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Evaluating paediatric emergency care for refugee children in Europe

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Preamble

Days after this thesis was finished Russia attacked the Ukraine. Within no time the worst scenario with all its brutality became reality.

When I started this thesis, I was rather looking for a more laboratory-based topic as I had done before and was sceptical whether this thesis could be too political.

Looking back, I am now incredibly thankful to be part of a project revolving around a sweet spot of our current medical day to day business.

Through this thesis I learned to combine my clinical passion for emergency medicine with scientific realities.

Since this thesis was based on the extensive collaboration of colleagues from all over Europe, I am incredibly grateful for their time and all the shared insights and knowledge. This generous and positive atmosphere among our paediatric colleagues may be a ray of hope in this time.

Abbreviations

BCG...	Bacillus Calmette-Guérin
CDC...	Center for Disease Control (USA)
CRIES...	Child Revised Impact of Events Scale
DGPI...	Deutsche Gesellschaft für Pädiatrische Infektiologie
e.g....	example given
EAP...	European Academy of Paediatrics
EUPHA...	European Public Health Association
ESPID...	European Society for Paediatric Infectious Diseases
EU...	European Union
Eurostat...	European Statistical Office
EUSEM...	European Society for Emergency Medicine
ED	Emergency department
ER...	Emergency room
GP...	General practitioner
HSCL...	Hopkins Symptom Checklist
HTQ...	Harvard Trauma Questionnaire
HIV...	Human immunodeficiency virus
ID	Infectious diseases
IGRA...	Interferon-Gamma-Release Assay
LMU...	Ludwig-Maximilians-Universität
MEDLINE...	Medical Literature Analysis and Retrieval System Online
MRSA...	Methicillin-resistant <i>Staphylococcus aureus</i>
NSAR...	Non-steroidal anti-inflammatory drug
PERUKI...	Paediatric Emergency Research in the United Kingdom and Ireland
PORTA...	Providing Online Ressource and Trauma Assessment for Refugees
PTSD...	Post-traumatic stress disorder

PubMed...	Public Medicine (data basis)
PVL...	Panton-Valentine leukocidin
RCPCH...	Royal College of Paediatrics and Child Health
REDCap®	Research Electronic Data Capture
REPEM...	Research in European Pediatric Emergency Medicine
RATS...	Reactions of Adolescents to Traumatic Stress
RKI...	Robert Koch-Institut
SHO	Senior House Officer
SpR	Specialist registrar
SLE...	Stressful Life Events
SPSS®...	Statistical Package for the Social Science
STIKO...	Standing Committee on Vaccination
TST...	Tuberculin skin test
UNHCR...	United Nations High Commissioner for Refugees
UNICEF...	United Nations International Children's Emergency Fund
UK...	United Kingdom
USA...	United States of America
U.S...	United States
WHO...	World Health Organization

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1 Introduction

1.1 Streams of flight. A global, European and local challenge

At this present moment millions of people all over the world are on the move (165). Population movements and flight change our world as we know it. Finding a way to cope with these problems under consideration of human rights will be one of the greatest challenges of our time (53) (186).

Currently most refugees persevere in developing countries due to geographical proximity of major crisis hotspots (165). Europe's prosperity, wealth and security are strongly attracting refugees seeking a safer and a better life (48). Overall immigration to Europe from non-European Union states was around 2.4 million in 2017 (48) and 2.7 million in 2019 (49). In addition, more than half of all displaced people are children (186) (165). This leads to new challenges when it comes to Europe's public and social life. A major obstacle is and will be proper medical provision for refugee children, especially in emergency bound care, which is often a first contact for those arriving in a new world.

This thesis will give in-depth insights into the latest refugee crisis: Its impact and challenges are particularly affecting hospital bound paediatric emergency care and the need for improvement.

1.2 Current movements and streams of flight. Causes, routes and countries of origin

According to the latest annual United Nations High Commissioner for Refugees (UNHCR) reports, the number of individuals forcibly displaced increases constantly (170). The Report of mid 2018 speaks of three major crisis areas from which more than half of the worldwide approximately 25 million refugees and 40 million internally displaced people originate (165) (166). According to the United Nations in 2017, these regions were Syria, Afghanistan and South Sudan (165). In 2020, the regions of concern were amended by Venezuela and Myanmar (170). Although COVID-19 pandemic related lockdowns led to a reduction of national and international mobility and migrant flows declined, the number of displaced people was higher than ever (170). Initially, most refugees strand in

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neighbouring countries (162) (170). Turkey, Uganda, Pakistan, Lebanon and Iran are taking the lead in hosting refugees as neighbouring countries (165). From there many try to find a gate to the European Union (EU) with its promise of freedom and security (188). Europe exerts a powerful attraction. Germany is currently hosting the highest number of refugees (approximately 900.000) (48) in the EU and of all host countries worldwide at the end of 2020 (171).

Europe has seen many waves of migration before. However, in 2015 it was the first major one it had to face as a Union (70). The heterogeneity of refugees, originating from Africa, the Middle East, Asia and parts of Europe is challenging in many aspects (70). In order to provide sufficient health care to refugee children, two key factors have to be considered: the country of origin and reasons for departure.

Providing sufficient health care to refugee children from different provenances with various reasons for departure is one of the major challenges.

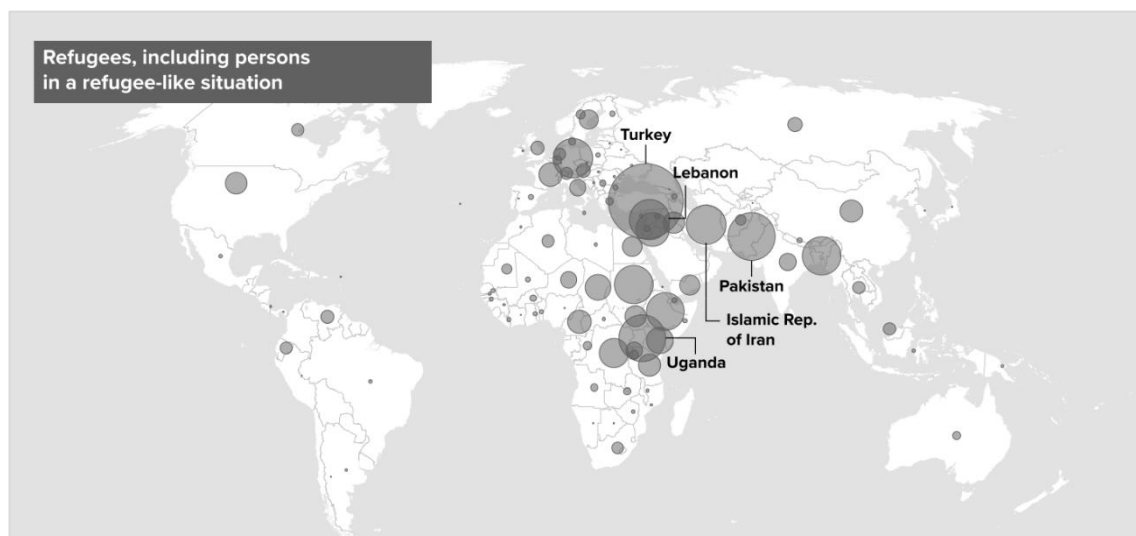


Figure 1 shows the political world map. The size of the circles illustrates the number of refugees in areas with circles at the end of 2017. The map and numbers are published by the UNHCR (166).

Half of the global number of refugees comes from the areas listed above. The number of regions of conflict and crisis fills pages of UNHCR reports and is constantly changing (196) (162).

Major causes of flight are ongoing terror and violent struggles (197), exploitation and persecution (173). Recently, due to climate change, many developing

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countries were struck hard by natural disasters, causing more refugees as well as internally displaced people (169).

For those fleeing from brutal conflicts and poverty the promise of a better and safer life in Europe often is enough to even risk their lives (53). Access to education and respect for human rights are the major pull factors for unaccompanied young refugees to choose Europe as their destination (160) (173). The major routes to Europe, however, are rapidly changing, due to the latest political measures attempting to condemn refugee influx into Europe. Especially the rise of populism triggered by the European refugee crisis of 2015 shows its impact on refugees' options on how to enter Europe (70) (167). Nonetheless, there are three major routes for refugees attempting to seek asylum in Europe: The Balkan Route over the Eastern Mediterranean Route (93), the Central Mediterranean Route and the Western Mediterranean Route (167). Over one million refugees entered Europe via the Balkan Route in just 18 months between 2014 and 2015 (93).

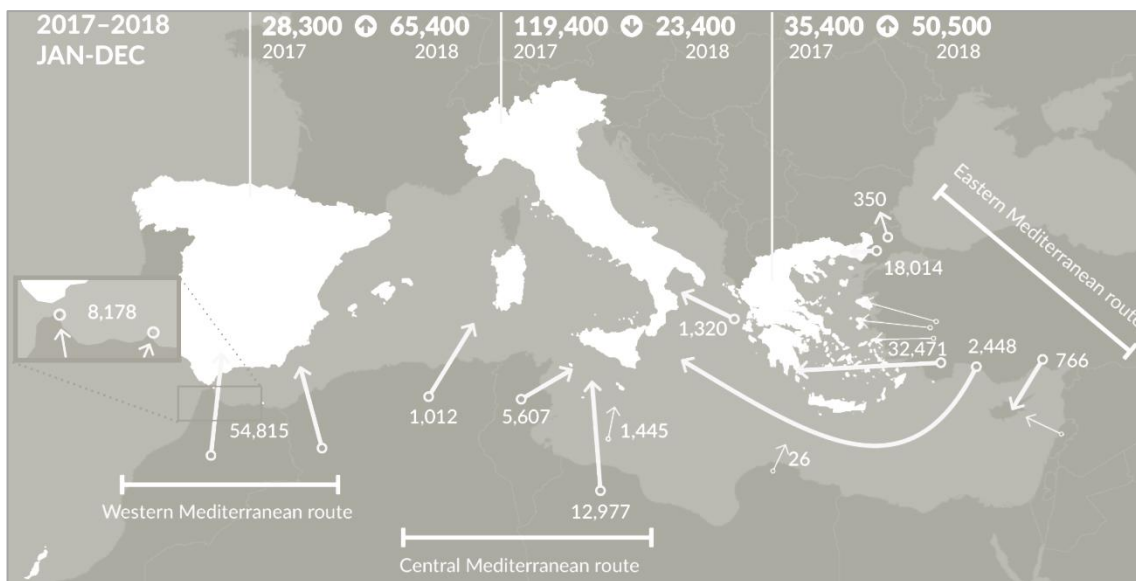


Figure 2 shows a political map of Southern Europe and Northern Africa and describes the latest development of the refugees' sea arrivals to Europe via three major entrance routes (the Western Mediterranean Route, the Central Mediterranean Route and the Eastern Mediterranean Route). The numbers shown in the illustration are yearly estimated numbers of arrival in 2017 and 2018 provided by the UNHCR (168).

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Figure 3 shows a political map of South Eastern Europe, written in German. This map provides an overview of the Central Balkan Route, illustrated as a dotted line towards Austria. The Central Balkan Route was highly frequented in 2015. The black lines show closed borders. One alternative route is shown as a dotted line, as well, towards Albania. The map was published in 2017 by “Deutsche Welle” (77).

The latest reliable UNHCR data from 2017 show Greece, Italy, Bulgaria and Spain as countries with the most arrivals of refugee children in Europe. Demographics differ largely depending on the route to Europe and therefore at the country of arrival (174) (167) (173). Italian authorities registered by far the largest number of unaccompanied children on the Central Mediterranean Route. 92 % of all refugee children registered in Italy were unaccompanied children and most of them were male with an average travel time of six months to reach Italy, which is significantly longer than those arriving in Greece and Bulgaria (173). On the contrary, in Greece most children arrive with their families, although separation during flight is not uncommon (160). Comprehensive data of arrivals of children is scarce, since many movements are irregular, involving trafficking and smuggling. Furthermore, national procedures and definitions differ largely in the EU member states. Therefore, accurate numbers are very difficult to come by (174).

1.3 Countries of origin

Countries of origin and transit have great effect on the medical health needs of refugees (198) (196), because they have an immense impact on prior exposure to diseases and prior access to health care (203). One of the major challenges in the provision of health care for refugees in general is that countries of origin and transit may change rapidly (196).

In general, since the outbreak of the Syrian civil war, Syrian refugees represent the largest group of refugees. Most refugees arriving in Greece are from Syria, Iraq and Afghanistan, whereas Nigerians, Eritreans and Guineans mainly arrive on the Central Mediterranean Route via Libya and Italy (167).

1.4 Terminology, definitions and background

This thesis refers to the UNHCR definition of the term “refugee” as a synonym for the term “asylum seeker”. In literature, however, the term “migrant” is often used in multiple ways as it might be used as a synonym for “refugee” as well (198). It is to be noted that the term “refugee” was legally defined by the 1951 Geneva Convention (183) (203) (163), whereas the term “migrant” is not legally defined but used by an understanding of experts (161).

1.4.1 “Refugee” defined by the UNHCR

“Refugees are persons who are outside their country of origin for reasons of feared persecution, conflict, generalized violence, or other circumstances that have seriously disturbed public order and, as a result, require international protection.” (161).

1.4.2 “Asylum seeker” defined by the UNHCR

“Asylum seekers” are defined as individuals who request for acceptance as a refugee in another nation and have already left their country and are waiting on the outcome of their application (203).

1.4.3 UNHCR and United Nations International Children’s’ Emergency Fund (UNICEF) definition of “unaccompanied minor”

The term, “unaccompanied minors” is defined as adolescents and children who are disconnected from their parents and do not have another adult who takes care for them instead, neither by law nor by custom. (203)

1.4.4 Definition of “migrant”

Compared to the term “refugee”, the term “migrant” has no formal legal definition. It is agreed that a migrant changes his or her country of residence, no matter what reason for migration or legal status might be the case (161).

1.5 History repeating? Universal declaration of Human Rights and the Geneva Convention

Refugees and immigration are no new development (70) and have always been a part of human history.

Learning from the Second World War, the Universal Declaration of Human Rights and the Geneva Refugee Convention were published in 1948 and in 1951, respectively (183) (164). Below, a few articles are pointed out and put into context of obstacles arising from the current refugee crisis.

Article 09: “No one shall be subjected to arbitrary arrest, detention or exile.” (164)
The United Kingdom and Australia are two examples of highly developed countries where refugees, including children were put into arrest due to their refugee status (201).

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Article 21: “Everyone has the right to equal access to public service in his country” (164). The Geneva Refugee Convention from 1951 carefully commented on this matter as well (163). Many high-income host countries still struggle to grant equal access to medical services upon arrival (184) (34) (37) (203) (156). Several nongovernmental organisations have recently published their concern about inequities in access to health care. They believe in the right for equity of access to health care including cultural responsive care (202) (50).

Article 25: “Everyone has the right to a standard of living adequate for the health and well-being of himself and of his family, including food, clothing, housing and medical care and necessary social services, and the right to security in the event of unemployment, sickness, disability, widowhood, old age or other lack of livelihood in circumstances beyond his control” (164). Greece, struggling from an economic crisis, is just one example where available resources have been far stretched and often basic needs of refugees remain unmet (62) (53).

Cases of detention and violence towards refugees as well as pushing back refugees who are seeking asylum without individualized screening are reported especially at Southern European borders (167), where most refugees arrive. Rejection of refugees is common practice in many European countries (155) (45) regardless of their violating the Charter of Human Rights (45). Refugee children are no new phenomena. History shows that a generation of refugee children of the Second World War later had a positive socio-economic impact in their new home countries (103). Several authors call on paediatricians to become advocates for children’s rights with a special focus on equal health provision for unaccompanied child refugees (34) (58) (59) (52) (102).

The term “crisis” as in “refugee crisis” is used in this thesis to describe the situation, as it is used commonly in literature (65). It does not in any way imply an appraisal of the current refugee migration wave.

1.6 Known challenges in primary health care of refugee children upon arrival in Europe

So far, a comprehensive overview of challenges and barriers in health care for refugee children in Europe is missing. This is partially due to a great variation of public health systems in the EU (17) and to the great differences between countries of origin and arrival (13). The variety of circumstances makes it very difficult to identify most urgent tasks and to improve health care provision. Nonetheless, certain barriers appear regularly in literature when describing the situation of refugee children. Limited access to health care (137), language barriers, cultural differences (154) and dissent on health care needs along with in host populations rather rare infectious diseases are mentioned frequently (126) (104). Additionally, the latest data on primary care paediatricians taking care of refugee children showed missing cultural training and lack of guidance (27).

1.6.1 Presenting symptoms

Data on presenting symptoms of refugee children arriving in Europe during the current refugee crisis is limited (13) (74) (154) (119), because it is collected from certain hotspots under particular circumstances, which has great influence on their results. Presenting symptoms of refugees depend highly on their countries of origin and transit, furthermore on the location and kind of screening as well as on their current living conditions (126).

Certain symptoms are commonly described at emergency care for refugee children. Previously, infectious diseases such as respiratory, gastrointestinal and skin infections (i.e. shistosomiasis and tinea capitis) (18) (65) (111) (80) have been described frequently along with mental health problems, musculoskeletal disorders (148) (16), accidental trauma (13), anaemia (65) and eosinophilia due to helminthic infections (119). An Australian study showed similar results with African refugees in the 1990s and in 2012 along with insufficient immunisation and nutrition deficiencies (111) (158). Higher prevalence of infectious diseases (126) (e.g. human immunodeficiency virus (HIV), tuberculosis, malaria and parasitic diseases) along with malnutrition (102), incomplete immunisation and mental health issues were described with reference to African refugees in the

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United Kingdom (154). It is to be noted that these are data on mostly adults or both children and adults, data for only children is scarce (119).

Data of presenting symptoms of newly arrived refugees at a Belgian refugee camp in autumn 2015 shows upper respiratory tract infections as the most common symptom presented by children and adults. Therefore, this is very similar to symptoms presented by the local population. Due to presumably better sanitary conditions, gastrointestinal and eye infections were less common than described at other hotspots (13). A study about medical conditions of Iraqi refugees in a refugee camp in Jordan also showed frequent upper respiratory tract infections of children aged between 0-11 years (95). A German study on emergency treatment after a sea bound rescue in the Mediterranean Sea describes dermatological conditions along with injuries due to recent and old traumas, further localised and systemic infections to be predominant during first assessments of refugees (86). Along with the already mentioned upper respiratory tract infections, pain syndromes as in the back, stomach, throat and chest have been described to be common. This is accompanied by a high prescription rate of non-steroidal anti-inflammatory drugs (NSAR) and antibiotics (predominantly amoxicillin, cefuroxime and penicillin) (76).

So far, only one study has examined possible environmental pollutants. In refugee children arriving in Greece highly elevated levels of lead have been detected (119). Lead is known to be neurotoxic (26).

The prevalence of certain diseases such as infectious diseases and mental health problems might not only be caused by their higher prevalence in home and transit countries, but also due to lacking adequate medical attention in countries of origin (122) and failed health systems and missing vaccination programmes (11) (126) (119).

A noteworthy aspect might be the so-called “healthy immigrant” theory. It describes the possibility that due to selection by harsh conditions during war and flight, the refugee children arriving at host countries tend to be healthier than the children in their home countries (31) (184) (59).

1.6.2 Access to health care

In many western high-income countries refugee children lack access to certain health care facilities after arrival (69) (34) (40) (89) (202) (149) (140) (75). Therefore, the treatment for chronic diseases and mental health might be delayed (7) (38) (101) (117) (133) (184), especially in the case of an uncertain or a refused refugee status (154) (149). This could lead to an increased utilisation of emergency room (ER) care (6) (184) (133) and might be less cost effective than granting immediate and effective access to all health care facilities needed (20) (184) (90).

A German study on health care expenses showed much higher costs for refugees with restricted access to health care than for those with unrestricted health care at the same time (20). Limited legal access to health care puts health care workers in difficult positions (63). They are either violating legal and financial regulations, or infringe their medical or ethical oath (137). Difficulties with navigating at host countries healthcare systems are described to limit the access to health care, as well (101).

Cultural differences in the utilisation of health care facilities are suggested to cause the same effect (56) (154) (184) (148). Additionally, access to health care might not only be limited by host countries, but also by communication problems resulting from limited functional and comprehensive health literacy of refugee patients (34). Shame and stigma may dishearten patients from involving an interpreter (50) (39) (181). In some countries the access to health care is also limited due to inadequate insurance (101).

1.6.3 Language barriers and cultural differences

Language barriers were previously described (2) (18) (34) (181), not only in the process of health screening and the uptake of immunisations (199), but also in the access to health care (64) (101) (34) (159) (105) (27). The assessment and evaluation of existing vaccinations has been mentioned as a major problem (199). Consequently, some countries (i.e. Germany) made national vaccination guidelines available in the languages most frequently spoken by refugee children and their parents (130). Besides, language barriers and communication in

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general might challenge medical care givers when caring for refugee children. Missing written documentation of previous medical history of patients with chronic diseases often creates another barrier. In combination with language and cultural differences, patients, parents and health care workers are highly challenged (114). Cultural competence training for health professionals is a key to fighting health injustice (72).

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من توصيات اللجنة الدائمة للفحاح (STIKO) لسنة 2018/19

تتوجب القيام بالتلقيحات بأقرب موعد ممكن من الأهمية يمكن تقييم وضع التلقيحات لكافة الأعمار. في حالة وجود نقص بالتلقيحات يتوجب القيام بها حلاً وفقاً للفترة العمرية وحسب التوصيات.

تقويم التلقيحات
Sprache: Arabisch

العمر	البالغين		المراهقين				الأطفال				الأطفال الصغار		البلاتي		حديثي الولادة		اللقاح	
	من عمر 18	من عمر 60	17	15-16	9-14	7-8	5-6	2-4	15-23	11-14	4	3	2	6	3	2		6
	A		N				A1				G4		G3		G2			
الكزاز																		
الحنق																		
السعال الديكي بيريوتوسيس																		
شلل الأطفال بوليومياليتيس																		
التهاب الكبد من النوع ب																		
المستدمية مستدمية تربية من النوع ب																		
المكورة الرئوية فروس ريتا																		
المكورة السحائية النمط الحاصل من بي																		
الحصبة																		
التكاف الحصبة الألمانية																		
جدري الماء فأريسيلا																		
الانفلونزا الانفلونزا																		
فروس الورم الخبيث البشري هيوميون بايولوجيا فروس																		

ملحوظات توضيحية

التلقيحات الأساسية (غاية 4 جرعات من لقاح ج - 1 ح 4)

التلقيحات التمهيدية

التلقيحات المعززة

التلقيحات الأخرى (التلقيحات الأساسية لكل من لم يتم تلقيحه فأذا لم تكن سلسلة التلقيحات الناقصة)

الفحص التشخيصي المبكر

فحص المراهقين (ج أي من عمر 12 - 14 سنة)

هذه الجرعة غير مطلوبة عند استخدام لقاح أمادي التكاثر

يجب القيام بالتلقيحات للمرة الأولى من عمر ستة أسابيع

وحسب نوع اللقاح، يتطلب أن يتلقى على شكل جرعتين أو ثلاثة جرعات على فترات تتباعد من بعضها بإربعة أسابيع على الأقل.

التطعيم مرة واحدة بلقاح متعدد المكوّنات ويصح بإعطائه للتطعيم المعزز في حالة ظهور أعراض معينة فقط.

يعطى اللقاح ذو الجرعة الواحدة للأشخاص الذين يبلغون من العمر 18 عاماً أو أكثر، الذين لهم وضع تلقيحي غير واضح والذين ولدوا بعد عام 1970 ولم يتم تلقيحهم قبل أو كانوا قد تلقوا تلقيحاً واحداً في طفولتهم. من المفضل تلقيحهم بلقاح التكافؤ الحصبة الألمانية (إم إم آر).

التطعيم القويح للتهنات والتهنات يتصور 9 إلى 14 سنة.

تراعى المعلومات المتخصصة فيما يتعلق بجرعات التطعيم اللاحقة وعدد جرعات التطعيم.

يعطى اللقاح المعزز للكزاز والتهنات (في دوا كل عشرة سنوات، ويعطى اللقاح الثاني في موعده بجرعة واحدة مكونة من الكزاز والتهنات والسعال الديكي اللاصقي (بي دي أي)، أو إن استدعى الأمر ذلك، على شكل مزيج من كزاز/التهنات/السعال الديكي اللاصقي. - لقاح شلل الأطفال العجز شلطة (بي دي أي بي - أي بي).

يقبل الأطفال الصغار جرعة اللقاح الأساسية بعد عمر ثلاثة أشهر، أي ما يعادل 4 جرعات كالمعتاد حتى.

Figure 4 shows an example of how to meet possible language barriers in daily health care by the German Standing Committee on Vaccination (STIKO) recommendations in Arabic (130).

1.6.4 Uptake of immunisation

Since the outbreak of the Syrian civil war, the Syrian public healthcare system has broken down and vaccination programmes were disrupted (97). This applies, to a different extent, to other trouble spots of the world as well. Previous studies describe an often incomplete or unknown immunisation status in immigrant children and refugee children (185) (119) (114).

In most western host countries the vaccination status is to be evaluated and, if necessary, refreshed (60). The vaccinations to be taken into account include measles, poliomyelitis, meningococcal disease, diphtheria, tetanus and pertussis (144). As regulated by local or national recommendations, vaccinations are

adjusted individually. Depending on the country of origin, if the poliovirus is present (Nigeria, Somalia, Afghanistan and Pakistan), literature suggests the vaccination for poliovirus to be considered as well (144). A shortage of medical staff to fit the requirements of a fluctuating number of arrivals has been mentioned as a major challenge in the uptake of immunisation of refugee children (199).

1.6.5 Infectious diseases

Matters of infectious diseases are well known to be among the most urgent health care aspects concerning refugee children and their families upon arrival (196) (199). The screening of refugees for infectious diseases, that are more common in home or transit countries, as well as the screening and the uptake of the vaccinations status are recommended by several national organisations and authors (196) (187) (140). Literature suggests taking a closer look at certain diseases with low incidence in highly developed host countries and much higher incidence at Refugees' countries of origin and transit is recommended (146) (148). When choosing what to screen for the public health impact should be taken into consideration. That means the likelihood of occurrence, transmission and severity to the patient needs to be contemplated (42). Furthermore, a high mortality rate in complex emergency situations due to communicable diseases has been reported (e.g. diarrhoea, measles and respiratory tract infections) (32).

Data collected after the refugee influx of 2015 shows that intestinal parasitosis and schistosomiasis is more common with Syrian refugees (104). Potentially contagious diseases such as scabies (85), hepatitis B, syphilis, fungal infection, tuberculosis and helminths have also been referred to (146) (140). An early and comprehensive screening of refugees for these infections is recommended by several authors, which would clarify medical needs and might save costs due to delays. Moreover, early identification might help to reduce the risk of disease transmission (104) (140) (146). However, except for tuberculosis, the effectiveness of areawide screening for infectious diseases is unclear (148). The German Robert Koch-Institute (RKI) recommends areawide screening for tuberculosis, only. Additionally, more awareness in clinical exams towards other possible infective agents is endorsed (11). Other European countries presently

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include screenings for hepatitis B, hepatitis C, HIV, other sexually transmitted diseases, vaccine-preventable diseases, cholera, malaria, helminths, intestinal protozoa and Chagas disease (144). In population groups known to carry a high prevalence of communicable diseases and parasitosis, empirical treatment has been taken into consideration. However, this applies to data referring to mostly male refugees from Sub-Saharan African countries, rather than to refugee children in general (140). Immediate risk assessment by identifying refugees' countries of origin and transit is crucial (118). A recent report from Lausanne describes a higher prevalence of skin infections due to Panton-Valentine leukocidin-producing (PVL) *Staphylococcus aureus* strains in asylum seekers from Eritrea. The prevalence of PVL-producing strains was much higher than the prevalence of leishmaniasis and rickettsiosis (73).

Caregivers should be aware that screening for communicable diseases often meets actual health care needs of arriving refugees when further access to health care facilities might be denied or difficult (87). Furthermore, the risk of spreading communicable diseases for those living in centralized homes for asylum is increased (85).

According to most available data, refugees are primarily affected by the same infectious diseases as the home population. An incomplete vaccination status and living in community housing with hygiene issues puts this group of patients at special risk, rather than creating a risk for the domestic population at hosting countries (11).

1.6.5.1 Tuberculosis

In 2018 the World Health Organization (WHO) held its first high-profile meeting about the burden of tuberculosis (182) (191). This was an attempt to bring more attention to this global epidemic that is responsible for the deaths of an estimated 1.3 million people (without an HIV co-infection) and 10 million diseased people, with about one million of them children in 2017. The burden of tuberculosis varies greatly among regions and countries. 75 % of all people infected live in only eight countries (142). Pakistan and Nigeria should be pointed out, since lately the number of refugees from there heading to Europe has been rising (174). They

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are among the very high burden countries defined by the WHO (142). Yet, tuberculosis is a global epidemic with overall 30 countries to be classified as high burden countries by the WHO (189) (187) (142). A higher prevalence rate of active and latent tuberculosis in children born outside the EU compared to children born in the United Kingdom has been reported (1).

Especially children under five are at risk to develop active tuberculosis if exposed, which is usually the case if a close family member is infected with active lung tuberculosis. The younger the child the higher the risk for developing an active tuberculosis disease (141) (31).

Screening refugee children (and their families) for tuberculosis upon arrival appears inevitable. However, an accurate diagnostic tool is needed. Exact numbers on the positive effects of screening refugees from high risk countries of origin or transit are lacking (124). Currently, all screening methods for tuberculosis are imperfect for various reasons (131) (187). In general, adults and adolescents over 15 years of age from high risk countries are screened by chest x-ray and clinical signs of tuberculosis which is obsolete for younger children due to a much higher inaccuracy and radiation exposure (124) (131). Alternatively, immunodiagnostic tests such as the tuberculin skin test (TST) and the Interferon-Gamma-Release Assay (IGRA) are recommended for children (141). One should be aware that the TST is interpreted positive in the case of a 10 mm swelling, if no prior Bacillus Calmette-Guérin (BCG) vaccination was performed and 15 mm after BCG vaccination. In case of a serious tuberculosis infection and advanced immunosuppression, the test might be negative. In case of an HIV co-infection, severe malnutrition and disseminated tuberculosis the TST might be negative as well (31), since both tests require adequate immunological response. Depending on age, vaccination status, disease activity and immune response, the sensitivity varies greatly. Specificity appears to be higher in young children for the IGRA (141). Therefore, currently available screening methods are questioned as to whether they are reliable enough for the broad screening of children (124).

The screening for tuberculosis is heterogeneous in Europe (127). Some countries perform tuberculosis screenings on adults only, which is criticised due to a high risk of developing active tuberculosis within two years, when latent tuberculosis is overlooked in children (1) (127). Furthermore, literature suggests not to rely on

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clinical symptoms of tuberculosis in children, since they often present very unspecific symptoms or lack them at all, until the disease has progressed too far (1). So far, Austria, Belgium, Germany, Spain and Sweden have been implementing recommendations on screening children as well (127).

The burden of tuberculosis in refugee camps increases due to crowded living conditions that favour the spreading of the disease (31). This should be taken into consideration when arguing in favour of possible screening methods. The high incidence of latent tuberculosis challenges health care workers even more, since latent tuberculosis is defined as being no clinical signs of the disease, yet.

According to WHO recommendations children under five living in a household with someone who has a confirmed pulmonary tuberculosis, must be treated for latent tuberculosis infection (142) (124). Since tuberculosis treatment is a long-term treatment, a proper follow-up is very important. Therefore, a long-term treatment and follow up for at least six months should be assured before initiating a tuberculosis treatment (189). The WHO even demands a 12-18 months ensured treatment before treatment initiation (31).

The German RKI recommends a practically orientated procedure for children under 15 years. If it is not possible to perform the TST or IGRA on all children, those who are clinical symptomatic or are in direct contact to a person with an assured open tuberculosis infection should be prioritized (131).

1.6.5.2 Measles

The WHO defines measles and rubella as “preventable diseases” and aims at their eradication (185). Due to harsh living conditions at home and at transit countries, the vaccination status of refugees might be incomplete (44). This applies especially to children from Syria. In Syria, years after the outbreak of the civil war, a complete collapse of the regional public health care is witnessed (97). Latest examples of outbreaks of measles in the EU (110) (175) (185), which were very likely imported, imply the need for a complete catch up for immunisations of refugees upon arrival (175) (186). Recently, the European measles report showed increasing numbers of measles cases throughout Europe (46). In order to reach the goal of an immunisation rate of 95 % for the home population, which

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was defined by the WHO (195), mass vaccination appears to be more effective, faster and cheaper than serological testing to identify seronegative people at risk (153).

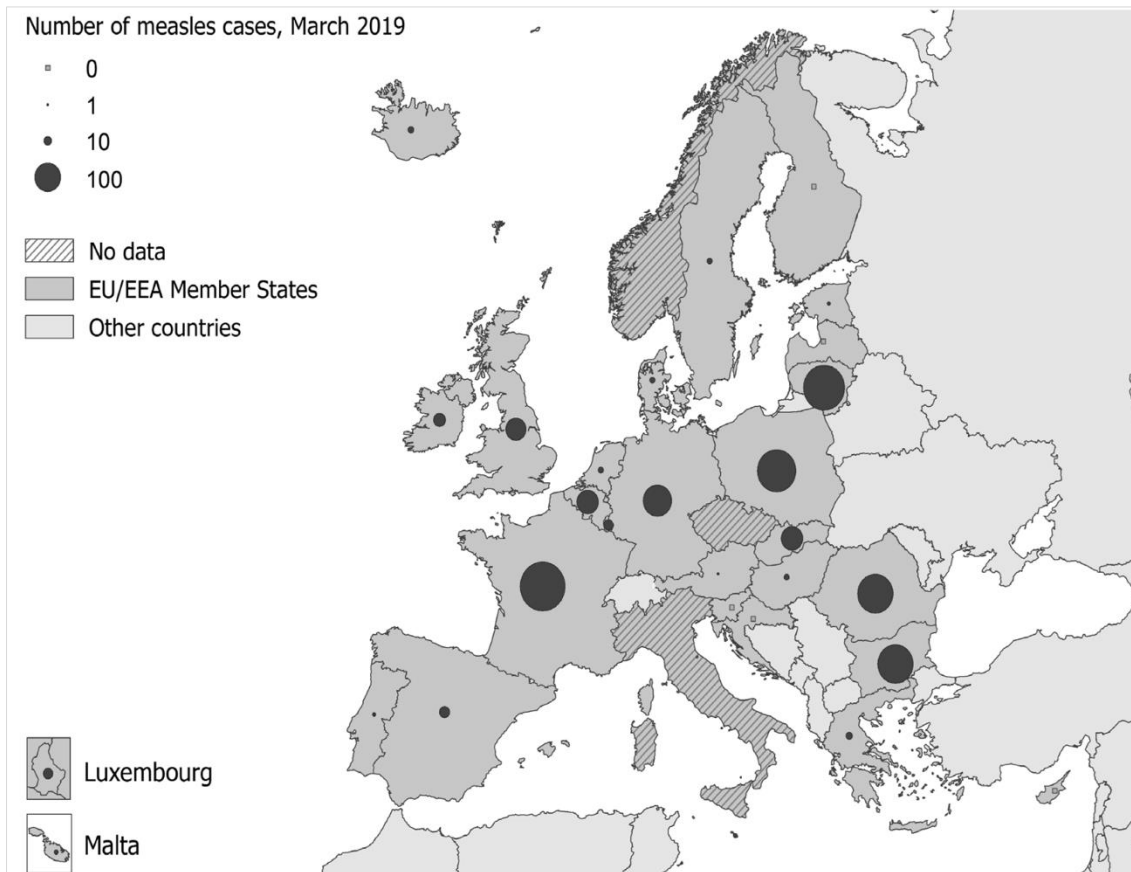


Figure 5 shows a political map of measles in Europe in March 2019 ($n = 1548$) Produced on April 26th (2019) by the European Centre for disease prevention and control. The circumference of the circles indicates numbers of measles cases from April 2018 until March 2019 at location of map (46).

1.6.5.3 Polio

Polio, caused by the poliovirus type 1-3, belonging to the broad family of enteroviruses, is a serious, though vaccine-preventable disease (19). With the exception of Afghanistan and Pakistan, where this disease still occurs endemic (192) (47), polio has been eradicated successfully in many regions (193). In Nigeria has been no new case of confirmed wild type polio since 2016. In Arabic countries the appearance of circulating vaccine-derived polioviruses occurs. These are usually imported from the endemic countries named above or derived from vaccination viruses (192). Due to the civil war in Syria, the population wide immunisation rate sunk dramatically, which led to an outbreak of active polio in 2014 in Syria (19). Therefore, catching up on immunisation and consideration of

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screening methods seems imminent upon arrival of refugees from the countries named above (19).

1.6.5.4 Hepatitis A/B/C/D/E virus

Hepatitis A is transmitted via the faecal-oral route and belongs to the vaccine-preventable diseases that show to be endemic in many developing countries, where refugees originate or transit from (55). Several hepatitis A outbreaks have been reported in the past from European refugee camps. These outbreaks mainly affected Syrian children under 14 (98). Except for Greece (98), most European countries do not include the vaccination against hepatitis A in their standardised recommendations on vaccinations (97). In several of the neighbouring countries of Syria, that are hosting many Syrian refugees, hepatitis A is endemic. Here, a vaccination is only recommended for high risk groups (97). However, though hepatitis A is endemic in many developing countries, the overall seroprevalence in children is decreasing due to better hygienic conditions (55).

Though not endemic in Europe, several European countries have introduced the hepatitis A vaccination for high risk groups (e.g. Italy, Iceland, Finland, Russia, Slovenia and Spain) (97).

As an example of reasonable measures taken when outbreaks of hepatitis A occur, in Greek refugee camps, the staff and children were vaccinated along with educational arrangements on hygiene and intensified hygiene measurements within the refugee camps (98).

Furthermore, genotyping of hepatitis A showed subtype IB, which is often more common in the home countries of refugees rather than subtype IA, which is predominant in Europe, if present at all. Due to possibly lacking symptoms, the overall prevalence might be much higher than reported (98). In conclusion, literature recommends a hepatitis A vaccination for target groups, including health care workers dealing with refugee children, along with health education for refugees and health care workers about the ways of transmission and the risk of infection (97).

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Hepatitis B infection can cause an acute and chronic liver disease and a hepatocellular carcinoma. It belongs to the vaccine-preventable and epidemiologic relevant infectious diseases. Refugees may be at higher risk for hepatitis B infection due to the lack of or incomplete vaccination (11). Other than hepatitis A, hepatitis B is transmitted by the exchange of body fluids. Children are most often infected during childbirth. Additionally, unsafe medical practice may put children at risk for infection. In adolescents most infections are transmitted sexually (14). In adult refugees the prevalence of hepatitis B infection is described to be higher than in the home population of Western and Middle European countries (134). In particular, this applies to refugees from East Asian, Sub-Saharan African and Eastern European countries where the hepatitis B virus happens to be endemic (14). In 2000, the global vaccine programme against hepatitis B started (190) and in 2021 the global coverage of three doses is approximately at 83 %. However, only 6 % of the WHO African member states have introduced one dose of hepatitis B vaccine to new-borns within their first 24h of life (194). Therefore, being aware of a potential hepatitis B infection and catching up their immunisation status is a must when treating refugee children (145).

Hepatitis C infection is transmitted parenterally and the transmission rate during childbirth is much lower than for hepatitis B infections. However, there is no vaccine available. Previous data reveals low hepatitis C and D rates in some refugee groups (29), but since hepatitis C prevalence in children is high in China, Russia and Southeast Asia, refugee and immigrant children from these countries should be screened for hepatitis C infection (145).

Since hepatitis D primarily occurs in hepatitis B positive patients (128), the testing for hepatitis D is focused on them and should be performed by a paediatric infectious disease specialists.

Hepatitis E is also endemic in many countries. Transmission occurs often through contaminated groceries and water but also parenterally and by smear infection (132). Therefore, living in crowded community housing and in general within poor hygienic circumstances may be a risk factor for a hepatitis E infection (5). This should be taken into consideration when screening and treating refugee children as well.

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1.6.5.5 Human immunodeficiency virus

Depending on the group of refugees, a higher prevalence of HIV has been reported (30). However, the prevalence in refugee children is described as low (80). Nonetheless, there should be a higher awareness for HIV when treating refugee children (81).

1.6.6 Multi-resistant agents

A higher prevalence of multi resistant agents among migrants and refugees from the Middle East and Europe have been reported (e.g. methicillin-resistant *Staphylococcus aureus* (MRSA)) (68) (67) (79). This calls for an awareness among medical personnel, since multi resistant agents can be spread among refugees and medical staff. A further dissemination could be avoided primarily by proper hand disinfection before and after every patient contact (118). Furthermore, in the case of hospital admission, screenings and special infection control measures are suggested (67).

1.6.7 Mental health

At the moment, mental health problems of refugee children get increasing awareness in Europe's current refugee crisis (179) (197) (184) (159) (88). Prior to the refugee crisis of 2015, earlier data suggested no relevant difference in the health status of immigrant children compared to equivalent native-born children (12) (184). Other studies showed a higher prevalence of serious mental health problems in immigrant children (197) and a higher prevalence in refugee children is well described (10) (51) (186) (74) (178) (177) (113). Latest findings show that the level of mental health problems is increasing with a continuing influx of refugees to Europe (179) (197) (114) and their journey becoming more and more difficult (139). The mental health of immigrants is affected in particular by an uncertain future (45) (22) (99), previously experienced trauma (113) (179) (92) (15) (106), concern for relatives in their home countries and by an insufficient mental health provision upon arrival (105) (8) (197) (176). Additionally, living in community housing increases the risk of mental and physical diseases (94) (200).

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Unaccompanied minor refugees showed the highest risk of mental health problems (9) (179) (177) (150). Cultural differences and limited awareness may also challenge access to mental health treatment (157) (154).

Post-traumatic stress disorder (PTSD), depression and anxiety were diagnosed most often (176) (177) (92), depending on the ways of diagnostics, the time of diagnosis and the investigated group (120) (178) (179). PTSD is described as being predominant among mental health problems of refugee children, but since the symptoms and effects are diverse, focussing on PTSD alone appears insufficient (107).

PTSD is associated with further mental health problems causing academic failure and substance abuse (33) (139). It endangers integration (139) and results in severe rise in health care needs and costs (138). Furthermore, discrimination and failing social adaption are associated with prolonged mental health problems in young refugees (109) and contribute significantly to their long term mental health problems (108). Interestingly, parental well-being appears to have a positive impact on children's resilience to experienced trauma (92) (99).

Furthermore, there might be a tendency to somatoform dysfunction caused by communication problems, different disease models and different health care expectations (122).

Identifying those who need further treatment remains subject to the current discussion on refugee children's mental health issues (147) (150) (139) (125), since not all children experiencing great trauma develop a mental health disease (150). There are online (66) or paper-based questionnaires, for instance the Child Revised Impact of Events Scale (CRIES) (139), the Providing Online Ressource on Trauma Assessment for Refugees (PORTA), the Stressful Life Events (SLE), the Reactions of Adolescents to Traumatic Stress (RATS) Questionnaire, the Hopkins symptom checklist (HSCL) (150) and the Harvard Trauma Questionnaire (HTQ) (147), just to name a few. These questionnaires are to be compared in order to find out which one fits a particular setting or purpose best (150).

When implementing self-reporting questionnaires, illiteracy needs to be taken into consideration (139). The country of origin, the entry point to Europe and the legal status might all be significant factors (140). Furthermore, age limits need to be

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set, too (139), since self-report measures are not recommended for children under eight (139).

Screenings for mental health issues do not take place because of a poorer awareness of mental health problems in comparison to infectious diseases, higher costs and lacking medical staff for interviews, missing guidelines (105) and a shortage of care facilities for diagnosis or assessment of high risk of PTSD patients (139). The screening for mental health problems of young refugees should take cultural differences into consideration and needs to be easily accessible in many languages, as well as, ideally be understandable in case of patients' illiteracy. Furthermore, the high prevalence of PTSD and the young age of participants need to be focussed on (125).

For success in mental health treatment of refugee children, the interaction of many different social and public resources (41) is a necessity, as well as improved structures and trained professionals (18). Consequently, professional treatment facilities and additional education and training of health care staff and volunteers are needed (96).

A further problem has to be solved in connection with screening measures: Several child and youth psychiatric associations are standing up against age assessment procedures through bone and genital inspections, as they are said to be inhuman and a violation of human dignity (105) (45).

1.6.8 Nutrition and weight management

Regarding nutrition mainly vitamin D and iron insufficiency have been described among refugee children (158) (148) (143). It has been reported that especially unaccompanied Sub-Saharan African refugee children showed difficulties in adapting to European nutrition (148). A large study (1026 children) of a diverse group of refugee children (30 ethnics) in Australia showed nutritious deficiency as the most common reason for secondary and tertiary health care referral. In this study, 400 children were referred with vitamin D deficiency and 226 with anaemia caused by iron deficiency. Most of these children had lived in refugee camps for a significant amount of time before arriving in Australia. The nutrition deficiencies were accompanied by prolonged breastfeeding and a delayed

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introduction of solids (111). So far, there is not much data available on nutrition and weight management of refugee children (143) in Europe. However, long term food insufficiency is to be expected in some European countries due to various reasons. This will most probably lead to the loss of productivity and the risk of higher costs of health care provision (143). If growth and weight deficiency is detected, children especially when under the age of two, benefit from food supplementary programs (84).

1.7 Medical care for refugee children at non-European refugee hotspots (high-income countries)

Naturally, due to many differences (i.e. geographical, political, countries of origin and number of asylum seekers) host countries cannot be compared easily. Nonetheless, it is noteworthy to take a look around and learn from the past and the experience of various regions facing similar obstacles as host countries.

1.7.1 Australia

While being only the 46th worldwide in the ranking of refugee applications in 2017, Australia is not in the frontline of the global refugee crisis (201). However, the Royal College of Australia and the Australian government have published insight into their dedicated health care provisions for refugees upon their arrival in Australia over the past decade (4) (203) (202). Refugees either arrive “onshore” (via boat or plane) or “offshore” (via plane out of refugee camps outside of Australia). The offshore programme is a refugee admission programme that is managed by volunteers (36) (201). Around 60 % of onshore arrivals enter by plane and are regularly processed at community services. Around 44 % are granted permanent refugee status (36) (201). The remaining 40 % of onshore arrivals arrive via boat. Although, in the end over 90 % will be granted refugee status, all of them are usually accommodated at mandatory detention housing during the admission process (123) (201). Since there is no time frame of living in mandatory detention and refugees cannot challenge this status in court during this time, this is subject to national and international criticism (201). Once the refugee status is awarded, housing support, language teaching and access to

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Medicare are granted. However, access to public health care and to screening programmes differ between Australia's states due to its decentralized federal system. Depending on further circumstances the access to health care, especially for children, is limited (34).

The Royal College of Australia recommends screening for possibly asymptomatic but treatable diseases as well as an early treatment of latent tuberculosis and a comprehensive hepatitis B immunisation upon arrival (111) (201) (158). Language barriers and cultural differences in follow up appointments have been identified as major challenges in medical treatment of refugee children (201). Australian authors emphasize the need for more data acquisition to establish evidence based recommendations in the medical treatment of refugee children (203) (201).

1.7.2 United States of America

The United States of America (USA) collect data on refugee and migrant health at the Center for Disease Control and Prevention (CDC) (196). Recommendations on screening tests for infectious diseases and environmental health problems are enunciated there (28). Since the United States are organised in a federal health system, it is up to local departments of health to implement the recommendations by the CDC. After their arrival the immigrants are screened for anaemia, hepatitis B infection, tuberculosis, strongyloidiasis and elevated blood lead within 90 days at their local public health centres (196). Tuberculosis, strongyloidiasis and hepatitis B Infection fall under the umbrella of environmental health problems to protect the citizens of the USA (196). Recently, the U.S. immigration enforcement has gained sad publicity. Under the Trump administration frequent separation of refugee and immigrant children from their parents has occurred. In 2018, there were over 400 cases of illegal separation of under age children and their parents due to their uncertain alien status in the U.S.A. (156).

1.7.3 New Zealand

One of the first national health services was implemented in the 1930's in New Zealand. Medical care at public hospitals is free of charge. However, private practitioners act as gatekeepers and usually take charges for their services and are therefore creating barriers to health care access (54). Refugees arrive at arrival centres and stay there for six weeks. At the arrival centres the basic health care screenings take place (203).

1.7.4 Canada

In Canada around 25.000 refugees from all over the world are accepted each year. Here, standardised health screenings upon arrival are implemented. A brief general medical history is collected, and physical examinations are performed along with a chest x-ray for everyone who is over 11 years, as well as urine tests from everyone older than five and testing for syphilis and HIV in individuals who are 15 years and older. Further and more comprehensive care will be provided once a legal residence status is granted (126). Nonetheless, there are clinical gaps between health care needs of refugees and a health care system not designed for the refugee health care provision described (152).

1.8 Paediatric emergency care in Europe

Paediatric emergency medicine aims to contribute relevant and adequate care to acutely diseased children in a regularly overcrowded surrounding where a multitude of different tasks needs to be carried out (23). A considerable challenge in paediatric emergency care lies in identifying and providing care to the smaller group of children with severe conditions over the bigger group of children with rather trivial illnesses (23).

Healthcare systems and funding differ strongly within European countries and so does paediatric emergency care (23) (17).

These differences are due to extrinsic factors such as the setting and the ways of presentation. In some countries the first contact of an ill child and its parents

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with health care during office hours is usually a general practitioner (GP) or a family doctor. Others offer general paediatricians and direct access to emergency care (188). Some countries offer mostly mixed, others separated paediatric and adult ER care (17). The fact that attendance requirements of paediatric nurses or the level of training of physicians on duty vary greatly and needs to be taken into consideration, too (136) (35). Other countries offer children-only care, although, with a completely different level of quality and resources (91).

Intrinsic factors such as the availability of guidelines or the implementation of a triage system taking paediatric issues into consideration, vary as well as the content of the recommendations (17). This needs to be considered when comparing primary health care provision for refugee children in Europe.

The diversity of factors described above is leading to a different quality of health care (71). Obviously, children's health issues diverge greatly from adult medicine. There are characteristic diseases and the presentation of their symptoms differ significantly, too. As a result, there is a high dependency on care givers and how the patients are presented by them. This needs to be taken into consideration, as well, when treating children at emergency settings (188). Little experience in matters of paediatric emergency care may cause either a neglect of serious illnesses or unnecessary treatments and hospitalizations in cases of self-limiting diseases or chronic illnesses that could have been treated in a different setting (188). There is high potential for improvement to achieve the best patient outcome (100).

This paper aims to emphasize and bring attention to the importance of specialised paediatric emergency care, especially when treating the particularly vulnerable group of refugee children.

2. Objectives and aims

a) To describe characteristics, presenting signs and symptoms, and health care needs of refugee children presenting to emergency care in Europe.

b) To present currently available guidance and care recommendations on health care provision for refugee children across Europe, with a particular focus on 1) Infectious disease screening 2) mental health problems.

c) To explore existing barriers in providing health care for refugee children across Europe.

d) To evaluate the needs of clinicians actively involved in providing paediatric emergency care to refugee children in Europe.

e) To collate examples of best practice throughout Europe, learn from others and share experiences.

3 Methods

3.1 Design of study

The electronic survey was designed to gain insights into current health care systems and accompanying barriers in providing health care for refugee children throughout Europe. It was brought to life by a collaboration of members of the Imperial College in London and the Ludwig-Maximilians-Universität München (LMU) with PD Dr. med U. von Both and Dr. med. R. Nijman and PD Dr. med C. Bidlingmaier as leading researches.

In order to ensure highly knowledgeable participants of refugee children's emergency care, the survey was distributed via national and international academic societies and organisations. Furthermore, some participants were approached directly by the research group.

The survey contains a total of 165 questions and additional information such as date of entry and completion of survey. The entire questionnaire is depicted in the appendix. It has 13 pages overall and begins with preliminary remarks about the current situation of refugee children in Europe. It also states which audience was meant to be reached with this survey. Additionally, technical information is provided: It takes about 15-20 minutes to complete the survey and the software allows pausing and saving the current point of entry and therefore complementing missing answers at a later stage. The anonymous survey does not contain any specific patient data and the submissions are treated confidentially.

The questionnaire is divided into six main sections (setting, system, barriers, statements, presentation and data availability). In order to gain as much in-depth insight into current refugee care at the participants' setting, a large variety of questions was asked. Closed and open-ended questions were used. Closed-ended questions are pre-filled multiple-choice questions with binary answer options as well as multiple answer possibilities and ranking questions functioning as Likert scale questions. There are six and five-point Likert scale questions. Several open-ended questions are asked in order to obtain individual setting information. Furthermore, each section ends with open-ended questions, as well, to allow each participant the possibility of further elaboration and to capture his or her thoughts and experiences. The participants are asked to report exact

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numbers on, for example, how many children visit a hospital's ER per year. However, estimated numbers were accepted as well. In addition, the participants were asked to upload any other documents they considered relevant and share their contact details for further research, collaboration and other purposes.

3.2 Target population and definitions

The target population of this survey consists of refugee children and adolescents younger than 18 in Europe. We refer to the term refugee as defined by the United Nations (183) and already further elaborated in the introduction chapter under 1.4.1. Participants were asked not to include information about immigrant children who have been living in their host country for more than two years.

3.3 Survey participants and distribution

The electronic survey was distributed by email with an electronic link to the Research Electronic Data Capture (REDCap[®]) questionnaire platform (Nashville, Tennessee, USA), via an accompanying letter in academic research networks and by personal approach. Both, the accompanying letter and the questionnaire can be found in the appendix at the end of this thesis.

Initially, the survey was open for data collection between February 1st and May 1st in 2017. In the course of the study, the duration of data collection was extended to 1st of October 2017 to, amongst other things, accommodate the Paediatric Emergency Research in the United Kingdom and Ireland (PERUKI) network for further distribution.

The ambition was to reach as many frontline clinicians facing refugee children in emergency care throughout Europe as possible. To ensure the highest quality in data sets, members of local and international paediatric organisations and societies were requested to distribute the survey among their clinicians and hospitals. Notably, each institution was asked to provide only one response by the most fitting clinician with local insight of emergency care to refugee children.

Methods

A variety of national and international societies supported the initiative such as the European Society for Paediatric Infectious Diseases (ESPID), PERUKI, Deutsche Gesellschaft für Pädiatrische Infektiologie (DGPI), Research in European Pediatric Emergency Medicine (REPEM), European Society for Emergency Medicine (EUSEM), Royal College of Paediatrics and Child Health (RCPCH).

In order to distribute the survey three networks required an extra approval process: After consent of the responsible scientific committee and its members of REPEM the invitation letter, including the link to the survey, was distributed on 19/02/2017 and on 08/05/2017 a reminder was sent out. After the ESPID committee of scientific affairs had approved the study and a small grant award had been granted, the ESPID distributed the survey amongst its members on 21/04/2017. Additionally, the scientific committee of PERUKI had to approve the distribution of the survey and it was finally shared via email invitation on 31/07/2017.

Other networks distributed the survey among their members with a more straightforward approach, not requiring extra approval: The RCPCH distributed the survey invitation link via its news bulletin on 20/02/2017. The Spanish Emergency Care Network distributed it via email on 20/02/2017. The members of EUSEM and the European academy of paediatrics (EAP) and members of German, Italian and Belgium paediatric societies were approached personally. These societies did not distribute the survey among all their members.

Since the Email distribution often was further executed by the societies themselves and their recipients were asked to forward the questionnaire to colleagues active in health care provision for refugee children, an overall response rate is not available. The PERUKI network was able to provide us with a response rate of 77 %. The participation in this study was voluntary and no compensation was provided.

3.4 Funding

RefuNET was granted a small award by the ESPID in 2016. The application for a small grant award and the letter of acceptance are displayed in the appendix. Funding did not influence the study design, the data analysis or its publication.

3.5 Constructing the survey

The questionnaire was created with the REDCap[®] software (Nashville, Tennessee, USA). The questions were developed on the basis of established methods for medical questionnaires. Current data of the United Nations and the European Statistical Office (Eurostat), as well as systematic enquiries of four medical databases (PubMed, Embase, MEDLINE, Cochrane), helped establish the main content of this study. Furthermore, available information of national paediatric societies in western countries was included. After consulting several clinical experts (e.g. experts of the RCPCH), their expertise was considered in the selection of the questions. Besides that, the REPEM research committee supported the development of the questionnaire. In order to ensure a smooth process, the questionnaire was tested by two hospitals ahead of its publication (Dr. von Haunersches Kinderspital (LMU) and St. Mary's Hospital London, (Imperial College London)).

3.6 Data collection and storage

The data was collected from February until October 2017. During this timeframe data was submitted and could be entered by the survey participants into the REDCap[®] (Nashville, Tennessee, USA) online platform. The results were stored on secure drives at the LMU and the Imperial College.

3.7 Power calculation and statistical analysis

After data collection, the results were imported into the Statistical Package for Social Science (IBM® SPSS® Statistics, IBM® corporation, Armonk, New York, USA). The data was anonymous and retrospectively analysed. The descriptive analysis was performed with SPSS® version 25 (IBM®, Armonk, New York, USA) and Microsoft Office® 16.23 Excel® / Word® for Mac (Redmond, Washington, USA).

The dataset was filtered multiple times. The first filter was used to identify eligible answer sets from European settings. The eligible European countries were defined as from a geographical European perspective. Therefore, all countries from the EU (variable 1), Switzerland (variable 2), Albania and Armenia (variable 3), Belarus (variable 4), Turkey (variable 5) and Iceland (variable 7) were included into a European data set. Empties and tests (variable 0), answer sets from Ghana, India, USA, Kenya, Argentina and Afghanistan (variable 6) and identical doubles (variable 8) were excluded.

For further differentiation, more variables were defined for the EU-only data set. Each individual answer set received its own variable (1-148) and each country was assigned its own country code (1-23). To distinguish further between Northern and Southern European countries, south (variable 1) and north (variable 2) was implemented as a code as well.

The dichotomous questions were analysed by frequency analysis executed by SPSS®. To analyse frequencies of answers of multiple answer sets with multiple answer possibilities, variables for each answer possibility were defined. The number of variables given out depends on the number of answer possibilities, always beginning with 0 and counting upwards. Furthermore, an additional variable was set to identify whether the question had been answered at all (For all questions: variable 0=no answer; variable 1=answered).

For the questions on barriers in providing health care and the statements section a minimum/maximum range was applied and an extreme bin analysis was performed. For extreme bin analysis a split file was used, and answer sets were recoded. (Recode refunet_statement3 (6=sysmis) (5=1) (4=2) (3=copy) (2=4) (1=5) into refunet_statement3_inv. Recode refunet_statement1 (6=sysmis) into

Methods

refunet_statement1_neu. Recode refunet_statement2 (6=sysmis) into refunet_statement2_neu).

For better visualisation, the results were summarised. The answers “completely disagree” and “disagree”, as well as “completely agree” and “agree” and last but not least “don’t know” and “neither agree nor disagree” were combined before being transformed into a graph. The detailed answer sets are displayed and available, too.

For the descriptive analysis of the section on presenting symptoms the missing values were identified and excluded prior to analysis. Subsequently, the mean and median values of all 23 possible symptoms available were analysed. The range of answer sets was transformed to reach from 1-5 with 3 meaning “just as common”.

The detailed definitions of variables and codes used in this study are displayed in the appendix chapter.

All open question answers (e.g. “if other, please define”) had to be evaluated manually and the results are displayed in the appendix section as well.

3.8 Systematic guideline research and evaluation

For the development of the survey a systematic research of four databases was executed. The databases of Embase, PubMed, MEDLINE and the Cochrane Library were included in the inquiry. Additionally, websites of national societies were searched for existing guidelines for refugee children’s health matters. On the websites of national societies many documents, possibly guidelines, were only available in the native language of that country. To identify those of eligibility Google Translate (website: <https://translate.google.com/>) was used for translation. Below, the search strategy for each database is displayed.

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3.8.1 Database search in the Embase database

The search was performed in Ovid Embase (1974-Feb16th 2018).

Variable		
1	Exp child/	1902938
2	child/	1245301
3	infant/	437336
4	exp toddler/	3364
5	newborn/	374900
6	exp juvenile/	2542617
7	exp minor(person)*/	473
8	adolescent/	1190802
9	exp toddler/	3364
10	exp refugee/	9675
11	exp migrant/	27926
12	exp asylum seeker/	498
13	exp Europe/	1242031
14	limit 12 yrs -2000- Current	984160
15	1 or 2 or 3 or 4 or 5 or 6 or 7 or 8 or 9	2542870
16	10 or 11 or 12	27926
17	15 and 16	7100
18	13 and 17	2350
19	14 and 18	2090

Table 1 displays the detailed and advanced search in the Embase database.

Methods

3.8.2 Database search in the MEDLINE database

The search was performed in Ovid MEDLINE(R) Epub Ahead of Print, In-Process & Other Non-Indexed Citations, Ovid MEDLINE(R) Daily, Ovid MEDLINE and Versions(R) 1946 to February 14, 2018.

Variable		
1	Exp Fever/dh, dt rh, th (Diet Therapy, Drug Therapy, Rehabilitation, Therapy- Specific Subheadings have been included)	5610
2	(fever* or hyperthermia* or pyrexia* or febrile or (sweating adj 1 sickness) or (sudor anglicus or temperature increase* or temperature elevat* or increased body temperature above normal or raised temperature* temperature raised or high body temperature*) mp. (mp=title, abstract, original title, name of substance word, subject heading word, keeyword heading word, prtocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonymys)	255985
3	Exp Therapeutics/ or exp Rehabilitation/ or exp disease management/ or exp Medication Therapy Management/ or Case Management/ or (therap* or treat* or rehab*). Mp. (mp=title, abstract, original title, name of subsatnce word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonymys)	8679995
4	2 and 3	125342
5	1 or 4	126773
6	Adolescent/ ore exp child/ or exp infant/ or (child* or pead* or neonate* or baby or babies or infant? Or adolescent? Or toddler?) mp. (mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonymys)	3429855
7	5 and 6	32461
8	Guideline/ or Practice Guideline/ or Practice Guideline as Topic/ Guideline Adherence/	148698
9	((Guideline* or pathway* or protocol* or algorithm* or polic* or standard* or recommendation* or guidance*) adj2 (clinical or treatment* or diagnos* or management or antibiotic*)) mp. (mp=title, abstract, original title, name of substance word, subject heading word, keyword heading word, protocol supplementary concept word, rare disease supplementary concept word, unique identifier, synonymys)	207478
10	8 or 9	329613
11	7 and 10	1427
12	Limit 11 to yr="2000-Current"	1146

Table 2 displays the detailed and advanced search in the MEDLINE database.

Methods

3.8.3 Database search in the Cochrane Library

The search of the Cochrane library was last performed on April 7th, 2018.

Variable		
1	MeSH descriptor: (child) explode all trees	296
2	child	107224
3	MeSH descriptor (Infant) explode all trees	15843
4	newborn	23301
5	minor	16065
6	migrant	233
7	refugee	193
8	MeSh descriptor: (refugee) explode all trees	95
9	guideline	10414
10	recommendation	5511
11	policy	12189
12	MeSH descriptor: (Guideine) explode all trees	26
13	#1 or #2 or #3 or #4 or #5	132388
14	#6 or #7 or #8	443
15	#9 or #10 or #11 or #12	25921
16	#13 and #14	195
17	#16 and #15	75

Table 3 displays the detailed, advanced search in the Cochrane Library database.

3.8.4 Database search in the PubMed database

The search of the PubMed database was performed in April 2018.

<pre> ((((((((child(MeSH Terms))or child) or minor) or juvenile) or ifant) or newborn) or young)) AND (((refugee(MeSH Terms) OR refugee) or migrant) or asylum seeker) AND ((Europe(MeSH Terms)) Or Europe)) AND ((((guideline) or pathway) or recommendation) or policy) or guideline(MeSHTerm)) </pre>	625
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Table 4 displays the detailed and advanced search in the PubMed database.

3.8.5 Search on national societies websites

The search for guidelines on refugee children's health was performed from April 2018-October 2018 (last access on 1st of October 2018).

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Country	National Society	available through website	availability
Albania	Albanian Paediatric Society	www.aps.al	No
Armenia	Arabkir	www.arabkirjmc.am	No
Austria	ÖGKJ	www.paediatric.at	No
Belgium	Belgische Vereniging voor Kindergeneeskunde	www.bvksbp.be	No
Bulgaria	Bulgarian Paediatric Association	www.pediatria-bg.eu	No
Croatia	Croatian Paediatric Society	www.hpd.com.hr	No
Cyprus	Cyprus Paediatric Society	www.child.org.cy	No
Czech Republic	Czech Paediatric Society	www.cpsjep.cz	No
Denmark	Danish Paediatric Society ; Dansk Paediatrisk Selskab	www.paediatrici.dk	Yes
Estonia	Estonian Paediatric Association	www.elselts.ee	No
Finland	Finnish Paediatric Association	www.suomenlastenlaakariyhdistys.fi	No
France	French Society of Paediatric ; Société Française de Pédiat	www.sfpediatricie.com	No
The Former Yugoslav Republic of Macedonia	Paediatric Association of Macedonia	www.zpm.org.mk	No
Georgia	Georgian Paediatric Association	www.acadpediatr.ge	No
Greece	Hellenic Paediatric Society	www.e-child.gr	No
Germany	Deutsche Gesellschaft für Kinder- und Jugendmedizin	www.dgkj.de	Yes
Hungary	Hungarian Paediatric Association	www.gyermekorvostarsasag.hu	No
Ireland	Royal College of Physician of Ireland ; Faculty of Paediatric	www.rcpi.ie	No
Israel	Israel Paediatric Association	www.pediatrics.org.il	No
Lithuania	Lithuanian Paediatric Association	www.pediatricija.org	No
Luxembourg	Societe Luxembourgeoise de Pediatrie	www.sante.public.lu	No
Moldova	Moldovan Paediatric Society	www.pediatru.md	No
Montenegro	Montenegro Paediatric Assocoation		No
The Netherlands	Paediatric Association of the Netherlands	www.tulipsforchildhealth.nl	Yes
Poland	Polish Paediatric Society	www.ptp.edu.pl	No
Portugal	Portuguese Society of Paediatrics	www.spp.pt	No
Romania	Romanian Society of Paediatrics	www.srped.ro	No
Russia	Russian Public Academy of Paediatrics	www.pediatr-russia.ru/eng/	No
Serbia	Paediatric Association of Serbia	www.imd.org.rs/udruzenje-pedijatara	No
Slovakia	Slovakian Paediatric Society	www.sls-sps.sk	No
Slovenia	Slovenian Paediatric Society	www.zzp.si	No
Spain	Spanish Association of Paediatrics	www.aeped.es	No
Sweden	Swedish Paediatric Society	www.bif.net	No
Turkey	Turkish Paediatric Association	www.turkpediatrici.org.tr	No
United Kingdom	RCPCH	www.rcpch.ac.uk	No
Italy	Italian Paediatric Society	www.sirped.it	No
Canada (selected non-European country)	Canadian paediatric society	www.cps.ca	Yes
Finland	Finnish Paediatric Association	www.suomenlastenlaakariyhdistys.fi	No
Ireland	Royal College of Physician of Ireland	www.rcpi.ie	No

Table 5 displays the detailed search on the websites of paediatric national societies

Methods

3.9 Materials

- Microsoft Office® 16.23 Excel/ Word® for Mac (Redmond, Washington, USA)
- EndNote® X8 (Clarivate Analytics, Germany)
- REDCap® (Nashville, Tennessee, USA)
- Mendeley® Version 1.19.4 Research Manager. Elsevier, RELX group Amsterdam, Netherlands
- SPSS® version 25 (IBM®, Armonk, New York, USA) (Google, Mountain View, California, USA)
- Google translate, website: <https://translate.google.com/> (Google, Mountain View, California, USA)
- MapMaker, by National Geographic, website: <https://mapmaker.nationalgeographic.org>

4 Results

4.1 Overview and data sets

A total of 204 answer sets was received from participants from 31 different countries. After exclusion of empty answer sets, double answer sets and answer sets from countries that cannot be considered, a total of 148 answer sets from 23 different countries remain for further analysis.

Participants from European countries or countries affected by the recent European refugee crisis were taken into consideration of this analysis. Answer sets from other continents (Africa, South America, North America and Asia) have been excluded. A single contribution was received from several countries. Most participants are situated in the United Kingdom and Ireland (47 participants) followed by Spain (21 participants) and Germany (13 participants).

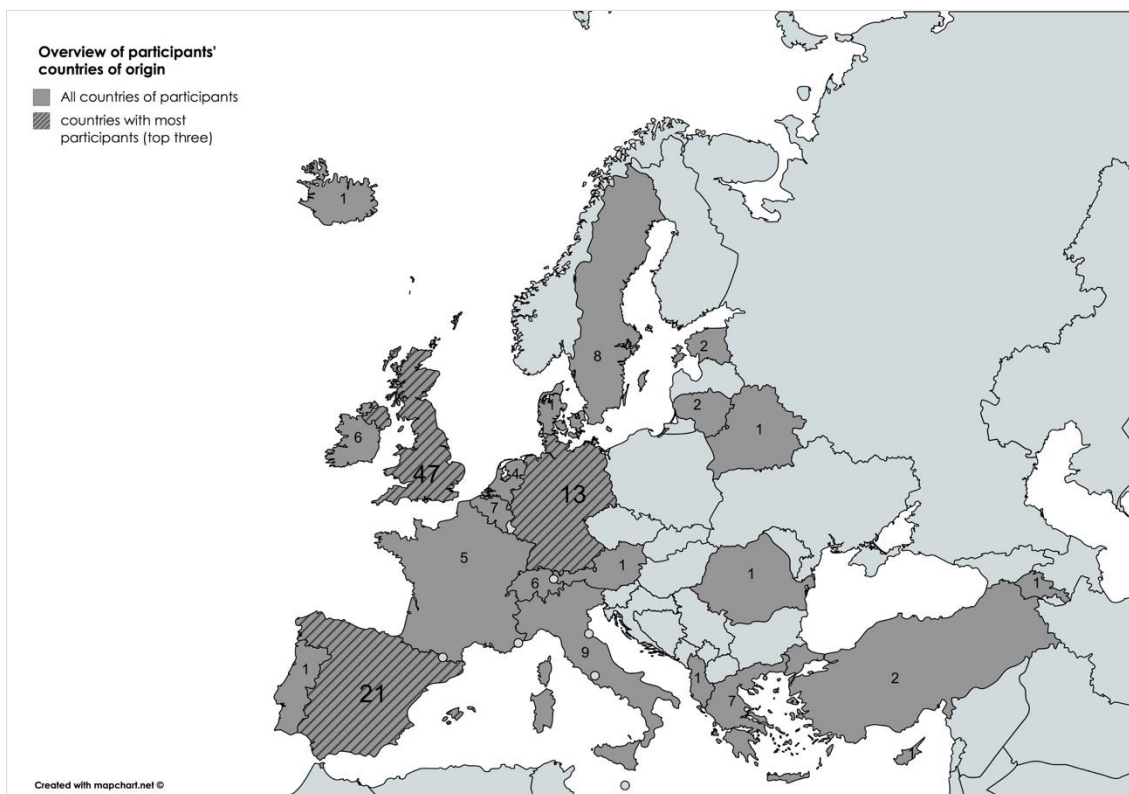


Figure 6 shows a political map of Europe and an overview of the countries of origin of eligible participants (115). The participating countries are coloured in grey. The number of answer sets by the location of the participant is shown additionally. The top three countries with the highest numbers of participation are emphasized in thin diagonal patterns (United Kingdom and Ireland, Spain, Germany). This map was designed with "MapMaker".

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Alongside the general analysis of all European countries, as illustrated in figure 6, another more detailed analysis was conducted by looking at four subdivisions. These subdivisions were defined by the three countries with the most participants (United Kingdom and Ireland, Spain and Germany) and another group representing all data that was collected in Southern Europe (115).

The Southern European data set includes 44 answer sets from nine different Southern European countries (Portugal, Spain, Greece, Albania, Rumania, Cyprus, Georgia, Turkey, Armenia).

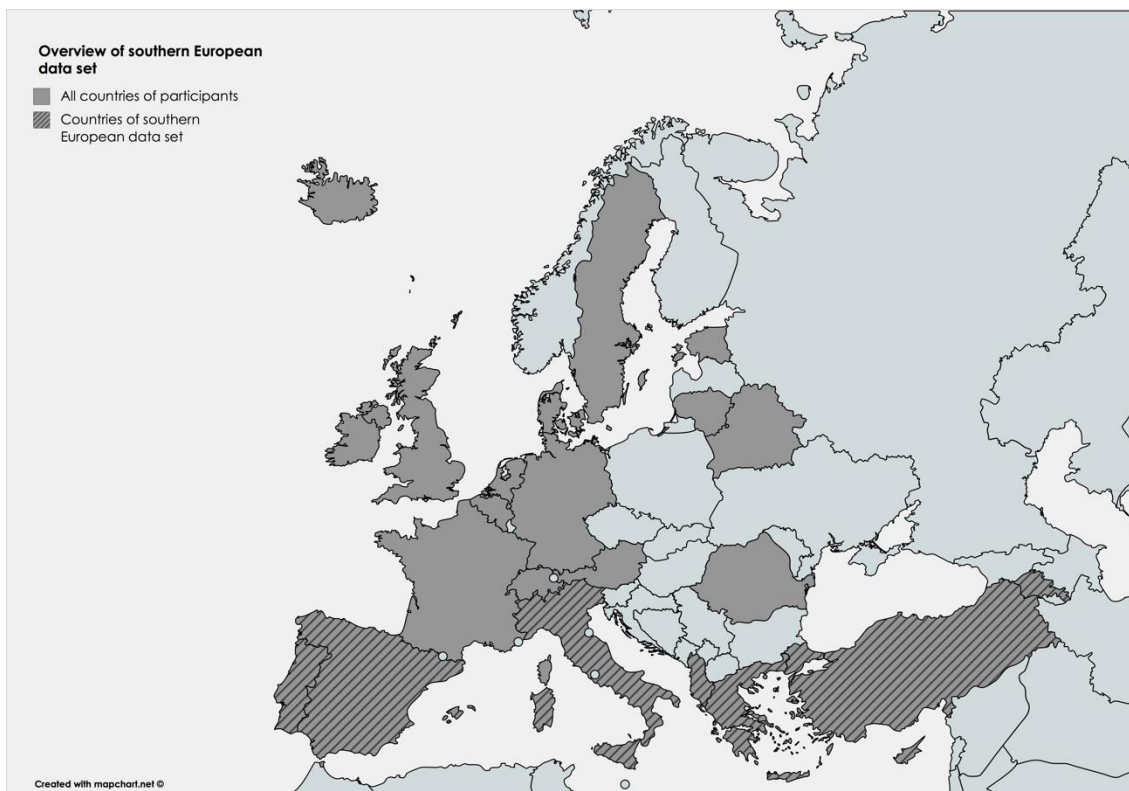


Figure 7 shows a political map of Europe and an overview of the countries of origin of the eligible participants (115). The participating countries are coloured in grey. Countries included in the Southern European data set are emphasised with a thin diagonal pattern. This map was designed with “MapMaker”.

4.1.1 Double answer sets and multiple answer sets from the same site

Completely identical answer sets were identified as doubles and excluded from the analysis. Few participating sites provided more than one answer set with partially different results and therefore were taken into consideration for further analysis. Overall there are nine pairs and two triple answer sets from the same site included in the analysis. The pairs come from Belgium (1), Sweden (1), United Kingdom (2), Spain (3), Germany (1), and Italy (1). The triples come from

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sites in Spain (1) and the United Kingdom (1). Multiple sets by one site were collected from seven different countries.

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4.1.2 Completeness and participation

Of overall 148 eligible answer sets 99 (70 %) were fully completed as shown in figure 8. With a closer look into separate answer sets, the highest number of completeness was achieved by German participants with 85 % completeness, followed by colleagues from the United Kingdom and Ireland with 76 % respectively. In comparison, the answer sets provided by Southern European countries (60 %) and Spain (57 %) show a completeness below the average of all other divisions analysed, as presented in figure 6 and 9.

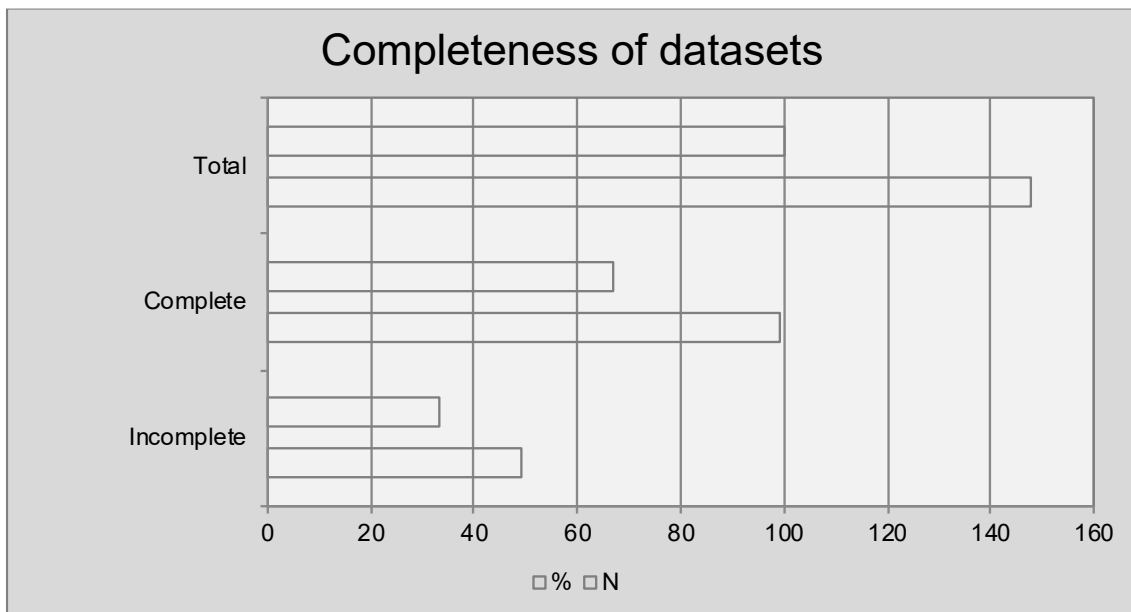


Figure 8 shows a comprehensive overview of the total number of answer sets of all eligible participants and the number of complete and incomplete answer sets (115). All numbers are shown in absolute and percentage values.

Results

	Incomplete	Complete	Total	
All eligible participants	49	99	148	N
	33,1	66,9		%
United Kingdom and Ireland	13	40	53	N
	24,5	75,5		%
Southern European countries*	18	26	44	N
	40,9	59,1		%
Spain	9	12	21	N
	42,9	57,1		%
Germany	2	11	13	N
	15,4	84,6		%

Table 6 shows a comprehensive overview of the absolute number of answer sets of all eligible participants and answer sets of the three most participating countries and a collection of all Southern European answer sets. All numbers are shown in absolute and percentage values. * (the Southern European countries include Portugal, Spain, Greece, Albania, Rumania, Cyprus, Georgia, Turkey, Armenia)

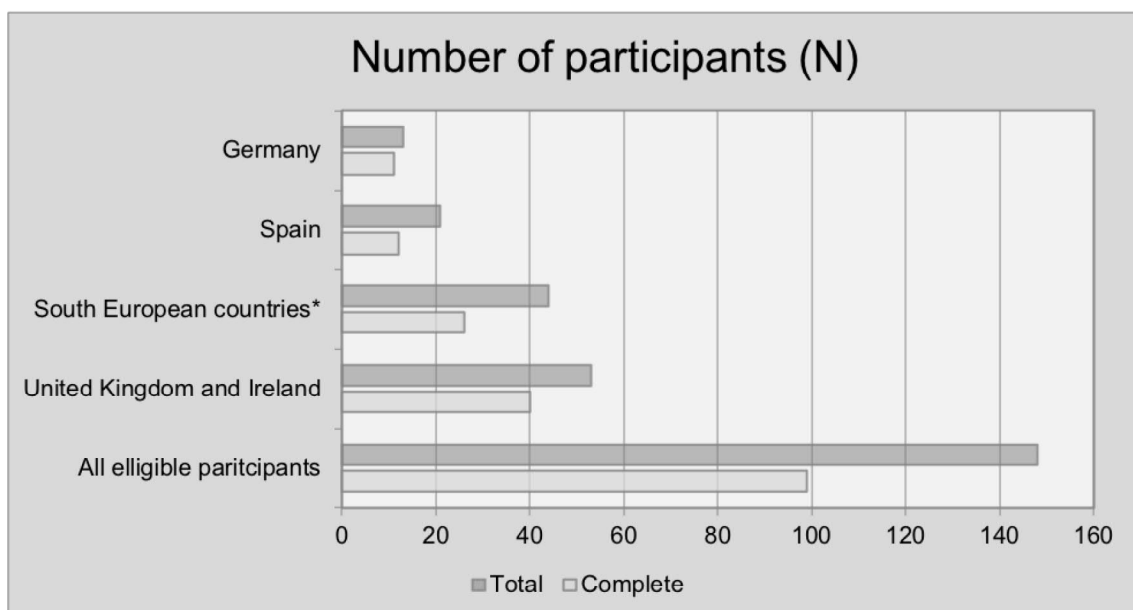


Figure 9 shows a comprehensive overview of the absolute number of answer sets overall and subdivided by separate data sets (United Kingdom and Ireland, Southern European countries, Spain and Germany). Additionally, the numbers of complete answer sets as well as the absolute number of all eligible answer sets are displayed. * (the Southern European countries include Portugal, Spain, Greece, Albania, Rumania, Cyprus, Georgia, Turkey and Armenia)

As displayed in figure 10, the number of questions answered decrease throughout the course of the survey. The most answers are provided about setting and background information of the site. In this chapter almost all questions were answered by the participants. Throughout the following chapters the number of completed answers decreased up to the second last chapter of

Results

“Presentation”. For this chapter less than 100 answers were received. The remaining six chapters received between 100 and 148 answers.

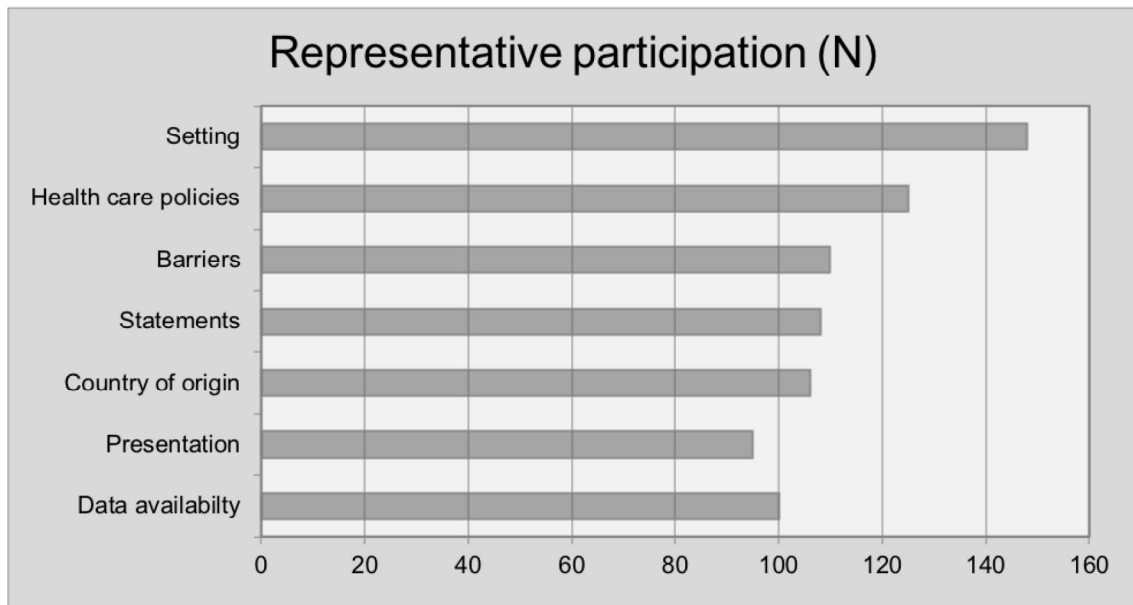


Figure 10 shows the representative absolute number of the answers of all eligible data subdivided by chapters of the survey (115).

Results

4.2. Setting

The results regarding the setting information of all eligible participants are displayed in Table 7 and 8. The numbers are shown in absolute and percentage values. All numbers shown in percent are related to the total amount of questions answered.

	N	%	
In what type of hospital do you work?	general district hospital *	24	16,2
	teaching or academic hospital	120	81,1
	other	4	2,7
	total answered	148	

Table 7 shows the results of the type of hospital the participants are engaged at (115). All numbers are presented in absolute and percentage values. * or non-academic institution

	N	%	
Is your country part of the European Union?	No	12	8,1
	Yes	136	91,9
	total answered	148	

Table 8 shows the results of further setting information on whether the participants are located in the EU or not (115). All numbers are presented in absolute and percentage values.

A large majority of participants work at teaching or academic hospitals (81 %) and only 16 % claim to work at general district hospitals. Only four participants decided on “other”. Two of those participants work at point of prevalence centres in a German refugee camp. A detailed overview of the free text answers is displayed in the appendix.

Most participants (92 %) are located in EU member countries. Participants from Switzerland, Turkey, Iceland, Albania, Armenia and Belarus were found eligible for analysis from outside the EU.

Tables 9 and 10 show information about transportation hubs in the proximity of the participating hospitals. When asked about the connection of the site to public transport, users were presented a multiple-choice question which was answered 582 times. Most (74 %) participants claimed to be located near an international airport and are located in the proximity of a motorway. Around half (52 %) of the

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hospitals are close to a major train station and 30 % are nearby an international harbour whereas still 18 % claim to be near a national harbour.

	N	%	
Which major transport links do you have in your geographical area?	international airport	109	74,1
	national airport	57	38,8
	international harbour	44	29,9
	national harbour	27	18,4
	major connecting train station*	76	51,7
	main train station	96	65,3
	local train station	70	47,6
	proximity to motorway	103	70,1
	total answered	582	

Table 9 shows the results for further setting information. It displays detailed information on the transport links nearby the participants' hospital (115). The numbers are presented in absolute and percentage values. This question is a multiple-choice question. * including international trains.

The annual number of children visiting the emergency care of the participant's sites varies. Out of 106 eligible answers the majority (31 %) sees between 25.000 and 50.000 children per annum. 26 % claim to see between 10.000 and 25.000 children and 12 % see 5.000 to 10.000 patients under the age of 18. There are still 21 % of participants that see over 50.000 children and 11 % that see less than 5000 per year, only.

	N	%	
How many children (< 18 years) visit your hospital for emergency care annually?	< 5000	12	11,3
	5000 - 10000	13	12,3
	10000 - 25000	27	25,5
	25000 - 50000	33	31,1
	>50000	21	19,8
	total answered	106	
	missings	42	
total	148		

Table 10 shows the results for further setting information. It displays detailed information on the number of children visiting the participating hospitals (115). The numbers are presented in absolute and percentage values.

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	N	%	
Is your hospital located in the vicinity of a refugee camp?	No	110	74,8
	Yes	37	25,2
	total answered	147	

Table 11 shows the results for further setting information. It displays whether participants' hospitals are located in the vicinity of a refugee camp (115). The numbers are presented in absolute and percentage values.

The majority of the participating hospitals are not located in the vicinity of a refugee camp as demonstrated in table 11. Nevertheless, only nine out of 106 (8,5 %) did not see any refugee children in the past 12 months. 42 % saw between 25 and more than 500 refugee children. 26 % stated to not know how many refugee children might have visited their facilities (table 12).

	N	%	
How many refugee children visited your hospital in the last 12 months for emergency care (estimated)?	nil	9	8,5
	< 25	25	23,6
	25 - 100	26	24,5
	100 - 500	10	9,4
	>500	9	8,5
	unknown	27	25,5
	total answered	106	
	missings	42	
	total	148	

Table 12 presents how many refugee children visited the participants' hospitals in the past 12 months (115). The numbers are presented in absolute and percentage values.

As demonstrated in table 13, the majority of participants (76 %) are paediatric consultants. Most of them work in paediatric emergency care (37 %), followed by consultants working in general paediatrics (18 %) and consultants working in paediatric infectious diseases (20 %). Only 6 % are working as health care professionals represented by two nurses and two paramedics. Of the four other health care professionals one is a currently unemployed paediatrician volunteering at a paediatric emergency care unit for refugee children at a refugee camp and one is a scientific assistant at a Swedish university. This question was answered by all eligible participants (115).

Results

	N	%	
Grade of person completing survey	consultant in paediatric emergency care	55	37,2
	consultant in paediatrics	27	18,2
	consultant in paediatric ID	30	20,3
	consultant, other	5	3,4
	junior doctor or trainee <3 years	5	3,4
	junior doctor or trainee <4 years	18	12,2
	nurse	2	1,4
	paramedic	2	1,4
	other health care professional	4	2,7
	total answered	148	

Table 13 shows further results on the information of participants of this study and their own level of training (115). The numbers are presented in absolute and percentage values. The term “infectious disease” is abbreviated as “ID”.

Further setting information about the participating facilities is provided by the following answers. Table 14 presents the level of training of health care professionals who are providing emergency care for children at their institutions. This multiple-choice question was answered actively 675 times by 107 participants and shows interesting results. 71 % of the participating hospitals provide care with paediatric consultants and even 60 % with paediatric emergency care consultants. In 75 % of the locations, paediatric trainees with up to three years of training regularly provide the initial care. At 43 % of all participating emergency care sites, nurse specialist practitioners work at paediatric emergency care units.

	N	%	
In your hospital, who provides the emergency care for children?	paediatric trainees up to 3 years *	107	74,8
	paediatric trainees <4 years *	100	69,9
	emergency care trainees up to 3 years *	67	46,9
	emergency care trainees <4 years *	64	44,8
	paediatric consultants	101	70,6
	paediatric ER consultants	86	60,1
	emergency care consultants	42	29,4
	nurse specialists in paediatric ER	62	43,4
	nurse specialists practitioner in ER	36	25,2
	other	10	7
	total answered	675	

Table 14 shows the results on further setting information. The participants were asked who provides care for children visiting their ER (115). The numbers are presented in absolute and percentage values. The term “emergency room” is abbreviated as “ER”. * of experience in speciality

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A deeper look into this data shows that one participant checked all 10 possible answers (from Forth Valley Royal Hospital, Scotland) and still seven participants checked nine answer choices. On the contrary 12 claimed only one level of training for their staff at paediatric emergency care. Those hospitals are, for example, located at Leipzig (Germany), Treileburg (Sweden) or Milan (Italy). Furthermore, two participating sites are staffed only with paediatric trainees with up to three years of working experience, (Clinical Hospital Children in Brasov, Romania and Ospedale de Bambini di Brescia, Italy). At full length this individual analysis is too detailed and extensive to be displayed in a comprehensive table at the appendix. A detailed summary of the free text results for the setting information is always available on further request. (115)

	N	%	
In your hospital, where do you see children for non-planned emergency care?	paediatric ER department	113	79,6
	mixed adult and paediatric ER	21	14,8
	outpatient clinics	27	19
	paediatric ward	35	24,6
	other	9	6,3
	total answered	205	

Table 15 shows the results on further setting information. The participants were asked where at their institutions and facilities the emergency care for children is provided (115). The numbers are presented in absolute and percentage values. The term "emergency room" is abbreviated as "ER".

Table 15 presents the numbers on where emergency care for children at the participating facilities is provided. This question was a multiple-choice question and has been answered 205 times by 113 participants. A large majority (72 participants) chose one possible answer and most of them (80 %) provide care at the paediatric emergency care departments. At four hospitals emergency care is provided at a paediatric ward, only. A total of 21 participants claimed to see their paediatric patients at mixed adult and paediatric emergency departments. Interestingly, nine of those 21 sites see their patients at mixed departments, only. The remaining 12 participants used multiple answer possibilities. The majority of those hospitals that see their patients at mixed emergency departments, only, and are located in the United Kingdom but some also in Spain and the Netherlands. Further results for this specific analysis are displayed in the appendix. (115)

4.2.1 Comparing setting information

Comparing the data sets, it is shown that the level of institutions is higher in hospitals of Southern European countries. According to the results, 91 % of Southern European hospitals are teaching or academic hospitals. This picture is more diverse in Germany with 61 % being teaching or academic hospitals. Two participants provided information from a primary care institution at a refugee camp, which is represented in the section “other”. The vicinity to a refugee camp varies among the participants. None of the Spanish participants claims to be located near a refugee camp and in the United Kingdom and Ireland there is only one site close to a refugee camp. The Southern European data set displays that 80 % of the participants are not located within the proximity to a refugee camp. Notably, a total of 21 participants of those overall 35 who claimed not to be located in the vicinity of a refugee camp, are from Spain. The participating German sites demonstrate the very opposite. Here, 92 % are located in the vicinity of a refugee camp.

Linked to those answers, all German sites saw refugee children in the past 12 months and only one of them saw below 25 refugee children in the same time period. Therefore, all but one German site saw more than 25 refugee children in the past 12 months in their emergency care facilities.

By comparison, three of the Spanish participants claim to not have seen any refugee children. However, at least seven (50 %) participants saw some refugee children in the past 12 months. In general, the German sites see rather less children overall. None of these participants answered they see more than 50.000 children annually. Compared to that, 57 % of the Spanish participants' emergency care facilities provide care to more than 50.000 children every year. In the United Kingdom and Ireland results appear more diverse with nine (21 %) participating sites seeing over 50.000 children and two (5 %) small sites that see less than 5.000 children annually.

Furthermore, the results give an overview of where and by whom children are seen in participating emergency rooms. In the Spanish (90 %) and Southern European (93 %) data sets most sites see children at paediatric emergency rooms whereas in the United Kingdom and Ireland and the German data, more

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variety is displayed. In the United Kingdom and Ireland 29 % of the participating sites see children at mixed emergency rooms while 26 % provide care at paediatric wards. At German sites even more children are seen at paediatric wards (41 %).

The majority of personnel completing the survey is on consultant level throughout all the country sets analysed. Nonetheless, a remote difference in specialty of the consultants can be identified. The German participants are mainly paediatric consultants (46 %) while in the United Kingdom and Ireland as well as in Spain, the majority of people completing the survey are on a consultant level for paediatric emergency care. The detailed graphs of the data described above are displayed in the appendix.

4.3 Health care policies

Table 16 and 17 display results for health care policies for five topics related to emergency care for refugee children and three more questions on surrounding setting information. These questions were single answer questions with three possible choices. Additionally, participants were asked to upload further material and describe existing policies or guidelines. The nine questions on existing health care policies were completed between 120 and 125 times by all eligible participants. The majority claims that there are no guidelines on this topic. Nonetheless 30 % to 33 % have policies for refugee children presenting to their emergency department, 30 % for immunisation and catch up immunisations, 33 % for infection screening and 32 % for safeguarding concerns and social care referral. Significantly less often, participants have guidelines for general presentation to the emergency department (18 %) and mental health issues and symptoms of post-traumatic stress syndrome (14 %). Teaching sessions on how to manage refugee children are only provided to 15 % of our participants. At many sites (69 %) active organisations give support in health care matters for refugee children (115).

Results

Does your hospital have a guideline or a policy for refugee children (and):	yes	no	unknown	total	
immunisation status and catch up immunisations	37	69	19	125	N
	29,6	55,2	15,2		%
infection screening, including Tuberculosis screening	40	63	21	124	N
	32,3	50,8	16,9		%
safeguarding concerns and social care referral	38	65	19	122	N
	31,1	53,3	15,6		%
presenting to the emergency department	22	82	19	123	N
	17,9	66,7	15,4		%
mental health issues and symptoms of post traumatic stress syndrome	17	81	25	123	N
	13,8	65,9	20,3		%

Table 16 displays a comprehensive overview of the health care policies of the participants' sites. The participants completing the survey were asked if their hospital has a guideline or a policy for topics related to refugee children (115). The numbers are presented in absolute and percentage values.

	yes	no	unknown	total	
Does your hospital provide teaching sessions for physicians on how to manage refugee children in emergency care?	19	97	6	122	N
	15,6	79,5	4,9		%
Does your hospital have regular discussions with Public Health or other organisations concerning health care of refugee children?	24	69	29	122	N
	19,7	56,6	23,8		%
Are there any organisations active in your region who provide support and health care for refugee children?	69	18	35	122	N
	56,6	14,8	28,7		%

Table 17 displays additional information of the health care policies of the participants' sites (115). The participants completing the survey were asked if their hospital provides teaching sessions, has regular discussions with Public Health Care and if there are other organisations related to emergency care for refugee children. The numbers are presented in absolute and percentage values.

4.3.1 Comparing health care policies

The next chapter shows the results for health care policies in comparison of participants' locations. The numbers are presented in absolute and percentage values. The percentage is always related to all questions answered. Additionally, participants were asked to upload available guidelines or policies. A brief summary of the eligible free text answers and the available uploaded material can be found in the appendix.

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Table 18 presents the results for available guidelines for the immunisation status and catch up immunisations by different data sets. The majority of the participants do not have any guidelines available. However, the German sites appear to have some guidelines available. This applies for immunisation status (55 %) and even more on infection screening (73 %) which is presented in table 19.

Does your hospital have a guideline or a policy for refugee children (and): immunisation status and catch up immunisations?	yes	no	unknown	total	free text	uploads	
All	37 29,6	69 55,2	19 15,2	125	26	4	N %
Southern Europe	10 27	24 64,9	3 8,1	37	8		N %
United Kingdom and Ireland	4 9,1	30 68,2	10 22,7	44	3		N %
Spain	5 33,3	8 53,3	2 13,3	15	3		N %
Germany	6 54,5	4 36,4	1 9,1	11	5		N %

Table 18 displays an overview of the health care policies for refugee children presenting to the emergency department and how to check or catch up the immunisation status by different data sets. The numbers are shown in absolute and percentage values.

Concerning available policies for the immunisation status, the free text section was used by 26 participants from 11 different countries. 13 participants claimed to have national vaccination guidelines for catching up immunisations with no special procedure or policy for refugee children. 11 participants explained special awareness for refugee children along with local or national guidelines. On this topic four documents were uploaded. They contain current recommendations by the German Standing committee on vaccination (STIKO) and a special concept for unimmunised asylum-seeking children in Germany. They also contain a Swiss paper on detailed guidance on how to approach unimmunised refugee children as well as a brief summary of common or typical infectious diseases in refugee children. The third document is a clinical pathway for emergency care for refugee children by British colleagues with three main trees (infectious diseases, emotional health and sexual health).

For the question of infection screenings (table 19) 22 answers from 11 countries are received. 10 of those participants claim to have policies for infection screening. One participant from London claims there is a guideline in the process to be re-written at the moment. The uploaded documents are provided by a Swiss

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and German site and both show detailed recommendations on the most common or important infectious diseases.

Does your hospital have a guideline or a policy for refugee children (and): infection screening, including Tuberculosis screening?	yes	no	unknown	total	free text	uploads	
All	40 32,3	63 50,8	21 16,9	124	22	2	N %
Southern Europe	9 25	22 61,1	5 13,9	36	6		N %
United Kingdom and Ireland	5 11,4	28 63,6	11 25	44	3		N %
Spain	3 20	9 60	3 20	15	3		N %
Germany	8 72,7	3 27,3		11	6		N %

Table 19 displays an overview of the health care policies for refugee children presenting to the emergency department and infection screening, including tuberculosis by different data sets. The numbers are shown in absolute and percentage values.

Table 20 compares results among the different country groups for safeguarding concerns and social referral. The results appear comparatively similar throughout the data sets. Around half of the sites have no available guidelines while still roughly a third of the participants claim to have policies readily available for this matter. The 16 free text answers are provided by participants from nine different countries. Seven of them describe specific recommendations for refugee children mostly as procedures for when and how to contact social services. One participant from the United Kingdom writes about a “multi-agency referral form and triage that identifies all/any child at safeguarding risk”.

Does your hospital have a guideline or a policy for refugee children (and): safeguarding concerns and social care referral?	yes	no	unknown	total	free text	uploads	
All	38 31,1	65 53,3	19 15,6	122	16	1	N %
Southern Europe	9 26,5	19 55,9	6 17,6	34	5		N %
United Kingdom and Ireland	14 31,1	24 53,3	7 15,6	45	7		N %
Spain	5 33,3	7 46,7	3 20	15	1		N %
Germany	4 36,4	5 45,5	2 18,2	11	1		N %

Table 20 displays an overview of the health care policies for refugee children presenting to the emergency department and safeguarding concerns and social care referral by different data sets. The numbers are shown in absolute and percentage values.

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Table 21 shows a comparison of the results for recommendations on refugee children presenting to the emergency department. The results appear relatively unified throughout all data sets with the exception of the United Kingdom and Ireland having less policies on refugee children presenting to the emergency department available. The free text option was used by 11 participants from nine different countries. Only two of them describe specific recommendations for refugee children. In a participating hospital in Athens, separate keynote books for taking care of refugee children are provided. In a hospital in Belfast, Syrian refugee children are examined at the airport and afterwards brought to a suitable hospital.

Does your hospital have a guideline or a policy for refugee children (and): presenting to the emergency department?	yes	no	unknown	total	free text	uploads
All	22 17,9	82 66,7	19 15,4	123	11	N %
Southern Europe	8 22,9	23 65,7	4 11,4	35	5	N %
United Kingdom and Ireland	3 6,8	32 72,7	9 20,5	44 100	1	N %
Spain	2 13,3	10 66,7	3 20	15	1	N %
Germany	4 36,4	6 54,5	1 9,1	11	2	N %

Table 21 displays an overview of the health care policies for refugee children presenting to the emergency department by different data sets. The numbers are shown in absolute and percentage values.

Table 22 demonstrates the results for policies and guidelines for refugee children and mental health issues and PTSD. A large majority claims not to have any guidelines or policies on these matters (81 %). The German participants indicate to know relatively many guidelines (36,4 %) in contrast to the participants from the United Kingdom and Ireland, where only 6,8 % claim to have guidelines on mental health issues available. The free text option was used by seven participants.

Results

Does your hospital have a guideline or a policy for refugee children (and): mental health issues and symptoms of post traumatic stress syndrome?	yes	no	unknown	total	free text	uploads
All	17 13,8	81 65,9	25 20,3	123	7	N %
Southern Europe	4 11,4	24 68,6	7 20	35		N %
United Kingdom and Ireland	4 9,1	29 65,9	11 25	44		N %
Spain	2 13,3	10 66,7	3 20	15		N %
Germany	4 36,4	6 54,5	1 9,1	11		N %

Table 22 displays an overview of the health care policies for refugee children presenting to the emergency department and how to deal with mental health issues and symptoms of post-traumatic stress syndrome by different data sets. The numbers are shown in absolute and percentage values.

A large majority of participants claimed to have no teaching sessions on how to manage refugee children in the emergency care, except for the German sites (table 22). Six participants (54 %) do have teaching sessions in that matter. The Southern European participants as well as the participants from the United Kingdom and Ireland claim that there are no teaching sessions available (91 %). The free text answer section was used by nine participants from six different countries. The teaching strategies described vary between lectures (Freiburg, Germany), seminars and discussions (Brussels, Belgium) and morning rounds (Munich, Germany). No further documents were uploaded for the questions in Tables 24 to 26.

Does your hospital provide teaching sessions for physicians on how to manage refugee children in emergency care?	yes	no	unknown	total	free text	uploads
All	19 15,6	97 79,5	6 4,9	122	9	N %
Southern Europe	3 8,6	32 91,4		35	1	N %
United Kingdom and Ireland	1 2,3	40 90,9	3 6,8	44		N %
Spain	2 13,3	13 86,7		15	1	N %
Germany	6 54,5	5 45,5		11	4	N %

Table 23 displays an overview of the results for provided teaching sessions for physicians on how to manage refugee children at the emergency care by different data sets. The numbers are shown in absolute and percentage values.

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Does your hospital have regular discussions with Public Health or other organisations concerning health care of refugee children?	yes	no	unknown	total	free text	uploads
All	24 19,7	69 56,6	29 23,8	122	10	N %
Southern Europe	4 11,4	24 68,6	7 20	35	1	N %
United Kingdom and Ireland	2 4,5	28 63,6	14 31,8	44	2	N %
Spain	12 80	3 20		15		N %
Germany	6 54,5	3 27,3	2 18,2	11	3	N %

Table 24 displays an overview of health care policies for refugee children presenting to the emergency department and how to check or catch up the immunisation status by different data sets. The numbers are shown in absolute and percentage values.

As displayed in Table 24, most of the participants have no regular discussions with public health care representatives or did not decide on this matter. Whereas, 80 % of the Spanish participants claim that they do have regular discussions with public health care or other organisations concerning health care for refugee children. Roughly half of the German participants also have regular discussions with public health care. The free text option was used by ten participants from five different countries. The frequencies range between twice a year (Malmö, Sweden) to every three months (Freiburg, Germany).

Are there any organisations active in your region who provide support and health care for refugee children?	yes	no	unknown	total	free text	uploads
All	69 56,6	18 14,8	35 28,7	122	23	N %
Southern Europe	21 60	6 17,1	8 22,9	35	6	N %
United Kingdom and Ireland	19 43,2	6 13,6	19 43,2	44	8	N %
Spain	5 33,3	4 26,7	6 40	15	2	N %
Germany	10 90,9		1 9,1	11	2	N %

Table 25 displays an overview of the results of active organisations who provide support and health care for refugee children nearby by different data sets. The numbers are shown in absolute and percentage values.

Among the sites that feature active organisations for health care for refugee children (table 26), the German sites are leading (91 %), followed by the Southern European sites (60 %). Interestingly, in the United Kingdom and Ireland (43 %) and Spain (40 %) this was unknown to a larger group. The free text option asked to describe what organisations are active in the vicinity of the participating sites.

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This was answered 23 times by ten different countries. The Southern European countries mainly named “Médecins du Monde”, whereas, the German sites named “REFUDOCS” as an active organisation in the vicinity of the participating sites.

A comparison of results for routinely provided follow up appointments for refugee children after their first visit to the emergency department is displayed in table 26. Very few sites appear to always provide follow up appointments. Remarkably, none of the German sites or from the United Kingdom and Ireland always provide follow-up appointments on a regular basis. Interestingly, all German sites state that they do “not routinely” provide follow-up appointments. For 40 % of the Spanish participants the answer to this question was “unknown”. The following free text option was meant to leave additional remarks on health care policies and was used by 30 participants from ten different countries. One free text option from a German participant states that the German health care system could not cope with the necessities of refugee children.

Does your hospital routinely provide follow-up appointments in your hospital for refugee children after a first visit to the emergency department?	yes, always	not routinely*	never	unknown	total	
All	9 7,5	82 68,3	14 11,7	15 12,5	120	N %
Southern Europe	4 11,4	21 60	3 8,6	7 20	35	N %
United Kingdom and Ireland	31 70,5	7 15,9		6 13,6	44	N %
Spain	3 20	4 26,7	2 13,3	6 40	15	N %
Germany		11 100			11	N %

Table 26 displays an overview of the health care policies for refugee children presenting to the emergency department and whether participants' hospitals provide follow-up appointments in their hospital after a first visit to the emergency department by different data sets. The numbers are shown in absolute and percentage values. * but sometimes based on clinical indication

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4.4 Perceived barriers

Table 27 shows the results for the perceived barriers of all eligible participants. The numbers are shown in percent. All numbers shown in percent relate to the absolute number of questions answered and do not relate to the maximum number of possible answers. The participants were asked whether the following issues are perceived as barriers to providing emergency care to refugee children in their hospitals. Each question had to be answered with one out of six possible options. The overall participation was 74 % (110 answers out of 148 eligible participants).

Please indicate whether or not the following issues are perceived as a barrier to providing emergency care to refugee children in your hospital. In our hospital "____" is/are (an) important barrier(s) to providing emergency care to refugee children	agree/ completely agree	neither agree or disagree	disagree/ completely disagree	don't know
language barriers	60	10,9	29,1	
not knowing previous medical history	53,6	12,7	32,8	0,9
dealing with symptoms of post traumatic stress syndrome	51,8	19,1	20,9	8,2
mental health problems, and inability to deal with these in the ED	50	21,8	23,7	4,5
giving appropriate safety netting advice	47,3	11,8	35,5	5,5
problems with the social situation and safeguarding concerns	45,5	13,6	39,1	1,8
cultural differences influencing health care expectations	44,6	16,4	37,3	1,8
organising follow-up appointments	39,1	11,8	47,2	1,8
the prescribing of medications	29,1	17,3	52,7	0,9
the underlying pathology of presenting problems	21	21,8	52,8	4,5
sexual health problems	20,9	22,7	45,5	10,9
funding	20	17,3	57,2	5,5
rare or drug resistant infectious diseases	12,7	22,7	59,1	5,5
the severity of illness	4,5	16,4	77,3	1,8

Table 27 shows the numbers to the graph displayed in figure 11. It gives a comprehensive overview of the perceived barriers in taking care of refugee children (115). The participants were asked whether the following issues are perceived as a barrier to providing emergency care to refugee children in their hospital. Each barrier is a single answer. Answer options "agree" and "completely agree" as well as "disagree" and "completely disagree" are presented summarised. The numbers are shown in percent, only. The term "emergency department" is abbreviated as "ED".

Looking at summarised numbers displayed in table 27, the perceived barriers in taking care for refugee children differ immensely. The collective of all participants chose language barriers (60 %), unknown previous medical history (54 %), dealing with symptoms of post-traumatic stress syndrome (52 %), mental health problems and inability to deal with these in the ER (50 %) as the most frequent barriers. Far behind are cases of severity of illness (4,5 %) and cases of rare or drug resistant infectious diseases (13 %). The number of participants that did not know an answer to the questions asked is low throughout all data and varies

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between none in “language barriers” to a maximum (11 %) in “sexual health problems”.

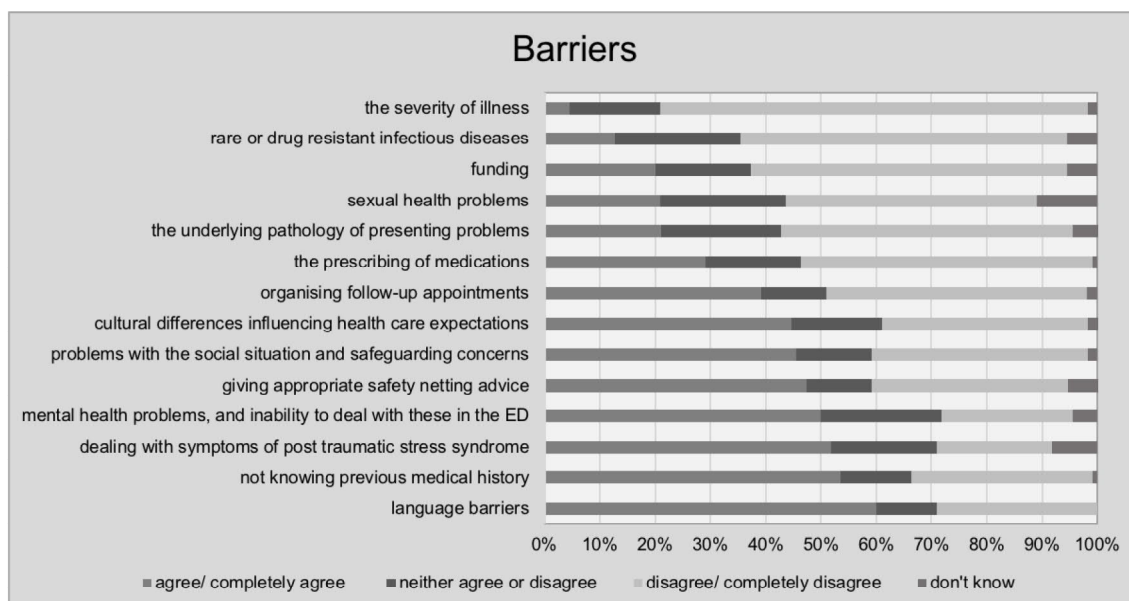


Figure 11 displays an overview of the perceived barriers in taking care of refugee children (115). The participants were asked whether the following issues are perceived as a barrier to providing emergency care to refugee children in their hospital. One answer out of six options had to be chosen. The numbers are presented in percent. The term “emergency department” is abbreviated as “ED”.

For more clarity at first sight, both visuals (graph and table) show data that was summarised and displayed in percent, only. The original survey questions offered seven different answer possibilities. The participants could choose if they “completely agree” or “agree” on the one hand, or whether they “completely disagree” or “disagree” on the other hand. Furthermore, the answer possibilities that they “neither agree nor disagree” or they “do not know”, were optional. In the appendix all data is illustrated in detail and in absolute and percentage values (115).

4.4.1 Comparing perceived barriers

Table 28 shows a comparison of the results for perceived barriers, subdivided by locations. Each barrier is shown on its own table and the results are shown in absolute and percentage values, related to the number of questions answered.

As presented in table 28 language is strongly perceived as a barrier to providing health care for refugee children by all German participants with 64 % that

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completely agree and 36 % that agree. In other countries this barrier is still noticed but not as strongly. For example, only 31 % disagree and 7 % completely disagree in the United Kingdom and Ireland.

language barriers	completely disagree	disagree	neither agree or disagree	agree	completely agree	dont know	total answered	
All	4	28	12	47	19		110	N
	3,6	25,5	10,9	42,7	17,3			%
Southern Europe		8	4	16	2		30	N
		26,7	13,3	53,3	6,7			%
United Kingdom and Ireland	3	13	4	18	4		42	N
	7,1	31	9,5	42,9	9,5			%
Spain		2	2	9	2		15	N
		13,3	13,3	60	13,3			%
Germany				4	7		11	N
				36,4	63,6			%

Table 28 displays a detailed overview of the results for language barriers as a perceived barrier in taking care of refugee children by different data sets. The participants were asked to rate the following sentence: "In our hospital language is an important barrier to providing emergency care to refugee children." The numbers are presented in absolute and percentage values.

The German sites recognize cultural differences influencing health care expectations as a major barrier in taking care of refugee children as opposed to less than 50 % of all participants (table 29).

cultural differences influencing health care expectations	completely disagree	disagree	neither agree or disagree	agree	completely agree	dont know	total answered	
All	6	35	18	40	9	2	110	N
	5,5	31,8	16,4	36,4	8,2	1,8		%
Southern Europe	2	12	7	6	2	1	30	N
	6,7	40	23,3	20	6,7	3,3		%
United Kingdom and Ireland	2	15	9	13	3		42	N
	4,8	35,7	21,4	31	7,1			%
Spain	1	4	4	5	1		15	N
	6,7	26,7	26,7	33,3	6,7			%
Germany				8	3		11	N
				72,7	27,3			%

Table 29 displays a detailed overview of the results for cultural differences influencing health care expectations as a perceived barrier in taking care of refugee children by different data sets. The participants were asked to rate the following sentence: "In our hospital cultural differences are important barriers to providing emergency care to refugee children." The numbers are presented in absolute and percentage values.

As displayed in table 30 funding as a perceived barrier shows diverse feedback throughout all data sets. With 40 % who completely disagree, the Spanish participants recognize no or minor barriers in funding of health care for refugee

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children. Remarkably, 24 % of the participants from the United Kingdom and Ireland neither agree nor disagree on that matter.

funding	completely disagree	disagree	neither agree or disagree	agree	completely agree	dont know	total answered	
All	27	36	19	15	7	6	110	N
	24,5	32,7	17,3	13,6	6,4	5,5		%
Southern Europe	9	8	2	7	3	1	30	N
	30	26,7	6,7	23,3	10	3,3		%
United Kingdom and Ireland	8	14	10	4	2	4	42	N
	19	33,3	23,8	9,5	4,8	9,5	100	%
Spain	6	3	1	3	1	1	15	N
	40	20	6,7	20	6,7	6,7		%
Germany	2	2	3	1	2	1	11	N
	18,2	18,2	27,3	9,1	18,2	9,1		%

Table 30 displays a detailed overview of the results for funding as a perceived barrier in taking care of refugee children by different data sets. The participants were asked to rate the following sentence: "In our hospital funding is an important barrier to providing emergency care to refugee children." The numbers are presented in absolute and percentage values.

Organising follow up appointments as a perceived barrier also returns varying answers as displayed in table 31. 40 % of the Spanish participants disagree with this statement, but 55 % of the German participants feel scheduling follow up appointments is a perceived barrier.

organising follow up appointments	completely disagree	disagree	neither agree or disagree	agree	completely agree	dont know	total answered	
All	15	37	13	36	7	2	110	N
	13,6	33,6	11,8	32,7	6,4	1,8		%
Southern Europe	3	10	4	9	3	1	30	N
	10	33,3	13,3	30	10	3,3		%
United Kingdom and Ireland	8	15	7	10	1	1	42	N
	19	35,7	16,7	23,8	2,4	2,4	100	%
Spain	2	6	2	3	1	1	15	N
	13,3	40	13,3	20	6,7	6,7		%
Germany		3	1	6	1		11	N
		27,3	9,1	54,5	9,1			%

Table 31 displays a detailed overview of the results for organising follow up appointments as a perceived barrier in taking care of refugee children by different data sets. The participants were asked to rate the following sentence: "In our hospital organising follow up appointments are important barriers to providing emergency care to refugee children." The numbers are presented in absolute and percentage values.

A comparison of the results for problems with social situations and safeguarding concerns as a perceived barrier is presented in table 32. In the United Kingdom and Ireland there is a modest tendency to disagreement. The German participants widely agree, since 18 % completely agree and 55 % agree with this

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statement. The Spanish and the Southern European participants also rather agree with this topic, as well.

problems with the social situation and safeguarding concerns	completely disagree	disagree	neither agree or disagree	agree	completely agree	dont know	total answered	
All	15 13,6	28 25,5	15 13,6	41 37,3	9 8,2	2 1,8	110	N %
Southern Europe	3 10	7 23,3	5 16,7	11 36,7	2 6,7	2 6,7	30	N %
United Kingdom and Ireland	7 16,7	13 31	6 14,3	13 31	3 7,1		42 100	N %
Spain	1 6,7	5 33,3	1 6,7	5 33,3	2 13,3	1 6,7	15	N %
Germany	2 18,2	1 9,1		6 54,5	2 18,2		11	N %

Table 32 displays a detailed overview of the results for problems with the social situation and safeguarding concerns as a perceived barrier in taking care of refugee children by different data sets. The participants were asked to rate the following sentence: "In our hospital problems with the social situation are important barriers to providing emergency care to refugee children." The numbers are presented in absolute and percentage values.

Table 33 presents the results for mental health problems and inability to deal with these in the emergency department as a perceived barrier. On this matter, Spanish and German participants are relatively unified in perceiving this as a barrier. However, some Southern European participants (other than the Spanish participants) and even more participants from the United Kingdom and Ireland disagree (26 %). Overall the number of neither agree nor disagree is above 20 % in every data set analysed.

mental health problems and inability to deal with these in the ED	completely disagree	disagree	neither agree or disagree	agree	completely agree	dont know	total answered	
All	7 6,4	19 17,3	24 21,8	39 35,5	16 14,5	5 4,5	110	N %
Southern Europe	1 3,3	3 10	8 26,7	9 30	6 20	3 10	30	N %
United Kingdom and Ireland	5 11,9	11 26,2	9 21,4	12 28,6	4 9,5	1 2,4	42 100	N %
Spain			4 26,7	5 33,3	4 26,7	2 13,3	15	N %
Germany			3 27,3	3 27,3	5 45,5		11	N %

Table 33 displays a detailed overview of the results for mental health problems and inability to deal with these in the emergency department as a perceived barrier in taking care of refugee children by different data sets. The participants were asked to rate the following sentence: "In our hospital mental health problems, and inability to deal with these in the emergency department are important barriers to providing emergency care to refugee children." The term "ED" stands for the "emergency department". The numbers are presented in absolute and percentage values.

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Table 34 shows the results for the underlying pathology of presenting symptoms by refugee children presenting to the emergency departments. The participants from the United Kingdom and Ireland comparatively disagree with this statement. In contrast to this, the Spanish participants give more balanced answers while 36 % of the German participants neither disagree nor agree. Comprehensively, a modest majority disagrees with the statement.

the underlying pathology of presenting problems	completely disagree	disagree	neither agree or disagree	agree	completely agree	dont know	total answered	
All	18	40	24	17	6	5	110	N
	16,4	36,4	21,8	15,5	5,5	4,5		%
Southern Europe	4	11	3	6	5	1	30	N
	13,3	36,7	10	20	16,7	3,3		%
United Kingdom and Ireland	9	18	11	2	1	1	42	N
	21,4	42,9	26,2	4,8	2,4	2,4	100	%
Spain	2	5	1	3	3	1	15	N
	13,3	33,3	6,7	20	20	6,7		%
Germany	2	1	4	3		1	11	N
	18,2	9,1	36,4	27,3		9,1		%

Table 34 displays a detailed overview of the results for the underlying pathology of presenting problems as a perceived barrier in taking care of refugee children by different data sets. The participants were asked to rate the following sentence: "In our hospital the underlying pathology of presenting problems is an important barrier to providing emergency care to refugee children." The numbers are presented in absolute and percentage values.

The severity of illness, as presented in table 35, is not perceived as a barrier by most participants throughout all data sets. The German participants are thoroughly united with 82 % either completely disagreeing or disagreeing.

the severity of illness	completely disagree	disagree	neither agree or disagree	agree	completely agree	dont know	total answered	
All	31	54	18	4	1	2	110	N
	28,2	49,1	16,4	3,6	0,9	1,8		%
Southern Europe	7	16	5	2			30	N
	23,3	53,3	16,7	6,7				%
United Kingdom and Ireland	11	21	8	1	1		42	N
	26,2	50	19	2,4	2,4		100	%
Spain	4	9	1	1	0		15	N
	26,7	60	6,7	6,7				%
Germany	5	4	2				11	N
	45,5	36,4	18,2					%

Table 35 displays a detailed overview of the results for severity of illness as a perceived barrier in taking care of refugee children by different data sets. The participants were asked to rate the following sentence: "In our hospital the severity of illness is an important barrier to providing emergency care to refugee children." The numbers are presented in absolute and percentage values.

Results

Further along, rare or drug resistant infectious diseases neither appear to be a perceived barrier. Most answers throughout all country sets disagree or completely disagree with this matter (table 36).

rare or drug resistant ID	completely disagree	disagree	neither agree or disagree	agree	completely agree	dont know	total answered	
All	19 17,3	46 41,8	25 22,7	13 11,8	1 0,9	6 5,5	110	N %
Southern Europe	4 13,3	13 43,3	8 26,7	3 10		2 6,7	30	N %
United Kingdom and Ireland	8 19	16 38,1	10 23,8	4 9,5	1 2,4	3 7,1	42 100	N %
Spain	2 13,3	6 40	5 33,3			2 13,3	15	N %
Germany		5 45,5	4 36,4	2 18,2			11	N %

Table 36 displays a detailed overview of the results for rare or drug resistant infectious diseases as a perceived barrier in taking care of refugee children by different data sets. The participants were asked to rate the following sentence: "In our hospital rare or drug resistant infectious diseases are important barriers to providing emergency care to refugee children." The numbers are presented in absolute and percentage values.

not knowing previous medical history	completely disagree	disagree	neither agree or disagree	agree	completely agree	dont know	total answered	
All	7 6,4	29 26,4	14 12,7	45 40,9	14 12,7	1 0,9	110	N %
Southern Europe	2 6,7	6 20	5 16,7	13 43,3	4 13,3		30	N %
United Kingdom and Ireland	3 7,1	15 35,7	7 16,7	14 33,3	3 7,1		42 100	N %
Spain	1 6,7	2 13,3	4 26,7	5 33,3	3 20		15	N %
Germany		1 9,1		4 36,4	6 54,5		11	N %

Table 37 displays a detailed overview of the results for not knowing previous medical history as a perceived barrier in taking care of refugee children by different data sets. The participants were asked to rate the following sentence: "In our hospital not knowing previous medical history is an important barrier to providing emergency care to refugee children." The numbers are presented in absolute and percentage values.

Most participants agree that not knowing the previous medical history of refugee children is perceived as a barrier (table 37) and even 55 % of German participants completely agree on that.

Giving the appropriate safety netting is mostly agreed by the participants to be a perceived barrier throughout the different data sets, as presented in table 38. Nonetheless, 33 % of the participants from the United Kingdom and Ireland still disagree and 14 % even completely disagree.

Results

giving appropriate safety netting advice (i.e.: medical advice given at time of discharge)	completely disagree	disagree	neither agree or disagree	agree	completely agree	dont know	total answered	
All	8	31	13	41	11	6	110	N
	7,3	28,2	11,8	37,3	10	5,5		%
Southern Europe	2	8	5	10	2	3	30	N
	6,7	26,7	16,7	33,3	6,7	10		%
United Kingdom and Ireland	6	14	3	16	3		42	N
	14,3	33,3	7,1	38,1	7,1		100	%
Spain	1	2	1	7	1	3	15	N
	6,7	13,3	6,7	46,7	6,7	20		%
Germany		1	1	4	3	2	11	N
		9,1	9,1	36,4	27,3	18,2		%

Table 38 displays a detailed overview of the results for giving appropriate safety netting as a perceived barrier in taking care of refugee children by the different data sets. The participants were asked to rate the following sentence: “In our hospital giving appropriate safety netting advice (i.e. medical advice given at time of discharge) is an important barrier to providing emergency care to refugee children.” The numbers are presented in absolute and percentage values.

Table 39 shows the results for the prescription of medications as a perceived barrier and it shows relatively contrasting results. 40 % of the Spanish participants agree, while 38 % of the participants from the United Kingdom and Ireland and 36 % of the German participants rather disagree with this statement. Interestingly, only one out of all eligible participants did not know the answer to this question.

the prescribing of medications	completely disagree	disagree	neither agree or disagree	agree	completely agree	dont know	total answered	
All	20	38	19	26	6	1	110	N
	18,2	34,5	17,3	23,6	5,5	0,9		%
Southern Europe	2	11	5	10	2		30	N
	6,7	36,7	16,7	33,3	6,7			%
United Kingdom and Ireland	9	16	9	8			42	N
	21,4	38,1	21,4	19			100	%
Spain	1	4	3	6	1		15	N
	6,7	26,7	20	40	6,7			%
Germany	1	4	1	3	2		11	N
	9,1	36,4	9,1	27,3	18,2			%

Table 39 displays a detailed overview of the results for prescribing medications as a perceived barrier in taking care of refugee children by different data sets. The participants were asked to rate the following sentence: “In our hospital the prescribing of medications is an important barrier to providing emergency care to refugee children.” The numbers are presented in absolute and percentage values.

The results for sexual health problems are presented in table 40 with mostly disagreeing participants. Notably, 27 % of the German participants neither agree nor disagree and 20 % of the Spanish and all Southern European participants do not know the answer to this question.

Results

sexual health problems	completely disagree	disagree	neither agree or disagree	agree	completely agree	dont know	total answered	
All	9	41	25	18	5	12	110	N
	8,2	37,3	22,7	16,4	4,5	10,9		%
Southern Europe	3	10	5	4	2	6	30	N
	10	33,3	16,7	13,3	6,7	20		%
United Kingdom and Ireland	5	15	11	7	1	3	42	N
	11,9	35,7	26,2	16,7	2,4	7,1		100
Spain	1	4	3	3	1	3	15	N
	6,7	26,7	20	20	6,7	20		%
Germany		4	3	2	2		11	N
		36,4	27,3	18,2	18,2			%

Table 40 displays a detailed overview of sexual health problems as a perceived barrier in taking care of refugee children by different data sets. The participants were asked to rate the following sentence: “In our hospital sexual health problems are important barriers to providing emergency care to refugee children.” The numbers are presented in absolute and percentage values.

The results for dealing with symptoms of post-traumatic stress syndrome as a perceived barrier are displayed in table 42. Predominately, the participants agree that this matter is a barrier. Over 90 % of the German participants either agree or completely agree.

dealing with symptoms of post-traumatic stress syndrome	completely disagree	disagree	neither agree or disagree	agree	completely agree	dont know	total answered	
All	4	19	21	38	19	9	110	N
	3,6	17,3	19,1	34,5	17,3	8,2		%
Southern Europe	2	4	5	9	5	5	30	N
	6,7	13,3	16,7	30	16,7	16,7		%
United Kingdom and Ireland	2	8	8	17	5	2	42	N
	4,8	19	19	40,5	11,9	4,8		%
Spain	1	1	1	6	3	3	15	N
	6,7	6,7	6,7	40	20	20		%
Germany		1		5	5		11	N
		9,1		45,5	45,5			%

Table 41 displays a detailed overview of dealing with symptoms of post-traumatic stress syndrome as a perceived barrier in taking care of refugee children by different data sets. The participants were asked to rate the following sentence: “In our hospital dealing with symptoms of post-traumatic stress syndrome is an important barrier to providing emergency care to refugee children.” The numbers are presented in absolute and percentage values.

Results

4.5 Statements

	completely agree/ agree	neither agree or disagree	completely disagree/ disagree	don't know
In our emergency care facilities:				
we are well prepared for dealing with refugee children with acute health care problems	37,1	28,7	33,4	0,9
there is clear guidance on dealing with refugee children	13,9	16,7	68,6	0,9
there is a need for a clinical guideline for dealing with refugee children	71,3	19,4	9,3	
there is a clear policy for infection screening amongst refugee children	59,2	22,2	13,9	4,6
a clear policy for infection screening amongst refugee children is needed	57,4	16,7	24,1	1,9
translation services or tools are available for language barriers	64,8	10,2	24,1	0,9
In paediatric emergency care dealing with refugee children:				
is a part of our daily clinical activities	31,5	13	53,7	1,9
is more difficult because of the type of medical problems	27,8	31,5	37	3,7
is completely integrated in the routine flow of patient care	22,2	25	51	1,9
is more difficult because of the complexity of the social situation	21,3	14,8	61,1	2,8
There is a need for specific training on dealing with refugee children in paediatric emergency care because of:				
associated social problems	85,1	8,3	5,5	0,9
mental health problems	72,9	15	8,4	3,7
underlying medical problems	60,2	21,3	17,6	0,9
associated sexual health problems	54,6	25,9	15,8	3,7

Table 42 shows the numbers for Figure 12. The participants were asked to give their opinion on statements concerning provision of emergency care to refugee children at their hospital (115). Each statement is a single answer question. The answer options “agree” and “completely agree” as well as “disagree” and “completely disagree” were combined. The participants were asked three types of questions, as displayed above. “Please indicate whether or not you agree with the following statements on emergency care of refugee children. In our emergency care facilities: ___”. The numbers are shown in percent, only.

Table 42 presents the results for statements on providing health care to refugee children at hospitals from all participants. All numbers shown in percent relate to the total of questions answered and do not relate to the maximum number of possible answers. Each statement is a single answer question with six different options. Above, the answers for agree and completely agree as well as the answers for disagree and completely disagree were combined. A fully detailed overview of all results in absolute and in percentage values is displayed in the appendix. Based on 148 eligible participants, 108 answers were received for the analysis (115).

Results

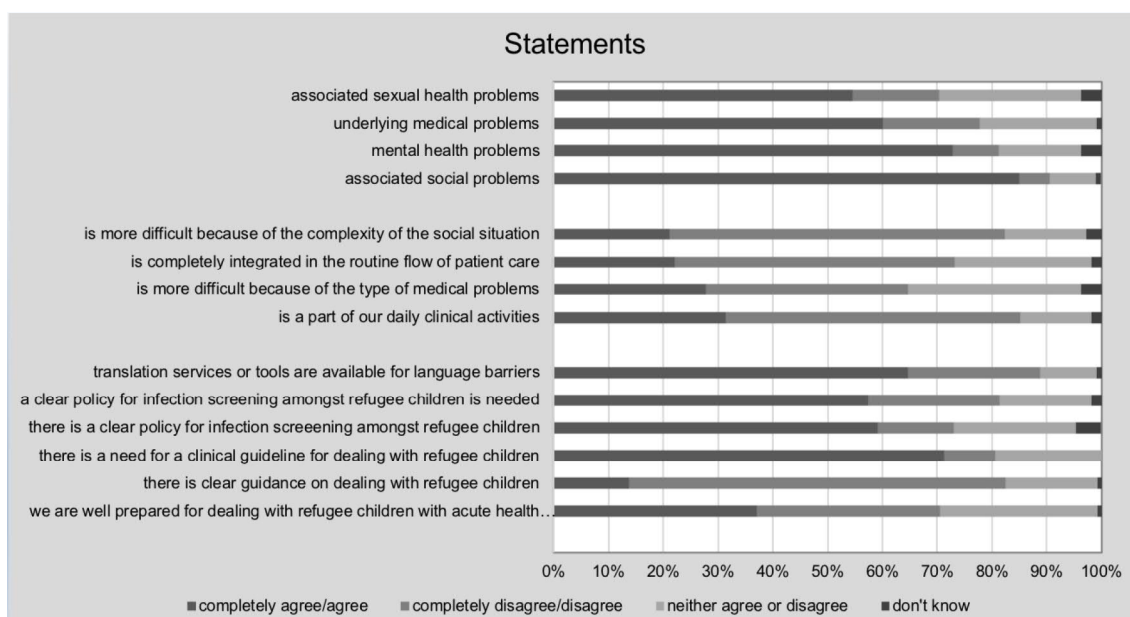


Figure 12 displays a graph based on the numbers from table 43. The participants were asked to give their opinion on statements concerning provision of emergency care to refugee children at their hospital (115). Each statement is a single answer. Answer options “agree” and “completely agree” as well as “disagree” and “completely disagree” were combined. The numbers are shown in percent. The participants were asked three types of questions: 1) There is a need for specific training on dealing with refugee children in paediatric emergency care because of underlying medical problems: a) associated social problems b) mental health problems c) associated sexual health problems 2) In paediatric emergency care dealing with refugee children: a) is a part of daily clinical activities b) is more difficult because of the complexity of the social situation c) is more difficult because of the type of medical problems d) is completely integrated in the routine flow of patient care. 3) In our emergency care facilities: a) translation services or tools are available for language barriers b) a clear policy for infection screening amongst refugee children is needed c) there is a clear policy for infection screening amongst refugee children d) there is a need for clinical guidance on dealing with refugee children e) we are well prepared for dealing with refugee children with acute health care problems. * care problems

As presented in figure 12, a large majority of the participants completely agree or agree that there is a need for specific training for dealing with refugee children in the paediatric emergency care because of associated social problems (85 %), closely followed by mental health problems (73 %). Additionally, the participants agree or completely agree to that there is a need for a clear guideline for dealing with refugee children. Consequently, most of the participants disagree with the statement that there is a clear guidance on dealing with refugee children (69 %). Still 37 % of the participants agree or completely agree that they are well prepared for dealing with refugee children with acute health care problems. Nonetheless, 28 % of the participants agree or completely agree that taking care of refugee children is more difficult because of the type of medical problems. The percentage of participants who did not know an answer to the statement questions is very low and compares to the amount of responses of other questions.

Results

The detailed numbers for all six answers in percent and in absolute figures are presented in the appendix. In addition to table 42, it provides the detail of whether participants either agree or disagree or even completely agree or disagree with a statement. According to the data, 27 % of all eligible participants even completely agree with the fact that there is a need for clinical guidance for dealing with refugee children. Additionally, participants feel strongly that a clear policy for infection screening is needed (26 % completely agree) and that there is a need for specific training for personnel dealing with refugee children with mental health problems (21 % completely agree), as well (115).

4.5.1 Comparing statements

The results of the statements of the participants were compared among the different subdivisions (located in Southern Europe, the United Kingdom and Ireland, Germany and Spain) as in the previous chapters. The numbers are shown in absolute and percentage values. The percentages relate to the number of answers. The detailed results are displayed in the appendix.

The tables in the appendix show the results for the statements of the participants on refugee care in their emergency care facilities. The results show that Spanish participants disagree or completely disagree (53 %) that they feel prepared for dealing with refugee children with acute health care problems, whereas the German participants rather agree (64 %) on that matter. Additionally, all Spanish participants responded to “there is guidance on dealing with refugee children” with either completely disagree/disagree (93 %) or neither agree nor disagree (13,3 %).

Furthermore, most of the Spanish participants (67 %) completely disagree and also the participants from the United Kingdom and Ireland rather disagree (38 % disagree and 29 % completely disagree) that “dealing with refugee children is part of our daily clinical activities”. However, German participants mostly agree (64 %) or completely agree (27 %). “Dealing with refugee children is more difficult because of the type of medical problems” was answered almost equally with “agree” or “disagree”.

Results

Most participants disagree with the statement “taking care of refugee children is completely integrated in the routine flow of patient care”. A need for a special training is also acknowledged by most participants throughout all data sets. Training for mental health issues and associated social problems is perceived as even more necessary (115).

4.6 Country of origin

In the next chapter participants were asked how many refugee children below the age of 18 visit their hospital for emergency care annually and how many refugee children visited their hospital in the last 12 months for emergency care (estimated). The results for both questions are already displayed in 4.2.1. In case the participants said that they do not see any refugee children in their emergency care facilities they were asked to continue to the next form. Therefore, the following results are from participants who actually have treated refugee children in the last 12 months.

The participants were asked to check up to three countries from which they see refugee children the most often. Comprehensive results of the answers by all eligible participants are presented in figure 13. Since this question is a multiple-choice question (with a maximum of three possible choices) there are 303 eligible answers by 91 active participants.

Results

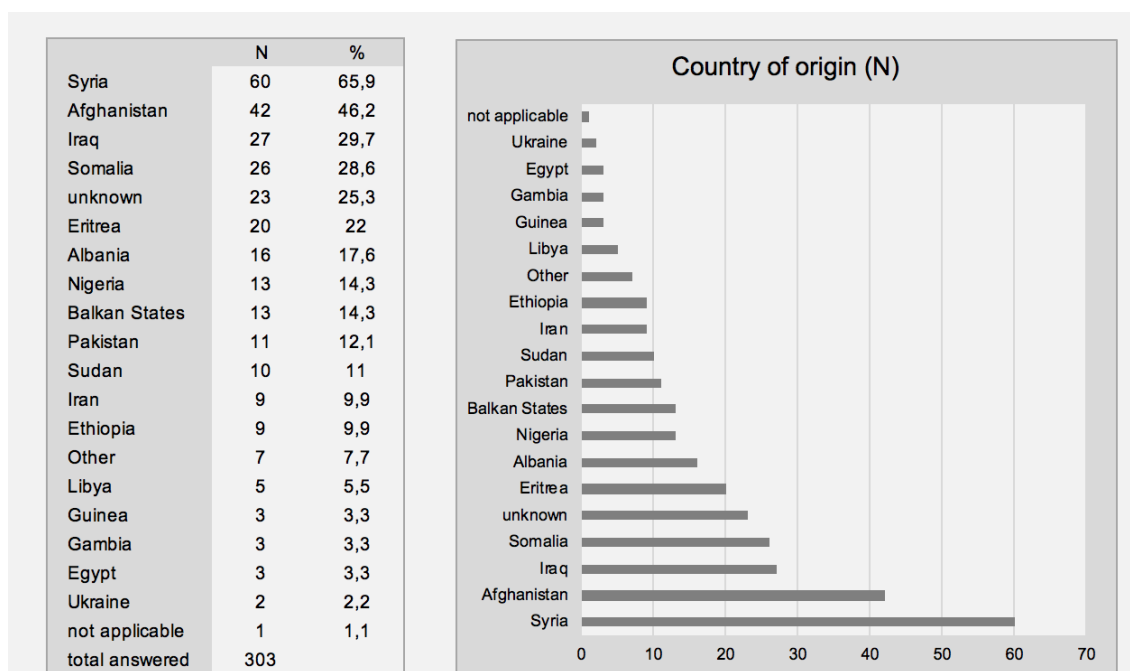


Figure 13 The results for the three countries from which participants see refugee children most often are displayed above (multiple-choice question with a maximum of three choices). The table on the left shows the numbers in absolute and percentage values. The graph on the right is based on the numbers on the left. This figure shows results for total answers, only. All numbers are sorted by total numbers of results.

The participants could choose from 18 different countries and had three more choices such as “not applicable” (1 %), “unknown” (25 %) and “other” (8 %). The results presented in figure 13, show refugees from Syria and Afghanistan were seen most often.

4.6.1 Comparing countries of origin

The comparison of the three countries of origin most often chosen by different data sets showed relatively high participation from the German participants (56 total answers) and the participants from the United Kingdom and Ireland (99 total answers), compared to the Spanish participants (16 total answers) Syria turned out to be the most frequent answer for the Southern European and German participants, as well as for the participants from the United Kingdom and Ireland. In the German data set Syria (11 participants) is closely followed by Afghanistan (10 participants) whereas in the data set from the United Kingdom and Ireland and the Southern European data sets the lead of Syria as the most common country of origin is marginally stronger. In general, the Spanish participants chose Nigeria and Guinea (with a total of three answers for each) as the most common

Results

country of origin. The Spanish participants showed relatively low participation in this section. Figure 14 displays an overview of the results based on the different data sets using absolute values. A detailed table with the corresponding numbers in absolute and percentage values can be found in the appendix.

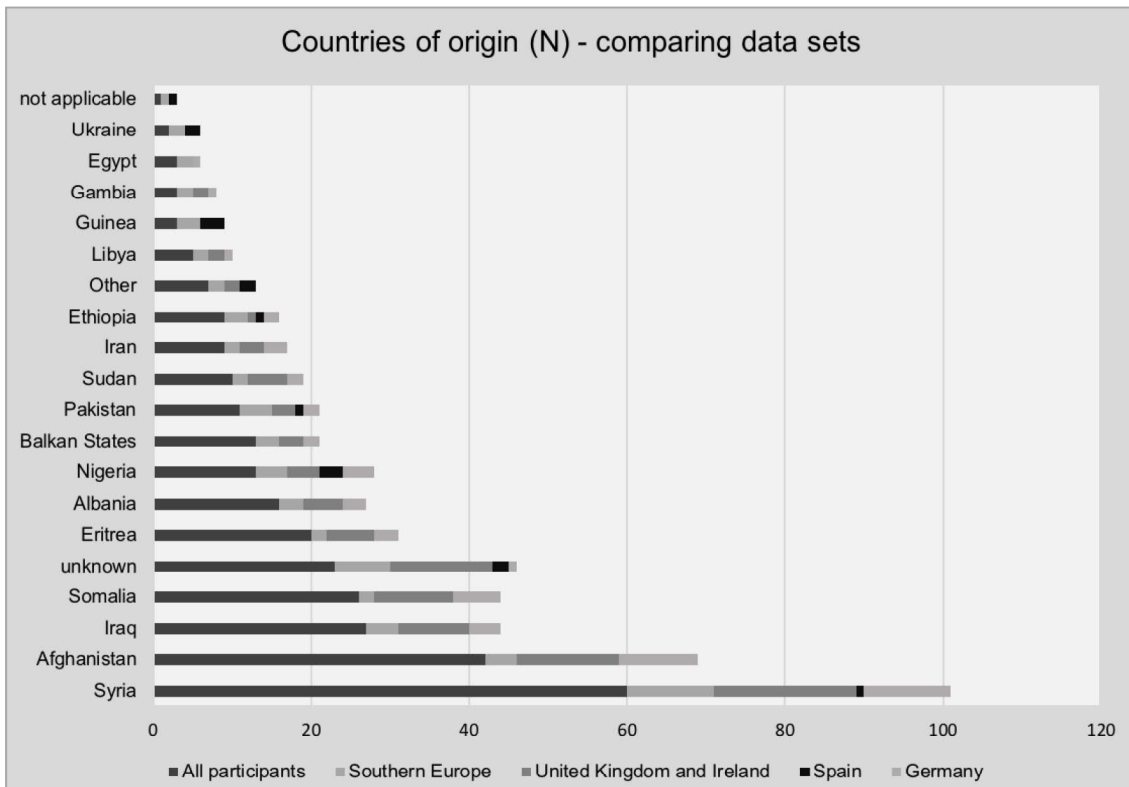


Figure 14 shows the results for the top three countries from which the participants see refugee children most often are displayed above in comparison to the different data sets. The numbers are shown in absolute values and are sorted by the total number of answers.

Results

4.7 Presenting symptoms

The results for presenting signs and symptoms that are more typical for refugee children compared with presenting symptoms of other children are presented in the figures and tables of this chapter. The corresponding questions of the survey were multiple-choice questions with six different choices. The participants had to choose the relative occurrence of 23 different signs and symptoms. 91 (total) of all eligible participants answered these questions actively (including the answer “don’t know”). Each answer possibility is represented by an absolute value from one to six. The choice “don’t know” was neglected in further analysis, therefore the results presented in table 43 show the answer possibilities from one till five.

Would you describe these signs and symptoms as "(more) typical" for refugee children compared with presenting symptoms of other children?	N	average	standard deviation		median
skin and soft tissue infections	68	3,78	0,75	minor injuries and trauma	3
safeguarding concerns	64	3,64	0,932	skin and soft tissue infections	4
mental health problems	65	3,62	0,947	vomiting and/or diarrhea	3
weight loss	69	3,58	0,775	dehydration	3
vomiting and/or diarrhea	68	3,53	0,701	fever	3
(any) rash	65	3,51	0,85	headache	3
abdominal pain	68	3,46	0,679	major trauma	3
respiratory problems	69	3,41	0,649	respiratory problems	3
referral for routine screening *(3)	61	3,39	1,084	(any) rash	3
general unwell being, lethargy	68	3,38	0,829	allergic reactions	3
fever	67	3,36	0,69	mental health problems	4
dehydration	68	3,35	0,728	safeguarding concerns	4
minor injuries and trauma	66	3,26	0,829	ear ache	3
headache	66	3,23	0,908	abdominal pain	3
musculoskeletal *(1)	68	3,21	0,802	chest pain or hyperventilation	3
sore throat	65	3,2	0,565	musculoskeletal *(1)	3
ear ache	65	3,09	0,701	sore throat	3
chest pain or hyperventilation	66	3,09	0,799	weight loss	4
sexual health problems	60	3,02	0,854	jaundice	3
jaundice	63	3,02	0,729	general unwell being, lethargy	3
metabolic disorders *(2)	63	2,84	0,601	metabolic disorders *(2)	3
major trauma	66	2,76	0,842	sexual health problems	3
allergic reactions	65	2,71	0,579	referral for routine screening *(3)	3

Table 43 shows the results for presenting signs and symptoms (115). The participants were asked whether listed signs and symptoms could be described as more typical for refugee children compared with presenting symptoms of children of the home population. For each symptom participants could choose one of six answer choices. The answer choice of “don’t know” is neglected in the analysis shown above. The table above displays the total number of answers (except “don’t know”), the average value, the mean value and the standard deviation. Numbers above are the foundation of figure 15. *(1) non-traumatic: e.g. limb, joint swelling, back pain *(2) such as exacerbated Type I DM including ketoacidosis *(3) referral by other health care professional. The absolute values from one till five represent the answer possibilities: 1= much less common, 2 = less common, 3 = just as common, 4 =more common, 5 = much more common.

Results

Table 43 presents the results for the total number of answers, the standard deviation, the average value as well as the median value. More detailed information such as the results in absolute values, including the results for “don’t know”, are displayed in the appendix. For better visualization purposes figure 15 only contains the average values from Table 43. The average value of three represents “just as common”. All bars above three represent symptoms that were received to be more common or much more common among refugee children, according to the participants of this study.

As shown in figure 15, skin and soft tissue infections appear to be very common among refugee children according to most participants. Safeguarding concerns, mental health problems, weight loss, vomiting and diarrhoea and (any) rash are also among the top six of overall 18 symptoms out of all 23 different symptoms that appear to be more common among refugee children than among other children, based on the answers of the participants (115).

Results

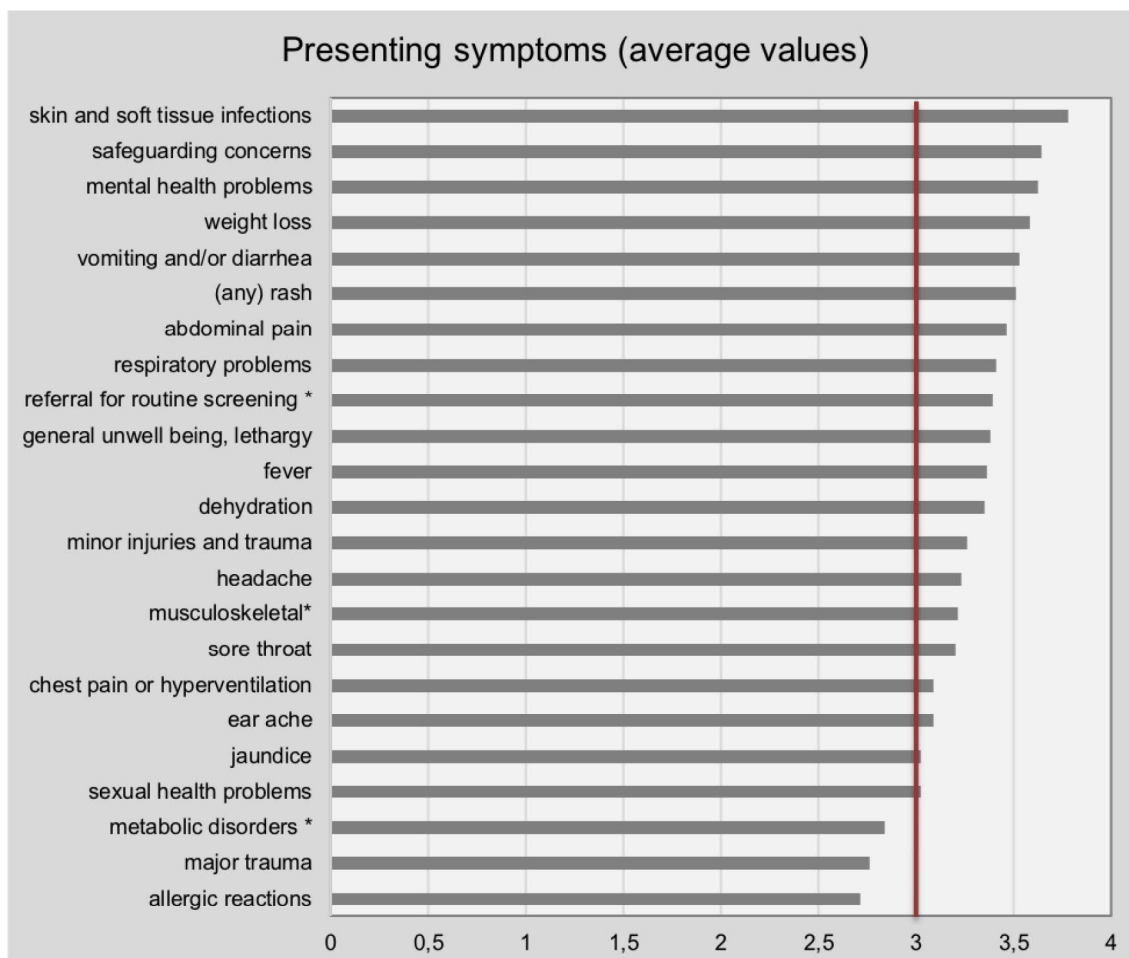


Figure 15 shows the results for presenting signs and symptoms (115). The participants were asked whether the listed signs and symptoms could be described as more typical for refugee children compared with the presenting symptoms of other children. For each symptom participants could choose one out of six answers. The answer option “don’t know” was neglected in the analysis. The figure displays the average value of the answers (except “don’t know”) sorted by the lowest to the highest average value. *(1) non-traumatic: e.g. limb, joint swelling, back pain) *(2) such as exacerbated Type I DM including ketoacidosis *(3) referral by other health care professional. The absolute values from one till five represent answer possibilities: 1= much less common, 2 = less common, 3 = just as common, 4 =more common, 5 = much more common.

Table 44 shows the results in percent for all answers of the participants on the chapter of presenting symptoms. The answer option “don’t know” was neglected in the analysis. This more detailed table gives insight into how strongly participants rated the appearance of certain symptoms.

Results

Would you describe these signs and symptoms as "(more) typical" for refugee children compared with presenting symptoms of other children? (%)	much less common	less common	just as common	more common	much more common	total answered without dont know
minor injuries and trauma	3	7,6	57,6	24,2	7,6	100
skin and soft tissue infections	1,5	1,5	27,9	55,9	13,2	100
vomiting and/or diarrhea		1,5	54,4	33,8	10,3	100
dehydration	1,5	4,4	57,4	30,9	5,9	100
fever		3	67,2	20,9	9	100
headache	3	13,6	50	24,2	9,1	100
major trauma	9,1	19,7	60,6	7,6	3	100
respiratory problems			68,1	23,2	8,7	100
(any) rash	1,5	3,1	53,8	26,2	15,4	100
allergic reactions	4,6	21,5	72,3	1,5		100
mental health problems	3,1	7,7	29,2	44,6	15,4	100
safeguarding concerns	3,1	6,3	29,7	45,3	15,6	100
ear ache	3,1	6,2	73,8	12,3	4,6	100
abdominal pain		2,9	55,9	33,8	7,4	100
chest pain or hyperventilation	3	12,1	63,6	15,2	6,1	100
musculoskeletal *(1)	2,9	8,8	58,8	23,5	5,9	100
sore throat		3,1	78,5	13,8	4,6	100
weight loss	1,4	4,3	37,7	47,8	8,7	100
jaundice	4,8	11,1	61,9		22,2	100
general unwell being, lethargy	2,9	7,4	44,1	39,7	5,9	100
metabolic disorders *(2)	4,8	12,7	76,2	6,3		100
sexual health problems	3,3	20	53,3	18,3	5	100
referral for routine screening *(3)	4,9	14,8	32,8	31,1	16,4	100

Table 44 The results for presenting signs and symptoms are shown in this table (115). The participants were asked whether listed signs and symptoms could be described as more typical for refugee children compared with presenting symptoms of other children. For each symptom participants were able choose one out of six answer options. The answer option "don't know" was neglected in the analysis. The table displays percentages for each answer (except "don't know"). The numbers in this table are the foundation of figure 16. *(1) non-traumatic: e.g. limb, joint swelling, back pain *(2) such as exacerbated Type I Diabetes mellitus including ketoacidosis *(3) referral by other health care professional.

The majority of 61 % of all participants feel that the symptom "jaundice" is just as common among refugee children as in the local population. Nevertheless, 22 % of all the answers (except "don't know") stated that jaundice is much more common among refugee children than in the local population which also turned out to be the highest result for the answer option "much more common" for all the questions. As for the option "just as common", the majority of the participants answered that many symptoms appear on just the same frequency. Achieving more than 70 % for "just as common", the symptoms "sore throat", "metabolic disorders", "ear ache" and "allergic reactions" seem to occur just as frequently in refugees as in the rest of the population (115). A graphic overview of the detailed numbers of table 44 are displayed in in the appendix.

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4.7.1 Comparing presenting symptoms

Further, the results for the average values, compared by different data sets are displayed in figure 16. All numbers used for this figure can be found in the appendix. In comparison of data sets the general opinion throughout the data sets on the frequency of the appearing symptoms is comparatively similar.

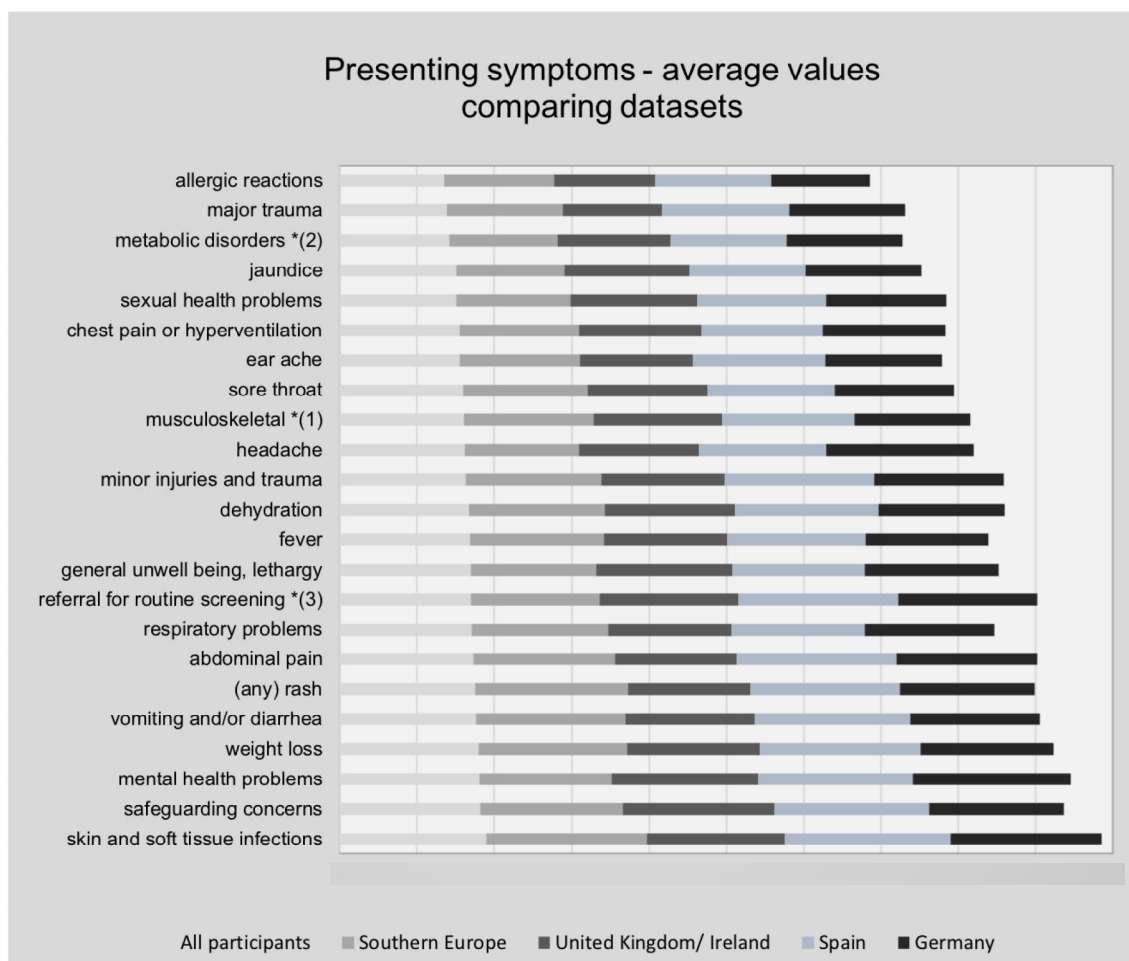


Figure 16 shows the results for the comparison of presenting signs and symptoms. The participants were asked whether the listed signs and symptoms could be described as more typical for refugee children compared with presenting symptoms of other children. For each symptom the participants could choose one out of 6 answers. The answer option “don’t know” was neglected in the analysis. The figure displays the average value of all answers (except “don’t know”) sorted by the lowest to the highest average value. *(1) non-traumatic: e.g. limb, joint swelling, back pain *(2) such as exacerbated Type I diabetes mellitus including ketoacidosis *(3) referral by other health care professional.

Results

4.8 Ways of presentation

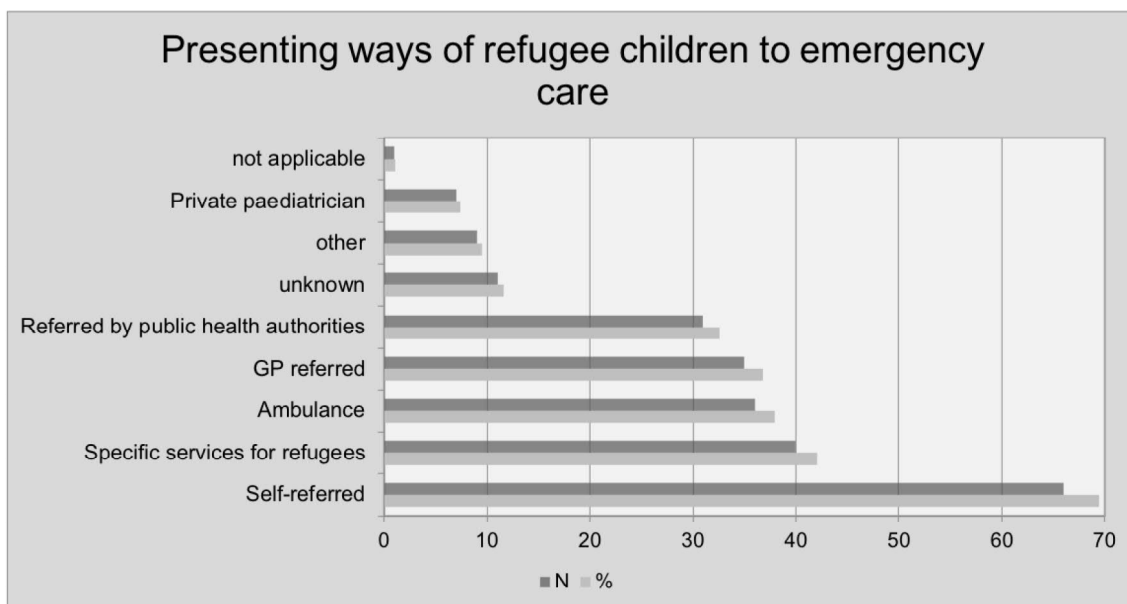


Figure 17 shows the results for presenting ways of refugee children to emergency care. The participants were asked how refugee children present to their emergency care facilities. This was a multiple-choice question. The figure shows the results for all eligible answers. The results are sorted from the lowest percentage to the highest. The numbers are presented in absolute and percentage values. The term “general practitioner” is abbreviated as “GP”

Figure 17 presents the results for presenting ways of refugee children to the emergency department. This question was a multiple-choice question with nine answers displaying six different ways of presentation and was answered by 96 out of 148 eligible participants, who answered altogether 236 times. The results displayed in Figure 17 show that a large majority of the participants see refugee children self-referred in their ER (70 %). The following answers are close together between 33 % and 42 % (specific services for refugees 42 %, ambulance 38 %, GP referred 37 %, referred by public health authorities 33 %). Throughout Europe private paediatricians rarely refer refugee children to emergency rooms with only 7 % of the participants selecting this answer possibility. The numbers for figure 17 are displayed in table 45 and 46.

Results

Which services are responsible for conducting routine, standardised point of entry screening and medical assessments of refugee children (non acute care)?	%	N	How do refugee children present to your emergency care facilities?	%	N
This does not happen in an organised manner in our area	26,2	27	Self-referred	69,5	66
Other	5,8	6	Specific services for refugees	42,1	40
Primary care paediatricians (community)	21,4	22	Ambulance	37,9	36
Unknown	18,4	19	GP referred	36,8	35
Paediatric outpatient clinics (hospital)	16,5	17	Referred by public health authorities	32,6	31
General practitioners	12,6	13	unknown	11,6	11
Public health services	29,1	30	other	9,5	9
Emergency care departments or other acute care facilities	6,8	7	Private paediatrician	7,4	7
Third party organisations (Red Cross, Medicines Sans Frontiers)	12,6	13	not applicable	1,1	1
Total answered		154	Total answers		236

Table 45 and **Table 46** The results for presenting ways of refugee children to the emergency care are shown on the left table (table 45). The results for services conducting routine point of entry screening of refugee children are shown in the table on the right (table 46). Both questions are multiple-choice questions. The numbers are presented in absolute and in percentage values. The percentage values are based on the total number of questions answered.

Table 46 shows the results for services conducting point of entry screening of refugee children. This multiple-choice answer question with nine different choices was answered by 103 out of 148 eligible participants. Throughout, public health services (29 %) take the lead in conducting routine point of entry screening, closely followed by “this does not happen in an organised matter in our area” (26 %). Figure 18 shows a more comprehensive visualisation of the results.

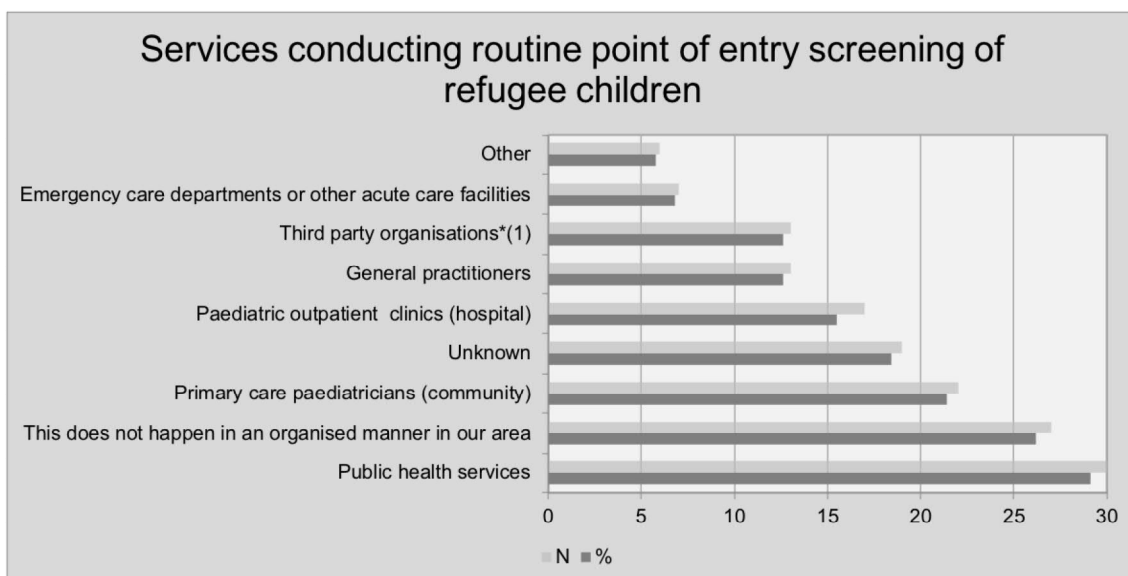


Figure 18 shows the results for services conducting routine point of entry screening of refugee children. This was a multiple-choice question. The numbers are presented in absolute and percentage values. The figure shows the results for all eligible answers. The results are presented and sorted from the lowest to the highest percentage. *(1) Red Cross, Médecines Sans Frontières

4.8.1 Comparing ways of presentation

The detailed results for comparing the data sets of how refugee children are presented to the ER of the participants are presented in the appendix. Notably, none of the participants from the United Kingdom and Ireland chose “self-referred” whereas 91 % of the German participants see self-referred refugee children.

Comparing the results for services responsible for conducting the routine point of entry screening and medical assessments of refugee children (non-acute care) are presented in the appendix as well. The German participants’ description differs significantly from that of the other European participants with just 9 % who say that this does not happen in an organised manner in their area and 82 % who choose public health services for routinely conducting point of entry screenings. Compared to that only 12 % of the participants from the United Kingdom and Ireland and none of the Spanish participants chose public health services as a standard routine point of entry screening for refugee children.

Results

4.9 Data availability

Figure 19 and table 47 show the results for the data availability of the participants on six different topics. All questions were answered by 100 out of 148 participants (except for the last question which was answered 99 times). The results show that whether further data is readily available usually depends on the topic asked. Only three sites claim that data (any) readily available. Ten participants stated that data is available on ways of presenting to the emergency department. Throughout all topics 26 % to 42 % say there is no data available and 25 % to 31 % do not know whether data is available or not.

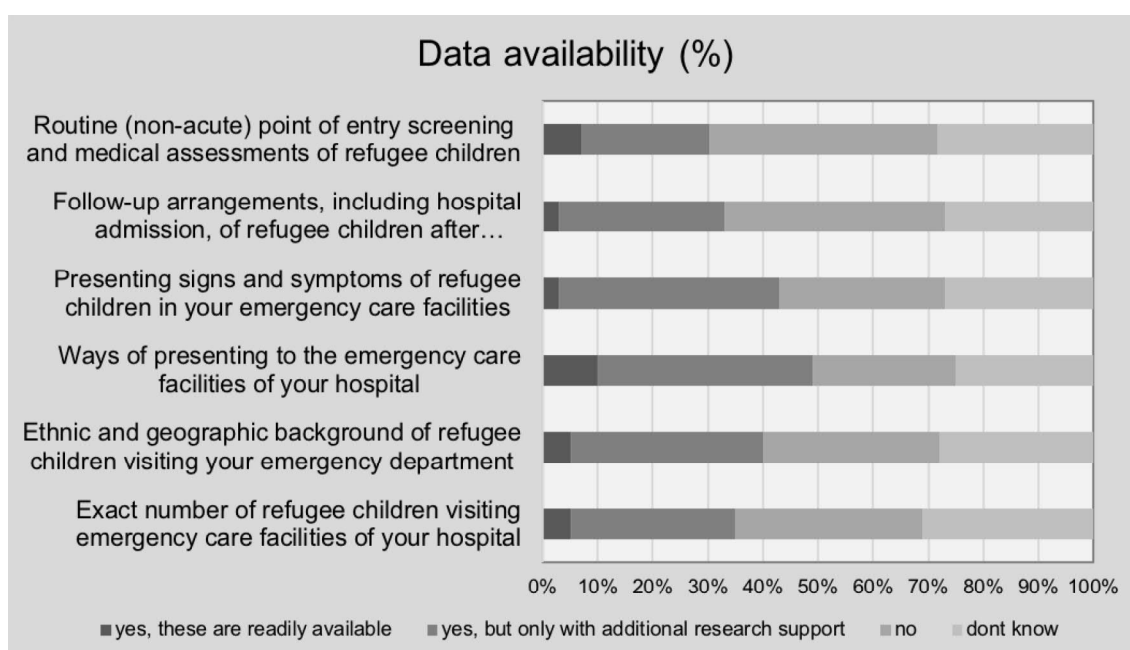


Figure 19 presents the results for data availability of participants' sites. The participants were asked whether they can provide data on the six topics presented. All questions are single-choice questions. The numbers are presented in percent.

Results

Would you be able to provide more detailed data on:	yes, these are readily available	yes, but only with additional research support	no	dont know	total	
Exact number of refugee children visiting emergency care facilities of your hospital	5	30	34	31	100	N
	5	30	34	31		%
Ethnic and geographic background of refugee children visiting your emergency department	5	35	32	28	100	N
	5	35	32	28		%
Ways of presenting to the emergency care facilities of your hospital	10	39	26	25	100	N
	10	39	26	25		%
Presenting signs and symptoms of refugee children in your emergency care facilities	3	40	30	27	100	N
	3	40	30	27		%
Follow-up arrangements, including hospital admission, of refugee children after discharge from your	3	30	40	27	100	N
	3	30	40	27		%
Routine (non-acute) point of entry screening and medical assessments of refugee children	7	23	41	28	99	N
	7,1	23,2	41,4	28,3		%

Table 47 shows the results for the data availability of participants' sites. The participants were asked whether they can provide data on the six topics presented. All questions are single-choice questions. The numbers are presented in absolute and percentage values. *(1) these are readily available *(2) only with additional research support

4.9.1 Comparing data availability

The tables displayed in the appendix show the results for the data availability throughout different data sets. The tail lamp of data availabilities appears to be at most of the Spanish sites. Ethic and geographic background of refugee children visiting the emergency departments cannot be provided by 67 % of the Spanish participants. Whereas, 30 % of all Southern European participants (Spanish participants included) say "yes, this is available with additional research support".

Interestingly, no data on follow up arrangements and presenting symptoms is readily available for participants from the United Kingdom and Ireland, nor for German and Spanish participants. Nonetheless, 55 % of German participants claim that data is available with additional research help (Presenting signs and symptoms).

4.10 Systematic guideline search

Four databases were considered for the systematic guideline search (MEDLINE, Embase, Cochrane Library and PubMed). The number of search results for further evaluation vary from 63 (MEDLINE) to five (Cochrane Library). Altogether, 141 sources were identified for further evaluation from the databases listed above. Nine are eligible guidelines on refugee children's health care. Two guidelines concentrate on mental health issues of refugee children, one emphasizes on infectious disease matters and four comprehend general recommendations on refugee children's health care. The remaining two cannot be included in either of the categories above and are listed among "other". One of the eligible guidelines was sent by one of the participants in the free text options.

Additionally, the websites of national societies were searched for guidelines on refugee children's health care. 41 documents from five countries could be identified for further evaluation but only five were actual recommendations on refugee children's health care. Three of the 41 sources contain general guidance and the remaining three comprehend recommendations on immunisations. None of them were identified by the systematic research earlier. One of these sources was also uploaded by one of the respondents.

The survey respondents provided six relevant resources overall. One of them was identified by the systematic search of databases and another one by the search of national websites. Two guidelines contain general information, one is emphasising infectious diseases (screening for infectious diseases) and the remaining three concentrate on matters of immunisation.

There were no relevant guidelines found on matters of sexual health concerning refugee children. The detailed tables of the systematic search and the information of guidelines found by the search are displayed in the appendix section.

5 Discussion

5.1 Data demographics: The survey distribution was highly effective and reached many experts in emergency care for refugee children

In order to achieve reliable output, the study aimed to reach as many experts in children's refugee emergency care as possible via national and international networks and societies and personal approach. In the demographic data section of the survey the frequency of contacts with refugee children at emergency care was asked. Only 9 of 148 participants (8,5 %) did not see any refugee children in the past 12 months. This indicates the strong significance of the data provided by this study.

Additionally, the participants with a large numbers of refugee children in their emergency rooms were more likely to complete the survey. This is shown by comparing completeness of German and Spanish participation. Spanish participants saw comparatively fewer refugee children at primary care (21 %) and completed the survey with 57 %. In contrast to the Spanish participants, most German participants stated many contacts with refugee children in their emergency rooms. German participants achieved 85 % completeness.

Another indication for the effectiveness of the survey distribution and validity of the information provided, is shown by the professional level of the participants. A large majority of the contributors work on a consultant level and work in academic hospitals. On the one hand this leads to a reliability of the provided information and makes further research access easier. On the other hand, we need to be aware that the data provided represents mostly just these, larger, academic hospitals that potentially have easier access to funding and academic resources.

So far, very few studies provide an overview of primary health care for refugee children and even fewer are based on data from European sites (27) (121). Interestingly, there is no further information on the relevance of refugee care at daily clinical routine at emergency facilities (27).

5.2 Setting information: There is a need for awareness of medical care for refugee children in further data collection. Settings for paediatric emergency care differ considerably within Europe

Despite the overall result that many participants provided precise details on health care provision to refugee children at emergency care, many participants did not know the exact number of refugee children visiting their ER. Partially, this might be caused by general difficulties to gather statistical data. Some emergency rooms still work on paper-based documentation (112) (78). Considering the expected rise of relevance of refugee care (167) and inevitable digitalisation (24), we urge to have this in mind when implementing digital documentation systems. Not to mention the overall advantages of easily accessible data for further research and quality improvements (180).

At the majority of participants' sites paediatric emergency care is provided in a children's-only ER 80 % setting (N=113). Remarkably, the participants from the United Kingdom and Ireland often (30 %) have integrated emergency room settings with mixed adult and children emergency rooms. In Germany (40 %) participants often see emergency matters of children at paediatric wards. Concerning mixed emergency departments, opinions differ on how to ensure quality of care and how to face special needs of children in primary care.

Some national societies always require a paediatric nurse to be present along with doctors with paediatric experience to ensure quality of care (136). Others rely on specific training and skill enhancement of medical staff (24). The information provided by the survey is very detailed, but this was not asked and would have been very interesting to know.

5.3 Health care policies: The access and availability of guidelines on immunisation and screening procedures for refugee children needs to be improved immediately

In medical care for refugee children, the awareness of matters of infectious diseases and immunisation status is commonly spread (121) (118). Nonetheless, the availability and access to guidelines for the immunisation status and catch up immunisations concerning refugee children differ greatly among the participants. 55 % of the German participants claim to know and be able to easily access immunisation guidelines for refugee children. Overall a majority (55 %) of all other participants do not have guidelines on this matter or are not aware of them. Since this is one of the major concerns in health care for refugee children, in the end, many physicians and health care workers feel left alone. The immunisation recommendations differ among European countries (144) (60). Nonetheless, it is crucial to define a pattern on how to catch up on the immunisation status of newly arrived refugees. Additionally, easy access should be granted, taking also language differences into consideration. The German RKI could act as a positive example by allocating recommendations of the German Standing Committee on Vaccination in 20 languages (130).

The most common diseases detected in refugee children are treatable and early treatment will result in a better outcome and fewer costs (20). On the contrary, if not detected and treated early this may result in detrimental health consequences (119) and be accompanied with higher costs for the public health care system (184) (90). Additionally, neglecting communicable diseases might expose the home population to unnecessary risks (114). Therefore, screening measurements for refugees children have been implemented by many host countries (119) often accompanied by an initial health assessment (116). 33 % (N =40) of all participants affirm to have implemented screening methods. Therefore, a significant majority does not know about the screening procedures or does not have access to them or there are really no defined screening measurements in their region. This points out more accumulated needs in refugee care that need improvement.

The RCPH (United Kingdom) (135) or the RKI (Germany) (129) are two examples of institutions who give guidance on initial health assessments of refugee children. However, consensus on what to screen for is not trivial. This is

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impressively shown by the example of screening for tuberculosis. Before implementing an area wide screening, the likely exposure and health needs of the target population must be taken into consideration and should always be accompanied with further possible diagnosis and treatment (144). Further, evolving unified screening recommendations will need a close collaboration on a national and international level.

Teaching sessions on refugee children emergency medicine differ considerably between geographical regions. Training is provided for almost no site in the United Kingdom and Ireland (91 % /40 sites) whereas 55 % (six sites) of the German participants do have teaching sessions on this matter. Once more, these findings correlate with how many refugee children visit the participants ER on a regular basis. Nevertheless, we detect plenty of room for improvement on this matter. Training and further education of the staff working at the ER must be upgraded to improve care for refugee children (148) (101). This applies not only to physicians and nurses. Stewardship and aiding staff would profit from training on migrant health, too (137). This may result in improving health care access for refugee children (115).

Non-governmental organisations are taking an active role in health care provision for refugees all over the world (82) (3). Since the withdrawal of the European border protection Frontex, their commitment became even more important. Active organisations who provide support and health care for refugee children are frequently present in Germany (91 %). This fits in with the fact that the German participants saw the most refugee children in the time period we asked (of areas we compared). Interestingly, 40 % of the Spanish and 43 % of the participants from the United Kingdom and Ireland do not know if there are any organisations active in their region, pointing out the need for closer communication if they are present in these areas.

As mentioned before, the health care systems differ significantly in Europe. This applies to how follow up appointments after visiting emergency rooms are managed, as well. In Germany, a follow up appointment is never provided routinely. In Spain 20 % (four sites) always provide follow up appointments. Newly arrived refugee children and their families often lack proper orientation in health care systems and social care of host countries (34). The ER often has to act as

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the gate to further access to medical care (136). Especially in the case of chronically ill refugee children and suspected mental health issues a close follow up after a first contact often is implied. This collides with available resources at many emergency rooms.

5.4 Perceived barriers: Dealing with language barriers and mental health disorders appear as major challenges in emergency health care provision for refugee children – a projection to possible solutions

On the section of perceived barriers exceeding attention pays off. The German participants feel strongly about language as a perceived barrier with 64 % completely agreeing and everyone else agreeing. In contrast to this, participants in the United Kingdom and Ireland (38 %) disagree or completely disagree and at the Spanish (13 %) sites the picture is much more diverse. In line with other findings from German participants, 73 % feel that cultural differences are a barrier in taking care of refugee children whereas 47 % of the Spanish participants disagree or completely disagree with that. One could argue, in the time period we asked, refugee influx to Germany was much higher than to Spain or the United Kingdom. Certainly, these findings indicate health care adjustments that are necessary to face rising attendance by refugees (173).

The Scandinavian countries and the United Kingdom can act as role models on how to approach language barriers (139) (31) (10). Especially in times of high influx, well trained medical interpreters are rare (61) (181). Habitually improving digital services may intercept more instead. Preparing information to be handed out in most common languages on most common health issues (199) (130) and using figurative visualisation tools are another possibility.

Concerning refugee children in Europe, literature is overwhelmingly concentrating on mental health issues (179) (159). As the amount of literature already implies, mental health problems appear as a leading barrier for many participants (50 % agree/ completely agree), especially in Germany and Spain. Many participants (52 %) throughout all countries feel that dealing with PTSD is a great barrier in taking care of refugee children, led by German participants with 91 % who either completely agree or agree on this matter. This is pointed out as one of the most dominant differences in health care provision to refugee children

Discussion

compared to the home population. The incidence of mental diseases is known to be much higher (186) (10). The staff at emergency rooms is not confronted with mental health issues on a regular basis. Appropriate resources and follow up procedures are often lacking. Therefore, this appears as a major obstacle to the medical personnel in charge (115).

To answer this challenge, multiple approaches are needed. Mental health guidelines are needed with a focus on the development of standard procedures and standardised trauma screening to identify those who need help (105) (115).

Mental health and social workers must be readily available on a speeding track. Fast and effective intervention in case of mental health problems may make integration easier and prevent severe mental health problems in the long run (177) and therefore reduce costs, too (13).

Interestingly, funding issues do not appear to be a major barrier for most participants. Only 20 % of 110 eligible participants completely agree (6 %) or agree (14 %) on funding as a great barrier. The fewer refugee children are seen at the sites (Spanish participants disagree or completely disagree 44 %) the less funding is perceived as a barrier in taking care of refugee children. This could be explained by the fact that emergency care is granted to everyone by all European countries. At a closer look, however, participants did not differentiate. As mentioned before, language barriers and mental health disorders are perceived as major barriers and to address these matters, funding is needed.

5.5 Statements: There is a need for more clinical guidance in medical refugee care and the complexity of the social situation makes dealing with refugee children more difficult

The majority of all participants (71 % agree/ completely agree) (this time led by the Spanish with 60 %, who completely agree) feel that there is a need for more clinical guidance on how to deal with refugee children (115). This correlates with similar recent findings (27) and is confirmed by our participants. Taking into consideration that most participants work at large, academic hospitals, the need for more guidance might even be stronger at smaller hospitals. Literature shows, there are recommendations and guidelines available (130). However, since they are often published by national societies, they are often not available in English or it takes up a great deal of research time to find them. It is commonly agreed that in emergency rooms time is a major factor.

Population specific guidelines are needed, but hard to implement without populations specific data (115) (196). The European member states should be supported to put evidence based guidance for clinicians into action (144), which is available in different languages.

So far, there is no pathway on how to address this need, and possible solutions must be coordinated on a local and international level. The local approach is needed, because, as our data shows, health care policies and settings differ considerably within Europe. Additionally, arriving refugees are not a homogenous group and differ from area to area, along with different prior contact to health care provision (148). Moreover, medical matters correlate, especially in infectious diseases, substantially with countries of origin and transit (118). An international approach will help, because the current refugee crisis is a European and global problem resulting in similar challenges in many different areas. Approaching this, the European Public Health Association (EUPHA) will hold its first World Congress on Migration, Ethnicity, Race and Health, accompanied with its first Summer School on Refugee and Migrant Health (83) as a first step for improvement.

Throughout for all participants dealing with refugee children appears more difficult due to the complexity of the social situations and mental health matters, not because of refugee-specific medical problems (115). This correlates well with

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earlier discussed findings on mental health problems perceived as a major challenge in emergency health care. The complexity of the social situation includes even more. For example, health illiteracy of refugee families has been described before (34). Moreover, we have to deal with cultural differences on how medical problems are approached and perceived (154) (184).

Interestingly, our participants perceive medical problems concerning refugee children not as a major challenge. In my opinion, this shows a strong work ethic among the paediatricians we asked. For example, rare infectious diseases in refugees are well described in recent literature (199). Nonetheless, it is a rather accepted challenge and seen as part of the profession to deal with this. Otherwise, social and mental health issues do challenge medical personnel that is neither trained for nor might be even not that interested in. Not to mention the lack of resources to compensate this unmet need at emergency care settings.

5.6 Countries of origins of arriving refugee children vary significantly at participants' settings

In general, the data collected on countries of origin correlates with the data published by the UNHCR (172) and Eurostat (48) during the same timeframe with a majority of refugees arriving from Syria, Afghanistan and Iraq. As an interesting side information, our data shows a great diversity of countries with overall 18 (plus choices for "other", "unknown" and "not applicable") countries from where refugees originate, who attended our participants' emergency rooms. Notably, 25 % of visiting refugee children, the country of origin remains unknown. This might be partially due to the language barriers discussed above. Besides, in my opinion, good quality care cannot be provided if crucial patient information is missing.

When the information is differentiated by region or country of the participants' setting it appears that the Spanish perception differs from the rest. In Spain more refugees of African origin attended the participants' emergency rooms than from the Middle East, which is the dominant region of refugees' origin in Greece and Germany. This is probably due to obvious geographical reasons. One has to keep in mind that the influx of refugees is influenced by great seasonal and climate

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dynamics and last but not least, politics (169). This leads to a call for more flexible health care capacities to be able to cope with the fast-changing demands. This requires additional medical staff at first assessment centres for screenings for infectious diseases and the vaccination status (199).

5.7 Presenting symptoms: Skin and soft tissue infections, safeguarding concerns and mental health issues appear more often in refugee children

For all participants skin and soft tissue infections, safeguarding concerns and mental health issues are the top three that were chosen among 23 possible choices to appear more often as presenting symptoms of refugee children than in their home population. Safeguarding concerns and mental health problems rather lead to structural approaches, for example, creating new resources and pathways in the ER. Skin and soft tissue infections have to be picked up to be included in medically oriented guidelines for dealing with refugee children.

Interestingly, allergies are perceived as less common among refugee children than among children of the home population. Are allergies really less common among refugees or does health illiteracy of refugees prevent refugee children and their families from seeking help when suffering of common allergies? Literature suggests both could be true (43) (21) (25) and therefore this topic needs more in-depth research.

For each symptom, “just as common” was always was an option. A bias by just asking this question might have been created and needs to be taken into consideration.

5.8 More thought provoking differences in comparing data sorted by countries of setting

Due to differences in the countries healthcare systems, the ways of presentation of refugee children to the ER vary significantly in different countries. In the United Kingdom, refugee children present to the ER via a general practitioner (59 %) or via an ambulance (42 %). In Germany, 91 % of the participants claimed to see refugee children self-referred. This is caused by different health care systems and matters of resources and funding. For example, in Germany, if asylum is not yet confirmed, refugees are only entitled to emergency medicine (20). Apart from that, getting an appointment for a paediatric practitioner, who usually sees most children during weekday hours, is especially challenging in metropolitan areas.

British sites seemed to be better prepared in the matter of language differences and mental health problems and acknowledge this, too. Guidelines on refugee care and teaching of refugee children medicine are less prominent in Britain than in other European settings.

In comparison to this, German sites claim to have the highest number of available guidelines and teaching sessions on refugee children medicine. Compared to the other sites they strongly call for more improvement in this area, too. This might be due to the high numbers of refugees in Germany, but the local mentality seems to play a role, too. This means that maybe the glass sometimes rather appears to be half empty than half full. This should not diminish that our findings strongly indicated that more guidance and teaching in refugee care is needed.

5.9 Weaknesses, strengths and challenges of this study

Two major weaknesses of this study are to be mentioned: When comparing numbers of different regions, we need to be aware that numbers of participants differ quite a lot between the areas compared. Taking this into consideration, we put the emphasis on comparisons of countries with the top three numbers of participants (United Kingdom and Ireland, Germany, Spain), only. Additionally, we need to be aware that sites which saw relatively small numbers of refugee children in the past, have the same statistical emphasis than sites who saw many refugee children.

Discussion

The unrivalled strength of this study is its unique and very detailed information on current paediatric emergency care with emphasis on refugee children. Not only did we gain comprehensive information on medical care for refugee children, but also deep insights into differences of European emergency rooms, health care systems and subjective points of view of physicians all over Europe.

What appears as a major strength in the discussion above is also a considerable challenge: The survey provides extraordinarily detailed information on refugee children's emergency care. The primary challenge of this study was to convert this information into a comprehensive summary and develop this into suggestions for future medical care in Europe.

5.10 Clinical relevance and future prospects

Having in mind the ongoing global refugee crisis (170) and the unique insight by this study on refugee children's primary care, the data we collected is clinically highly relevant.

In the end, medical care for refugee children in high-income countries needs to be faced by three major aspects: medical, social and psychological, as shown by a project in Western Australia (111).

For the most pressing questions in health care for refugee children we need comprehensive and easily available information which is standardised for the EU. Currently the EU is facing rising nationalism and bureaucracy and standardised recommendations are not in sight. Nonetheless, with an aspired common frontier, at least a unified approach on screening and the uptake of immunisations of refugees upon arrival should be attempted (115).

For further improvement, more data on refugee health care throughout Europe is desperately needed (174) (198) (115). For evidence based public health management epidemiologic studies are needed, as well (198). The EUPHA aims to collect all European data in that matter (83), which will be a first step to progress. However, awareness of barriers in collecting data in emergency situations is needed, since medical care is always prioritised over possible additional documentation (13).

Discussion

As an interesting side effect gathering medical data on the refugee and immigrant population might give more insight into other medical phenomena (151), as for example, which was brought up earlier, in whether the incidence for allergies is lower in refugee children than in the home population.

Several authorities recommend that missing documentation of the vaccination status and otherwise unknown status of immunisation should lead to an uptake of immunisations (199). Another outlook for progress should be better documentation of health care provision within Europe to avoid over treatment as in multiple vaccination uptakes or screenings (57). This may be approached either digitally or in form of structured documents similar to a mother pass (18). The downside of digital documentation are unmet questions of data security. Paper-based documentation could get lost. In the end, both options should be considered and eventually re-evaluated.

Currently, developing countries are still most affected by forced migration of the people (165). Nonetheless, Europe, as one of the safest and economically most stable continents is attracting refugees and displaced persons more than ever. There is no need of clairvoyance to accept that this will be one of the major challenges of future paediatric emergency medicine. Let us be prepared.

6 Summary

Background: One of the greatest challenges in our time are flight and migration. At the moment millions of people are on the move to escape violence, persecution and poverty. Among them more than half are underage. The needs and issues of hospital-based emergency care for refugee children have not been investigated much, yet. This paper aims to identify the challenges and the impact on paediatric emergency care and uses new insights to develop modern approaches on how to improve care in the future. **Methods:** A comprehensive, web-based survey was distributed through paediatric research networks. **Results:** The statements of 148 participants from 23 European countries were analysed. A large majority of participants operate at university hospitals or other academic hospitals. The regional health systems vary enormously. Consequently, the access to and knowledge of guidelines and advanced training for emergency care for refugee children differs, too. The in-depth analysis reveals that there is more guidance on screening for infectious diseases and catching up immunisation than on the topic of mental health issues of refugee children. Most often addressed were language barriers, unknown medical history and mental health issues as major challenges in providing emergency care for refugee children. The severity of illness, rare infectious diseases and funding, however, were not perceived as problematic. **Conclusion:** Having in mind global flight and migration movements, it is a matter of time until European hospital bound emergency care will be challenged again with the provision of effective care for refugee children on a regular basis. Despite the described heterogeneity of European health systems, this study reveals common gaps in availability of resources, knowledge and guidance and encourages further research to meet upcoming challenges.

Summary

Hintergrund: Flucht und Migration gehören zu den großen Herausforderungen unserer Zeit. Aktuell sind Millionen von Menschen bereits auf der Flucht. Darunter sind mehr als die Hälfte Kinder oder Minderjährige. Die Bedürfnisse und Probleme in der krankenhausbasierten Notfallmedizin eben dieser Kinder und Minderjährigen in Europa ist bislang kaum untersucht. Ziel der vorliegenden Arbeit war es die Auswirkungen und Herausforderungen der letzten großen europäischen Flüchtlingskrise in pädiatrische Notaufnahmen zu zeigen und neue Erkenntnisse zu nutzen um Strategien für zukünftige Flüchtlingswellen zu entwickeln. **Methoden:** Über pädiatrische Forschungsnetzwerke wurde eine detaillierte, web-basierte Umfrage durchgeführt. **Ergebnisse:** Die Aussagen von 148 Teilnehmern aus 23 europäischen Ländern wurden ausgewertet. Eine große Mehrheit der Teilnehmer arbeitet an Universitätskliniken oder akademischen Lehrkrankenhäusern. Die regionalen Unterschiede der lokalen Gesundheitssysteme sind enorm. Dementsprechend unterscheidet sich die lokale Verfügbarkeit beziehungsweise Kenntnis von Leitlinien und Fortbildungen zur Versorgung minderjähriger Flüchtlinge. Differenziert betrachtet waren deutlich mehr Richtlinien zu Impfungen und Impfauffrischungen von Flüchtlingen bekannt als zum Thema psychischer Gesundheit. Die häufigsten Herausforderungen bei der medizinischen Versorgung von Flüchtlingskindern waren Sprachbarrieren, unbekannte medizinische Historie und psychische Probleme. Die Schwere der Erkrankungen, multiresistente oder sehr seltene Infektionen und die Finanzierung der Versorgung wurden hingegen kaum als Problem beschrieben. **Schlussfolgerung:** In Anbetracht der globalen Flüchtlings- und Migrationsbewegungen ist es eine Frage der Zeit bis auch in Europa die Versorgung von geflüchteten Kindern und Jugendlichen wieder ein zentrales Thema in der krankenhausbundenen Notfallmedizin wird. Trotz großer Heterogenität der europäischen Gesundheitssysteme deckt die Studie gemeinsame Lücken an Richtlinien und Fortbildungen auf und regt weitere, differenzierte Untersuchungen an um für kommende Herausforderungen vorbereitet zu sein.

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neglected in the analysis shown above. The table above displays the total number of answers (except “don’t know”), the average value, the mean value and the standard deviation. Numbers above are the foundation of figure 15. *(1) non-traumatic: e.g. limb, joint swelling, back pain *(2) such as exacerbated Type I DM including ketoacidosis *(3) referral by other health care professional. The absolute values from one till five represent the answer possibilities: 1= much less common, 2 = less common, 3 = just as common, 4 =more common, 5 = much more common..... 73

Table 44 The results for presenting signs and symptoms are shown in this table (115). The participants were asked whether listed signs and symptoms could be described as more typical for refugee children compared with presenting symptoms of other children. For each symptom participants were able choose one out of six answer options. The answer option “don’t know” was neglected in the analysis. The table displays percentages for each answer (except “don’t know”). The numbers in this table are the foundation of figure 16. *(1) non-traumatic: e.g. limb, joint swelling, back pain *(2) such as exacerbated Type I Diabetes mellitus including ketoacidosis *(3) referral by other health care professional..... 76

Table 45 and **Table 46** The results for presenting ways of refugee children to the emergency care are shown on the left table (table 45). The results for services conducting routine point of entry screening of refugee children are shown in the table on the right (table 46). Both questions are multiple-choice questions. The numbers are presented in absolute and in percentage values. The percentage values are based on the total number of questions answered..... 79

Table 47 shows the results for the data availability of participants’ sites. The participants were asked whether they can provide data on the six topics presented. All questions are single-choice questions. The numbers are presented in absolute and percentage values. *(1) these are readily available *(2) only with additional research support..... 82

10 List of publications

10.1 Main publication

Nijman RG, **Krone J**, Mintegi S, Bidlingmaier C, MacOnochie IK, Lyttle MD, Von Both U. Emergency care provided to refugee children in Europe: RefuNET: a cross-sectional survey study. *Emerg. Med. J.* 38: 5–13, 2021.

10.2 Additional Publication

05/2017 Poster presentation ESPID 2017 “Evaluating paediatric emergency care for refugee children in Europe”

11 Appendix

11.1 The accompanying letter of the survey

Concerning:

RefuNet survey: a survey looking into the care needs of refugee children in emergency care

SURVEY LINK <http://redcap.euclids-ci.eu/redcap/surveys/?s=7493MWECE7>

Dear colleagues,

The unparalleled stream of refugees entering the European Union, with its latest peak in 2015, is one of the most demanding challenges of our time. Many refugees are minors and in need of medical assistance, and many will present to emergency care facilities with acute health care needs. The medical care of young refugees is confronting physicians and public health services with unpredictable obstacles and comprehensive data about medical needs of refugee children in Europe are scarce, especially for hospital bound care.

Via this survey we aim to understand current health care needs of refugee children presenting to emergency care.

We would like to hear from **clinicians dealing with emergency care of children** from throughout Europe: what are the problems they are facing, what are the barriers in providing health care to this vulnerable group of children?

We would like to urge anyone to encourage clinicians from your home country to complete this survey. We realise that some of the most important countries dealing with refugee children might not be the easiest to be contacted. Working closely together with networks such as REPEM and ESPID we hope to engage with as many clinicians as possible.

We expect the survey to take about **15-20 minutes to complete**.

The survey allows you to **save data** and **complete your entry at a later stage**.

Please designate your entry as '**complete**' once you have entered all data.

This survey will not contain any patient data and has been designed purely to gain insight in current health care delivery systems and barriers to providing health care of refugee children.

Please feel free to contact us and share your experiences. We would also like to invite anyone with a research interest in this topic to get in touch to explore options for future collaborations.

Please Note: If you would like to leave your e-mail address at the end of the survey, we will make sure to keep you informed on the progress and outcomes of the survey. This is only an option and there is **no obligation to leave any personal contact details** to complete the survey.

We would like to thank you very much for your time and efforts to support this initiative! This project is supported by a small grant award from the European Society of Paediatric Infectious Diseases.

With kind regards,

11.2. The survey

Confidential

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RefuNet: emergency care of refugee children, a survey of practices around Europe

Dear colleagues,

The unparalleled stream of refugees entering the European Union, with its latest peak in 2015, is one of the most demanding challenges of our time. Many refugees are minors and in need of medical assistance, and many will present to emergency care facilities with acute health care needs. The medical care of young refugees is confronting physicians and public health services with unpredictable obstacles and comprehensive data about medical needs of refugee children in Europe are scarce, especially for hospital bound care.

Via this survey we aim to understand current health care needs of refugee children presenting to emergency care.

We would like to hear from clinicians dealing with emergency care of children from throughout Europe: what are the problems they are facing, what are the barriers in providing health care to this vulnerable group of children?

We would like to urge anyone to encourage clinicians from your home country to complete this survey. We realise that some of the most important countries dealing with refugee children might not be the easiest to be contacted. Working closely together with networks such as REPEM (Research in European Paediatric Emergency Medicine) and ESPID (European Society of Paediatric Infectious Diseases) we hope to engage with as many clinicians as possible.

We expect the survey to take about 15-20 minutes to complete.

The survey allows you to save data and complete your entry at a later stage.

This survey will not contain any patient data and has been designed purely to gain insight in current health care delivery systems and barriers to providing health care of refugee children.

Please feel free to contact us and share your experiences. We would also like to invite anyone with a research interest in this topic to get in touch to explore options for future collaborations.

Please Note: If you would like to leave your e-mail address at the end of the survey, we will make sure to keep you informed on the progress and outcomes of the survey. This is only an option and there is no obligation to leave any personal contact details to complete the survey.

This project is supported by a small grant award from the European Society of Paediatric Infectious Diseases.

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Appendix

We would like to thank you very much for your time and efforts to support this initiative!

With kind regards,

Ruud G Nijman (r.nijman@imperial.ac.uk)

Johanna Krone (Johanna.Krone@med.uni-muenchen.de)

Ulrich von Both (Ulrich.von.both@med.uni-muenchen.de)

Date of completing survey

Grade of person completing survey

- consultant in (paediatric) emergency care
- consultant in paediatrics
- consultant in (paediatric) infectious diseases
- consultant, other
- junior doctor or trainee (junior, SHO level, up to 3 years of experience in specialty)
- junior doctor or trainee (senior, SpR level, 4 or more years of experience in specialty)
- nurse
- paramedic
- health care manager
- other health care professional (please describe)

If Grade is 'Consultant, other' or 'Other health care professional'; please describe:

In which hospital do you work?

(Please provide the full name of your home institution: this will be key to interpreting the results of this survey.)

In which city and country is your hospital situated?

(Please provide the city and country of your home institution: these will be key to interpreting the results of this survey.)

Is your country part of the European Union?

Yes No

In what type of hospital do you work?

- general district hospital or non academic institution
- teaching or academic hospital
- other

if type of hospital is 'other'; please define:

How many children under the age of 18 live in your catchment area?

(* Only provide value if readily available)

Which major transport links do you have in your geographical area?

- international airport
- national airport
- international harbour
- national harbour
- major connecting train station (including international trains)
- main train station
- local train station
- proximity to motorway (tick all that apply)

Is your hospital located in the vicinity of a refugee camp?

- Yes No
 (* Within your geographical catchment area)

Comments on the geographical area of your hospital

(With geographical area we mean: a short description of the area your hospital is located. This could include important transport links, ethnic minorities, presence of refugee camp, size of your city, major religions, etc.)

In your hospital, where do you see children for non-planned emergency care

- paediatric emergency department
- mixed adult and paediatric emergency department
- outpatient clinics
- paediatric ward
- other (tick all that apply)

if 'other'; please describe:

In your hospital, who provides the emergency care for children?

- paediatric trainees (junior, SHO level, up to 3 years of experience in specialty)
- paediatric trainees (senior, SpR level, 4 or more years of experience in specialty)
- emergency care trainees (junior, SHO level, up to 3 years of experience in specialty)
- emergency care trainees (senior, SpR level, 4 or more years of experience in specialty)
- paediatric consultants
- paediatric emergency care consultants
- emergency care consultants
- nurse specialists practitioners in paediatric emergency care
- nurse specialists practitioners in emergency care
- other (tick all that apply)

if 'other'; please describe:

RefuNet: healthcare system

The following questions address how your hospital has organised emergency care for refugee children

Throughout this questionnaire 'refugee children' are more broadly defined as 'Refugee and unaccompanied asylum seeking children and young people (up to the age of 18 years)'. This excludes resident migrant children for the purposes of this survey.

Does your hospital have a guideline or a policy for refugee children (and):

immunisation status and catch up immunisations yes no unknown

if 'yes'; please shortly describe outline of this policy (if known):

(If a paper copy of the policy is available: please email to r.nijman@imperial.ac.uk, or upload the file below)

if 'yes'; please upload the file if available

((alternatively, email the file to r.nijman@imperial.ac.uk))

infection screening, including Tuberculosis screening

yes no unknown

if 'yes'; please shortly describe outline of this policy (if known):

(If a paper copy of the policy is available: please email to r.nijman@imperial.ac.uk, or upload the file below)

if 'yes'; please upload the file if available

((alternatively, email the file to r.nijman@imperial.ac.uk))

safeguarding concerns and social care referral

yes no unknown

if 'yes'; please shortly describe outline of this policy (if known):

(If a paper copy of the policy is available: please email to r.nijman@imperial.ac.uk, or upload the file below)

if 'yes'; please upload the file if available

((alternatively, email the file to r.nijman@imperial.ac.uk))

presenting to the emergency department

yes no unknown

if 'yes'; please shortly describe outline of this policy (if known):

(If a paper copy of the policy is available: please email to r.nijman@imperial.ac.uk, or upload the file below)

if 'yes'; please upload the file if available

((alternatively, email the file to r.nijman@imperial.ac.uk))

mental health issues and symptoms of post traumatic stress syndrome

yes no unknown

if 'yes'; please shortly describe available resources (if known):

if 'yes'; please upload the file if available

((alternatively, email the file to r.nijman@imperial.ac.uk))

Does your hospital routinely provide follow-up appointments in your hospital for refugee children after a first visit to the emergency department?

yes, always
 not routinely, but sometimes based on clinical indication
 never
 unknown

Does your hospital provide teaching sessions for physicians on how to manage refugee children in emergency care?

yes no unknown

if 'yes'; please shortly describe teaching strategy (if known):

Does your hospital have regular discussions with Public Health or other organisations concerning health care of refugee children?

yes no unknown

if 'yes'; please describe objectives and frequency of these discussions (if known):

if 'yes'; please upload the file if available

((alternatively, email the file to r.nijman@imperial.ac.uk))

Are there any organisations active in your region who provide support and health care for refugee children?

yes no unknown

Healthcare System: additional remarks

if 'yes'; please shortly describe (if known):

RefuNet: barriers

Please indicate whether or not the following issues are perceived as a barrier to providing emergency care to refugee children in your hospital

In our hospital '-----' is/are (an) important barrier(s) to providing emergency care to refugee children

	completely disagree	disagree	neither agree or disagree	agree	completely agree	don't know
language barriers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
cultural differences influencing health care expectations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
funding	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
organising follow-up appointments	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
problems with the social situation and safeguarding concerns	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
mental health problems, and inability to deal with these in the emergency department	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
the underlying pathology of presenting problems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
the severity of illness	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
rare or drug resistant infectious diseases	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
not knowing previous medical history	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
giving appropriate safety netting advice (i.e.: medical advice given at time of discharge)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
the prescribing of medications	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
sexual health problems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
dealing with symptoms of post traumatic stress syndrome	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

RefuNet: statements

Please indicate whether or not you agree with the following statements on emergency care of refugee children

In our emergency care facilities:

	completely disagree	disagree	neither agree or disagree	agree	completely agree	don't know
we are well prepared for dealing with refugee children with acute health care problems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
there is clear guidance on dealing with refugee children	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
there is a need for a clinical guideline for dealing with refugee children	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
there is a clear policy for infection screening amongst refugee children	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
a clear policy for infection screening amongst refugee children is needed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
translation services or tools are available for language barriers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

In paediatric emergency care dealing with refugee children:

	completely disagree	disagree	neither agree or disagree	agree	completely agree	don't know
is a part of our daily clinical activities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
is more difficult because of the complexity of the social situation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
is more difficult because of the type of medical problems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
is completely integrated in the routine flow of patient care	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

There is a need for specific training on dealing with refugee children in paediatric emergency care because of:

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	completely disagree	disagree	neither agree or disagree	agree	completely agree	don't know
underlying medical problems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
associated social problems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
mental health problems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
associated sexual health problems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

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RefuNet: country of origin

How many children (< 18 years) visit your hospital for emergency care annually?

- < 5000
 5000 - 10000
 10000 - 25000
 25000 - 50000
 >50000

How many refugee children visited your hospital in the last 12 months for emergency care (estimated)?

- nil
 < 25
 25 - 100
 100 - 500
 >500
 unknown
 (This concerns children seen for emergency care only; NOT children referred for planned outpatient or screening appointments)

You have indicated you do not see any refugee children in your emergency care facilities: please continue to the next form.

Please tick the (up to) three countries from which you see refugee children most often

- Syria
 Afghanistan
 Pakistan
 Iraq
 Iran
 Somalia
 Eritrea
 Ethiopia
 Ivory Coast
 Guinea
 Gambia
 Sudan
 Egypt
 Libya
 Nigeria
 Ukraine
 Albania
 Balkan States
 Other
 not applicable
 unknown
 (Please tick up to a maximum of three countries)

Country of origin: if 'other'; please define: _____

RefuNet: presentation

How do refugee children present to your emergency care facilities?

- Self-referred
 - GP referred
 - Private paediatrician
 - Ambulance
 - Specific services for refugees
 - Referred by public health authorities
 - other
 - not applicable
 - unknown
- (tick all that apply)

if 'other'; please describe:

Which services are responsible for conducting routine, standardised point of entry screening and medical assessments of refugee children (non acute care)?

- This does not happen in an organised manner in our area
 - Paediatric outpatient clinics (hospital)
 - Primary care paediatricians (community)
 - General practitioners
 - Public health services
 - Emergency care departments or other acute care facilities
 - Third party organisations (Red Cross, Medicines Sans Frontiers)
 - Other
 - Unknown
- (tick all that apply)

if 'other'; please describe:

Would you describe these presenting signs and symptoms as '(more) typical' for refugee children compared with presenting symptoms of other children?

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	much less common	less common	just as common	more common	much more common	don't know
minor injuries and trauma	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
skin and soft tissue infections	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
vomiting and/or diarrhea	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
dehydration	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
fever	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
headache	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
major trauma	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
respiratory problems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
(any) rash	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
allergic reactions	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
mental health problems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
safeguarding concerns	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
ear ache	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
abdominal pain	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
chest pain or hyperventilation	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
musculoskeletal (non traumatic: eg. limp, joint swelling, back pain)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
sore throat	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
weight loss	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
jaundice	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
general unwell being, lethargy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
metabolic disorders (such as exacerbated Type I DM, including ketoacidosis)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
sexual health problems	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
referral for routine screening (referral by other health care professional)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

please describe any other presenting signs and symptoms which you would describe as typical for refugee children

Presentation: additional remarks

RefuNet: data availability

Would you be able to provide more detailed data on:

	yes, these are readily available	yes, but only with additional research support	no	don't know
Exact number of refugee children visiting emergency care facilities of your hospital	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ethnic and geographic background of refugee children visiting your emergency department	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Ways of presenting to the emergency care facilities of your hospital	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Presenting signs and symptoms of refugee children in your emergency care facilities	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Follow-up arrangements, including hospital admission, of refugee children after discharge from your emergency department	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Routine (non-acute) point of entry screening and medical assessments of refugee children	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>





RefuNet: contact

Additional comments:

Additionally, you can send any relevant documents, such as available guidelines or screening tools, and direct any comments or questions to: r.nijman@imperial.ac.uk

If you would like to be informed on the outcomes of this survey, or would like to participate in future studies on child health care of migrant and refugee children, please provide us with your e-mail address:

11.3 Certificate of completion for participants

Emergency care of refugee children, a survey of practices around Europe

on behalf of RefuNet

Certificate for completion of the survey:

This initiative is supported by an ESPID small grant award

Ruud G. Nijman
Imperial College Healthcare NHS Trust

U. von Both
Ulrich von Both
LMU KLINIKUM
LEHRSTUHL FÜR PEDIATRIE

Date: 12.12.2017



What we've learnt so far from the preliminary analysis



- Most of our participants were paediatricians at consultant level located in the European Union and from teaching or academic hospitals. 25% are located in the vicinity of a refugee camp.
- Although most of our participants see refugee children on a regular basis, clinical guidance on looking after refugee children is not commonly available.
- Major perceived **barriers** of physicians taking care of refugee children at emergency care settings are language barriers and mental health problems, as well as not knowing previous medical history; funding and severity of illness were not perceived as major obstacles.
- Notably, 48% of our physicians stated a clear need for clinical guidance for dealing with refugee children in general.



This initiative is supported by an ESPID small grant award

11.4 ESPID small grant award to Dr. med R. Nijman



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October 14th, 2016
To the attention of the Committee for Scientific Affairs and Awards of the ESPID

We hereby certify that the study proposal entitled "EVALUATION OF CURRENT PRACTICE OF MANAGING REFUGEE CHILDREN IN PAEDIATRIC EMERGENCY CARE IN EUROPE: A POINT PREVALENCE SURVEY AND INITIATIVE FOR RESEARCH NETWORK", developed by Ulrich von Both MD and Ruud G Nijman MD was considered of interest for being developed inside REPEM (Research in European Pediatric Emergency Medicine) Network and approved by its Research Committee.

In this way, this study was presented in the last Meeting of REPEM, held in Vienna in 2016 October 3rd and a period for the recruitment of participants was opened.

We considered this study suitable for applying for the Small Grant Award given by the ESPID.

Sincerely,


Santiago Mintegi MD, PhD
Chairman of REPEM Network


Borja Gómez MD
Secretary of REPEM Network

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	United Kingdom

11.5 ESPID 2017 abstract

17a. S- Refugee children

ESP17-0685

EVALUATION OF CURRENT PRACTICE OF MANAGING REFUGEE CHILDREN IN PEDIATRIC EMERGENCY CARE IN EUROPE: A POINT OF PREVALENCE SURVEY AND INITIATIVE FOR RESEARCH NETWORK

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¹Dr. von Hauner Children's Hospital- Ludwig Maximilian University, Division of Paediatric Infectious Diseases, Munich, Germany

²Imperial College London, Pediatric Emergency Care and Pediatric Infectious Diseases, London, United Kingdom

Background

The stream of refugees entering the European Union continues to be a considerable medical and humanitarian challenge. Many refugees are minors requiring medical assistance and often present to emergency care facilities, confronting public health services with unpredictable obstacles. A long-term easing of the political and socio-economic tensions, being major causes of flight is not within sight. Therefore better understanding of current hospital bound emergency care for young refugees is needed to develop forward thinking concepts for the future.

Methods

A point of prevalence survey on common practice of medical services for routine care of refugee children in emergency care was established. Children aged <18 years fulfilling criteria of refugee status were eligible. Data on demographics, epidemiology, prevalent healthcare needs, perceived barriers in health care provision, and healthcare-associated costs were collected. Available clinical guidelines and resources were collated. The survey was distributed through paediatric research networks amongst health care professionals across Europe.


Results

The study is currently in the process of data collection, with results being available within the next 3 months. Since there are currently no data available on this specific and important topic in Europe, we foresee presenting novel insights into common practice of managing refugee children presenting to paediatric emergency care.

Conclusions

So far, comprehensive data about medical needs of refugee children in Europe are scarce, especially for hospital bound care. Our study will be seminal to identifying challenges and barriers when caring for refugee children in different European settings and to improve clinical care for this vulnerable group of patients. The survey will support optimising health care delivery systems for refugee children and developing educational tools for health care professionals in order to improve our preparedness for years to come.



11.6 EPSID 2017 preliminary findings (EPSID poster)



Imperial College London

RefuNET
Evaluating paediatric emergency care of refugee children in Europe

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This initiative is supported by an EPSID small grant award and conducted in cooperation with REPEM

Aims

This study aims to review and improve our understanding of current clinical practice and management of refugee children in emergency care.

Methods

- Distribution of a survey through paediatric research networks amongst health care professionals across Europe started in January 2017. Data collection is still in progress.
- Participating paediatric research networks include REPEM, EPSID, RCPCH, RefUDocs, and several national networks.
- Participants were invited via e-mail link (<http://ijmp.2kx9gie>).
- Refugee children were defined as children aged <18 years fulfilling criteria of refugee status according to WHO definition.
- Domains of the survey included: 1) demographics, 2) health care systems, 3) epidemiology, 4) perceived barriers in health care provision, 5) perceived main reasons for presentation of refugees to emergency care, 6) data availability.

Results

- Of 129 returned forms, 101 were eligible for further evaluation, geographically distributed into 17 European and 10 non-European countries. We received 47 completed surveys (Fig. 1).
- Respondents reported most refugees originating from Syria, Afghanistan, Somalia, and Eritrea (Fig. 2).
- Mental health problems and language issues were perceived by a majority as key barriers in providing health care. Severity of illness and funding of care for refugee children were identified as less impediment (Fig. 3).
- Most data were provided by teaching or academic hospitals with a majority of these not being located in the vicinity of a refugee camp; still, about 40 % stated seeing refugee children as part of routine daily care.

Table 1 Overview of demographic data of respondents

In what type of hospital do you work?	Teaching/academic	80 (85%)
Is your hospital located in the vicinity of a refugee camp?	Yes	33 (31%)
In paediatric emergency care dealing with refugee children is a part of our daily clinical activities	Completely agree/agree	30 (40%)
Does your hospital provide teaching sessions for physicians on how to manage refugee children in emergency care?	Yes	16 (13%)

Table 2 Overview of selected key statements of respondents

There is a clear policy for infection screening amongst refugee children	Completely agree/agree	33 (31%)
A policy for infection screening amongst refugee children is needed	Completely agree/agree	48 (64%)
There is a clear guidance on dealing with refugee children	Completely agree/agree	16 (21%)
There is a need for a clinical guideline for dealing with refugee children	Completely agree/agree	61 (81%)

Conclusion

- This survey provides important insight into the necessary adjustments for the management of refugee children presenting to emergency care facilities in Europe.
- Language barriers and mental health problems should be tackled by integrating professional translation services and mental health services into emergency care.
- There is a clear need for uniform guidelines in Europe.
- Ongoing data collection from health care settings along common refugee flight routes to Europe is needed urgently to improve medical care.




Fig. 1 Distribution of participating centers providing data. Arrows (red) show major flight routes to Europe. Routes vary by season and with political influence/border control. (Frontier, EU 2014).

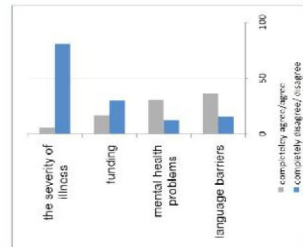


Fig. 3 4 of 10 explored perceived barriers in health care provision. Neutral results as in "do not know"/"not applicable" are not shown. Results in %.

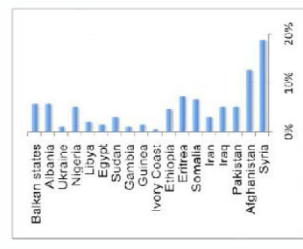


Fig. 2 List of all countries recorded by respondents as the 3 most frequent countries of origin of refugee children. "Unknown"/"not applicable" are not shown.

For additional information or interest in further participation please contact Johanna.Krone@med.lmu.de or r.nijman@imperial.ac.uk. Survey link: <http://ijmp.2kx9gie>

11.7 ESPID presentation 2018 by Dr. med R. Nijman

RefuNet - EVALUATION OF CURRENT PRACTICE OF MANAGING REFUGEE CHILDREN IN PEDIATRIC EMERGENCY CARE IN EUROPE: A POINT OF PREVALENCE SURVEY AND INITIATIVE FOR RESEARCH NETWORK

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Objective

This point prevalence survey aimed to identify barriers for providing health care and health care needs of refugee children in emergency care.

Methods

An online survey was distributed amongst health care professionals across Europe through research networks, in the period February 2017 – September 2017. Population of interest were children aged <18 years fulfilling international criteria of refugee status. Data on demographics, healthcare needs, perceived barriers in health care provision and available guidelines were collected. Supported by an ESPID Small Grant Award.

Results

143 respondents from 21 European countries completed the survey, 79% were paediatric specialty consultants, and most worked in academic institutions (81%). Language barriers (60%), unknown medical history (53%), post-traumatic stress disorder (53%) and mental health issues (50%) were important barriers for providing care, whereas funding, type and severity of presenting illness, medication prescribing, and sexual health problems were not. Skin and soft tissue infections as well as safeguarding concerns were seen more frequently amongst refugee children compared to local population. Guidance on immunisations (available for 30% of respondents), safeguarding issues (31%) or screening for infection (32%) or mental health (14%) were not always available. Only 16% reported regular teaching sessions on refugee child health. 71% of respondents indicated a need for guidelines and 80% for structured teaching. Routine point of entry screening was most commonly done by public health services (20%); in 17% respondents stated this did not happen in an organised manner in their catchment area.

Conclusions

We have identified barriers for providing emergency care of refugee children throughout Europe and highlighted specific health issues of this vulnerable group. This study offers important opportunities for improving clinical guidance and education. However, care pathways vary greatly between different countries, making uniform guidance challenging.

11.8 PERUKI annual report by Dr. med R. Nijman

Research projects. REPEM – Annual report

□



RESEARCH PROJECT

Evaluation of current practice of managing refugee children in paediatric emergency care in Europe: a point prevalence survey and initiative for research network

Date of the report: 03/09/2017

Author/s and Institutions:

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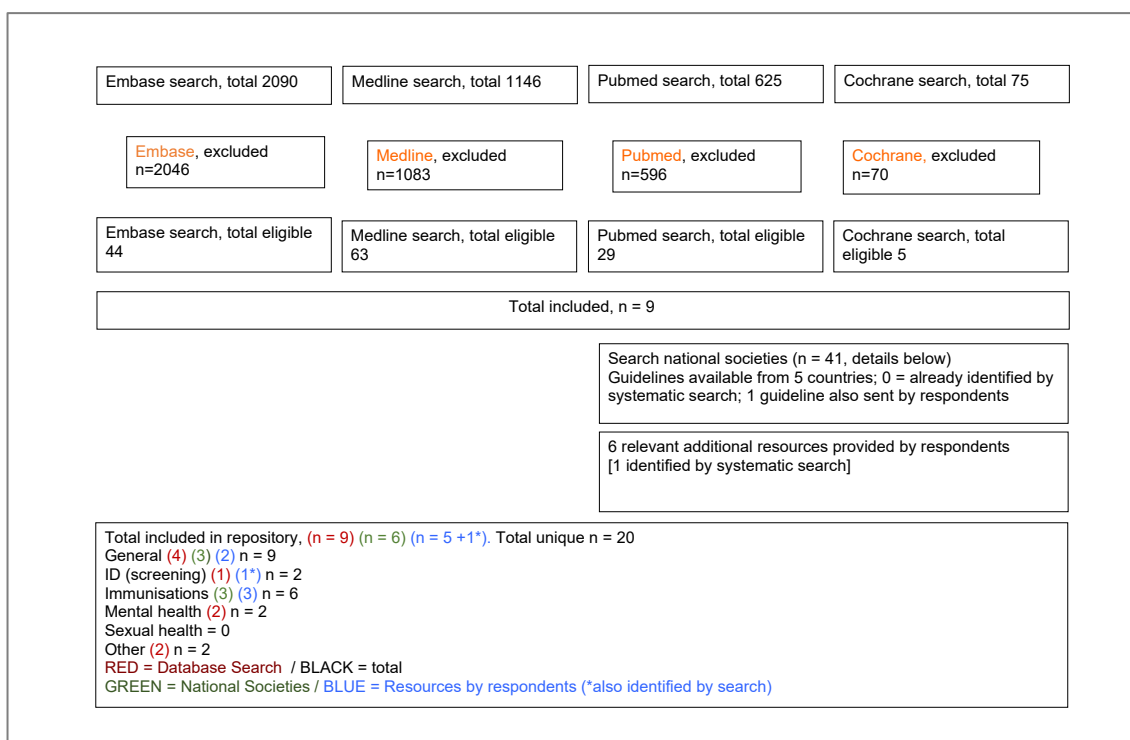
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Bristol Royal Hospital for Children

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11.9 The overview of the systematic guideline search



11.9.1 Eligible resources by systematic research of databases

Database	Number of sources eligible for re-valuation	Number of sources identified as actual guidelines
Embase	44	4
MEDLINE	63	0
PubMed	29	7
Cochrane Library	5	0

Appendix

11.9.2 Eligible resources by systematic research in the Embase database

Topic	Source
Mental health	Hebebrand J, Anagnostopoulos D, Eliez S, Linse H, Pejovic-Milovancevic M, Klasen H. A first assessment of the needs of young refugees arriving in Europe: what mental health professionals need to know. <i>Eur Child Adolesc Psychiatry</i> . 2016;25(1):1-6. doi:10.1007/s00787-015-0807-0 (60)
General	Hjern A, Østergaard LS, Norredam M, de Luna CMM, Goldfeld S. Health policies for migrant children in Europe and Australia. <i>Lancet</i> . 2017. doi:10.1016/S0140-6736(17)30084-3 (64)
General	Jansson P. [Treatment of asylum seeking children]. <i>Ugeskr Laeger</i> . 2010;172(7):563; author reply 563.(69)
Infectious diseases	Pfeil J, Kobbe R, Trapp S, Kitz C, Hufnagel M. [Recommendations for the diagnosis and prevention of infectious diseases in pediatric and adolescent refugees in Germany: Statement of the German Society of Pediatric Infectious Diseases, the Society of Tropical Pediatrics and International Child Health, and the Professional Association of Pediatricians]. <i>Internist (Berl)</i> . 2016;57(5):416-433. doi:10.1007/s00108-016-0040-z (111)

11.9.3 Eligible resources by systematic research in the PubMed database

Topic	Source/ reference
Other (Europe)	Zeitlmann N, George M, Falkenhorst G. Polioimpfung und Stuhlscreening in deutschen Erstaufnahmeeinrichtungen für Asylsuchende, November 2013–Januar 2014. <i>Bundesgesundheitsblatt - Gesundheitsforsch - Gesundheitsschutz</i> . 2016;59(5):584-591. doi:10.1007/s00103-016-2334-7 (185)
Mental health /Europe and Canada (review of guidelines)	Thomson MS, Chaze F, George U, Guruge S. Improving Immigrant Populations' Access to Mental Health Services in Canada: A Review of Barriers and Recommendations. <i>J Immigr Minor Heal</i> . 2015;17(6):1895-1905. doi:10.1007/s10903-015-0175-3
General (USA.)	Dicker S, Stauffer WM, Mamo B, Nelson C, O'Fallon A. Initial refugee health assessments. New recommendations for Minnesota. <i>Minn Med</i> . 2010;93(4):45-48 (31)
Infectious diseases (already in Embase)	Pfeil J, Kobbe R, Trapp S, Kitz C, Hufnagel M. [Recommendations for the diagnosis and prevention of infectious diseases in pediatric and adolescent refugees in Germany: Statement of the German Society of Pediatric Infectious Diseases, the Society of Tropical Pediatrics and International Child Health, and the Professional Association of Pediatricians]. <i>Internist (Berl)</i> . 2016;57(5):416-433. doi:10.1007/s00108-016-0040-z (111)
General (Australia) (already in Embase)	Hjern A, Østergaard LS, Norredam M, de Luna CMM, Goldfeld S. Health policies for migrant children in Europe and Australia. <i>Lancet</i> . 2017. doi:10.1016/S0140-6736(17)30084-3 (64)
General (Canada)	Swinkels H, Pottie K, Tugwell P, Rashid M, Narasiah L. Development of guidelines for recently arrived immigrants and refugees to Canada: Delphi consensus on selecting preventable and treatable conditions. <i>CMAJ</i> . 2011;183(12):E928-32. doi:10.1503 (142)
Other (USA)	Yun K, Matheson J, Payton C, et al. Health Profiles of Newly Arrived Refugee Children in the United States, 2006-2012. <i>Am J Public Health</i> . 2016;106(1):128-135. doi:10.2105/AJPH.2015.302873 (182)

Appendix

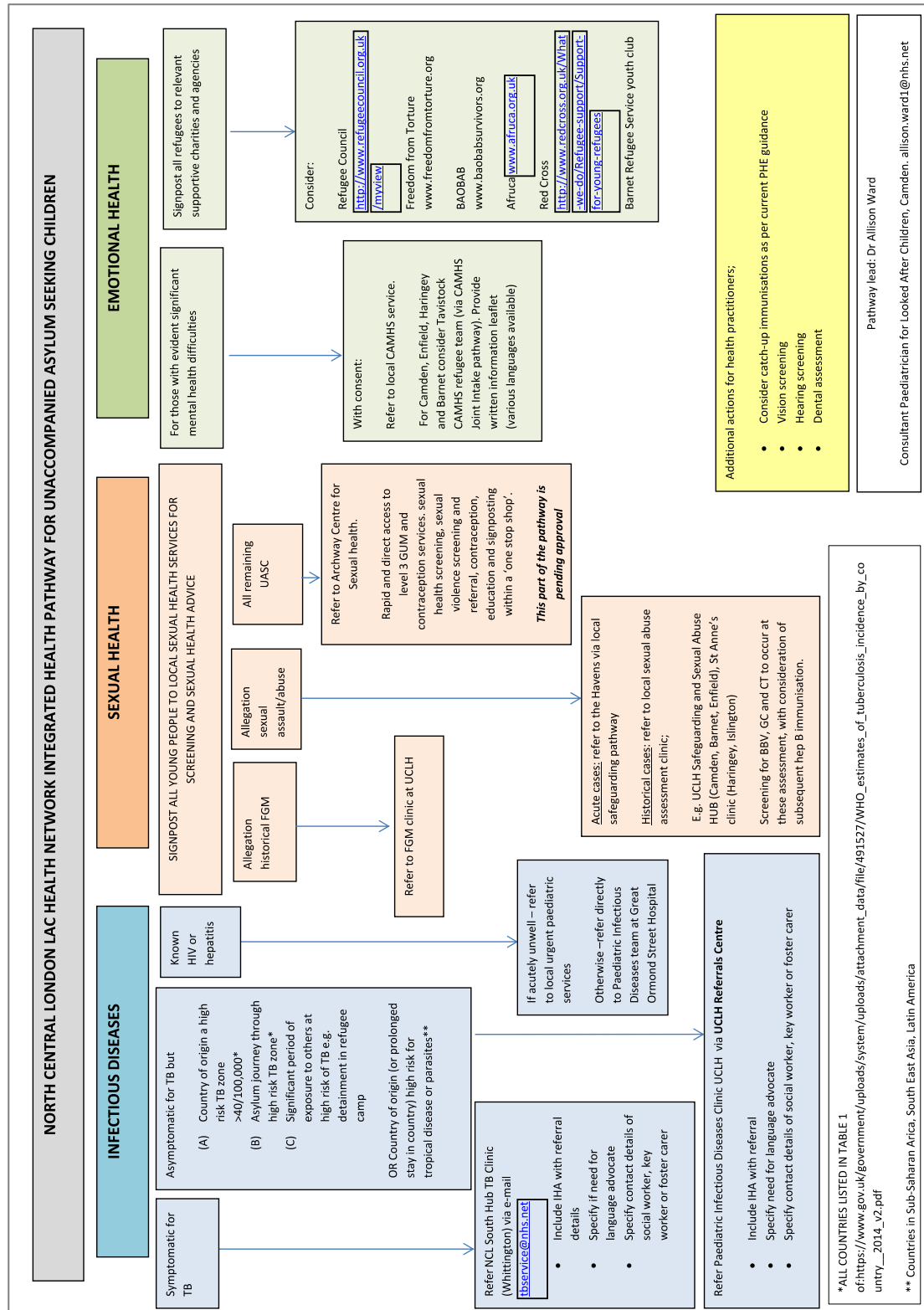
11.9.4 Included resources by search on paediatric national websites

Country	Source/ reference
The Netherlands	Nederlandse Vereniging voor Kindergeneeskunde [Dutch Society of Paediatrics]: Dossier Kinderen van Vluchtelingen. https://www.nvk.nl/Nieuws/Dossiers/Dossier-Kinderen-van-vluchtelingen . Accessed January 18, 2019
United Kingdom	Royal College of Paediatrics and Child Health: Refugee and unaccompanied asylum seeking children and young people. https://www.rcpch.ac.uk/resources/refugee-unaccompanied-asylum-seeking-children-young-people . Accessed January 18, 2019.
Denmark	Sundhedsstyrelsen: Migranternes sundhed. https://www.sst.dk/da/sundhed-og-livsstil/migranter . Accessed January 18, 2019
Germany	Empfehlungen zur infektiologischen Versorgung von Flüchtlingen im Kindes- und Jugendalter in Deutschland. http://dgpi.de/go/wp-content/uploads/2015/10/Fluechtlinge_DGPI-GTP-BVKJ-Stellungnahme_V1.4_22Nov2015.pdf . Accessed January 18, 2019.
Spain	Comité Asesor de Vacunas de la Asociación Española de Pediatría. Sección III. Inmunización en circunstancias especiales: 12. VACUNACIÓN DE NIÑOS INMIGRANTES, REFUGIADOS Y ADOPTADOS. Manual de vacunas en línea de la AEP [Internet]. Madrid. https://

11.9.5 Documents provided by respondents

Topic (country of participant)	Source/ reference
Immunisation (Germany)	Koch-Institut R. Konzept zur Umsetzung frühzeitiger Impfungen bei Asylsuchenden nach Ankunft in Deutschland. 2015. doi:10.17886/EpiBull-2015-011 (121)
Immunisation (Switzerland)	Bernhard S, Büttcher M, Heining U, et al. Guidance for testing and preventing infections and updating immunisations in asymptomatic refugee children and adolescents in Switzerland. <i>Paediatr Conf Proc</i> . 2016;27:1-8 (12)
Immunisation (Spain)	Cilleruelo Ortega MJ, García Sánchez N. vacunación en niños adoptados, inmigrantes y refugiados. Vacunación de niños viajeros vacunación en niños adoptados, inmigrantes y refugiados. Vacunación de niños viajeros. <i>Pediatr Integr</i> . 2015;XIX(10):702.e1-702.e10.
Infectious diseases (Germany) (already in Embase and PubMed)	Pfeil J, Kobbe R, Trapp S, Kitz C, Hufnagel M. [Recommendations for the diagnosis and prevention of infectious diseases in pediatric and adolescent refugees in Germany: Statement of the German Society of Pediatric Infectious Diseases, the Society of Tropical Pediatrics and International Child Health, and the Professional Association of Pediatricians]. <i>Internist (Berl)</i> . 2016;57(5):416-433. doi:10.1007/s00108-016-0040-z
Healthcare pathway (UK)	healthcare pathways for refugee children (/unaccompanied asylum seeking children) in North London (unreferenced),
Safeguarding concerns (UK)	safeguarding recommendations in Sussex, UK (unreferenced).

11.9.6 Unreferenced uploaded documents of participants from the United Kingdom



Unaccompanied children or asylum seekers

The number of unaccompanied and refugee children arriving in the UK has risen over the last few years, including through the transfer of hundreds of children from Calais. Some of these children can be amongst the most vulnerable in society.

Recent evidence indicates that some children are arriving into the UK:

- In the care of adults who have no Parental Responsibility for them;
- In the care of adults who have no documents to demonstrate a relationship with the child;
- Alone; In the care of agents.

The Sussex child protection procedures are to be followed including sections

<http://sussexchildprotection.procedures.org.uk/tkhs/children-in-specific-circumstances/children-from-abroad#sthash.5PQJaxna.dpuf>

8.6 Children from Abroad

8.37 Trafficked Children

Where there is uncertainty about a suspected victim's age, children's services will be responsible for assessing their age.

Local Services (see BSUH safeguarding children web page)

Refugees, Asylum Seekers and Migrants - Directory

<https://www.brighton-hove.gov.uk/sites/brighton-hove.gov.uk/files/Refugee%20Asylum%20Seekers%20and%20Migrants%20Directory.pdf>

The Refugees, Asylum Seekers and Migrants Directory for Brighton & Hove lists organisations able to offer support to or take action for refugees, asylum seekers and migrants. Information about these services and signposting for professionals working with refugees, asylum seekers and migrants is available from the Chair of the Brighton & Hove Refugee Forum, Lucy Bryson on 01273 292572.

Brighton Voices in Exile www.brightonvoicesinexile.org

Brighton Voices In Exile is a registered charity reaching out to those seeking asylum, refugees and those with no recourse to public funds within Sussex. They work on a three tier intervention approach; crisis intervention (destitution, deportation), stabilising situations (accommodation, finances), and longer term integration support (volunteering, education & employment).

Appendix

11.10 Codes and variables

11.10.1 Codes to identify the eligibility of answer set

Code	Setting-Country	Eligibility
0	Empty/ Test	excluded
1	Country of EU	included
2	Switzerland	included
3	Albania, Armenia	included
4	Belarus	included
5	Turkey	included
6	Ghana, India, USA, Kenya, Argentina, Afghanistan	excluded
7	Iceland	included
8	Identical Double	excluded

11.10.2 Codes to identify the country and Northern and Southern European Countries

Country Code	Setting-Country	North (2) / South (1)
1	Portugal	1
2	Spain	1
3	Italy	1
4	Lithuania	2
5	Germany	2
6	Netherlands	2
7	Estonia	2
8	Romania	1
9	UK	2
10	Sweden	2
11	France	2
12	Armenia	1
13	Greece	1
14	Cyprus	1
15	Ireland	2
16	Austria	2
17	Denmark	2
18	Belgium	2
19	Turkey	1
20	Belarus	2
21	Iceland	2
22	Switzerland	2
23	Albania	1

Appendix

11.10.3 Variables for frequency analysis on multiple answer sets

Variable	In your hospital where do you see children for planned emergency care?
0	Paediatric ER
1	Mixed adult and paediatric ER
2	Outpatient clinic
3	Paediatric ward
4	other

Variable	In your hospital, who provides the emergency care for children?
0	paediatric trainees (junior, SHO level, up to 3 years of experience in speciality)
1	paediatric trainees (senior, SpR level, 4 or more years of experience in speciality)
2	emergency care trainees (junior, SHO level, up to 3 years of experience in speciality)
3	emergency care trainees (senior, SpR level, 4 or more years of experience in speciality)
4	paediatric consultants
5	paediatric emergency care consultants
6	emergency care consultants
7	nurse specialists practitioners in paediatric emergency care
8	nurse specialists practitioners in emergency care
9	other

Variable	Which transport links do you have in your geographical area?
0	International airport
1	National airport
2	International harbour
3	National harbour
4	Major connecting train station
5	Main train station
6	Local train station
7	Proximity to motorway

Variable	Country of origin
0	Syria
1	Afghanistan
2	Pakistan
3	Iraq
4	Iran
5	Somalia
6	Eritrea
7	Ethiopia
8	Guinea
9	Gambia
10	Sudan
11	Egypt
12	Libya
13	Nigeria
14	Ukraine
15	Albania
16	Balkan States
17	other
18	not applicable
19	unknown

11.11 In-depth results and additional tables and graphs**11.11.1 Detailed results for setting information**

		All eligible participants		Southern European countries		United Kingdom and Ireland		Spain		Germany	
		N	%	N	%	N	%	N	%	N	%
In what type of hospital do you work?	general district hospital or non academic institution	24	16,2	4	9,1	14	26,4	1	4,8	3	23,1
	teaching or academic hospital	120	81,1	40	90,9	39	73,6	20	95,2	8	61,5
	other	4	2,7	44						2	15,4
	total answered	148				53		21		13	
Is your hospital located in the vicinity of a refugee camp?	No	110	74,8	35	79,5	52	98,1	21	100	1	8,3
	Yes	37	25,2	9	20,5	1	1,9			11	91,7
	total answered	147		44		53				12	
Is your country part of the European Union?	No	12	8,1	3	6,8	1	1,9				
	Yes	136	91,9	41	93,2	52	98,1	21	100	13	100
	total answered	148		44		53					
Which major transport links do you have in your geographical area?	international airport	109	74,1	35	79,5	34	65,4	17	81	9	69,2
	national airport	57	38,8	18	40,9	17	32,7	9	42,9	8	61,5
	international harbour	44	29,9	15	34,1	18	34,6	4	19	1	7,7
	national harbour	27	18,4	9	20,5	11	21,2	2	9,5	1	7,7
	major connecting train station (including international trains)	76	51,7	24	54,5	19	36,5	10	47,6	9	69,2
	main train station	96	65,3	24	54,5	39	75	13	61,9	9	69,2
	local train station	70	47,6	17	38,6	26	50	9	42,9	10	76,9
	proximity to motorway	103	70,1	34	77,3	32	61	16	76,2	11	84,6
total answered	582		176		196		80		58		
How many children (< 18 years) visit your hospital for emergency care annually?	< 5000	12	11,3	2	7,1	2	4,8			3	27,3
	5000 - 10000	13	12,3	2	7,1	1	2,4			5	45,5
	10000 - 25000	27	25,5	9	32,1	11	26,2	4	28,6	1	9,1
	25000 - 50000	33	31,1	5	17,9	19	45,2	2	14,3	2	18,2
	>50000	21	19,8	10	35,7	9	21,4	8	57,1		
	total answered	106		28		42		14		11	
	missings	42		16		11		7		2	
total	148		44		53		21		13		
How many refugee children visited your hospital in the last 12 months for emergency care (estimated)?	nil	9	8,5	3	10,7	5	11,9	3	21,4		
	< 25	25	23,6	6	21,4	15	35,7	4	28,6	1	9,1
	25 - 100	26	24,5	7	25	8	19	3	21,4		
	100 - 500	10	9,4	1	3,6	2	4,8			4	36,4
	>500	9	8,5	3	10,7					4	36,4
	unknown	27	25,5	8	28,6	12	28,6	4	28,6	2	18,2
	total answered	106		28		42		14		11	
	missings	42		16		11		7		2	
total	148		44		53		21		13		

Appendix

		All eligible participants		Southern European countries		United Kingdom and Ireland		Spain		Germany	
		N	%	N	%	N	%	N	%	N	%
In your hospital, where do you see children for non-planned emergency care?	paediatric emergency department	113	79,6	39	92,9	36	70,6	18	90	8	66,7
	mixed adult and paediatric emergency department	21	14,8	2	4,8	15	29,4	2	10	1	8,3
	outpatient clinics	27	19	6	14,3	9	17,6	3	15	4	33,3
	paediatric ward	35	24,6	7	16,7	13	25,5	4	20	5	41,7
	other	9	6,3	1	2,4	6	11,8	1	5		
	total answered	205		55		79		28		18	
In your hospital, who provides the emergency care for children?	paediatric trainees (junior, SHO level, up to 3 years of experience in speciality)	107	74,8	34	81	36	70,6	18	90	7	53,8
	paediatric trainees (senior, SpR level, 4 or more years of experience in speciality)	100	69,9	27	64	36	70,6	14	70	8	61,5
	emergency care trainees up to 3 years of experience in speciality	67	46,9	5	11,9	44	86,3	1	5		
	emergency care trainees, 4 or more years of experience in speciality	64	44,8	6	14,3	43	84,3	3	15		
	paediatric consultants	101	70,6	32	76,2	30	58,8	15	75	11	84,6
	paediatric emergency care consultants	86	60,1	23	54,8	42	82,4	14	70	4	30,8
	emergency care consultants	42	29,4	5	11,9	33	64,7	4	20		
	nurse specialists practitioners in paediatric emergency care	62	43,4	15	35,7	28	54,9	9	45		
	nurse specialists practitioners in emergency care	36	25,2	5	11,9	24	47,1	3	15	4	30,8
	other	10	7	2	4,8	4	7,8	2	10	1	7,7
total answered	675		154		320		83		35		
Grade of person completing survey	consultant in (paediatric) emergency care	55	37,2	17	38,6	26	49,1	10	47,6	3	23,1
	consultant in paediatrics	27	18,2	8	18,2	5	9,4	2	9,5	6	46,2
	consultant in (paediatric) infectious diseases	30	20,3	10	22,7	6	11,3	5	23,8	2	15,4
	consultant, other	5	3,4			4	7,5				
	junior doctor or trainee (junior, SHO level, up to 3 years of training in speciality)	5	3,4	2	4,5						
	junior doctor or trainee (senior, SpR level, 4 or more years of training in speciality)	18	12,2	2	4,5	10	18,9	3	14,3	2	15,4
	nurse	2	1,4			2	3,8				
	paramedic	2	1,4								
	other health care professional (please describe)	4	2,7	3	6,8			1	4,8		
	total answered	148		44		53		21		13	

Appendix

11.11.2 Detailed results for perceived barriers

Please indicate whether or not the following issues are perceived as a barrier to providing emergency care to refugee children in your hospital In our hospital "____" is/are (an) important barrier(s) to providing emergency care to refugee children	completely disagree	disagree	neither agree or disagree	agree	completely agree	don't know	total	
language barriers	4 3,6	28 25,5	12 10,9	47 42,7	19 17,3		110	N %
cultural differences influencing health care expectations	6 5,5	35 31,8	18 16,4	40 36,4	9 8,2	2 1,8	110	N %
funding	27 24,5	36 32,7	19 17,3	15 13,6	7 6,4	6 5,5	110	N %
organising follow-up appointments	15 13,6	37 33,6	13 11,8	36 32,7	7 6,4	2 1,8	110	N %
problems with the social situation and safeguarding concerns	15 13,6	28 25,5	15 13,6	41 37,3	9 8,2	2 1,8	110	N %
mental health problems and inability to deal with these in the emergency department	7 6,4	19 17,3	24 21,8	39 35,5	16 14,5	5 4,5	110	N %
the underlying pathology of presenting problems	18 16,4	40 36,4	24 21,8	17 15,5	6 5,5	5 4,5	110	N %
the severity of illness	31 28,2	54 49,1	18 16,4	4 3,6	1 0,9	2 1,8	110	N %
rare or drug resistant infectious diseases	19 17,3	46 41,8	25 22,7	13 11,8	1 0,9	6 5,5	110	N %
not knowing previous medical history	7 6,4	29 26,4	14 12,7	45 40,9	14 12,7	1 0,9	110	N %
giving appropriate safety netting advice (i.e. medical advice given at time of discharge)	8 7,3	31 28,2	13 11,8	41 37,3	11 10	6 5,5	110	N %
the prescribing of medications	20 18,2	38 34,5	19 17,3	26 23,6	6 5,5	1 0,9	110	N %
sexual health problems	9 8,2	41 37,3	25 22,7	18 16,4	5 4,5	12 10,9	110	N %
dealing with symptoms of post traumatic stress syndrome	4 3,6	19 17,3	21 19,1	38 34,5	19 17,3	9 8,2	110	N %

Appendix

11.11.3 Detailed overview of results for statements (by all eligible participants)

Please indicate whether or not you agree with the following statements on emergency care of refugee children								
In our emergency care facilities:	completely disagree	disagree	neither agree or disagree	agree	completely agree	don't know	total	
we are well prepared for dealing with refugee children with acute health care problems	6	30	31	33	7	1	108	N
	5,6	27,8	28,7	30,6	6,5	0,9		%
there is clear guidance on dealing with refugee children	18	56	18	13	2	1	108	N
	16,7	51,9	16,7	12	1,9	0,9		%
there is a need for a clinical guideline for dealing with refugee children	2	8	21	48	29		108	N
	1,9	7,4	19,4	44,4	26,9			%
a clear policy for infection screening amongst refugee children is needed	6	30	31	33	7	1	108	N
	6,5	17,6	16,7	31,5	25,9	1,9		%
translation services or tools are available for language barriers	7	19	11	51	19	1	108	N
	21,3	32,4	13	22,2	9,3	1,9		%
In paediatric emergency care dealing with refugee children:	completely disagree	disagree	neither agree or disagree	agree	completely agree	don't know	total	
is a part of our daily clinical activities	6	30	31	33	7	1	108	N
	5,6	15,7	14,8	48,1	13	2,8		%
is more difficult because of the complexity of the social situation	6	30	31	33	7	1	108	N
	5,6	15,7	14,8	48,1	13	2,8		%
is more difficult because of the type of medical problems	6	30	31	33	7	1	108	N
	5,6	15,7	14,8	48,1	13	2,8		%
is completely integrated in the routine flow of patient care	6	30	31	33	7	1	108	N
	16,7	34,3	25	15,7	6,5	1,9		%
There is a need for specific training on dealing with refugee children in paediatric emergency care because of:	completely disagree	disagree	neither agree or disagree	agree	completely agree	don't know	total	
underlying medical problems	6	30	31	33	7	1	108	N
	1,9	15,7	21,3	52,8	7,4	0,9		%
associated social problems	6	30	31	33	7	1	108	N
	0,9	4,6	8,3	65,7	19,4	0,9		%
mental health problems	1	8	16	56	22	4	107	N
	0,9	7,5	15	52,3	20,6	3,7		%
associated sexual health problems	2	15	28	47	12	4	108	N
	1,9	13,9	25,9	43,5	11,1	3,7		%
there is a clear policy for infection screening amongst refugee children	20	44	15	15	9	5	108	N
	18,5	40,7	13,9	13,9	8,3	4,6		%

Appendix

11.11.4 Detailed overview of results for statements (Participants from the United Kingdom and Ireland)

Please indicate whether or not you agree with the following statements on emergency care of refugee children (United Kingdom and Ireland data set)								
In our emergency care facilities:	completely disagree	disagree	neither agree or disagree	agree	completely agree	don't know	total	
we are well prepared for dealing with refugee children with acute health care problems	3	14	10	10	4	1	42	N
	7,1	33,3	23,8	23,8	9,5	2,4		%
there is clear guidance on dealing with refugee children	10	25	6	1			42	N
	23,8	59,5	14,3	2,4				%
there is a need for a clinical guideline for dealing with refugee children	1	4	12	19	6		42	N
	2,4	9,5	28,6	45,2	14,3			%
a clear policy for infection screening amongst refugee children is needed	3	8	6	15	8	2	42	N
	7,1	19	14,3	35,7	19	4,8		%
translation services or tools are available for language barriers	1	2	6	25	8		42	N
	2,4	4,8	14,3	59,5	19			%
In paediatric emergency care dealing with refugee children:	completely disagree	disagree	neither agree or disagree	agree	completely agree	don't know	total	
is a part of our daily clinical activities	12	16	4	7	2	1	42	N
	28,6	38,1	9,5	16,7	4,8	2,4		%
is more difficult because of the complexity of the social situation	3	7	5	22	3	2	42	N
	7,1	16,7	11,9	52,4	7,1	4,8		%
is more difficult because of the type of medical problems	4	11	16	8		3	42	N
	9,5	26,2	38,1	19		7,1		%
is completely integrated in the routine flow of patient care	7	17	12	4	1	1	42	N
	16,7	40,5	28,6	9,5	2,4	2,4		%
There is a need for specific training on dealing with refugee children in paediatric emergency care because of:	completely disagree	disagree	neither agree or disagree	agree	completely agree	don't know	total	
underlying medical problems	1	5	12	23		1	42	N
	2,4	11,9	28,6	54,8		2,4		%
associated social problems	1	4	5	26	5	1	42	N
	2,4	9,5	11,9	61,9	11,9	2,4		%
mental health problems	1	5	7	23	5	1	42	N
	2,4	11,9	16,7	54,8	11,9	2,4		%
associated sexual health problems	1	5	9	23	3	1	42	N
	2,4	11,9	21,4	54,8	7,1	2,4		%
there is a clear policy for infection screening amongst refugee children	11	21	4	2		4	42	N
	26,2	50	9,5	4,8		9,5		%

Appendix

11.11.5 Detailed overview of results for statements (Southern European participants)

Please indicate whether or not you agree with the following statements on emergency care of refugee children (Southern European data set)								
In our emergency care facilities:	completely disagree	disagree	neither agree or disagree	agree	completely agree	dont know	total	
we are well prepared for dealing with refugee children with acute health care problems	3	10	9	7	1		30	N
	10	33,3	30	23,3	3,3			%
there is clear guidance on dealing with refugee children	6	17	7				30	N
	20	56,7	23,3					%
there is a need for a clinical guideline for dealing with refugee children	1	1	2	14	12		30	N
	3,3	3,3	6,7	46,7	40			%
a clear policy for infection screening amongst refugee children is needed	2	5	4	8	11		30	N
	6,7	16,7	13,3	26,7	36,7			%
translation services or tools are available for language barriers	5	8	2	12	2	1	30	N
	16,7	26,7	6,7	40	6,7	3,3		%
In paediatric emergency care dealing with refugee children:	completely disagree	disagree	neither agree or disagree	agree	completely agree	dont know	total	
is a part of our daily clinical activities	11	8	5	3	2	1	30	N
	36,7	26,7	16,7	10	6,7	3,3		%
is more difficult because of the complexity of the social situation	3	8	5	9	4	1	30	N
	10	26,7	16,7	30	13,3	3,3		%
is more difficult because of the type of medical problems	3	10	5	9	2	1	30	N
	10	33,3	16,7	30	6,7	3,3		%
is completely integrated in the routine flow of patient care	8	9	6	2	4	1	30	N
	26,7	30	20	6,7	13,3	3,3		%
There is a need for specific training on dealing with refugee children in paediatric emergency care because of:	completely disagree	disagree	neither agree or disagree	agree	completely agree	dont know	total	
underlying medical problems	1	6	5	16	2		30	N
	3,3	20	16,7	53,3	6,7			%
associated social problems		1	1	22	6		30	N
		3,3	3,3	73,3	20			%
mental health problems		3	4	13	7	2	29	N
		10,3	13,8	44,8	24,1	6,9		%
associated sexual health problems	1	5	5	13	4	2	30	N
	3,3	16,7	16,7	43,3	13,3	6,7		%
there is a clear policy for infection screening amongst refugee children	5	16	3	3	2	1	30	N
	16,7	53,3	10	10	6,7	3,3		%

Appendix

11.11.6 Detailed overview of results for statements (German participants)

Please indicate whether or not you agree with the following statements on emergency care of refugee children (German data set)							
In our emergency care facilities:	completely disagree	disagree	neither agree or disagree	agree	completely agree	don't know	total
we are well prepared for dealing with refugee children with acute health care problems			2 18,2	7 63,6	2 18,2		11 N %
there is clear guidance on dealing with refugee children		3 27,3	2 18,2	4 36,4	2 18,2		11 N %
there is a need for a clinical guideline for dealing with refugee children		1 9,1	2 18,2	5 45,5	3 27,3		11 N %
a clear policy for infection screening amongst refugee children is needed			3 27,3	5 45,5	3 27,3		11 N %
translation services or tools are available for language barriers		3 27,3	4	4 36,4	36,4		11 N %
In paediatric emergency care dealing with refugee children:	completely disagree	disagree	neither agree or disagree	agree	completely agree	don't know	total
is a part of our daily clinical activities			1 9,1	7 63,6	3 27,3		11 N %
is more difficult because of the complexity of the social situation			1 9,1	7 63,6	3 27,3		11 N %
is more difficult because of the type of medical problems		3 27,3	4 36,4	3 27,3	1 9,1		11 N %
is completely integrated in the routine flow of patient care		3 27,3	3 27,3	5 45,5			11 N %
There is a need for specific training on dealing with refugee children in paediatric emergency care because of:	completely disagree	disagree	neither agree or disagree	agree	completely agree	don't know	total
underlying medical problems		2 18,2	1 9,1	6 54,5	2 18,2		11 N %
associated social problems				8 72,7	3 27,3		11 N %
mental health problems			1 9,1	6 54,5	4 36,4		11 N %
associated sexual health problems		1 9,1	4 36,4	5 45,5	1 9,1		11 N %
there is a clear policy for infection screening amongst refugee children	1 9,1	2 18,2	2 18,2	4 36,4	2 18,2		11 N %

Appendix

11.11.7 Detailed overview of results for statements (Spanish participants)

Please indicate whether or not you agree with the following statements on emergency care of refugee children (Spanish data set)								
In our emergency care facilities:	completely disagree	disagree	neither agree or disagree	agree	completely agree	don't know	total	
we are well prepared for dealing with refugee children with acute health care problems	2 13,3	6 40	2 13,3	5 33,3			15	N %
there is clear guidance on dealing with refugee children	3 20	11 73,3	1 6,7	3 20			15	N %
there is a need for a clinical guideline for dealing with refugee children	1 6,7		2 13,3	3 20	9 60		15	N %
a clear policy for infection screening amongst refugee children is needed	2 13,3	1 6,7	1 6,7	2 13,3	9 60		15	N %
translation services or tools are available for language barriers	3 20	2 13,3	1 6,7	6 40	2 13,3	1 6,7	15	N %
In paediatric emergency care dealing with refugee children:	completely disagree	disagree	neither agree or disagree	agree	completely agree	don't know	total	
is a part of our daily clinical activities	10 66,7	2 13,3	1 6,7	1 6,7	1 6,7		15	N %
is more difficult because of the complexity of the social situation	2 13,3	2 13,3	3 20	5 33,3	3 20	1 6,7	15	N %
is more difficult because of the type of medical problems	2 13,3	3 20	2 13,3	5 33,3	1 6,7	1 6,7	15	N %
is completely integrated in the routine flow of patient care	7 46,7	4 26,7	2 13,3		2 13,3		15	N %
There is a need for specific training on dealing with refugee children in paediatric emergency care because of:	completely disagree	disagree	neither agree or disagree	agree	completely agree	don't know	total	
underlying medical problems	1 6,7	1 6,7	2 13,3	10 66,7	1 6,7		15	N %
associated social problems		1 6,7		9 60	5 33,3		15	N %
mental health problems		1 6,7	1 6,7	9 60	4 26,7		15	N %
associated sexual health problems	1 6,7	2 13,3	1 6,7	9 60	2 13,3		15	N %
there is a clear policy for infection screening amongst refugee children	4 26,7	6 40	1 6,7	2 13,3	1 6,7	1 6,7	15	N %

Appendix

11.11.8 Detailed overview of results for countries of origin

	All eligible data sets		Southern Europe		United Kingdom/ Ireland		Germany		Spain	
	N	%	N	%	N	%	N	%	N	%
Syria	60	65,9	11	52,4	18	51,4	1	14,3	11	100
Afghanistan	42	46,2	4	19	13	37,1			10	90,9
Pakistan	11	12,1	4	19	3	8,6	1	14,3	2	18,2
Iraq	27	29,7	4	19	9	25,7			4	36,4
Iran	9	9,9	2	9,5	3	8,6			3	27,3
Somalia	26	28,6	2	9,5	10	28,6			6	54,5
Eritrea	20	22	2	9,5	6	17,1			3	27,3
Ethiopia	9	9,9	3	14,3	1	2,9	1	14,3	2	18,2
Guinea	3	3,3	3	14,3			3	42,9		
Gambia	3	3,3	2		2	5,7			1	9,1
Sudan	10	11	2	9,5	5	14,3			2	18,2
Egypt	3	3,3	2	9,5					1	9,1
Libya	5	5,5	2	9,5	2	5,7			1	9,1
Nigeria	13	14,3	4	19	4	11,4	3	42,9	4	36,4
Ukraine	2	2,2	2	9,5			2	28,6		
Albania	16	17,6	3	14,3	5	14,3			3	27,3
Balkan States	13	14,3	3	14,3	3	8,6			2	18,2
Other	7	7,7	2	9,5	2	5,7	2	28,6		
not applicable	1	1,1	1	4,8			1	14,3		
unknown	23	25,3	7	33,3	13	37,1	2	28,6	1	9,1
total answered	303		63		99		16		56	

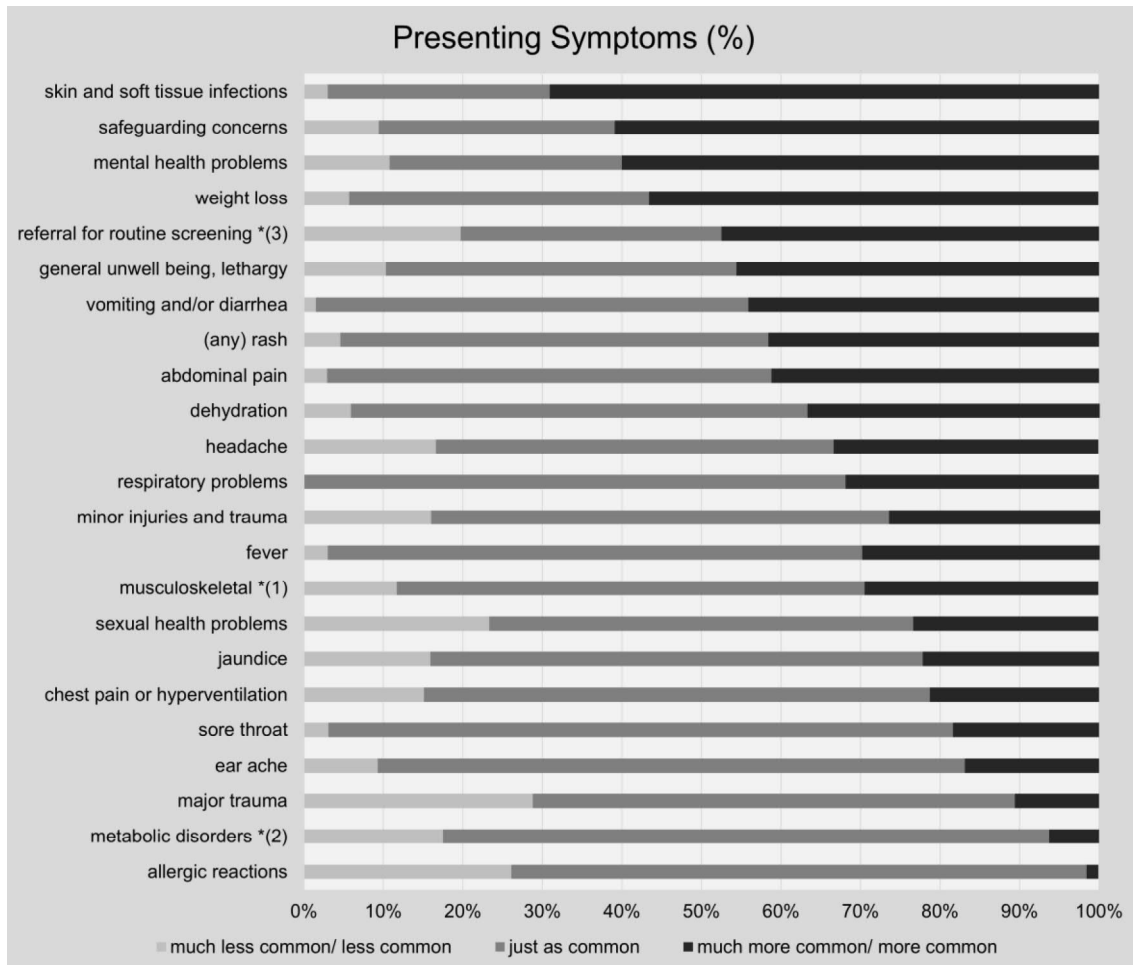
Appendix

11.11.9 Detailed overview of results for presenting symptoms

Would you describe these signs and symptoms as "(more) typical" for refugee children compared with presenting symptoms of other children? (%)	much less common/ less common	just as common	much more common/ more common
allergic reactions	26,1	72,3	1,5
metabolic disorders *(2)	17,5	76,2	6,3
major trauma	28,8	60,6	10,6
ear ache	9,3	73,8	16,9
sore throat	3,1	78,5	18,4
chest pain or hyperventilation	15,1	63,6	21,3
jaundice	15,9	61,9	22,2
sexual health problems	23,3	53,3	23,3
musculoskeletal *(1)	11,7	58,8	29,4
fever	3	67,2	29,9
minor injuries and trauma	10,6	57,6	31,8
respiratory problems		68,1	31,9
headache	16,6	50	33,3
dehydration	5,9	57,4	36,8
abdominal pain	2,9	55,9	41,2
(any) rash	4,6	53,8	41,6
vomiting and/or diarrhea	1,5	54,4	44,1
general unwell being, lethargy	10,3	44,1	45,6
referral for routine screening *(3)	19,7	32,8	47,5
weight loss	5,7	37,7	56,5
mental health problems	10,8	29,2	60
safeguarding concerns	9,4	29,7	60,9
skin and soft tissue infections	3	27,9	69,1

*(1) non traumatic: e.g. limb, joint swelling, back pain *(2) such as exacerbated Type I Diabetes mellitus including ketoacidosis *(3) referral by other health care professional

Appendix



Results for presenting signs and symptoms are shown in this figure. Participants were asked whether listed signs and symptoms could be described as more typical for refugee children compared with presenting symptoms of other children. For each symptom participants were able to choose one out of six answer options. The answer option “don’t know” was neglected in the analysis. Results for much “more common” and “more common” as well as “much less common” and “less common” were summarized. A table with the detailed values can be found in the appendix. The table displays percentages for all answers (except “don’t know”). *(1) non traumatic: e.g. limb, joint swelling, back pain *(2) such as exacerbated Type I Diabetes mellitus including ketoacidosis *(3) referral by other health care professional

Appendix

11.11.10 Detailed overview of results for presenting symptoms

	All participants	Southern Europe	United Kingdom/Ireland	Spain	Germany
skin and soft tissue infections	3,78	4,16	3,58	4,29	3,91
safeguarding concerns	3,64	3,69	3,91	4	3,5
mental health problems	3,62	3,41	3,79	4	4,09
weight loss	3,58	3,85	3,45	4,14	3,45
vomiting and/or diarrhea	3,53	3,85	3,37	4	3,36
(any) rash	3,51	3,95	3,17	3,86	3,5
abdominal pain	3,46	3,65	3,16	4,14	3,64
respiratory problems	3,41	3,53	3,21	3,43	3,36
referral for routine screening *(3)	3,39	3,32	3,6	4,14	3,6
general unwell being, lethargy	3,38	3,25	3,53	3,43	3,45
fever	3,36	3,47	3,21	3,57	3,18
dehydration	3,35	3,5	3,37	3,71	3,27
minor injuries and trauma	3,26	3,5	3,21	3,86	3,36
headache	3,23	2,95	3,11	3,29	3,82
musculoskeletal *(1)	3,21	3,35	3,33	3,43	3
sore throat	3,2	3,2	3,11	3,29	3,1
ear ache	3,09	3,11	2,94	3,43	3
chest pain or hyperventilation	3,09	3,1	3,17	3,14	3,18
sexual health problems	3,02	2,94	3,29	3,33	3,11
jaundice	3,02	2,79	3,24	3	3
metabolic disorders *(2)	2,84	2,79	2,94	3	3
major trauma	2,76	3	2,58	3,29	3
allergic reactions	2,71	2,84	2,61	3	2,55

*(1) non traumatic: e.g. limb, joint swelling, back pain *(2) such as exacerbated Type I Diabetes mellitus including ketoacidosis *(3) referral by other health care professional

Appendix

11.11.11 Detailed overview of results for ways of presentation

How do refugee children present to your emergency care facilities?	All participants		Southern Europe		United Kingdom/Ireland		Spain		Germany	
	N	%	N	%	N	%	N	%	N	%
Self referred	66	69,5	14	58,3			3	30	10	90,9
General practitioner referred	35	36,8	4	16,7	20	58,8	2	20	5	45,5
Private paediatrician	7	7,4	1	4,2					4	36,4
Ambulance	36	37,9	6	25	14	41,2	1	10	6	54,5
Specific services for refugees	40	42,1	10	41,7	9	26,5	3	30	7	63,6
Referred by public health authorities	31	32,6	7	29,2	8	23,5	2	20	9	81,8
Other	9	9,5	2	8,3	5	14,7	1	10	1	9,1
Not applicable	1	1,1							1	9,1
Unkonwn	11	11,6	4	16,7	7	20,6	3	30		
Total answerd	236		48		63		15		43	

Appendix

11.11.12 Detailed overview of results for comparing services that are responsible for conducting routine, standardised point of entry screening and medical assessments of refugee children

Which services are responsible for conducting routine, standardised point of entry screening and medical assessments of refugee children (non acute care)?	All participants		Southern Europe		United Kingdom/Ireland		Spain		Germany	
	N	%	N	%	N	%	N	%	N	%
This does not happen in an organised manner in our area	27	26,2	9	34,6	13	31	3	25	1	9,1
Other	6	5,8	1	3,8	4,8	2			2	18,2
Primary care paediatricians (community)	22	21,4	7	26,2	6	14,3	5	41,7	4	36,4
Unknown	19	18,4	5	19,2	13	31	3	25		
Paediatric outpatient clinics (hospital)	17	15,5	5	19,2	4	9,5	3	25	2	18,2
General practitioners	13	12,6	1	3,8	7	16,7			1	9,1
Public health services	30	29,1	5	19,2	5	11,9			9	81,8
Emergency care departments or other acute care facilities	7	6,8	3	11,5			1	8,3	1	9,1
Third party organisations (Red Cross, Medicines Sans Frontiers)	13	12,6	3	11,5	3	7,1			3	27,3
Total answered	154		39		53		15		23	

Appendix

11.11.13 Detailed overview of results for data availability

United Kingdom and Ireland	yes, these are readily available	yes, but only with additional research support	no	dont know	total	
Exact number of refugee children visiting emergency care facilities of your hospital		12	16	13	41	N
		29,3	39	31,7		%
Ethnic and geographic background of refugee children visiting your emergency department	1	15	14	11	41	N
	2,4	36,6	34,1	26,8		%
Ways of presenting to the emergency care facilities of your hospital	5	16	11	9	41	N
	12,2	39	26,8	22		%
Presenting signs and symptoms of refugee children in your emergency care facilities		16	14	11	41	N
		39	34,1	26,8		%
Follow-up arrangements, including hospital admission, of refugee children after discharge from your emergency department		14	17	10	41	N
		34,1	41,5	24,4		%
Routine (non-acute) point of entry screening and medical assessments of refugee children		11	18	12	41	N
		26,8	43,9	29,3		%

Spain	yes, these are readily available	yes, but only with additional research support	no	dont know	total	
Exact number of refugee children visiting emergency care facilities of your hospital		1	4	7	12	N
		8,3	33,3	58,3		%
Ethnic and geographic background of refugee children visiting your emergency department		4	8	12		N
		33,3	66,7			%
Ways of presenting to the emergency care facilities of your hospital	1		5	6	12	N
	8,3		41,7	50		%
Presenting signs and symptoms of refugee children in your emergency care facilities			5	7	12	N
			41,7	58,3		%
Follow-up arrangements, including hospital admission, of refugee children after discharge from your emergency department			6	6	12	N
			50	50		%
Routine (non-acute) point of entry screening and medical assessments of refugee children			6	6	12	N
			50	50		%

Appendix

Germany	yes, these are readily available	yes, but only with additional research support	no	dont know	total	
Exact number of refugee children visiting emergency care facilities of your hospital	2	3	3	3	11	N
	18,2	27,3	27,3	27,3		%
Ethnic and geographic background of refugee children visiting your emergency department	1	4	4	2	11	N
	9,1	36,4	36,4	18,2		%
Ways of presenting to the emergency care facilities of your hospital	1	4	3	3	11	N
	9,1	36,4	27,3	27,3		%
Presenting signs and symptoms of refugee children in your emergency care facilities		6	3	2	11	N
		54,5	27,3	18,2		%
Follow-up arrangements, including hospital admission, of refugee children after discharge from your emergency department		4	4	3	11	N
		36,4	36,4	27,3		%
Routine (non-acute) point of entry screening and medical assessments of refugee children	2	2	5	2	11	N
	18,2	18,2	45,5	18,2		%

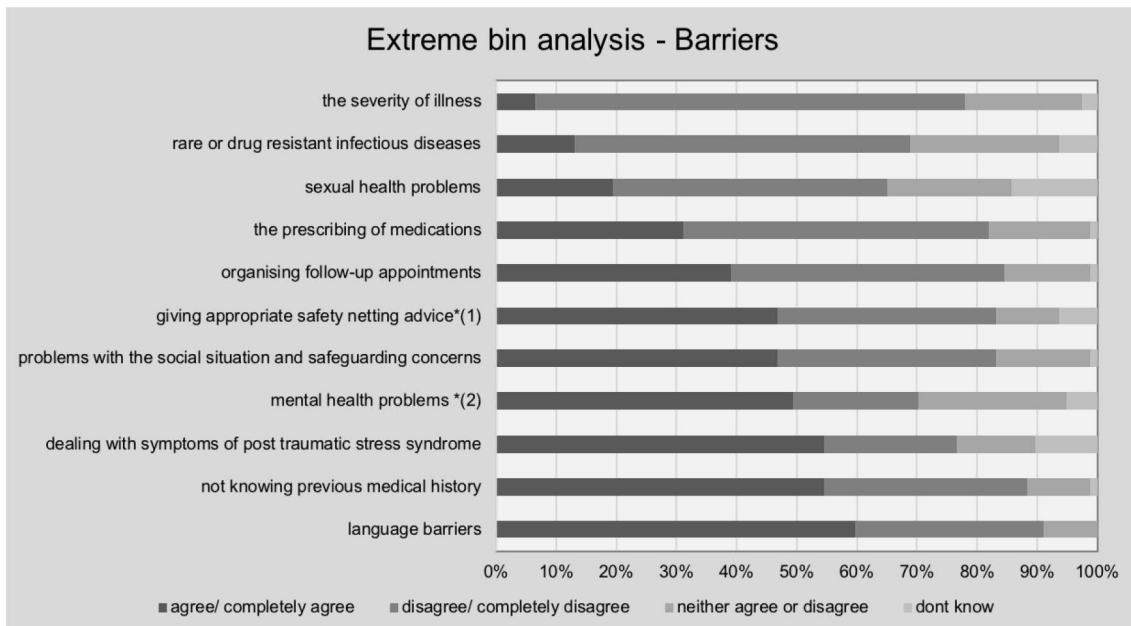
Appendix

11.11.14 Detailed overview of results for extreme bin analysis of barriers in health care provision for refugee children

All participants who answered: In our emergency care facilities -								
We are well prepared for dealing with refugee children with acute health care problems agree /								
There is a clear guidance on dealing with refugee children								
There is a need for a clinical guideline with refugee children								
we are well prepared for dealing with refugee children with acute health care problems agree								
there is a clear guidance on dealing with refugee children agree								
	completely disagree	disagree	neither agree or disagree	agree	completely agree	dont know	total	
language barriers	2	22	7	32	14		77	N
	2,6	28,6	9,1	41,6	18,2			%
cultural differences influencing health care expectations	10	25	11	24	6	1	77	N
	13	32,5	14,3	31,2	7,8	1,3		%
organising follow-up appointments	10	25	11	24	6	1	77	N
	13	32,5	14,3	31,2	7,8	1,3		%
problems with the social situation *3	9	19	12	30	6	1	77	N
	11,7	24,7	15,6	39	7,8	1,3		%
mental health problems, and inability to deal with these *(1)	4	12	19	27	11	4	77	N
	5,2	15,6	24,7	35,1	14,3	5,2		%
the severity of illness	22	33	15	4	1	2	77	N
	28,6	42,9	19,5	5,2	1,3	2,6		%
rare or drug resistant infectious diseases	13	30	19	9	1	5	77	N
	16,9	39	24,7	11,7	1,3	6,5		%
not knowing previous medical history	4	22	8	31	11	1	77	N
	5,2	28,6	10,4	40,3	14,3	1,3		%
giving appropriate safety netting advice *(2)	4	24	8	28	8	5	77	N
	5,2	31,2	10,4	36,4	10,4	6,5		%
the prescribing of medications	12	27	13	20	4	1	77	N
	15,6	35,1	16,9	26	5,2	1,3		%
sexual health problems	6	29	16	12	3	11	77	N
	7,8	37,7	20,8	15,6	3,9	14,3		%
dealing with symptoms of post traumatic stress syndrome	3	14	10	28	14	8	77	N
	3,9	18,2	13	36,4	18,2	10,4		%

*(1) the emergency department *(2) i.e. medical advice at time of discharge *(3) and safeguarding concerns

Appendix



The figure shows the results for selected barriers in relation to results of statements 1,2 and 3. In order to be included in the analysis perceived barrier answers were only included if the answer for statement 1 and 2 had been “disagree” and if the answer for statement 3 had been “agree”. Numbers are shown in percent and are sorted. Percentages for “agree” and “completely agree” as well as “disagree” and “completely disagree” were combined. The numbers on which this figure is based on can be found in a table in the appendix.

11.11.15 Detailed overview of free text answers

	Country of participant	Uploaded Information	Summary
Immunisation	Germany	Epidemiologisches Bulletin Nr. 34 Robert Koch Institut 29.08.2016	Current recommendations by STIKO (ständige Impfkommision Germany) vaccination schedule. Not specific for refugee children
	Germany	"Epidemiologisches Bulletin" Robert Koch Institut 2015	Concept for unimmised asylum seekers in Germany.
	Switzerland	"Guidance for testing and preventing infections and updating immunisations in asymptomatic refugee children and adolescents in Switzerland". S. Bernhard 2016	Detailed Guideance on how to approach unimmunised refugee children and recommendations on infectious diseases of refugee children. (TB, Malaria, Heb B, Chagas.
	United Kingdom	North Central London LAC Health Network integrated Pathway for unaccompanied asylum seeking children by Allison Ward	Clinical pathway with three main trees. Infectious diseases, emotional health and sexual health.
Safegurading concerns	United Kingdom	"Unaccompanied children or asylum seekers" by Debi Fillery, May 2017	Summarized information for caretakers of unaccompanied refugee children. Gives practical advice and contains links to further information and local services.
Infection Screening	Switzerland	"Guidance for testing and preventing infections and updating immunisations in asymptomatic refugee children and adolescents in Switzerland". S. Bernhard 2016	Detailed Guideance on how to approach unimmunised refugee children and recommendations on infectious diseases of refugee children. (TB, Malaria, Heb B, Chagas.
	Germany	"Empfehlungen zur infektiologischen Versorgung von Flüchtlingen im Kindes- und Jugendalter in Deutschland" J.Pfeil Monatszeitschrift Kinderheilkunde 2015	A basic clinical screening upon arrival of refugees is recommended. In case of hosiptalisations a screening for multi resisant agents should be preformed.

Appendix

Summary of free text answers sorted by topic	
Immunisation	summary 26 answers from 11 different countries - 13 participants claimed to have national vaccination guidelines for catching up immunisations with no special procedure or policy for refugee children. 11 participants explained special awareness for refugee children catch up immunisations along with local or national guidelines.
Infection screening	22 answers from 11 countries. 10 participants claim to have policies for infection screening. One participant from London says there is a guideline to be re-written at the moment
Safeguarding	16 answers from 9 countries. 6 answers claim some kind of specific policy for refugee children- 7 participants claim to have national policies for all children. 3 answers are very general and not directed to the question.
Presenting	11 answers from 9 countries - Two of them describe policies for refugee children. In Athens separate keynote books for taking care of refugee children are provided at Emergency rooms. In Belfast syrian refugee children were examined at the airport and brought to prepared hospital
Mental	7 answers from 4 countries. One Participant has a specific pattern for refugee children. Others follow routine local procedures as for any other child with concerns of mental health.
Teaching	9 answers 6 countries. 7 have specifics for refugee children. It differs between lectures (Freiburg, Germany), seminars and discussions (Brussels, Belgium) in morning rounds (Munich, Germany)
Remarks	30 answers from 10 countries. One participant from Italy claims that refugee children are not entitled to GP care as children of local population. One answer from Germany claims that German health care system can not cope with necessities of refugee children.
Public health	10 answers from 5 countries. 4 Answers claimed to have regular meetings. Frequency lays between twice a year (Malmö, Sweden) and every three months (Freiburg, Germany)
Active organisations	23 answers from 10 different countries. 7 participants describe specific local non profit organisations (PAFRAS, REFUDOCs). Others name "Medicins du monde" or PAFRAS