Prevention and treatment of infectious diseases in migrants in Europe in the era of universal health coverage

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Some subpopulations of migrants to Europe are generally healthier than the population of the country of settlement, but are at increased risk of key infectious diseases, including tuberculosis, HIV, and viral hepatitis, as well as under-immunisation. Infection screening programmes across Europe work in disease silos with a focus on individual diseases at the time of arrival. We argue that European health-care practitioners and policy makers would benefit from developing a framework of universal health care for migrants, which proactively offers early testing and vaccinations by delivering multi-disease testing and catch-up vaccination programmes integrated within existing health systems. Such interventions should be codeveloped with migrant populations to overcome barriers faced in accessing services. Aligning policies with the European Centre for Disease Prevention and Control guidance for health care for migrants, community-based preventive health-care programmes should be delivered as part of universal health care. However, effective implementation needs appropriate funding, and to be underpinned by high-quality evidence.

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Introduction

The 2030 Sustainable Development Goals of leaving no one behind call on UN member states to ensure universal health coverage so that all populations receive the health services they need.[1] However, at least half of the world's population still does not have full coverage of essential health services (from health promotion to prevention, treatment, rehabilitation, and palliative care across the life course).[2] Despite migrants explicitly being included under universal health coverage, with commitments for UN member states to provide access to health coverage for refugees and migrants,[3] migrant populations have particularly low access,[4] with vast and sudden population movements such as the recent exodus from Ukraine leaving individuals especially vulnerable. The WHO Regional Office for Europe has identified that ensuring countries neighbouring Ukraine have the infrastructure and expertise in place to meet the health needs of those arriving as a key priority.[5] European countries vary greatly in the amount and type of health care to which migrants are legally entitled, particularly undocumented migrants.[6] Migrants might be charged for treatment,[7–9] limiting uptake and thereby harming health and exacerbating inequalities. Furthermore, restricting services risks increasing overall health costs (early and preventive care are often cost saving, preventing infection transmission and disease incidence and progression), compromising public trust in confidential health systems, and undermining the doctor–patient relationship and the protection of human rights.[7]

Some migrants in Europe are disproportionately affected by infections including tuberculosis, HIV, and viral hepatitis B and C.[10–14] This burden is due to a combination of factors before, during, and after migration, including exposure to infections, inadequate health-care access, and poor living conditions.[15] This burden is mirrored by the effect of COVID-19 on migrant populations, with migrants at higher risk of COVID-19 infection, possibly higher mortality risk, and greater economic and educational effects of COVID-19 interventions, such as school and workplace closures, than non-migrants.[16–18]

Although pan-European plans are in place to tackle tuberculosis, HIV, viral hepatitis, and vaccine-preventable diseases, migrant health outcomes have not necessarily been prioritised, undermining progress towards health targets for infectious disease control and vaccination uptake.[19–22] There remains considerable debate on how best to adapt health systems to improve the health of migrants, so we must re-evaluate how we develop effective, evidence-based infection services for migrants.[23] Such strategies must improve engagement of migrants, integrating services within national and local health-care structures, considering migrants' fluidity of movement, wide range of relevant personal and social circumstances, disparities in access to preventive health care, complex health needs, and barriers to treatment initiation and completion.[24]

The 2018 European Centre for Disease Prevention and Control (ECDC) guidance on screening and vaccination for infectious diseases in newly arrived migrants to the EU or European Economic Area (EEA) were developed in response to the burden of infectious diseases in migrants, and barriers to testing, treatment, and vaccination.[10] The focus on migrants to the region rather than migrants within the EU or EEA, reflects the greater risk of infection, morbidity, and mortality for the former group.[25] The guidance provided evidence that clinicians and public health programmes should avoid working in disease silos and aim for holistic, integrated, multiple infection testing, and vaccination programmes. However, there are many evidence gaps underlying the guidance[26] and further research to address these and to develop services that better align with countries' commitments to universal health coverage are urgently required.

In this Viewpoint, we explore the role of migrants (hereafter referring to migrants to the WHO European region, as this group of migrants is at highest risk of

infection) in the epidemiology of key infectious diseases (eg, tuberculosis, HIV, and viral hepatitis) in Europe, current shortfalls in European migrant screening programmes, key components needed to meet migrants' needs throughout the entire screening and treatment pathway, and continuing evidence gaps and research needs. We then define and propose a roadmap to adapt and de-silo health systems to reduce inequities in access to care and facilitate infectious disease screening and vaccination for all migrant groups at high-risk, considered within the framework of delivering high-quality universal health coverage.

Migration and infection in Europe

Migration is an important driver of demographic change in the WHO European region. An estimated 30 million migrants born outside the European continental region arrived between 2000 and 2020, with 87 million migrants resident in Europe in 2020.[27] Predominant migration flows from outside Europe are from Asia, Africa, and the Middle East.[27]

For the **UCL–*Lancet* Commission on Migration and Health** see **Commission** *Lancet* 2018; **392:** 2606–54

The 2018 UCL–*Lancet* Commission on Migration and Health highlighted that migrants to high-income countries have lower mortality rates than host populations for non-infectious conditions including cardiovascular diseases, neoplasms, and diabetes, but face a two-fold increased mortality risk for infectious diseases, with risks for mortality from HIV and tuberculosis even higher.[25] However, few studies have focused on the most vulnerable migrant groups such as asylum seekers, refugees, and undocumented migrants.[28] In addition to an increased mortality risk for infectious diseases,[18] data suggest that migrants might present late[29–32] and have worse outcomes,[33] which could lead to increased transmission within migrant communities.[34]

Before the COVID-19 pandemic, migrants to the EU or EEA comprised a third of all tuberculosis cases in the region in 2019.[12] Reactivation of latent tuberculosis infection among migrants is an important determinant of tuberculosis epidemiology in Europe, which has driven national policies for identifying and treating latent tuberculosis infection in migrants to achieve targets to reduce tuberculosis incidence.[35,36] Similarly, 44% of people diagnosed with HIV in Europe in 2019 were migrants.[13] Data on hepatitis B and hepatitis C virus prevalence are more limited. However, the ECDC estimates that hepatitis B virus (ie, HBsAg positive) prevalence in the general population in EU or EEA countries is 0–7·5% (data from 38 studies) and 1·7% in the UK (as an example country of settlement).[37] Hepatitis B virus prevalence for first-generation migrants to EU or EEA countries is 0–5·6% among migrants from the east Mediterranean region, 0–5·0% from south Asia, 0·3–20·0% from southeast Asia, 0–11·7% from eastern Europe, 0–5·6% from Latin America, and 0–22·2% among migrants from sub-Saharan Africa. Hepatitis C virus (ie, anti-hepatitis C virus antibody positive) prevalence in the general population in EU or EEA countries is 0–27·6% (data from 41 studies) and 0·4–1·2% in the UK (data from two studies).[37] Hepatitis C virus prevalence for first-generation migrants is 0–3·0% among migrants from the east Mediterranean region, 0–9·6% from south Asia, 0·6–1·6% from southeast Asia, 3·1–9·3% from eastern Europe, 0–10·0% from Latin America, and 0–19·2% among migrants from sub-Saharan Africa.[30,37]

Migrants are also more likely to be under-immunised and face greater disease burden, disability, and deaths from vaccine-preventable diseases than the host population in countries of settlement.[38] They might present with incomplete vaccination histories and missing documentation of previous vaccinations, presenting challenges to assessing vaccination status.[38] For example, unaccompanied minors (ie, children and adolescents younger than 18 years who migrate without being accompanied by a legal guardian)[39] have particularly low vaccination coverage or knowledge of coverage, which could be due to constant movement, disruption, and emergencies in their countries of origin.[40–42] Low immunisation rates have implications for the individual and for public health. As vaccine coverage falls below the herd immunity threshold, migrants and the wider community become at higher risk of infection.[42]

COVID-19 might have increased vulnerability to other infectious diseases including tuberculosis, HIV, viral hepatitis, and vaccine-preventable diseases. As efforts for detection and treatment of other infections have been reduced, resources have been diverted towards COVID-19 containment, and health-seeking behaviours have changed.[43] Migrants might disproportionately face COVID-19-mediated vulnerabilities because of increased unemployment and loss of income limiting access to food, housing, and health-care services, increasing susceptibility to infectious disease acquisition (eg, associated with employment roles, housing, transportation, or ethnicity), and concomitant morbidity and mortality.[16,17]

Effectiveness of existing migrant screening and vaccination programmes in Europe

Although many European countries have guidelines on infection testing and vaccination, they have a limited focus on migrants, are highly heterogeneous, and there is a clear disconnect between their recommendations and actual clinical implementation.[8,44–48] The vast majority of testing programmes focus on tuberculosis alone, specifically for asylum seekers and refugees.[49] This approach misses opportunities to engage other at-risk migrant groups and might not adequately address multimorbidity or other key risk factors such as migration trajectory, reason for migration, or origins in countries with high infection prevalence or limited preventive health care.[50] Furthermore, as routine services

became restricted during the COVID-19 pandemic, migrants have faced additional barriers accessing new systems.[17]

The focus of migrant screening for infectious diseases has now moved from historical and poorly functioning port-of-arrival screening to a variety of initiatives including pre-entry screening and community-based case detection and vaccine catch-up approaches in countries of settlement.[46] This framework shift takes a longer-term view about when and where to offer testing to maximise testing uptake, linkage to care, and treatment uptake and completion.[35] It could help tackle high rates of loss to follow-up at each stage of the care pathway,[49] which are exacerbated by complex testing and treatment pathways, requiring migrants to make multiple visits to health-care facilities, often to see different specialists, insufficiently considering their needs or showing appropriate cultural adaptations.[23,51] However, pre-entry screening might be heterogeneously implemented, miss undocumented migrants, discriminate against those testing positive, and miss infection acquired in transit, while the effectiveness of many community-based programmes needs to be more robustly tested in a range of settings, and programmes have been heterogeneously implemented.

Similar problems exist for vaccination programmes. Vaccination of migrants in host countries is suboptimal, with only a quarter of European countries having vaccination policies in place specifically for migrants.[38,52–55] Few programmes target older (ie, those older than 45 years) migrants who might have missed their childhood immunisations due to war and other disruptions to health-care systems in their countries of origin. Undocumented migrants are at particular risk of missing prenatal screening checks and postnatal infant immun-isation programmes.[56]

Multiple barriers exist to vaccine delivery including little clarity around how to deliver culturally appropriate vaccination programmes, who has responsibility for vaccinating migrants, which groups should be targeted, and when and where immunisations should be delivered.[38,52]

Designing migrant-responsive infectious diseases testing and vaccination programmes

Tackling infectious diseases in migrant communities requires a holistic approach, codesigned with migrant communities, and integrating public health and the whole care pathway to be part of universal health coverage. This framework should encompass accessibility of health services through to treatment and follow-up, to have a positive effect on migrant health.[23]

Where to screen and vaccinate

For some migrants, finding appropriate time and transportation to access screening, treatment, and vaccination services might be difficult, suggesting that focusing these activities in just one location will limit success. Multiple opportunities to offer screening and vaccination are needed, including health-care settings such as emergency departments and primary care, as well as other community settings such as educational establishments and use of mobile x-ray vans.[10,57] A 2020 review[58] summarised the range of interventions that have been evaluated to reduce the burden of vaccine-preventable diseases among migrants, focused at the individual (to facilitate uptake), community (to raise awareness), provider (to offer health services), or system (to increase compliance with recommendations) level. Individual-level interventions include reminder communications, post-test counselling and referrals to improve linkage to care, and digital apps to track vaccination histories for newly arrived migrants or those in transit. Community-level interventions include education campaigns and initiatives to improve access, such as using convenient vaccination and screening locations and using cultural strategies, including directly engaging with community members and community-based organisations to design and deliver programmes. Provider-level interventions are based in health-care settings and include holistic health assessments such as multiple infectious disease testing. System-level interventions generally involve activities to increase compliance with screening, treatment, and vaccination.

Migrant infectious disease testing has often been non-uniformly implemented and disconnected from national health systems. In the UK, initiatives exist for secondary care-based and community care-based services for tuberculosis infection testing and treatment beyond primary care,[59–62] but they are not sufficiently linked to the national tuberculosis programme, although the recent introduction of migrant latent tuberculosis infection screening programmes in England represents an attempt to formalise post-arrival community migrant testing processes.[63] This programme has driven the implementation agenda forward, but it remains focused on latent tuberculosis infection, and as it identifies migrants through primary care, it fails to reach migrants who do not or cannot access primary care services.

Scope of services

Previous, small-scale migrant screening studies and studies in non-migrant populations suggest that by normalising delivery of a routine package of infectious diseases testing and vaccination to migrants, they can be proactively tested and vaccinated for infectious diseases that might otherwise be missed.[57,60–62] Providing all services at one timepoint minimises loss to follow-up and presents an opportunity to integrate migrants into the health-care system to support treatment uptake and completion, as well as routine care. A further, future step could be to integrate infectious disease screening and management within a more general service, including screening and management of diabetes, hypertension,

and other non-communicable diseases, providing a multitude of health-care services, facilitating uptake by streamlining patient visits.

Barriers to accessing preventive health services for migrants in the era of universal health coverage

In some countries, there are restrictions on the provision of health care to some migrants (ie, undocumented migrants and migrants without insurance), and those countries that do provide health care often limit it to emergency care rather than ongoing, community-based, preventive health care such as infection screening or vaccination, or restrict availability of services creating barriers to access.[7–9] Such an approach does not represent universal health coverage.[7,64]

In a 2009 survey of undocumented migrants' access to health care, EU member states found that in only five countries was their right to access health care more extensive than emergency care. In 12 countries, undocumented migrants could only access emergency care and in ten countries, not even emergency health care could be accessed.[65] More recently, a 2017 report from the European Network to Reduce Inequalities in Health found that of more than 40 000 migrants surveyed from across Europe, half did not have access to any health care, and a fifth only had access to emergency care.[7] Moreover, there are examples of countries using restrictive policies including lengthy administrative procedures, which impair access to care,[66] upfront charging, and immigration services requiring health services to share personal identifiable data for immigration enforcement purposes, with the aim of tracking, and potentially expelling, migrants.[67,68]

Universal access to health is declining in Europe.[7] For example, in 2014, the Department of Health for Ireland published a white paper stating its commitment to universal health coverage,[69] but in 2016 this commitment was dropped,[70] deemed unaffordable.[71] Both Germany and the UK have implemented registration requirements, which increase the risk of undocumented migrants being referred to the Immigration Office when accessing health care.[72–74] In addition, Germany has restricted access to social services, including health care, for certain EU citizens (eg, people coming from new EU member states, those who are unemployed, and those who do not have sufficient means to support themselves).[75] However, in contrast, although Spain discontinued universal health coverage in 2012 by restricting health care for undocumented migrants to emergency care only (ie, Royal Decree Law 16/2012), in the face of considerable opposition, it was re-established in 2018.[76]

Data from four cohorts across 10 European countries have identified migrant women as being at higher risk of HIV diagnosis in late pregnancy, when undiagnosed at conception, and that for women with antenatal diagnosis, 49% of migrant women had CD4 counts less than 350 cells per mm³ compared with 30% of non-migrant women,[77] suggesting that pregnancy is an important opportunity for undiagnosed migrants to learn their HIV status. Studies from France[78] and Italy[79,80] showed migrant women are more likely to receive late HIV screening or inappropriate antenatal care compared with non-migrant women, with higher rates of mother-to-child HIV transmission in migrant women. Identified barriers to accessing maternity care include trust in health-care providers, financial costs both of care and transportation, the perceived necessity of care, previous poor experiences with health-care providers, fear of deportation, little or no familiarity with the health system, being unaware of their entitlements to health care, not having the necessary documentation, little flexibility regarding timing and location for appointments, and language barriers.[81] All these factors can be applicable to all migrants, and deter them from seeking health care, making proactively delivering screening and vaccination programmes to this already underserved group more difficult.

Some migrant groups might have specific requirements for access to screening and vaccination services. Unaccompanied minors are a vulnerable population often left unprotected by their host country because they are not considered to be minors.[82] They must negotiate health systems without family support and could be at elevated risk of infection through their vulnerability, dangerous migration routes, and substandard living conditions.[40,82] For example, a 2017–18 study of unaccompanied minors attending a dedicated migrant medical consultation service in Paris, France, showed that 87% had a health problem and 52% had an infectious disease (schistosomiasis [22%], latent tuberculosis infection [22%], intestinal parasitosis [16%], chronic hepatitis B [8%]; median age 15 years [interquartile range 14–16 years]).[83] Of 776 unaccompanied minors from high-prevalence countries, 8% tested positive for hepatitis B in a 2016–17 cross-sectional study in Germany.[84]

Away from the system-level barriers to health care, some migrant populations can have additional personal barriers that adversely affect uptake of preventive health care including language barriers, poor health literacy, little or no knowledge and information about infection screening and vaccination, competing non-health concerns including employment, housing, and legal status, and other health concerns such as mental health.[23] Therefore, it is important that soon after arrival, migrants are provided with accessible information about infections, with countries of settlement implementing proactive registration systems to facilitate migrants' access to all health-care services required, and are linked into appropriate preventive health-care services.

Evidence gaps

Acknowledging gaps in our understanding and evidence base is important, so that our approach to migrant infectious diseases testing and vaccination is feasible and tractable. A summary of key evidence gaps for effective

implementation of ECDC (2018) guidance,[10] stratified by infection, has been published;[26] aligning with this guidance, we present an ecosystemic model of such gaps, moving from micro-level (ie, individual) factors, through meso-level (ie, community and services), to macro-level (ie, national and systemic) factors (panel).

Notable among these gaps are levels of health-care use by country and migrant group, which is particularly poor for undocumented migrants.[85] For example, a 2018 ECDC technical report stated that only seven countries in the European region provided data on HIV testing rates for migrants.[85] Some of these were for specific migrant groups only, and only Greece was able to report rates for undocumented migrants. No reporting countries were able to provide data for 2017, showing that, even where data are collected, monitoring is insufficiently frequent. Data are even more sparse on the health and health-care use of specific migrant groups, such as unaccompanied minors.[40]

A recent narrative review identified many policy documents highlighting the importance of strengthening approaches to data collection on migrant status in health systems across Europe, to provide a regional evidence base on tuberculosis, HIV, and viral hepatitis in migrants for monitoring and evaluation within national health systems.[8] WHO has highlighted an urgent need to standardise data collection tools and integrate migration health data into every national health information system.[86] Such an approach would increase migration health data availability and support data comparison with the host population.

Defining a roadmap for migrant screening and vaccination for infectious diseases

Clinicians, public health specialists, researchers, and civil society organisations should consider defining an achievable roadmap for access to preventive screening and vaccination for vulnerable migrant populations (figure). Key to the delivery of this roadmap are the principles of universal health coverage.

There continue to be shortfalls in funding for migrant-specific research,[87] and therefore, currently, only small-scale studies attempt to answer research questions, with limited scope and generalisability. Commitment is required to provide sufficient funding for universal health coverage for all migrants, including undocumented migrants, plus dedicated funding with funding bodies developing more structured funding streams[87] for research to address the evidence gaps highlighted in the panel and by Noori and colleagues.[26]

In settlement countries, we need to ensure that community-based health-care services, which already interact with migrants, deliver combined infection testing, and that vaccination records are reviewed and appropriate catch-up vaccinations are provided. How best to deliver these activities will require the integration of health-care services; effective sharing of medical records between countries of origin, transit countries, and settlement countries; and operational, migrant-specific research. Clinicians and policy makers should work closely with migrant communities to codevelop

Panel: **Knowledge gaps relating to migrant testing for and vaccination against infectious diseases—avenues for future research**

Migrant or client factors

- Views of migrants to being offered combined, universal infection testing and targeted testing based on estimated risk of infection
- Effect on test acceptance of integrated testing
- Identification of barriers and facilitators for effective uptake of screening and vaccination, plus treatment initiation and completion to include:
  - When to screen and vaccinate (ie, pre-entry, upon arrival, or later)
  - Importance of venues for each service (eg, primary care, emergency and walk-in services, or community sites such as pharmacies, community organisations, etc)
  - Ensure appropriate cultural sensitivity is incorporated into all programme designs
- Differences in migrant factors by migrant group (eg, asylum seekers, refugees, unaccompanied minors, and pregnant and lactating women)

Provider factors

- Importance of migrant health as a public health issue
- Adequacy of resources (ie, financial and non-financial)
- Knowledge and education about migrants and infectious disease risk (how to effectively translate research into policy and practice and share best practice on implementing migrant health programmes)
- Views of health-care practitioners

Infectious disease epidemiological factors

- More robust estimates of infectious disease prevalence among migrants by migrant group (eg, refugees and asylum seekers), age, country of birth, and sex, to indicate which groups of migrants are at highest risk of infection (how to facilitate better data collection and sharing across Europe)

System factors

- Selection of which migrants to test for infectious diseases (ie, combined, multiple infection testing for all *vs* targeted testing of those at highest risk of infection)
- Effect of offering combined, multiple infection testing on test uptake
- Effect of integrated testing on linkage to care
- Cost-effectiveness of combined testing
- Funding for migrant health services

Public health factors

- Mode of delivery of public health messages to migrants
- Effect of public health messages

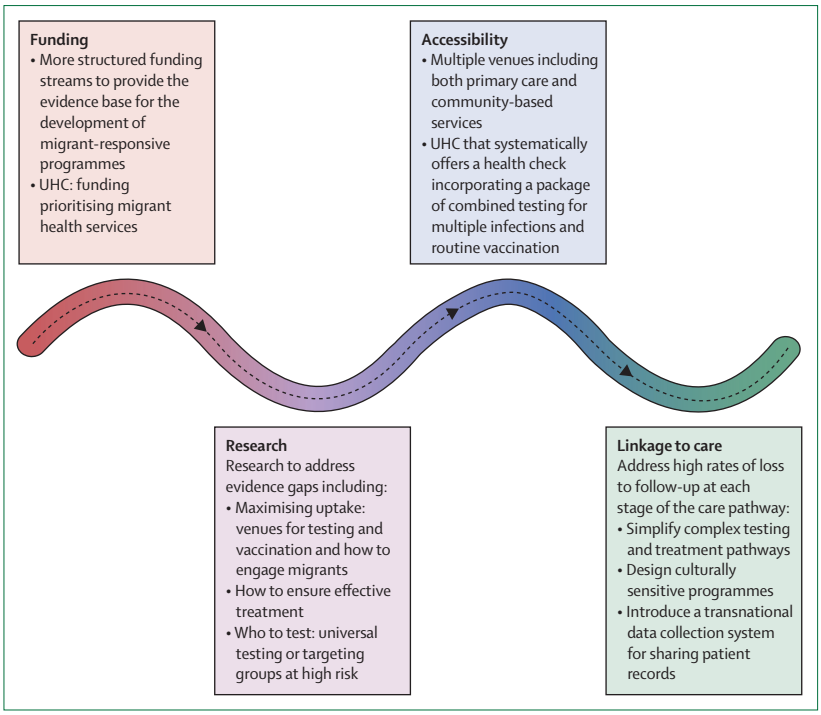

Figure: **A roadmap for integrated infectious diseases screening and vaccination of migrants**
UHC=universal health coverage.

culturally appropriate, streamlined, innovative pathways of care that consider which specific tests and vaccines to offer, who should be targeted, and where best to offer testing and vaccination including novel venues such as non-traditional health-care settings, third sector organisations, places of worship, places of employment (such as factories), and outreach to educational establishments. Only through working with migrants to codesign such interventions can barriers to access and engagement be adequately addressed. The feasibility of these pathways should be evaluated through rigorous testing to provide the required evidence on their effectiveness and cost-effectiveness, with results on best effective practice disseminated to share the evidence base across countries and regions. Initiatives need to be implemented coherently, rather than ad hoc services running across different regions, leading to inconsistency and patchy coverage.

Challenges to implementing these initiatives include situations with a mass influx of migrants such as experienced by several countries bordering Ukraine (eg, Poland, Hungary, and Slovakia) where an integrated health response must be planned that will not overwhelm national health systems. The current situation in these countries is further complicated by uncertainty as to how many refugees from Ukraine will remain, and how many will continue their journey to other European countries,[88] as well as suboptimal vaccine coverage preceding the conflict including a recent poliomyelitis outbreak.[89] WHO is working with the Polish health-care system to set up digital data gathering services, track COVID-19 vaccinations, allow prescriptions to be migrated between the two health-care systems, and notify departing refugees of what they need to bring with them to ensure continuity of care. This approach shows how improved data collection and sharing can be implemented, even in settings with such a disrupted landscape of migration.[88]

If migrants take up screening and vaccination, considering that a decision to test mandates a decision to refer and, if required, offer treatment and ensure continued engagement is important.[10] European countries will need to ensure that as part of universal health coverage, appropriate, migrant-responsive, and culturally sensitive specialist services are in place, codesigned with migrants, which allow migrants to access and complete treatment.[24] A post-testing care pathway should be simple for health-care professionals to navigate, and holistically seek to address the diverse barriers experienced by migrant communities. Migrants testing positive should be referred for consultation in a migrant-friendly clinic (ie, community-based or primary care-based, depending on gathered evidence) run by a physician competent to manage the entire range of infections rather than having to see different clinicians for each infection. However, parallel, migrant-specific systems should be avoided as they introduce inefficiencies and risk further stigmatising and marginalising already underserved groups. Rather, a hybrid approach in which existing services are augmented to incorporate migrant health as a key component are to be encouraged. Such systems should include the management of a range of infections, the ability of patients to access multiple languages, and the provision of culturally sensitive and appropriate literature.

By eliminating barriers to uptake and treatment completion identified through the preceding research, this streamlined protocol would increase both screening uptake and the effectiveness of screening and treatment services. Furthermore, dedicated migrant clinics of this kind would allow for routine provision of care in migrants' preferred languages. This latter consideration has been identified as a factor in facilitating an effective service, allowing for improved communication and increased emphasis on the importance of screening and adherence to treatment, minimising dropout rates from the investigation and treatment pathways.[49] Although the roadmap implies a linear progression through enhanced funding, research, implementation of combined testing, and improved linkage to care, in practice this process will be iterative with refinements to be made as our understanding of the most effective approaches to screening and vaccination increases.

Conclusion

Universal health coverage is a right for all individuals, yet often in Europe it is not meaningfully afforded to all

Search strategy and selection criteria

We searched PubMed and Google Scholar for articles and reports in any language published between database establishment and April 1, 2022. Search terms included words relating to migrants and migration, those for specific infections including "tuberculosis", "HIV", and "viral hepatitis", and "vaccination" OR "immunisation and testing" OR "screening programmes". We also reviewed the reference lists of relevant publications.

migrants. Some groups of migrants, including asylum seekers, refugees, undocumented migrants, victims of trafficking, and some economic migrants in unskilled, low paid employment, continue to be marginalised and bear a disproportionate burden of infectious disease morbidity and mortality. Post-COVID-19 constraints on global health-care systems risk exacerbating these challenges. Systems in place to test for infection and deliver vaccines are constrained by working in silos and are therefore failing to ensure the maximum effect on migrant populations. Although evidence is starting to accumulate on how best to deliver infection screening and vaccination programmes, further research is a priority. Nonetheless, ECDC guidance has been a step-change in this area, and we have outlined a roadmap to take this guidance further to codesign with migrants effective, cost-effective infectious diseases testing and vaccination programmes, which are integrated within health systems yet designed to remove barriers to access, have high acceptability to target users, and are implemented coherently across regions and with effective linkage to care. This approach must be coupled with a change in how we assess and deliver preventive health care around infection to migrants if we are to reduce the disproportionate burden of infectious diseases.

Contributors

MP, LBN, SH, and JSF conceived the article, which was drafted by RFB and MP with substantial inputs over multiple revisions by all authors including DZ, PB, CG, and TN.

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