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Abstract

Forced displacement is a major child health issue. Between 2015 and 2017, more than 1 million asylum applications were made for children in Europe. Children on the move often make dangerous journeys, which may last for months or years. They are exposed to considerable health risks before, during and after their journey and they often have limited access to health care. In this review, we summarise the health risks and needs of asylum seeking, refugee and undocumented children in Europe during the first few months after their arrival and the ways in which European health policies respond to these risks and needs.

Introduction

Globally, more than 13 million children live as refugees or asylum seekers outside their country of birth.(1) Among the mass migration of people to Europe since 2014, large numbers of children have made the journey, either with family or on their own, in search of safety, stability and a better future. Between 2015 and 2017, more than 1 million asylum applications were made for children in Europe.(2)

The phenomenon of migration to Europe has been characterised by continual evolution; with frequent changes in the most common migrant routes, modes of travel, and the length of stay in transit countries. Children making these dangerous and often prolonged journeys are exposed to considerable health risks. Migrant child health is related to their health status before the journey, conditions in transit (including experience of trauma) and after arrival in Europe, and is influenced by the health of their caregivers and their ability to access health care.(3)

The Convention on the Rights of the Child (CRC) affords all children with the right to health care without discrimination, and it devotes specific attention to the rights of displaced and unaccompanied children.(4) As such, the CRC provides a useful framework to address the health of migrant children. This paper reviews the health risks and needs of asylum seeking, refugee and undocumented children in Europe during the first few months after their arrival to a country (Table 1) and how European health policies respond to these risks and needs. It is important to note that children may live for months or years in one or several countries before settling, being repatriated, or going underground. Factors that begin to take precedence in the longer term, such as the social determinants of health, ethnicity, and

issues relating to legal status and prolonged periods of transit are outside of the scope of this article.

Methods

The findings presented in this review are based on a comprehensive literature search of studies on migrant child health in Europe from 1 January 2007- 8 August 2017. Searches were run in PubMed and EMBASE on 8 August 2017. Search terms included combinations of terms for children such as “child”, “youth”, and “adolescent” with terms for migrant, such as “migrant”, “asylum seeker”, “refugee" and “undocumented migrant”, and with terms for countries in the European Union, Afghanistan, Jordan, Lebanon, Syria, and Turkey. The searches were limited to papers on children (birth-18 years) and English language. Papers were included if they addressed physical and mental health of migrant children, health examinations of migrant children, the effect of caregiver mental health on children, access to care, or disparities in care between migrant children and the local population. Non-English language papers, papers on adult populations (defined as papers with mean age of study population >18 years), and papers from non-European host countries were excluded. A total of 1517 titles were screened, 149 papers were eligible for full text review, of which 33 were found to deal with the health needs and health risks of migrant children. These articles and another 29 articles and reports from hand searches are included in this review (Figure 1: Flow diagram).

Health risks and needs of migrant children in Europe

The health needs of migrant children are highly heterogeneous, and depend on the conditions in the country of origin, during their journeys, and after arrival in the countries of destination. Children separated or travelling unaccompanied are particularly vulnerable to various forms of exploitation at all phases of their journey and after arrival. Structural, financial, language and cultural barriers in access to health care affect care-seeking behaviours at all phases of the journey, as well as diagnostic evaluation, treatment, and health outcomes (Table 2).(5)

Communicable diseases

During travel and after arrival in Europe, children may be housed in overcrowded facilities with inadequate hygiene and sanitation conditions that place them at risk of communicable diseases. The most common infection sites include the respiratory tract, gastrointestinal tract and skin, with a concerning prevalence of parasitic and wound infections.(6-9)

Migrant children need to compliment their vaccinations to match the vaccination schedule of the country of destination.(10) Several studies of migrant children in Europe have identified low vaccination coverage against hepatitis B, measles, mumps, rubella and varicella and low immunity to vaccine preventable diseases including tetanus and diphtheria: this is coupled with a higher prevalence of previous exposure to vaccine-preventable diseases(11). Since 2015, cases of cutaneous diphtheria(10) and outbreaks of measles in the EU(12) have been attributed to insufficient vaccination coverage in migrant populations. Further, Hepatitis A cases have been reported in migrant children living in camps and centres in Greece and Germany, with particularly high rates among children under 15 years.(13, 14) However, it is important to note that there is no evidence of increased transmission of communicable diseases from migrants to host populations.(15)

Migrant children originating from low and middle income countries may have been exposed to infectious agents that are rare in high income countries in Europe.(16-18) Furthermore, exposure to armed conflict may increase their risk of exposure to infections.(10) Notable infections among migrant populations include latent or active tuberculosis (TB),(16, 19) malaria,(10) HIV,(20) Hepatitis B and C,(10, 16), Syphilis(16), Human T-lymphotropic virus type 1 or 2,(16) louse-born relapsing fever,(10, 21) shigella,(10) and leishmaniasis.

The treatment of migrant children with infectious diseases may require different regimens than those recommended by national protocols, as these children may be at higher risk of colonisation and infection with drug-resistant organisms. In Germany, routine screening practices at hospital admission have found that migrant children have higher rates of Multiple Drug Resistant (MDR) bacterial strains than the local population.(22) MDR Infections may be more difficult to treat, and carry higher morbidity and mortality risk.

Noncommunicable diseases and injuries

Displacement places children at risk for a broad variety of noncommunicable diseases and injuries that may be exacerbated by limited and irregular access to paediatric and neonatal health care. Paediatric groups that are particularly vulnerable include unaccompanied minors, pregnant adolescents, and infants.

In 2017, more than half of the migrant children arriving in Europe were registered in Greece, and the largest age group were infants and small children (0-4years old),(23) Infants born during the journey may be born without adequate access to prenatal, intra-partum, or postnatal care, resulting in increased birth complications, stillbirth, and infant mortality.(24) Further, these newborns may have lacked access to screening for congenital disorders that is routinely offered in European countries. Infant nutrition may suffer, particularly as breastfeeding is a challenge for mothers during their journey.(25) The evidence regarding the risk of birth complications in children born to mothers after arrival in the destination country is mixed. Some studies in Europe have shown that these infants have higher rates of

birth complications, including hypothermia, infections, low birth weight, pre-term birth, and perinatal mortality when compared with the native population,(8, 26) while other studies have found that outcomes in certain countries are similar to the national populations.(27) These patterns suggest that the cause of altered risks may be related to society-specific factors such as integration policies, socioeconomic disadvantage among different migrant groups, and barriers in access to care.(27)

Traumatic events such as torture, sexual violence or kidnapping, may have long-lasting physical and psychological effects on a child. Physical trauma related to the journey and attempts at illegal border crossings may include skin lacerations, tendon lacerations, fractures, and muscle contusions. If left untreated and/or in unhygienic conditions, injuries may become infected, with severe and potentially life-threatening consequences.(6) People arriving by sea are particularly susceptible to injury and illness; a recent survey of rescue ships found that dehydration, and dermatological conditions associated with poor hygiene and crowded conditions were common, as well as new and old traumatic injuries from both violence and accidents.(28) The risk of female genital mutilation is high in girls from certain regions, and occurs to the extent that it is a recognised reason for seeking asylum.(29)

There is little good quality evidence from Europe on the risk of injury during the early period after arrival in the country of destination. However, a large Canadian study found that refugee children have an increased risk of injury after resettlement. The study reported a 20% higher rate of unintentional injury in refugee youth compared with non-refugee immigrant youth for most causes of injury, with notably higher rates of motor vehicle injuries, poisonings, suffocation, and scald burns.(30) In spite of their risks before travel, during the journey, and after arrival, no studies provide data on the prevalence of disability in children on the move or its effect on child health and development.

While the prevalence of noncommunicable chronic diseases in migrant children to the EU is not thought to differ significantly from host populations, there is little evidence to support this thinking, and barriers in access to care and different health beliefs pose challenges to diagnosing and managing migrant children with chronic diseases (Table 2).(31) Nutritional deficiencies and dental problems are more common in migrant children, with reported prevalence of iron deficiency anaemia ranging from 4-18% among children living in Germany and Greece.(7, 32) Dental problems are perhaps the most prevalent health issue in migrant children, and indeed have been reported in 22-65% of migrant and refugee children in the UK and Australia.(33)

Psychosocial and mental wellbeing

Migrant children are at high risk for psychosocial and mental health problems, with separated and unaccompanied children at highest risk. Direct and indirect exposure to

traumatic events are associated with post-traumatic stress disorder (PTSD), anxiety, depression, sleep disturbances, and a broad range of internalising and externalising behaviours in refugee children.(34)

The mental health of caregivers, especially mothers, plays an important role in their children's mental and physical health. Maternal PTSD and depression are correlated with increased risk of PTSD, PTS symptoms, behavioural problems and somatic complaints in their children.(35) Conversely, good caregiver mental health is a protective factor for the mental and behavioural health of refugee children.(34)

Transit and host country reception policies also impact migrant children's mental health outcomes. Numerous studies have documented that post-migration detention increases psychological symptoms and the prevalence of psychiatric illness in migrant children.(34) Detention, multiple relocations, prolonged asylum processes, and lack of child-friendly immigration procedures are associated with poor mental health outcomes in refugee children, and have been described in some studies as having placed the children in greater adverse situations than those which the children endured before migration.(34) A longitudinal study of refugee children from the Middle East in Denmark found that psychological symptoms improved over time, with risk factors related to war and persecution being important during the early years after arrival in Denmark, and social factors in the country of origin were more important for the long term.(36)

Racism and xenophobia play an important role in the psychological health and wellbeing of migrant children. Studies in Sweden and Denmark have found that the experience of discrimination is common among migrant youth and is associated with lower rates of social acceptance, poorer peer relations, and mental health problems.(37, 38) In a national survey of Swedish 9th graders, rates of bullying experienced by migrant children were associated with migrant density in schools, whereby migrant children attending schools with low migrant density reported 3 times the rate of bullying compared with those attending schools with high migrant density.(38)

The remarkable resilience observed in displaced children has been a topic of significant discourse and study.(3) Healthy and positive adaptive processes are associated with social inclusion, supportive family environments, good caregiver mental health, and positive school experiences.(34, 39) Research and experience suggest that the most effective way to protect and promote refugee child mental health is through comprehensive psychosocial interventions that address psychological suffering in the context of the child's family and environment; such interventions necessarily include family, education, and community needs and caregiver mental health.(40)

Unaccompanied minors

The numbers of unaccompanied and separated children (UASC) seeking asylum in Europe have increased in recent years.(41) During 2015, 96,465, and in 2016, 63,260 unaccompanied children applied for asylum in the 28 EU member states, with Germany receiving about a third of these children.(42)

The mental health of unaccompanied refugee adolescents during the first years of exile has been studied in several European epidemiological studies in recent years.(43-52) In the largest of these studies, a comparison was made between three groups: (1) newly arrived, unaccompanied children aged 12–18 years in the Netherlands, (2) young refugees of the same age who had arrived with their parents and (3) an age-matched Dutch group.(43) The unaccompanied youths had much higher levels of depressive symptoms than the accompanied refugee children (47 vs 27%), and this was partly explained by a higher burden of traumatic stress. Follow-up interviews 12 months later showed no indication of improvement. The level of externalizing symptoms and behaviour problems were, however, lower among the unaccompanied refugees than in the Dutch comparison population. A similar picture of high levels of traumatic stress and introverted symptoms was noted in a Norwegian study of 414 unaccompanied youths, carried out at an average of 3.5 years after their arrival in the country.(51)

Age assessment

Having an assumed chronological age above or below 18 years determines the support provided for young asylum seekers in most European countries, despite the fact that many lack documents with an exact birth date.(41) This has led to the use of many different methods to assess age in Europe. In the UK, social workers independent of the migration authorities undertake age assessment interviews which consider any documents or evidence indicating likely age, along with an assessment of appearance and demeanor.(53) Many other European countries rely on medical examinations, primarily in the form of radiographs of the hand/wrist (23 countries), collar bone (15 countries) and/or teeth (17 countries).(54) The individual variation in age specific maturity in the later teens with these methods, and the unknown variation between high and low income countries, make them unsuitable for assessing whether a young person is below or above 18 years of age.(55, 56)

The use of these imprecise methods raise serious ethical and human rights concerns and is often experienced as unfair and stressful by the young asylum seekers.(57) The European Academy of Paediatrics and several national medical associations have therefore recommended their members not to participate in age assessment procedures of asylum applicants on behalf of the state.(58)

Health policies and child rights

Identification of the health needs of an individual migrant child, and subsequent timely investigation and management may be suboptimal in the arrival countries for a plethora of reasons associated with legal status, health care system efficiencies, and individual factors. A recent survey identified 12 EU/EEA countries with significant inequities in health care entitlements for migrant children (compared to locally born children) according to their legal status.(59) In many countries, undocumented children are only able to access emergency health care services.(60) Worryingly, in Sweden, a recent Human Rights Watch report found that children spend months without receiving health screening.(61)

In the UK, UASC have their specific health needs identified as part of statutory health assessments, where the state has assumed the role of the corporate parent and undertakes the responsibility for the needs of the child. However, accompanied children (those children who arrive with and remain in the care of, their migrant, refugee or asylum seeking parent/s), depend upon their newly arrived parent(s) to negotiate unfamiliar health care systems. Although there have been very few studies assessing access to health care by migrant families, it has been proposed that unfamiliar health care systems, and financial costs of over the counter medications pose specific challenges to the migrant family.(62)

Newly settled migrant children have greater needs than the average European child. Thus, access to health care is a major concern for migrant children. In an analysis of health care policies for migrant children, Hjern et al (63) compared entitlements for asylum seeking and undocumented children in 31 EU member and EES states in 2016 with those of resident children. Only seven countries (*Belgium, France*, *Italy*, *Norway, Portugal, Spain and Sweden)* have met the obligations of non-discrimination in the CRC and entitled both these categories of migrants, irrespective of legal status, to receive equal health care to that of its nationals. Twelve European countries have limited entitlements to health care for asylum seeking children, including Germany and Slovakia that stand out as the EU countries with the most restrictive health care policies for refugee children.

In all but four countries in the EU/EEA there are systematic health examinations of newly settled migrants of some kind.(64) In most eastern European countries and Germany this health examination is mandatory; while in the rest of western and northern Europe it is voluntary. All countries that have a policy of health examination aim to identify communicable diseases, so as to protect the host population. Almost all countries with a voluntary policy, also aim to identify a child's individual health care needs, but this is rarely the case in those countries that have a mandatory policy.

Implications

Our review of the available evidence indicates that migrant children have particular health risks and needs that differ from both the local populations well as between migrant groups. The body of evidence remains limited, however, as it is based primarily on observational studies from individual countries, with few multi-country or intervention studies. There is a notable need for research on the effect of interventions and policies intended to promote and protect migrant children's health, well-being and positive development.

There is also a need to go beyond research, to improve access and quality of care for migrant children. The International Society for Social Pediatrics and Child Health recently released a position paper with recommendations for health policy, health care, research and advocacy.(3) These recommendations are grounded in child rights, and can serve as a guide for individuals, groups and organisations seeking to improve the health and wellbeing of migrant children.

Conclusion

Asylum seeking, refugee and undocumented children in Europe have significant health risks and needs that differ from children in the local population. Health policies across EU and EES member states vary widely, and migrant children in Europe face a broad range of barriers in access to care. The Convention on the Rights of the Child provides children with the right to access to health care without discrimination and to the conditions that promote optimal health and wellbeing. With children increasingly on the move, it is imperative that individuals and sectors that meet and work with these children are aware of their health risks and needs and are equipped to respond to them.

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Table 1. Definitions

Child	Person under the age of 18 years.(4)
Asylum seeker	Persons or children of such persons who are in the process of applying for refugee status under the 1951 Geneva Refugee Convention.(65)
Refugee	A person, who "owing to well-founded fear of persecution for reasons of race, religion, nationality, membership of a particular social group or political opinions, is outside the country of his nationality and is unable or, owing to such fear, is unwilling to avail himself of the protection of that country".(66)
Undocumented children	Children who live without a residence permit, have overstayed visas or have refused immigration applications and who have not left the territory of the destination country subsequent to receipt of an expulsion order or children passing through or residing temporarily in a country without seeking asylum. (59)
Unaccompanied minors	Children who have been separated from both parents and other relatives and are not being cared for by any adult.

Table 2. Barriers in access to care for migrant children

Information	Patients and families	Unfamiliar health system, lack of knowledge about where and how to seek care
		Variable education and literacy, with variable knowledge about health
		Lack of awareness about health rights
	Health professionals	Variable understanding of and experience with treating migrant children
		Limited epidemiological data on the health status and context-specific risks of migrant children
		Lack of clear and readily available national guidance on the legal and practical aspects of health care for migrants
Culture and language differences		Language barriers, with limited or lack of access to medical interpreters
		Differing cultural and health beliefs
		Expectations for health care encounter may differ between the health professional and patient/family
Financial		Costs associated with care may include transport to health facility, treatment, medications and medical supplies
Other barriers		Distance to health facility, transportation needed to access care
		Multiple housing relocations
		Insufficient time allotted to appointments
		Fear, including the fear that accessing care may affect asylum decision
		Breakdown in trust between patients and health workers

Figure 1. Flow diagram

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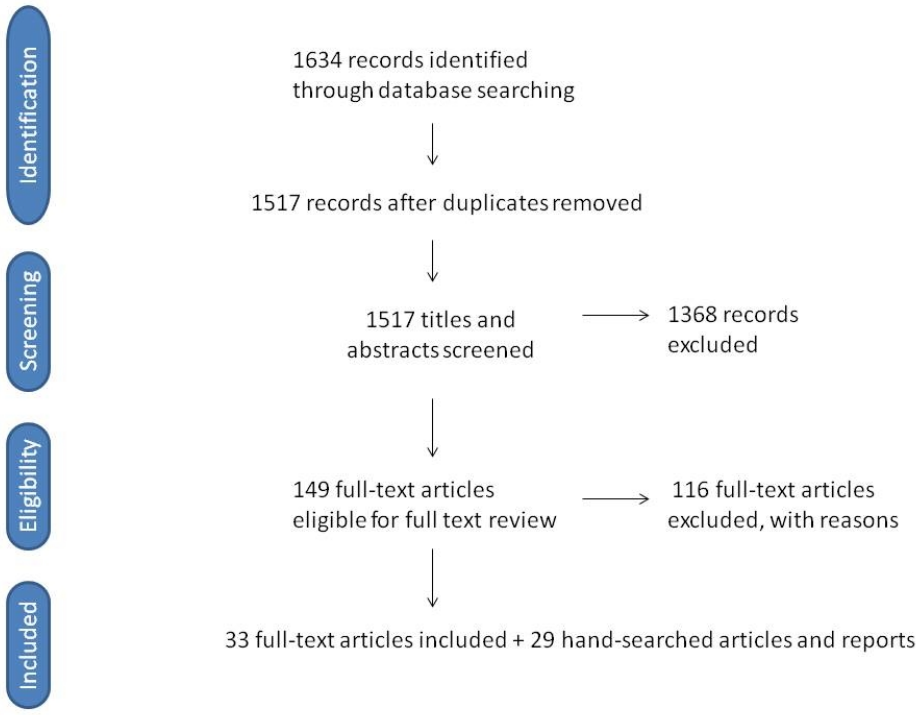

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Children on the move in Europe: A narrative review of the evidence on the health risks, health needs, and health policy for asylum seeking, refugee and undocumented children

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Children on the move in Europe: A narrative review of the evidence on the health risks, health needs, and health policy for asylum seeking, refugee and undocumented children

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Key words: Child health, migration, child rights, social determinants of health

Abstract

Background: Europe has experienced a marked increase in the number of children on the move. The evidence on the health risks and needs of migrant children is primarily from North America and Australia.

Objective: To summarise the literature and identify the major knowledge gaps on the health risks and needs of asylum seeking, refugee, and undocumented children in Europe in the early period after arrival, and the ways in which European health policies respond to these risks and needs.

Design: Literature searches were undertaken in PubMed and EMBASE for studies on migrant child health in Europe from 1 January 2007 - 8 August 2017. The database searches were complemented by hand searches for peer-reviewed papers and grey literature reports.

Results: The health needs of children on the move in Europe are highly heterogeneous and depend on the conditions before travel, during the journey, and after arrival in the country of destination. Although the bulk of the recent evidence from Europe is on communicable diseases, the major health risks for this group are in the domain of mental health, where evidence regarding effective interventions is scarce. Health policies across EU and EES member states vary widely, and children on the move in Europe continue to face structural, financial, language and cultural barriers in access to health care affect chid health care and outcomes.

Conclusions: Asylum seeking, refugee and undocumented children in Europe have significant health risks and needs that differ from children in the local population. Major knowledge gaps were identified regarding interventions and policies to treat and to promote the health and well-being of children on the move.

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Introduction

Forced displacement is a major child health issue worldwide. More than 13 million children live as refugees or asylum seekers outside their country of birth.(1) Conservative estimates suggest that nearly 180,000 children on the move are unaccompanied or separated from their caregivers.(1) The majority of these children live in Asia, the Middle East, and Africa.(2)

Europe has experienced a marked increase in the number of irregular migrants since 2011, with a peak in arrivals during 2015.(3) Children have accounted for a large proportion of people making the journey, either with family or on their own, in search of safety, stability and a better future. Between 2015 and 2017, more than 1 million asylum applications were made for children in Europe.(3) The majority of these children originated from Syria, Iraq and Afghanistan.(2) In 2017, 70% of the 210,000 asylum claims made for children in Europe were filed in Germany, France, Greece and Italy.(4)

The phenomenon of migration to Europe has been characterised by continual evolution; with frequent changes in the most common migration routes, modes of travel, and the length of stay in transit countries. Children making these dangerous and often prolonged journeys are exposed to considerable health risks. The health of children on the move is related to their health status before the journey, conditions in transit and after arrival, and is influenced by experience of trauma, the health of their caregivers, and their ability to access health care.(5)

Much of the literature on the health of children on the move comes from North America and Australia. In light of the marked increase in the number of children arriving in Europe and the need for improved understanding of the situation for these children in the European context, this paper reviews the health risks and needs of children on the move in Europe and how European health policies respond to these risks and needs. It is important to note that children may live for months or years in one or several countries before settling, being repatriated, or going underground. In the longer term, factors such as the social determinants of health, ethnicity, and issues relating to legal status and prolonged periods of transit begin to take precedence.

What is known

- Europe has experienced a significant increase in migration of displaced people escaping humanitarian crises
- Displaced children are known to be vulnerable to violence, violation of their rights and discrimination
- The existing literature on the health of children on the move in Europe is largely focused on infectious disorders
- The Convention on the Rights of the Child provides children on the move with the right to the conditions that promote optimal health and wellbeing and with access to health care without discrimination

What this study adds

- Comprehensive summary of the literature covering all aspects of the health of children on the move in Europe
- Indicates that the main challenges for child health services lie in the domain of mental health and well-being
- Indicates that many children on the move in Europe are insufficiently vaccinated
- Identifies significant gaps in knowledge, in particular with regards to policies and interventions to promote child health and well-being
- Identifies research priorities to promote effective, ethical care and support health policy

The Convention on the Rights of the Child (CRC) affords all children with the right to health care without discrimination.(6) Articles 2, 9, 20, 22, 30 and 39 devote specific attention to the rights of displaced and unaccompanied children.(6) As such, the CRC provides a useful framework to address the health of children on the move.

Terms such as migrants, refugees and asylum seekers are often used interchangeably and may shift the focus away from people toward political discourse. In this paper, we focus on asylum seeking, refugee and undocumented children (Table 1). Undocumented children are included because they are known to be a mobile and highly marginalised group, with particular barriers in access to services. We use the term “children on the move” for these three groups of children in order to maintain a rights-based focus.

Table 1. Definitions

Child	Person under the age of 18 years.(6)
Asylum seeker	Persons or children of such persons who are in the process of applying for refugee status under the 1951 Geneva Refugee Convention.(7)
Refugee	A person, who "owing to well-founded fear of persecution for reasons of race, religion, nationality, membership of a particular social group or political opinions, is outside the country of his nationality and is unable or, owing to such fear, is unwilling to avail himself of the protection of that country".(8)
Undocumented children	Children who live without a residence permit, have overstayed visas or have refused immigration applications and who have not left the territory of the destination country subsequent to receipt of an expulsion order or children passing through or residing temporarily in a country without seeking asylum.(7)
Unaccompanied minors	Children who have been separated from both parents and other relatives and are not being cared for by any adult.

Methods

The findings presented in this review are based on a comprehensive literature search of studies on the health of children on the move in Europe from 1 January 2007- 8 August 2017. Searches were run in PubMed and EMBASE on 8 August 2017. Search terms included combinations of terms for children such as "child", "youth", and "adolescent" with terms for migrant, such as "migrant", "asylum seeker", "refugee" and "undocumented migrant", and with terms for countries in the European Union as well as five countries that are major origin and transit countries for children travelling to Europe, including Afghanistan, Jordan, Lebanon, Syria, and Turkey. The database searches were limited to papers providing data on children (birth-18 years) in the English language. Papers were included if they addressed physical and mental health of children on the move, health examinations of these children, the effect of caregiver mental health, access to care, or disparities in care between children on the move and the local population. Multi-regional reviews that provided data on children in Europe were also included. Papers on adult populations (defined as a study population ≥18 years) that did not provide disaggregated data on children were excluded. However, papers including UASC with a stated age ≤19 years were included, as well as longitudinal cohort studies that followed migrant children into early adulthood (<24 years old). Additional exclusion criteria included special populations, small single-facility studies, lack of migrant and/or health focus, intervention studies that did not provide data on child health outcomes, and papers from non-European host countries. Commentaries and conference abstracts were excluded. For further information on specific child health and policy topics, hand searches were also undertaken to identify relevant peer-reviewed papers and grey literature reports.

Patient and Public Involvement

No patients were involved in this study.

Results

The searches identified 1634 records. After removing 117 duplicates, 1517 titles were screened. 149 papers were reviewed in full text review, of which 118 papers were excluded. Our final sample included 31 papers. An additional 23 articles and reports were identified by the hand searches (Figure 1: Flow diagram). Table 2 provides an overview of the 45 original research studies and review papers that are included in this review.

Figure 1: Flow diagram

Table 2. Table of included studies (does not include grey literature reports unless they provided data from original research)

Original research articles

First author and year	Country	Study population	Study design	Sample size (children only)	Summary of findings
Alkahtani, S(9) (2014)	England	Refugee children in the East Midlands compared with native controls	Case-control	117 migrant / 99 native	Comparison made between the children of 50 refugee parents (N=117 children) with children of 50 English parents (N=99 children), with median ages 5 and 4 years, respectively. Refugee children were more likely to receive prescribed medicines during the previous month (p=0.008) and 6 months (p<0.001) than English children, and were less likely to receive over the counter (OTC) medicines in the past 6 months (p=0.009). The findings suggest financial barrier in access to medication.
Baillot, H(10) (2018)	Multiple	Asylum seekers	Literature review, in-depth interviews with experts in EU-based FGM interventions	N/A	FGM is an important basis for asylum claims girls and women in Europe. Monitoring and interventions vary between countries. There are no pooled data, however, as variations in reporting practices between countries preclude the evaluation or monitoring of FGM-based asylum claims in the EU.
Bean, TM(11) (2007)	The Netherlands	UASC <18 years old	Prospective cohort study	582	The self-reported psychological distress of refugee minors was found to be severe (50%) and of a chronic nature (stable for one year) and was confirmed by reports from the guardians (33%) and teachers (36%). The number of self-reported adverse life events was strongly related to the severity of psychological distress.
Belhassen-Garcia, M(12) (2015)	Spain	Immigrant children and young people(a) <18 years old	Observational cohort	373	Immigrants <18 years of age coming from Sub-Saharan Africa, North Africa and Latin America were prospectively screened between January 2007 and December 2011. Latent tuberculosis was found in 12.7% (36/285), Active TB infection in 1% (3/285), HBV in 4.3% (15/350), and HCV in 2.35% (8/346). None (0/358) were HIV positive.
Bennet, R(13) (2017)	Sweden	UASC <18 years old	Observational cohort	2422	2422 UASC were screened for tuberculosis with a Mantoux tuberculin skin test or a QuantiFERON-TB Gold. 349 had a positive test, of which 16 had TB disease and 278 latent tuberculosis infections (LTBI). Children originating from the horn of Africa had high prevalence of latent TB and TB disease.
Bronstein, I(14) (2012)	United Kingdom	Afghan UASC 13-18 years	Cross-sectional survey	222	One third of youth were found to score above the cut-off on a validated PTSD-screening instrument.
Bronstein, I(15) (2013)	United Kingdom	Afghan UASC 13-18 years	Cross-sectional survey	222	In a survey using the Hopkins Symptoms Checklist 37A, 31.4% scored above cut-offs for emotional and behavioural problems, 34.6% for anxiety and 23.4% for depression. Scores increased with time after arrival in the UK and load of premigration traumatic events.
Ciervo, A(16) (2016)	Italy	Asylum seeking adolescents <18 years	Case series	3	Description of Louse-borne relapsing fever in three Somali adolescents who were seeking asylum.
Derluyn, I(17) (2007)	Belgium	UASC(b)	Cross-sectional survey	142	Between 37 and 47% of the unaccompanied refugee youths had severe or very severe symptoms of anxiety, depression and post-traumatic stress when screened with the Hopkins Symptoms Checklist 37A. Girls and those having experienced many traumatic events are at even higher risk for the development of these emotional problems.
Derluyn, I(18) (2008)	Belgium	Migrant and native adolescents 10-21 years	Cross-sectional survey	1,249 migrant / 602 native	Migrant adolescents experienced more traumatic events than their Belgian peers and showed higher levels of peer problems and avoidance symptoms. Non-migrant adolescents demonstrated more symptoms of anxiety, externalizing problems and hyperactivity. Factors influencing the prevalence of emotional and behavioural problems were the number of traumatic events experienced, gender and the living situation.
Hatleberg, CI(19) (2014)	Denmark	Children <15 years old in Denmark	Epidemiological surveillance study	323	323 TB cases were reported in children aged <15 years in Denmark between 2000 and 2009. The incidence of childhood TB declined from 4.1 per 100 000 to 1.9 per 100 000 during the study period. Immigrant children comprised 79.6% of all cases. Among Danish children, the majority were <5 years and had a known TB exposure. Pulmonary TB was the most common presentation.
Heudorf, U(20) (2016)	Germany	UASC <18 years old	Observational cohort	119	UASC arriving in Frankfurt during October-November 2015 had high levels of drug resistant microbial flora. Enterobacteriaceae with extended spectrum beta-lactamases (ESBL) were detected in 42 of 119 (35%) youth. 9 youth had flora with additional resistance to fluoroquinolones (8% of total screened).

Hjern, A(21) (2013)	Sweden	Migrant and native 15 year olds	Cross-sectional survey	76,229	In a national survey using the KIDSCREEN instrument, the psychological well-being in foreign-born children from Africa and Asia was found to be much lower (-0.8 in Z-scores) compared with the majority population if the student body consisted mainly of native students from the majority population. Scores were very similar to the majority population in schools where at least 50% had two foreign-born parents. Bullying explained much of this difference.
Hjern, A(22) (2017)	EU27	Migrant children <18 years	Cross-sectional survey to clinicians, national child ombudsmen and NGOs	N/A	Seven EU countries (Belgium, France, Italy, Norway, Portugal and Spain and Sweden) explicitly entitle all non-EU migrant children, irrespective of legal status, to receive equal health care to that of its nationals. Twelve European countries have limited entitlements to health care for asylum seeking children, including Germany that stands out as the country with the most restrictive health care policy for migrant children. The needs of irregular migrants from other EU countries are often overlooked in European health care policy.
Hodes, M(23) (2008)	United Kingdom	UASC (13-18 years old) and accompanied refugee children (13-19 years old)	Cross-sectional survey	78 UASC and 35 accompanied	UASC had experienced high levels of traumatic events (mean of 6.8 events, range 0-16), and reported high levels of posttraumatic stress symptoms compared with accompanied children. Predictors of high posttraumatic symptoms included low-support living arrangements, female gender, and experience of trauma. Among UASC, posttraumatic symptoms increased with age. High depressive scores were associated with female gender, and region of origin in UASC.
Huemer, J(24) (2011)	Austria	African UASC 15-18 years old	Observational cohort	41	56% of African UASC had at least one mental health diagnosis by structured clinical interview. The most common diagnoses were adjustment disorder, PTSD and dysthymia.
Kulla, M(25) (2016)	Germany	Refugee infants and children(b) rescued at sea	Observational cohort	293	Among the 2656 refugees rescued by a German Naval Force frigate between May – September 2015, 19 (0.7 %) were infants and 274 (10.3 %) were children. 27% of all patients required treatment by a physician due to injury or illness & were defined as "sick". One infant (5.2%) & 38 children (13.9%) were identified as sick. Predominant diagnoses were dermatological diseases, internal diseases and trauma.
Marquardt, L(26) (2016)	Germany	UASC 12-18 years old	Cross-sectional survey	102	Pilot study that employed purpose sampling for a non-representative subset of UASC in Bielefeld, Germany. 59% of the youth had at least one infection, and 20% suffered parasitic infections. 13.7% were diagnosed with mental illness. 17.6% were found to have iron deficiency anaemia. Overall, the youth had a low prevalence of non-communicable diseases (<2.0%).
Mellou, K(27) (2017)	Greece	Refugees, asylum seekers and migrants(a) living in hosting facilities in Greece	Observational study	152	Report on Hepatitis A Virus (HAV) infection among refugees in hosting facilities in Greece April - December 2016. A total of 177 cases were found, of which 152 were in children <15 years old.
Michaelis, K(28) (2017)	Germany	Asylum seekers with Hepatitis A	Epidemiological surveillance study	231	Asylum seeking children 5-9 years old accounted for 97 of 278 (35%) reported HAV cases among asylum seekers during September 2015 to March 2016. The predominant subgenotype was IB, a strain previously reported in the Middle East, Turkey, Pakistan and East Africa. There was one case of transmission from an asymptomatic child to a nursery nurse working in a mass accommodation centre.
Montgomery, E(29) (2008)	Denmark	Refugees 11-23 years old	Longitudinal cohort	131	Follow up study in refugee children after 9 years. Participants reported a mean of 1.8 experiences of discrimination. An association was found between discrimination, psychological problems and social adaptation. Perceived discrimination predicted internalizing behaviours. Social adaptation was protective, correlating negatively with discrimination as well as externalizing and internalizing behaviours.
Montgomery, E(30) (2010)	Denmark	Refugees 11-23 years old	Longitudinal cohort	131	Same population as Montgomery (2007). Upon arrival, the children experienced high rates of clinically significant psychological problems which reduced markedly at 9 year follow up. Persistent symptoms were associated with higher number of types of stressful events after arrival, suggesting environmental factors play an important role in resilience and recovery from psychological trauma.
Odone, A(31) (2015)	Multiple	Migrants to the EU(a)	Literature review, analysis of European Surveillance System data, and information from experts	N/A	Primarily reported outcomes in adults. From 2000 - 2009, 15.3% of reported paediatric TB cases in the EU/EEA were of foreign origin. This figure is lower than the proportion of foreign-born reported TB cases in the overall population (26%). Norway, Sweden and Austria reported a higher number of foreign-origin TB cases than native-origin TB cases among children <15 years. Risk-based analysis is limited because surveillance data in most EU/EEA countries do not distinguish between children born in the host country to foreign-born parents from those born to native parents.
Pavlopoulou, ID(32) (2017)	Greece	Migrant and refugee(c) children 1-14 years old	Single facility prospective cross-sectional study	300	Survey of immigrant and refugee children presenting for health examination within 3 months of their arrival, May 2010, and March 2013. The main health problems found included unknown vaccination status (79.3%), elevated blood lead levels (30.6%), dental problems (21.3%), eosinophilia (22.7%), and anaemia (13.7%). 8 children (2.7%) were diagnosed with latent tuberculosis based on Mantoux and chest x-ray, and 2 cases were confirmed with QuantiFERON-TB Gold testing.

Riddel, R(33) (2016)	Sweden	UASC 9-18 years old	Qualitative interviews	53	The youth described experience of extreme violence and exploitation, as well as lack of access to physical and mental health care. They describe lengthy asylum procedures, delays in receiving a guardian, lack of access to interpreters and inexperienced and inadequately trained staff among guardians in the accommodation centres. Girls and younger children reported being housed with older boys and experiencing bullying and harassment in their accommodation facilities.
Seglem, KB(34) (2011)	Norway	UASC	Cross-sectional survey	414	Surveyed of UASC who were granted a residence permit in Norway from 2000 - 2009. The youth ranged from 11 -27 years at the time of the survey. The study found that UASC are a high-risk group for mental health problems also after resettlement in a new country, with high prevalence of depression and PTSD.
Stubbe Østergaard, L(7) (2017)	Multiple	Asylum seekers and undocumented migrant children <18 years	Survey and desk review	N/A	Surveyed child health professionals, NGOs and European Ombudspersons for Children in 30 EU/EEA countries and Australia and reviewed official documents. Entitlements for asylum seeking, refugee and irregular migrants in the EU are variable, however only five countries (France, Italy, Norway, Portugal and Spain) explicitly entitle all migrant children, irrespective of legal status, to receive equal health care to that of its nationals. The needs of irregular migrants from other EU countries are often overlooked in European health care policy.
Van Berlaer, G(35) (2016)	Belgium	Asylum seekers	Single facility cross-sectional study	391	Primarily reported outcomes in adults. Nearly half of asylum seekers, & two-thirds of children <5 years suffered from infections. Among children <5 years, 50% had respiratory diseases (n=76), 20% digestive disorders (n=30), 14% skin disorders (n=21) & 7% suffered from injuries (n=10).
Vervliet, M(36) (2014)	Belgium	UASC 14-17 years old	Longitudinal cohort	103	UASC reported an average of 7.5 traumatic experiences at the study start. The mean number of reported daily stressors increased over the study period. Participants had high scores for anxiety, depression and internalizing symptoms. There were no significant differences in mental health scores over time. The number of traumatic experiences and the number of daily stressors were associated with significantly higher symptom levels of depression (daily stressors), anxiety and PTSD (traumatic experiences and daily stressors).
Villadsen, SF(37) (2010)	Multiple	Stillbirths and neonatal deaths of infants born to mothers of Turkish origin	Retrospective prevalence study	239,387	Includes data from 9 EU countries. The stillbirth rates were higher in infants born to Turkish mothers than in the native population in all countries. The neonatal mortality was variable, with elevated risks for infants of Turkish mothers in Denmark, Switzerland, Austria and Germany, and lower rates in Netherlands, the United Kingdom and Norway when compared to the native populations.
Williams, GA(38) (2016)	Multiple	Migrants(d)	Literature review, survey of 30 countries, and information from experts	N/A	National surveillance systems do not systematically record migration-specific information. Experts attributed measles outbreaks to low vaccination coverage or particular health or religious beliefs, and considered outbreaks related to migration to be infrequent. The literature review and country survey suggested that some measles outbreaks in the EU/EEA were due to sub-optimal vaccination coverage in migrant populations.

Review articles

First author and year	Study population	Study design	Sample size (children only)	Summary of findings
Aynsley-Green, A(39) (2012)	Refugee & asylum seeking children and young people	Review without information on search strategy or inclusion criteria	N/A	Evidence that X-ray examination of bones & teeth is imprecise and unethical and should not be used. Further research needed on a holistic multi-disciplinary approach to age assessment.
Bollini, P(40) (2009)	Immigrant women(a) who delivered an infant Europe	Systematic review and meta-analysis	18,322,978 pregnancies in 65 studies	61 studies were cross-sectional design and 27 were from single facilities. Compared data on 1.6 million in immigrant women with 16.7 million native women. Immigrant women had 43% higher risk of low birth weight, 24% of pre-term delivery, 50% of perinatal mortality, and 61% of congenital malformations compared with native European women.
Cole, TJ(41) (2015)	UASC	Review article of methods for age assessment	N/A	Most individuals are mature before age 18 in hand-wrist X-rays. On MRI of the wrist and orthopantomogram of the third molar, the mean age of attainment is over 19 years, however if there is immature appearance, these methods are uninformative about likely age; as such, the MRI and third molars have high specificity but low sensitivity.
Derluyn, I(18) (2008)	UASC	Review without information on search strategy or inclusion criteria	N/A	UASC are a vulnerable population with considerable need for psychological support and therefore need a strong and stable reception system. The creation of such a system would be greatly facilitated if the legal system considered them children first and refugees/migrants second.
Devi, S(42) (2016)	UASC	Opinion piece	N/A	Summarises findings on infectious diseases affecting unaccompanied minors based on two UNICEF and one Human Rights Watch reports.

Eiset AH(43) (2017)	Refugees and asylum seekers - all ages	Narrative review	Not specified	51 studies of infectious conditions in refugees and asylum seekers including children and adults. Findings related to children: limited evidence on infectious diseases among refugee and asylum seeking children; relatively low vaccination rates with one study showing 52.5% of migrant children needing triple vaccine and 13.2% needing MMR and a further study showing low levels of rubella immunity among refugee children. The review reports on rates of TB, HIV, hepatitis B and C, malaria and less common infections; however, rates are not reported by age group.
Fazel, M(44) (2012)	Refugee children and young people	Systematic review	5776 children and youth in 44 studies	Exposure to violence, both direct and indirect (through parents), are important risk factors for adverse mental health outcomes in refugee children and adolescents. Protective factors include being accompanied by an adult caregiver, experiencing stable settlement, and social support in the host country.
Hjern, A(45) (In Press)	UASC	Narrative review	N/A	Many UASC come from 'failed states' like Somalia and Afghanistan where official documents with exact birth dates are rarely issued. No currently available medical method has the accuracy needed to replace such documents. Unclear guidelines and arbitrary practices may lead to alarming shortcomings in the protection of this high-risk group of children and adolescents in Europe. Medical participation, as well as non-participation, in these dubious decisions raises a number of ethical questions.
ISSOP Migration Working Group(5) (2017)	Migrant children in Europe	Narrative review and position statement	N/A	Based on a comprehensive literature search and a rights-based approach, policy statement identifies magnitude of specific health and social problems affecting migrant children in Europe and recommends action by government and professionals to help every migrant child to achieve their potential to live a happy and healthy life, by preventing disease, providing appropriate medical treatment and supporting social rehabilitation.
Markkula, N(46) (2018)	First and second generation migrant children compared with non-migrant children	Systematic review	10,030,311 children in 93 studies	57% of included studies were from Europe and 36% from North America. Use of non-emergency healthcare services was less common among migrant compared with non-migrant children: in 19/27 studies reporting on general access to care, 9/19 reporting on vaccine uptake, 9/16 reporting on mental health service use, 9/14 reporting on oral health service use, 10/14 reporting on primary care and other service use. Migrant children were reported to be more likely to use Emergency and Hospital services in 9/15 studies.
Mipatrini D(47) (2017)	Migrants and refugees	Systematic review	N/A	The study reports primarily on data in adults or where age classification is not specified. Overall, migrants and refugees were found to have lower immunization rates compared with European-born individuals. Studies in migrant children found lower rates of MMR, Polio and tetanus vaccination. Reasons cited include low vaccination coverage in the country of origin and barriers in access to care in Europe.
Sauer, PJ(48) (2016)	UASC	Editorial/Position statement	N/A	Position statement by the European Academy of Paediatrics outlining medical, ethical and legal reasons for recommending that physicians should not participate in age determination of unaccompanied and separated children seeking asylum.
Slone, M(49) (2016)	Children aged 0-6 years exposed to war, terrorism or armed conflict	Systematic review	4365 children in 35 studies	Young children suffer from substantial distress including elevated Risk for PTSD or PTS symptoms, non-specific behavioural and emotional reactions and disturbance of sleep and play rituals. Parental and children's psychopathology correlated and family environment and parental functioning moderates exposure–outcome association for children. The authors conclude that longitudinal studies are needed to describe the developmental trajectories of exposed children.
Williams, B(50) (2016)	Refugee children in Europe	Review without information on search strategy or inclusion criteria	N/A	Increased rates of depression, anxiety disorders and PTSD among refugee children, as well as high levels of dental decay and low immunisation coverage.

a Migrant status not clearly defined
b Age groups not clearly defined
c Immigrants were defined as the children of parents with long- term residence permit who entered Greece for family reunification. The remaining children, including refugees, asylum seekers or irregular migrants were defined as "refugees".
d Variable definitions of migrants between countries and between studies

Overall, the papers indicate that the health needs of children on the move are highly heterogeneous, depending on the conditions in the country of origin, during the journey, and after arrival in the countries of destination. Children separated or travelling unaccompanied (UASC) are particularly vulnerable to various forms of exploitation at all phases of their journey and after arrival. Structural, financial, language and cultural barriers in access to health care affect care-seeking behaviours as well as diagnostic evaluation, treatment, and health outcomes (Table 3).(5, 9, 46)

Table 3. Barriers in access to care for children on the move

Information	Patients and families	Unfamiliar health system, lack of knowledge about where and how to seek care
		Variable education and literacy, with variable knowledge about health
		Lack of awareness about health rights
	Health professionals	Variable understanding of and experience with treating children on the move
		Limited epidemiological data on the health status and context-specific risks of children on the move
		Lack of clear and readily available national guidance on the legal and practical aspects of health care for migrants
Culture and language differences		Language barriers, with limited or lack of access to medical interpreters
		Differing cultural and health beliefs
		Expectations for health care encounter may differ between the health professional and patient/family
Financial		Costs associated with care may include transport to health facility, treatment, medications and medical supplies
Other barriers		Distance to health facility, transportation needed to access care
		Multiple housing relocations
		Insufficient time allotted to appointments
		Fear, including the fear that accessing care may affect asylum decision
		Breakdown in trust between patients and health workers

Communicable diseases

During travel and after arrival in Europe, children may be housed in overcrowded facilities with inadequate hygiene and sanitation conditions that place them at risk of communicable diseases. The most common infection sites include the respiratory tract, gastrointestinal tract and skin, with a concerning prevalence of parasitic and wound infections.(26, 35, 42, 51)

Children originating from low and middle income countries may have been exposed to infectious agents that are rare in high income countries in Europe.(12, 13, 19) Furthermore, exposure to armed conflict may increase their risk of exposure to infections.(43) Notable infections among populations on the move include latent or active tuberculosis (TB),(12, 31) malaria,(43) Hepatitis B and C,(12, 43), Syphilis(12), Human T-lymphotropic virus type 1 or 2,(12) louse-born relapsing fever,(16, 43) shigella,(43) and leishmaniasis(43). There is a notable lack of studies with age-disaggregated data on HIV prevalence among migrant children in Europe. A Spanish study which screened 358 children did not find any cases.(12) While children on the move are at risk for a number of different infections, the prevalence of communicable diseases varies markedly between groups and is thought to be heavily related to the conditions during travel and after migration.(43)

The treatment of children on the move with infectious diseases may require different regimens than those recommended by national protocols, as these children may be at higher risk of colonisation and infection with drug-resistant organisms. In Germany, routine screening practices at hospital admission have found that children on the move have higher rates of Multiple Drug Resistant (MDR) bacterial strains than the local population.(20) MDR Infections may be more difficult to treat, and carry higher morbidity and mortality risks.

Children on the move may need catch-up immunisations to match the vaccination schedule of the country of destination.(43) Several studies of children on the move in Europe have identified low vaccination coverage against hepatitis B, measles, mumps, rubella and varicella and low immunity to vaccine preventable diseases including tetanus and diphtheria: this is coupled with a higher prevalence of previous exposure to vaccine-preventable diseases.(47) Since 2015, cases of cutaneous diphtheria(43) and outbreaks of measles in the EU(38) have been attributed to insufficient vaccination coverage in migrant populations. Further, Hepatitis A cases have been reported in children living in camps and centres in Greece and Germany, with particularly high rates among children under 15 years.(27, 28) There is no evidence of increased transmission of communicable diseases from migrants to host populations.(52)

Noncommunicable diseases and injuries

Displacement places children at risk for a broad variety of noncommunicable diseases and injuries that may be exacerbated by limited and irregular access to paediatric and neonatal health care. Paediatric groups that are particularly vulnerable include unaccompanied minors, pregnant adolescents, and infants.

In 2017, more than half of the children arriving in Europe were registered in Greece, and the largest age group were infants and small children (0-4years old).(53) Infants born during the

journey may be born without adequate access to prenatal, intra-partum, or postnatal care, resulting in increased birth complications, stillbirth, and infant mortality.(54) Further, these newborns may have lacked access to screening for congenital disorders that is routinely offered in European countries. Infant nutrition may suffer, particularly as breastfeeding is a challenge for mothers during their journey.(55) The evidence regarding the risk of birth complications in children born to mothers after arrival in the destination country is mixed. Some studies in Europe have shown that these infants have higher rates of birth complications, including hypothermia, infections, low birth weight, pre-term birth, and perinatal mortality when compared with the native population,(40, 51) while other studies have found that outcomes in certain countries are similar to the national populations.(37) These patterns suggest that the cause of altered risks may be related to society-specific factors such as integration policies, socioeconomic disadvantage among different migrant groups, and barriers in access to care.(37)

Traumatic events such as torture, sexual violence or kidnapping, may have long-lasting physical and psychological effects on a child. Physical trauma related to the journey and attempts at illegal border crossings may include skin lacerations, tendon lacerations, fractures, and muscle contusions. If left untreated and/or in unhygienic conditions, injuries may become infected, with severe and potentially life-threatening consequences.(42) People arriving by sea are particularly susceptible to injury and illness; a recent survey of rescue ships found that dehydration, and dermatological conditions associated with poor hygiene and crowded conditions were common, as well as new and old traumatic injuries from both violence and accidents.(25) The risk of female genital mutilation is high in girls from certain regions and is a recognised reason for seeking asylum.(10)

Nutritional deficiencies and dental problems are more common in children on the move, with reported prevalence of iron deficiency anaemia ranging from 4-18% among children living in Germany and Greece.(26, 32) Dental problems are perhaps the most prevalent health issue in children on the move, and indeed caries prevalence has been reported as high as 65% among migrant and refugee children in the UK.(50)

While the prevalence of noncommunicable chronic diseases in children on the move in the EU is not thought to differ significantly from host populations, there is little evidence to support this thinking. Further, the barriers in access to care and different health beliefs pose challenges to diagnosing and managing children on the move with chronic diseases (Table 2).

Psychosocial and mental health issues

Children on the move are at high risk for psychosocial and mental health problems, with separated and unaccompanied children at highest risk. Direct and indirect exposure to

traumatic events are associated with post-traumatic stress disorder (PTSD), anxiety, depression, sleep disturbances, and a broad range of internalising and externalising behaviours in refugee children.(44)

The mental health of caregivers, especially mothers, plays an important role in their children's mental and physical health. Maternal PTSD and depression are correlated with increased risk of PTSD, PTS symptoms, behavioural problems and somatic complaints in their children.(49) Conversely, good caregiver mental health is a protective factor for the mental and behavioural health of refugee children.(44)

Transit and host country reception policies also impact the mental health outcomes of children on the move. Numerous studies have documented that post-migration detention increases psychological symptoms and the prevalence of psychiatric illness in children on the move.(44) Detention, multiple relocations, prolonged asylum processes, and lack of child-friendly immigration procedures are associated with poor mental health outcomes in refugee children, and have been described in some studies as having placed the children in greater adverse situations than those which the children endured before migration.(44) A longitudinal study of refugee children from the Middle East living in Denmark found that psychological symptoms improved over time, with risk factors related to war and persecution being important during the early years after arrival in Denmark.(30) In the longer term, social factors in the country of origin were more important predictors of mental health.(30)

Racism and xenophobia play an important role in the psychological health and wellbeing of children on the move. Studies in Sweden and Denmark have found that the experience of discrimination is common among youth on the move and is associated with lower rates of social acceptance, poorer peer relations, and mental health problems.(21, 29) In a national survey of Swedish 9th graders, rates of bullying experienced by children on the move were associated with migrant density in schools, whereby children attending schools with low migrant density reported 3 times the rate of bullying compared with those attending schools with high migrant density.(21)

Unaccompanied minors

The numbers of unaccompanied and separated children seeking asylum in Europe have increased in recent years. During 2015, 95,205, and in 2016, 63,245 UASC applied for asylum in the 28 EU member states, with Germany receiving about a third of these children.(56)

The mental health of unaccompanied refugee adolescents during the first years of exile has been studied in several European epidemiological studies in recent years.(11, 14, 15, 17, 18, 23, 24, 34, 36, 57) In the largest of these studies, a comparison was made between three

groups: (1) newly arrived, unaccompanied children aged 12–18 years in the Netherlands, (2) young refugees of the same age who had arrived with their parents and (3) an age-matched Dutch group.(11) The unaccompanied youths had much higher levels of depressive symptoms than the accompanied refugee children (47 vs 27%), and this was partly explained by a higher burden of traumatic stress. Follow-up interviews 12 months later showed no indication of improvement. The level of externalizing symptoms and behaviour problems were, however, lower among the unaccompanied refugees than in the Dutch comparison population. A similar picture of high levels of traumatic stress and introverted symptoms was noted in a Norwegian study of 414 unaccompanied youth; of note, this study was carried out at an average of 3.5 years after their arrival in the country.(34)

Age assessment

Having an assumed chronological age above or below 18 years determines the support provided for young asylum seekers in most European countries, despite the fact that many lack documents with an exact birth date.(5) This has led to the use of many different methods to assess age in Europe. In the UK, social workers independent of the migration authorities undertake age assessment interviews which consider any documents or evidence indicating likely age, along with an assessment of appearance and demeanour.(58) Many other European countries rely on medical examinations, primarily in the form of radiographs of the hand/wrist (23 countries), collar bone (15 countries) and/or teeth (17 countries).(59) The individual variation in age specific maturity in the later teens with these methods, and the unknown variation between high and low income countries, make them unsuitable for assessing whether a young person is below or above 18 years of age.(39, 41)

The use of these imprecise methods raise serious ethical and human rights concerns and is often experienced as unfair and stressful by the young asylum seekers.(45) The European Academy of Paediatrics and several national medical associations have therefore recommended their members not to participate in age assessment procedures of asylum applicants on behalf of the state.(48)

Health policies and child rights

Identification of the health needs of an individual child on the move, and subsequent timely investigation and management may be suboptimal in the arrival countries for a plethora of reasons associated with legal status, health care system efficiencies, and individual factors. A recent survey identified 12 EU/EEA countries with significant inequities in health care entitlements for children on the move (compared to locally born children) according to their legal status.(7) In a number of countries, undocumented children only have access to emergency health care services.(60) Worryingly, in Sweden, a recent Human Rights Watch report found that children spend months without receiving health screening.(33)

In an analysis of health care policies for children on the move, Hjern et al (22) compared entitlements for asylum seeking and undocumented children in 31 EU member and EES states in 2016 with those of resident children. Only seven countries (*Belgium, France*, *Italy*, *Norway, Portugal, Spain and Sweden)* have met the obligations of non-discrimination in the CRC and entitled both these categories of migrants, irrespective of legal status, to receive equal health care to that of its nationals. Twelve European countries have limited entitlements to health care for asylum seeking children. Germany and Slovakia stand out as the EU countries with the most restrictive health care policies for refugee children.

In all but four countries in the EU/EEA there are systematic health examinations of newly settled migrants of some kind.(60) In most eastern European countries and Germany this health examination is mandatory; while in the rest of western and northern Europe it is voluntary. All countries that have a policy of health examination aim to identify communicable diseases, so as to protect the host population. Almost all countries with a voluntary policy also aim to identify the child's individual health care needs, but this is rarely the case in countries that have a mandatory policy.

Discussion

Our review of the available evidence indicates that children on the move in Europe have particular health risks and needs that differ from both the local population as well as between migrant groups. The body of evidence from Europe remains limited, however, as it is based primarily on observational studies from individual countries, with few multi-country or intervention studies.

A large body of evidence exists on the health needs and risks of children on the move outside of Europe, most notably in North America and Australia.(50, 61-63) The evidence from these areas indicates that the health determinants and patterns of risk are similar across settings; the specific health risks and needs of children are heavily dependent on the conditions before and during travel and after arrival. There are also patterns that are shared across high, middle and low income settings, such as children's risk of exposure to violence, risk of exploitation, and a high risk of mental health problems related to these two factors.(64) The similarities across regions suggest that, although context plays an important role for the individual child, there are certain health risks and needs shared by children on the move across the globe.

In light of these similarities, findings from the literature in other parts of the world may help to fill in some of the existing gaps in the evidence in Europe. For example, there is little good quality evidence from Europe on the risk of injury during the early period after arrival to the country of destination. However, a large Canadian study found that refugee children have an increased risk of injury after resettlement. The study reported a 20% higher rate of unintentional injury in refugee youth compared with non-refugee immigrant youth for most

causes of injury, with notably higher rates of motor vehicle injuries, poisonings, suffocation, and scald burns.(65) However, to our knowledge, there are no studies that provide data on the prevalence of disability or its effect on the health and development of children on the move.

There are important contextual factors that are likely to affect the health of children on the move differently across the world. Basic needs such as clean water, sanitation and food security may more profoundly influence child health and well-being in refugee camps in developing countries as compared with Europe. Other contextual factors may include the nature of rights violations, such as the large scale detention and separation of children on the move from their caregivers in the United States.(66, 67) Studies in Finnish children separated from their parents for a period during World War II found that these children exhibited altered stress physiology, earlier menarche, and lower scores on intelligence testing.(68-70) The interplay between common or widespread health risks, contextual factors, access to care, and health promotion activities is likely to play a major role in the ultimate health outcomes of children on the move in a given geographical area.

Access and quality of care

Newly settled children have greater health needs than the average European child, however access to health care remains a major obstacle for them. Although there have been very few studies assessing access to health care by migrant families, it has been proposed that unfamiliar health care systems, and financial costs of over the counter medications pose specific challenges to the migrant family.(9) In the UK, UASC have their specific health needs identified as part of statutory health assessments, where the state has assumed the role of the corporate parent and undertakes the responsibility for the needs of the child. However, accompanied children (those children who arrive with and remain in the care of their migrant, refugee or asylum-seeking parent/s), depend upon their newly arrived parent(s) to negotiate unfamiliar health care systems.

Other important barriers to care in Europe are similar to those found in other settings, including language barriers, lack of professional medical interpreters, and variable cultural competence of health personnel. Health workers may lack knowledge or experience in caring for children on the move, may be unaware of their health rights, and may lack guidance on the health needs and risks of the newly arrived population. The International Society for Social Pediatrics and Child Health released a position paper characterising these barriers and providing recommendations for health policy, health care, research and advocacy.(5) These recommendations are grounded in child rights, and can serve as a guide for individuals, groups and organisations seeking to improve the health and wellbeing of children on the move.

Mental health –a priority area

The main health risks and the main challenge for health services for children on the move in Europe are in the domain of mental health. This review highlights an important knowledge gap in the evidence for programmes and policies that address early recognition and intervention, access to care, and the development of effective preventive services for mental health. There is an urgent need for research on the effect of interventions and policies intended to promote and protect the health, well-being and positive development of children on the move in Europe

The remarkable resilience observed among displaced children has been a topic of significant discourse and study.(5) Healthy and positive adaptive processes have been associated with social inclusion, supportive family environments, good caregiver mental health, and positive school experiences.(44, 71) Although the evidence base for interventions remains limited, research and experience suggest that the most effective way to protect and promote refugee child mental health is through comprehensive psychosocial interventions that address psychological suffering in the context of the child's family and environment; such interventions necessarily include family, education, and community needs and caregiver mental health.(72)

Conclusion

Asylum seeking, refugee and undocumented children in Europe have significant health risks and needs that differ between groups and from children in the local population. Health policies across EU and EES member states vary widely, and children on the move in Europe face a broad range of barriers in access to care. The Convention on the Rights of the Child provides children with the right to access to health care without discrimination and to the conditions that promote optimal health and wellbeing. With children increasingly on the move, it is imperative that individuals and sectors that meet and work with these children are aware of their health risks and needs and are equipped to respond to them.

Authors' contributions

The authors collectively identified the need for the paper. Ayesha Kadir designed and carried out the database searches. Nick Spencer, Anders Hjern and Ayesha Kadir screened titles and abstracts, and all authors screened full text papers. Ayesha Kadir, Anna Battersby, and Anders Hjern wrote sections of the first draft. Ayesha Kadir led development and compilation of the first draft and carried out subsequent revisions. All authors contributed to critical review of the drafts and to the development of the supporting tables and figures.

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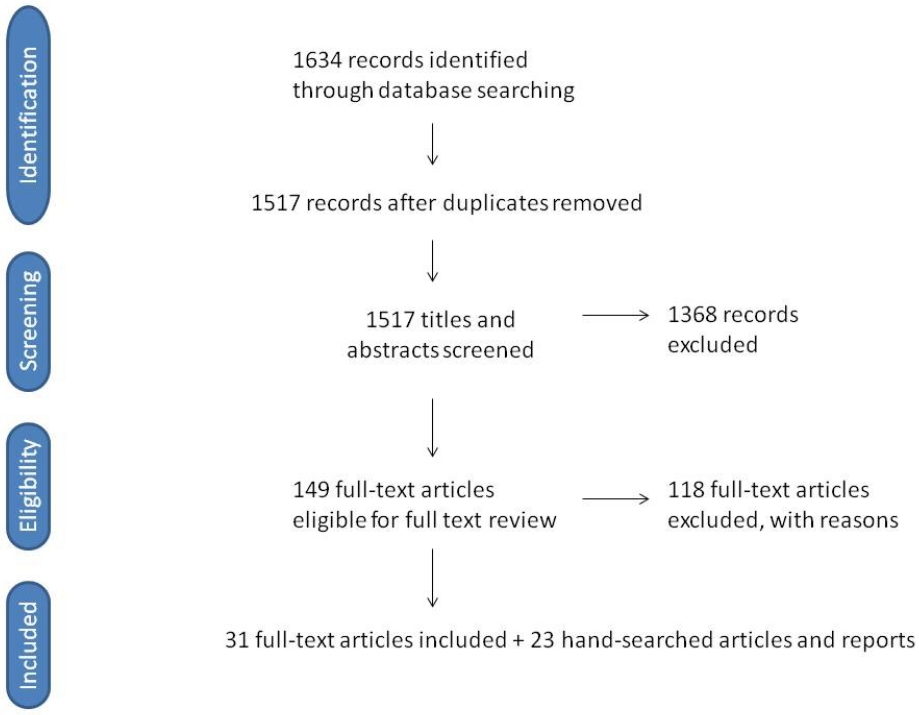

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Children on the move in Europe: A narrative review of the evidence on the health risks, health needs, and health policy for asylum seeking, refugee and undocumented children

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Children on the move in Europe: A narrative review of the evidence on the health risks, health needs, and health policy for asylum seeking, refugee and undocumented children

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Key words: Child health, migration, child rights, social determinants of health, asylum seeker, refugee, unaccompanied child, undocumented child

Abstract

Background: Europe has experienced a marked increase in the number of children on the move. The evidence on the health risks and needs of migrant children is primarily from North America and Australia.

Objective: To summarise the literature and identify the major knowledge gaps on the health risks and needs of asylum seeking, refugee, and undocumented children in Europe in the early period after arrival, and the ways in which European health policies respond to these risks and needs.

Design: Literature searches were undertaken in PubMed and EMBASE for studies on migrant child health in Europe from 1 January 2007 - 8 August 2017. The database searches were complemented by hand searches for peer-reviewed papers and grey literature reports.

Results: The health needs of children on the move in Europe are highly heterogeneous and depend on the conditions before travel, during the journey, and after arrival in the country of destination. Although the bulk of the recent evidence from Europe is on communicable diseases, the major health risks for this group are in the domain of mental health, where evidence regarding effective interventions is scarce. Health policies across EU and EES member states vary widely, and children on the move in Europe continue to face structural, financial, language and cultural barriers in access to care that affect child health care and outcomes.

Conclusions: Asylum seeking, refugee and undocumented children in Europe have significant health risks and needs that differ from children in the local population. Major knowledge gaps were identified regarding interventions and policies to treat and to promote the health and wellbeing of children on the move.

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Introduction

Forced displacement is a major child health issue worldwide. More than 13 million children live as refugees or asylum seekers outside their country of birth.(1) Conservative estimates suggest that nearly 180,000 children on the move are unaccompanied or separated from their caregivers.(1) The majority of these children live in Asia, the Middle East, and Africa.(2)

Europe has experienced a marked increase in the number of irregular migrants since 2011, with a peak in arrivals during 2015.(3) Children have accounted for a large proportion of people making the journey, either with family or on their own, in search of safety, stability and a better future. Between 2015 and 2017, more than 1 million asylum applications were made for children in Europe.(3) The majority of these children originated from Syria, Iraq and Afghanistan.(2) In 2017, 70% of the 210,000 asylum claims made for children in Europe were filed in Germany, France, Greece and Italy.(4)

The phenomenon of migration to Europe has been characterised by continual evolution; with frequent changes in the most common migration routes, modes of travel, and the length of stay in transit countries. Children making these dangerous and often prolonged journeys are exposed to considerable health risks. The health of children on the move is related to their health status before the journey, conditions in transit and after arrival, and is influenced by experience of trauma, the health of their caregivers, and their ability to access health care.(5)

Much of the literature on the health of children on the move comes from North America and Australia. In light of the marked increase in the number of children arriving in Europe and the need for improved understanding of the situation for these children in the European context, this paper reviews the health risks and needs of children on the move in Europe and how European health policies respond to these risks and needs. It is important to note that children may live for months or years in one or several countries before settling, being repatriated, or going underground. In the longer term, factors such as the social determinants of health, ethnicity, and issues relating to legal status and prolonged periods of transit begin to take precedence.

What is known

- Europe has experienced a significant increase in migration of displaced people escaping humanitarian crises
- Displaced children are known to be vulnerable to violence, violation of their rights and discrimination
- The existing literature on the health of children on the move in Europe is largely focused on infectious disorders
- The Convention on the Rights of the Child provides children on the move with the right to the conditions that promote optimal health and wellbeing and with access to health care without discrimination

What this study adds

- Indicates that the main challenges for child health services lie in the domain of mental health and wellbeing
- Indicates that many children on the move in Europe are insufficiently vaccinated
- Identifies significant gaps in knowledge, particularly with regards to policies and interventions to promote child health and wellbeing
- Identifies research priorities to promote effective, ethical care and support health policy

The Convention on the Rights of the Child (CRC) affords all children with the right to health care without discrimination.(6) Articles 2, 9, 20, 22, 30 and 39 devote specific attention to the rights of displaced and unaccompanied children.(6) As such, the CRC provides a useful framework to address the health of children on the move.

Terms such as migrants, refugees and asylum seekers are often used interchangeably and may shift the focus away from people toward political discourse. In this paper, we focus on asylum seeking, refugee and undocumented children (Table 1). Undocumented children are included because they are known to be a mobile and highly marginalised group, with particular barriers in access to services. We use the term “children on the move” for these three groups of children in order to maintain a rights-based focus.

Table 1. Definitions

Child	Person under the age of 18 years.(6)
Asylum seeker	Persons or children of such persons who are in the process of applying for refugee status under the 1951 Geneva Refugee Convention.(7)
Refugee	A person, who "owing to well-founded fear of persecution for reasons of race, religion, nationality, membership of a particular social group or political opinions, is outside the country of his nationality and is unable or, owing to such fear, is unwilling to avail himself of the protection of that country".(8)
Undocumented children	Children who live without a residence permit, have overstayed visas or have refused immigration applications and who have not left the territory of the destination country subsequent to receipt of an expulsion order or children passing through or residing temporarily in a country without seeking asylum.(7)
Unaccompanied minors	Children who have been separated from both parents and other relatives and are not being cared for by any adult.

Methods

The findings presented in this review are based on a comprehensive literature search of studies on the health of children on the move in Europe from 1 January 2007- 8 August 2017. Searches were run in PubMed and EMBASE on 8 August 2017. Search terms included combinations of terms for children such as "child", "youth", and "adolescent" with terms for migrant, such as "migrant", "asylum seeker", "refugee" and "undocumented migrant", and with terms for countries in the European Union as well as five countries that are major origin and transit countries for children travelling to Europe, including Afghanistan, Jordan, Lebanon, Syria, and Turkey. The database searches were limited to papers providing data on children (birth-18 years) in the English language. Papers were included if they addressed physical and mental health of children on the move, health examinations of these children, the effect of caregiver mental health, access to care, or disparities in care between children on the move and the local population. Multi-regional reviews that provided data on children in Europe were also included. Papers on adult populations (defined as a study population ≥18 years) that did not provide disaggregated data on children were excluded. However, papers including UASC with a stated age ≤19 years were included, as well as longitudinal cohort studies that followed migrant children into early adulthood (<24 years old). Additional exclusion criteria included special populations, small single-facility studies, lack of migrant and/or health focus, intervention studies that did not provide data on child health outcomes, and papers from non-European host countries. Commentaries and conference abstracts were excluded. For further information on specific child health and policy topics, hand searches were also undertaken to identify relevant peer-reviewed papers and grey literature reports.

Patient and Public Involvement

No patients were involved in this study.

Results

The searches identified 1634 records. After removing 117 duplicates, 1517 titles were screened. 149 papers were reviewed in full text review, of which 118 papers were excluded. Our final sample included 31 papers. An additional 23 articles and reports were identified by the hand searches (Figure 1: Flow diagram). Tables 2 and 3 provide an overview of the 45 original research studies and review papers that are included in this review.

Figure 1: Flow diagram

Tables 2 and 3. Tables of included studies (does not include grey literature reports unless they provided data from original research)

Table 2. Original research articles

First author and year	Country	Study population	Study design	Sample size (children only)	Summary of findings
Huemer, J(9) (2011)	Austria	African UASC 15-18 years old	Observational cohort	41	56% of African UASC had at least one mental health diagnosis by structured clinical interview. The most common diagnoses were adjustment disorder, PTSD and dysthymia.
Derluyn, I(10) (2007)	Belgium	UASC(a)	Cross-sectional survey	142	Between 37 and 47% of the unaccompanied refugee youths had severe or very severe symptoms of anxiety, depression and post-traumatic stress when screened with the Hopkins Symptoms Checklist 37A. Girls and those having experienced many traumatic events are at even higher risk for the development of these emotional problems.
Derluyn, I(11) (2008)	Belgium	Migrant and native adolescents 10-21 years	Cross-sectional survey	1,249 migrant / 602 native	Migrant adolescents experienced more traumatic events than their Belgian peers and showed higher levels of peer problems and avoidance symptoms. Non-migrant adolescents demonstrated more symptoms of anxiety, externalizing problems and hyperactivity. Factors influencing the prevalence of emotional and behavioural problems were the number of traumatic events experienced, gender and the living situation.
Van Berlaer, G(12) (2016)	Belgium	Asylum seekers	Single facility cross-sectional study	391	Primarily reported outcomes in adults. Nearly half of asylum seekers, & two-thirds of children <5 years suffered from infections. Among children <5 years, 50% had respiratory diseases (n=76), 20% digestive disorders (n=30), 14% skin disorders (n=21) & 7% suffered from injuries (n=10).
Vervliet, M(13) (2014)	Belgium	UASC 14-17 years old	Longitudinal cohort	103	UASC reported an average of 7.5 traumatic experiences at the study start. The mean number of reported daily stressors increased over the study period. Participants had high scores for anxiety, depression and internalizing symptoms. There were no significant differences in mental health scores over time. The number of traumatic experiences and the number of daily stressors were associated with significantly higher symptom levels of depression (daily stressors), anxiety and PTSD (traumatic experiences and daily stressors).
Hatleberg, CI(14) (2014)	Denmark	Children <15 years old in Denmark	Epidemiological surveillance study	323	323 TB cases were reported in children aged <15 years in Denmark between 2000 and 2009. The incidence of childhood TB declined from 4.1 per 100 000 to 1.9 per 100 000 during the study period. Immigrant children comprised 79.6% of all cases. Among Danish children, the majority were <5 years and had a known TB exposure. Pulmonary TB was the most common presentation.
Montgomery, E(15) (2008)	Denmark	Refugees 11-23 years old	Longitudinal cohort	131	Follow up study in refugee children after 9 years. Participants reported a mean of 1.8 experiences of discrimination. An association was found between discrimination, psychological problems and social adaptation. Perceived discrimination predicted internalizing behaviours. Social adaptation was protective, correlating negatively with discrimination as well as externalizing and internalizing behaviours.
Montgomery, E(16) (2010)	Denmark	Refugees 11-23 years old	Longitudinal cohort	131	Same population as Montgomery (2007). Upon arrival, the children experienced high rates of clinically significant psychological problems which reduced markedly at 9 year follow up. Persistent symptoms were associated with higher number of types of stressful events after arrival, suggesting environmental factors play an important role in resilience and recovery from psychological trauma.
Heudorf, U(17) (2016)	Germany	UASC <18 years old	Observational cohort	119	UASC arriving in Frankfurt during October-November 2015 had high levels of drug resistant microbial flora. Enterobacteriaceae with extended spectrum beta-lactamases (ESBL) were detected in 42 of 119 (35%) youth. 9 youth had flora with additional resistance to fluoroquinolones (8% of total screened).
Kulla, M(18) (2016)	Germany	Refugee infants and children(a) rescued at sea	Observational cohort	293	Among the 2656 refugees rescued by a German Naval Force frigate between May – September 2015, 19 (0.7 %) were infants and 274 (10.3 %) were children. 27% of all patients required treatment by a physician due to injury or illness & were defined as "sick". One infant (5.2%) & 38 children (13.9%) were identified as sick. Predominant diagnoses were dermatological diseases, internal diseases and trauma.
Marquardt, L(19) (2016)	Germany	UASC 12-18 years old	Cross-sectional survey	102	Pilot study that employed purpose sampling for a non-representative subset of UASC in Bielefeld, Germany. 59% of the youth had at least one infection, and 20% suffered parasitic infections. 13.7% were diagnosed with mental illness. 17.6% were found to have iron deficiency anaemia. Overall, the youth had a low prevalence of non-communicable diseases (<2.0%).
Michaelis, K(20) (2017)	Germany	Asylum seekers with Hepatitis A	Epidemiological surveillance study	231	Asylum seeking children 5-9 years old accounted for 97 of 278 (35%) reported HAV cases among asylum seekers during September 2015 to March 2016. The predominant subgenotype was IB, a strain previously reported in the Middle East, Turkey, Pakistan and East Africa. There was one case of transmission from an asymptomatic child to a nursery nurse working in a mass accommodation centre.

Mellou, K(21) (2017)	Greece	Refugees, asylum seekers and migrants(b) living in hosting facilities in Greece	Observational study	152	Report on Hepatitis A Virus (HAV) infection among refugees in hosting facilities in Greece April - December 2016. A total of 177 cases were found, of which 152 were in children <15 years old.
Pavlopoulou, ID(22) (2017)	Greece	Migrant and refugee(c) children 1-14 years old	Single facility prospective cross-sectional study	300	Survey of immigrant and refugee children presenting for health examination within 3 months of their arrival, May 2010, and March 2013. The main health problems found included unknown vaccination status (79.3%), elevated blood lead levels (30.6%), dental problems (21.3%), eosinophilia (22.7%), and anaemia (13.7%). 8 children (2.7%) were diagnosed with latent tuberculosis based on Mantoux and chest x-ray, and 2 cases were confirmed with QuantiFERON-TB Gold testing.
Ciervo, A(23) (2016)	Italy	Asylum seeking adolescents <18 years	Case series	3	Description of Louse-borne relapsing fever in three Somali adolescents who were seeking asylum.
Bean, TM(24) (2007)	The Netherlands	UASC <18 years old	Prospective cohort study	582	The self-reported psychological distress of refugee minors was found to be severe (50%) and of a chronic nature (stable for one year) and was confirmed by reports from the guardians (33%) and teachers (36%). The number of self-reported adverse life events was strongly related to the severity of psychological distress.
Seglem, KB(25) (2011)	Norway	UASC	Cross-sectional survey	414	Surveyed of UASC who were granted a residence permit in Norway from 2000 - 2009. The youth ranged from 11 -27 years at the time of the survey. The study found that UASC are a high-risk group for mental health problems also after resettlement in a new country, with high prevalence of depression and PTSD.
Belhassen-Garcia, M(26) (2015)	Spain	Immigrant children and young people(b) <18 years old	Observational cohort	373	Immigrants <18 years of age coming from Sub-Saharan Africa, North Africa and Latin America were prospectively screened between January 2007 and December 2011. Latent tuberculosis was found in 12.7% (36/285), Active TB infection in 1% (3/285), HBV in 4.3% (15/350), and HCV in 2.35% (8/346). None (0/358) were HIV positive.
Bennet, R(27) (2017)	Sweden	UASC <18 years old	Observational cohort	2422	2422 UASC were screened for tuberculosis with a Mantoux tuberculin skin test or a QuantiFERON-TB Gold. 349 had a positive test, of which 16 had TB disease and 278 latent tuberculosis infections (LTBI). Children originating from the horn of Africa had high prevalence of latent TB and TB disease.
Hjern, A(28) (2013)	Sweden	Migrant and native 15 year-olds	Cross-sectional survey	76,229	In a national survey using the KIDSCREEN instrument, the psychological wellbeing in foreign-born children from Africa and Asia was found to be much lower (-0.8 in Z-scores) compared with the majority population if the student body consisted mainly of native students from the majority population. Scores were very similar to the majority population in schools where at least 50% had two foreign-born parents. Bullying explained much of this difference.
Riddel, R(29) (2016)	Sweden	UASC 9-18 years old	Qualitative interviews	53	The youth described experience of extreme violence and exploitation, as well as lack of access to physical and mental health care. They describe lengthy asylum procedures, delays in receiving a guardian, lack of access to interpreters and inexperienced and inadequately trained staff among guardians in the accommodation centres. Girls and younger children reported being housed with older boys and experiencing bullying and harassment in their accommodation facilities.
Alkahtani, S(30) (2014)	England	Refugee children in the East Midlands compared with native controls	Case-control	117 migrant / 99 native	Comparison made between the children of 50 refugee parents (N=117 children) with children of 50 English parents (N=99 children), with median ages 5 and 4 years, respectively. Refugee children were more likely to receive prescribed medicines during the previous month (p=0.008) and 6 months (p<0.001) than English children and were less likely to receive over the counter (OTC) medicines in the past 6 months (p=0.009). The findings suggest financial barrier in access to medication.
Bronstein, I(31) (2012)	United Kingdom	Afghan UASC 13-18 years	Cross-sectional survey	222	One third of youth were found to score above the cut-off on a validated PTSD-screening instrument.
Bronstein, I(32) (2013)	United Kingdom	Afghan UASC 13-18 years	Cross-sectional survey	222	In a survey using the Hopkins Symptoms Checklist 37A, 31.4% scored above cut-offs for emotional and behavioural problems, 34.6% for anxiety and 23.4% for depression. Scores increased with time after arrival in the UK and load of premigration traumatic events.
Hodes, M(33) (2008)	United Kingdom	UASC (13-18 years old) and accompanied refugee children (13-19 years old)	Cross-sectional survey	78 UASC and 35 accompanied	UASC had experienced high levels of traumatic events (mean of 6.8 events, range 0-16), and reported high levels of posttraumatic stress symptoms compared with accompanied children. Predictors of high posttraumatic symptoms included low-support living arrangements, female gender, and experience of trauma. Among UASC, posttraumatic symptoms increased with age. High depressive scores were associated with female gender, and region of origin in UASC.
Baillot, H(34) (2018)	Multiple	Asylum seekers	Literature review, in-depth interviews with experts in EU-based FGM interventions	N/A	FGM is an important basis for asylum claims girls and women in Europe. Monitoring and interventions vary between countries. There are no pooled data, however, as variations in reporting practices between countries preclude the evaluation or monitoring of FGM-based asylum claims in the EU.

Odone, A(35) (2015)	Multiple	Migrants to the EU(b)	Literature review, analysis of European Surveillance System data, and information from experts	N/A	Primarily reported outcomes in adults. From 2000 - 2009, 15.3% of reported paediatric TB cases in the EU/EEA were of foreign origin. This figure is lower than the proportion of foreign-born reported TB cases in the overall population (26%). Norway, Sweden and Austria reported a higher number of foreign-origin TB cases than native-origin TB cases among children <15 years. Risk-based analysis is limited because surveillance data in most EU/EEA countries do not distinguish between children born in the host country to foreign-born parents from those born to native parents.
Stubbe Østergaard, L(7) (2017)	Multiple	Asylum seekers and undocumented migrant children <18 years	Survey and desk review	N/A	Surveyed child health professionals, NGOs and European Ombudspersons for Children in 30 EU/EEA countries and Australia and reviewed official documents. Entitlements for asylum seeking, refugee and irregular migrants in the EU are variable, however only five countries (France, Italy, Norway, Portugal and Spain) explicitly entitle all migrant children, irrespective of legal status, to receive equal health care to that of its nationals. The needs of irregular migrants from other EU countries are often overlooked in European health care policy.
Villadsen, SF(36) (2010)	Multiple	Stillbirths and neonatal deaths of infants born to mothers of Turkish origin	Retrospective prevalence study	239,387	Includes data from 9 EU countries. The stillbirth rates were higher in infants born to Turkish mothers than in the native population in all countries. The neonatal mortality was variable, with elevated risks for infants of Turkish mothers in Denmark, Switzerland, Austria and Germany, and lower rates in Netherlands, the United Kingdom and Norway when compared to the native populations.
Williams, GA(37) (2016)	Multiple	Migrants(d)	Literature review, survey of 30 countries, and information from experts	N/A	National surveillance systems do not systematically record migration-specific information. Experts attributed measles outbreaks to low vaccination coverage or particular health or religious beliefs, and considered outbreaks related to migration to be infrequent. The literature review and country survey suggested that some measles outbreaks in the EU/EEA were due to sub-optimal vaccination coverage in migrant populations.
Hjern, A(38) (2017)	EU27	Migrant children <18 years	Cross-sectional survey to clinicians, national child ombudsmen and NGOs	N/A	Seven EU countries (Belgium, France, Italy, Norway, Portugal and Spain and Sweden) explicitly entitle all non-EU migrant children, irrespective of legal status, to receive equal health care to that of its nationals. Twelve European countries have limited entitlements to health care for asylum seeking children, including Germany that stands out as the country with the most restrictive health care policy for migrant children. The needs of irregular migrants from other EU countries are often overlooked in European health care policy.

a Age groups not clearly defined
b Migrant status not clearly defined
c Immigrants were defined as the children of parents with long- term residence permit who entered Greece for family reunification. The remaining children, including refugees, asylum seekers or irregular migrants were defined as “refugees”.
d Variable definitions of migrants between countries and between studies

Table 3. Review articles

First author and year	Study population	Study design	Sample size (children only)	Summary of findings
Aynsley-Green, A(39) (2012)	Refugee & asylum-seeking children and young people	Review without information on search strategy or inclusion criteria	N/A	Evidence that X-ray examination of bones & teeth is imprecise and unethical and should not be used. Further research needed on a holistic multi-disciplinary approach to age assessment.
Bollini, P(40) (2009)	Immigrant women(a) who delivered an infant Europe	Systematic review and meta-analysis	18,322,978 pregnancies in 65 studies	61 studies were cross-sectional design and 27 were from single facilities. Compared data on 1.6 million in immigrant women with 16.7 million native women. Immigrant women had 43% higher risk of low birth weight, 24% of pre-term delivery, 50% of perinatal mortality, and 61% of congenital malformations compared with native European women.
Cole, TJ(41) (2015)	UASC	Review article of methods for age assessment	N/A	Most individuals are mature before age 18 in hand-wrist X-rays. On MRI of the wrist and orthopantomogram of the third molar, the mean age of attainment is over 19 years, however if there is immature appearance, these methods are uninformative about likely age; as such, the MRI and third molars have high specificity but low sensitivity.
Derluyn, I(11) (2008)	UASC	Review without information on search strategy or inclusion criteria	N/A	UASC are a vulnerable population with considerable need for psychological support and therefore need a strong and stable reception system. The creation of such a system would be greatly facilitated if the legal system considered them children first and refugees/migrants second.
Devi, S(42) (2016)	UASC	Opinion piece	N/A	Summarises findings on infectious diseases affecting unaccompanied minors based on two UNICEF and one Human Rights Watch reports.

Eiset AH(43) (2017)	Refugees and asylum seekers - all ages	Narrative review	Not specified	51 studies of infectious conditions in refugees and asylum seekers including children and adults. Findings related to children: limited evidence on infectious diseases among refugee and asylum-seeking children; relatively low vaccination rates with one study showing 52.5% of migrant children needing triple vaccine and 13.2% needing MMR and a further study showing low levels of rubella immunity among refugee children. The review reports on rates of TB, HIV, hepatitis B and C, malaria and less common infections; however, rates are not reported by age group.
Fazel, M(44) (2012)	Refugee children and young people	Systematic review	5776 children and youth in 44 studies	Exposure to violence, both direct and indirect (through parents), are important risk factors for adverse mental health outcomes in refugee children and adolescents. Protective factors include being accompanied by an adult caregiver, experiencing stable settlement, and social support in the host country.
Hjern, A(45) (In Press)	UASC	Narrative review	N/A	Many UASC come from 'failed states' like Somalia and Afghanistan where official documents with exact birth dates are rarely issued. No currently available medical method has the accuracy needed to replace such documents. Unclear guidelines and arbitrary practices may lead to alarming shortcomings in the protection of this high-risk group of children and adolescents in Europe. Medical participation, as well as non-participation, in these dubious decisions raises a number of ethical questions.
ISSOP Migration Working Group(5) (2017)	Migrant children in Europe	Narrative review and position statement	N/A	Based on a comprehensive literature search and a rights-based approach, policy statement identifies magnitude of specific health and social problems affecting migrant children in Europe and recommends action by government and professionals to help every migrant child to achieve their potential to live a happy and healthy life, by preventing disease, providing appropriate medical treatment and supporting social rehabilitation.
Markkula, N(46) (2018)	First and second generation migrant children compared with non-migrant children	Systematic review	10,030,311 children in 93 studies	57% of included studies were from Europe and 36% from North America. Use of non-emergency healthcare services was less common among migrant compared with non-migrant children: in 19/27 studies reporting on general access to care, 9/19 reporting on vaccine uptake, 9/16 reporting on mental health service use, 9/14 reporting on oral health service use, 10/14 reporting on primary care and other service use. Migrant children were reported to be more likely to use Emergency and Hospital services in 9/15 studies.
Mipatrini D(47) (2017)	Migrants and refugees	Systematic review	N/A	The study reports primarily on data in adults or where age classification is not specified. Overall, migrants and refugees were found to have lower immunization rates compared with European-born individuals. Studies in migrant children found lower rates of MMR, Polio and tetanus vaccination. Reasons cited include low vaccination coverage in the country of origin and barriers in access to care in Europe.
Sauer, PJ(48) (2016)	UASC	Editorial/Position statement	N/A	Position statement by the European Academy of Paediatrics outlining medical, ethical and legal reasons for recommending that physicians should not participate in age determination of unaccompanied and separated children seeking asylum.
Slone, M(49) (2016)	Children aged 0-6 years exposed to war, terrorism or armed conflict	Systematic review	4365 children in 35 studies	Young children suffer from substantial distress including elevated Risk for PTSD or PTS symptoms, non-specific behavioural and emotional reactions and disturbance of sleep and play rituals. Parental and children's psychopathology correlated and family environment and parental functioning moderates exposure–outcome association for children. The authors conclude that longitudinal studies are needed to describe the developmental trajectories of exposed children.
Williams, B(50) (2016)	Refugee children in Europe	Review without information on search strategy or inclusion criteria	N/A	Increased rates of depression, anxiety disorders and PTSD among refugee children, as well as high levels of dental decay and low immunisation coverage.

Overall, the papers indicate that the health needs of children on the move are highly heterogeneous, depending on the conditions in the country of origin, during the journey, and after arrival in the countries of destination. Children separated or travelling unaccompanied (UASC) are particularly vulnerable to various forms of exploitation at all phases of their journey and after arrival. Structural, financial, language and cultural barriers in access to health care affect care-seeking behaviours as well as diagnostic evaluation, treatment, and health outcomes (Table 4).(5, 30, 46)

Table 4. Barriers in access to care for children on the move

Information	Patients and families	Unfamiliar health system, lack of knowledge about where and how to seek care
		Variable education and literacy, with variable knowledge about health
		Lack of awareness about health rights
	Health professionals	Variable understanding of and experience with treating children on the move
		Limited epidemiological data on the health status and context-specific risks of children on the move
		Lack of clear and readily available national guidance on the legal and practical aspects of health care for migrants
Culture and language differences		Language barriers, with limited or lack of access to medical interpreters
		Differing cultural and health beliefs
		Expectations for health care encounter may differ between the health professional and patient/family
Financial		Costs associated with care may include transport to health facility, treatment, medications and medical supplies
Other barriers		Distance to health facility, transportation needed to access care
		Multiple housing relocations
		Insufficient time allotted to appointments
		Fear, including the fear that accessing care may affect asylum decision
		Breakdown in trust between patients and health workers

Communicable diseases

During travel and after arrival in Europe, children may be housed in overcrowded facilities with inadequate hygiene and sanitation conditions that place them at risk of communicable diseases. The most common infection sites include the respiratory tract, gastrointestinal tract and skin, with a concerning prevalence of parasitic and wound infections.(12, 19, 42, 51)

Children originating from low and middle income countries may have been exposed to infectious agents that are rare in high income countries in Europe.(14, 26, 27) Furthermore, exposure to armed conflict may increase their risk of exposure to infections.(43) Notable infections among populations on the move include latent or active tuberculosis (TB),(26, 35) malaria,(43) Hepatitis B and C,(26, 43), Syphilis(26), Human T-lymphotropic virus type 1 or 2,(26) louse-born relapsing fever,(23, 43) shigella,(43) and leishmaniasis(43). There is a notable lack of studies with age-disaggregated data on HIV prevalence among migrant children in Europe. A Spanish study which screened 358 children did not find any cases.(26) While children on the move are at risk for a number of different infections, the prevalence of communicable diseases varies markedly between groups and is thought to be heavily related to the conditions during travel and after migration.(43)

The treatment of children on the move with infectious diseases may require different regimens than those recommended by national protocols, as these children may be at higher risk of colonisation and infection with drug-resistant organisms. In Germany, routine screening practices at hospital admission have found that children on the move have higher rates of Multiple Drug Resistant (MDR) bacterial strains than the local population.(17) MDR Infections may be more difficult to treat, and carry higher morbidity and mortality risks.

Children on the move may need catch-up immunisations to match the vaccination schedule of the country of destination.(43) Several studies of children on the move in Europe have identified low vaccination coverage against hepatitis B, measles, mumps, rubella and varicella and low immunity to vaccine preventable diseases including tetanus and diphtheria: this is coupled with a higher prevalence of previous exposure to vaccine-preventable diseases.(47) Since 2015, cases of cutaneous diphtheria(43) and outbreaks of measles in the EU(37) have been attributed to insufficient vaccination coverage in migrant populations. Further, Hepatitis A cases have been reported in children living in camps and centres in Greece and Germany, with particularly high rates among children under 15 years.(20, 21) There is no evidence of increased transmission of communicable diseases from migrants to host populations.(52)

Noncommunicable diseases and injuries

Displacement places children at risk for a broad variety of noncommunicable diseases and injuries that may be exacerbated by limited and irregular access to paediatric and neonatal health care. Paediatric groups that are particularly vulnerable include unaccompanied minors, pregnant adolescents, and infants.

In 2017, more than half of the children arriving in Europe were registered in Greece, and the largest age group were infants and small children (0-4years old).(53) Infants born during the

journey may be born without adequate access to prenatal, intra-partum, or postnatal care, resulting in increased birth complications, stillbirth, and infant mortality.(54) Further, these newborns may have lacked access to screening for congenital disorders that is routinely offered in European countries. Infant nutrition may suffer, particularly as breastfeeding is a challenge for mothers during their journey.(55) The evidence regarding the risk of birth complications in children born to mothers after arrival in the destination country is mixed. Some studies in Europe have shown that these infants have higher rates of birth complications, including hypothermia, infections, low birth weight, pre-term birth, and perinatal mortality when compared with the native population,(40, 51) while other studies have found that outcomes in certain countries are similar to the national populations.(36) These patterns suggest that the cause of altered risks may be related to society-specific factors such as integration policies, socioeconomic disadvantage among different migrant groups, and barriers in access to care.(36)

Traumatic events such as torture, sexual violence or kidnapping, may have long-lasting physical and psychological effects on a child. Physical trauma related to the journey and attempts at illegal border crossings may include skin lacerations, tendon lacerations, fractures, and muscle contusions. If left untreated and/or in unhygienic conditions, injuries may become infected, with severe and potentially life-threatening consequences.(42) People arriving by sea are particularly susceptible to injury and illness; a recent survey of rescue ships found that dehydration, and dermatological conditions associated with poor hygiene and crowded conditions were common, as well as new and old traumatic injuries from both violence and accidents.(18) The risk of female genital mutilation is high in girls from certain regions and is a recognised reason for seeking asylum.(34)

Nutritional deficiencies and dental problems are more common in children on the move, with reported prevalence of iron deficiency anaemia ranging from 4-18% among children living in Germany and Greece.(19, 22) Dental problems are perhaps the most prevalent health issue in children on the move, and indeed caries prevalence has been reported as high as 65% among migrant and refugee children in the UK.(50)

While the prevalence of noncommunicable chronic diseases in children on the move in the EU is not thought to differ significantly from host populations, there is little evidence to support this thinking. Further, the barriers in access to care and different health beliefs pose challenges to diagnosing and managing children on the move with chronic diseases (Tables 2 and 3).

Psychosocial and mental health issues

Children on the move are at high risk for psychosocial and mental health problems, with separated and unaccompanied children at highest risk. Direct and indirect exposure to

traumatic events are associated with post-traumatic stress disorder (PTSD), anxiety, depression, sleep disturbances, and a broad range of internalising and externalising behaviours in refugee children.(44)

The mental health of caregivers, especially mothers, plays an important role in their children's mental and physical health. Maternal PTSD and depression are correlated with increased risk of PTSD, PTS symptoms, behavioural problems and somatic complaints in their children.(49) Conversely, good caregiver mental health is a protective factor for the mental and behavioural health of refugee children.(44)

Transit and host country reception policies also impact the mental health outcomes of children on the move. Numerous studies have documented that post-migration detention increases psychological symptoms and the prevalence of psychiatric illness in children on the move.(44) Detention, multiple relocations, prolonged asylum processes, and lack of child-friendly immigration procedures are associated with poor mental health outcomes in refugee children, and have been described in some studies as having placed the children in greater adverse situations than those which the children endured before migration.(44) A longitudinal study of refugee children from the Middle East living in Denmark found that psychological symptoms improved over time, with risk factors related to war and persecution being important during the early years after arrival in Denmark.(16) In the longer term, social factors in the country of origin were more important predictors of mental health.(16)

Racism and xenophobia play an important role in the psychological health and wellbeing of children on the move. Studies in Sweden and Denmark have found that the experience of discrimination is common among youth on the move and is associated with lower rates of social acceptance, poorer peer relations, and mental health problems.(15, 28) In a national survey of Swedish 9th graders, rates of bullying experienced by children on the move were associated with migrant density in schools, whereby children attending schools with low migrant density reported 3 times the rate of bullying compared with those attending schools with high migrant density.(28)

Unaccompanied minors

The numbers of unaccompanied and separated children seeking asylum in Europe have increased in recent years. During 2015, 95,205, and in 2016, 63,245 UASC applied for asylum in the 28 EU member states, with Germany receiving about a third of these children.(56)

The mental health of unaccompanied refugee adolescents during the first years of exile has been studied in several European epidemiological studies in recent years.(9-11, 13, 24, 25, 31-33, 57) In the largest of these studies, a comparison was made between three groups:

(1) newly arrived, unaccompanied children aged 12–18 years in the Netherlands, (2) young refugees of the same age who had arrived with their parents and (3) an age-matched Dutch group.(24) The unaccompanied youths had much higher levels of depressive symptoms than the accompanied refugee children (47 vs 27%), and this was partly explained by a higher burden of traumatic stress. Follow-up interviews 12 months later showed no indication of improvement. The level of externalizing symptoms and behaviour problems were, however, lower among the unaccompanied refugees than in the Dutch comparison population. A similar picture of high levels of traumatic stress and introverted symptoms was noted in a Norwegian study of 414 unaccompanied youth; of note, this study was carried out at an average of 3.5 years after their arrival in the country.(25)

Age assessment

Having an assumed chronological age above or below 18 years determines the support provided for young asylum seekers in most European countries, despite the fact that many lack documents with an exact birth date.(5) This has led to the use of many different methods to assess age in Europe. In the UK, social workers independent of the migration authorities undertake age assessment interviews which consider any documents or evidence indicating likely age, along with an assessment of appearance and demeanour.(58) Many other European countries rely on medical examinations, primarily in the form of radiographs of the hand/wrist (23 countries), collar bone (15 countries) and/or teeth (17 countries).(59) The individual variation in age specific maturity in the later teens with these methods, and the unknown variation between high and low income countries, make them unsuitable for assessing whether a young person is below or above 18 years of age.(39, 41)

The use of these imprecise methods raise serious ethical and human rights concerns and is often experienced as unfair and stressful by the young asylum seekers.(45) The European Academy of Paediatrics and several national medical associations have therefore recommended their members not to participate in age assessment procedures of asylum applicants on behalf of the state.(48)

Health policies and child rights

Identification of the health needs of an individual child on the move, and subsequent timely investigation and management may be suboptimal in the arrival countries for a plethora of reasons associated with legal status, health care system efficiencies, and individual factors. A recent survey identified 12 EU/EEA countries with significant inequities in health care entitlements for children on the move (compared to locally born children) according to their legal status.(7) In a number of countries, undocumented children only have access to emergency health care services.(60) Worryingly, in Sweden, a recent Human Rights Watch report found that children spend months without receiving health screening.(29)

In an analysis of health care policies for children on the move, Hjern et al (38) compared entitlements for asylum seeking and undocumented children in 31 EU member and EES states in 2016 with those of resident children. Only seven countries (*Belgium, France*, *Italy*, *Norway, Portugal, Spain and Sweden)* have met the obligations of non-discrimination in the CRC and entitled both these categories of migrants, irrespective of legal status, to receive equal health care to that of its nationals. Twelve European countries have limited entitlements to health care for asylum seeking children. Germany and Slovakia stand out as the EU countries with the most restrictive health care policies for refugee children.

In all but four countries in the EU/EEA there are systematic health examinations of newly settled migrants of some kind.(60) In most eastern European countries and Germany this health examination is mandatory; while in the rest of western and northern Europe it is voluntary. All countries that have a policy of health examination aim to identify communicable diseases, so as to protect the host population. Almost all countries with a voluntary policy also aim to identify the child's individual health care needs, but this is rarely the case in countries that have a mandatory policy.

Discussion

Our review of the available evidence indicates that children on the move in Europe have particular health risks and needs that differ from both the local population as well as between migrant groups. The body of evidence from Europe remains limited, however, as it is based primarily on observational studies from individual countries, with few multi-country or intervention studies. It is important to note that our searches were limited to studies published in English and listed in the PubMed and EMBASE databases. As such, our searches may have missed relevant studies published in other languages, in the grey literature, and studies listed in other databases.

A large body of evidence exists on the health needs and risks of children on the move outside of Europe, most notably in North America and Australia.(50, 61-64) The evidence from these areas indicates that the health determinants and patterns of risk are similar across settings; the specific health risks and needs of children are heavily dependent on the conditions before and during travel and after arrival. There are also patterns that are shared across high, middle and low income settings, such as children's risk of exposure to violence, risk of exploitation, and a high risk of mental health problems related to these two factors.(65) The similarities across regions suggest that, although context plays an important role for the individual child, there are certain health risks and needs shared by children on the move across the globe.

In light of these similarities, findings from the literature in other parts of the world may help to fill in some of the existing gaps in the evidence in Europe. For example, there is little good quality evidence from Europe on the risk of injury during the early period after arrival to the

country of destination. However, a large Canadian study found that refugee children have an increased risk of injury after resettlement. The study reported a 20% higher rate of unintentional injury in refugee youth compared with non-refugee immigrant youth for most causes of injury, with notably higher rates of motor vehicle injuries, poisonings, suffocation, and scald burns.(66) However, to our knowledge, there are no studies that provide data on the prevalence of disability or its effect on the health and development of children on the move.

There are important contextual factors that are likely to affect the health of children on the move differently across the world. Basic needs such as clean water, sanitation and food security may more profoundly influence child health and wellbeing in refugee camps in developing countries as compared with Europe. Other contextual factors may include the nature of rights violations, such as the large scale detention and separation of children on the move from their caregivers in the United States.(67, 68) Studies in Finnish children separated from their parents for a period during World War II found that these children exhibited altered stress physiology, earlier menarche, and lower scores on intelligence testing.(69-71) The detention of children together with their families was demonstrated to cause significant, quantifiable harm to children in a comparison study from Australia.(72) The interplay between common or widespread health risks, contextual factors, access to care, and health promotion activities is likely to play a major role in the ultimate health outcomes of children on the move in a given geographical area.

Newly settled children have greater health needs than the average European child, however access to health care remains a major obstacle for them. Although there have been very few studies assessing access to health care by migrant families, it has been proposed that unfamiliar health care systems, and financial costs of over the counter medications pose specific challenges to the migrant family.(30) In the UK, UASC have their specific health needs identified as part of statutory health assessments, where the state has assumed the role of the corporate parent and undertakes the responsibility for the needs of the child. However, accompanied children (those children who arrive with and remain in the care of their migrant, refugee or asylum-seeking parent/s), depend upon their newly arrived parent(s) to negotiate unfamiliar health care systems.

Other important barriers to care in Europe are similar to those found in other settings, including language barriers, lack of professional medical interpreters, and variable cultural competence of health personnel. Health workers may lack knowledge or experience in caring for children on the move, may be unaware of their health rights, and may lack guidance on the health needs and risks of the newly arrived population. The International Society for Social Pediatrics and Child Health released a position paper characterising these barriers and providing recommendations for health policy, health care, research and

advocacy.(5) These recommendations are grounded in child rights, and can serve as a guide for individuals, groups and organisations seeking to improve the health and wellbeing of children on the move.

The main health risks and the main challenge for health services for children on the move in Europe are in the domain of mental health. A small prospective longitudinal study from Australia identified modifiable protective factors for refugee children's social and emotional wellbeing that related to resettlement practices, family factors, and community support.(73) This review highlights an important knowledge gap in the evidence in Europe for programmes and policies that address early recognition and intervention, access to care, and the development of effective preventive services for mental health. There is an urgent need for research on the effect of interventions and policies intended to promote and protect the health, wellbeing and positive development of children on the move in Europe

The remarkable resilience observed among displaced children has been a topic of significant discourse and study.(5) Healthy and positive adaptive processes have been associated with social inclusion, supportive family environments, good caregiver mental health, and positive school experiences.(44, 74) Although the evidence base for interventions remains limited, research and experience suggest that the most effective way to protect and promote refugee child mental health is through comprehensive psychosocial interventions that address psychological suffering in the context of the child's family and environment; such interventions necessarily include family, education, and community needs and caregiver mental health.(75)

Conclusion

Asylum seeking, refugee and undocumented children in Europe have significant health risks and needs that differ between groups and from children in the local population. Health policies across EU and EES member states vary widely, and children on the move in Europe face a broad range of barriers in access to care. The Convention on the Rights of the Child provides children with the right to access to health care without discrimination and to the conditions that promote optimal health and wellbeing. With children increasingly on the move, it is imperative that individuals and sectors that meet and work with these children are aware of their health risks and needs and are equipped to respond to them.

Authors' contributions

The authors collectively identified the need for the paper. Ayesha Kadir designed and carried out the database searches. Nick Spencer, Anders Hjern and Ayesha Kadir screened titles and abstracts, and all authors screened full text papers. Ayesha Kadir, Anna Battersby, and Anders Hjern wrote sections of the first draft. Ayesha Kadir led development and

compilation of the first draft and carried out subsequent revisions. All authors contributed to critical review of the drafts and to the development of the supporting tables and figures.

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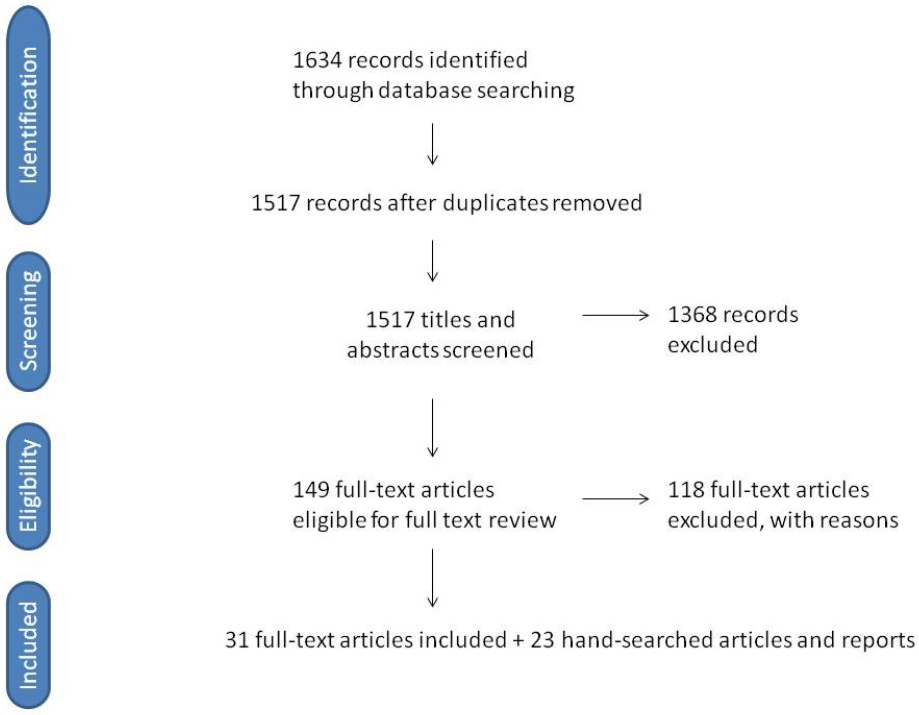

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