

# Reducing COVID-19 transmission and strengthening vaccine uptake among migrant populations in the EU/EEA

3 June 2021

## Key messages

- This report presents evidence on the impact of COVID-19 on migrant populations in EU/EEA countries; risk factors for increased COVID-19 exposure in migrant populations; and considerations for ensuring equitable access to the COVID-19 vaccine for migrant populations.
- While migrant populations across the EU/EEA are extremely heterogeneous, there is evidence that some migrant groups are disproportionately represented in COVID-19 cases, hospitalisations, and deaths.
- Among migrant groups that are disproportionately represented among COVID-19 cases, hospitalisations and deaths, factors that increase their risk of exposure to SARS-CoV-2 include occupational risk, overcrowded accommodation, and lower levels of accessibility to public health services, including public health messaging.
- There is emerging evidence of low COVID-19 vaccination rates in some migrant and ethnic minority groups in the EU/EEA.
- Strategies to reduce transmission and ensure equitable vaccine uptake in migrant populations should include culturally and linguistically tailored and targeted public health messaging, co-designed with affected communities, translated into key migrant languages and effectively disseminated.
- Several COVID-19 outbreaks have been documented in migrant reception and detention centres, and other closed settings. Consideration could be given to measures aimed at de-congesting and/or evacuating residents where physical distancing and risk-containment measures cannot be implemented. This would include finding alternatives to quarantining whole camps.
- Consideration needs to be given to ensuring equitable access to and uptake of testing for COVID-19, and for COVID-19 vaccines, particularly in migrants excluded from, or facing barriers to accessing health systems. There is an urgent need to share models of good practice and lessons learned from across the Region.
- For migrants who face barriers and exclusion from mainstream health systems – including undocumented migrants, asylum seekers/refugees, and those residing in camps and detention facilities – mechanisms will be required to ensure they are meaningfully included in national response plans to reduce transmission.
- Consideration should be given to migrants in camps, reception and detention centres, homeless shelters, and other high-risk congregate settings when deciding on priority groups for COVID-19 vaccination. In the community, migrants should be better considered within national priority groups for vaccination, which will require a range of specific community-based approaches to improve trust, counter misinformation, and strengthen uptake.
- Improved data collection and surveillance on COVID-19 outcomes, testing, and vaccination uptake in migrant populations, with data sharing across the region, is needed to support the development of strategies to reduce transmission and improve vaccine uptake.

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## Scope

The objective of this report is to explore and assess the impact that COVID-19 has had on migrant populations in the European Union (EU) and European Economic Area (EEA), and it also draws on findings from the United Kingdom<sup>1</sup>; to identify risk factors and vulnerabilities pertinent to these migrant populations; and to explore considerations for vaccine rollout to ensure equitable uptake, identifying successes, lessons learned, and examples of good practice. It is hoped that the findings presented may be applicable to support service providers across the EU/EEA as the pandemic evolves and the vaccine rollout gathers momentum. This document does not aim to provide a definitive account of all the issues facing migrant populations during the pandemic.

## Target audience

The target audience for this report includes national, regional and international policymakers, public health and healthcare planners, health researchers, health professionals in the EU/EEA, organisations that have been providing direct support services for migrants and other vulnerable populations during the COVID-19 pandemic (including civil society actors, NGOs, and local authorities), and umbrella organisations that advocate for specific vulnerable populations.

## Definitions

A **migrant**, as defined by the European Migration Network (EMN) [1], is 'a person who either: (i) establishes their usual residence in the territory of an EU/EFTA Member State for a period that is, or is expected to be, of at least 12 months, having previously been usually resident in another EU/EFTA Member State or a third country; or (ii) having previously been usually resident in the territory of the EU/EFTA Member State, ceases to have their usual residence in the EU/EFTA Member State for a period that is, or is expected to be, of at least 12 months.' Migrants are therefore a highly heterogeneous group and it is difficult to generalise about their health and social needs.

**Ethnic minorities** is a term that describes groups of people sharing a different 'sense of identity and common characteristics such as language, religion, tribe, nationality, race or a combination thereof' from the majority population in the place where they live.

An **asylum seeker** is 'a third-country national or stateless person who has made an application for protection under the Geneva Refugee Convention and Protocol in respect of which a final decision has not yet been taken [1].'

A **refugee** is 'either a third-country national who, owing to a well-founded fear of persecution for reasons of race, religion, nationality, political opinion or membership of a particular social group, is outside the country of nationality and is unable or, owing to such fear, is unwilling to avail themselves of the protection of that country, or a stateless person, who, being outside of the country of former habitual residence for the same reasons as mentioned above, is unable or, owing to such fear, unwilling to return to it, and to whom Art. 12 (Exclusion) of Directive 2011/95/EU (Recast Qualification Directive) does not apply' [1].

An **irregular migrant**, also referred to as **undocumented migrant**, is 'a third-country national present on the territory of a Schengen State who does not fulfil, or no longer fulfils, the conditions of entry as set out in the Regulation (EU) 2016/399 (Schengen Borders Code), or other conditions for entry' [1].

For the purposes of this guidance, we use the term 'migrant' to encapsulate all foreign-born nationals within a country.

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<sup>1</sup> In 2020, the data were collected in EU/EEA Member States and the UK, accordingly, UK data are included in this report.

## Executive summary

Some migrant groups in the European Union (EU), European Economic Area (EEA) and the United Kingdom (UK) have been disproportionately impacted by the coronavirus disease (COVID-19) pandemic, experiencing a range of health and social impacts. In addition, certain migrant groups have a known range of risk factors for low vaccine uptake and may face barriers to accessing health and vaccination systems.

This report presents: 1) evidence around the clinical, health, and social impact that COVID-19 has had on migrant populations in EU/EEA countries and the UK; 2) risk factors and vulnerabilities in migrant populations to COVID-19; and 3) considerations for ensuring equitable access to the COVID-19 vaccine rollout through identifying successes, lessons learned, and good practices to date.

While migrant populations across the EU/EEA are extremely heterogeneous, there is evidence that some migrant communities may be at high risk of exposure to, and infection with, SARS-CoV-2, and are disproportionately represented in cases, hospitalisations, and deaths. For example, Denmark, Norway and Sweden have all seen higher than expected proportions of migrants amongst COVID-19 cases given their numbers in the population: 42% of all cases (to April 27 2020) in Norway, 26% in Denmark (to Sept 7 2020), and 32% in Sweden (to May 7 2020). In Italy and Spain, studies have suggested migrants may be more likely than nationals to be hospitalised. The UK, Netherlands, France, and Sweden have reported significantly higher all-cause mortality in migrants from specific countries/regions in 2020 compared with the host population, and when compared to previous years. Multiple outbreaks of COVID-19 have been reported in several camps and closed settings (including detention and reception centres) housing migrants across Europe. Some migrant populations have also been impacted disproportionately by the restrictions and measures implemented to fight the pandemic. Some migrants have experienced a range of direct and indirect health and social impacts including increased discrimination, more protracted lockdowns and severe restrictions on movement, and travel restrictions and border closures impacting family reunifications and the asylum process. Migrants in precarious work environments may have been at increased risk of losing jobs and sources of income. Certain migrant groups have a range of risk factors and vulnerabilities to COVID-19 that put them at higher risk of exposure, including occupational risk, overcrowded accommodation (including residing in camps, detention facilities, and homeless shelters), and/or lower levels of accessibility to public health services and messaging.

There is emerging evidence of low COVID-19 vaccination rates in some migrant and ethnic minority groups in the EU/EEA. Strategies to reduce transmission and ensure equitable vaccine uptake in migrant populations in the EU/EEA should include targeted public health messaging that is co-produced with affected communities, with information and messaging translated into key migrant languages and effectively disseminated. Strengthening engagement and outreach to a diverse range of at-risk migrant communities is an essential next step. Furthermore, greater emphasis should be placed on innovative policy options that can support at-risk migrant groups to minimise transmission and gain better access to health services and vaccination. How to ensure equitable access for migrants to the COVID-19 vaccine and ensure equitable uptake, particularly in migrants who are excluded from health systems, requires consideration, with an urgent need to share models of good practice and lessons learned from across the EU/EEA. This will involve addressing both individual and structural barriers to vaccination. Building trust with migrant communities around the vaccine, countering misinformation with robust and accurate information, and identifying innovative access points for the vaccine for migrants not registered with mainstream health systems are vital next steps.

These findings have immediate implications for national public health responses to reduce transmission and support COVID-19 vaccine rollout, with implications beyond the pandemic to promote health equity, human rights, and universal health coverage in marginalised migrant populations.

## Background

EU/EEA countries and the UK have in recent years received unprecedented numbers of migrants [2] – joining growing communities of more settled ethnic minority populations (see Definitions; see Box 1). The COVID-19 pandemic in Europe has shone a spotlight on major health inequities experienced by migrant and ethnic minority communities in European countries. Several studies and analyses [3-5] have shown adverse clinical outcomes in ethnic minority groups – including Black, Asian, and Minority Ethnic [BAME] groups, South/East Asian, Black Americans, Hispanics, Latinos, people of colour, and indigenous groups – compared to the native white population in the same countries, with data predominantly from the UK and the US. These datasets do not disaggregate by migrant status but will include migrants who have more recently arrived in the host country, alongside settled communities who have been living in the host country for several generations. Data pertaining to migrants specifically – including refugees, asylum seekers, low-skilled labour migrants, and undocumented migrants – suggest that migrant populations are extremely heterogenous across the EU/EEA and UK, but that they have a range of specific risk factors and vulnerabilities to COVID-19 that may have increased their risk of infection and resulted in more severe clinical outcomes [6-10].

### Box 1. The number of migrants in the EU/EEA

The EU/EEA has a total population of 453 million people. In 2020, migrants (defined as people born in a different country than the one they reside), made up 12% of this population, with 4% being born in another EU/EEA country or the UK and 8% originating from outside the EU/EEA and the UK [11]. Since 2015, millions of people have fled their homes to seek shelter in Europe. According to the United Nations High Commissioner for Refugees (UNHCR), more than three million refugees and asylum seekers (pending cases) were registered in EU/EEA countries and the UK in 2018 [12]. In addition, around four million undocumented migrants are estimated to live in Europe [13], both within the community but also in reception and detention centres in EU/EEA countries and the UK. These more marginalised migrant groups add to a diverse and growing population of low-skilled and other labour migrants, students, and family reunification migrants.

Additionally, a range of direct and indirect health and social impacts of COVID-19 on migrant populations in Europe have been documented, including increased discrimination, protracted lockdowns and severe restrictions on movement (in camp and detention settings); and border closures impacting family reunifications and the asylum process [10]. Migrants may be especially impacted by travel restrictions [9,10]. Arriving migrants have been pushed back or quarantined at borders and forced to stay in informal or overcrowded transit sites, while international refugee resettlement programmes and the asylum process has been disrupted [10,14,15]. Migrants may also experience discrimination as a result of the COVID-19 pandemic [10,16-18]: in surveys and interviews with people of Chinese origin living in France, nearly one third reported having experienced at least one discriminatory act since January 2020 [19]. Migrants in precarious work environments may have been at increased risk of losing jobs and sources of income during the pandemic, and some have experienced indirect health impacts resulting from compromised access to health services [6,20,21]. In many European countries, migrants make up a growing proportion of front-line workers in occupations (for example, home and care workers, taxi drivers) that have seen a higher number of COVID-19 infections and higher mortality [10,22]. There are, in addition, a substantial number of migrants in EU/EEA countries being housed in reception and detention centres and camp settings, and/or who are street homeless or living in homeless shelters [23], which are considered to be high-risk environments for COVID-19 transmission [24].

This report specifically focuses on evidence pertaining to migrants. Of critical importance is the fact that some migrant groups – for example undocumented migrants, asylum seekers, and refugees – face barriers to European health and vaccination systems on arrival or are excluded due to a lack of entitlement to free healthcare [25,26]: one pre-pandemic study of 29 359 migrants in seven European countries found that 82% had no healthcare coverage [26]. Barriers can vary from organisational-level barriers such as the need for interpretation, cultural mediators, and geographical and transport challenges, to individual-level barriers including poor socioeconomic status, social isolation, lack of support, discrimination, and stigmatisation [27]. Inclusion of migrant populations in national response plans for COVID-19 in the areas of testing, treatment, and vaccination also varies [28]. The World Health Organization (WHO) [29] and others [30] have stressed the need for all countries to ensure that COVID-19 responses respect the human rights of refugees and migrants within their borders. Structural and institutional racism has been highlighted as a contributing factor to the health disparities documented during the COVID-19 pandemic [31,32].

This report summarises current data on cases, hospitalisations, and mortality in migrants, presenting evidence on key risk factors for COVID-19 exposure and adverse clinical impacts, and current evidence around COVID-19 vaccine uptake in migrant populations. It then defines strategies and recommendations, and documents lessons learned and models of good practice to reduce transmission in at-risk migrant groups and to support rollout of COVID-19 vaccines.

## Methods

Three complementary sets of data were used in this report: (i) a formal systematic review to assess clinical outcomes in migrants, indirect health and social impacts of the pandemic, and risk factors and vulnerabilities; (ii) a rapid scoping review to document and assess key issues pertinent to migrants and the COVID-19 vaccination, and (iii) expert input from a range of European stakeholders (see acknowledgments).

To explore clinical outcomes in migrants (cases, hospitalisations, and deaths) and their risk factors and vulnerabilities, we undertook a systematic review in line with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines and registered with PROSPERO (CRD42020222135). We searched a wide range of databases, including Embase, Web of Science, PubMed NIH, Scopus, and pre-print sites chemRxiv, SSRNbioRxiv, and medRxiv, facilitated through the WHO Global Research on COVID-19 database from inception to 18/11/2020 (<https://search.bvsalud.org/global-literature-on-novel-coronavirus-2019-ncov/>). We then sought grey literature, including national statistics, unpublished data, and published reports through our project advisory group and existing networks, and all relevant new data up to May 2021 has been incorporated into this report. The quality of studies was assessed by two reviewers using Joanna Briggs Institute critical appraisal tools (checklists for cohort studies, qualitative research, prevalence studies, cross-sectional studies, case series or text and opinion checklists, as appropriate for the individual study design) [33], with no studies excluded on the basis of quality. The full dataset, looking at data from beyond EU/EEA countries and the UK, and a detailed description of the methodological approach, has been published in full elsewhere [6].

We then did a rapid scoping review of PubMed NIH (to Feb 2021) to explore and assess evidence pertaining to barriers to vaccination, vaccine hesitancy (see footnote<sup>2</sup>) [34], and COVID-19 vaccine uptake in migrants and considerations for COVID-19 vaccine rollout, which has been published in full elsewhere [28].

We hosted two advisory group meetings (2 Dec 2020 and 10 March 2021) to seek input from a range of European stakeholders from public health, academia, civil society, non-governmental organisations, and human rights-based organisations (see advisory group composition in acknowledgements), to discuss findings from the literature reviews, and to specifically explore identified models of good practice and lessons learned from across the EU/EEA, findings from which have been brought into all sections of this report.

We have also included updated findings from recent ECDC guidance on infection prevention and control of coronavirus disease (COVID-19) in migrants and refugee reception and detention centres in the EU/EEA and the United Kingdom (15 June 2020) [24].

## Results

### Cases, hospitalisation, and mortality in migrants

#### COVID-19 cases

Evidence suggests that some migrant populations may be at high risk of exposure to, and infection with, SARS-CoV-2, with migrants disproportionately represented in cases in some European countries. For example, national datasets from Norway highlight that migrants made up 19% of all reported cases (16 March 2020), rising to 42% in the week starting 27 April 2020 [35]. In another dataset from Norway (period 15 June 2020-31 March 2021), confirmed SARS-CoV-2 infections were significantly higher among persons born outside Norway (3140/100 000 population) compared to persons born in Norway (1011/100 000 population) [36]. Other datasets, for example from Sweden and Denmark, compare migrant cases to the proportion of migrants in the general population. In Denmark, non-Western migrants and their native-born children accounted for 18% of cases (29 April to 6 May 2020), which was double the share of the Danish population (among non-western migrants the COVID-19 incidence rate was 240 per 100 000, compared to 128 per 100 000 among ethnic Danes) [37], rising to 26% in an later update (7 September 2020) [38]. In Sweden (between 13 March to 7 May 2020), 32% of positive cases were migrants, despite their comprising only 19% of the population [39]. In Alcorcón, Spain (to 25 April 2020) the crude incidence rate of COVID-19 among migrants was higher than among the host Spanish populations, at 8.81 and 6.51 per 1 000 inhabitants respectively ( $p < 0.0001$ ) [40]. It is likely these datasets are an under-reporting of the true situation because most EU/EEA countries do not report health and COVID-19 data by migrant status [41].

<sup>2</sup> Vaccine hesitancy is defined here as 'a behaviour, influenced by a number of factors including issues of confidence (e.g. low level of trust in vaccine or provider), complacency (e.g. negative perceptions of the need for, or value of, vaccines), and convenience (e.g. lack of easy access).'

Migrants from specific nationality groups and regions have been highlighted in datasets as being at higher risk of COVID-19 infection. Norway reported a very high incidence rate among the Somali-born population (to 1 July 2020), and in the Autumn of 2020 the risk increased for migrants from Pakistan, Iraq, Afghanistan, Serbia and Turkey [42]. In another dataset from Norway (period 15 June 2020-31 March 2021), confirmed cases was highest among people born in Pakistan (9 173/100 000 population), Somalia (8 477/100 000 population) and Iraq (7 397/100 000 population) [36]. In Sweden the incidence of COVID-19 was highest among migrants from Turkey, Ethiopia, and Somalia [39]. In another comprehensive dataset from Sweden (period 13 March 2020-15 February 2021) the relative risk of being diagnosed with COVID-19 was higher for persons born in the Middle East, Southeast Europe, South America, Africa, Asia and Oceania compared to persons born in Sweden [43]. In Denmark, high incidence rates were reported among migrants from Morocco, Pakistan, Somalia and Turkey [37,38]. In Spain, the relative risk (RR) for COVID-19 was elevated in migrants from sub-Saharan Africa (RR 3.66 [95% CI 1.42-9.41];  $p=0.007$ ), the Caribbean (RR 6.35 [95% CI 3.83-10.55];  $p<0.001$ ), and Latin America (RR 6.92 [95% CI 4.49-10.67];  $p<0.001$ ), but not for migrants from other regions [40]. Elevated incidence of COVID-19 correlated with higher neighbourhood deprivation, and in immigrants from Northwest Africa and Latin America, in a study from Barcelona [44].

### **Cases and outbreaks in migrant reception and detention centres**

Reception and detention centres include closed environments and camp-like settings, which are known to be at higher risk of outbreaks of COVID-19 [24,45]. Examples of COVID-19 outbreaks that have been detected in camp-settings include in the Ritsona and Malakasa camps in Greece [46-50]; in the Hal Far open centre in Malta [51], all of which were subsequently put under quarantine, and in the Sneek reception centre in the Netherlands [52].

An outbreak with 150 positive cases occurred in Kranidi in Greece in a hotel serving as a migrant shelter, which was then placed under quarantine [48,50,53,54]. Notably, the COVID-19 case in Ritsona camp and the first case in the hotel in Kranidi were detected during hospital visits by residents, underlying the need for extensive testing for early detection of outbreaks in these settings.

Following the introduction of COVID-19 into reception and detention centres, there is the potential for rapid further spread within these settings in the absence of adequate measures. For instance, during an outbreak of COVID-19 in the Ellwangen reception centre in Germany, cases of COVID-19 reportedly rose from 7 to 259 in one week, despite the facility having been placed under quarantine [55]. Until the end of April 2020, 68% of all 600 asylum seekers in the quarantined reception centre had been infected [55]. A review of publicly reported outbreaks of COVID-19 in temporary housing for asylum seekers and refugees in Germany identified 42 centres in 11 German states being affected. Among the 9 785 asylum seekers, 1 769 had tested positive, corresponding to a pooled incidence risk of 17.0% (95% KI: 12.0 – 23.0) [56,57]. Thirty of 42 centres had been put under mass quarantine. In Lisbon, Portugal, 138 of the 187 asylum seekers living in the Aykibom hostel were infected with COVID-19 [58].

A recent epidemiological study from Greece reported that 25 COVID-19 outbreaks were identified in refugee and asylum seekers reception facilities (Feb to Nov 2020) [59]. Compared to the general Greek population, the risk of COVID-19 infection among refugees and asylum seekers migrants in reception facilities was two and a half to three times higher ( $p<0.001$ ), with the risk of acquiring COVID-19 infection highest in reception and identification centres in the Greek islands and along the land border with Turkey (IP ratio: 2.86 [95% CI: 2.64-3.10]), where living conditions are particularly poor [59].

### **COVID-19 hospitalisation, mortality and excess deaths**

Data on COVID-19 hospitalisations involving migrant patients are limited. One study analysing data from the Italian surveillance system (20 Feb to 19 July 2020) found 7.5% of all COVID-19 cases were in non-nationals with non-nationals more likely to be diagnosed late and to be hospitalised (adjusted rate ratio [ARR] 1.39 [95% CI: 1.33–1.44]) and admitted to an intensive care unit (ICU) (ARR 1.19 [95% CI: 1.07–1.32]), with differences being more pronounced in those coming from countries with a lower human development index (HDI) [60]. A Spanish study (2 345 patients hospitalised in Madrid) found 16.6% were non-European (predominantly Latin American), with non-Europeans more frequently admitted to ICU (71 [18.3%] of 389 patients compared with Europeans (187 [9.6%] of 1 956 patients;  $p<0.0001$ ) [61]. In Denmark, non-Western migrants and their children accounted for 15% of COVID-19 hospital admissions (to 7 September 2020), despite only making up 9% of the population [38]. In a comprehensive dataset from Sweden (period 13 March 2020-15 February 2021), adjusting for age and sex, the incidence of ICU admission due to COVID-19 was higher for foreign born persons from all other regions of the world except for North America (where the number of cases were too few to assess) [43]. The relative risk for ICU admission was five times higher for persons born in Africa and the Middle East compared to those born in Sweden [43]. In Norway (period 15 June 2020-31 March 2021), confirmed hospitalisation due to COVID-19 was significantly higher among persons born outside Norway (147/100 000 population) compared to persons born in Norway 37/100 000 population) [36,62]. Confirmed hospitalisation was highest among people born in Pakistan (898/100 000), Iraq (449/100 000), Turkey (402/100 000) and Somalia (382/100 000) [36,62].

Data suggests that migrants may be disproportionately represented in COVID-19-related mortality in some European countries. A Swedish analysis of all recorded COVID-19 deaths (to 7 May 2020) reported that being a migrant from a low- or middle-income country is predictive of a higher risk of death from COVID-19, but not for all other causes of death [63]. In a brief report of 106 healthcare workers who died in the UK up until 22 April 2020, 56 (53%) were reportedly born outside the UK [64]. Italian surveillance data from the start of the outbreak to 19 July found an increased risk of death in non-Italians from low HDI countries (adjusted RR 1.32, 95% CI 1.01-1.75) [60]. On the other hand, no excess mortality was seen in analyses by migrant status in Denmark (data to 7 September) [38].

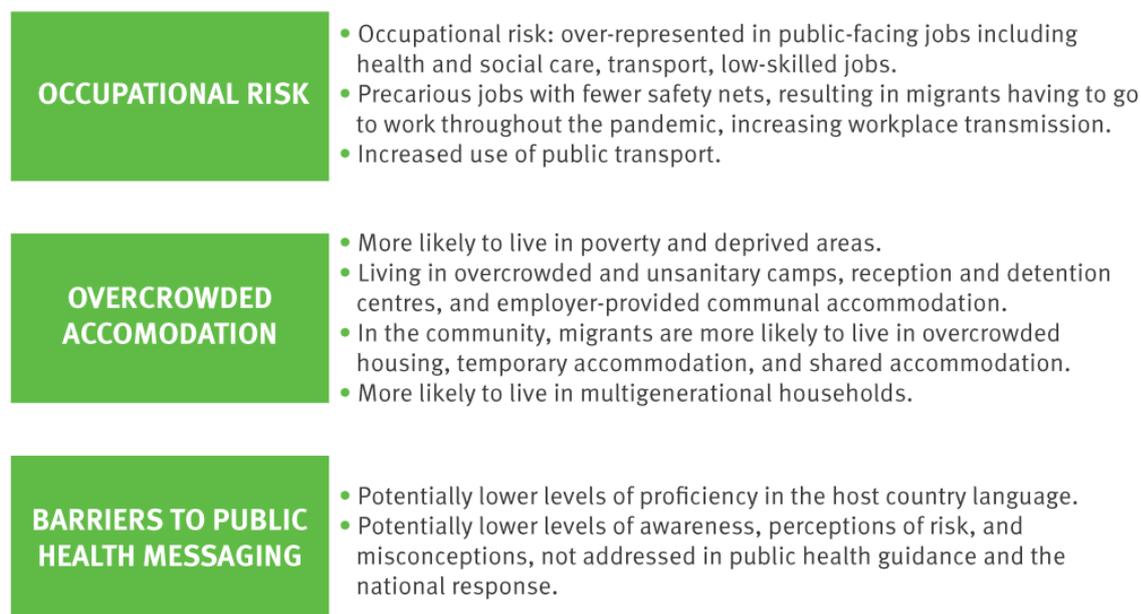
As with datasets on cases, migrants from specific nationality groups have been highlighted as being at higher risk of death after SARS-CoV-2 infection. An analysis of all recorded COVID-19 deaths (to 7 May 2020) in Sweden, adjusting for age and socio-demographics, found migrant men from the Middle East and North Africa had a three times higher mortality rate from COVID-19 (Hazard Ratio [HR] 3.13 [95% CI 2.51-3.90]) and women a two times higher mortality rate (HR 2.09 [95% CI 1.52-2.89]) as compared to Swedish-born people [63]. Similarly, data from Stockholm, Sweden until 4 May 2020 shows that migrants from Middle Eastern countries (Risk Ratio [RR] 3.2 [95% CI 2.6-3.8]), Africa (RR 3.0 [95% CI 2.2-4.3]) and other Nordic countries (RR 1.5 [95% CI 1.2-1.8]) had a higher COVID-19 mortality when compared to Swedish-born people, adjusting for age, sex, and sociodemographic characteristics [65]. Especially high mortality risks from COVID-19 were found among individuals born in Somalia (RR 8.9 [95% CI 5.6-14.0]), Lebanon (RR 5.9 [95% CI 3.4-10.3]) and Syria (RR 4.7 [95% CI 3.3-6.6]) [65]. An epidemiological report that compared risk of death from COVID-19 in those over 25-year olds who were foreign-born versus Swedish-born of the same age to 30 June 2020 in Stockholm Country found marked differences between Swedish-born and Somali (HR adjusted for age and sex 12.39 [7.93-19.36]), Lebanese (6.19 [3.41-11.24]), and Syrian (6.14 [4.28-8.80]) migrants [66]. These effects were attenuated when adjusted for neighbourhood, education level, occupation, income, household size and previous chronic illness, but remained higher among migrants than Swedish-born [67]. Analysis from a comprehensive dataset from Sweden (period 13 March 2020-15 February 2021), adjusting for age and sex, found that persons born in Africa (RR 3.4 [95% CI 2.6-4.4]), Middle East (RR 2.8 [95% CI 2.4-3.3]), Asia and Oceania (RR 2.1 [95% CI 1.6-2.9]), South-East Europe (RR 2.1 [95% CI 1.8-2.4]), South America (RR 1.7 [95% CI 1.4-2.2]), other Nordic countries (RR 1.5 [95% CI 1.3-1.7]), and Central and Eastern Europe (RR 1.3 [95% CI 1.2-1.5]) had higher COVID-19 mortality compared to persons born in Sweden [43].

Challenges in data collection and reporting have resulted in a focus being placed on collating national datasets on all-cause excess mortality during the pandemic for migrants and non-migrants, comparing deaths with those expected on the basis of rates in preceding years. In England, for example (21 March to 8 May 2020) where the number of death registrations from all causes was 1.7 times higher than the average during the same period in 2014-2018 for UK-born nationals, the relative increase in total deaths was greater among those born outside the UK: for example, deaths in 2020 were four and a half times higher than the equivalent period in 2014 to 2018 for migrants from Central and Western Africa, and over three times higher for migrants from the Caribbean, South East Asia, the Middle East, and South and Eastern Africa [3]. In France, foreign-born people represented 15% of registered deaths (March and April 2020) versus 13% for the same period in 2019, with an increase of 54% deaths among migrants from North Africa (Algeria, Morocco, Tunisia), 114% for those from sub-Saharan Africa, and 91% for those from Asia [68]. In the Netherlands (9 March to 19 April 2020), mortality was 47% higher than expected for migrants from non-Western countries and their immediate children (based on number of deaths in the preceding weeks, adjusted for seasonal factors) [69]. In Sweden, mortality among migrants was elevated in 2020 compared with previous years: among middle-aged (40-64 years) and older (>65 years) migrants born in Syria, Iraq and Somalia excess mortality was approximately 220% [66].

## Risk factors for increased COVID-19 exposure

Evidence suggests that some migrant populations may have a range of risk factors for increased exposure and infection with COVID-19. A summary of key findings is presented in Figure 1.

**Figure 1. Risk factors for increased exposure to SARS-CoV-2 in some migrant populations with higher COVID-19 morbidity and mortality: summary of evidence**



### *Occupational risk*

Migrants may have occupational risk factors because they may be disproportionately represented in front-line public-facing jobs (health and care work, social work, hospitality, retail, delivery, security, transport, household services) and in menial jobs that can place them at increased exposure to COVID-19 [10,70-74]. On average, 13% of all key workers in the EU are considered to be migrants [15]. A substantial proportion of doctors, nurses, and other medical specialists in countries such as Germany, France, US, Canada, and UK are migrants [15,75]. Employment as a healthcare worker in Ontario, Canada, accounted for a disproportionate number of COVID-19 cases among migrants, especially among women [76].

Some migrants may need to carry on working or risk losing their job [70,77], with migrants considered to be especially vulnerable to job loss and economic hardship as a result of COVID-19 [9,78-86]. This is especially true for migrants in informal 'no work, no pay' jobs with precarious contracts, who face financial disincentives for absence, or for those in exploitative employment including irregular migrants who fall outside of government safety nets [82,87]. Migrants are also potentially more likely to rely on public transport to get to work, again increasing exposure [88].

### *Overcrowded accommodation*

Living conditions will influence transmission and exposure. There is a link between neighbourhood deprivation levels and levels of exposure and infection with COVID-19 [76,89]. Living conditions in some migrant reception facilities, detention centres, and camps and homeless shelters in Europe are overcrowded, with poor hygiene facilities and limited ability to physically distance or self-isolate [24,90-109]. Reports have highlighted that those living on the street (including many migrants) report more difficulty in following measures related to handwashing, while those living in a refugee camp or asylum centre report more difficulties in following rules regarding physical distancing [18,23].

Roma and 'people on the move' (which include migrants) are at elevated risk due to living in potentially crowded conditions [110,111]. Migrants residing in the community are more likely to live in shared or overcrowded accommodation than non-migrants [9,82,111]. Two hundred and thirty-five (59%) of 399 patients admitted to a medicalised hotel in Madrid in March to May 2020 were migrants and their main reason for referral was a lack of housing that supported quarantining [112]. In a survey of Filipino migrants living under precarious circumstances in the UK, most of whom were irregular migrants, 58% of respondents lived in shared houses and one in five were either homeless, had no fixed address, or were staying temporarily with friends (on average sharing a bedroom with one to two others) [82]. Across all OECD countries, migrants are twice as likely to live in overcrowded dwellings than native-born people (17% versus 8%) [9]. Migrants are also more likely to live in multigenerational houses, with implications for transmission from younger to older and more vulnerable household members [88,113].

### **Barriers to public health messaging**

Some migrant populations with lower levels of language proficiency of the host country and/or lower levels of health literacy may have faced barriers to public health messaging on when and where to test, and isolation and contact tracing processes, which may have contributed to increased transmission within their communities. For example, poor language competence was linked to low testing rates in two studies from US/Canada [76,114]. Across Council of Europe Member States [115], information on testing or healthcare entitlements in common migrant languages was only found in 6% (3/47) of countries. In some sub-populations of migrants with cultural and language barriers and lower levels of health literacy, there is evidence of difficulties understanding public health messaging [111,113,116]. Public health guidance in many countries was not initially tailored to the needs of migrants: in a rapid review to assess communications targeting migrant populations across Council of Europe Member States, only 48% (23/47) translated guidance into at least one foreign language, and no government produced risk communications on disease prevention targeting people in refugee camps or informal settlements were identified [115]. Some migrants in precarious jobs, and living in overcrowded accommodation, including camps, and detention and reception settings, or street homeless, may have had less opportunity to act on public health messaging [18,24,90] including test and isolation and physical distancing, thus increasing their exposure to COVID-19.

## **Additional risk factors and vulnerabilities in migrants**

### **Co-morbidities**

Co-morbidities (such as diabetes mellitus, hypertension, and obesity) and levels of deprivation may be linked to poor COVID-19 outcomes in migrant populations as it has been more generally for ethnic minority groups, but this remains poorly documented in migrants specifically [117,118]. A situational brief reporting on the health of asylum seekers and undocumented migrants in France during COVID-19 concludes they are more likely to have certain chronic conditions that appear to be associated with worse COVID-19 outcomes, such as diabetes mellitus, hypertension, and obesity [117]. In Sweden, a COVID-19 situational report found around 65% of refugees are either overweight or obese compared to 50% in the rest of the population, and around 35% are smokers, which is higher than the general population [118]. Migrants in camp settings may be especially vulnerable due to existing illnesses or injuries and prevailing malnutrition and/or poor health in general [91,97,100,119].

### **Barriers or exclusion from health systems**

Of key importance is the fact that some migrant groups may face numerous barriers and/or exclusion (due to lack of entitlement) from health systems that need to be better considered and mitigated against. Migrants with precarious legal status (undocumented migrants, migrants with limited leave to remain, asylum seekers and refugees), and other marginalised migrant groups (low-skilled labour migrants), may face extensive barriers in accessing healthcare [10,30,120,121], including lack of entitlement to health services, with policies in some European countries actively deterring migrants from seeking healthcare pre-pandemic [26]. Concerns remain within migrant communities that COVID-19 treatment might require payment, or that undocumented migrants might be identified by health systems on presentation, and could prevent early presentation in migrants who distrust authorities [82,111,121,122]. The WHO Apart Together study found not all migrants interviewed would seek medical care in case of suspected COVID-19-infection, because of lack of financial means, fear of deportation, lack of availability of healthcare providers or entitlement to healthcare [18]. Healthcare access for migrants and refugees in camp settings can be limited, lacking medical personnel, equipment and pharmaceuticals [98], with poor or absent testing facilities and routine surveillance [123]. With routine services closed due to the pandemic, concerns have been raised that migrants have struggled to navigate the new systems [20,111,124-126] and it may have exacerbated migrants' exclusion from health services.

## COVID-19 vaccination uptake in migrants

### *Risk factors for under-immunisation in migrants*

Some sub-populations of migrants in Europe are known to be at risk of under-immunisation for routine vaccines, to have lower levels of routine vaccine uptake, and to have more distrustful attitudes towards vaccination compared with the general population [27,127-132]. Some migrants may face multiple barriers to vaccination and health systems that are relevant to the COVID-19 vaccine rollout. Migrants may specifically be excluded from vaccine systems and initiatives in Europe for a variety of reasons including entitlement/legal access to health systems (specifically access to primary care where most vaccination takes place), language and communication barriers, and lack of systems to engage and vaccinate adolescent and adult migrants on arrival [133-135]. Other factors including religion, upbringing and perceived beliefs are also known to positively and negatively influence immunisation decisions and demand for information [136].

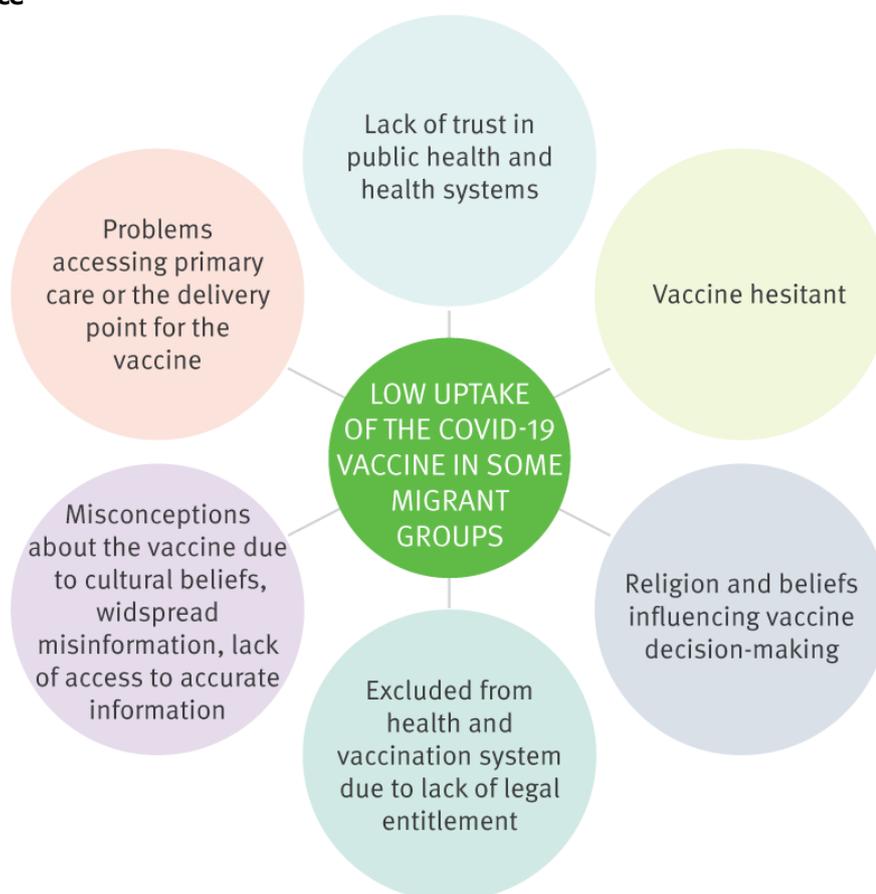
### *Migrants and the COVID-19 vaccine*

Recent datasets exploring hesitancy around the COVID-19 vaccine have focused on broader ethnic minority populations, which will include diverse groups of migrants, and has shown that ethnic minorities may be more reluctant than others to accept the COVID-19 vaccination compared to white ethnic groups [137-142]. One UK study, for example, (n=11 708), found that COVID-19 vaccine hesitancy was highest in Black or Black British groups, with 72% stating they were unlikely or very unlikely to be vaccinated, with preliminary monitoring data suggesting that some of these communities, and those living in higher areas of deprivation, are less likely to have been included in initial vaccine rollout [143]. Recently published UK vaccine uptake data for the over 70's age-group has shown lower vaccination rates in ethnic minority groups, particularly Black Caribbean and Black African (66.8% and 71.2% respectively), followed by people from Pakistani (78.4%) backgrounds compared to White British 93.7% [144]. In the same study, the difference in vaccination rates between those identifying as White Other and White British was noticeably greater within the 50 to 69 years age group than among those aged 70 years and over. One recent UK dataset exploring the views of precarious migrants on the COVID-19 vaccine (undocumented migrants, asylum seekers, and refugees; Sept 2020-March 2021), found that this group lacked trust in health systems, experienced high levels of misinformation about the vaccine, and most (23 [72%] of 32) were categorised as being hesitant about having a vaccine at the time of interview [121]. Migrants also raised concerns about access points for the vaccine when they were not registered with health systems [121].

Analysis from Sweden shows differences in vaccine uptake (at least one dose administered) on region of birth for people aged 80 and above, where vaccination rates (until week 20, 2021) among people born in Sweden are high at 95%, followed by those born in the Nordic countries 91%, North America 86%, in the EU 83%, North Africa 66% and other African countries 53% [145]. Similarly, in the group aged 65-79, Sweden also observes differences in vaccine coverage. Vaccination rates (until week 20, 2021) among people born in Sweden is at 92%, followed by those born in other Nordic countries 84%, North America 74%, in the EU 70%, North Africa 61% and other African countries 52% [145]. A Norwegian review of vaccination coverage based on country of birth shows that the proportion vaccinated in the age group 75 years and older is highest in people born in Norway, Sweden and Denmark (over 90%), and lowest in people born in Iraq (51%) and Somalia (34%), with similar trends observed in the age group 65-74 [146]. In the same Norwegian study, vaccination coverage among employees in healthcare settings was highest among persons born in Denmark (74%), Sweden (70%), Norway (64%) and lowest among people born in Somalia (39%), Eritrea (36%) and Syria (34%) [146].

Data suggests that some migrant communities may be more susceptible to COVID-19 vaccine misinformation, particularly where language barriers and social exclusion contribute to a deficit of accurate and accessible information [20,147]. Concerns have been raised about the high level of misinformation about the COVID-19 vaccine circulating in migrant communities and via social media. One qualitative study of UK primary care of refugees and asylum seekers found a range of beliefs on the COVID-19 vaccine based on misinformation they had received, with these migrants reporting that COVID-19 is a 'hoax' or a 'Western disease', and a fear of being used as 'guinea pigs' for the vaccine, or that it contains a microchip [20]. Other common falsehoods circulating include that the vaccine will alter your DNA, is designed to control the population, may affect fertility, and is not halal (permitted by Islam) [147]. Migrants and primary care clinicians reported concerns that pre-existing distrust of vaccinations and low health literacy in migrant communities, alongside widespread misinformation around the vaccine, could negatively affect uptake of the COVID-19 vaccine in some migrant groups [20]. A range of risk factors for lower uptake of the COVID-19 vaccine are summarised in Figure 2.

**Figure 2. Risk factors for lower uptake of the COVID-19 vaccine in some migrant groups: summary of evidence**



## Solutions and action points

### Promoting inclusion in COVID-19 national response plans

A specific focus now needs to be placed on ensuring inclusion of all migrant populations in health systems during the pandemic, with important benefits for individual and public health, and the promotion of the right to health. The Office of the High Commissioner for Human Rights (OHCHR), the International Organization for Migration (IOM), the UN Refugee Agency (UNHCR) and WHO have called for governments to ensure all migrants and refugees are ensured equal access to health services and are included in the national responses to COVID-19, including prevention, testing, and treatment [148].

There is a need to ensure migrants in camps and closed facilities such as reception and detention centres are able to access testing and treatment [24]. Compulsory testing is not recommended in any population. Alternatives to migrant detention could be considered, where opportunities to follow guidance on self-hygiene and social distancing are not possible. In addition, EU/EEA countries could consider evacuation of vulnerable migrants from camp settings where preventative measures are not possible, accommodating migrants in different facilities. Several countries have released immigrant detainees during the pandemic, including Spain, the UK, and Belgium [7]. For those in detention and reception facilities, Box 2 provides guidance and action points to minimise transmission in these settings.

**Box 2. Guidance and action points for minimising SARS-CoV-2 transmission in migrants housed in reception and detention centres**

- All principles of physical distancing applied in the community should be applied in migrant reception and detention settings. If physical distancing and risk-containment measures cannot be safely implemented, measures to de-congest and evacuate residents should be considered.
- In addition to physical distancing, hand and respiratory hygiene are the main non-pharmaceutical measures that should be considered and implemented in migrant reception and detention centres.
- Providing free and equitable prevention, testing, treatment and care to migrants and refugees in settings of reception and detention is critical at all times, but particularly in the context of COVID-19.
- Consideration could be given to migrants in camps, reception and detention centres and other high-risk settings when deciding on priority groups for COVID-19 vaccination.
- There is no evidence that quarantining whole camps effectively limits transmission of SARS-CoV-2 in settings of reception and detention or provides any additional protective effects for the general population, outside those that could be achieved by conventional containment and protection measures.
- Migrant and refugee reception and detention centres should be given appropriate priority for testing, due to the risk of rapid spread of SARS-CoV-2 in these settings. All individuals with COVID-19 compatible symptoms should be tested on arrival, and possible, probable or confirmed COVID-19 cases not needing hospitalisation should be isolated or separated from others in the premises. Contact tracing should occur for all cases identified as positive. Asymptomatic new arrivals can also be considered for testing to reduce the risk of introduction of cases in reception and detention centres; however, a negative test does not exclude the possibility of the person becoming infectious in the next 14 days.
- Communicating about the risks and prevention of COVID-19 with migrant and refugees currently housed in reception and detention centres requires community engagement and health communication strategies that are adapted to meet the different language, cultural and literacy needs of the different populations.

*Source: ECDC. Guidance on infection prevention and control of coronavirus disease (COVID-19) in migrant and refugee reception and detention centres in the EU/EEA and the United Kingdom – June 2020 [24].*

Member States will need to promote and develop policies and strategies that offer specific support packages to migrants in precarious social situations to enable them to test, self-isolate, stop working, access health and social services, get support with housing issues, and better engage with contact tracing mechanisms and mass (asymptomatic) testing. Models of good practice (found in the Netherlands, Spain, and the UK [7,149]) include the removal of healthcare entitlement barriers to accessing testing, treatment, and vaccination for COVID-19 for all migrants. The Portuguese government will grant residency status to anyone with a pending residence application, providing opportunities to work and access to healthcare and social benefits, with several other models of good practice identified elsewhere (including Italy) targeting irregular migrants specifically [7,149,150]. Practices whereby undocumented migrants are identified and deported if they present to health systems for COVID-19 testing, treatment, and vaccination feed distrust in these and other migrant communities and are therefore counter to an efficient COVID-19 response. Addressing such practices will require an intersectoral response, and should include the promotion of current in-country labour laws that seek to protect migrants in precarious situations, as well as raising awareness among employers around health security to reduce workplace transmission, promote the health of their employees, and support public health initiatives. Policy shifts need to be backed up by dissemination of changes to migrant communities and community groups that support them, as well as staff enforcing policies around immigration checks at health systems, so everyone is aware of new approaches, building on initiatives to promote inclusion in health systems and supporting universal health coverage.

Specifically, it will be important to ensure inclusion of migrant populations in information campaigns and timely dissemination of public health guidelines. There are strong arguments for more tailored and targeted information and communication around testing and treatment, contact tracing mechanisms, self-isolation, reducing exposure and available health and social support. Specific approaches will need to be developed for specific nationality and faith groups, as well as different groups of migrants – with undocumented migrants likely most at risk of exclusion [7]. This should be achieved by actively engaging with affected communities, pinpointing their concerns and ensuring their voices and needs are adequately reflected in all strategies, and producing interventions that will empower people to participate [151,152]. Actions on behalf of migrants should be undertaken with, and through, trusted community channels and developed through direct engagement with at-risk migrant groups. Trusted sources from within the community, such as community and faith leaders, teachers and multilingual health professionals, can provide valuable cultural understandings of the risks of COVID-19, and insights as to how targeted health messaging can be used to counter perceived alienation and mistrust present in migrant communities. A series of key recommendations for EU/EEA countries are outlined in Box 3.

**Box 3. Considerations for reducing exposure and transmission of SARS-CoV-2 and increasing access to health services in migrant populations**

- Consider suspending policies that exclude (due to lack of legal entitlement) migrants from health systems and develop specific strategies to encourage excluded groups to register with health systems to access services.
- Provide access to interpreters and translated resources in primary care, equip patients with knowledge of their entitlements and ensure administrative staff are adequately trained in this area.
- Promote and develop policies and strategies that offer specific support packages to migrants in precarious social situations to enable them to test, self-isolate, stop working, access health and social services, and to better engage with contact tracing mechanisms and mass (asymptomatic) testing.
- Consider alternatives to detention for migrants and consider evacuating the vulnerable from camp, reception and detention settings where preventative measures are not possible.
- Specifically include migrants in information campaigns and health service provision for COVID-19. This will require tailored and targeted information and communication, co-designed with at-risk communities, around reducing transmission, early testing and treatment, contact tracing mechanisms, and self-isolation.
- Ensure rapid quality translation and more effective dissemination of public health messaging and directives into common migrant languages, which could include door-to-door information campaigns and other community outreach and engagement approaches.
- Counter misinformation and tailor messages to communities, using local phrases, humour, cultural references and values; address generational differences. Establish a shared agenda to build trust. Distribute messages through local communication channels (e.g. local radio, bilingual pharmacies).
- Strengthen collaborations with local government, relevant charities and community groups, civil society groups, social care services, public health teams and healthcare professionals to develop engagement strategies with migrant communities.

**Considerations for COVID-19 vaccination programmes*****Ensure equitable access to the COVID-19 vaccines***

Ensuring migrants excluded from health systems are able to access COVID-19 vaccines will be a key priority going forward from both a right-based and public-health perspective. The International Organization for Migration and GAVI, the Vaccine Alliance, support vaccine rollout to marginalised migrant groups, with IOM calling on Member States to ensure all migrants within their borders – including undocumented migrants – are included in national vaccine deployment plans [153]. The World Health Organization [154], UNHCR [155] and several others have also called for equitable access to COVID-19 vaccines for all migrants.

In order to protect both migrants and host populations, how to ensure equitable access to COVID-19 vaccines and ensure equitable uptake, needs to be considered, particularly in migrants facing barriers to health and vaccination programmes. Several positive developments in this area have been noted across Europe. The UK has a specific initiative encouraging undocumented migrants and other unregistered groups to register with primary care and thus to access the national vaccination programme; this includes publishing guidance specifically stating that no immigration checks and no fees will apply to non-entitled migrants accessing COVID-19 vaccines [149]. The Dutch and Spanish governments have guaranteed undocumented migrants equal access to the vaccination [149]. In France and Italy, the governments have specifically said that vaccines will be free for every person in the country [149]. Specific strategies will be required in-country to ensure these policies are put into practice – requiring an intersectoral approach between public health, social care services, and local and national health policy makers – so that new policies translate to excluded groups getting vaccinated.

***Appropriate prioritisation of migrants in national vaccine plans***

The extent to which migrants should be a priority group needs greater consideration and will be country-specific, being mindful of the right to health and vaccination, but also the public health imperative to ensure as many people as possible get vaccinated, and the importance of prioritising groups at the highest risk of severe disease (in particular, older adults) in order to efficiently reduce hospitalisations, ICU admissions and deaths. WHO's Strategic Advisory Group of Experts identifies low-income migrant workers, irregular migrants and those unable to physically distance, including those living in camps and camp-like settings, as priority groups for the allocation of COVID-19 vaccination globally, and specifically lists migrants as groups to be prioritised in stages II and III of vaccine rollout [155]. ECDC has classified 'migrants and refugees' as potential target groups for COVID-19 vaccination campaigns and advised that settings with 'little ability to physical distance', such as reception centres, crowded housing and homeless shelters should be given consideration when deciding upon priorities for vaccination [156,157]. Germany has prioritised asylum seekers living in accommodation centres for COVID-19 vaccination [149], and migrants in closed facilities in Cyprus have been deemed priority groups [150]. In Canada, where migrants and ethnic minorities were known to have been disproportionately impacted by COVID-19 [76], and with disadvantaged neighbourhoods being hot spots for COVID-19 cases, a modelling analysis has shown that when mass distribution of vaccines is available to the general Ontario population, using geography as well as age criteria for prioritising COVID-19 vaccination prevented more hospitalisations, ICU admissions, and deaths than

using age alone [158]. This would result in a large number of migrants and ethnic minorities being vaccinated earlier. Other considerations could be given to putting migrants in priority groups with other population groups with social vulnerabilities.

Care should be taken around prioritising migrants, which can be counterproductive as it could be deemed unfair and stigmatising [159]. Instead, migrant communities and other at-risk groups in a community setting could be better considered within the existing vaccine priority structure defined by each country, which may require specific approaches tailored towards migrant communities. This will involve overcoming both individual and structural barriers to vaccination with specific local and national strategies; a range of specific approaches has been outlined in Box 4. Innovative delivery approaches for the vaccine will be needed for migrants who face access barriers to mainstream health systems, including mobile vans, mass vaccination centres, pop-ups, and non-clinical venues.

### **Information provision and community engagement**

A specific focus is needed on countering misinformation on COVID-19 and the vaccines in migrant communities as well as promoting uptake. Strategies to promote uptake of COVID-19 vaccination should be urgently co-developed with diverse communities based on local insights, taking into account the kinds of language, imagery, messaging, cultural references, formats and channels that resonate with diverse migrant groups. Participatory engagement approaches will be key, offering the tools to develop inclusive, acceptable approaches to increasing COVID-19 vaccine uptake that are community-centred [28,160]. Recent studies exploring strengthening COVID-19 vaccination uptake have recommended improved outreach to places of worship, co-designing delivery approaches with the communities themselves, and engaging formal and informal opinion leaders and migrant ambassadors from these communities, alongside placing more emphasis on considering the level of health, scientific and general literacy in specific subpopulations [20,161]. Studies have highlighted the need for greater transparency around COVID-19 vaccine development and testing, as well as safety and efficacy information, to alleviate concerns around a perceived 'rushed' vaccine and encourage uptake [139].

#### **Box 4. Approaches to strengthening vaccine uptake in migrant communities**

- How to ensure equitable access to COVID-19 vaccines and equitable uptake needs to be better considered, particularly in migrants excluded from health systems.
- Consideration could be given to migrants in camps, reception and detention centres and other high-risk settings when deciding on priority groups for COVID-19 vaccination.
- In the community, migrants should not be overlooked within national priority groups for vaccination, which will require a range of specific community-based approaches to improve trust, counter misinformation, and strengthen uptake.
- Use innovative approaches to reach communities that do not engage with mainstream services with both information and the vaccine (e.g. door-to-door knocking, mobile vans, mass vaccination centres, pop-ups, non-clinical venues, information provision in homeless shelters).
- Facilitate and promote registration and engagement with health systems. Multi-lingual communications and outreach campaigns are needed to highlight the removing of immigration checks for undocumented migrants, with specific information on how they can access the vaccine.
- Provide simple, accurate culturally-relevant resources about the COVID-19 vaccine in a range of languages, literacy levels and formats, including for those with no access to internet/digital services.
- Counter misinformation and tailor messages to communities, using local phrases, humour, cultural references and values; and address generational differences. Distribute messages through local communication channels (e.g. local radio, bilingual pharmacies) using community champions and peer-support.
- Draw on local knowledge to inform and support design and delivery of services to improve vaccine uptake rates.
- Build partnerships with community organisations and leverage existing networks, e.g. places of worship, schools.
- Ensure continuous, inclusive engagement adapted to local circumstances and contexts, using active and motivational communication approaches.
- Make vaccine uptake visible; identify recognisable public figures who are willing to get vaccinated publicly; and encourage sharing on social media.
- Identify respected, trusted and multilingual community champions to deliver messages and facilitate dialogue. Provide specific training and resources to healthcare providers to support vaccine roll-out.
- Actively involve communities in identifying preferred communication channels, formats and venues for messaging and vaccination.
- Provide access to interpreters and translated resources in primary care.
- Equip patients with knowledge of their entitlements. Ensure healthcare and administrative staff are adequately trained in this area.

## Strengthening data collection and further research

Routine datasets on cases, hospitalisations, and deaths for COVID-19 focusing on ethnicity fail to accurately reflect the health dynamics of contemporary migration, and as a result, the impact of the pandemic on these growing populations is poorly elucidated. Going forward, EU/EEA countries should consider taking into account national legal frameworks and more consistently integrating migrant health data in surveillance and health information systems, including in vaccination systems [41,162,163]. Large retrospective and prospective studies, disaggregating by migrant status, should be done to explore disparities in testing and diagnosis, hospitalisations, and COVID-19-related deaths in migrants. It will be important to collate and conduct ongoing real-time analysis of data on COVID-19 vaccine uptake by migrant status as rollout gathers momentum, with a clear focus on inequalities, so that these can be addressed. Further, there is a need to document key risk factors for under-immunisation and the extent to which vaccine hesitancy and circulating misinformation are playing a role, in addition to physical and other structural barriers to COVID-19 vaccinations.

## Options for response

Further progress in rapidly engaging migrant communities around strategies for reducing exposure, accessing health services, and encouraging vaccine uptake – considering their unique risk factors and vulnerabilities – will have a positive impact on COVID-19 transmission and enhance the effect of national response plans.

Strategies should include tailored and targeted public health messaging, co-designed with affected communities, translated into key languages and effectively disseminated. Intersectoral approaches between public health, social care services, and local and national health policy makers will be needed to ensure approaches are translated into meaningful action.

Innovative solutions and sharing knowledge and lessons learned across the Region will be important to support access to healthcare and COVID-19-related initiatives to reduce exposure and strengthen vaccine uptake in migrants who face major barriers and/or exclusion from mainstream health systems.

Consideration should be given to migrants in camps, reception and detention centres, homeless shelters and other high-risk settings when deciding on priority groups for COVID-19 vaccination. In the community context, migrants may need to be considered within national priority groups, and targeted campaigns may be relevant for specific underserved groups. This will require a range of specific community-based approaches to improve trust, counter misinformation, and strengthen uptake.

The extent to which migrant communities are impacted by COVID-19, and included in the vaccine rollout, should be closely monitored. Surveillance systems and further research should consider capturing data on COVID-19 outcomes, testing and vaccination uptake in migrant populations to ensure health equity.

## Conclusions

Evidence suggests that some migrant groups are at high risk of exposure to, and infection with, SARS-CoV-2, and may be disproportionately represented in cases, hospitalisations and deaths. Some migrant populations have a range of health and social risk factors for COVID-19 and are at higher risk of exposure due to their occupational risk, living in overcrowded accommodation (including residing in camps and detention facilities and homeless shelters), and lower levels of accessibility to healthcare and public health messaging. All these issues have immediate implications for national public health responses. For example, specific strategies are needed to reduce transmission in these populations. For migrants who face barriers and exclusion from mainstream health systems, innovative approaches will be required to ensure they are meaningfully included in national response plans, including those for vaccination. In order to protect both migrant and host populations, consideration should be given to ensuring equitable access to COVID-19 vaccines and to ensuring equitable uptake. Consideration should also be given to migrants in camps, reception and detention centres and homeless shelters when deciding on priority groups for COVID-19 vaccination; in the community context, migrants may need to be considered within national priority groups for vaccination, which will require a range of specific approaches to improve trust, counter misinformation, and strengthen vaccine uptake.

These findings hold immediate relevance for national public health responses to reduce transmission of COVID-19, the success of which depends on ensuring inclusion of all populations. In addition, there is an urgent imperative to promote health equity, human rights, and universal health coverage beyond the pandemic.

## Contributors

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