PRE-MIGRATION HEALTH ACTIVITIES

2021 OVERVIEW

FIRST LINE OF DEFENCE

IOM
UN MIGRATION

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Cover photos: Migration health assessment takes place at the IOM migration health centre of Mae Sot, Thailand. ©IOM 2022/Raber AZIZ.
An IOM nurse performs a COVID-19 PCR test in Nairobi, Kenya. ©IOM 2022/Raber AZIZ

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FOREWORD

The year 2021 marked 70 years since the inception of IOM. Pre-migration health activities (PMHAs) have been continuously delivered to beneficiaries since day one, through the Organization's Migration Health Assessment Programme (HAP). The anniversary provided us with an opportunity to reflect on our progress in supporting and promoting the health and well-being of migrants and host communities globally, from the earliest days after World War II through to the challenging COVID-19 context.

Though the ongoing pandemic continued to impact operations in 2021, IOM's HAP drew on lessons learned from 2020 and demonstrated flexibility and resourcefulness to build back better in the "new normal". Though many operations had to be suspended early in the COVID-19 crisis, the caseload rebounded to exceed pre-pandemic levels, achieving the highest annual number in decades. As travel resumed in many parts of the world and infection prevention and control procedures were implemented, IOM endeavoured to facilitate the safe movement of migrants, including refugees, in collaboration with partners.

With the emergence of new SARS-CoV-2 variants and differing epidemiological trends globally, IOM HAP maintained support to the United Nations (UN) through the "First Line of Defence" (FLoD) framework. This framework built on existing PMHA capacities and expertise and aimed to enable UN front-line staff to stay and deliver, often in humanitarian settings with limited health-care services. By the end of the year, following a successful response in 2020–2021, opportunities to expand the initiative were being developed with partners to ensure continuity of services.

The development of COVID-19 vaccines offered hope for recovery from the pandemic. In several countries engaged in FLoD, IOM drew on its longstanding experience with vaccination delivery to support the UN System-wide COVID-19 vaccination programme with the logistical and direct administration of vaccines. Additionally, IOM explored the possibility to provide COVID-19 vaccination as part of its PMHAs for migrant and refugee beneficiaries. The IOM migration health assessment centre (MHAC) in Nairobi, Kenya, was the first to secure approval from the Government for this purpose.

The year 2021 also saw the escalation of the crisis in Afghanistan, with a profound impact on mobile and displaced populations. In close collaboration with partners, IOM provided PMHAs, including vaccination and health-related travel assistance, for the resettlement or relocation of many Afghan refugees and Special Immigrant Visa persons from Pakistan, Qatar and several countries in Central Asia and Europe.

This report presents highlights and achievements from missions involved in IOM PMHA and FLoD programming worldwide throughout 2021. We extend our deepest appreciation to our staff, who have worked relentlessly to deliver high-quality services, as well as our donors and partners for their unwavering support.

Jacqueline Weekers
IOM Migration Health Director

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LIST OF ACRONYMS

AVRR	assisted voluntary return and reintegration
CDC	Centers for Disease Control and Prevention (of the United States of America)
COVID-19	coronavirus disease 2019
CXR	chest X-ray
DICOM	digital imaging and communications in medicine
DOT	directly observed therapy
DST	drug susceptibility testing
FAP	family assistance programme
FLoD	First Line of Defence framework
GIRS	Global Incident Reporting System
HAP	Migration Health Assessment Programme (of the International Organization for Migration)
HIV	human immunodeficiency virus
IAP	IOM-affiliated panel site
IGRA	interferon gamma release assay
IHAP	Inbound Health Assessment Programme (of Sri Lanka)
IOM	International Organization for Migration
LIMS	laboratory information management system (of IOM)
MAF	medical assessment form
MDR-TB	multidrug-resistant tuberculosis
MHA	migration health assessment
MHAC	migration health assessment centre (of IOM)
MHD	Migration Health Division (of IOM)
MiMOSA	Migrant Management Operational Systems Application (of IOM)
PACS	picture archiving and communication system
PDE	pre-departure evaluation
PDMP	pre-departure medical procedures
PEC	pre-embarkation check
PMHAs	pre-migration health activities
SARS-CoV-2	severe acute respiratory syndrome coronavirus 2
SOP	standard operating procedure
TB	tuberculosis
TST	tuberculin skin test
UKTB GS	United Kingdom Tuberculosis Global Software
UN	United Nations
UNHCR	United Nations High Commissioner for Refugees
USRAP	The United States Refugee Admissions Program
XDR-TB	extensively drug-resistant tuberculosis

PRE-MIGRATION HEALTH ACTIVITIES OVERVIEW

BACKGROUND

Pre-migration health activities (PMHAs) are one of the longest-standing services offered by IOM, delivered through IOM's Migration Health Assessment Programme (HAP) at the request of receiving country governments since 1951. Consisting of various related services, PMHAs may involve several phases. These include initial migration health assessments (MHAs), usually undertaken three to six months before departure or as close as a few weeks prior; pre-departure medical procedures (PDMP), including a pre-departure evaluation (PDE), undertaken one to three weeks before departure, and pre-embarkation checks (PECs) taking place one to three days before departure; travel; and post-arrival care. There may also be an interim period before departure to allow for interventions such as the management of conditions detected and stabilization care.

PMHAs are carried out for purposes of resettlement, obtaining a temporary or permanent visa, international employment, specific migrant assistance programmes and during post-emergency relocation.

KEY DEFINITIONS

Pre-migration health activities (PMHAs): An array of procedures undertaken in the context of regular international migration aimed at achieving at least one of the following objectives: (1) identifying health conditions of public health importance in relation to specific country legislation and International Health Regulations, (2) providing continuity of care linking pre-departure, travel and post-arrival phases, (3) establishing fitness to travel[1] to another country, (4) improving the health of migrants before departure to another country through the provision of preventative or curative care, and (5) minimizing or mitigating public health risks related to mobility.

PMHAs may contain any number of screening, diagnostic, treatment or preventive services, as well as health-related travel assistance. They can include either or both of the following elements:

Migration health assessment (MHA): An assessment of the physical and mental health of migrants conducted by a clinical team inclusive of a physician as part of the pre-migration process. *Note: Though MHAs only represent one element of PMHAs, it is the service that is used to quantify the magnitude of PMHAs delivered through the HAP.*

Pre-departure medical procedures (PDMP): An array of procedures implemented shortly (hours to weeks) before a migrant's departure aimed at preparation for safe and dignified travel and adjusted for individual health needs; PDMP may also include the provision of additional public health interventions, such as vaccination, health education and counselling, surveillance for communicable diseases, testing and treatment for parasites, and more. PDMP include the following components:

- **Pre-departure evaluation (PDE)**: The physical reassessment of a migrant's physical and/or mental health condition with the potential for deterioration and, if necessary, referral for stabilization treatment to assist in the readiness and ability to travel. PDE is usually performed one to three weeks before departure.
- **Pre-embarkation check (PEC)**: A final action to assess migrants' fitness to travel, ensuring that the individual does not pose any health threat to themselves and/or to other persons encountered. PEC consists of a review of any previous MHA, a medical check, including brief history, review of vital signs and physical examination by a medical practitioner and, if necessary, additional tests or referrals to establish fitness to travel and exclude conditions of public health concern. PEC is performed within 24 to 72 hours before departure.

[1] Fitness to travel describes a state of physical and mental health that enables a person to travel safely, with no significant risk of deterioration under normal circumstances and with no risk of jeopardizing the safety or well-being of themselves or other passengers.

Figure 1. 2021 PMHA key figures

2021 KEY FIGURES

69
IOM migration health assessment centres (MHACs) globally

950+
Health staff engaged in pre-migration health activities

34
IOM laboratories worldwide, including **9** IOM TB containment laboratories*

2
Teleradiology centres networked to **121** locations worldwide

10,782
DNA samples were collected in IOM MHACs across **36** countries worldwide to facilitate family reunification

75,532
Refugees and immigrants vaccinated, with **200,554** total doses administered

512
Active TB cases were detected as part of the MHA process. **256** patients **(50%)** were provided treatment by IOM while the rest were referred to national TB programmes.

396,951
Chest X-rays were taken as part of the MHA process, of which **14,289 (3.6%)** had abnormal findings suggestive of TB.

480,842
Migration health assessments conducted worldwide (**82%** among immigrants and **18%** among refugees)

617
Refugees with significant medical conditions travelled to their countries of destination under the care of a medical escort.

*IOM TB containment laboratories provide sputum microscopy and culture for the detection of tuberculosis.

IOM HAP FOOTPRINT

IOM undertakes PMHAs through 69 IOM migration health assessment centres (MHACs) located in 49 countries across Africa, Asia, Europe and the Middle East and North Africa. In addition, there are mobile teams, which conduct PMHAs for refugees in remote areas. IOM also outsources some services from collaborating clinics and laboratories, and provides technical, logistical and administrative support to non-IOM providers implementing PMHAs (see Figure 2 for the global footprint). While most of these activities occur prior to migration, in addition to its traditional pre-migration activities, IOM also provides MHAs post-arrival for migrants applying for resident visas in Sri Lanka, through its Inbound Health Assessment Programme (IHAP).

Since 2000 alone, IOM has provided or assisted the delivery of MHAs for over 5.4 million migrants[2] on behalf of more than 30 destination countries, in over 90 countries across Africa, Asia, Europe, Latin America and the Middle East and North Africa. Overall, despite some fluctuations, most notably in 2020 due to the COVID-19 pandemic and related restrictions on movement within and across country borders, caseload trends have demonstrated an overall increase over the past 10 years. As travel slowly resumed in much of the world in 2021, IOM's routine PMHAs demonstrated a remarkable recovery from 2020, with more than 480,000 IOM and IOM-assisted MHAs conducted globally, covering immigrants (81.8%) and refugees (18.2%). This represented the highest number of MHAs in decades and a 77.4 per cent overall increase since 2020, with a 74.8 per cent overall increase among refugee MHAs, and a 78.0 per cent increase among immigrant MHAs. The 10-year trend is illustrated by region of MHA and country of destination in Figures 9 to 12 in the Annex.

The main destination countries for migrants assisted by IOM in 2021 were the United Kingdom (50.8%), Canada (22.2%) and the United States of America (14.2%). Most MHAs were provided in Africa (43.8%), followed by Asia (39.8%) and the Middle East and North Africa (9.3%). A detailed breakdown is presented in Table 1 and Figures 13 and 14 in the Annex.

Profile of immigrants

The MHACs in Nigeria (26.6%), Pakistan (15.1%), and Sri Lanka (6.8%)[3] accounted for most MHAs for immigrants conducted in 2021. The top destination countries were the United Kingdom (61%), Canada (20.8%) and the United States (8.5%). Of the MHAs conducted, 48.9 per cent were for females and 51.1 per cent for males. Most MHAs were among immigrants under the age of 40 (84.4%), with the highest proportion in the 20–29 age group (see Figure 15 in the Annex).

Profile of refugees

Most MHAs among refugees in 2021 were conducted in Jordan (10.9%), Türkiye (10.1%) and Lebanon (8.9%). The top destination countries were the United States (39.5%), Canada (28.8%) and Australia (10.1%). The sex distribution was similar to that of immigrants, with 48.8 per cent of MHAs conducted among females and 51.2 per cent among males. Most MHAs were among refugees younger than 40 (82.3%), with the highest proportion in the 10–19 age group (see Figure 16 in the Annex).

[2] For the purposes of this document, "migrant" is considered as an overarching category, broken down into "immigrants" (such as international students, labour migrants, and other categories) and "refugees" (i.e. humanitarian entrants).

[3] Of the total immigrant caseload for Sri Lanka, 47.7 per cent were MHAs conducted as part of the IHAP, provided for resident visa applicants soon after arrival to Sri Lanka.

Height measurement prior to a migration health assessment at an IOM MHAC in Nigeria. © IOM 2021

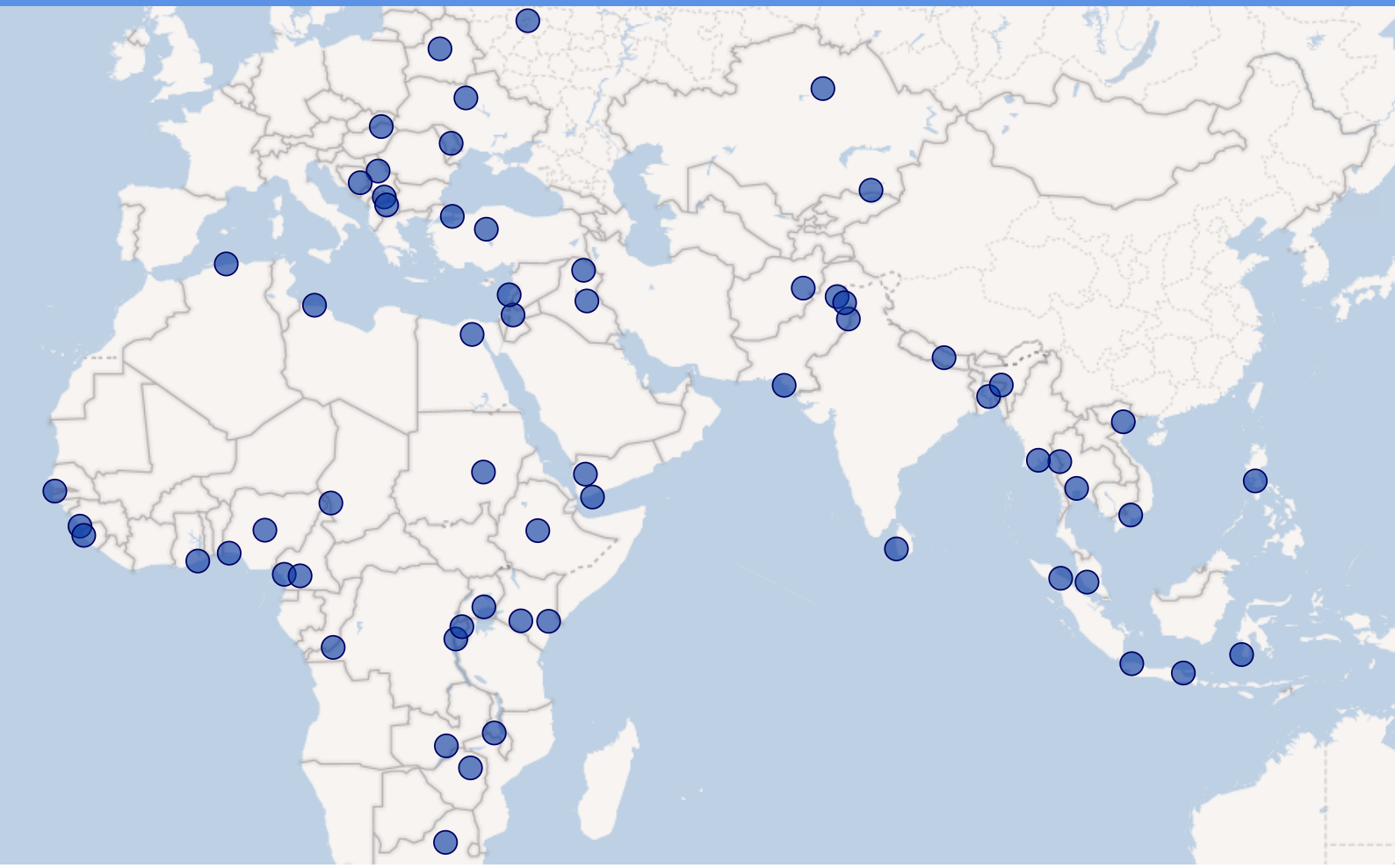
HAP CONTRIBUTION TO THE AFGHANISTAN EMERGENCY RESPONSE

Following the deterioration of the security situation in Afghanistan, IOM operations within the country were abruptly suspended, including the IOM MHAC in Kabul; there were also significant refugee outflows to various third countries. Complex coordination and rapid scale-up of operations were required to respond to the humanitarian needs, including health needs. This included support to the health aspects of durable solutions (resettlement and relocation) in Afghanistan, Pakistan, Qatar and several countries in Europe and Central Asia, such as Albania, North Macedonia, Tajikistan and Kosovo,[4] among others.

To support the provision of PMHAs for Afghan nationals on behalf of several receiving countries, it was necessary to identify innovative ways to respond in complex operating environments, particularly in Europe and Central Asia, where IOM HAP capacity was limited. Support was carried out through a variety of means, depending on the country's existing HAP capacity, including through IOM MHACs, the engagement of regional HAP staff for mobile missions and collaboration with non-IOM panel physicians. Services included direct provision of MHAs, PDMP and the determination of travel requirements, including medical escort services where required, as well as coordination support and oversight of activities.

Toward the end of 2021, IOM also supported the establishment of a significant operation in Qatar as part of the United States Refugee Admissions Program (USRAP), deploying HAP staff from various regions to develop capacity to undertake PMHAs; it is estimated that approximately 2,000 humanitarian beneficiaries a month will be assisted under the arrangement over the course of 2022.

Figure 2. IOM HAP global footprint



Note: This map is for illustration purposes only. The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the International Organization for Migration.
Source: ©2022 Microsoft Corporation.

[4] References to Kosovo shall be understood to be in the context of United Nations Security Council resolution 1244 (1999).

HAP SERVICES AND CAPACITIES

Figure 3. Snapshot of IOM HAP capacities

69 IOM MHACs across **49** countries, with a network of partner facilities and mobile teams covering an additional **44** countries (total of **93** countries covered)

2 teleradiology centres networked to **121** locations worldwide

Approximately **30%** of IOM MHACs with IOM-owned X-ray units

Serology and other testing provided at **34** IOM laboratories

9 IOM TB containment laboratories

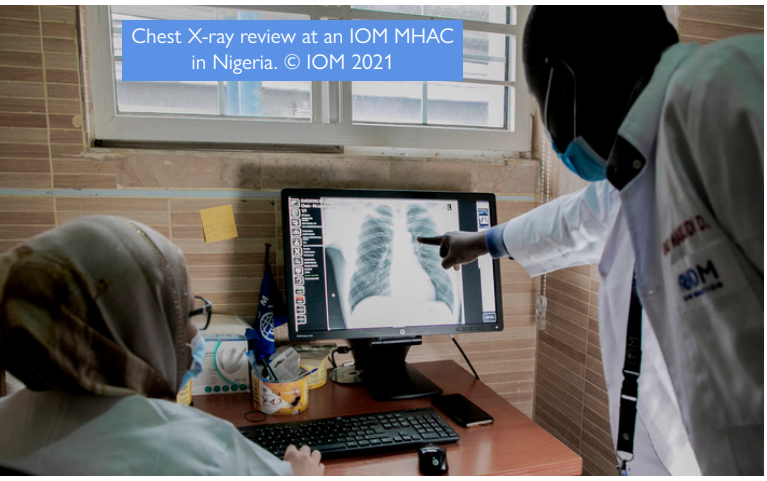
DNA sample collection services in **36** countries to facilitate family reunification

RADIOLOGY SERVICES

Chest X-ray (CXR) examination is the mainstay of imaging used for screening for tuberculosis (TB) and monitoring patient responses to TB treatment as part of PMHAs and is one of the main criteria for referral for laboratory investigations. Approximately 30 per cent of IOM MHACs provide CXR services through IOM-owned X-ray units, while all others are ensured through external providers; most sites are in countries with an intermediate to high TB burden.

IOM's radiology services use digital radiography systems producing digital imaging and communications in medicine (DICOM) images and high-resolution diagnostic monitors for CXR reading.

In 2021, 396,951 chest X-rays were taken as part of the pre-migration process, of which 14,289 (3.6%) had abnormalities suggestive of TB requiring further laboratory investigations.



Chest X-ray review at an IOM MHAC in Nigeria. © IOM 2021

Teleradiology

IOM's teleradiology programme was established in 2012 with the creation of the IOM global teleradiology centre, located in Manila, Philippines; a second regional teleradiology centre was established in 2016 in Nairobi, Kenya, to cover sub-Saharan Africa. The centres provide a quality real-time teleradiology programme that includes primary reading, second consultation, quality control and radiology support to IOM and non-IOM locations[5] across the world.

The teleradiology centres use global Picture Archiving and Communication System (PACS) networking and DICOM image transfer from IOM and non-IOM panel sites, innovative web-based teleradiology reporting applications and a live-chat system to provide teleradiology support.

As of December 2021, IOM's teleradiology centres were networked to 121 locations worldwide, including 94 IOM locations and 27 non-IOM panel sites. Of these, 57 locations across Africa were networked to the Nairobi teleradiology centre (49 IOM locations and 8 non-IOM locations), while the rest were networked to the Manila teleradiology centre (see Figure 4).

IOM's teleradiology centres interpreted a total of 295,969 CXR images in 2021, accounting for 74.6 per cent of the total CXR caseload. Of the images interpreted by the teleradiology centres, 129,766

[5] Non-IOM location/panel site: A facility providing migration health assessments with no IOM or IOM-affiliated panel physicians. Services such as teleradiology can be provided to these facilities by IOM on a contract basis.

(43.8%) were read in Manila and 166,203 (56.2%) in Nairobi. The remaining CXR caseload (100,982 or 25.4%) was read by IOM radiologists in different missions.

The global Manila teleradiology centre also provides a quality control service, which was established in 2015 to help operations identify gaps in the radiology service and implement corrective actions based on expert recommendations. In 2021, the teleradiology quality control programme covered a total of 41 locations, mainly on behalf of the United States and the United Kingdom. In coordination with governments, IOM's quality control service was provided to 11 non-IOM panel sites. The programme has also been used to analyse the CXRs for a collaborative computer-aided detection research study, and for machine learning for the United States Centers for Disease Control and Prevention (CDC) in-house development of artificial intelligence. In 2021, the global centre completed the development of a new comprehensive and advanced global teleradiology quality control system which allows quality control to be conducted for all migration health assessment programmes from IOM and non-IOM locations.

In 2021, to enhance the quality of teleradiology services provided, the centres continued to strengthen their internal monitoring through an internal peer review process for 10 per cent of cases from all locations assisted with primary reading, including analysis of performance indicators, regular training of consultant radiologists and support staff and regular consultations and image viewing sessions.

In addition, the Manila teleradiology centre provides global radiology support, including radiology workshops, web-based and on-site trainings for IOM and non-IOM locations, continuous professional development for consultant radiologists, development of guidelines, radiological technology expansion and direct technical support, radiology audit visits and feedback, research, policy recommendations and external collaborations with governments and global partners.

Figure 4. IOM Global Teleradiology PACS network as of December 2021

CONNECTED TO IOM MANILA TELERADIOLOGY CENTRE			
Abuja, Nigeria	Dadaab, Kenya	Kampala, Uganda	Medan, Indonesia
Accra, Ghana	Damak, Nepal	Karachi, Pakistan	Minsk, Belarus
Addis Ababa, Ethiopia	Damascus, Syrian Arab Republic	Kathmandu, Nepal	Mirpur, Pakistan
Aden, Yemen	Dar es Salaam, United Republic of Tanzania	Khartoum, the Sudan	Moscow, Russian Federation
Algiers, Algeria	Davao, the Philippines	Kyiv, Ukraine	Nairobi, Kenya
Almaty, Kazakhstan	Dhaka, Bangladesh	Kigali, Rwanda	Nauru, Nauru
Amman, Jordan	Dili, Timor-Leste	Kigoma, United Republic of Tanzania	Phnom Penh, Cambodia
Ankara, Türkiye	Douala, Cameroon	Kuala Lumpur, Malaysia	Port Moresby, Papua New Guinea
Baghdad, Iraq	Erbil, Iraq	Kyenjojo, Uganda	Pretoria, South Africa
Baguio, the Philippines	Farchana, Chad	Lagos, Nigeria	Pristina, Kosovo*
Bangkok, Thailand	Hanoi, Viet Nam	Lahore, Pakistan	Shire, Ethiopia
Beirut, Lebanon	Ho Chi Minh, Viet Nam	Lilongwe, Malawi	Surabaya, Indonesia
Bucharest, Romania	Hoima, Uganda	Lusaka, Zambia	Sylhet, Bangladesh
Bujumbura, Burundi	Islamabad, Pakistan	Mae Hong Son, Thailand	Tangerang, Indonesia
Cairo, Egypt	Istanbul, Türkiye	Mae Sot, Thailand	Timisoara, Romania
Cebu, the Philippines	Jakarta, Indonesia	Makassar, Indonesia	Tripoli, Libya
Chisinau, Republic of Moldova	Jerusalem, Israel	Makere, United Republic of Tanzania	Yangon, Myanmar
Chittagong, Bangladesh	Jijiga, Ethiopia	Manila, the Philippines	Yaoundé, Cameroon
Colombo, Sri Lanka	Kabul, Afghanistan	Manus, Papua New Guinea	
Da Nang, Viet Nam	Kakuma, Kenya	Mbarara, Uganda	

CONNECTED TO IOM NAIROBI TELERADIOLOGY CENTRE			
Abidjan, Côte d'Ivoire	Djibouti, Djibouti	Khartoum, the Sudan	Mbarara, Uganda
Abuja, Nigeria	Douala, Cameroon	Kigali, Rwanda	Mogadishu, Somalia
Accra, Ghana	Farchana, Chad	Kigoma, United Republic of Tanzania	Nairobi, Kenya
Addis Ababa, Ethiopia	Francistown, Botswana	Kinshasa, the Democratic Republic of the Congo	N'Djamena, Chad
Bangui, Central African Republic	Freetown, Sierra Leone	Kyenjojo, Uganda	Niamey, the Niger
Banjul, the Gambia	Gaborone, Botswana	Lagos, Nigeria	Nouakchott, Mauritania
Brazzaville, the Republic of the Congo	Harare, Zimbabwe	Lilongwe, Malawi	Pretoria, South Africa
Bujumbura, Burundi	Hargeisa, Somaliland	Lomé, Togo	Shire, Ethiopia
Cape Town, South Africa	Hoima, Uganda	Luanda, Angola	Windhoek, Namibia
Conakry, Guinea	Jijiga, Ethiopia	Lusaka, Zambia	Yaoundé, Cameroon
Dadaab, Kenya	Juba, South Sudan	Makere, United Republic of Tanzania	
Dakar, Senegal	Kakuma, Kenya	Maputo, Mozambique	
Dar es Salaam, United Republic of Tanzania	Kampala, Uganda	Mbabane, Eswatini	

* References to Kosovo shall be understood to be in the context of United Nations Security Council resolution 1244 (1999).

Laboratory technologist in the IOM laboratory in Manila, the Philippines. © IOM 2020

LABORATORY SERVICES

As of 2021, IOM HAP operates 34 in-house laboratories in 22 countries worldwide. In addition, IOM collaborates with external partner laboratories in several countries, particularly in Europe. All IOM and IOM-affiliated laboratories participate in internal and external quality assurance programmes and are regularly evaluated by IOM's Regional and Global Laboratory Coordinators.

In Africa, 19 laboratories are located in the following 12 countries: Burundi (Bujumbura), Cameroon (Douala, Yaoundé), the Democratic Republic of the Congo (Kinshasa), Ethiopia (Addis Ababa, Jijiga), Ghana (Accra), Kenya (Dadaab, Kakuma, Mombasa, Nairobi), Nigeria (Abuja, Lagos, Maiduguri), Rwanda (Kigali), South Africa (Pretoria), Uganda (Kampala), the United Republic of Tanzania (Makere) and Zimbabwe (Harare). In the Middle East and North Africa region, IOM operates two laboratories in Egypt (Cairo) and Jordan (Amman). In Asia and the Pacific, IOM operates 13 laboratories in the following eight countries: Bangladesh (Dhaka), Cambodia (Phnom Penh), Malaysia (Kuala Lumpur), Nepal (Damak, Kathmandu), Pakistan (Islamabad, Karachi, Lahore), the Philippines (Manila), Thailand (Bangkok, Mae Sot) and Sri Lanka (Colombo inbound and outbound programmes).

Laboratory services are integral to the health assessment process and differ in scope according to the receiving country protocol. All IOM laboratories have the capacity to perform simple lateral flow tests such as human immunodeficiency virus (HIV), hepatitis B and C, malaria, pregnancy and urine tests that do not require sophisticated laboratory instruments or complex infrastructure. These laboratories are normally equipped with basic laboratory equipment, such as a centrifuge, refrigerator, incubator and microscope in a dedicated laboratory area with minimal biosafety requirements.

More specialized equipment is needed to perform blood chemistry and interferon gamma release assay (IGRA) for TB infection. Most IOM laboratories are equipped with the multidisease cartridge-based rapid molecular platform GeneXpert (Cepheid) and have the capability to perform testing for TB, including drug-resistant forms using the Xpert MTB/RIF Ultra (Xpert Ultra) cartridge, perform Xpert CT/NG among certain groups at risk for chlamydia and gonorrhoea, and perform testing for SARS-CoV-2 using the Xpert Xpress SARS-CoV-2 cartridges.

Nine of the IOM laboratories in Africa and Asia are TB containment laboratories, conducting sputum smear microscopy and culture testing for the detection of TB. A sequencing platform installed in the IOM laboratory in Nairobi, Kenya, to enable the detection of SARS-CoV-2 variants as the COVID-19 pandemic evolved will play a role in the detection of mutations associated with resistance to the newer medicines used to treat drug-resistant TB as well.

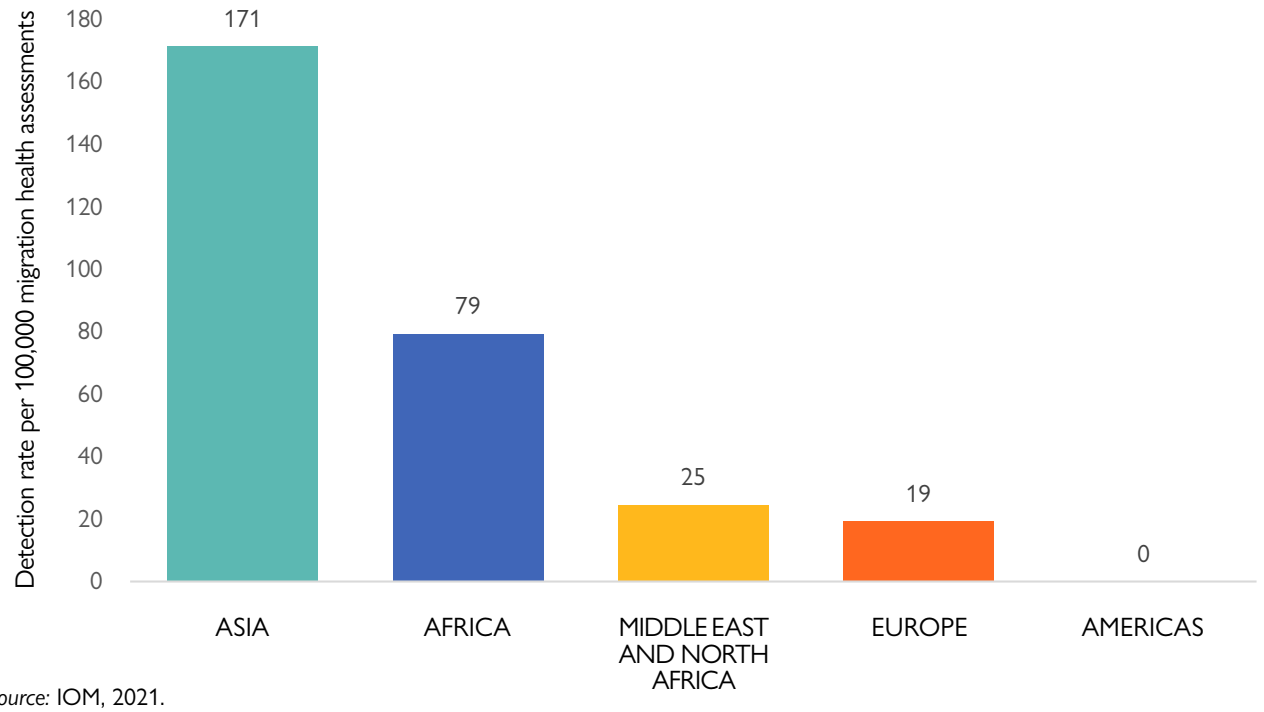
Tuberculosis diagnostics

Persons screened with radiological abnormalities consistent with active TB are required to submit sputum specimens collected on consecutive days, which are transported to the laboratory for smear microscopy, sputum culture and rapid molecular testing as needed. Drug susceptibility testing (DST) to the first-line and, if necessary, for other groups of anti-TB medicines, is performed on a cultured isolate from bacteriologically confirmed TB cases.

During 2021, laboratory investigations for TB were undertaken as part of 12,252 MHAs, leading to the diagnosis of 415 bacteriologically confirmed cases of TB. When combined with diagnoses made based on clinical or radiological findings meeting the case definition for active TB requiring treatment, it amounted to 512 cases: an overall detection yield of 106 per 100,000 MHAs, with a detection yield of 111 per 100,000 MHAs among immigrants and 88 per 100,000 MHAs among refugees.

Most active TB cases were detected in Asia (64.1%) and Africa (32.6%). The countries with the highest TB detection yield were Cambodia (614 per 100,000 MHAs), Niger (568 per 100,000 MHAs) and the Philippines (528 per 100,000 MHAs). Detailed breakdown of detection yields by region and by country of migration health assessment is available in Figure 5 below and Tables 2 to 4 in the Annex.

Figure 5. Tuberculosis detection among all migrants by region



Source: IOM, 2021.
Note: Detection represents all active TB cases (laboratory-confirmed and clinically diagnosed TB) = 512. Total number of migration health assessments = 480,842.

DST results were obtained for 397 (96.6%) positive culture specimens, finding 324 (78.8%) susceptible to all first-line drugs, 54 (13.1%) resistant to one or more first-line anti-TB drugs, 12 (2.9%) multidrug-resistant (MDR-TB) and none extensively drug-resistant (XDR-TB). See Table 5 in the Annex.

Testing for immune response to TB bacteria is also included as a component of certain receiving-country protocols. This is conducted through tuberculin skin test (TST) or IGRA, commonly required for close household contacts of migrants with active TB or for screening children from countries with a high TB burden (World Health Organization-estimated TB incidence rate of ≥20 cases per 100,000 population) and other specified high-risk groups. Usually, IGRA is preferred, but TST may be undertaken if IGRA is unavailable or in children younger than two years old.

In 2021, IGRA was performed as part of 19,480 MHAs, of which 28.5 per cent were for immigrants and 71.5 per cent were for refugees, finding 1,143 positive tests (5.9%) requiring further TB work-up. In addition, 1,524 TSTs were performed, of which 32.2 per cent were for immigrants and 67.8 per cent for refugees, leading to 80 positive tests (5.2%). Detailed data are available in Tables 6 and 7 in the Annex.

Other laboratory diagnostics

Laboratory testing for conditions other than TB may be requested by the receiving country. Testing for HIV and sexually transmitted infections, such as chlamydia, gonorrhoea and syphilis may be included, usually based on an age cut-off or on reported symptoms or risk factors. The same principles apply to testing for hepatitis B and C, but with the additional consideration of the epidemiological context by some destination countries, which require testing for migrants from or residing in countries with a prevalence of 2 per cent or higher.

In 2021, a total of 46,474 tests for hepatitis B were conducted globally, with a diagnostic yield of 2.4 per cent. The highest yields were in Asia (5.2%) and Africa (2.8%). Hepatitis C had a lower overall diagnostic yield than hepatitis B at 1.3 per cent of 11,582 tests conducted. The highest diagnostic yields of hepatitis C were in Asia (3.3%) and Europe and Central Asia (2.6%).

With respect to sexually transmitted infections, overall, 87,001 tests were conducted for chlamydia, 33,767 for gonorrhoea and 136,807 for syphilis. Of those tested, the overall diagnostic yields for both syphilis and gonorrhoea were 0.2 per cent, and 1.9 per cent for chlamydia. The highest yield for gonorrhoea was detected in Africa (0.3%), and for chlamydia and syphilis, in the Americas (3.9% and 0.4% respectively).

A total of 115,342 HIV tests were undertaken in 2021, yielding 492 positive cases, or 0.4 per cent. The highest diagnostic yield was in Africa (1.0%).

Malaria testing, through a rapid diagnostic test or by light microscopy, may also be included in areas with malaria transmission, particularly in sub-Saharan Africa. In 2021, 14,508 malaria tests were conducted in Africa, Asia and the Middle East and North Africa, with an overall diagnostic yield of 0.4 per cent (60 positive cases, all detected in Africa).

Diagnostic yields per condition and region can be found in Table 8 in the Annex.

TREATMENT OF COMMUNICABLE DISEASES

IOM provides or refers for treatment for certain communicable diseases detected through PMHAs.

Treatment of tuberculosis

TB treatment is provided directly by IOM or through referral to either the national TB programmes or to centres designated by receiving countries. In 2021, directly observed therapy (DOT), which is the strategy recommended internationally for TB treatment, was provided by IOM to 50 per cent of migrants with active TB, while the rest were referred for treatment.

To ensure the provision of patient-centred care, IOM also includes patient education, counselling, nutritional supplementation and transport vouchers where possible, and uses a variety of methods such as video DOT, telephone follow-up and periodic evaluations to monitor treatment in migrants unable to regularly attend the MHAC.

Contact tracing for TB is routinely conducted. This entails identifying all contacts who have been in close proximity to an individual with active TB and sharing an enclosed air space or environment, which is likely to include family or household members. Evaluation usually begins with an interview to assess the likelihood of infection, followed by TST or IGRA testing. Further evaluation with history, physical examination and CXR may be necessary depending on risk factors and the initial results.

Directly observed preventive therapy for latent TB infection may be offered in certain locations, in addition to counselling. Guidelines differ among destination countries and treatment may be recommended and initiated before departure or following arrival in the destination country.

Treatment of other communicable diseases

IOM also provides treatment for several other conditions, including gonorrhoea, intestinal parasites, malaria, syphilis, scabies and lice; IOM may also refer migrants with these conditions for treatment as appropriate. Certain conditions, such as HIV, are only treated through referral.

In 2021, 72.5 per cent of individuals found to have syphilis and 87.7 per cent of individuals found to have gonorrhoea were provided with treatment by IOM; all others were referred to external providers for treatment.

Treatment for malaria was provided for 7,449 persons, and for intestinal parasites to 21,728 beneficiaries; in general, the treatment for both conditions was presumptive (99.4% and 99.8% respectively), that is, provided without prior testing based on the epidemiological situation. Additionally, beneficiaries were provided with or referred for treatment for scabies and lice.

DOT for TB at the IOM MHAC in Nairobi, Kenya. © IOM 2021

VACCINATION

IOM provides vaccination as part of PMHAs on behalf of various receiving countries, such as Australia, Canada, Germany, New Zealand, Portugal, Spain, the United Kingdom and the United States. Vaccination is conducted routinely and in response to outbreaks of vaccine-preventable diseases. IOM's vaccination activities aim to improve the health of migrants by increasing key vaccine coverage and to reduce the risk that migrants arrive in destination countries with vaccine-preventable diseases.

Figure 6. 2021 snapshot overview of vaccination

More than **200,000** doses of vaccine

Against **22** vaccine-preventable diseases*

To over **75,000** individuals prior to departure

* Vaccines provided against: COVID-19, diphtheria, haemophilus influenzae type b, hepatitis A, hepatitis B, human papillomavirus, influenza, Japanese encephalitis, measles, meningitis, mumps, pertussis, pneumococcal infection, polio, rotavirus, rubella, tetanus, tuberculosis, typhoid, varicella, yellow fever, zoster.

In 2021, 75,532 migrants were vaccinated, with a total of 200,554 doses administered in 75 countries. Most vaccines were provided to migrants travelling to the United States, Canada and Australia, and most frequently protected migrants against measles, mumps, rubella, hepatitis B, tetanus, diphtheria, polio and varicella.

NAIROBI MHAC: COVID-19 VACCINATION CENTRE FOR REFUGEES AND IMMIGRANTS

With the increased global need to ensure access to COVID-19 vaccination, IOM explored opportunities to provide COVID-19 vaccination services for refugees and immigrants through its MHACs, where the national context allowed. Notably, the IOM MHAC in Nairobi, Kenya successfully coordinated with the Government of Kenya to support COVID-19 vaccine administration as part of the pre-migration health process for immigrants and refugees attending the MHAC. The IOM MHAC was subsequently designated an official COVID-19 vaccination facility and an initial donation of COVID-19 vaccines was provided by the Kenyan Ministry of Health.

Quality and safety of the IOM vaccination programme

IOM has a robust vaccine procurement and distribution framework for the delivery of safe vaccination programmes, particularly in remote locations or in countries with weak infrastructure. Additionally, IOM works in coordination with partners to supply field operations with required cold-chain equipment and for procurement of vaccines from reputable manufacturers and distributors. IOM uses a global inventory management system, MedStock, to monitor procurement, consumption or wastage of vaccines in each implementing mission, as well as quality control tools to monitor doses and verify that vaccines are administered as recommended.

In 2021, IOM developed a comprehensive immunization programme manual, intended to guide staff globally in implementing best practices and the delivery of vaccines in line with international standards. This was used by sites to develop context-specific standard operating procedures (SOPs) for operationalization at the country level. The knowledge and skills of clinical staff were enhanced through mandatory online and facilitator-led trainings on vaccine storage, administration and safety, including on the detection and monitoring of adverse events following immunization.

NON-COMMUNICABLE DISEASES AND MENTAL HEALTH DISORDERS

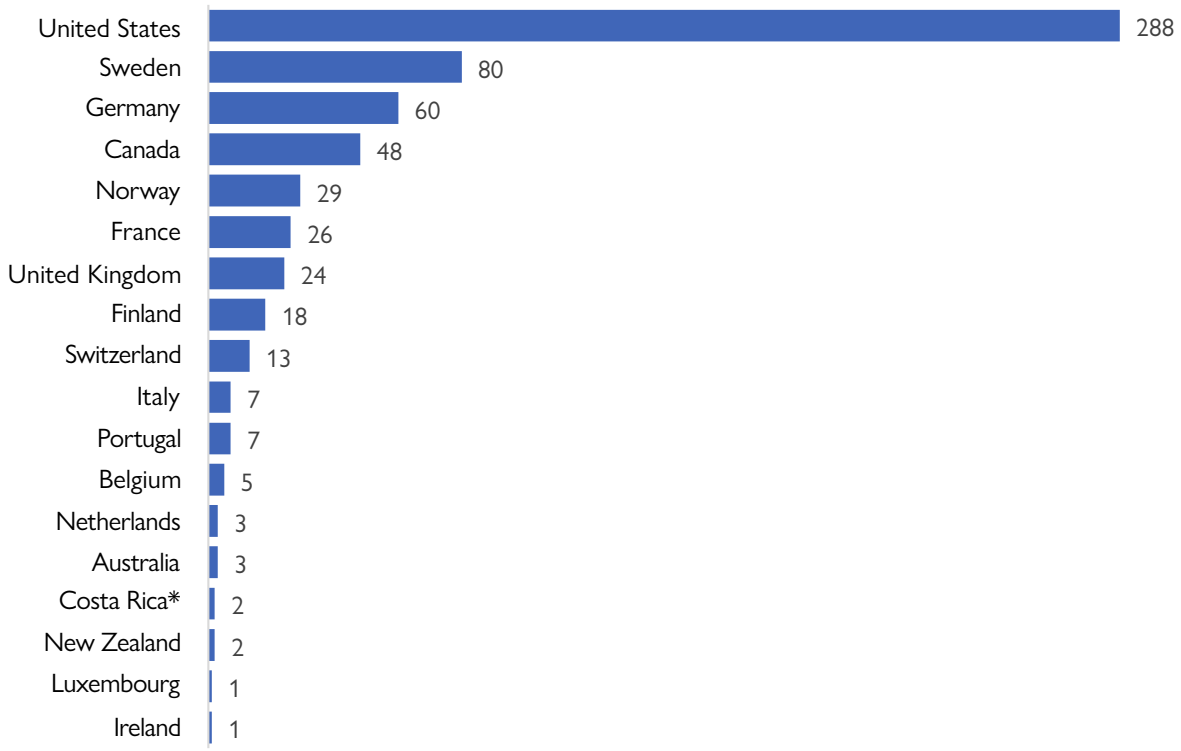
IOM PMHAs also facilitate detection of non-communicable diseases and bridge pre-departure and post-arrival services to ensure continuity of care. This is done through comprehensive history taking, review of medical records, physical and mental examinations, further investigations, and specialist referral where necessary. Hypertension, diabetes, chronic kidney disease, cancer and mental health disorders may be among some of the conditions identified in MHAs.

In 2021, mental health conditions were identified in 2,042 MHAs (0.4%). Where indicated, migrants were referred to a specialist for further evaluation. Further details can be found in the Annex (Table 9).

MEDICAL ESCORT SERVICES

IOM provides medical escort services for migrants with significant medical conditions in need of additional support and care during travel. Medical escorts ensure that escorted individuals' health needs are attended to during all phases of their journey under IOM's care, from pre-departure through to handover upon arrival. In 2021, 617 refugees were escorted to their destinations under the care of a medical escort (see Figure 7 and Figure 17 in the Annex).

Figure 7. Number of refugees travelling with a medical escort by country of destination



Source: IOM, 2021.
**Note:* Refugees travelled to Costa Rica with a medical escort as part of an Emergency Transit Mechanism. Total number of refugees travelling with a medical escort = 617.

DNA SAMPLE COLLECTION

DNA sample collection is frequently used as a tool to facilitate family reunification. Over the last decades, immigration authorities in various countries have increasingly turned to DNA testing to prove identity or establish biological relationships between sponsors and applicants in cases where the necessary documentary evidence is insufficient, unreliable or impossible to find. IOM assists with this process through the provision of safe and secure DNA sample collection services at its MHACs.

The DNA samples are collected by trained health professionals, generally using a buccal swab. Counselling is provided beforehand and informed consent is obtained before sample collection. Through the maintenance of a strict chain of custody, IOM guarantees the integrity of the samples collected and ensures they are appropriately delivered to the reference laboratory, which conducts the DNA testing.

In 2021, 10,782 DNA samples were collected at IOM MHACs in 36 countries for migrants wishing to reunite with their families in 10 destination countries. Samples were also collected at the request of the United Nations High Commissioner for Refugees (UNHCR) as part of the refugee resettlement process. The highest number of samples were collected at IOM MHACs in Ethiopia (15.7%), Kenya (15%), Viet Nam (15%) and Türkiye (11.4%), with the main destinations being the United Kingdom (20.7%), the United States (20.3%) and the Netherlands (18.1%). Further details are presented in Figures 18 and 19 in the Annex.

HEALTH ASSESSMENTS FOR REFUGEES CONSIDERED FOR RESETTLEMENT ON MEDICAL GROUNDS

Refugees with medical conditions may be referred to IOM by UNHCR to assist with the completion of the UNHCR Medical Assessment Form (MAF). The aim of the MAF is to identify refugees who need priority

resettlement on medical grounds. IOM assesses a refugee's medical condition, prognosis and the possibility of management in the country of asylum and provides recommendations on the need for and urgency of resettlement.

Requests for assistance with the MAF are presented to IOM in writing. IOM ensures that the assessments are undertaken, forms are completed comprehensively, and that the information is handled confidentially. In 2021, 408 MAFs were completed across nine countries in Africa and the Middle East and North Africa.

FAMILY ASSISTANCE PROGRAMME

In order to facilitate family reunification to Germany, the Family Assistance Programme (FAP) was established by the German Federal Foreign Office in early 2016. Within this programme, visa applicants with urgent medical conditions are given priority appointments at the embassy, pending fulfilment of preset criteria.

Based on its experience in the provision of MHAs, IOM supports the German Government with this process by providing a paper-based review of the medical documents of visa applicants claiming prioritization on medical grounds; IOM also provides a physical examination for validation of a claimed medical condition as needed. Referral to specialists may also be provided in some cases.

The applicant's condition is then categorized according to the severity, and the information along with recommendations for travel, such as the need for a medical escort, is provided to the German embassy.

In 2021, 305 reviews were undertaken for FAP operations, of which 90.2 per cent included physical examination and the remaining reviews were paper-based; the majority of reviews were in the Middle East and North Africa region (97.7%).

HEALTH PROMOTION

PMHAs present an opportunity to empower migrants to improve their health by increasing their knowledge or influencing their attitudes. IOM facilitates this by providing a range of health promotion activities at MHACs. These include counselling, which is offered at several stages of the MHA, including pre- and post-test counselling, as well as health education through various media, such as posters, pamphlets and videos in MHAC waiting areas.

In the COVID-19 context, migrants were provided with a range of related health education materials such as leaflets, including on COVID-19 vaccination. During the PEC, awareness raising on prevention measures was further emphasized to facilitate safe travel.

HIV pre-test counselling at the IOM MHAC in Manila, the Philippines. © IOM 2021

OUTBREAK SURVEILLANCE AND RESPONSE

Throughout the COVID-19 pandemic, IOM continued to perform surveillance for other outbreaks of communicable diseases in refugee camps and transit centres in over 80 countries. In the event of an outbreak among refugee populations awaiting resettlement or in other groups that could potentially affect IOM movements, there is a duty for IOM staff to promptly report suspected or confirmed cases and to take appropriate action. Outbreaks are notified to IOM staff, partners such as UNHCR, the US CDC and the World Health Organization, and the public health agencies or immigration authorities of receiving countries; response measures are implemented in coordination with the national health authorities and receiving countries.

In 2021, IOM outbreak response activities covered 43 countries with measles outbreaks, 27 countries with polio and a number of other conditions of public health significance, including cholera and viral haemorrhagic fevers. IOM's response aims to limit the spread of disease and may include delaying refugee movements, carrying out laboratory investigations and providing additional vaccination, contact tracing, health education, surveillance, isolation and treatment activities.

As part of outbreak response activities and to ensure that services could continue to be delivered safely in the COVID-19 context, enhanced infection prevention and control measures were implemented at all MHACs; they included triage for COVID-19, physical distancing, provision of personal protective equipment, enhancement of hygiene measures and environmental cleaning. Additional PECs that included COVID-19 testing were carried out, with national and cross-border information sharing. Contact tracing, isolation and quarantine were arranged where necessary.

MIGRATION HEALTH INFORMATICS

IOM systematically applies new information technologies and computer science to global PMHAs within IOM programmes. Data collection in IOM country offices is standardized and centralized and a repository of migrant health information at the global organizational level is created. Data collection, storage and transmission are governed by IOM's data protection principles and data security policies.

The IOM Migration Health Informatics unit in the Manila administrative centre guides medical software development and management, provides user training and support, data quality control and assurance, develops medical forms and designs tools for reporting, data analysis and dissemination, among others.

Active IOM systems in 2021

- Migrant Management Operational Systems Application (MiMOSA): A web-based migrant management software used for capturing data on MHAs, PDMP and health-related travel requirements.
- Medical stock system (MedStock): A web application for tracking vaccine, medical and laboratory supplies, drug inventory levels, stock movement and lot details.
- Licensing and credentialing tool: A web application used for recording and managing clinical staff's qualifications, licence validity, trainings and accreditations, and to streamline the credentialing process of clinical staff.
- United Kingdom Tuberculosis Global Software (UKTB GS): A health information management system customized to capture data on MHAs for visa applicants to the United Kingdom.
- Interfaces between MiMOSA and the:
    - CDC Electronic Disease Notification system
    - USRAP START system
    - eMedical system for Australian MHAs, as well as for Canadian refugee MHAs.
- Quality control application for IOM teleradiology services.
- HAPSTAT QC: An automated system for data validation and quality control based on the health protocols of destination countries.
- IOM's Laboratory Information Management System (LIMS): A web-based application that provides a platform for IOM to manage laboratory-related data, which went live in 2018.
- MiMOSA IAP (IOM-affiliated panel sites): An information management system for data related to PMHAs for United States-bound refugees at IOM-affiliated panel sites.
- UKREF Resettlement dashboard: A web dashboard for monitoring United Kingdom refugee resettlement MHAs and UKREF TB re-evaluation services.
- Global Incident Reporting System (GIRS): An online tool hosted on the Freshservice® IT Service Desk software that supports the reporting and management of incidents occurring during PMHAs, tracking the status of incidents from notification and investigation to resolution and closure, as well

as generating reports and analytics to support organizational learning.

- Various online dashboards displaying and enabling the monitoring of key programmatic data including:
  - Annual reporting
  - HAP caseload trends following the impact of COVID-19
  - HAP COVID-19 tests and positivity
  - Vaccination
  - Nutritional status of children under the age of five.
- A series of operational and statistical web reports.

Systems in development

- Japan Pre-entry Tuberculosis Screening Information Management System (JPETS-IMS): A health information management system customized to capture data on MHAs for visa applicants to Japan from six countries (China, Indonesia, Myanmar, Nepal, the Philippines and Viet Nam);
- Medical escort validation system: An online dashboard and validation system for monitoring quality of medical escort and other related data;
- LIMS 2.0 with improvements to link the system with MiMOSA, enabling the automatic submission of laboratory results and saving time on data entry while increasing accuracy and efficiency;
- MiMOSA Next Generation Framework: IOM's future migrant and beneficiary information management system project, where IOM migration health informatics and medical focal points are collaborating with the Information and Communications Technology Department and vendors as medical business requirements subject matter experts and advisors.

QUALITY MANAGEMENT SYSTEM

IOM has a comprehensive system of quality control, assurance and improvement, which includes a hierarchy of international technical staff who provide oversight, guidance and standardization of different aspects of PMHAs across countries and regions. PMHA procedures are conducted in accordance with internal and international standards and receiving country technical instructions, and monitoring and evaluation activities are regularly undertaken.

SOPs are widely used at country, regional and global levels. As of 2021, there was a comprehensive range in place globally, covering a broad set of programmatic activities, including pre-departure medical procedures, vaccination and other topics relevant to the migration health assessment process. In addition, various trainings are recommended for clinical staff undertaking PMHAs across MHACs globally. In 2021, these included training on basic and advanced cardiovascular life support to ensure staff were well-equipped in handling emergency situations, training on the prevention of sexual exploitation, abuse and sexual harassment, customer service awareness and other relevant topics.

To reinforce clinical governance principles, the first two sessions of a series of webinars on incident management within PMHAs were delivered by IOM headquarters during the year, with attendance from chief migration health officers and regional HAP coordinators. The first provided an overview of the key messages related to incident management and use of the GIRS for incident reporting, while the second gave regional HAP coordinators the opportunity to present examples of past incidents and the processes followed, including the subsequent implementation of recommendations. These sessions are planned to continue periodically, ensuring staff are trained and supported to enable timely reporting, analysis, and management of incidents to prevent future recurrence, and allowing the sharing of lessons learnt and best practices across regions.

Basic life support training at the IOM MHAC in Manila, the Philippines. © IOM 2021

IOM COVID-19 FIRST LINE OF DEFENCE

Figure 8. 2021 Snapshot overview of IOM FLoD activities

FLoD services available in **21** countries*

311 health staff accredited to provide services

20,983 UN staff and eligible dependents received at least one service

15,820 SARS-CoV-2 tests conducted for clinical purposes

5,616 beneficiaries received in-home monitoring services

227 beneficiaries escalated to a higher level of care

* Burundi, Cambodia, the Democratic Republic of the Congo, Egypt, Ethiopia, Ghana, Jordan, Kazakhstan, Kenya, Malaysia, Nepal, Nigeria, North Macedonia, the Philippines, Rwanda, South Africa, Sri Lanka, Thailand, Uganda, Ukraine, the United Republic of Tanzania.

Initially established in July 2020 in response to the COVID-19 pandemic, IOM continued to contribute to the UN's "First Line of Defence" (FLoD) framework in 2021, ensuring that UN staff could stay where needed and deliver vital services globally, often at the front lines of humanitarian emergencies. In locations where access to health care may have been limited, IOM leveraged its medical expertise and infrastructure to supplement existing capacity and provide high-quality health services.

IOM FLoD SERVICE PROVISION

IOM provided a range of services which varied according to country context, such as laboratory testing, clinical care, telehealth, remote home monitoring services for COVID-19 and other medical conditions, mental health and psychosocial support and medical movement support.

With varying COVID-19 case rates seen globally throughout the year, demand for services increased in many countries. Service delivery per month is highlighted in Figures 20 and 21 in the Annex. In addition to the services highlighted in Figure 8 above, psychosocial support was provided for 336 beneficiaries, and webinars and COVID-19 information sessions were organized to communicate with beneficiaries and highlight service availability, with 5,081 attendees recorded during the year.

As a result of and indicating the successful collaboration between the UN and IOM, discussions were initiated for extension of the global FLoD framework agreement between the two entities beyond the end of 2021, revised to accommodate a broader scope of services beyond COVID-19.

IOM physician during a telehealth consultation at the IOM MHAC in Kyiv, Ukraine. © IOM 2021

FLoD CAPACITY-BUILDING

Capacity reinforcements implemented prior to programme commencement in 2020 were maintained throughout 2021, to ensure that clinical staff stayed abreast of emerging evidence in the COVID-19 context and that necessary equipment and infrastructure were fit for purpose.

Regular updates were made to guidance documents, SOPs and quality assurance tools to support service provision according to international best practice standards. Operationalization of the guidelines was facilitated through webinars and interactive discussions, as well as emergency drills undertaken in several sites. Furthermore, clinical credentialing was used to validate that professional competency was in line with providers' scope of practice.

FLoD LABORATORY TESTING

IOM implemented a flexible, multi-platform diagnostics approach for the detection of SARS-CoV-2, considering limited availability of test cartridges globally. This included harnessing existing GeneXpert instruments for rapid real-time reverse transcription polymerase chain reaction (RT-PCR)-based testing using the Xpert Xpress SARS-CoV-2 assay (Cepheid); an alternative second cartridge-based system, the Molbio TrueNat (Molbio Diagnostics) was also implemented when the availability of Xpert Xpress SARS-CoV-2 was limited. In two settings (Nairobi in Kenya and Abuja in Nigeria) with high workloads, the high-throughput semi-automated Thermo Fisher Scientific Corporation system was implemented. Laboratory testing for SARS-CoV-2 was carried out in 15 IOM laboratories across Africa and Asia.

FLoD HEALTH INFORMATICS

Health information management innovations facilitated the smooth running of programmatic activities and included:

- Collaboration with the World Food Programme's Humanitarian Booking Hub to facilitate COVID-19 safe online appointment scheduling;
- Telehealth software with booking, video and audio conferencing, recording and transmission of self-monitoring observations and other functionalities;
- A feedback management system for timely response to queries or complaints;
- Customized tools and forms for case notification and data capturing and management during patient home monitoring and IOM facility treatment.

PARTICIPATION IN THE UN SYSTEM-WIDE COVID-19 VACCINATION PROGRAMME

Drawing on its extensive experience delivering vaccination programmes, IOM also supported the UN System-wide COVID-19 vaccination effort through various activities such as direct vaccine administration, coordinating country vaccine deployment teams and logistics support, such as the reception and transportation of vaccine doses and providing staff and clinical premises for registration and monitoring.

During 2021, IOM administered 27,835 doses of COVID-19 vaccines across eight countries to UN staff and dependents and other eligible beneficiaries, such as members of the diplomatic community. Moreover, IOM supported the influenza vaccination campaigns for UN staff in Egypt and Jordan.

COVID-19 vaccination of a UN staff member in Abuja, Nigeria. © IOM 2021

LINKAGE WITH OTHER PROGRAMMATIC AREAS

CONTRIBUTION TO EMERGENCY RESPONSE

Leveraging its global presence and experience in the provision of PMHAs and as MHD's largest programme area in terms of staff, IOM HAP can rapidly mobilize staff to support emergencies requiring a health response wherever possible, through the provision of varying levels of technical and logistical assistance. Selected examples from 2021 are detailed below.

COVID-19

With the ongoing evolution of the COVID-19 pandemic, IOM HAP staff actively engaged with national and international partners to implement and reinforce measures to curb the spread of the disease. For example, in Lagos, Nigeria, IOM HAP staff collaborated to present three weekly interactive live radio broadcasts on topics related to COVID-19, as part of broader awareness-raising initiatives. These covered information on the management of COVID-19, the impact of it on migration in Nigeria and adaptation after the pandemic.

Other health emergency response

Additionally, IOM HAP staff were deployed to contribute to other emergency response efforts in several locations. As part of the general MHD emergency response in northern Ethiopia, IOM HAP staff were deployed to Mekelle and Shire in the Tigray region. They supported coordination, the provision of primary health care, mobile health and nutrition activities to assist internally displaced persons and contributed to meeting periodic reporting requirements. In Amman, Jordan, throughout 2021, IOM HAP staff provided support as part of an emergency project targeting vulnerable families in the Azraq refugee camp in Jordan. They assisted with general medical assessments, treatment and referral to higher levels of care where necessary.

INTEGRATED BORDER MANAGEMENT

The IOM HAP team in Nigeria collaborated with other MHD programmatic areas and the IOM Integrated Border Management unit in February 2021 to support the implementation of measures for effective border management in Nigeria in the context of COVID-19. Through this initiative, 19 points of entry, comprising five international airports, seven land borders and seven sea ports, were equipped with personal protective equipment, sanitation materials and other equipment.

Capacity-building sessions on infection prevention and control with point-of-entry officials were organized over a two-day period in Kano and Calabar, Nigeria. Front-line border officials from the Nigeria Immigration Service and Port Health Services took part and the training included information on the development and dissemination of SOPs, interactive sessions, such as on hand hygiene, and the distribution of educational materials.

RETURN AND REINTEGRATION

IOM carries out various return and reintegration programmes to support migrants unable or unwilling to remain in host or transit countries and who decide to return to their countries of origin. Migrants with health needs require additional attention and assistance in the preparation of their return.

IOM offices providing return programming seek MHD's assistance with determining what measures are needed for individual cases so the return can take place in a safe and dignified manner, in accordance with IOM standards. Support is primarily in the form of pre-departure medical clearance and travel advice, as well as advice on the availability and accessibility of post-arrival health care.

Post-arrival, MHD staff provide a range of assistance, such as the coordination of immediate medical assistance (including arrival assistance at the airport, transfer and admission to the hospital, medical follow-up of admitted cases), medical interventions (including vaccination), medical escorting, referrals for specialized assistance and care, paying health-care service fees, and coordination of long-term medical reintegration.

MHD also provides capacity-building support to return programmes, including training, supervision and other collaboration, as well as policy support to develop guidance, standards and policies around the return of migrants with health needs.

Over the course of 2021, MHD provided technical guidance and support, mainly in the context of assisted voluntary return and reintegration (AVRR) programmes.

In the Europe and Central Asia region, a pilot approach to AVRR has been successfully implemented in multiple countries with the largest numbers of AVRR movements. This entails the provision of technical support for all AVRR cases with health concerns and the establishment of a regional medical escort pool for sustainability. AVRR also took place from various locations in Africa, with the provision of PECs and COVID-19 tests where required.

IOM also carries out voluntary humanitarian return for migrants stranded or detained in Libya, facilitating safe return to their home countries. MHD supported this process in 2021 by providing PECs, identifying conditions of concern, making health-related travel arrangements, including COVID-19 tests and medical escorts if necessary, and providing post-arrival assistance. A total of 7,490 migrants underwent PDMP as part of this framework in 2021.

Health assistance in Accra, Ghana, following a voluntary humanitarian return. © IOM 2021

OTHER 2021 HIGHLIGHTS

EVENTS

For **World TB Day** on 24 March, the HAP team in Lagos, Nigeria, in partnership with the Lagos State TB and Leprosy Control Programme and other organizations, planned a press briefing as part of the activities carried out on the day. They emphasized the urgency for action to end TB, particularly in the context of the COVID-19 pandemic, which has stalled or reversed global efforts. A 10-mile awareness-raising walk across Lagos was also organized.

A virtual training on adverse events following immunization was developed in collaboration with Comprehensive Advanced Life Support and the University of Minnesota and delivered on 4 and 5 May, with the participation of IOM HAP staff. Following the live webinars, recordings were uploaded onto an online platform, enabling accessibility for all IOM clinical staff engaged in vaccination activities.

The International Panel Physicians Association Second Annual Migration Five Updates Meeting was held virtually from 27 to 30 July. The aim was to provide panel physicians undertaking PMHAs for the Migration Five countries (Australia, Canada, New Zealand, the United Kingdom, the United States of America) with updates on requirements, guidelines and best practices. The training was attended by over 100 IOM panel physicians and managers across over 40 countries.

A virtual training on significant medical condition guidance for IOM-affiliated panel physicians was delivered on 24 August by the IOM regional office for East Africa and the Horn of Africa in Nairobi, Kenya, in collaboration with the US CDC. This training highlighted key aspects of the supplemental refugee health guidelines, and introduced the panel physicians to MiMOSA-IAP, a platform enabling electronic submission of MHAs.

The Fifty-second Union World Conference on Lung Health was held between 19 and 22 October in a virtual forum. A presentation on the use of multidisease platforms for integrated TB and COVID-19 testing was delivered by the IOM Global Laboratory Coordinator, who was also involved in facilitating a meeting for the TB and Migration Working Group to review progress and discuss ongoing and planned activities for 2022.

A webinar on the IOM Global Teleradiology Quality Control Application and Programme updates was delivered by the IOM Senior Global Radiology Coordinator on 16 November to HAP and other staff involved with or interested in teleradiology service provision. The webinar introduced the new teleradiology quality control system features, aiming to strengthen quality procedures in IOM radiology services, and facilitated discussion for possible further enhancements.

PUBLICATIONS

IOM internal publications in 2021

IOM, Migration Health Division (MHD). IOM Migration Health Assessment Programmes – Response to COVID-19. Available at https://migrationhealthresearch.iom.int/iom-migration-health-assessment-programmes-response-covid-19.

Peer-reviewed publications with contributing IOM authors in 2021

Dominik Zenner, Ana Requena-Méndez, Steffen Schillinger, Elena Val, Kolitha Wickramage, "Health and Illness in Newly Arrived Migrants and Refugees Arriving at Europe's Shores: Analysis of the Electronic Personal Health Record System in Seven Countries", *Lancet*: Preprints (2021). Available at https://migrationhealthresearch.iom.int/health-and-illness-newly-arrived-migrants-and-refugees-arriving-europes-shores-analysis-electronic.

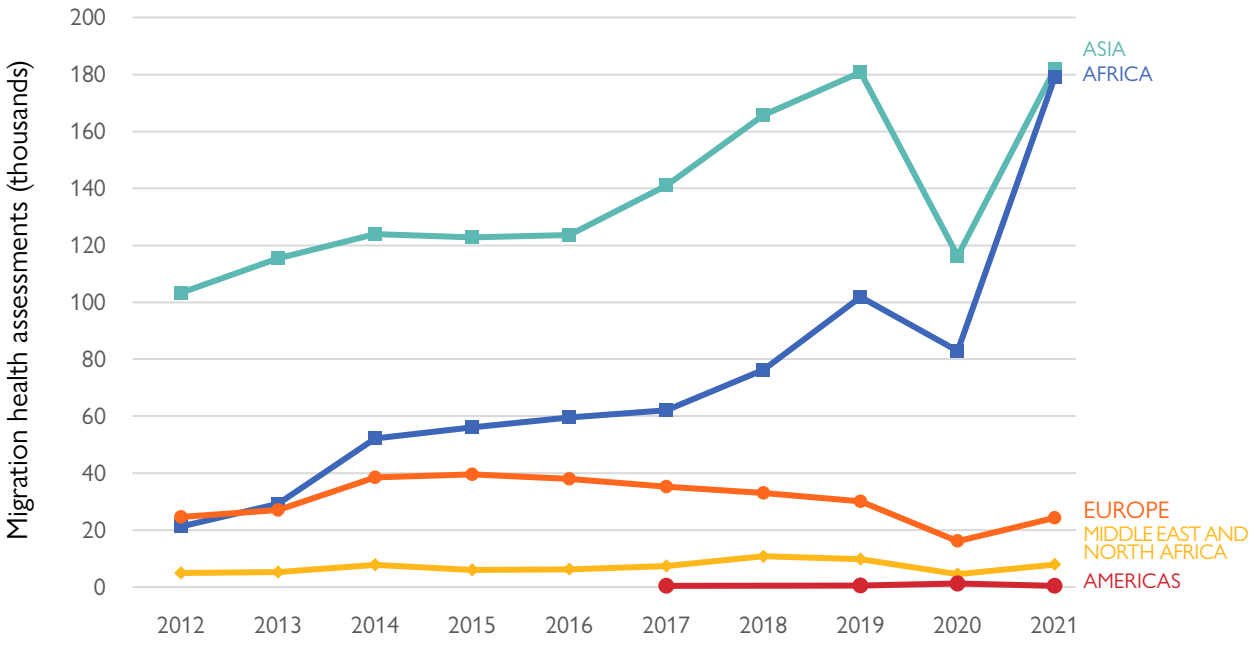
Zhi Zhen Qin, Tasneem Naheyan, Morten Ruhwald, Claudia M. Denkinger, Sifrash Gelaw, Madlen Nash, Jacob Creswell, Sandra Vivian Kik, "A new resource on artificial intelligence powered computer automated detection software products for tuberculosis programmes and implementers", *Tuberculosis* 127:102049 (2021). Available at https://migrationhealthresearch.iom.int/new-resource-artificial-intelligence-powered-computer-automated-detection-software-products.

Moses Mwesigwa, Jessica L. Webster, Sam Lubwama Nsobya, Alexander Rowan, Mukunda Singh Basnet, Christina R. Phares, Michelle Weinberg, Alexander Klosovsky, Marwan Naoum, Philip J. Rosenthal, William Stauffer, "Prevalence of Malaria Parasite Infections among U.S.-Bound Congolese Refugees with and without Splenomegaly", *The American Journal of Tropical Medicine and Hygiene* 104(3):996–999 (2021). Available at https://migrationhealthresearch.iom.int/prevalence-malaria-parasite-infections-among-us-bound-congolese-refugees-and-without-splenomegaly.

Tarissa Mitchell, Warren Dalal, Alexander Klosovsky, Catherine Yen, Christina Phares, Margaret Burkhardt, Farah Amin, Ivan Froes, Amira Hamadeh, Sai Aung Lynn, Judith Quintanilla, Annelise Casano Doney, Martin Cetron, Michelle Weinberg, "An immunization program for US-bound refugees: Development, challenges, and opportunities 2012–present", *Vaccine* 39(1):68–77 (2021). Available at https://migrationhealthresearch.iom.int/immunization-program-us-bound-refugees-development-challenges-and-opportunities-2012-present.

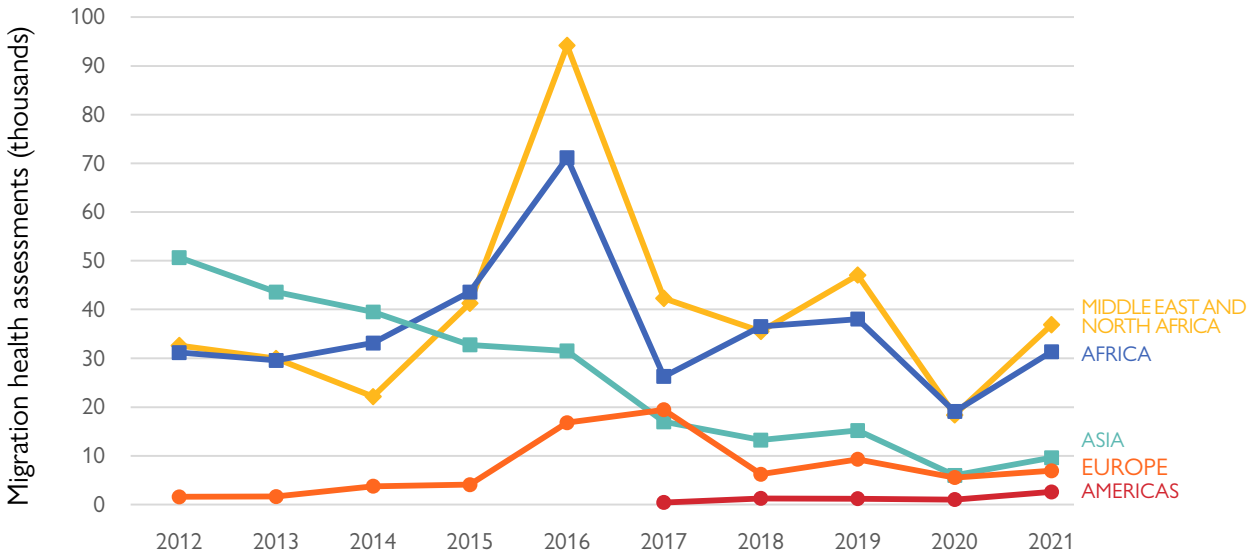
IOM, formerly known as the Intergovernmental Committee for European Migration, arranged for the necessary documentation required by the receiving country, including medical examination and vaccination. © IOM 1958

Figure 9. Trend of IOM and IOM-assisted migration health assessments for immigrants by region of health assessment, 2012–2021



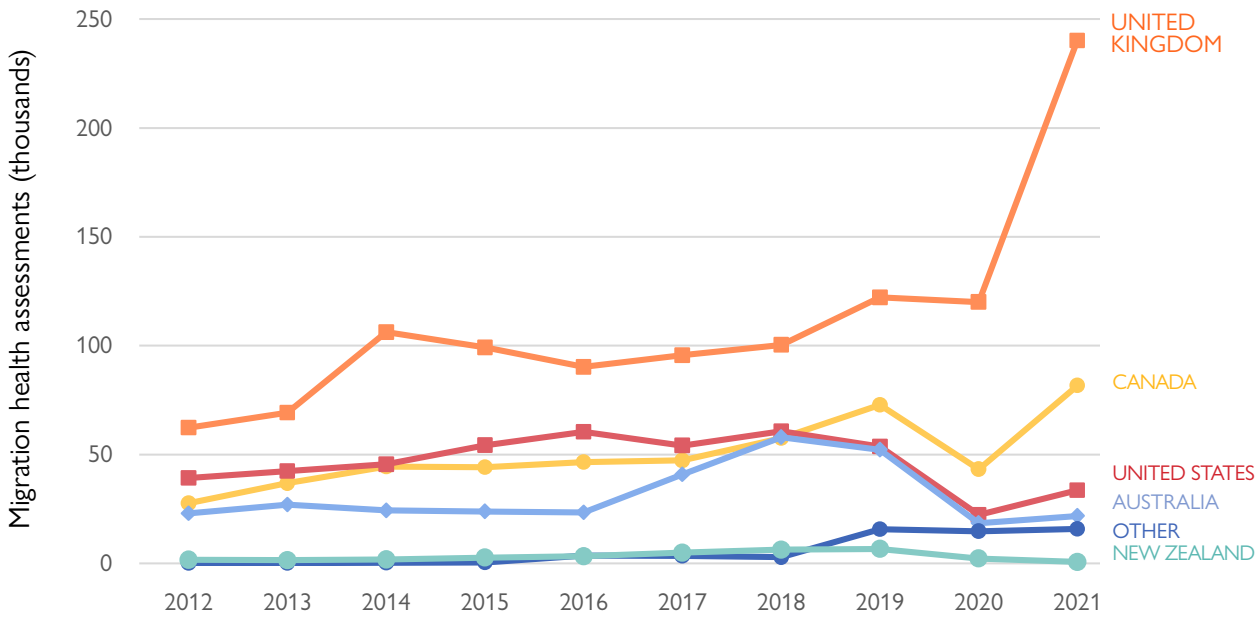
Source: IOM, 2021.

Figure 10. Trend of IOM and IOM-assisted migration health assessments for refugees by region of health assessment, 2012–2021



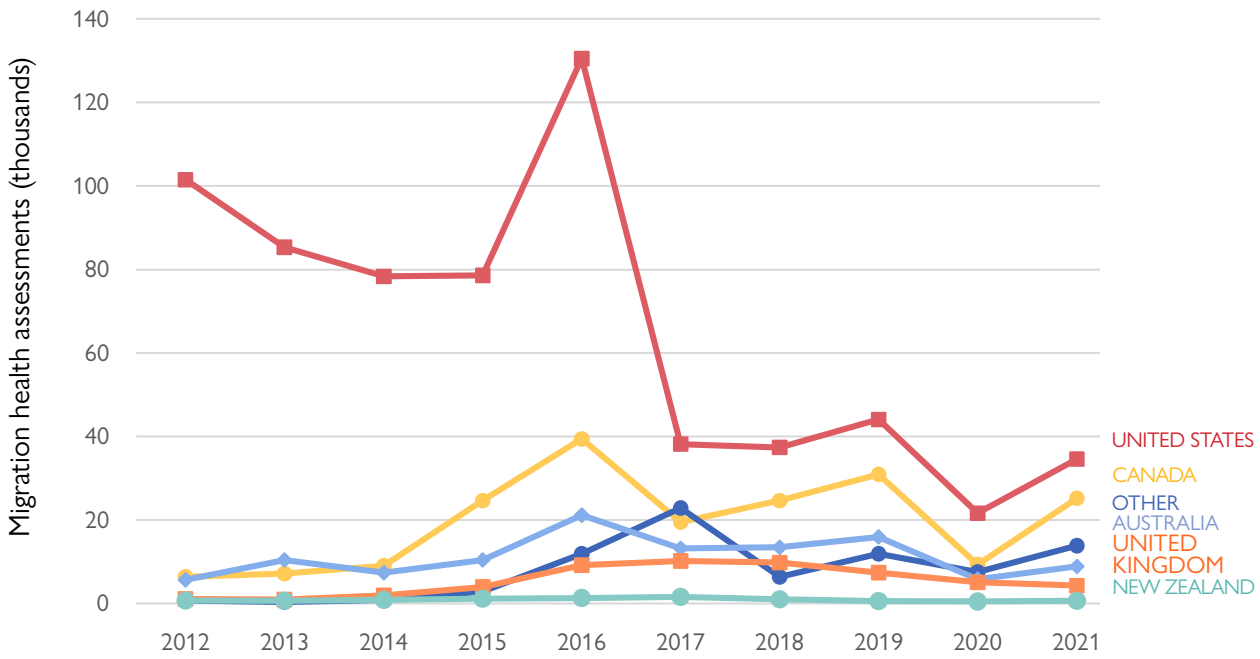
Source: IOM, 2021.

Figure 11. Trend of IOM and IOM-assisted migration health assessmens for immigrants by country of destination, 2012–2021



Source: IOM, 2021.
Note: "Other" includes 30 destination countries worldwide, mainly in Europe, Asia, and South America.

Figure 12. Trend of IOM and IOM-assisted migration health assessments for refugees by country of destination, 2012–2021



Source: IOM, 2021.
Note: "Other" includes 25 destination countries worldwide, mainly in Europe.

Table 1. Overview of IOM and IOM-assisted migration health assessments, 2021

COUNTRY OF MIGRATION HEALTH ASSESSMENT	COUNTRY OF DESTINATION							
	AUSTRALIA		CANADA		GERMANY		NEW ZEALAND	
	Immigrant	Refugee	Immigrant	Refugee	Immigrant	Refugee	Immigrant	Refugee
AFRICA	3 256	1 834	38 333	10 827	8	767	63	33
Angola	0	0	0	0	0	0	0	0
Botswana	0	0	0	8	0	0	0	0
Burundi[a]	56	304	950	312	0	0	5	0
Cameroon[a]	0	0	5 946	105	0	0	0	0
Chad[a]	0	0	0	201	0	0	0	0
Democratic Republic of the Congo[a]	16	0	2 413	22	0	0	0	0
Côte d'Ivoire	0	0	0	9	0	0	0	0
Djibouti	0	0	0	186	0	0	0	0
Ethiopia[a]	560	77	3 542	2 612	2	10	25	19
Gambia	0	0	0	0	0	0	0	0
Ghana[a]	73	292	700	542	0	0	1	0
Guinea[a]	17	0	533	11	0	0	0	0
Kenya[a]	1 323	900	2 478	1 788	5	633	23	11
Malawi[a]	0	0	0	33	0	0	0	0
Mozambique	0	0	0	5	0	0	0	0
Nambia	0	0	0	20	0	0	0	0
Niger[a]	0	0	0	48	0	124	0	0
Nigeria[a]	874	0	17 853	6	1	0	2	0
Rwanda[a]	47	68	1 700	305	0	0	0	3
Senegal	0	0	0	18	0	0	0	0
Sierra Leone[a]	0	0	0	0	0	0	0	0
South Africa[a]	0	0	323	179	0	0	0	0
Sudan[a]	0	0	165	768	0	0	0	0
Uganda[a]	277	40	1 728	2 550	0	0	7	0
United Republic of Tanzania[a]	13	153	2	1 095	0	0	0	0
Zambia[a]	0	0	0	2	0	0	0	0
Zimbabwe[a]	0	0	0	2	0	0	0	0
AMERICAS	0	0	0	0	0	0	0	0
Ecuador	0	0	0	0	0	0	0	0
El Salvador	0	0	0	0	0	0	0	0
Guatemala	0	0	0	0	0	0	0	0
Honduras	0	0	0	0	0	0	0	0
ASIA	16 294	2 638	33 349	2 349	0	0	365	469
Afghanistan[a]	361	682	291	98	0	0	34	0
Australia	0	0	0	0	0	0	0	0
Bangladesh[a]	347	0	336	3	0	0	2	0
Cambodia[a]	670	0	328	0	0	0	40	6
India	0	0	0	0	0	0	0	8
Indonesia[a]	0	42	0	507	0	0	0	8
Iran (Islamic Reublic of)	0	0	0	0	0	0	1	55
Malaysia[a]	0	591	0	668	0	0	0	236
Myanmar[a]	0	0	0	0	0	0	0	0
Nepal[a]	1 457	0	802	40	0	0	17	0
Pakistan[a]	3 346	762	13 786	422	0	0	96	4
Philippines[a]	0	0	9 350	1	0	0	0	0
Sri Lanka[a]	4 787	114	473	159	0	0	102	27
Thailand[a]	116	446	356	440	0	0	27	125
Viet Nam[a]	5 210	1	7 627	11	0	0	46	0
EUROPE	1 051	4	7 450	570	14	1 002	162	0
Armenia	0	0	0	0	0	0	0	0
Belarus[a]	34	0	304	6	0	0	1	0
Bosnia and Herzegovina[a]	58	0	133	0	0	0	0	0
Greece[a]	0	0	0	0	0	966	0	0
Italy[a]	0	0	0	0	0	36	0	0
Kazakhstan[a]	156	0	984	0	0	0	8	0
North Macedonia[a]	106	4	87	141	0	0	3	0
Republic of Moldova[a]	10	0	321	0	0	0	21	0
Russian Federation[a]	380	0	1 977	0	0	0	30	0
Serbia[a]	70	0	199	0	14	0	9	0
Ukraine[a]	235	0	3 281	16	0	0	90	0
Kosovo[a, b]	2	0	164	407	0	0	0	0
MIDDLE EAST AND NORTH AFRICA	1 205	4 380	2 505	11 414	0	6 098	53	168
Egypt[a]	479	65	149	804	0	853	24	0
Iraq[a]	271	1 139	248	525	0	0	2	1
Israel	0	0	0	1 299	0	0	0	0
Jordan[a]	115	1 565	327	2 458	0	642	12	1
Kuwait	0	0	0	0	0	0	0	0
Lebanon[a]	127	1 595	513	1 930	0	1 464	1	166
Libya[a]	0	0	0	268	0	0	0	0
Türkiye[a]	213	16	1 215	4 130	0	3 139	14	0
United Arab Emirates	0	0	0	0	0	0	0	0
Yemen[a]	0	0	53	0	0	0	0	0
OTHER COUNTRIES[c]	0	0	3	9	0	0	0	0
WORLDWIDE	21 806	8 856	81 640	25 169	22	7 867	643	670
	30 662		106 809		7 889		1 313	

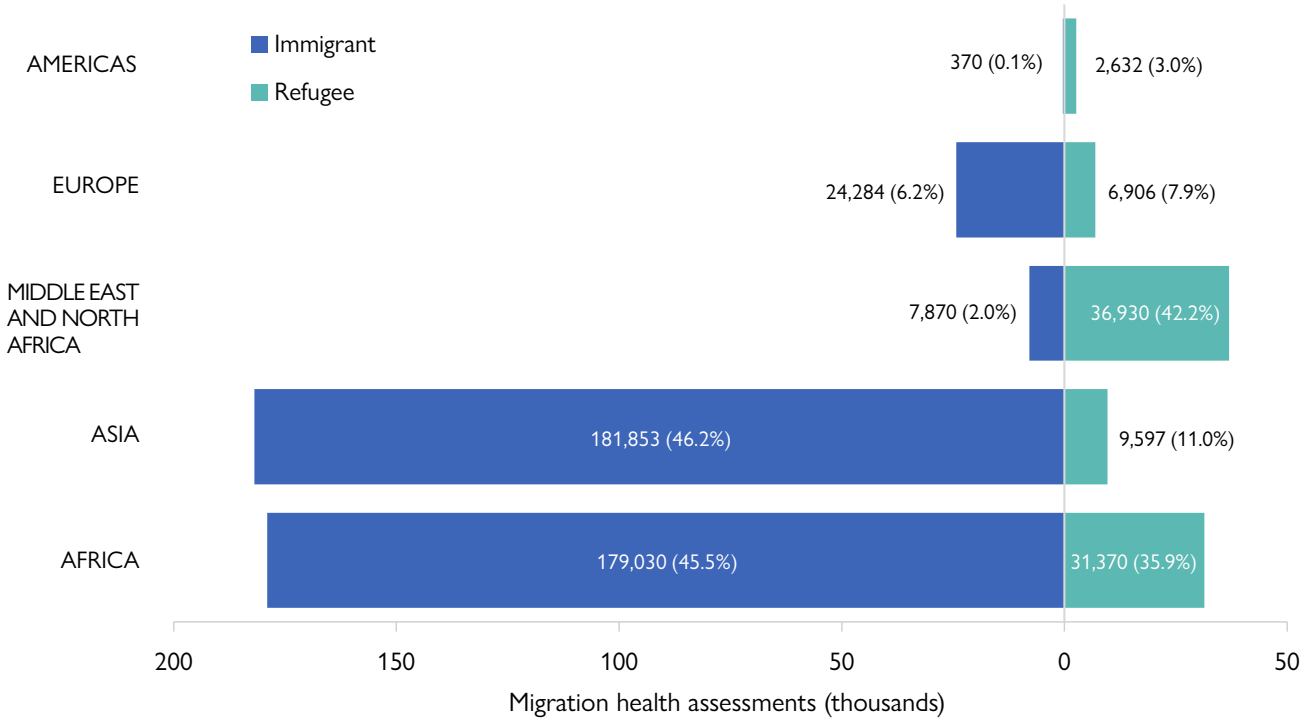
Notes: [a]Locations with an IOM MHAC, or where operations are carried out by IOM panel physicians. Other HAP-implementing locations do not have IOM MHAC capacity and conduct operations through mobile medical teams or in collaboration with partner providers.
[b]References to Kosovo shall be understood to be in the context of United Nations Security Council resolution 1244 (1999).
[c]Other countries include an additional 25 locations with a total of 50 or fewer MHAs.

COUNTRY OF DESTINATION										
SRI LANKA[d]		UNITED KINGDOM		UNITED STATES OF AMERICA		OTHER[e]		TOTAL		GRAND TOTAL
Immigrant	Refugee	Immigrant	Refugee	Immigrant	Refugee	Immigrant	Refugee	Immigrant	Refugee	No.
0	0	129 759	250	7 364	16 237	230	1 370	179 013	31 318	210 331
0	0	220	0	0	53	0	0	220	53	273
0	0	464	0	0	2	0	0	464	10	474
0	0	8	30	37	1 289	0	16	1 056	1 951	3 007
0	0	895	0	0	47	0	123	6 841	275	7 116
0	0	0	0	0	90	0	255	0	546	546
0	0	298	0	0	16	0	0	2 727	38	2 765
0	0	325	0	0	14	0	1	325	24	349
0	0	0	0	0	10	0	0	0	196	196
0	0	1 834	0	1 223	1 756	0	184	7 186	4 658	11 844
0	0	575	0	0	0	0	0	575	0	575
0	0	10 490	0	4	30	224	0	11 492	864	12 356
0	0	0	0	90	101	0	0	640	112	752
0	0	4 456	219	4 695	1 485	1	62	12 981	5 098	18 079
0	0	412	0	0	686	0	0	412	719	1 131
0	0	119	0	0	9	0	0	119	14	133
0	0	291	0	0	37	0	0	291	57	348
0	0	0	1	0	3	0	0	0	176	176
0	0	84 938	0	1 121	0	5	0	104 794	6	104 800
0	0	207	0	0	2 968	0	618	1 954	3 962	5 916
0	0	245	0	0	0	0	0	245	18	263
0	0	574	0	0	0	0	0	574	0	574
0	0	11 267	0	0	213	0	0	11 590	392	11 982
0	0	2 550	0	0	256	0	0	2 715	1 024	3 739
0	0	2 574	0	193	1 962	0	111	4 779	4 663	9 442
0	0	570	0	1	3 889	0	0	586	5 137	5 723
0	0	653	0	0	1 007	0	0	653	1 009	1 662
0	0	5 794	0	0	314	0	0	5 794	316	6 110
0	0	0	0	370	2 590	0	0	370	2 590	2 960
0	0	0	0	0	65	0	0	0	65	65
0	0	0	0	338	772	0	0	338	772	1 110
0	0	0	0	2	1 192	0	0	2	1 192	1 194
0	0	0	0	30	561	0	0	30	561	591
12 855	0	100 173	584	18 817	3 403	0	57	181 853	9 500	191 353
0	0	827	324	32	5	0	0	1 545	1 109	2 654
0	0	0	0	0	82	0	0	0	82	82
0	0	20 314	0	1 115	5	0	0	22 114	8	22 122
0	0	270	0	1 944	0	0	0	3 252	6	3 258
0	0	0	52	13	170	0	3	13	233	246
0	0	0	30	0	293	0	0	0	880	880
0	0	0	70	0	0	0	15	1	140	141
0	0	0	50	0	1 060	0	29	0	2 634	2 634
0	0	718	0	0	116	0	0	718	116	834
0	0	8 685	0	7 291	74	0	7	18 252	121	18 373
0	0	42 059	0	0	150	0	0	59 287	1 338	60 625
0	0	10 531	0	0	0	0	1	19 881	2	19 883
12 855	0	8 729	50	0	100	0	0	26 946	450	27 396
0	0	5 944	8	0	1 232	0	2	6 443	2 253	8 696
0	0	2 096	0	8 422	116	0		23 401	128	23 529
0	0	6 934	0	5 980	4 034	2 690	1 258	24 281	6 868	31 149
0	0	0	0	0	97	0	0	0	97	97
0	0	468	0	1 275	75	2	0	2 084	81	2 165
0	0	0	0	142	0	0	0	333	0	333
0	0	0	0	0	0	0	1 149	0	2 115	2 115
0	0	0	0	0	0	0	109	0	145	145
0	0	1 465	0	0	23	0	0	2 613	23	2 636
0	0	0	0	0	0	0	0	196	145	341
0	0	70	0	883	312	11	0	1 316	312	1 628
0	0	3 099	0	1 027	10	1 441	0	7 954	10	7 964
0	0	0	0	203	0	147	0	642	0	642
0	0	1 832	0	2 450	3 517	1 089	0	8 977	3 533	12 510
0	0	0	0	0	0	0	0	166	407	573
0	0	3 153	3 432	952	8 018	2	3 308	7 870	36 818	44 688
0	0	0	1 074	0	2 526	0	586	652	5 908	6 560
0	0	3 032	629	185	592	0	106	3 738	2 992	6 730
0	0	0	0	0	33	0	0	0	1 332	1 332
0	0	121	599	747	4 033	1	245	1 323	9 543	10 866
0	0	0	0	4	86	0	0	4	86	90
0	0	0	624	0	677	1	1 338	642	7 794	8 436
0	0	0	0	0	0	0	2	0	270	270
0	0	0	506	15	13	0	1 012	1 457	8 816	10 273
0	0	0	0	1	58	0	0	1	58	59
0	0	0	0	0	0	0	19	53	19	72
0	0	17	31	0	298	0	3	20	341	361
12 855	0	240 036	4 297	33 483	34 580	2 922	5 996	393 407	87 435	480 842
12 855		244 333		68 063		8 918		480 842		

Notes: [d]IOM operates the Inbound Health Assessment Programme in Sri Lanka.

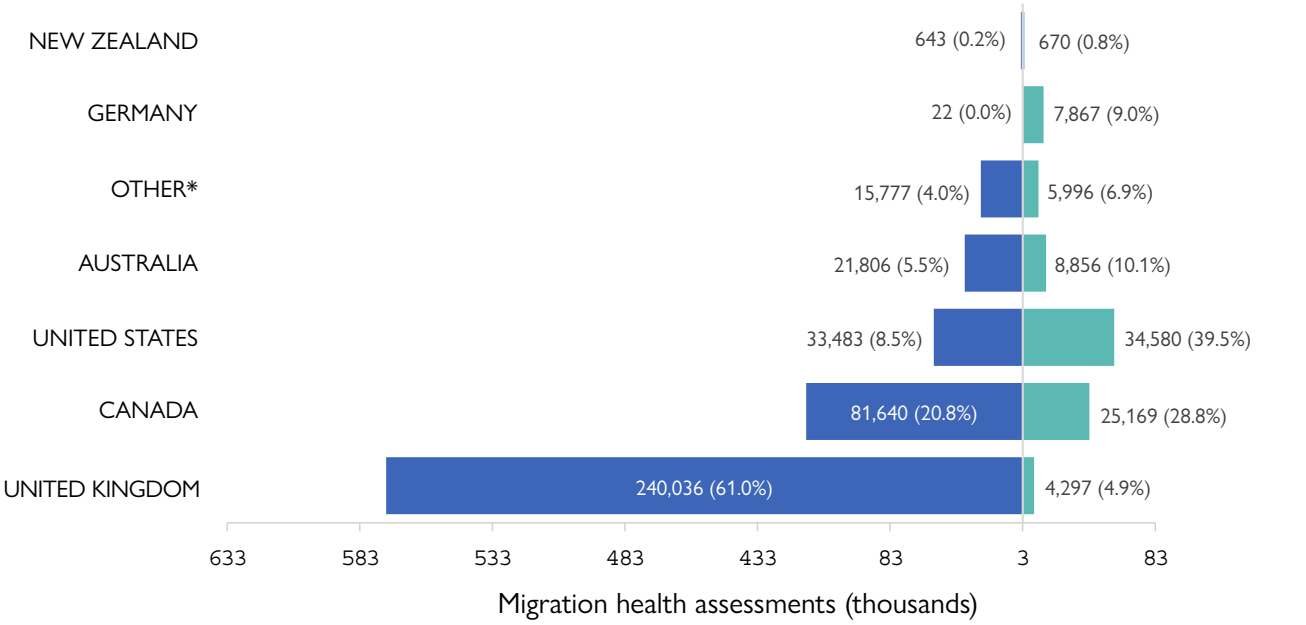
[e]"Other" includes the following destination countries: Argentina, Austria, Belgium, Bulgaria, China, Cyprus, Denmark, Finland, France, Iceland, Ireland, Italy, Japan, Lithuania, Luxembourg, the Netherlands, Norway, Poland, Portugal, the Republic of Korea, Romania, Singapore, Slovenia, South Africa, Spain, Sweden and Switzerland. Some UNHCR cases did not have an identified country of destination at the time of the migration health assessment.

Figure 13. IOM and IOM-assisted migration health assessments by migrant type and region of health assessment



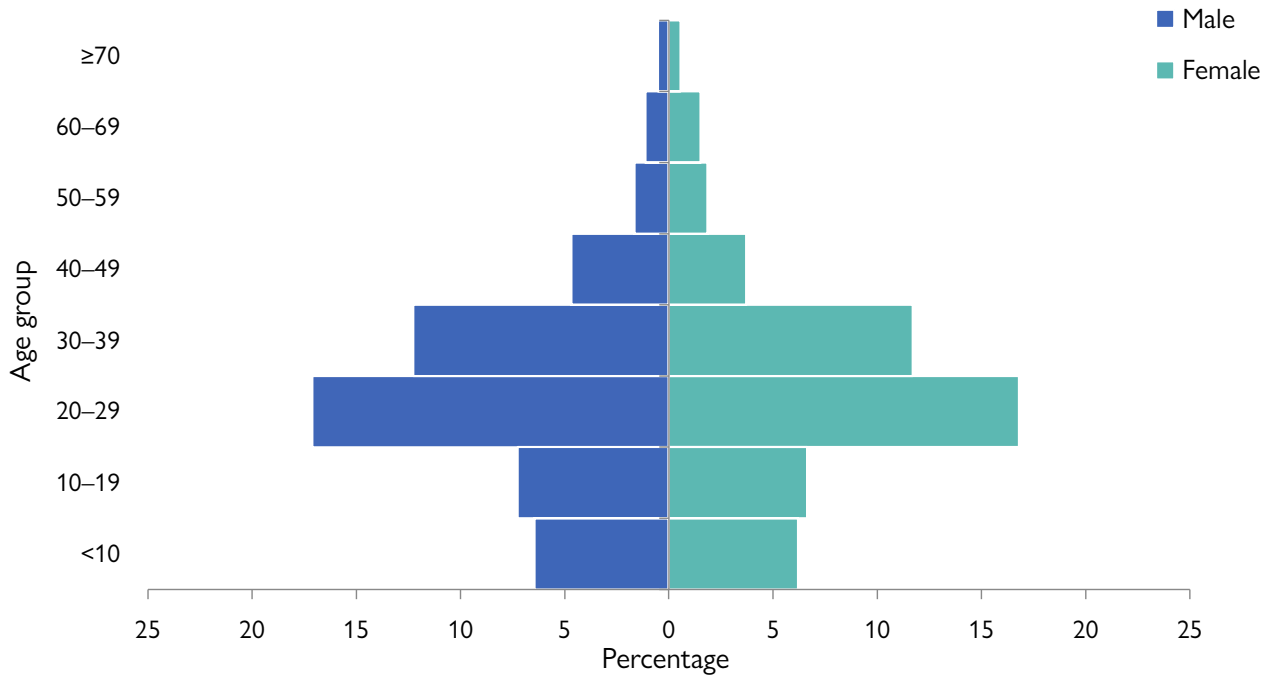
Source: IOM, 2021.
Notes: Total number of migration health assessments among refugees = 87,435.
Total number of migration health assessments among immigrants = 393,407.

Figure 14. IOM and IOM-assisted migration health assessments by migrant type and country of destination



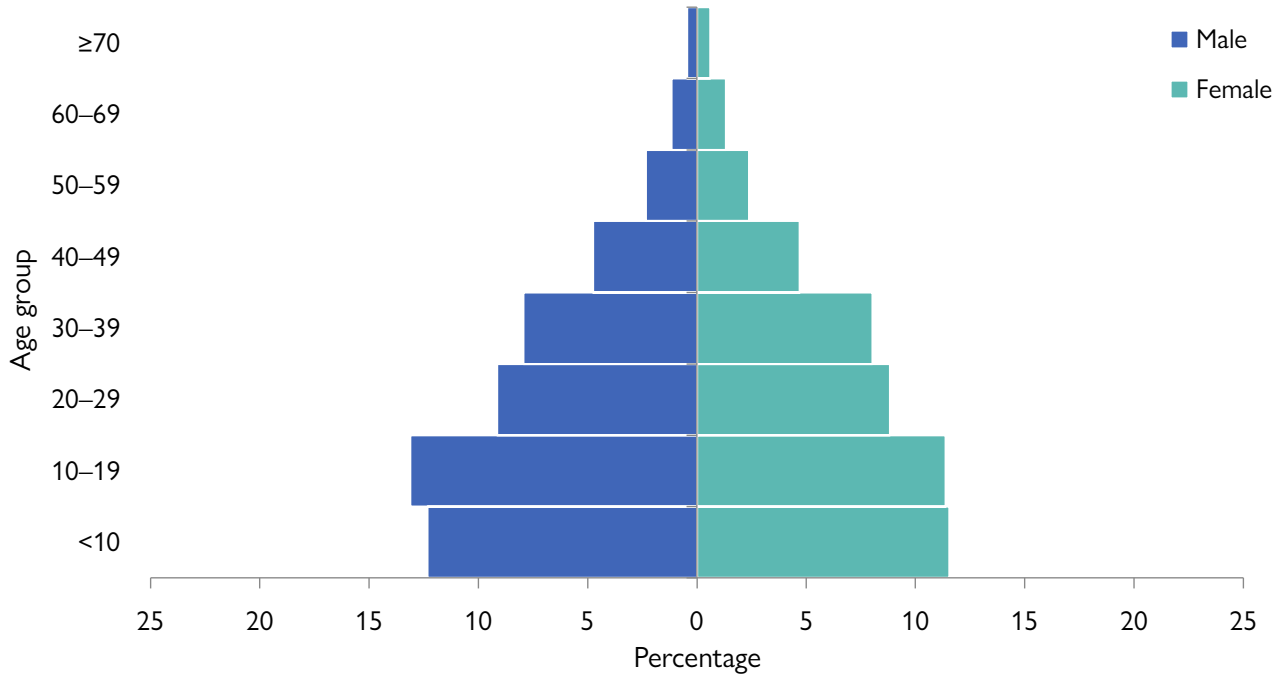
Source: IOM, 2021.
Notes: *Other also includes the IOM Sri Lanka Inbound Health Assessment Programme caseload = 12,855.
Total number of migration health assessments among refugees = 87,435. Total number of migration health assessments among immigrants = 393,407.

Figure 15. Distribution of migration health assessments among immigrants by sex and age



Source: IOM, 2021.
Note: Total number of migration health assessments among immigrants = 393,388 (excluding unknown or indeterminate sex category = 20).

Figure 16. Distribution of migration health assessments among refugees by sex and age



Source: IOM, 2021.
Note: Total number of health asessments among refugees = 87,434 (excluding unknown or indeterminate sex category = 1).

Table 2. Tuberculosis detection among all migrants, selected IOM operations, 2021

Selected Country Operations[a]	Total MHAs	Active TB			TB detection[b] per 100,000 MHAs		
		Lab[c]	Clinical[d]	Total	Lab[c]	Clinical[d]	Total
AFRICA							
Burundi	3 007	3	0	3	100	0	100
Cameroon	7 116	6	1	7	84	14	98
Democratic Republic of the Congo	2 765	1	1	2	36	36	72
Ethiopia	11 844	2	2	4	17	17	34
Ghana	12 356	3	3	6	24	24	49
Kenya	18 079	14	8	22	77	44	122
Malawi	1 131	1	0	1	88	0	88
Nigeria	104 800	53	4	57	51	4	54
Rwanda	5 916	5	0	5	85	0	85
South Africa	11 982	11	1	12	92	8	100
Sudan	3 739	0	0	0	0	0	0
Uganda	9 442	23	6	29	244	64	307
United Republic of Tanzania	5 723	5	1	6	87	17	105
Zambia	1 662	1	1	2	60	60	120
Zimbabwe	6 110	6	0	6	98	0	98
AMERICAS							
El Salvador	1 110	0	0	0	0	0	0
Guatemala	1 194	0	0	0	0	0	0
ASIA							
Afghanistan	2 654	0	0	0	0	0	0
Bangladesh	22 122	15	0	15	68	0	68
Cambodia	3 258	19	1	20	583	31	614
Malaysia	2 634	3	0	3	114	0	114
Nepal	18 373	24	2	26	131	11	142
Pakistan	60 625	45	3	48	74	5	79
Philippines	19 883	59	46	105	297	231	528
Sri Lanka	27 396	6	0	6	22	0	22
Thailand	8 696	10	5	15	115	57	172
Viet Nam	23 529	81	7	88	344	30	374
EUROPE AND CENTRAL ASIA							
Belarus	2 165	1	0	1	46	0	46
Greece	2 115	0	0	0	0	0	0
Kazakhstan	2 636	0	0	0	0	0	0
Republic of Moldova	1 628	0	0	0	0	0	0
Russian Federation	7 964	0	0	0	0	0	0
Ukraine	12 510	5	0	5	40	0	40
MIDDLE EAST AND NORTH AFRICA							
Egypt	6 560	6	2	8	91	30	122
Iraq	6 730	0	0	0	0	0	0
Israel	1 332	0	0	0	0	0	0
Jordan	10 866	0	0	0	0	0	0
Lebanon	8 436	1	0	1	12	0	12
Türkiye	10 273	1	1	2	10	10	19
OTHER LOCATIONS[e]	10 481	5	2	7	48	19	67
TOTAL	480 842	415	97	512	86	20	106

Notes: [a] IOM selected operations include locations with more than 1,000 assisted migrants.

[b] Calculation of TB case detection is done using total numbers of active TB cases (laboratory confirmed or clinically diagnosed TB) as numerator and total MHAs as denominator. MHAs include repeat medical examinations when the migrant undergoes more than one screening process to meet immigration health requirements or other related reasons.

[c] "Lab" refers to TB cases confirmed by sputum culture, or by molecular testing if sputum culture is not performed.

[d] "Clinical" refers to TB cases diagnosed based on clinical or radiological findings.

[e] "Other locations" refers to IOM operations with 1,000 or fewer assisted migrants.

Table 3. Tuberculosis detection among immigrants, selected IOM operations, 2021							
Selected Country Operations[a]	Total MHAs	Active TB			TB detection[b] per 100,000 MHAs		
		Lab[c]	Clinical[d]	Total	Lab[c]	Clinical[d]	Total
AFRICA							
Burundi	1 056	1	0	1	95	0	95
Cameroon	6 841	5	1	6	73	15	88
Democratic Republic of the Congo	2 727	1	1	2	37	37	73
Ethiopia	7 186	2	0	2	28	0	28
Ghana	11 492	2	3	5	17	26	44
Kenya	12 981	10	8	18	77	62	139
Nigeria	104 794	53	4	57	51	4	54
Rwanda	1 954	2	0	2	102	0	102
South Africa	11 590	9	0	9	78	0	78
Sudan	2 715	0	0	0	0	0	0
Uganda	4 779	9	1	10	188	21	209
Zimbabwe	5 794	5	0	5	86	0	86
ASIA							
Afghanistan	1 545	0	0	0	0	0	0
Bangladesh	22 114	15	0	15	68	0	68
Cambodia	3 252	19	1	20	584	31	615
Nepal	18 252	24	2	26	131	11	142
Pakistan	59 287	42	3	45	71	5	76
Philippines	19 881	59	46	105	297	231	528
Sri Lanka	26 946	5	0	5	19	0	19
Thailand	6 443	4	2	6	62	31	93
Viet Nam	23 401	81	7	88	346	30	376
EUROPE AND CENTRAL ASIA							
Belarus	2 084	1	0	1	48	0	48
Kazakhstan	2 613	0	0	0	0	0	0
Republic of Moldova	1 316	0	0	0	0	0	0
Russian Federation	7 954	0	0	0	0	0	0
Ukraine	8 977	2	0	2	22	0	22
MIDDLE EAST AND NORTH AFRICA							
Iraq	3 738	0	0	0	0	0	0
Jordan	1 323	0	0	0	0	0	0
Türkiye	1 457	0	0	0	0	0	0
OTHER LOCATIONS[e]	8 915	3	2	5	34	22	56
TOTAL	393 407	354	81	435	90	21	111

Notes: [a] IOM selected operations include locations with more than 1,000 assisted immigrants.
[b] Calculation of TB case detection is done using total numbers of active TB cases (laboratory confirmed or clinically diagnosed TB) as numerator and total MHAs as denominator. MHAs include repeat medical examinations when the migrant undergoes more than one screening process to meet immigration health requirements or other related reasons.
[c] "Lab" refers to TB cases confirmed by sputum culture or by molecular testing if sputum culture is not performed.
[d] "Clinical" refers to TB cases diagnosed based on clinical or radiological findings.
[e] "Other locations" refers to IOM operations with 1,000 or fewer assisted immigrants.

Table 4. Tuberculosis detection among refugees, selected IOM operations, 2021

Selected Country Operations[a]	Total MHAs	Active TB			TB detection[b] per 100,000 MHAs		
		Lab[c]	Clinical[d]	Total	Lab[c]	Clinical[d]	Total
AFRICA							
Burundi	1 951	2	0	2	103	0	103
Ethiopia	4 658	0	2	2	0	43	43
Kenya	5 098	4	0	4	78	0	78
Rwanda	3 962	3	0	3	76	0	76
Sudan	1 024	0	0	0	0	0	0
Uganda	4 663	14	5	19	300	107	407
United Republic of Tanzania	5 137	5	1	6	97	19	117
Zambia	1 009	0	1	1	0	99	99
AMERICAS							
Guatemala	1 192	0	0	0	0	0	0
ASIA							
Afghanistan	1 109	0	0	0	0	0	0
Malaysia	2 634	3	0	3	114	0	114
Pakistan	1 338	3	0	3	224	0	224
Thailand	2 253	6	3	9	266	133	399
EUROPE AND CENTRAL ASIA							
Greece	2 115	0	0	0	0	0	0
Ukraine	3 533	3	0	3	85	0	85
MIDDLE EAST AND NORTH AFRICA							
Egypt	5 908	6	2	8	102	34	135
Iraq	2 992	0	0	0	0	0	0
Israel	1 332	0	0	0	0	0	0
Jordan	9 543	0	0	0	0	0	0
Lebanon	7 794	1	0	1	13	0	13
Türkiye	8 816	1	1	2	11	11	23
OTHER LOCATIONS[e]	9 374	10	0	10	107	0	107
TOTAL	87 435	61	15	76	70	17	87

Notes: [a] IOM selected operations include locations with more than 1,000 assisted refugees.
[b] Calculation of TB case detection is done using total numbers of active TB cases (laboratory confirmed or clinically diagnosed TB) as numerator and total MHAs as denominator. MHAs include repeat medical examinations when the migrant undergoes more than one screening process to meet immigration health requirements or other related reasons.
[c] "Lab" refers to TB cases confirmed by sputum culture or by molecular testing if sputum culture is not performed.
[d] "Clinical" refers to TB cases diagnosed based on clinical or radiological findings.
[e] "Other locations" refers to IOM operations with 1,000 or fewer assisted refugees.

Table 5. Drug susceptibility test (DST) results among cases with Mycobacterium tuberculosis (MTB) growth on culture

DST	Number	%
RH sensitive[a]	1	0.2
Pansusceptible[b]	324	78.8
Monoresistant[c]	48	11.7
Polyresistant[d]	6	1.5
MDR-TB[e]	12	2.9
XDR-TB[f]	0	0.0
Not done[g]	14	3.4
Missing result[h]	6	1.5
TOTAL	411	100.0

Source: IOM, 2021.
Notes: [a] Sensitive to rifampicin and isoniazid first-line anti-TB drugs, sensitivity to other first-line anti-TB drugs was not assessed in this category.
[b] Susceptible to all first-line anti-TB drugs.
[c] Resistant to one first-line anti-TB drug only.
[d] Resistant to more than one first-line anti-TB drug (other than both isoniazid and rifampicin).
[e] Resistant to at least both isoniazid and rifampicin.
[f] Resistant to any fluroquinolone and to at least one of three second-line injectable drugs, in addition to multidrug resistance.
[g] Not done due to:
Reagent stockout, molecular test performed instead; non-tuberculous mycobacteria overgrowth; referral to national tuberculosis control programme for line probe assay; relocation due to in-country security situation.
[h] Reasons for missing result:
Relocation due to in-country security situation; loss to follow-up; result still pending.

Table 6. Immunological test results for latent tuberculosis by test and migrant type

Migrant type	Interferon gamma release assay (IGRA) Positive			Tuberculin skin test (TST) Positive			IGRA / TST Positive		
	Tested	No.	%	Tested	No.	%	Tested	No.	%
Immigrants	5 558	310	5.6	490	19	3.9	6 042	337	5.6
Refugees	13 922	833	6.0	1 034	61	5.9	14 830	1 132	7.6
TOTAL	19 480	1 143	5.9	1 524	80	5.2	20 872	1 469	7.0

Source: IOM, 2021.

Table 7. Immunological test results for latent tuberculosis by test and region

Region	IGRA Positive			TST Positive			IGRA / TST Positive		
	Tested	No.	%	Tested	No.	%	Tested	No.	%
Africa	8 607	737	8.6	161	38	23.6	8 712	949	10.9
Americas	794	27	3.4	0	0	0	794	27	3.4
Asia	3 909	141	3.6	879	25	2.8	4 785	197	4.1
Europe and Central Asia	2 251	20	0.9	87	2	2.3	2 338	62	2.7
Middle East and North Africa	3 919	218	5.6	397	15	3.8	4 243	234	5.5
TOTAL	19 480	1 143	5.9	1 524	80	5.2	20 872	1 469	7.0

Source: IOM, 2021.

Table 8. Detection yield of selected communicable diseases by region

Communicable disease	Test positivity by region (n - number of tests conducted)					
	Africa % (n)	Americas % (n)	Asia % (n)	Europe and Central Asia % (n)	Middle East and North Africa % (n)	Overall % (n)
Chlamydia	2.5% (43 202)	3.9% (4 161)	1.2% (32 035)	0 (13)	0.9% (7 590)	1.9% (87 001)
Gonorrhoea	0.3% (11 830)	0.2% (1 176)	0.1% (11 543)	<0.1% (5 295)	0.1% (3 923)	0.2% (33 767)
Hepatitis B	2.8% (18 347)	0.3% (2 445)	5.2% (6 617)	0.6% (4 250)	1.5% (14 815)	2.4% (46 474)
Hepatitis C	1.2% (1 888)	0 (2)	3.3% (3 023)	2.6% (195)	0.4% (6 474)	1.3% (11 582)
HIV	1.0% (40 692)	0 (1)	0.1% (47 495)	0.1% (7 161)	0.2% (19 993)	0.4% (115 342)
Malaria	4.3% (1 404)	0 (0)	0 (13 103)	0 (0)	0 (1)	0.4% (14 508)
Syphilis	0.3% (52 744)	0.4% (1 886)	0.2% (45 156)	<0.1% (13 248)	0.3% (23 773)	0.2% (136 807)

Source: IOM, 2021.

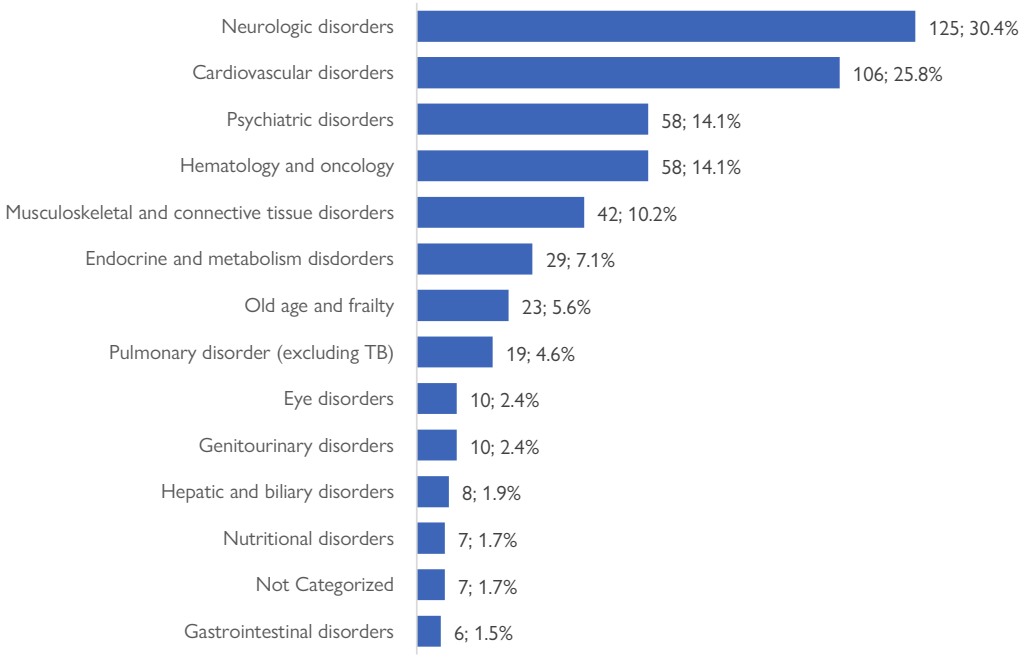
Table 9. Mental health conditions detected among all migrants according to region

Region	Immigrants					Refugees					Overall				
	Total MHAs	With mental health condition[a]		Psychiatric evaluation referral[b]		Total MHAs	With mental health condition[a]		Psychiatric evaluation referral[b]		Total MHAs	With mental health condition[a]		Psychiatric evaluation referral[b]	
		No.	%	No.	%		No.	%	No.	%		No.	%	No.	%
Africa	179 030	79	<0.1	76	<0.1	31 370	326	1.0	279	0.9	210 400	405	0.2	355	0.2
Americas	370	24	6.5	23	6.2	2 632	314	11.9	111	4.2	3 002	338	11.3	134	4.5
Asia	181 853	59	<0.1	51	<0.1	9 597	171	1.8	156	1.6	191 450	230	0.1	207	0.1
Europe and Central Asia	24 284	82	0.3	73	0.3	6 906	254	3.7	90	1.3	31 190	336	1.1	163	0.5
Middle East and North Africa	7 870	29	0.4	26	0.3	36 930	704	1.9	211	0.6	44 800	733	1.6	237	0.5
TOTAL	393 407	273	0.1	249	0.1	87 435	1,769	2.0	847	1.0	480 842	2 042	0.4	1 096	0.2

Source: IOM, 2021.

Notes: [a] Refers to mental health conditions detected by IOM migration health physicians during the migration health assessment.
[b] Refers to migration health assessments which included a further referral for specialist psychiatric evaluation following detection during the migration health assessment, where indicated.

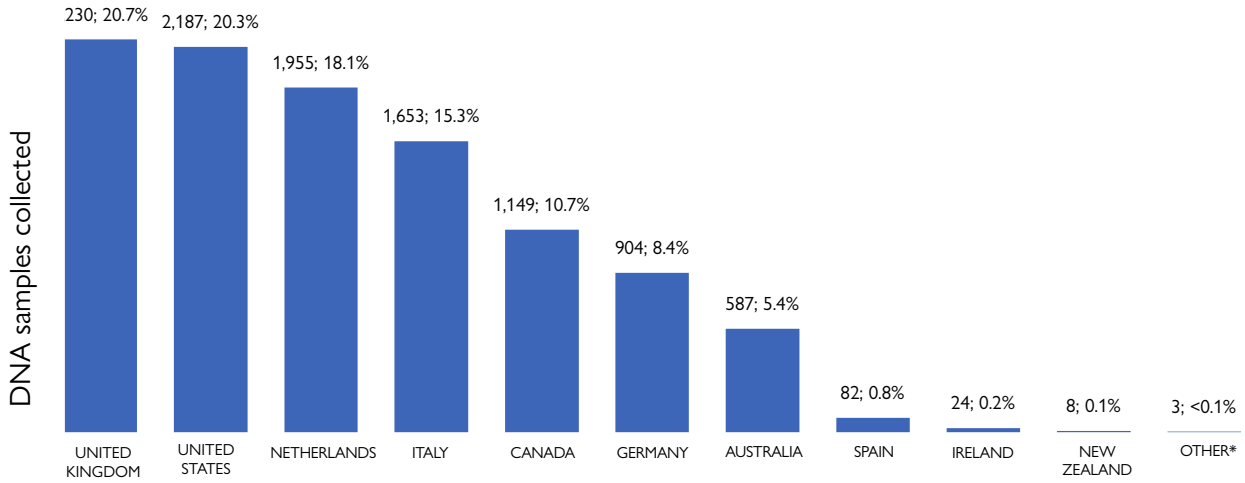
Figure 17. Pre-travel medical conditions of all escorted refugees



Source: IOM, 2021.

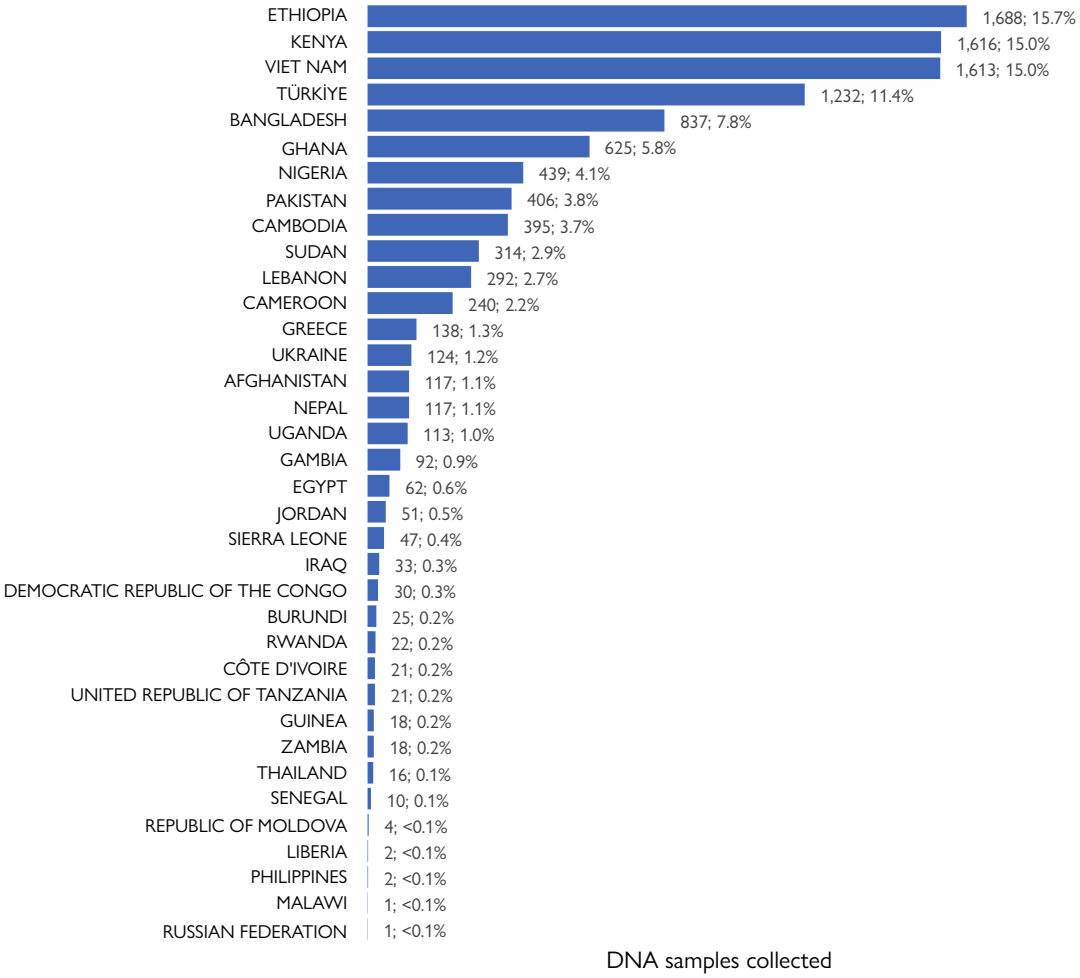
Note: Percentages are based on total number of medical conditions found = 411; multiple conditions were identified in some individuals. Total number of refugees travelling with a medical escort = 617.

Figure 18. IOM DNA sample collection services by country of destination



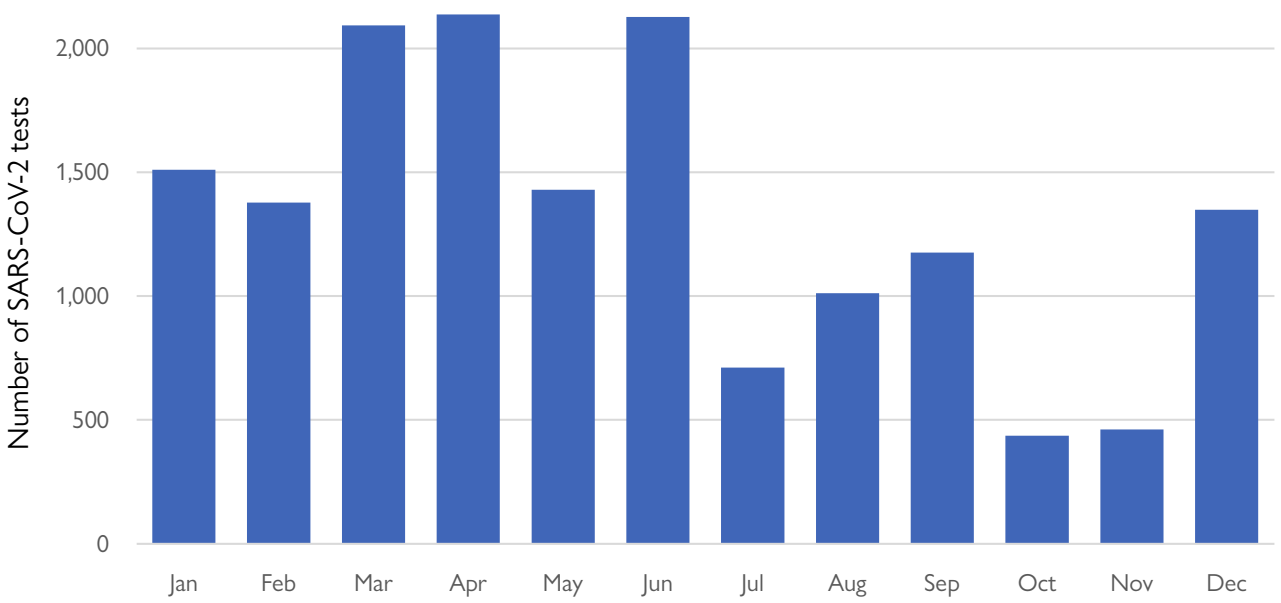
Source: IOM, 2021.
Notes: Total number of DNA samples collected = 10,782.
*Other refers to samples collected on behalf of UNHCR where the destination country has not yet been identified.

Figure 19. DNA samples collected by country of IOM migration health assessment



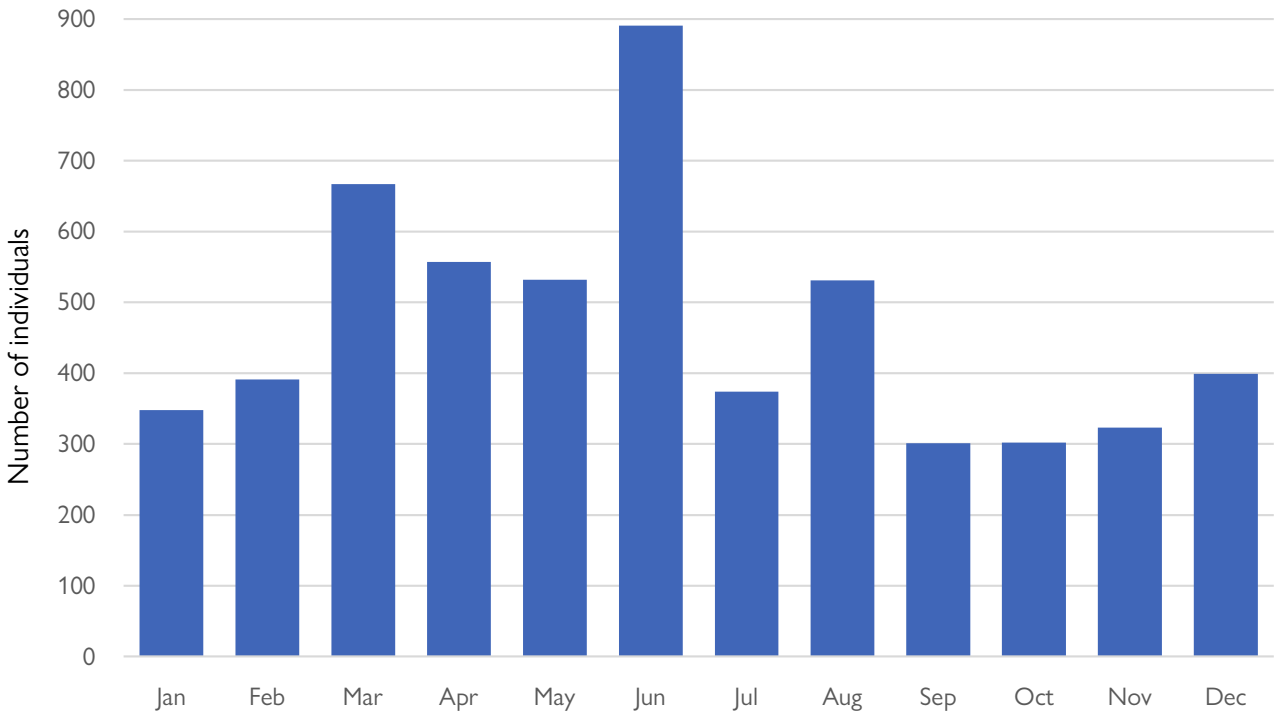
Source: IOM, 2021.
Note: Total number of DNA samples collected = 10,782.

Figure 20. Number of SARS-CoV-2 tests for clinical purposes per month for IOM FLoD



Source: IOM, 2021.

Figure 21. Number of individuals who received in-home monitoring services by month for IOM FLoD

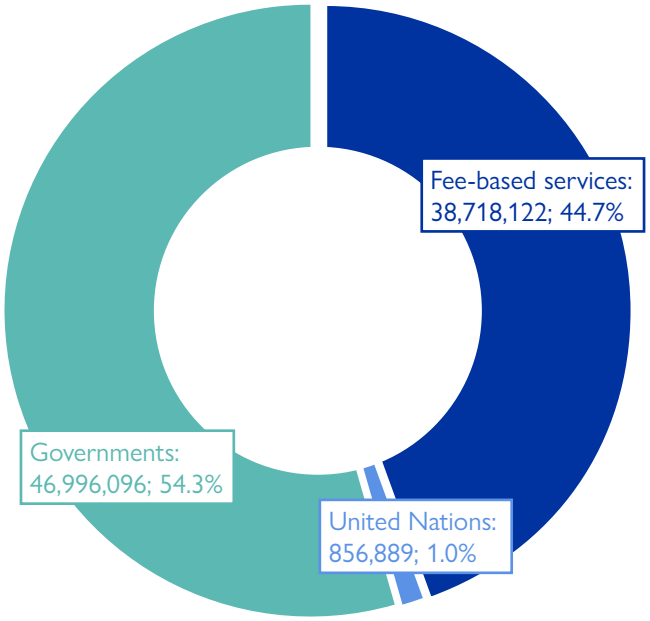


Source: IOM, 2021.

Table 10. Pre-migration health activities expenditure by funding source, 2020–2021

FUNDING SOURCE	2021 EXPENDITURE		2020 EXPENDITURE		Increase/(Decrease)	
	(in USD)	%	(in USD)	%	(in USD)	%
Governments	46,966,096	54.26	38,926,880	55.96	8,039,216	20.65
Fee-based services	38,718,122	44.73	30,066,139	43.23	8,651,983	28.78
United Nations	865,889	1.00	577,442	0.83	288,446	49.95
European Commission	0	0.00	(13,193)	-0.02	13,193	-100.00
TOTAL	86,550,107	100.00	69,557,269	100.00	16,992,838	24.43

Figure 22. Funding sources for pre-migration health activities, 2021



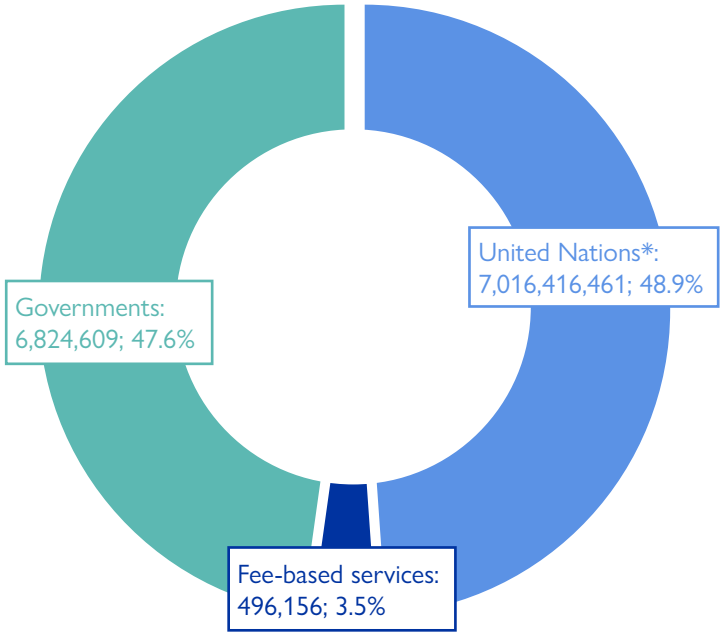
Note: All amounts are in United States dollars (USD).

Table 11. IOM First Line of Defence expenditure by funding source, 2021

FUNDING SOURCE	2021 EXPENDITURE	
	(in USD)	%
Fee-based services	496,156	3.5
Governments	6,824,609	47.6
United Nations*	7,016,461	48.9
TOTAL	14,337,226	100.0

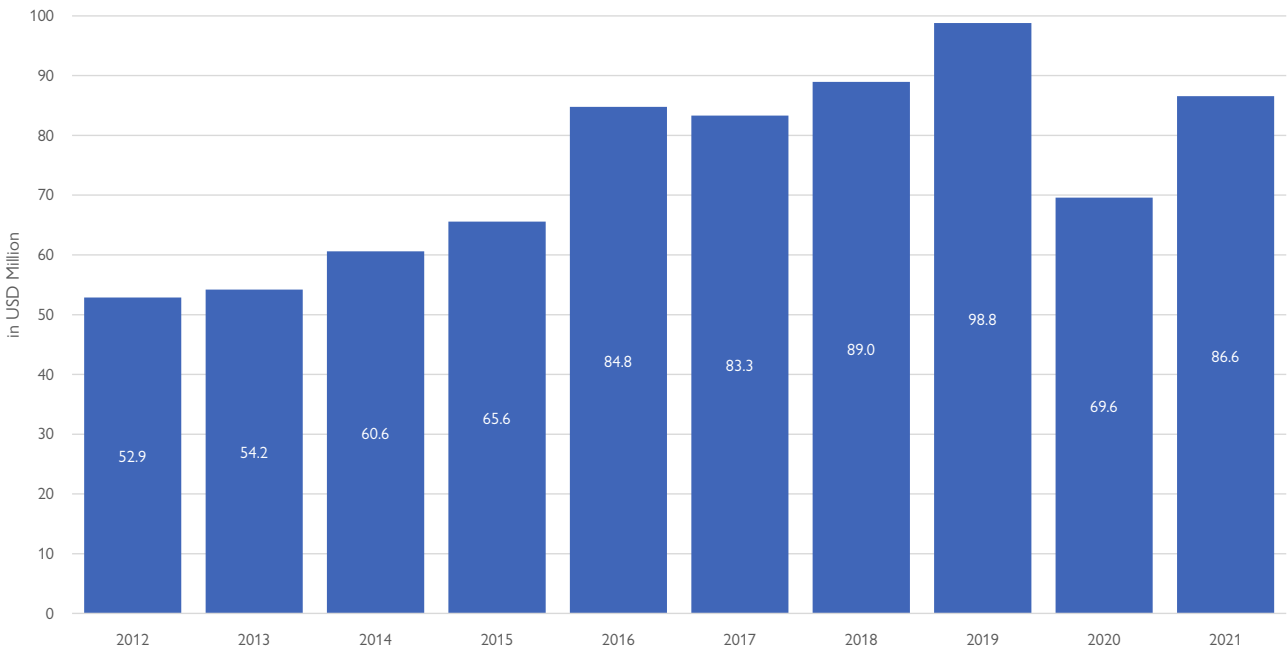
**Note:* United Nations also includes funds received from United Nations Country Teams in various implementing countries.

Figure 23. Funding sources for IOM First Line of Defence, 2021



Note: All amounts are in United States dollars (USD).

Figure 24. IOM pre-migration health activities expenditure, 2012–2021



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