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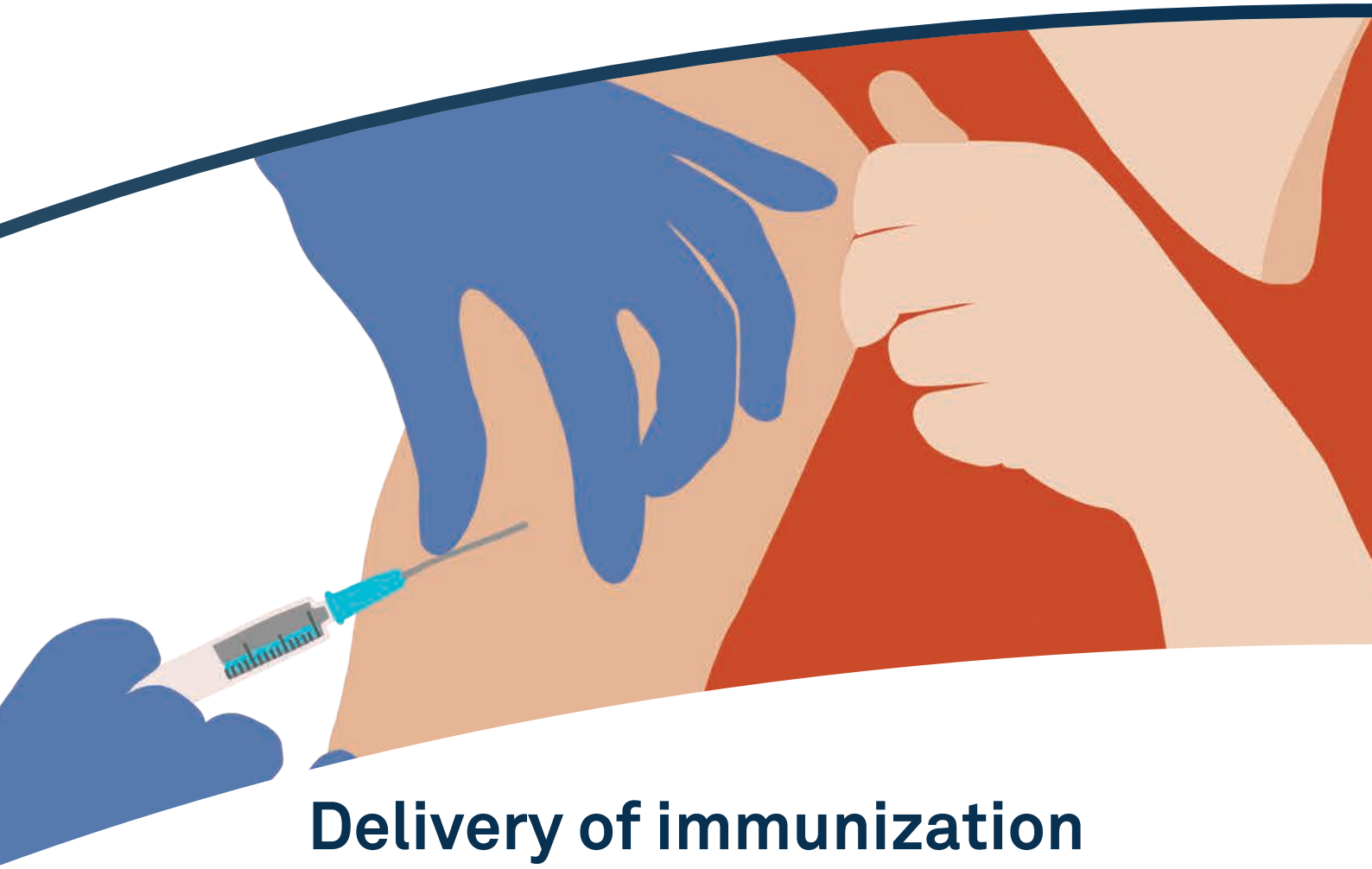

Delivery of immunization services for refugees and migrants

Technical guidance

The Migration and Health programme

The Migration and Health programme, the first fully fledged programme on migration and health within WHO was established at the WHO Regional Office for Europe to support Member States to strengthen the health sector's capacity to provide evidence-informed responses to the public health challenges of refugee and migrant health. The programme operates under the umbrella of the European health policy framework Health 2020, providing support to Member States under four pillars: technical assistance; health information, research and training; partnership building; and advocacy and communication. The programme promotes a collaborative intercountry approach to migrant health by facilitating cross-country policy dialogue and encouraging homogeneous health interventions along the migration routes to promote the health of refugees and migrants and protect public health in the host community.

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Knowledge Hub on Health and Migration

Abstract
This technical guidance outlines current best practice, evidence and knowledge in order to support policy and programme development for vaccination of refugees and migrants in the WHO European Region. It highlights key principles, summarizes priority actions and challenges, maps available resources and tools, and provides practical policy considerations to improve vaccination coverage and immunization service delivery for these groups. In particular, it highlights the provision of immunization services to newly arrived refugees and migrants, the incorporation of routine delivery of immunization for refugees and migrants into mainstream health services, and tailoring of programmes for more targeted delivery. The intended audience includes those with a central role in policy-making at local, national and regional levels, and across all sectors of governance, not just those within the health, migration or immunization sectors. Clinicians, fieldworkers and other practitioners are invited to draw upon this publication; however, it is not intended to inform daily programme work.

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Abbreviations

ECDC	European Centre for Disease Prevention and Control
EEA	European Economic Area
EU	European Union
EVAP	European Vaccine Action Plan 2015–2020
Hib	*Haemophilus influenzae* type b (vaccine)
IIS	immunization information systems
MMR	combined vaccine for measles, mumps and rubella
NIP	national immunization programme
PIRI	periodic intensification of routine immunization (services)
TIP	tailoring immunization programme
UNHCR	Office of the United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Fund
VPD	vaccine-preventable disease

Summary

Successful implementation of large-scale vaccination across the WHO European Region over decades has resulted in significant reductions in illness, disability and death from many vaccine-preventable diseases (VPDs). All 53 Member States of the WHO European Region have maintained polio-free certification since June 2002, a result achieved through strong national immunization systems, sustained high vaccination and high-quality disease surveillance. However, outbreaks of VPDs do continue to occur, and there has been a recent resurgence of some VPDs in the Region. In 2017, for example, the Region observed a four-fold increase in the number of measles cases from the previous year, with pockets of susceptible individuals in affected countries contributing to recent transmission events. In the same year, however, only 15 of 53 Member States reached the target of 95% vaccination coverage for the two doses of measles-containing vaccine required to stop transmission.

Concurrent to suboptimal vaccination coverage of host populations in the Region, there is continued high levels of migration to and within the Region. This presents a key public health challenge. Seroprevalence studies show suboptimal immunity to various VPDs among refugees and migrants in the Region, and lower vaccination coverage of these groups compared with local host populations has also been observed. Refugees and migrants often originate from countries with different disease epidemiological profiles and/or where access to health care and routine immunization may have been interrupted because of various sociopolitical challenges. As such, refugees and migrants are often more susceptible to contracting the VPDs circulating in the Region and may face greater risks for illness, disability and death from such diseases than host populations. Consequently, sustained efforts to increase vaccination rates among refugees and migrants are essential for protecting their health and well-being and should occur as part of equitable provision of immunization services and extension of equal rights to health care.

This technical guidance outlines three critical elements for ensuring high levels of vaccination coverage among refugees and migrants:

- provision of appropriate vaccination services to newly arrived refugees and migrants;
- delivery of immunization services for refugees and migrants as part of mainstream health services; and
- provision of targeted and culturally appropriate immunization services to reach refugees and migrants.

Member States are encouraged to consider the following key policy options with a view to ensuring the equitable provision of immunization services to refugees and migrants including addressing barriers to vaccination service delivery and utilization:

- ensure national immunization programmes (NIPs) take into consideration humanitarian events or crises and health system capacity is adequate;

- consider occupational risk factors and ensure vaccination where needed, particularly for those working in migration centres or crisis situations;
- strengthen the capacity of primary care providers to identify opportunities for vaccination among refugees and migrants;
- expand vaccination to wider age groups to increase opportunities to ensure vaccination coverage of refugees and migrants;
- consider using intensified targeted initiatives to augment vaccination coverage among underserved refugees and migrants;
- establish or upgrade immunization information systems (IIS) to capture vaccination coverage data for refugees and migrants;
- identify barriers, enablers and behavioural factors determining vaccination uptake among refugees and migrants, and develop tailored approaches, including communication and advocacy strategies; and
- improve training and awareness of health-care practitioners on the needs and cultural and social perspectives of refugees and migrants.

Introduction

Large-scale vaccination implementation across the WHO European Region has resulted in significant reductions in illness, disability and death from many VPDs *(1)*. All 53 Member States of the WHO European Region have maintained polio-free certification since June 2002, a result achieved through strong national immunization systems, sustained high vaccination rates and high-quality disease surveillance efforts *(2)*. However, outbreaks of VPDs do continue to occur, and there has been a recent resurgence of some VPDs in Europe *(3,4)*. In 2017, the WHO European Region observed a four-fold increase in the number of measles cases from the previous year, with large outbreaks affecting more than 21 000 people from across 15 countries and causing 35 deaths *(4)*. Pockets of susceptible individuals in these affected countries have contributed to recent outbreaks *(4)*. In order to stop measles transmission, and protect the vulnerable population from complications and death, a minimum of 95% vaccination coverage with two doses of measles-containing vaccine must be achieved and consistently sustained at every subnational level to ensure sufficient immunity across the entire population *(5)*. However, in 2017, only 15 of the 53 Member States of the WHO European Region reached this 95% target for both first and second doses *(6)*.

Concurrent to suboptimal vaccination coverage of host populations in the WHO European Region, there is continued high levels of migration to and within the Region. This presents a key public health challenge for protecting the health of refugees and migrants. Seroprevalence studies show suboptimal immunity to various VPDs among refugees and migrants in the Region, and lower vaccination coverage of these groups compared with local host populations has also been observed *(7,8)*. Refugees and migrants often originate from countries with different disease epidemiological profiles but also from areas where access to health care and routine immunization may have been interrupted because of sociopolitical challenges *(9)*. Many newly arrived refugees and migrants in the Region currently are from the Middle East, where vaccines have been widely accepted and coverage has previously been high; however, ongoing conflict in some countries has resulted in a significant decline in the delivery of routine vaccines *(1,9,10)*. The Syrian Arab Republic, the top source country for forced displacement worldwide since 2014 *(11)*, has had disrupted health services for over five years and a cohort of children under 5 years of age could be completely unvaccinated or undervaccinated *(1)*. Breakdown in immunization coverage can lead to young refugees and migrants being at increased risk for VPDs circulating in Europe *(8)*. They may also face greater risks for severe illness, disability and death from such diseases than host populations if they have been exposed to increased risks for infection and complications, such as stress and trauma, malnutrition, poor hygiene and sanitation conditions, and overcrowding during transit and resettlement *(6,9,12–15)*. Such risks related to the migration process are compounded by social determinants that restrict uptake of vaccinations even after arrival in Europe, including disparities in access to health care, inability to pay, cultural beliefs and discrimination. This results in refugees and migrants generally having greater susceptibility to VPDs than host country populations *(7,8)*.

The main driver for improving vaccination rates among these groups is to protect them from VPDs and ensure their right to survival and health; this is best achieved through universal health care. It is important to emphasize that there is little robust scientific evidence for any association between migration and the importation of infectious diseases *(9,16)*. Rather, almost all cases of VPDs in Europe, such as measles, continue to result from domestic acquisition following importation of the virus or bacteria by host country residents returning from endemic or outbreak areas *(12,17)*. Outbreaks continue to occur independently of migration and refugee movements, demonstrating the need to maintain high rates of immunization in all groups in all Member States in the Region. Human mobility does have important implications for the control of VPDs, and ensuring vaccination of refugees and migrants is essential to avoid accumulation of clusters of under- or unimmunized people in any community, where national systems may not reach them. Social and geographical clustering of susceptible people, including refugees and migrants, can thus increase risk for the transmission of disease *(18,19)*. Outbreaks of VPDs will continue to occur in pockets within a community where immunity gaps exist *(9,12,13,20)*. For example, outbreaks have been documented in reception/detention centres and refugee settlements throughout the Region *(14)*. Addressing gaps in vaccination coverage among refugees and migrants is essential to protect them from VPDs circulating in the Region as a result of suboptimal vaccination coverage within host populations and to ensure that these immunity gaps do not increase further.

Access to and delivery of vaccinations for refugees and migrants, irrespective of their legal status, are ingrained in the concept of ensuring universal provision of equitable, nondiscriminatory and person-centred health-care services. This is underscored in several international commitments and obligations, including the Declaration of Alma-Ata on universal health coverage in 1978 *(21)*, the 1951 Refugee Convention *(22)*, the World Health Assembly resolution on the health of migrants in 2008 *(23)*, Health 2020, the WHO European Region's policy framework for the promotion of equitable health and well-being in 2013 *(24)* and the 2016 Strategy and Action Plan for Refugee and Migrant Health in the WHO European Region *(25)*. Additionally, the 1989 Convention on the Rights of the Child *(26)* and the 2010 Core Commitments for Children in Humanitarian Action from the United Nations Children's Fund (UNICEF) *(27)* also emphasize equitable access of all children and adolescents to essential health services, and timely immunization against VPDs. A key objective of WHO's Global Vaccine Action Plan 2011–2020 is to reach underserved populations and ensure the benefits of immunization are equitably extended to all people *(28)*. The European Vaccine Action Plan 2015–2020 (EVAP), a regional interpretation of the Global Plan, also emphasizes the need to pay special attention to refugees, migrants and other marginalized communities in ensuring their eligibility and access to culturally appropriate immunization services and information *(29)*. EVAP has been endorsed by all 53 Member States of the WHO European Region. Ultimately, equitable immunization for these groups is one of the priority issues in the Region, and an important consideration for achieving global and regional targets to eliminate measles and rubella, control other VPDs and to maintain polio-free status *(8,29,30)*.

Objectives

This technical guidance has been developed to assist policy-makers and decision-makers working primarily in the health and immigration sectors in improving the provision of quality vaccination services for refugees and migrants in the WHO European Region. It is based on existing guidelines and recommendations from the European Centre for Disease Prevention and Control (ECDC), the European Commission, the Office of the United Nations High Commissioner for Refugees (UNHCR), UNICEF and WHO and synthesizes best-available knowledge, evidence and practices to inform effective policy and programme development. It also provides policy considerations and lists tools and resources to help in addressing the transmission of VPDs in the Region and in protecting the health of both refugee and migrant populations and host populations.

The target audience includes those with a role in policy-making at local and national levels in the field of health, immunization and refugee and migration management. Clinicians, fieldworkers and other health-care practitioners are invited to draw upon the principles outlined in this publication; however, this technical guidance is not intended to be an operational guide to inform daily programme work in the field of immunization.

Methodology

This technical guidance builds upon the findings published in the 2017 WHO Health Evidence Network Synthesis Report 53 on the equitable delivery, access and utilization of immunization services for refugees and migrants in the WHO European Region *(1)*. This was a scoping review of 56 articles and documents, in English or Russian, published between 2007 and 2017 with a focus on immunization policies, vaccine delivery practices and barriers to access and utilization of immunization services in the Region *(1)*.

A further desk review of peer-reviewed and grey literature, including existing guidelines, gathered additional relevant data and knowledge, including examples of good practice and potential policy considerations. Additional resources were identified through expert consultation and snowballing techniques during the feedback and review process. The main limitation of this technical guidance is that literature in languages other than English and Russian was not considered; consequently, evidence may not necessarily be exhaustive for the WHO European Region.

The case studies and policy considerations outlined are based on the findings of the review and selected to promote and advance EVAP's priority action area of equitable provision of immunization services to every section of the community in the Region.

This technical guidance uses the term refugees and migrants to refer to refugees and all groups of migrants unless a specific subgroup, such as irregular migrants or asylum seekers, is intended. Internationally agreed definitions provided by the International Organization for Migration *(31)* and UNHCR *(32)* are used for specific subgroups.

Overview

International migrants

- The number of international migrants in the WHO European Region increased from 65.6 million to 90.7 million between 2000 and 2017 *(33)*.
- The number of children under 5 years of age (who may be at particular risk, depending on country of origin) among international migrants increased from 964 669 in 2000 to 1.55 million in 2017 (data not available for Andorra, Monaco, Montenegro and San Marino) *(33)*.
- International migrants constituted 2.7% of all children under 5 years of age in 2017 *(33)*.

Immunization

- A minimum of 95% of the population needs to receive two doses of measles-containing vaccine to stop transmission of measles. Only 15 of the 53 Member States of the WHO European Region reached this target for both first and second doses in 2017 *(5)*.
- Suboptimal vaccination poses a risk for potential transmission of measles and other VPDs to susceptible populations such as refugees and migrants.
- Immunization is one of the so-called best buys in public health *(34,35)*. If the goals of EVAP were achieved, the economic benefits for the nine Member States in the Region of middle income[1] for the period 2011–2020 would amount to US$ 5 billion, with a return on investment of US$ 5 for every US$ 1 invested *(34)*. A wider analysis of return on investment associated with achieving projected vaccination coverage levels for VPDs related to 10 antigens in 94 low- and middle-income countries in 2011–2020, based on averted costs of illnesses, estimated a net return of 16 times over the decade *(35)*.
- NIPs and/or legislations that include specific directives for immunization of refugees and migrants varied widely in 2017 among Member States of the Region *(1)*.

1 Armenia, Azerbaijan, Georgia, Kyrgyzstan, Republic of Moldova, Tajikistan, Turkmenistan, Ukraine and Uzbekistan in 2013 *(36)*.

Current evidence

What is known on this topic

Immunization is one of the world's most successful and cost-effective public health interventions and has brought about significant gains in health globally, reducing illness, disability and death from serious and preventable diseases *(28)*. Immunization is also recognized as a so-called best buy for sustainable development and has potential to generate significant socioeconomic returns, contributing to poverty reduction, social equity, productivity and education and thereby strengthening health systems more broadly *(3)*. Critical gaps in vaccination coverage among both refugee and migrant populations and host populations across the WHO European Region, however, threaten the realization of these benefits, and the potential risk of having clusters of unvaccinated and susceptible individuals, in terms of both health and cost, has been repeatedly demonstrated *(37–39)*.

There are several challenges to the provision of equitable and nondiscriminatory vaccination services for refugees and migrants in the WHO European Region. Such challenges occur on the supply side in terms of how countries implement policies and practices and the demand side in terms of how refugees and migrants utilize these services and make informed decisions around vaccination. There are also critical knowledge gaps in regard to best practices for addressing these challenges.

Supply-side challenges to provision

A significant heterogeneity exists between the Member States in the Region regarding immunization policies directed towards refugees and migrants, as well as within outlined strategies and interventions *(1)*. While guidance on immunization for refugees and migrants has been provided by a number of European agencies and organizations, there are no regional standards in action *(1,40)*. Some Member States provide broad access to vaccinations for refugees and migrants, while others provide restricted services *(1,12)*. Moreover, at present, not all Member States take account of the number of refugee and migrant children for their vaccine-procurement planning, and these children may only be vaccinated opportunistically, depending on the availability of vaccines *(41)*. There is also inconsistency across the Region in the assessment of target populations in Member States, coverage calculations and national immunization schedules *(12)*. For example, some Member States usually provide selected vaccines to children but not all Member States offer booster or catch-up vaccinations to adolescents and adults *(12)*. In 2017, low levels of catch-up vaccination were reported for adult refugees and migrants across Europe, with only 13 (41%) of the 32 countries comprising the European Union (EU), European Economic Area (EEA) plus Switzerland offering the combined vaccine for measles, mumps and rubella (MMR) *(42)*. This lack of coordination may also pose challenges for refugees and migrants in transit, and a difficulty for national immunization systems is to ensure vaccination of these

individuals moving within the Region, particularly for vaccines that require multiple doses.

Apart from the heterogeneity of national policies across the Region for vaccination of refugees and migrants *(1)*, lack of clarity within existing national policies and inconsistent guidelines within Member States are also barriers to service provision *(40)*. While there are comprehensive NIPs in 42 Member States of the WHO European Region, only 11 included particular recommendations for the vaccination of refugees and migrants in 2017 *(1)*. Less than one third of Member States in the Region have directives or legislation on immunization that specifically focuses on these groups, including children and pregnant women *(1)*. Many Member States also do not have specific immunization requirements for working migrants based on field of occupation *(43)*. Inconsistency in guidelines for vaccination of refugees and migrants within Member States hinders coordination and can create confusion for provision of effective services *(40)*. For example, some health-care professionals are unclear as to whether to offer immediately vaccination to refugees and migrants with unknown vaccination history or to conduct serological testing and only offer vaccination to those found to have insufficient immunity *(40)*. This is despite recommendations to consider individuals with no or unclear vaccination documentation to be unvaccinated *(44)*. There is also lack of understanding or clarity in terms of which vaccinations should be given or readministered to refugees and migrants on arrival, or which should be considered as having priority over others *(8)*.

Limitations in the host country's health system capacity and the lack of much-needed financial and human resources have been identified as other important factors impacting the implementation of national recommendations and policies and the supply of immunization services at the local level to refugees and migrants *(1)*. For example, decentralized health service delivery can contribute to the undervaccination of refugees and migrants and result in missed opportunities for vaccination during early stages of settlement *(45)*. Staff shortages, including for cultural mediators and interpreters, who are critical for establishing effective and inclusive services, are further challenges to ensuring delivery of immunization services, increasing demand and ensuring public trust in vaccinations *(43,46,47)*. Vaccine pricing and vaccine shortages have also been identified as supply-side challenges to provision of immunization services for refugees and migrants in the WHO European Region *(46)*.

Where policies are in place and services available, there are often uncertainties regarding inclusiveness of the health system towards refugees and migrants. This is particularly pertinent to the training of health-care providers on the entitlement of refugees and migrants to vaccination services, their specific health needs and the diversity and sociocultural contexts that influence their understanding of vaccines *(43)*. These issues can lead to provision of care of poorer quality, missed opportunities for vaccination and the possibility of not offering vaccines at all *(48)*. Lack of understanding or awareness of cultural nuances can lead providers either to fail to communicate effectively with their patients or to assume stereotypical attitudes and behaviours; both can be barriers to the utilization of services *(43)*. The provision of training and

comprehensive information in these areas for health-care professionals at all levels is still inadequate.

Finally, the lack of routine data collection for services provided to refugees and migrants and evaluation of interventions are other obstacles to ensuring high rates of vaccination among refugees and migrants in the Region *(1,46)*. This is at least partially a reflection of the decentralized systems often involved, and national coverage levels may mask disparities within different areas of a country, resulting in lower vaccination rates among marginalized groups being unnoticed *(49)*. The lack of consistent, comprehensive and standardized disaggregated data on the health and vaccination status of refugees and migrants – a broad health system challenge impacting services beyond immunization – makes it difficult to establish a clear picture of the burden of disease in these groups and identify those who are susceptible to VPDs *(50)*. It also hinders the development and implementation of targeted interventions.

Demand-side challenges to provision

Lack of entitlement is a key barrier to demand and utilization of vaccination services among refugees and migrants. Equitable and nondiscriminatory access to vaccines without any delay and in accordance with the national immunization schedule of the host country, as suggested in the 2015 WHO–UNHCR–UNICEF joint statement *(10)* and outlined in EVAP *(29)*, is not uniformly implemented across all Member States in the Region. Rights and access to health care often varies between different migrant groups. Regular migrants (migration occurring through recognized, authorized channels *(31)*) generally have the same rights and access to health care as the host population, including free-of-charge vaccination. Irregular migrants (migration taking place outside the regulatory norms/documentation of the sending, transit or receiving countries *(31)*) are often excluded from catch-up vaccination and receive free immunization services in only a few countries (8,50). This reflects existing barriers related to entitlement to free universal health care. In 2017, a survey of 32 countries (EU/EEA and Switzerland) found that 10 (31%) required irregular migrants to pay for vaccination *(42)*. Refugee status of individuals also limited access to health services in general, and immunization in particular, in some instances *(8)*. Refugees and migrants may even refuse vaccination and registration with health authorities if they have concerns about their legal status and the possibility of legal consequences if they become noticed *(15,16,43)*. Policies of other government sectors, such as immigration, justice or interior and home affairs, on deportation of irregular migrants also influence utilization of vaccination services by refugee and migrant groups *(50)*.

Even when refugees and migrants are entitled to access existing services, accessing primary health services can remain challenging. Utilization of vaccination services among refugees and migrants is also influenced by administrative issues such as difficulties in obtaining appointments or inability to register or receive immunization recall and reminder letters without a fixed address *(51)*. Even clinic opening times are a determinant of utilization of services, with research suggesting that refugees and migrants are more likely to use out-of-hours primary care, especially for non-urgent

problems, for reasons such as working in occupations with antisocial hours *(51,52)*. Socioeconomic barriers also relate to the costs of seeking care, not just in terms of lack of insurance and inability to afford co-payments where required but also the costs of transportation and time away from employment *(1)*. This is particularly relevant for refugees and migrants, as many have low income or may be regularly on the move and only stay in any one place for a short amount of time *(43,51)*.

Accessibility also relates to the difficulty of navigating the health system for people with limited health literacy and language or cultural barriers *(43,50,51,53,54)*. Language barriers and the lack of culturally sensitive information and resources in relevant languages contribute to difficulties in understanding written information, as well as in communicating effectively during consultations about VPDs, vaccines and vaccine safety *(43,50,51,53,54)*. This communication difficulty also hinders the ability of practitioners to gain informed consent, report on any adverse events and assess the impact of diagnosis, treatment and adherence for any medical conditions *(46,50)*.

Finally, various sociocultural issues can further impact utilization of vaccination across populations broadly, including but not specific to refugees and migrants. Several European countries have reported that some groups are unwilling to use immunization services because of strongly held cultural norms or religious traditions *(48,50,51)*, for example concerns that vaccinating children and adolescents against human papillomavirus would allow or encourage them to engage in sexual activity *(48)*. Vaccine hesitancy or outright antivaccination attitudes may also stem from a belief that vaccinations are unnecessary, particularly if the disease is rare or not life threatening; concerns also surround vaccine safety, particularly if the vaccine is relatively new *(48)*. These challenges may be compounded by mistrust of health-care providers, experiences of discrimination or stigmatization and issues related to acculturation and low levels of integration of refugees and migrants *(43,51)*.

What is not known on this topic

There remain critical gaps in the knowledge base on a wide range of determinants of health service delivery and access for refugees and migrants in the WHO European Region and with regard to best practices for addressing the known barriers for immunization. Key questions that still need exploring relate to how to practically identify and reach underserved populations, what are the best ways to ensure equitable access to services, how to avoid unnecessary duplication of vaccination and how to monitor the number of vaccine doses administered. Further research is needed to ascertain the efficacy and cost–outcome benefit of specific strategies, interventions and models of care for vaccinating refugees and migrants in different settings. It is not entirely clear which cost-effective interventions would be best suited to increase coverage among refugees and migrants in the WHO European Region *(8)*.

Areas for intervention

This section details the available knowledge and good practices to ensure high vaccination coverage among refugees and migrants. The three critical elements are:

- provision of appropriate vaccination services to newly arrived refugees and migrants;
- delivery of immunization services for refugees and migrants as part of mainstream health services; and
- provision of targeted and culturally appropriate immunization services to reach refugees and migrants.

Case studies illustrate approaches used in Member States of the WHO European Region.

Provision of appropriate vaccination services to newly arrived refugees and migrants

Complex humanitarian situations, such as the large and sudden influx of refugees and migrants into the WHO European Region in 2015, may present both individual and public health challenges, including for immunization. Stress and trauma from a difficult journey, poor hygiene and sanitation as well as overcrowding in areas of transit and at reception centres, and the existence of comorbidities may increase vulnerability to disease including VPDs among refugees and migrants. Instances have also been documented in which infections have been introduced to refugee camps by local health-care workers *(55)*. Refugees and migrants may have travelled from countries with different epidemiological profiles or where vaccination services may have been disrupted, and they may have passed through or settled in countries that are inadequately prepared or equipped to deal with their vaccination needs (for financial, security or logistical reasons) *(56)*. National legal systems that should support the implementation of vaccination programmes during humanitarian events or crises are also not equipped for this role *(56)*. However, prioritizing vaccination during such periods of vulnerability is an effective tool to protect the health of refugees and migrants, prevent deaths and extend equal rights to health care. It will also reduce the burden on curative services and minimize adverse effects on global and regional disease eradication or elimination efforts *(56)*. Case study 1 illustrates the importance of a coordinated response to ensure vaccination provision is prioritized in situations of sudden large influxes of refugees and migrants.

Case study 1. Providing vaccination services to newly arrived refugees and migrants (Turkey)

The mass influx of refugees and migrants into the WHO European Region starting in 2015 created challenges for the control of VPDs in southern Europe. Disruption in routine vaccination services in the Syrian Arab Republic during the ongoing conflict caused a significant gap in immunization coverage, including among those arriving as refugees in Europe, particularly children.

In 2017, Turkey continued to be the country hosting the largest number of refugees in the world (3.5 million) *(1)* and the Ministry of Health, with support from UNICEF, WHO and local nongovernmental organizations, conducted a mass countrywide vaccination campaign to provide missing doses of MMR and oral polio vaccine to more than 400 000 refugee and migrant children under 5 years of age. Through a major coordinated effort with a team of more than 5000 people, including trained Syrian refugee doctors and nurses who helped to bridge the Turkish–Arabic language gap, vaccines were provided to children in their homes and communities, as well as in health centres. Outreach teams with vaccine cold-boxes went door to door in neighbourhoods where many Syrian families lived, offering vaccination on the spot. Pentavalent vaccine (diphtheria, tetanus, pertussis, hepatitis B and *Haemophilus influenzae* type b (Hib) and hepatitis B vaccine were also given as appropriate for age. Vaccines were provided free of charge by the Government of Turkey. Information was disseminated from the Ministry and provincial directorates to mosques and local health centres, as well as through live radio broadcasts. Campaign officials also maintained a register of vaccinations administered to each child to ensure appropriate follow-up in the face of the high mobility of this population. All new vaccination records were transferred into the national online immunization database. This example demonstrates the importance of health system capacity and preparedness in coping with large influxes of refugees and migrants, and of a coordinated response to ensure vaccination provision is prioritized in these situations.

Source: United Nations Children's Fund, 2017 *(57)*; WHO Regional Office for Europe, 2018 *(58)*.

The volume and speed of movement of refugees and migrants in recent years within the WHO European Region has been particularly challenging in terms of deciding when and where to vaccinate *(10)*. Preventive health care often goes unaddressed in such situations of influx, and the first contact with clinicians for many refugees and migrants may only be for emergencies *(9)*. Moreover, as multiple doses of vaccines must be given at defined intervals, ensuring appropriate follow-up and completion of the full schedule of vaccines is difficult when people are on the move *(10)*. This difficulty is compounded by the issue that many refugees and migrants, through fears of legal problems, may have chosen not to keep, or have lost, any personal documentation, including vaccination records *(12)*. Therefore, cooperation among countries of transit and final

destination is required to ensure that gaps in immunization coverage among these populations are closed. The nondiscriminatory access to timely immunization against VPDs for all refugees and migrants in the WHO European Region is critically important, and everyone should have full access to preventive vaccinations without discrimination on the basis of their legal status. The WHO–UNHCR–UNICEF joint guidance in 2015 stated that vaccinations should be provided without unnecessary delay according to the national immunization schedule of the country in which the person intends to stay for more than a week *(10)*. Individuals with no documentation, or uncertain documentation, should be considered as unvaccinated *(44)*. Protection against easily transmitted and/or serious VPDs, particularly diphtheria, Hib, measles, pertussis, polio, rubella and tetanus, should be prioritized *(10,44)*. Additional vaccines, including those against hepatitis B virus, influenza, meningococcal disease, pneumococcal disease, tuberculosis and varicella (chickenpox), could be considered depending on the prevailing living conditions, the season and epidemiological situation in the host or transit country, and the national immunization schedule of the country *(44)*. Vaccination is not recommended at border crossings unless there is an outbreak of a VPD in the host or transit country; in such cases, countries should include refugees and migrants in any outbreak control measures taken, including immunization campaigns *(10,56)*. While obligatory screening of refugees and migrants is not recommended at border crossings, triage at point of entry or soon after is recommended and health checks should be offered. Health checks must be followed up with proper diagnosis, and treatment and health care must be provided to all requiring it. All vaccine recipients or caregivers should be provided with documentation of administered vaccines to prevent unnecessary revaccination *(10)*. In this context, provisions must also be in place for occupational risk factors and to ensure full and up-to-date vaccination of health-care professionals working with refugees and migrants. This is essential for reducing any risk of potential transmission between population groups.

Considering the risk of VPD outbreaks in emergency contexts, such as at reception and/or detention centres where living conditions may be poor, there is a need for effective surveillance to monitor the epidemiological situation and for sharing of essential information between different stakeholders and along refugee or migrant routes *(59)*. It is important to activate, reinforce and/or adapt public health actions and outbreak control measures as appropriate, including vaccination *(59)*. Syndromic surveillance (use of health-related data for early detection, before diagnosis, of single cases or outbreaks that might warrant a further public health response) is an effective way to identify a potential outbreak and initiate prompt action *(60)*. While it is not intended to replace existing national or subnational infectious disease surveillance, investigation, reporting and response systems (which all countries should have under the International Health Regulations), such syndromic surveillance may be an effective way to detect relevant public health events in migration reception areas, enabling integration of information into routine surveillance data *(60)*. Syndromic surveillance can be applied to monitor specific and nonspecific conditions during emergencies that could indicate outbreaks of VPDs that require targeted immunization action *(60)*. These VPDs could include diphtheria, Hib, pneumococcal disease, varicella or yellow

fever, in addition to measles, mumps, polio and rubella. Syndromic surveillance in the context of surges in refugee and migrant numbers, though not widely documented, has been found to close potential communication gaps between medical staff working in migrant centres and public health officers, and open reporting channels *(61)*. There are, however, particular challenges related to the sustainability and efficacy of such a surveillance system. These include the fluidity of the target population under surveillance, the ad hoc nature in which the refugee and migrant reception centres are opened and closed according to different contingencies, and the extent of required labour in manual data collection *(61)*. Implementation of such surveillance, if deemed fit, must, therefore, be adequately adapted to the local context and situation.

Delivery of immunization services for refugees and migrants part of mainstream health services

Effective strategies for making routine delivery of immunization services for refugees and migrants part of mainstream health services are, to a great extent, congruent with the elements of an effective NIP built upon national and regional vaccine policies. A well-functioning routine immunization programme should support equitable provision of immunization services to avoid acquisition and transmission of VPDs and protect undervaccinated and at-risk groups, including refugees and migrants. The WHO Regional Office for Europe has outlined the elements of a strong immunization programme *(62)* and this section will highlight some of these of particular relevance for strengthening immunization among refugees and migrants in the WHO European Region.

Vaccination as a core element of primary health care and an effective health system

The characteristics of health-care systems themselves are important determinants of health, intersecting with other determinants (e.g. legal status of refugees and migrants) to either promote or reduce access to health care for marginalized groups *(63)*. The quality and organization of the health-care system in a country in terms of its structure and processes can also amplify or mitigate the impacts caused by other social determinants of health *(63)*. Primary health care, therefore, has an important role in the provision of equitable services to refugee and migrant populations, including vaccination services.

There are several unique characteristics of primary health care that can address the inequities and challenges apparent in the provision of health care and immunization for marginalized groups. Not only does primary health care emphasize preventive care and health promotion but also the institutions providing primary health care are often the first point of contact that refugees and migrants have within the wider health-care system in a host country upon settling. Moreover, primary care providers may be the main, if not the sole, source of information about vaccination for some groups of refugees and migrants, especially in a new environment where familial and

social support systems that usually provide important sources of health promotion or information and advice are lost *(64)*. A qualitative study of information-gathering and decision-making processes among Bhutanese, south Asian and Chinese migrant mothers in Canada found that these mothers passively received immunization information, with most learning about vaccine practices exclusively from health-care practitioners during scheduled visits *(64)*. When the mothers did receive vaccination information, they were likely to follow recommendations; however, not all received information on immunizations or recommendations during their pregnancies, in the hospital or after childbirth. This led to the likelihood of missing out on certain vaccines *(64)*. This research underpins the important role of the primary care providers in getting vaccine-related information to refugees and migrants and it highlights the need to strengthen communication strategies to reduce missed opportunities during all patient–provider interactions.

Supporting vaccination service delivery through primary health care, nevertheless, offers a more systematic method for health-care providers to identify refugees and migrants and optimize care for these groups. Fragmented health systems and diverse models of care, with separate pathways for screening and vaccination of refugees and migrants, can create confusion for both patients and health-care providers and potentially lead to an undervaccinated population *(45)*. Comprehensive and integrated care for assorted health issues increases uptake and coverage of preventive programmes, including vaccination *(65)*. Integration of vaccination into broader primary health services in this way can help to support other public health priorities and vice versa, as one primary health care activity can mutually reinforce another *(29)*. Attention must be paid, however, to ensure that primary health services are diversity sensitive. Despite the potential for primary health services for promoting vaccine delivery, refugees and migrants were found to use primary health services less than host populations in six European countries; differences in lifestyles, health beliefs and specific risk factors can significantly impact participation in preventive programmes *(66,67)*. Policies that help to remove accessibility barriers to primary health care and preventive interventions for refugees and migrants are crucial for increased engagement with vaccination services (Case study 2) *(66)*.

Case study 2. Migrant Health Guide (United Kingdom)

Launched in 2011 and revised in 2017, the Migrant Health Guide is a free online tool to support health-care professionals in providing care for refugees and migrants. The tool provides a "one stop shop" for information regarding access and entitlements for primary and secondary care for refugees and migrants, including routine vaccines, and outlines which services are free of charge for all and which groups are exempt from charges. It also has a checklist for assessing the health of new refugees and migrants, including their immunization status and whether it is in line with the United Kingdom's national immunization schedule. The checklist encourages practitioners to emphasize to their patients that health services are not linked to immigration procedures. There has been lack of clarity around this point, and fear of consequences has been cited as a one of the reasons why some refugees and migrants do not keep documentation of vaccination history. Additionally, the Migrant Health Guide includes country-specific advice and guidance on the health needs and specific vaccination requirements depending on the country of origin or transit, or plans for travel (migrants visiting friends and relatives). The tool also provides relevant resources such as algorithms for the vaccination of individuals with uncertain or incomplete immunization status. The Migrant Health Guide is an example of an intervention designed to strengthen the capacity of primary care providers offering routine services in order to reduce missed opportunities for vaccination among refugees and migrants.

Source: Public Health England, 2017 *(68)*.

Vaccine delivery and access for all age groups

NIPs need to ensure that the benefits of vaccines are made accessible to refugees and migrants of all ages. Vaccination has traditionally being targeted to infants and children under 5 years, with adolescents and adults generally only targeted during special initiatives *(8)*. While VPDs mainly affect young children, they are increasingly being detected among adolescents and adults *(69,70)*. Just as for host populations, some refugees and migrants may not have received the full spectrum of vaccinations during childhood, or their booster doses *(69,70)*. The vaccinations received may also be incomplete under the national immunization schedule of the transit or host country *(69,70)*. Exposure to poor conditions and overcrowding during travel and transit, or travel to VPD-endemic areas, further exacerbates risks for these groups. Despite the high reported number of VPDs among adults and the ageing population in the WHO European Region, adult vaccination is yet to catch up with the pace of the childhood vaccination *(70)*. Offering catch-up vaccinations to adolescent and adult refugees and migrants is important to reducing gaps in immunization and to broadening the focus of vaccination programmes towards a life-course approach *(8,70)*. Case study 3 describes an outreach programme to take vaccination services out into the community to reach those who may have a gap in their immunization status.

Case study 3. Flanders Outreach Vaccination Programme (Belgium)

With an aim of reaching underserved people in vulnerable situations, mobile vaccination teams were launched in Flanders, Belgium, in 2014. This service provided consultation and vaccination services free of charge for all people who could not access medical care, as well as for schools without school health services. Target groups included Roma populations, victims of trafficking, asylum seekers and the homeless. Vaccination data are recorded in a centralized system that is part of the other mainstream vaccination services. The Flanders Outreach Vaccination Programme is an example of taking appropriate measures to ensure that vulnerable groups, including at-risk refugee and migrant populations, are reached with vaccination services. Such groups may experience multiple barriers to access such services, and outreach vaccination programmes could be a relevant strategy to reach them.

Source: van de Mieroop, 2016 *(71)*.

Periodic intensification of routine immunization

As part of strengthening routine immunization services to reduce gaps in coverage among refugees and migrants, periodic intensification of routine immunization services (PIRI) events in target areas is a potentially important intervention and can be a useful approach for reaching marginalized people who may remain underserved by routine service delivery and primary health care *(72,73)*. Where vaccination rates are generally high, such as in the WHO European Region, such activities could include enhanced information, education, communication and social mobilization (encouraging groups to take action/support a common cause), with selected outreach services to reach the pockets of under- or unvaccinated people in the population (see Case study 3) *(72,73)*. The European Immunization Week and national or subnational immunization days or child health days generally enjoy high visibility and financial support and, therefore, can be leveraged to enhance coverage among marginalized, hard-to-reach and cross-border populations, including refugees and migrants *(73)*. In areas of crises and resource challenges, for example in migrant reception settings in countries of southern Europe and the Mediterranean area, PIRI events and so-called pulse immunization (simultaneous mass vaccination over a short period of time for all in a susceptible age group) may potentially be an effective ways to rapidly provide catch-up immunization, extending outreach specifically to target populations *(72)*.

It is important to stress, however, that while PIRI events can be useful in maximizing reach, improving equity and promoting the importance of vaccination among refugees and migrants, efforts must be made to augment routine vaccination services to these groups rather than depending on PIRI as the primary means of delivering their vaccination services *(73)*. Particular attention must be paid to ensure continuity of care and integration of refugee and migrant groups into routine vaccination service

delivery when implementing these activities. Continued communication with these target groups should be maintained to develop the credibility of the health system and trust in it, and to reinforce the need for routine immunization *(73)*. This is especially important considering the mobile nature of refugees and migrants and that many vaccines require multiple doses at regular prescheduled intervals *(15)*. Therefore, PIRI events must be planned and executed in a way that does not undermine the ability of the routine immunization system to function *(73)*. Furthermore, assessing the effectiveness of such intensified campaigns is difficult, with a tendency to overestimate coverage through issues such as double counting of doses administered and inclusion of people outside the target range in estimates of the total number served *(73)*.

Vaccination records, data collection and data sharing

A further challenge to the provision of routine and intensified vaccination services to refugees and migrants is the documentation of vaccination doses *(74)*. Accessible and reliable vaccination records are important to enable public health authorities to identify and reach underserved groups, as well as to allow practitioners to determine catch-up vaccination sessions and avoid duplication of vaccination doses *(45,46,74)*. Given the priority ascribed to vaccination for achieving the regional and global VPD elimination targets, the need for systems to collect high-quality data to detect gaps and enable data sharing must be ensured *(74)*. Such data are also needed for monitoring the safety and efficacy of immunization programmes, for targeting effective PIRI activities and for developing longer-term strategies and action plans *(74)*. For refugees and migrants who may move across borders in their migration, high-quality data need to be collected and shared between countries to facilitate completion of vaccination doses. At present, this sharing does not happen even when vaccination records have been captured in electronic national databases *(12)*. However, policies on data protection must be implemented to prevent any misuse of collected information.

The EU Council conclusions in 2011 and 2014 on vaccinations *(75,76)* recommended the adoption of IIS *(77)*. These population-based immunization registries record administered vaccinations to support immunization decision-making at the local level and to guide policies and programmes for public health operations *(77)*. Availability of data through IIS can serve to identify undervaccinated refugees and migrants, enumerate differentials in risk, reduce missed opportunities, reduce vaccine wastage and ultimately reduce the incidence of VPDs among these underserved groups and the mainstream populations more broadly *(45)*. EVAP recognizes IIS as an integral part of a well-functioning health system *(29,77)*. However, the ECDC surveyed 30 EU/EEA countries in 2016 with 27 responding to the survey: six (22%) had no IIS currently in operation; 14 (52%) had a national system in place or were piloting one, while seven (26%) had or were piloting subnational system(s) *(77)*. There is a need for more concerted efforts to develop and strengthen systems that document administered vaccines and capture necessary data on refugee and migrant status across the Region in a way that does not stigmatize or discriminate.

As well as monitoring vaccination coverage, registries and IIS also have the potential to increase it *(74)*. Even in high-income countries where vaccination coverage is generally high, many children, including refugee and migrant children, may have missed a few doses of recommended vaccines, and registry-generated reminders have been found to be effective in promoting increased coverage *(74)*. The utilization of mobile and e-health technologies can also further enhance these functions through tailored text messaging *(74)*. A systematic review found that text messages, with their low cost and potentially high reach, could be an effective way to share vaccine-related information with refugees and migrants and to educate them about VPDs and vaccine effectiveness, safety and accessibility *(78)*. Other research has shown that refugees and migrants are interested in using mobile technologies and smartphone tools such as health applications when these are available in their native languages *(53)*. Such tools could potentially be successfully leveraged to manage vaccination records and information to increase uptake and reduce gaps in coverage.

Provision of targeted and culturally appropriate immunization services to reach refugees and migrants

Although there is a definite need to strengthen routine immunization services and ensure inclusiveness of vaccination services for all people, it is essential that the unique challenges related to the vaccination of refugees and migrants are given specific considerations. In particular, these groups may have vaccination preferences and practices that impact on immunization uptake and these need to be identified and examined *(72)*. Lack of appropriate language aids is a major barrier for access to health system by refugees and migrants, and the paucity of resources in their native languages in the host country can reduce confidence and competence for accessing vaccination, as well as trust of, and compliance with, recommendations *(1,9,51,53,54)*. Professional medical interpreters (rather than family members or other ad hoc untrained people) and multilingual information materials can support positive patient–provider interactions and enhance patient understanding *(1,51,78)*. Lack of knowledge of the health system, vaccination schedule and relevant VPDs in the host country, as well as concerns related to vaccine safety, are important obstacles to vaccination uptake (Case study 4). Greater emphasis needs to be placed on improving communication regarding the benefits and safety of vaccination and in engagement with refugee and migrant communities to encourage these groups to take action/support a common cause *(8)*. Communication and advocacy strategies, including engagement of mainstream and social media and other relevant channels, should be tailored to ensure that evidence and information, as appropriate, reaches target refugee and migrant communities *(81)*. This is important to encourage sustained demand for vaccines, which is equally as important as ensuring immediate access to them *(81,82)*. Such strategies must also evolve over time and adapt to changes with regard to vaccines and the expectations and knowledge of these groups towards vaccination services *(81)*.

Case study 4. Tailored communication interventions targeting MMR vaccination (Sweden)

Applying the WHO-developed Guide to Tailoring Immunization Programmes (TIP *(79)*), Sweden has developed tailored responses to the undervaccination of the Somali migrant community within the two areas of Rinkeby and Tensta in northern Stockholm (2015–2016). Research indicated that some parents within the Somali migrant community here had concerns about the supposed (and disproven) link between MMR vaccination and autism and were, therefore, reluctant to vaccinate their children, or at least preferred to delay vaccination. It was found that parents who had just moved to Rinkeby and Tensta were generally more positive about the MMR vaccine, but once they had established social contacts in the area, they preferred to postpone vaccination until after their child had begun talking. A few parents also declined all vaccination for their children at both 1 and 5 years because of fears that it could actually be MMR that was being offered. Through the implementation of TIP, interventions were identified to address this issue through improving both competence among health professionals and communication to parents. Interventions targeted at parents included "vaccine champion" and peer-to-peer education projects using educators from the Somali community. These were innovative channels to reach key Somali informants who could forward information about vaccinations to Swedish-Somalis in Rinkeby and Tensta. Information about vaccines was provided to Swedish-Somalis in the target group's own language and considering cultural aspects. This initiative exemplifies the importance of community engagement and targeted interventions in addressing reasons for undervaccination, based on the identified barriers and motivators of immunization in the target group.

Source: Public Health Agency of Sweden, 2015 *(80)*.

Language and differences in knowledge and understanding about vaccines, however, are not the only aspects that need to be tailored. Refugees and migrants have different cultural, social or religious norms and values surrounding their perceptions of health and illness, their causes and their prevention *(48,51,54)*. These norms and values, including around the use of traditional medicines or when to see physicians for example, significantly influence their perceptions and decision-making in regards to vaccines *(48,54)*. Vaccination initiatives for refugees and migrants, therefore, must have an understanding of the needs of these groups and actively address relevant cultural norms and perceptions in order to devise appropriate interventions. Vaccination initiatives must take into consideration different health-seeking behaviours, preferred models of care and the use of different social support groups in decision-making, such as family, friends or health professionals *(54)*. Effective and migrant-friendly vaccination approaches that promote uptake need to be culturally relevant and appropriate and involve refugee and migrant communities in the planning, design and delivery of services *(8,50,81)*. In line with this, the cultural competence and cultural

awareness of health-care practitioners and vaccinators needs to be strengthened to adequately respond to the needs of refugees and migrants *(50)*. A systematic review of international literature on improving practitioner–migrant interactions found that the more awareness among practitioners about the cultural background of their patient, the higher the quality of care they can provide *(78)*. This is critical to reduce cultural discordance in the health system, respond to patient concerns and increase uptake of vaccines *(54)*. The use of cultural mediators can be helpful in facilitating productive cross-cultural patient–provider dialogue and should be encouraged within immunization programmes *(1,16)*. Such mediators have been found to be effective educators, health promoters and health-care system navigators for refugees and migrants, mitigating key barriers to care *(43)*. There is a potential issue of overreliance and dependence on cultural mediators in that their use may potentially relieve doctors from adapting to understand the cultural and linguistic diversity of their patients *(83)*. There is also the potential that they could inadvertently increase the distance between patient and provider *(83)*.

The success of tailored immunization activities to improve coverage among refugee and migrant groups depends greatly on the strategies used and the specific contexts in which they are implemented. Policy-makers must be aware of the various enabling or restricting factors for any given circumstance when devising tailored interventions. Tailored approaches for refugees and migrants in different contexts should take account of a number of factors, including the strength and structure of the local health-care system, including infrastructure for distribution and administration; government support and political will; service funding; means and capacity for monitoring; demographic and epidemiological factors; and acceptability of the approach by the target population *(81)*. Nevertheless, various culturally sensitive tailored techniques have been demonstrated to be effective in targeting and improving vaccine uptake among underserved refugee and migrant populations across different Member States in the WHO European Region: outreach vaccination campaigns, including door-to-door initiatives and vaccinating in schools and workplaces and even on the street (Case study 3); social mobilization to help groups in supporting a common cause and use of cultural mediators and interactive peer-to-peer activities (Case study 4); mass media promotion through television, radio, billboards, social media and the distribution of information in various languages (Case study 1); supporting primary care providers with a central resource with relevant information (Case study 2); and even entertainment shows directed specifically at children *(1)*. Specific training curricula and provision of adequate resources for practitioners to increase awareness of the specific needs and cultural and social perspectives of refugees and migrants are also key strategies for implementation at the health provider level *(50)*. Monitoring and evaluation of activities are essential to allow strategies to continually adapt and customize to meet the needs of target populations *(81)*.

Policy considerations

Ensuring high coverage of vaccination in the WHO Europe Region is essential to reduce the burden of VPD-related morbidity and mortality in the Region and to contribute to the global reduction of VPDs.

The policy considerations suggested here are expected to support national policy-makers to strengthen routine immunization service delivery and ensure equitable access to vaccination for every section of communities using locally relevant and tailored interventions to address the identified social and cultural determinants. The implementation of these policy considerations should be carried out within the appropriate legislative framework of the country and the agreed activities should be supplemented with a robust implementation and monitoring framework at both national and subnational levels. Annex 1 contains resources to support policy-making in these eight priority areas.

Provision of appropriate vaccination services to newly arrived refugees and migrants

Ensure NIPs take into consideration humanitarian events or crises and health system capacity is adequate

- Health system capacity should be assessed to ensure that it can respond to and manage sudden large influxes of refugees and migrants, with attention to its ability to extend equitable access to essential medical products and vaccines to both the host population and the refugees and migrants. The WHO Toolkit for Assessing Health System Capacity to Manage Large Influxes of Refugees and Migrants *(84)* is a useful step-by-step guide to conducting such an assessment.
- Vaccine service delivery should be integrated with other health and non-health services and interventions for refugees and migrants to improve sustainability and ensure vaccination continues during periods of vulnerability *(85)*.
- Intersectoral stakeholders should be engaged in the development of action plans to improve country preparedness, and public–private partnerships might be used to address issues of vaccine supply to cater for sudden influxes of refugees and migrants *(15)*.
- Additional financial and human resources should be available for appropriate service delivery strategies.

Consider occupational risk factors and ensure vaccination where needed, particularly for those working in migration centres or crisis situations

- Health-care practitioners and others working with refugees and migrants in all settings, including migrant reception/detention centres, should be fully vaccinated,

including necessary booster doses, as outlined in the health-care professional vaccination programme of the country. This helps to avoid spread of infections in these settings, both into the potentially vulnerable refugee and migrant group and out into the health-care workers.

Delivery of immunization services for refugees and migrants as part of mainstream health services

Strengthen the capacity of primary care providers to identify opportunities for vaccination among refugees and migrants

- Health-care practitioners and vaccinators must utilize every health-care contact and opportunity to review the vaccination of refugees and migrants and administer appropriate vaccines based on the national immunization schedule, including catch-up vaccines as needed. Where vaccination history is unclear, individuals should be considered as unvaccinated. Tools such as the Migrant Health Guide and assessment checklist from Public Health England *(68)* could be adapted for a specific setting to encourage health-care providers to discuss vaccinations with their patients. This resource also provides country-specific information relevant to migrant health, which can help practitioners to understand the health risks related to countries of origin or transit.
- Out-of–hours clinics, drop-in centres and pharmacy-based delivery of vaccination can provide opportunities for administering vaccination and reduce socioeconomic barriers to accessing care (within immunization service delivery regulations and laws in the country).

Expand vaccination to wider age groups to increase opportunities to ensure vaccination coverage of refugees and migrants

- Catch-up vaccinations can be offered to adolescents and adults, including those accompanying infants and children. Refugees and migrants may have missed childhood vaccinations or the booster doses and could be at increased risk for VPDs during adulthood.

Consider using intensified targeted initiatives to augment vaccination coverage among underserved refugees and migrants

- Appropriate PIRI activities can address the challenges associated with the mobile nature of refugees and migrants, who are often marginalized from health systems and may avoid contact with authorities through fears of repatriation or removal, among other reasons. Assurance should be given that PIRI activities would not trigger such negative consequences *(72)*.
- Appropriate systems should be established to ensure delivery of routine immunization services, including for any increasing demand arising from

completion of vaccination series based on the national immunization schedule. Initiatives should contribute to long-term improvements of routine services and not divert attention away from them.

- Adequate financial and human resources should be provided to design effective service delivery strategies during national or regional PIRI activities according to the needs and characteristics of the identified population *(73)*.

Establish or upgrade IIS to capture vaccination coverage data for refugees and migrants

- The adoption of an appropriate IIS, within the context and specificities of NIP recommendations and legal and health-care delivery systems, would help in recording and reporting vaccination status for refugees and migrants in addition to the host population. IIS can support vaccination decision-making at the local level and guide public health policy-making and programming in general.
- Appropriate mobile and e-health technologies can be used to deliver health-promoting messages, vaccination reminders, recall notifications and other related educational information *(86)*.

Provision of targeted and culturally appropriate immunization services to reach refugees and migrants

Identify barriers, enablers and behavioural factors determining vaccination uptake among refugees and migrants and develop tailored approaches, including communication and advocacy strategies

- Operational research would help in identifying susceptible populations and the unique contexts in which these groups exist to support measure to create tailored interventions. Identification of demand- and supply-side barriers to immunization, including the role that practitioners play in influencing vaccination practices, would also support design of effective interventions *(79,87)*. The TIP guide can support such research and also provide guidance for designing, implementing, monitoring and evaluating tailored interventions *(79)*.
- Targeted and culturally appropriate vaccination educational materials and resources in relevant languages should be developed and disseminated through different channels, including social media. Communications should include information on why vaccinations are important, which diseases they prevent, and vaccine safety, and they should answer common concerns and misconceptions. Communications must also emphasize that there are no legal or other consequences for being vaccinated in the host country, irrespective of registration status *(15)*.

Improve training and awareness of health-care practitioners on the needs and cultural and social perspectives of refugees and migrants

- Specific training opportunities should be provided for all those involved in public health and vaccination services that include guidance on inclusive and culturally sensitive vaccination service provision for refugees and migrants to improve service delivery.
- Provision of guidance on the particular health needs of different refugee and migrant groups, their risk of contracting VPDs and the various social and cultural factors that influence vaccine uptake among these groups can occur for health-care providers at all stages, from initial training through to continuous professional development.

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Annex 1. Resources and tools to support policy considerations for immunization

Humanitarian events or crises: inclusion in NIPs and health system capacity

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Strengthen capacity of primary care providers to complete vaccination among refugees and migrants

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Use of PIRI activities and targeted immunization initiatives to augment vaccination coverage

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The WHO Regional Office for Europe

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