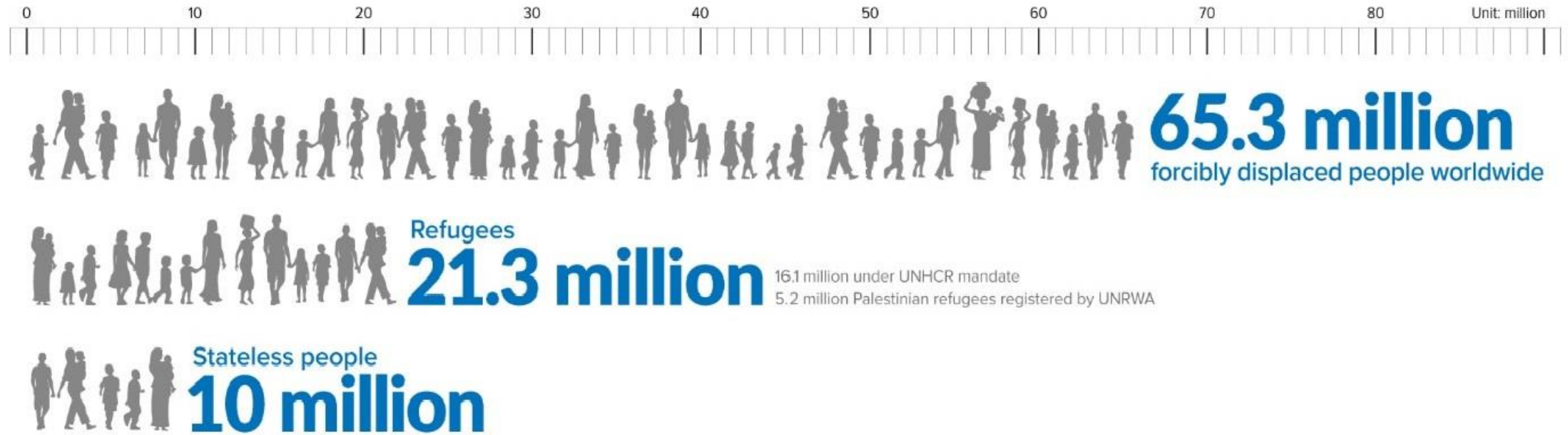


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Figures at a Glance

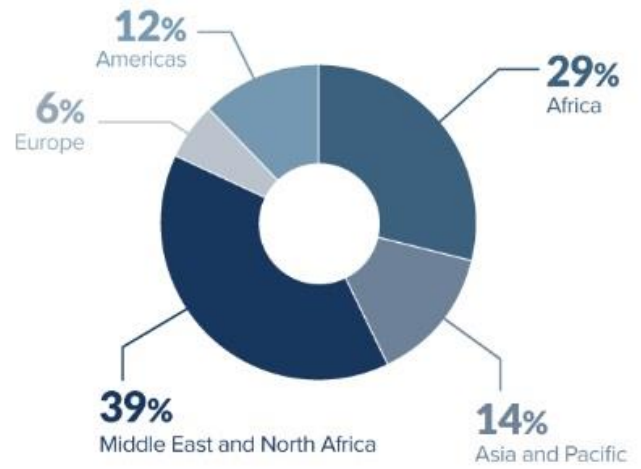
Global Trends 2015

Statistical Yearbooks



10 MILLION

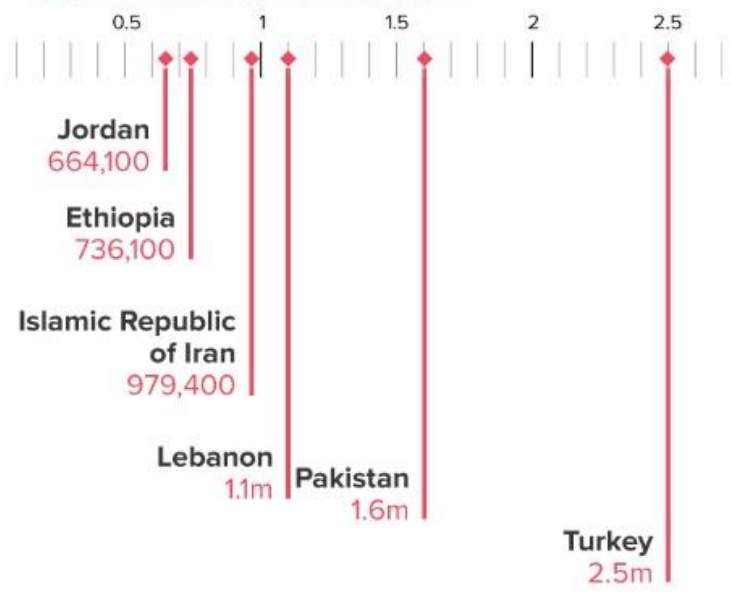
Where the world's displaced people are being hosted



53% of refugees worldwide came from three countries



Top hosting countries



33,972 people
a day forced to flee their homes because of conflict and persecution

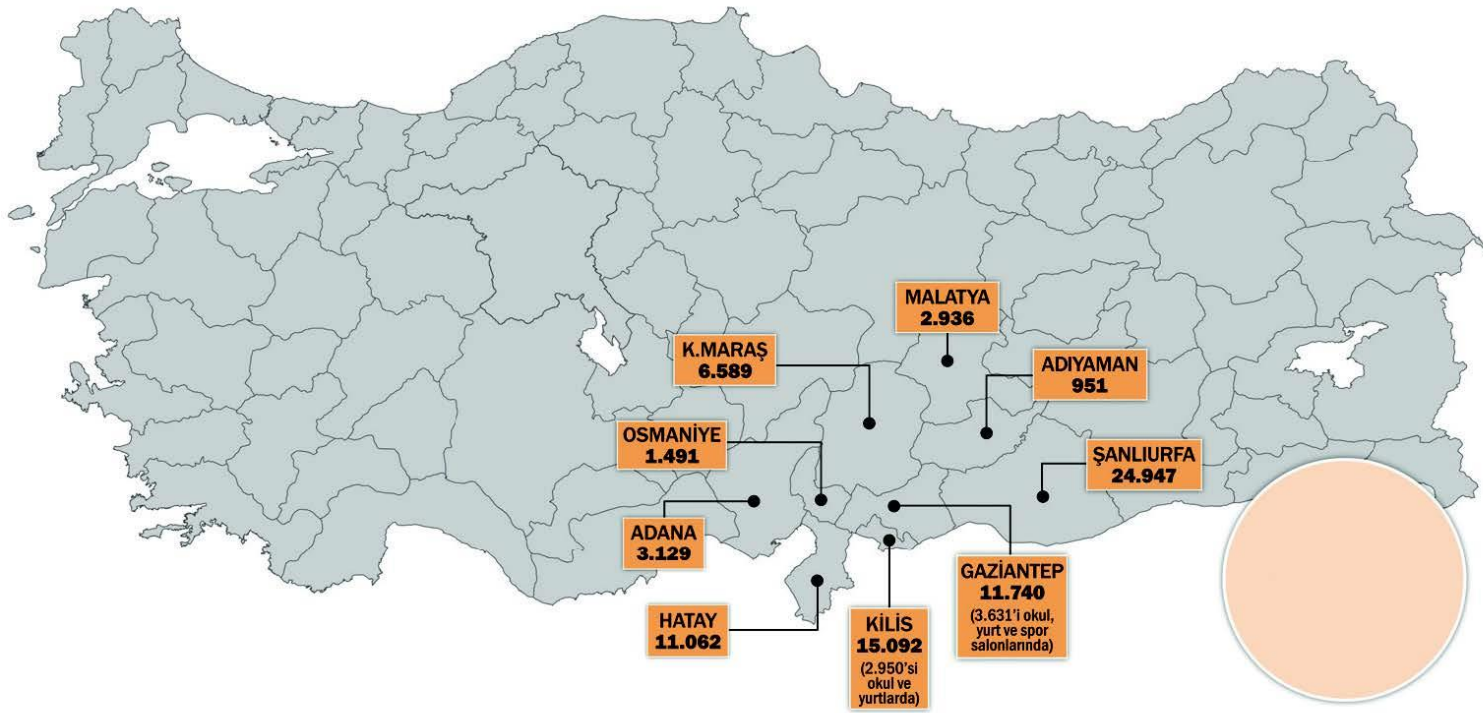
10,700 staff
UNHCR employs 10,700 staff (as of 31 October 2016)

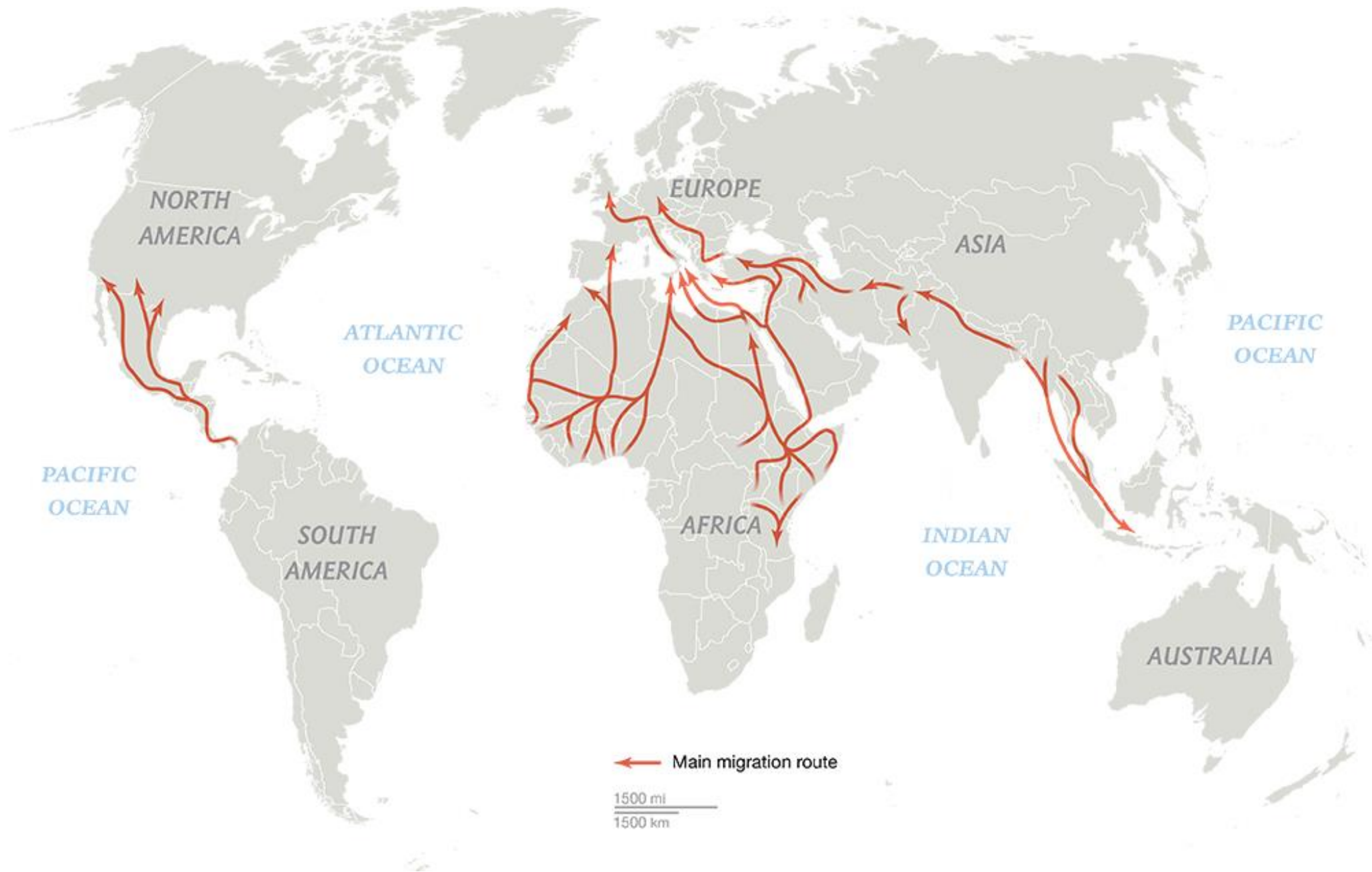
128 countries
We work in 128 countries (as of 31 October 2016)

We are funded almost entirely by voluntary contributions, with 86 per cent from governments and the European Union.



- 3.1 million refugees
- 26 camps, 10 cities
- 270,000 Syrian and 16,500 Iraqis refugees in camps
- 64 Migrant Health Units established in 17 cities





Wars, Migrations, Global Warming and Related Parasitic Infections

- Leishmaniasis

- Malaria
- Waterborne parasitic diseases
 - Amebiasis
 - Giardiasis
 - Cryptosporidiasis
- Infestations and arthropod-borne diseases
 - Body lice infestations
 - Scabies infestation
 - Human flea infestation
- Neglected Tropical Diseases
 - Schistosomiasis
 - Soil-transmitted helminthiases
 - Lymphatic filariasis
 - Onchocerciasis



ECDC TECHNICAL DOCUMENT

Infectious diseases of specific relevance to newly-arrived migrants in the EU/EEA

19 November 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

Table 1. Vector-borne diseases to consider for the top six countries of origin for migrants entering the EU in 2015.

Disease	Indicator	Syria	Afghanistan	Iraq	Pakistan	Eritrea	Somalia
Malaria	Risk of malaria	Malaria-free	High risk of <i>P. vivax</i> >> <i>P. falciparum</i>	Malaria-free	High risk of <i>P. vivax</i> >> <i>P. falciparum</i>	Risk of <i>P. falciparum</i> >> <i>P. vivax</i>	High risk of <i>P. falciparum</i> and <i>P. vivax</i>
Leishmaniasis	Risk of cutaneous leishmaniasis	✓	✓	✓	✓	✓	
	Risk of visceral leishmaniasis	✓	✓	✓	✓	✓	✓
Helminthiasis	Risk of urinary schistosomiasis	✓	ND	✓	ND	✓	✓
Louse-borne diseases	trench fever <i>Bartonella quintana</i>	ND	✓	ND	ND	ND	ND
	louse-borne relapsing fever <i>Borrelia recurrentis</i>	ND	ND	ND	ND	✓	✓
	louse-borne typhus <i>Rickettsia prowazekii</i>	ND	ND	ND	ND	ND	ND



RAPID RISK ASSESSMENT

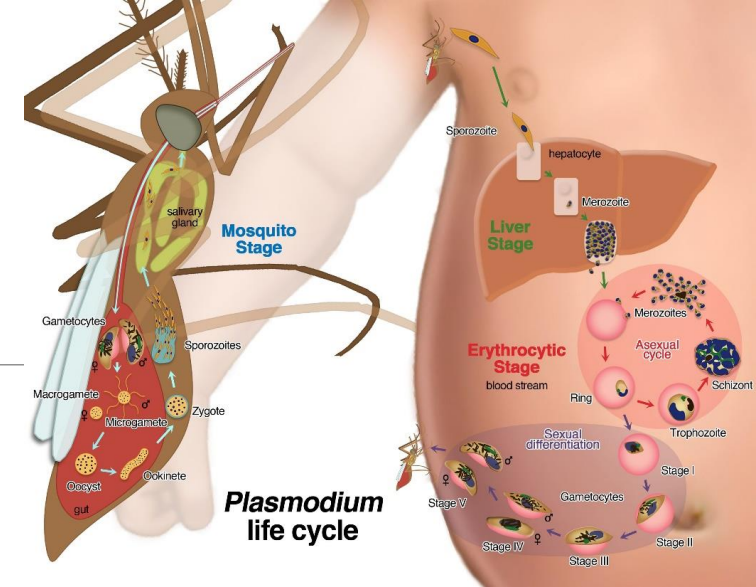
Risk of importation and spread of malaria and other vector-borne diseases associated with the arrival of migrants to the EU

Threats of Syrian Crisis

- The Syrian crisis imposes serious risks to Turkey and/or to the other hosting countries for infectious diseases previously eliminated or in the process of being eliminated.
- The healthcare services of the countries hosting immigrants, mainly Turkey, Lebanon, Jordan, Iraq, and Egypt, are overburdened.
- The majority of the immigrants live in crowded and unsanitary conditions.
- Life in crowded and unsanitary conditions, in or outside the camps, has encouraged infectious diseases in refugees, thus a big threat for the rest of the population.

Malaria

- Malaria was eliminated from the EU in the 1970s
- In 2012 there were 5 161 reported cases in the EU
- While most (99%) of the cases with known origin were imported, 26 were notified as autochthonous cases
- Sporadic indigenous cases in the EU are linked to ‘airport’- and ‘baggage’- malaria, and blood transfusion
- Autochthonous transmission has been reported in Greece in 2009–2013 and in 2015 in permissive environments
- In 2015, 189 malaria cases were detected in Sweden of which none were locally acquired

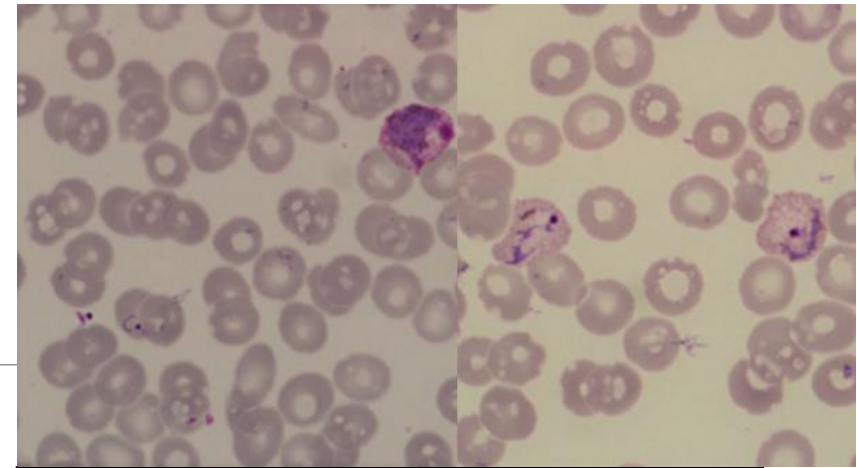


Malaria in Greece

Reported malaria cases by year of and by epidemiological classification (imported/ locally-acquired), Greece, 2009 - 2014.

Year of symptom onset	Case classification		Total
	Imported cases	Locally-acquired cases ²	
2009	44	7	51
2010	40	4	44
2011	54	42	96
2012	73	20	93
2013	22	3	25
2014	38	0	38

Malaria in Turkey

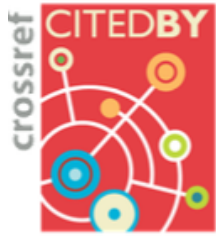


219 autochthonous cases in 2012 in Mardin (*Plasmodium vivax*)

5 autochthonous cases in 2014 in Edirne

Import Cases (n=267) January 1996 - December 2015	
Touristic and business visit to endemic countries n=206	Immigrants n=61

<i>Plasmodium falciparum</i>	196
<i>Plasmodium vivax</i>	63
<i>Plasmodium malaria</i>	2
<i>Plasmodium ovale</i>	2
<i>Plasmodium knowlesi</i>	1
<i>Plasmodium falciparum</i> + <i>Plasmodium ovale</i>	2
<i>Plasmodium falciparum</i> + <i>Plasmodium malaria</i>	1



Review Articles

Migration and Malaria in Europe

Abstract. The proportion of imported malaria cases due to immigrants in Europe has increased during the last decades, with higher rates associated with settled immigrants who travel to visit friends and relatives (VFRs) in their country of origin. Cases are mainly due to *P. falciparum* and Sub-Saharan Africa is the most common origin. Clinically, malaria in immigrants is characterised by a mild clinical presentation including asymptomatic or delayed malaria cases and low parasitic levels. These characteristics may be explained by a semi-immunity acquired after long periods of time exposed to stable malaria transmission. Malaria cases among immigrants, even asymptomatic patients with sub-microscopic parasitemia, could increase the risk of transmission and cause the reintroduction of malaria in certain areas that have adequate vectors and climate conditions. Moreover, imported malaria cases in immigrants can also play an important role in the non-vector transmission out of endemic areas, through blood transfusions, organ transplantation or congenital transmission or occupational exposures. Consequently, outside of endemic areas, malaria screening should be carried out among recently arrived immigrants coming from malaria endemic countries. The aim of screening is to reduce the risk of clinical malaria in the individual as well as to prevent autochthonous transmission of malaria in areas where it has been eradicated.

Author. Country. Year	N° of cases	Adults Children	Area of origin	Malaria species	Severe cases
Espinosa-Vega E et al. ⁷⁵ Spain, 2011.	20	11 Adults 9 Children	19 SSA (11 Central Africa; 8 West Africa), 1 America	18 <i>P.falciparum</i> , 2 <i>P.vivax</i>	1
Antinori S et al. ⁷⁶ Italy 2011.	35	35 Adults	NS general data from different groups (75.3% Africa, 10.7% Asia, 7.7% Indian Subcontinent, 4.6% South-America, 1.5% Middle East).	NS general data for different groups (78.3% <i>P.falciparum</i> , 16.5% <i>P.vivax</i> , 3.1% <i>P.ovale</i> , 0.3% <i>P.malariae</i> , 1.7% mixed infections)	NS general data for different groups 15% criteria for severe malaria.
Gracia-Villarrubia M et al. ⁷⁷ Spain 2011.	55	55 Children	NS general data from different groups (83.9% Africa, 8.6 % Asia, 1.7 America)	NS general data for different groups (69.5 <i>P.falciparum</i> , 14.4 <i>P.vivax</i> , 5.7% <i>P.ovale</i> , 4.6 <i>P.malariae</i> , 2.9% mixed, 2.9% <i>P.spp</i>).	0
Arnáez J et al. ⁷⁸ Spain, 2010.	46	46 Children	45 SSA, 1 Latin America	41 <i>P.falciparum</i> , 5 mixed infections (NS)	0
Rey S et al. ⁷⁹ Spain, 2010	19	19 Adults	NS general data for different groups 98.2% SSA, 1.8% Asia.	NS general data for different groups (94.7% <i>P.falciparum</i> ; 5.3% <i>P.ovale</i>)	0
Pistone T et al. ⁷¹ France, 2010			NS general data for different groups 82.9% ASS	NS general data from different groups (82 % <i>P.falciparum</i> , 6% <i>P.ovale</i> , 8% <i>P.vivax</i> and 2% <i>P.malariae</i>).	NS
Mascarello M et al. ¹⁰ Italy, 2009	35	35 Adults	SSA: 34 West Africa. 1 other East, Central or Southern African countries	All <i>P.falciparum</i>	0
Monge-Maillo et al. ²⁵ Spain, 2009	212	69 Children 15 Young Adults 128 Adults	199 SSA, 13 Latin America	128 <i>P.falciparum</i> , 14 <i>P.vivax</i> ., 13 <i>P.malariae</i> ., 10 <i>P.ovale</i> ., 39 <i>P.spp</i> ., 8 mixed infections (5 <i>P.falciparum</i> & <i>P.malariae</i> ; 2 <i>P.falciparum</i> & <i>P.ovale</i> ; 1, <i>P.malariae</i> & <i>P.ovale</i>)	NS
Mascarello M et al. ¹⁵ Italy, .2008	50	30 Adults 20 Children	NS general data from different groups (94.5% Africa, 4.5% Asia, 1% Oceania and Central and South America)	NS general data from different groups (76.8% <i>P.falciparum</i> , 9.5% <i>P.ovale</i> , 5.3%, <i>P.vivax</i> and 2.4% <i>P.malariae</i>).	2 (1 adult and 1 children)
Millet JP et al. ¹² Spain, 2008.	106	NS general data from different groups (12% were children)	98 SSA, 4 Asia, 4 Latin America.	NS general data from different groups (81.6% <i>P.falciparum</i>)	0
Guedes S et al. ⁸⁰ Findland, 2008.	201	145 Children 56 Adults	120 Africa, 19 South East Asia, 72 Unknown	NS general data from different groups (61% <i>P.falciparum</i> , 22% <i>P.vivax</i> , 10% <i>P.ovale</i> , 2%, <i>P.malariae</i>).	
Martínez-Baylach J et al. ⁸¹ Spain, 2007.	5	5 Children	SSA	3 <i>P.falciparum</i> , 1 <i>P.vivax</i> , 1 <i>P.malariae</i>	0
Driessen GJ et al. ¹⁴ Netherlands, 2007	8	8 Children	NS genera data from different groups. (84.4% SSA, 15.6% Asia)	NS general data from different groups (81% <i>P.falciparum</i> , 3% <i>P.ovale</i> , 13% <i>P.vivax</i> , 3% <i>P.vivax</i> & <i>P.falciparum</i>)	
Rojo-Marcos G et al. ¹³ Spain, 2007	46	NS general data from different groups (42% children)	SSA	NS general data from different groups (89% <i>P.falciparum</i> ; 7% <i>P.ovale</i> ; 4% <i>P.malariae</i>)	NS

Spinazzola F et al. ⁸² Italy, 2006	137	137 Adults	NS general data from different groups (50.3% West Africa, 28.4% East Africa, 9.1% South Africa, 8.3% Asia, Central or South America 2.4%,)	NS general data from different groups. (77.5% <i>P.falciparum</i> , 18.1% <i>P.vivax</i> , 1.4% <i>P.ovale</i> , 0.4% <i>P.malariae</i> , 2% mixed infections)	Overall rate of severe malaria was 11.6% for all groups. Among immigrants 2 patients died-1.5%).
Ladhani S et al. ⁸³ United Kingdom, 2006	55	55 Children	NS general data from different groups (84% SSA, 15% Indian subcontinent))	NS general data from different groups. (77% <i>P.falciparum</i> , 14 % <i>P.vivax</i> , 6% <i>P.ovale</i> , 3% <i>P.malariae</i>)	0
Baas MC et al. ⁸⁴ The Netherlands, 2006	26	26 Adults	NS general data from different groups (86% SSA, 7% Asia, 18% Central and South America))	NS data from different groups (82 % <i>P.falciparum</i> , 9.3% <i>P.vivax</i> , 5% <i>P.ovale</i> , 2 % <i>P.malariae</i>).	NS
Chalumeau M et al. ⁸⁵ France, 2006	7	7 children	SSA	7 <i>P.falciparum</i>	NS
Ladhani S et al. ⁸⁶ United Kingdom , 2003	38	38 children	34 SSA, 4 Indian subcontinent	NS data from different groups. (91 % <i>P.falciparum</i> , 5.7% <i>P.vivax</i> , 2.4% <i>P.ovale</i> , 0.5 % , <i>P.falciparum</i> & <i>P.vivax</i> , <i>P.falciparum</i> & <i>P.ovale</i>).	NS data from different groups (7.1% severe malaria)
Huerga H et al. ⁸⁷ Spain , 2002.	56	56 children	SSA	43 <i>P.falciparum</i> , 2 <i>P.malariae</i> , 2 <i>P.ovale</i> , 5 mixed (3 <i>P.falciparum</i> & <i>P.malariae</i> , 1 <i>P.malariae</i> & <i>P.ovale</i> , 1 <i>P.falciparum</i> & <i>P.ovale</i>)	0
Huerga H et al. ⁸⁸ Spain, 2001	44	44 children	NS general data from different groups (98% SSA, 2% LA)	NS general data from different groups (78% <i>P.falciparum</i> , 12% <i>P.malariae</i> , 8% <i>P.ovale</i> , 2% <i>P.vivax</i>)	1
Matteelli A et al. ⁸⁹ Italy, 2001	22	22 Adults	Asia (China)	20 <i>P.falciparum</i> , 1 <i>P.ovale</i> , 1 <i>P.falciparum/P.ovale</i>	7

Malaria

- The risk for malaria is very limited to non-existent in the Middle East and North African countries, but should be considered for persons originating from sub-Saharan Africa (Eritrea, Sudan, Nigeria, Senegal, Ghana) or Asia (Afghanistan, India, Pakistan).
- A possible concern is the re-introduction of *Plasmodium vivax* into areas where competent *Anopheles* mosquito vectors are present and environment is permissive for transmission in EU, as observed in Greece in 2009–2013.
- Autochthonous cases might occur after a re- introduction of the parasite during the summer months when conditions are favourable to sustain vector activity.

Leishmaniasis

- Cutaneous leishmaniasis is endemic in the Middle East.
- 72 000 CL cases has been reported in Syria in 2013.
- Cutaneous leishmaniasis is rampant in Syria, but also in the refugee camps in neighbouring countries, and being a vector-borne disease it can easily infect the local population as well.
- Incidence of cutaneous leishmaniasis has been increased in Turkey, Lebanon, and Jordan as a result of the rising numbers of Syrian refugees.
- Visceral leishmaniasis is endemic in the Middle East and East African countries where most of the immigrants are coming from.

Leishmaniasis in Turkey

- 2000 CL cases / annually
- 30 VL cases / annually
- 1990-2010 total 46.003 CL cases



In 2013-2014 => 3.946 Turkish CL and more than 3800 Syrian CL patients.

Conclusions on Vector-borne Diseases

- The occurrence of malaria or other vector-borne diseases in mobile populations such as migrants and refugees and in travellers is not unexpected and further importation of cases might and would occur in the world.
- The risk for onward transmission with secondary cases and localised outbreaks in the transit and/or destination country depends on the presence of competent vectors, the season in the year, the health promotion and vector control measures at all borders, transit and settlement areas, and the access to health services.
- Competent vectors for malaria, leishmaniasis and schistosomiasis are present in some European countries (particularly southern European countries), but vector activity is low during the winter months.



European Centre for Disease Prevention and Control

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- Louse-borne diseases
- Factsheet: Bartonella quintana infection/ trench fever
- Factsheet: Epidemic louse-borne typhus
- Factsheet: Louse-borne relapsing fever

Louse-borne diseases



Louse-borne diseases are vector-borne diseases transmitted by the human body louse *Pediculus humanus humanus*. They include:

- trench fever due to *Bartonella quintana*;
- louse-borne relapsing fever (LBRF) caused by *Borrelia recurrentis*; and
- louse-borne typhus (syn. epidemic typhus or exanthematic typhus) caused by *Rickettsia prowazekii*.



These infectious diseases remain a public health concern in populations living in crowded and unsanitary conditions predisposing them to infestation with human body lice.

ECDC RISK ASSESSMENTS

- Louse-borne relapsing fever in the EU
Nov 2015
- Rapid risk assessment: Louse-borne relapsing fever in the Netherlands
Jul 2015

Health Topics A-Z

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M N O P Q R S T U V W X Y Z

Related Health Topics

- Migrant health

Vector-borne diseases

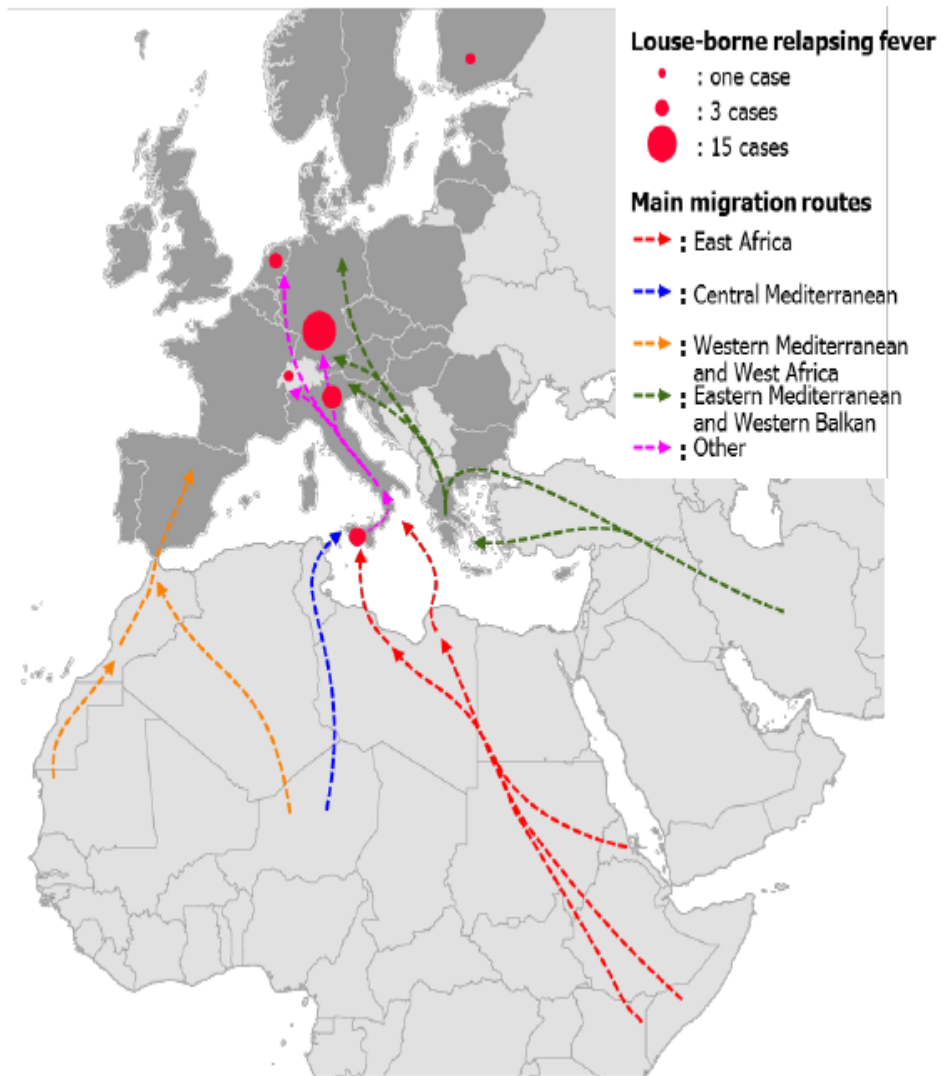
- Babesiosis
- Borreliosis
- Chikungunya
- Crimean-Congo haemorrhagic fever
- Dengue fever
- Disease vectors
- Louse-borne

Vector-borne diseases

- Babesiosis
- Borreliosis
- Chikungunya
- Crimean-Congo haemorrhagic fever
- Dengue fever
- Disease vectors
- Louse-borne relapsing fever
- Malaria
- Rift valley fever
- Tick-borne diseases
- Tick-borne encephalitis
- Viral haemorrhagic fevers
- West Nile fever
- Yellow fever
- Zika virus infection



Figure 1. Distribution of the 27 cases of louse-borne relapsing fever in Europe by reporting country in 2015, and main migration routes*



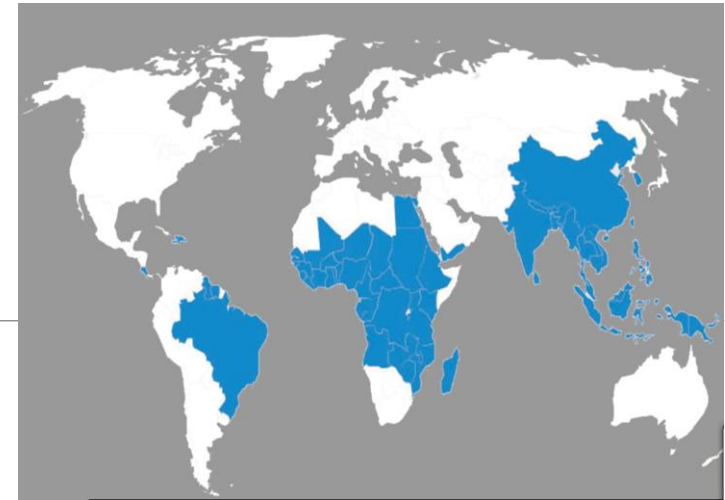
Infestations and Vector-borne Diseases

- Infestations with arthropods and vector-borne diseases occur under conditions where people live very close together under poor hygienic conditions.
- Infestations with arthropods are primarily found among populations having a low socioeconomic status, living in over-crowded situations with poor personal hygiene.
- Louse-borne diseases are transmitted by the human body louse *Pediculus humanus humanus*, and they became important in EU.
 - Louse-borne typhus (*Rickettsia prowazekii*),
 - Trench fever (*Bartonella quintana*), and
 - Relapsing fever (*Borrelia recurrentis*)
- In recent years, sporadic cases of relapsing fever have been reported in the Netherlands, Germany, Finland and Belgium among migrants from Eritrea, Somalia and Sudan.

Conclusions on Vector-borne Diseases

- The risk of transmission of louse-borne diseases and other infestations is a function of crowding and might be of more concern during winter months.
- Ensuring the right to health for mobile populations and universal access to public health services with rapid detection and treatment of vector-borne diseases is particularly important for the prevention of secondary cases and disease outbreaks.

Neglected Tropical Diseases (NTDs)



- The autochthonous transmission of *Schistosoma haematobium* in Corsica, France, occurred in 2013 and highlights a potential risk for receptive areas of southern Europe where transmission can occur when the parasite is introduced.
- Among symptomatic and newly arrived refugees with eosinophilia; if possible, stool ova and parasite examination, serological examination for *S. stercoralis* for all patients, and serological examination for *Schistosoma* species and filaria in patients from regions where these organisms are endemic.

Waterborne Parasitic Infections and Migration; Relations & Preventions

- Amebiasis, giardiasis, cryptosporidiasis, etc....
- The risk that refugees and migrants will bring waterborne parasitic infections to receiving countries still exists
- If waterborne parasites are introduced into an environment with unsafe water and sanitation, the diseases will spread easily; it will not spread further if access to potable water and safe sanitation is ensured
- The conditions in crowded camps, where the minimum requirements of safe water and sanitation are not met, increase the risk that people will be infected with, and spread the diseases.
- The risk of spread is associated with poor hygiene and sanitation, so that it is the refugees and migrants living in camps and not the resident population who are at risk.
- Waterborne parasitic infections can be easily prevented and controlled by the provision of safe water and sanitation.

Waterborne Parasitic Infections and Migration; Relations & Preventions

- It is important to prevent the development and spread of foodborne and waterborne parasitic diseases among refugees and migrants, especially during their stay in refugee camps.
- Access to sanitary facilities, including hand-washing, and sufficient amounts of safe drinking-water is critical for the prevention of food- and waterborne diseases,
- Water, sanitation and hygiene facilities at border points and reception centres should be thoroughly assessed.
- Local authorities must monitor the microbiological quality of drinking-water closely.
- Close attention should be paid to safe collection and disposal of human waste to prevent contact between humans and human faeces.

Screening of refugees and migrants: WHO recommendations, 2015

- WHO does not recommend obligatory screening of refugee and migrant populations for diseases, because there is no clear evidence of benefits (or cost-effectiveness); furthermore, it can cause anxiety in individual refugees and the wider community.
- WHO strongly recommends, however, that health checks be offered and provided to ensure access to health care for all refugees and migrants requiring health protection. Checks should be performed for both communicable diseases and NCDs, while respecting the human rights and dignity of refugees and migrants.
- Triage is recommended at points of entry to identify health problems in refugees and migrants soon after their arrival.

Screening of refugees and migrants: WHO recommendations, 2015

- Proper diagnosis and treatment must follow, and the necessary health care must be ensured for specific population groups (children, pregnant women and the elderly).
- Each and every person on the move must have full access to a hospitable environment, to prevention and, when needed, to high-quality health care, without discrimination on the basis of gender, age, religion, nationality, race or legal status.
- This is the safest way to ensure that the resident population is not unnecessarily exposed to imported infectious agents.
- WHO supports policies to provide health care services to migrants and refugees irrespective of their legal status, as part of universal health coverage.

Final Conclusion



- For a better world to live in for all mankind; it will be much better to understand and to evaluate the effects of wars, migrations and global warming on parasitic infections.
- Instead of protect ourselves from the effects of three disasters, absolutely it will be the best to stop them all.

“Peace at home, peace in the world” Mustafa Kemal ATATÜRK

Thank you for your attention...

