



RAPID RISK ASSESSMENT

Communicable disease risks associated with the movement of refugees in Europe during the winter season

10 November 2015

ECDC threat assessment for the EU

The scale of the current influx of refugees is inevitably putting pressure on public health systems in frontline receiving countries.

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. While the risk of mosquito-borne diseases has been reduced as a result of the approaching winter, the risk of other diseases whose spread is facilitated by overcrowding and lower temperatures has increased as a result of greater numbers of refugees likely to be gathering in close proximity to seek shelter from the cold weather. It is therefore expected that the incidence of respiratory and gastrointestinal conditions will increase in the coming months.

Recent weeks have seen reports of emerging outbreaks of communicable diseases affecting the refugee population. Of particular concern is the emergence of 27 cases of louse-borne relapsing fever (LBRF) in different locations along the route followed by the refugees arriving in Italy. The probable transmission of LBRF among refugee communities in the EU indicates that more cases may be seen in the near future, unless appropriate hygiene measures are implemented rapidly.

Low coverage for some vaccines, along with low immunity for some diseases, may result in susceptible refugees developing diseases such as measles and chickenpox (varicella), given the high incidence of these in some areas of the EU.

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.

Conclusions and options for response

There are no indications that the number of people seeking refuge in Europe will decrease over the coming months, and the winter season will make the situation harder for those already living in precarious conditions across Europe. The basic information that would allow an adequate assessment of the situation is currently not available. The exact number of refugees is unknown, and assessment is hampered because refugees may avoid registration for fear of being sent back and because they move through different European countries.

While the risk of mosquito-borne diseases has been reduced as a result of the autumn and approaching winter, the risk to refugees of diseases whose spread is facilitated by overcrowding and lower temperatures has increased.

Options for reducing the risk of cases and outbreaks of communicable diseases and to improve the management of preventive and curative health services for refugees and migrants appear below.

- Strengthen, or implement new surveillance to improve the level of information available on current infectious disease threats, to facilitate early recognition of epidemic-prone diseases and prompt implementation of prevention and control measures. Syndromic surveillance should be considered in reception centres, but should complement, and not substitute the infectious disease notification system in place in the Member States. Syndromes to consider include: upper and lower respiratory tract disease, bloody and watery diarrhoea, fever and rash, meningitis/encephalitis or encephalopathy/delirium, lymphadenitis with fever, botulism-like illness, sepsis or unexplained shock, haemorrhagic illness, acute jaundice, cutaneous infection and unexplained death [7].
- Implementation of appropriate medical counter measures, particularly vaccination. Vaccinations to consider among refugees include: measles (using MMR vaccine and prioritising children up to 15 years); poliomyelitis (for children and adults coming from countries currently exporting poliovirus such as Afghanistan and Pakistan, infected countries such as Somalia, or countries which remain vulnerable to international spread, including Cameroon, Equatorial Guinea, Ethiopia, Iraq, Israel, and the Syrian Arab Republic); meningococcal disease (preferably with vaccines against meningococcal serogroups A, C, W-135 and Y or, if a country does not use the quadrivalent vaccines, with vaccines against serogroups A and/or C, if available); diphtheria (using diphtheria-tetanus-pertussis vaccine in accordance with national guidelines) [7] and influenza, according to the season.
- Ensuring appropriate levels of access to medical diagnosis and treatment services, and implementation of appropriate screening, connected to those services. Screening for infestation with lice, although not disease screening per se, should also be considered. Screening for tuberculosis can be considered in accordance with national guidelines.

Countries experiencing or likely to experience an influx of refugees should consider assessing their overall preparedness and response capacity for infectious disease health threats.

Source and date of request

ECDC Internal Decision, 5 November 2015.

Public health issue

Communicable disease risks associated with the current movements of refugees in Europe in the context of their living conditions and the approaching winter, access to shelter, sanitation and health services in the areas with the highest concentration of migrants in transit and/or temporarily settled.

Consulted experts

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Background

Focus of the risk assessment

The health problems faced by refugees are similar in range to those faced by indigenous populations in their country of origin, although often at different intensities and sometimes with higher levels of vulnerability. Trauma and injuries, sexual and reproductive health issues, violence and psychosocial disorders are among the most frequent health problems encountered. Interruption of healthcare in their country of origin and limited access to healthcare services during their journey can result in the interruption of treatments often required for the control of chronic diseases [1].

Refugee populations entering the EU/EEA, and particularly children, are at risk of exposure to infectious diseases in the same way as other EU populations, and in some cases they may be more vulnerable because of the interruption of public health programmes in their country of origin, particularly as regards immunisation. It is important, therefore, that they should be provided with protection against infectious diseases, including those prevented by routine vaccinations. In addition, these populations may be subject to specific risks of infectious diseases in relation to their country of origin, countries visited during their migration and the conditions they experienced during their migration.

This risk assessment focuses on the threat to the refugee population from communicable diseases and does not cover other risks to refugees' health not related to communicable diseases.

Refugees, asylum seekers and migrants

According to the Fourth Geneva Convention of the International Committee of the Red Cross relative to the Protection of Civilian Persons in the Time of War and the 1951 UNHCR Convention and Protocol Relating to the Status of Refugees [2,3], a refugee is a person fleeing persecution or conflict. An asylum seeker is a person who has sought protection as a refugee, but whose claim for refugee status has not yet been determined. The rights and obligations of refugees are set out in the 1951 UNHCR Convention [3]. The terms 'refugee' and 'asylum seeker' overlap and are sometimes incorrectly used synonymously [4]. People fleeing armed conflict or persecution are considered to be refugees, even before they officially receive asylum. During mass movements of refugees as a result of war or generalised violence, there is often no capacity to conduct individual asylum interviews for everyone who has crossed a border. Nor is it usually necessary, since in such circumstances it is generally evident why they have fled. Such groups are often declared 'prima facie' refugees. A migrant, by contrast, is a person whose reason for leaving his or her home country is not included in the legal definition of a refugee.

The surge of people currently entering the EU are considered by UNHCR to be a mix of asylum seekers, refugees and migrants. In this document, the group as a whole is referred to as refugees, unless specifically stated otherwise.

Irregular migrants currently entering Europe have often undertaken long, exhausting journeys that increase their risk of contracting diseases, including communicable diseases. Based on expert opinions, ECDC recently concluded that refugees and migrants entering the EU through its southern and south-eastern borders are most at risk of the following communicable diseases: respiratory tract diseases, tuberculosis, gastrointestinal diseases, relapsing fever, trench fever, epidemic and murine typhus, meningococcal disease, poliomyelitis, measles, mumps and rubella [5,6].

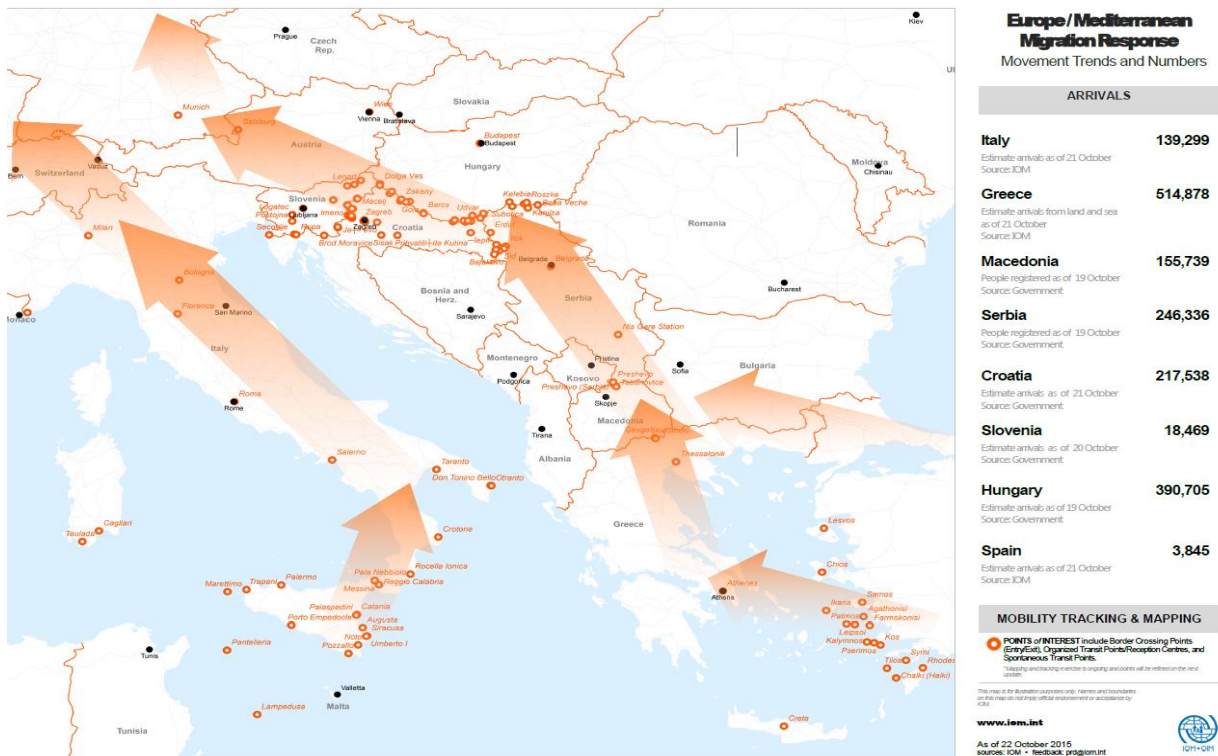
Current situation

Continuous influx of refugees in the EU

As of November 2015, more than 800 000 refugees have arrived in Europe by land and sea in 2015. Greece has received the highest number, with an estimated 656 108 people having arrived as of 5 November 2015 [7]. The most recent influx is attributed to the growing number of refugees from Syria, Afghanistan, and Eritrea. During the first months of 2015, most of the refugees and migrants arrived in Europe by sea routes [8]. By mid-October 2015, 140 000 migrants had arrived in Italy by sea via the central Mediterranean route (Figure 3). People taking this route are primarily nationals of Eritrea, Nigeria, Somalia, Sudan and Syria.

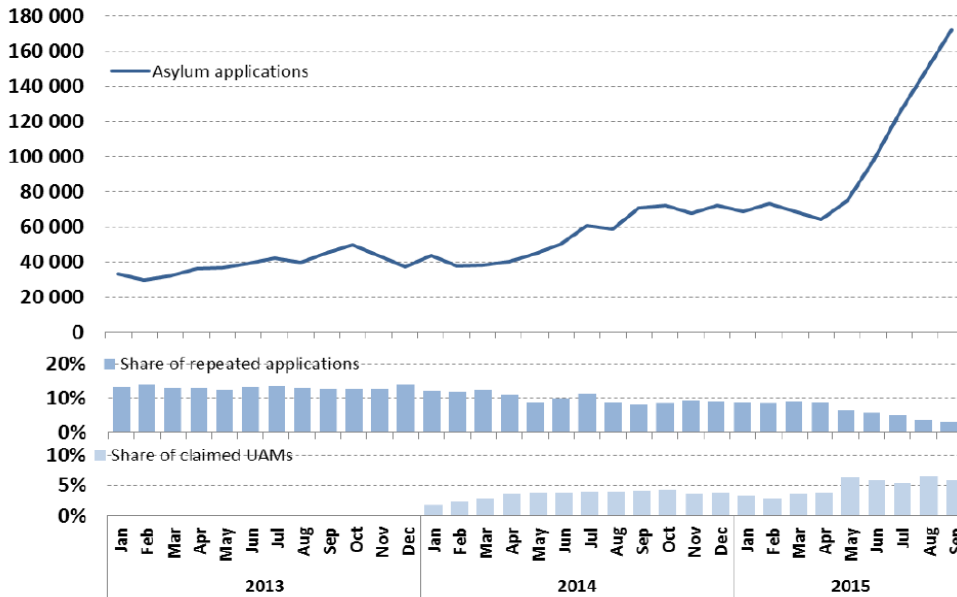
Currently, the main pattern of movement is from Greece to the Former Yugoslav Republic of Macedonia (FYROM) and in a north-westerly direction through Serbia, Croatia, and Slovenia towards Austria, Germany and Sweden (Figure 1). Between 4 000 and 10 000 refugees per day are arriving in these countries (Figure 2) [9]. Given the volatile and rapidly-evolving situation, travel routes are likely to continue to change over time.

Figure 1. Current movement trends and numbers of migrants, as of 5 November 2015



Source: International Organization for Migration (IOM) [10]

Figure 2. Distribution of asylum applications by months, EU, January 2013-September 2015*



Source: European Asylum Support Office (EASO) [11]

* The share of repeated applicants is the proportion of repeated applicants in the total number of applicants for international protection. The share of UAM (unaccompanied minors) represents the proportion of asylum applicants claiming to be below the age of 18 years among the total number of applicants rather than those estimated as such after an age assessment has been carried out.

Limited access to healthcare

According to the 1951 UNCR Convention relating to the Status of Refugees [3], a refugee is entitled to access to the national health services in the country of refuge on the same basis as the country's own citizens. However, a refugee's right to health varies according to national legislation. Health policies towards refugees differ significantly among the EU countries [12]. According to a WHO report [13], most undocumented migrants in the WHO European Region only have access to emergency healthcare. In the EU, studies published in 2005 [12] and 2015 [14] emphasise the fact that in some countries medical screening was provided to refugees upon arrival. However, the content of screening programmes varied, as well as whether they were voluntary or involuntary.

The main barriers to accessing healthcare services are economic, geographic, linguistic and administrative [15] and these barriers often persist, even after a refugee has resettled in an EU Member State [16]. Lack of registration is one of the main obstacles to accessing healthcare services [17].

Access to healthcare for refugees is not only a problem of acute provision upon arrival. If people spend long periods of time in a resettlement camp, then care for chronic as well as acute health needs have to be properly addressed. Psychosocial services are also required to reduce health and mental health risks associated with the mass movement of people [18].

There is scarce systematic information available on the health status of refugees. Research tends to assume that asylum seekers and refugees have specific and elevated health needs [19], despite the lack of systematic evidence. Evidence of poor health among refugees is mostly confined to maternity and mental illness, with little clear data on communicable diseases and chronic conditions in this particular group. To date no evaluation has been made of access to or utilisation of healthcare for refugees in Europe or the use of healthcare services by refugees of different origins compared with non-migrant populations [19].

Poor living conditions

Water and sanitation

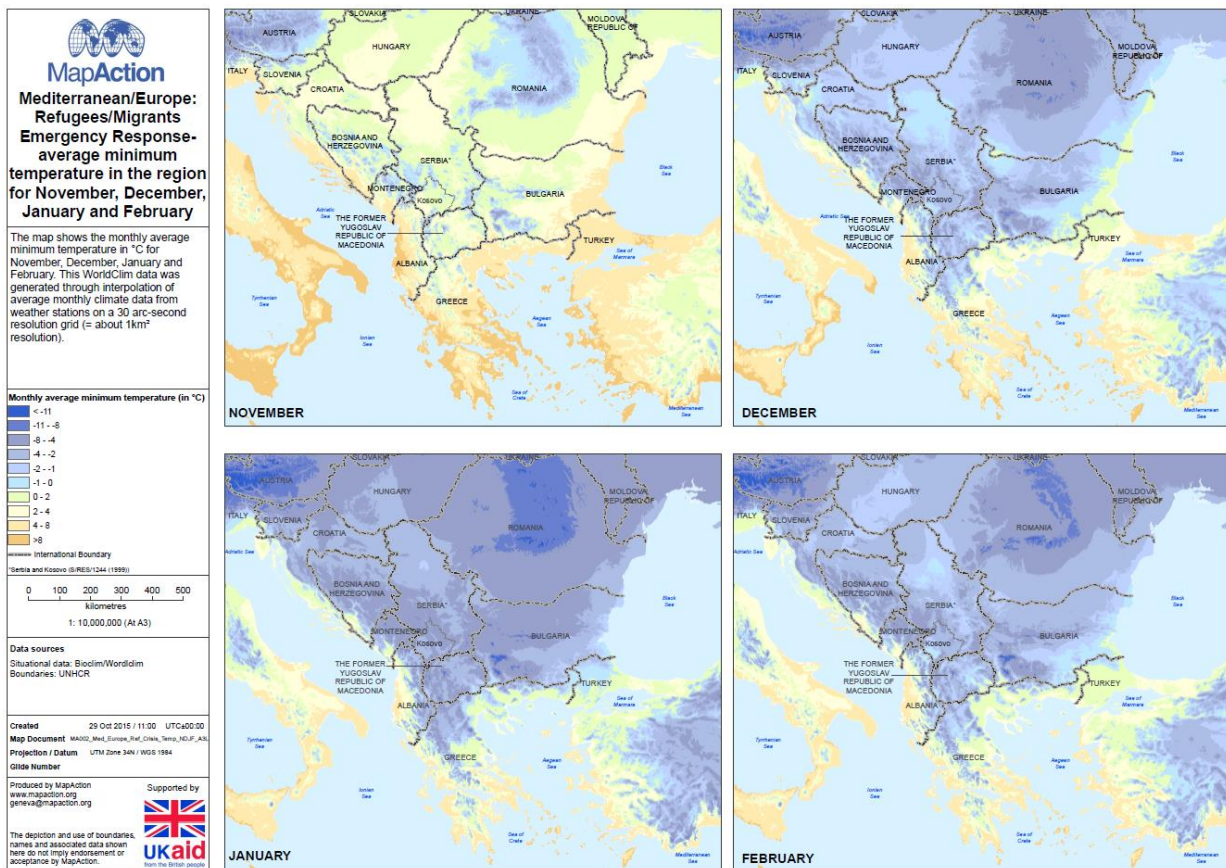
The lack of adequate sanitation facilities, drinking water, rubbish collection and cleaning services is a major concern at many reception centres. For instance, in Greece, almost 20% of refugees lack regular access to sanitation and 70% of them do not receive hygiene items on a regular basis. Over half of them had no access to a shower [9]. This is also assumed to be a major issue along the transit routes. According to Médecins Sans Frontières (MSF) [20], several transit centres in the EU are currently unable to provide adequate shelter, food or sanitation.

The Member States, EU bodies, international organisations (UNCHR, IOM, ECHO) and NGOs are supporting the transit centres and trying to provide access to safe water and proper sanitation conditions [21]. However, lower temperatures due to approach of winter will require special equipment and additional supplies [22].

Worsening weather conditions

The winter conditions, especially in eastern, central and northern Europe, will exacerbate the already precarious situation for refugee populations in these areas. According to UNHCR [8], approximately 600 000 refugees are expected to arrive in Croatia, Greece, Serbia, Slovenia and the Former Yugoslav Republic of Macedonia between November 2015 and February 2016. The winter conditions will exacerbate the transit conditions for this population. The historical record for this part of Europe anticipates average monthly temperatures of -2 to -11°C from December to February (Figure 3), with night temperatures falling below the seasonal average.

Figure 3. Average minimum temperatures in the region, November 2015 to February 2016



Source: MapAction [23]

Outbreaks of communicable diseases

There is limited information on the health situation of the refugees currently in Europe. The few reports available from the International Organization for Migration (IOM) and some NGOs mention respiratory diseases, joint pain, gastrointestinal problems, exhaustion and dehydration in the transit centres in the Former Yugoslav Republic of Macedonia (FYROM), Serbia, Croatia and Slovenia [9]. A few isolated cases of scabies and hepatitis have also been reported.

EU Member States and other institutions have reported several occurrences or suspicions of communicable disease outbreaks, as listed below.

Cholera

According to the media, quoting the UNICEF Representative in Iraq, the cholera outbreak in Iraq, which has infected at least 2 200 people and caused six fatalities, has spread to neighbouring Syria, Kuwait and Bahrain [24]. The Ministry of Health in Bahrain has announced that seven patients have been found to be infected with cholera, including a woman who was diagnosed in Kuwait [25]. One case of cholera was reported by the media in an Omani traveller returning from Iraq [26]. On 10 November 2015, the media reported three confirmed cases in two Syrian cities, Aleppo and Deir ez-Zor in the eastern part of the country [27]. However, at this stage WHO has not confirmed whether the Syrian cases are cholera.

The risk of additional cases occurring in Iraq in the context of the current epidemic is significant. It is probably only a matter of time before further possible cases are detected in Syria. Despite the short incubation period (two hours to five days), which would most likely prevent symptomatic cases being able to complete their journey to Europe, asymptomatic carriers can excrete the vibrio for 10 days [28]. Therefore, transmission originating from an asymptomatic carrier among refugee populations on their way to Europe cannot be excluded.

Louse-borne diseases

As of 12 of November 2015, 27 cases of LBRF had been reported in EU Member States among refugees coming from countries around the Horn of Africa.

The Netherlands reported two imported cases of louse-borne relapsing fever (LBRF) caused by *Borrelia recurrentis* in asylum seekers coming from Eritrea in early July 2015 [29]. Both cases had recently arrived in Europe after passing through Ethiopia, Sudan, Libya and Italy. On 24 July 2015, ECDC published a rapid risk assessment on louse-borne relapsing fever in the Netherlands', providing options for its prevention and control in the EU [30]. In August, one additional imported case was reported in Switzerland [31]. The case was a refugee from Eritrea who had travelled for two months with recent stopovers in Sudan, Libya and Italy. One additional case of LBRF in a migrant in Finland was reported in a publication in 2015, although detailed information was not provided [32].

Three additional confirmed cases of LBRF in camps in Sicily were diagnosed among refugees from Somalia, having travelled through several African countries [33]. The three patients aged three, seven and seventeen years travelled independently of each other and arrived in Italy between 27 August and 4 September 2015.

A recent publication acknowledged 15 imported louse-borne relapsing fever cases in Bavaria between July and October 2015 [34]. Fourteen of these cases were confirmed as being caused by *Borrelia recurrentis*, although a Giemsa-stained blood film was only available for one case. All patients were hospitalised and received antibiotic treatment with doxycycline. One patient died during the antibiotic treatment. All cases were males originating from Somalia (n=12), Eritrea (n=2) and Ethiopia (n=1). In eight out of 10 patients with available information, the onset of symptoms was shortly before or soon after arrival in Germany. No previous recurring fever episodes were reported.

In November 2015, five additional confirmed cases in Turin, Italy were described among East African refugees from Somalia [35]. Onset of disease occurred between 7 June and 26 September 2015. Three cases travelled to Italy through Kenya, Uganda, Sudan and Libya, where two of them stayed in a crowded environment. The two other cases had been living in Italy since 2011 and denied recent travel to endemic regions. Therefore these two cases probably acquired infection while being housed in the same facilities as the newly-arrived refugee cases. The paper reporting these cases hypothesises that this is the first description of a focal autochthonous transmission of LBRF among migrants within the EU. Autochthonous transmission is not unexpected. It confirms the need to consider the options for prevention and control for louse-borne relapsing fever and other louse-borne diseases in the EU published in the ECDC risk assessment [30, 35-38].

Cutaneous diphtheria

In July 2015, Denmark, Germany and Sweden reported seven cases of toxigenic cutaneous diphtheria and two cases of non-toxigenic cutaneous diphtheria among refugees in 2015. Toxigenic cutaneous diphtheria cases were identified in refugees from Eritrea (4), Libya (1), Ethiopia (1) and Syria (1). The options for response set out in the rapid risk assessment 'Cutaneous diphtheria among recently arrived refugees and asylum seekers in the EU' published on 30 July 2015 remain valid [39]. Most refugees who arrive in Europe are from endemic countries and have travelled under conditions that increase the risk of acquiring cutaneous diphtheria.

Malaria, leishmaniasis and schistosomiasis

The risk for vector-borne diseases, such as malaria ranges from very limited to non-existent in the Middle East and North African countries, but should be considered for persons originating from sub-Saharan African countries or Asia (India, Pakistan) [5]. On 16 October 2015, Sweden reported a case of malaria due to *Plasmodium vivax* in a refugee from Syria. A rapid risk assessment focusing on the risk of importation and spread of malaria and other vector-borne diseases associated with the arrival of migrants to the EU was published on 21 October 2015 [6]. The occurrence of malaria or other vector-borne diseases in mobile populations such as migrants, refugees and travellers is not unexpected and further importation of cases might occur in the EU. Although competent vectors for malaria, leishmaniasis and schistosomiasis are present in some European countries and can trigger autochthonous transmission (particularly in southern European countries), vector activity is low during the winter months and the risk of local transmission remains very limited or negligible during this period.

Scabies

Media reports have described outbreaks of scabies in refugee accommodation centres across Europe [40,41]. The poor living conditions and the lack of access to proper water and sanitation conditions create favourable conditions for scabies outbreaks among refugee populations. Therefore, such outbreaks are not unexpected and more cases in refugee centres are expected.

Typhoid fever

On 21 August 2015, the UN reported 23 typhoid fever cases among residents of the Yarmouk refugee camp, south of Damascus. A month later, a further 90 cases were reported in the camp by the same agency.

Tuberculosis

In France, four cases of tuberculosis have been diagnosed among refugees in Calais. The social and economic vulnerability of refugee populations create favourable conditions for tuberculosis, added to the fact that refugees often live in close proximity in camp settings [42]. Therefore, tuberculosis cases among refugees are not unexpected.

Influenza

Refugees are at risk of acquiring influenza in reception camps and during their journey. Vaccination is an option that should be considered.

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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.

Conclusions and options for response

There are no indications that the number of people seeking refuge in Europe will decrease over the coming months, and the winter season will make the situation harder for those already living in precarious conditions across Europe. The basic information that would allow an adequate assessment of the situation is currently not available. The exact number of refugees is unknown, and its assessment is hampered because refugees may avoid registration for fear of being sent back and because they move through different European countries.

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refugees include: measles (using MMR vaccine and prioritising children up to 15 years); poliomyelitis (for children and adults coming from countries currently exporting poliovirus such as Afghanistan and Pakistan, infected countries such as Somalia, or countries which remain vulnerable to international spread, including Cameroon, Equatorial Guinea, Ethiopia, Iraq, Israel, and Syrian Arab Republic); meningococcal disease (preferably with vaccines against meningococcal serogroups A, C, W-135 and Y or, if a country does not use the quadrivalent vaccines, with vaccines against serogroups A and/or C, if available); diphtheria (using diphtheria-tetanus-pertussis vaccine in accordance with national guidelines) [7] and influenza according to the season.

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Countries experiencing or likely to experience an influx of refugees should consider assessing their overall preparedness and response capacity for infectious disease health threats.

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