2022 OVERVIEW

PRE-MIGRATION HEALTH ACTIVITIES

IOM
UN MIGRATION

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IOM is committed to the principle that humane and orderly migration benefits migrants and society. As an intergovernmental organization, IOM acts with its partners in the international community to: assist in meeting the operational challenges of migration; advance understanding of migration issues; encourage social and economic development through migration; and uphold the human dignity and well-being of migrants.

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All data in this report is sourced from IOM's institutional database, MiMOSA and the United Kingdom Tuberculosis Global Software, for the period January to December 2022. The dataset contains both IOM and IOM-assisted migration health assessments and related data, validated as of 31 May 2023.

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LIST OF ACRONYMS

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
HAP	Migration Health Assessment Programme (of the International Organization for Migration)
HIV	human immunodeficiency virus
IGRA	interferon gamma release assay
IHAP	Inbound Health Assessment Programme (of Sri Lanka)
IOM	International Organization for Migration
JPETS	Japan pre-entry tuberculosis screening programme
LIMS	laboratory information management system (of IOM)
MAF	medical assessment form
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)
NTP	National tuberculosis programme
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
SMC	significant medical condition
TB	tuberculosis
TST	tuberculin skin test
UNHCR	United Nations High Commissioner for Refugees
USRAP	United States Refugee Admissions Program

IOM physician carrying out a physical examination at the IOM MHAC in Bangkok, Thailand. © IOM 2022/Raber AZIZ

KEY DEFINITIONS

IOM Migration Health Assessment Programme (HAP)

The overarching term for the designation of projects administering the full spectrum of pre-migration health activities and other complimentary health services at the request of and in agreement with receiving country governments.

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 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:

1. 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.

2. 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: A state of physical and mental health that enables a person to travel safely, with no significant risk of deterioration under normal circumstance and with no risk of jeopardizing the safety or well-being of other passengers.

OVERVIEW

BACKGROUND

Within its Migration Health Division (MHD), the International Organization of Migration (IOM) delivers and promotes comprehensive, preventive, and curative health programmes which are beneficial, accessible and equitable for migrants. Pre-migration health activities (PMHAs) are one of the longest-standing services offered as a key part of this work, 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 additional preventative interventions (such as administration of additional vaccine doses, health promotion, other), 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.

This report showcases the significant PMHA achievements and highlights throughout the year, expanding on the overall migration health achievements of IOM presented in the IOM Migration Health 2022 Impact Overview.

A migration health assessment at the IOM MHAC in Bangkok, Thailand. © IOM 2022/Raber AZIZ

Figure 1. 2022 PMHA key figures

2022 KEY FIGURES

70
IOM migration health assessment centres (MHACs) globally

1,500+
Health staff engaged in pre-migration health activities

34
IOM laboratories worldwide, including **10** IOM TB containment laboratories*

2
Teleradiology centres networked to **119** locations worldwide **49%** of IOM MHACs with IOM-owned X-ray units.

10,126
DNA samples were collected in IOM MHACs across **36** countries worldwide to facilitate family reunification

121,000+
Refugees and immigrants vaccinated, with **483,000** total doses administered

737,150
Chest X-rays were taken as part of the MHA process, of which **27,110 (3.7%)** had abnormal findings suggestive of TB.

1,043
Active TB cases were detected. **462** patients **(44.3%)** were provided treatment by IOM while the rest were referred to national TB programmes.

904,464
Migration health assessments conducted worldwide (**85%** among immigrants and **15%** among refugees)

1,055
Medical escorts assigned to refugees with significant medical conditions for travel to their countries of destination

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

IOM HEALTH ASSESSMENT PROGRAMME FOOTPRINT

IOM undertakes PMHAs through 70 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).

IOM has provided or facilitated the delivery of MHAs for over 6.3 million migrants[2] on behalf of more than 30 destination countries, spanning across over 100 countries throughout Africa, Asia, Europe, Latin America and the Middle East and North Africa since the year 2000 alone. Caseload data has demonstrated an overall upward trend over the past 10 years, with a significant increase noted in 2021. With the easing of COVID-19-related travel restrictions in numerous locations worldwide and subsequent resumption of travel and other external factors, there was a notable caseload surge in 2022, with over 904,000 IOM and IOM-assisted MHAs conducted globally. This covered 85.4 per cent immigrants and 14.6 per cent refugees and represented an 88.1 per cent overall increase from 2021, with a 51.2 per cent overall increase among refugee MHAs, and a 96.3 per cent increase among immigrant MHAs. The 10-year trend is illustrated by region of MHA and country of destination in Figures 7 to 10 in the Annex.

A detailed breakdown of the main destination countries and caseloads is presented in Table 1 and Figures 11 and 12 in the Annex. In addition, 109,664 PDMPs were carried out across 96 countries.

Profile of immigrants

Most MHAs among immigrants in 2022 were conducted in Nigeria (31.6%), Pakistan (8.7%), and Sri Lanka (7.2%)[3]. The top destination countries were the United Kingdom (61.2%), Canada (17.3%) and Australia (11.5%). Of the MHAs conducted, 50.6 per cent were among females and 49.4 per cent among males. Most MHAs were among immigrants under the age of 40 (82.3%), with the highest proportion in the 20–29 age group (see Figure 13 in the Annex).

Profile of refugees

Most MHAs among refugees in 2022 were conducted in Pakistan (8.0%), the United Republic of Tanzania (7.7%) and Uganda (7.1%). The top destination countries were the United States (46.6%), Canada (29.2%) and Australia (9.0%). The Democratic Republic of the Congo, the Syrian Arab Republic, Afghanistan, Eritrea and Myanmar were the top five countries of origin among refugee MHAs conducted. The sex distribution was similar to that of immigrants, with 49.6 per cent of MHAs conducted among females and 50.4 per cent among males. As for immigrants, most MHAs were also among refugees younger than 40 (82.9%), but with the highest proportion in the 0–9 age group (see Figure 14 in the Annex.)

A migration health assessment at the IOM MHAC in Amman, Jordan. © IOM 2022/Raber AZIZ

[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, 21 per cent were MHAs conducted as part of the IHAP, provided for resident visa applicants soon after arrival to Sri Lanka.

MEETING HIGHER CASELOAD NEEDS: THE EXAMPLE OF HARARE

The MHAC in Harare, Zimbabwe, was established in 2013 to provide PMHAs for immigrants under the United Kingdom tuberculosis (TB) Detection Programme, as well as for a small number of refugees. From its inception until the end of 2020, the MHAC, initially located in the IOM Zimbabwe country office, provided services for an average of approximately 2,000 clients per year, on behalf of the United Kingdom and other destination countries.

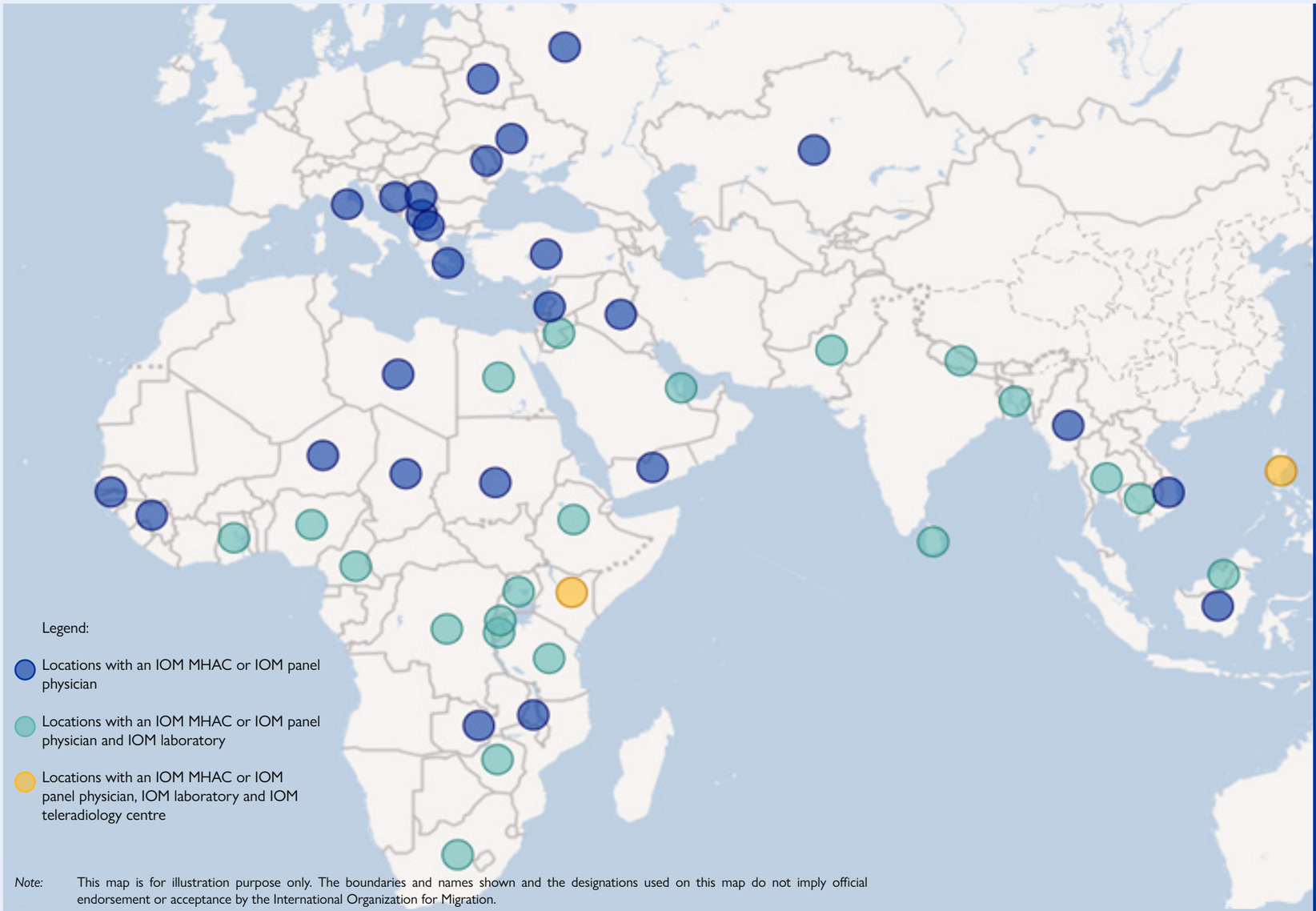
In 2021, following several years of modest growth that continued despite the COVID-19 pandemic, the MHAC moved to a new site, where an all-encompassing facility was established, with in-house radiology and laboratory capacity. This proved timely, as an unprecedented caseload surge was noted soon thereafter. While in 2021, the MHAC had provided just over 6,000 MHAs, in 2022, nearly 46,500 MHAs were provided, representing a nearly eight-fold increase over the previous year and more than double the number of MHAs provided since the MHAC's establishment.

This significant increase in demand for services required enhancements in the MHAC's capacity, while ensuring a consistently high standard in service provision. Additional staff were recruited, increasing the MHAC workforce from 10 staff in early 2022 to approximately 45 staff by the end of the year, with plans to hire another 20 staff in 2023. The newly recruited staff underwent a series of orientation and training sessions, and some were deployed to IOM MHACs in other countries to learn and diversify their experience in PMHAs. Additionally, the MHAC infrastructure was expanded through the construction and outfitting of an annex building to extend the client waiting area and create additional office space.

Monitoring visits were carried out by IOM regional technical experts and mobile teams from across the region were deployed to Zimbabwe for support as needed, ensuring the smooth continuation of service provision during the period of rapid expansion. Going forward, the MHAC plans to launch an integrated online appointment system for migrants, among other measures for the continued provision of migrant-friendly services. The MHAC received a series of assessment visits from major receiving country partners toward the end of the year; the diligent efforts and achievements of the IOM team under unpredictable circumstances were acknowledged and appreciation was expressed for the facility enhancements made during the year.

Radiologic technologists at the IOM MHAC in Harare, Zimbabwe. © IOM 2022

Figure 2. IOM HAP global footprint



Note: This map is for illustration purpose 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: © 2023 Microsoft Corporation.

Locations of IOM Migration Health Assessment Centres

AFRICA

Burundi: Bujumbura
Cameroon: Douala, Yaoundé
Chad: N'Djamena
Democratic Republic of the Congo: Kinshasa
Ethiopia: Addis Ababa, Jijiga
Gambia: Banjul
Ghana: Accra
Guinea: Conakry
Kenya: Dadaab, Kakuma, Nairobi
Malawi: Lilongwe
Niger: Niamey
Nigeria: Abuja, Lagos (2)
Rwanda: Kigali
South Africa: Pretoria
Sudan: Khartoum
Uganda: Kampala
United Republic of Tanzania: Makere
Zambia: Lusaka
Zimbabwe: Harare

ASIA

Bangladesh: Dhaka, Sylhet
Cambodia: Phnom Penh
Indonesia: Jakarta, Makassar, Medan
Malaysia: Kuala Lumpur
Myanmar: Yangon
Nepal: Damak, Kathmandu
Pakistan: Islamabad (2), Karachi, Lahore, Mirpur
Philippines: Manila
Sri Lanka: Colombo (Inbound and Outbound Programmes)
Thailand: Bangkok, Mae Sot
Viet Nam: Hanoi, Ho Chi Minh City

EUROPE AND CENTRAL ASIA

Belarus: Minsk
Bosnia and Herzegovina: Sarajevo
Greece: Athens
Italy: Rome
Kazakhstan: Almaty, Nur-Sultan
North Macedonia: Skopje
Republic of Moldova: Chisinau
Russian Federation: Moscow
Serbia: Belgrade
Ukraine: Kyiv, Lviv
Kosovo*: Pristina

MIDDLE EAST AND NORTH AFRICA

Egypt: Cairo
Iraq: Baghdad, Erbil
Jordan: Amman
Lebanon: Beirut
Libya: Tripoli
Qatar: Doha
Türkiye: Ankara, Istanbul
Yemen: Aden

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

Locations of IOM Teleradiology Centres

AFRICA

Kenya: Nairobi

ASIA

Philippines: Manila

Locations of IOM HAP laboratories

AFRICA

Burundi: Bujumbura
Cameroon: Douala, Yaoundé
Democratic Republic of the Congo: Kinshasa
Ethiopia: Addis Ababa, Jijiga
Ghana: Accra
Kenya: Dadaab, Kakuma, Nairobi
Nigeria: Abuja, Lagos, Maiduguri
Rwanda: Kigali
South Africa: Pretoria
Uganda: Kampala
United Republic of Tanzania: Makere
Zimbabwe: Harare

ASIA

Bangladesh: Dhaka
Cambodia: Phnom Penh
Malaysia: Kuala Lumpur
Nepal: Damak, Kathmandu
Philippines: Manila
Pakistan: Islamabad, Karachi, Lahore
Sri Lanka: Colombo (Inbound and Outbound Programmes)
Thailand: Bangkok, Mae Sot

MIDDLE EAST AND NORTH AFRICA

Egypt: Cairo
Jordan: Amman
Qatar: Doha

SERVICES AND CAPACITIES

STAFF CAPACITY

IOM depends on well-trained and qualified personnel for the timely and efficient delivery of PMHAs that are beneficial, accessible and equitable for migrants. For effective management of the caseload surge noted during the year, capacity enhancements were required across the programme, including bolstering staff capacity. Over 1,500 health staff were engaged in PMHAs as of December 2022, comprising approximately 320 physicians, 430 nurses and over 750 other health staff, in areas such as laboratory, radiology, medical information technology and more, as well as operations and administrative staff. This represented a 58.0 per cent increase over 2021. The five-year staffing trend is illustrated in Figure 15 in the Annex.

RADIOLOGY SERVICES

Chest X-ray (CXR) examination is the mainstay of imaging used for screening for 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 49 per cent of IOM MHACs provide CXR services through IOM-owned X-ray units, while all others are ensured through external providers.

IOM's radiology services use digital radiography systems producing DICOM (Digital Imaging and Communications in Medicine) images and high-resolution diagnostic monitors for CXR reading.

In 2022, chest X-rays were taken as part of 737,150 MHAs, of which 27,110 (3.7%) had abnormalities suggestive of TB requiring further laboratory investigations.

Preparing for chest X-ray at the IOM MHAC in Accra, Ghana. © IOM 2022/Angela BORTEY

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 quality real-time teleradiology services that include primary reading, second consultation and radiology support to IOM and non-IOM locations[4] across the world. The global centre designs and leads the development, expansion, and technical support of the radiology systems, as well as quality control, training, development of guidelines and standards, research, and collaboration with governments and global partners in the sector.

The teleradiology centres use global Picture Archiving and Communication System networking and DICOM image transfer from IOM and non-IOM panel sites, innovative web-based teleradiology reporting applications, diagnostic high-resolution monitors and DICOM viewing software and a live-chat system to provide teleradiology support.

As of December 2022, IOM's teleradiology centres were networked to 119 active locations worldwide, including 97 IOM locations and 22 non-IOM panel sites.[4] Of these, 87 locations were networked to the global Manila teleradiology centre (69 IOM locations and 18 non-IOM locations) while 54 locations across Africa were networked to the Nairobi teleradiology centre (50 IOM locations and 4 non-IOM locations); 22 of the locations in Africa were networked to both the Manila and Nairobi teleradiology centres (see Figure 3).

IOM's teleradiology centres interpreted a total of 643,016 CXRs in 2022, accounting for 87.2 per cent of the total CXR caseload. Of the CXRs interpreted by the teleradiology centres, 309,879 (48.2%) were read in Manila and 333,137 (51.8%) in Nairobi. The remaining CXR caseload (94,134 or 12.8%) was read by IOM or outsourced radiologists in different missions. The primary CXR reading trend over the past five years is shown in Figure 16 in the Annex.

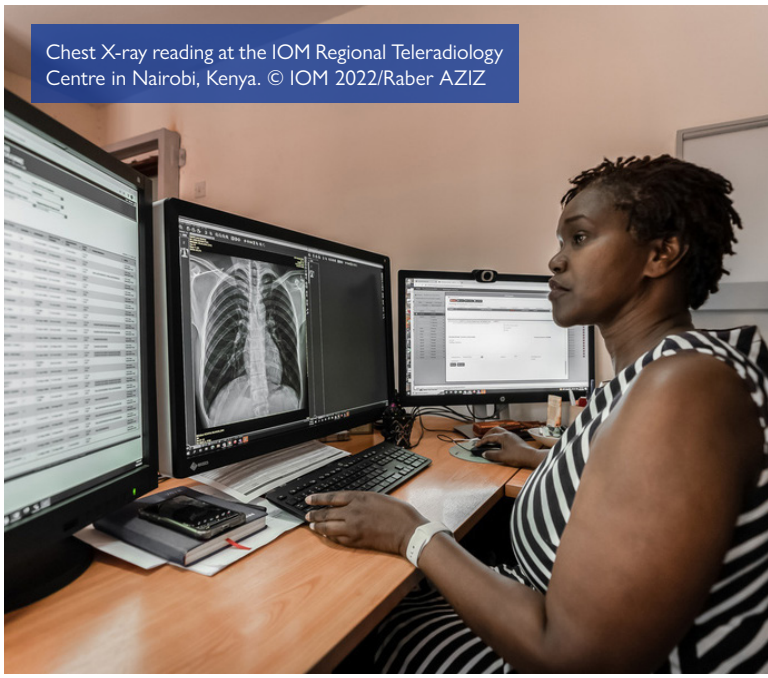
In 2022, to enhance the quality of teleradiology services, the centres continued to strengthen their internal quality assurance monitoring through an internal peer review process for 10 per cent of CXRs from all locations assisted with primary reading, as well as analysis of data on performance indicators, regular training of consultant radiologists and support staff and regular consultations and image viewing sessions.

The global Manila teleradiology centre also conducts a quality control programme, to help operations identify gaps in the radiology service and implement corrective actions based on expert recommendations. In coordination with governments of destination countries, IOM's quality control programme has been extended to 11 non-IOM panel sites.

In 2022, the global Manila teleradiology centre provided quality control to 42 locations for a total of 19,485 CXR cases. The development of a teleradiology primary reading and quality control application was completed in 2022, with new features for the forthcoming Japan pre-entry TB screening programme (JPETS).

The global Manila teleradiology centre participated in a collaborative computer-aided detection research study, and a neural network training for the United States Centers for Disease Control and Prevention (CDC) in-house development of an artificial intelligence TB detection application.

In addition, the global Manila teleradiology centre provides radiology workshops, web-based and on-site trainings for IOM and non-IOM locations, continuous professional development for consultant radiologists, radiology audit visits and feedback, as well as policy recommendations.



Chest X-ray reading at the IOM Regional Teleradiology Centre in Nairobi, Kenya. © IOM 2022/Raber AZIZ

[4] 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.

Figure 3. IOM global teleradiology network as of December 2022

CONNECTED TO IOM MANILA TELERADIOLOGY CENTRE			
Afghanistan, Doha–Kabul	Iraq, Baghdad	Pakistan, Islamabad	Sudan (the), Khartoum
Afghanistan, Kabul	Iraq, Erbil	Pakistan, Islamabad IDC	Syrian Arab Republic, Damascus non-IOM
Algeria, Algiers non-IOM	Israel, Jerusalem non-IOM	Pakistan, Karachi	Thailand, Bangkok
Algeria, Algiers SMC non-IOM	Jordan, Amman	Pakistan, Lahore	Thailand, Mae Hong Son
Bangladesh, Cox's Bazar	Kazakhstan, Almaty	Pakistan, Mirpur	Thailand, Mae Sot
Bangladesh, Dhaka Clinic	Kazakhstan, Nur-Sultan	Papua New Guinea, Manus non-IOM	Timor-Leste, Dili non-IOM
Bangladesh, Sylhet	Kenya, Dadaab	Papua New Guinea, Port Moresby non-IOM	Türkiye, Ankara
Belarus, Minsk	Kenya, Kakuma	Philippines (the), Baguio non-IOM	Türkiye, Istanbul
Burundi, Bujumbura	Kenya, Nairobi	Philippines (the), Cebu City non-IOM	Uganda, Hoima
Cambodia, Phnom Penh	Kenya, Nairobi Teleradiology	Philippines (the), Davao non-IOM	Uganda, Kampala
Cameroon, Douala	Lebanon, Beirut	Philippines (the), Manila Teleradiology	Uganda, Kyenjojo
Cameroon, Yaoundé	Libya, Tripoli	Philippines (the), Manila Health Centre	Uganda, Mbarara
Egypt, Cairo	Malawi, Lilongwe non-IOM	Poland, Warsaw	Ukraine, Kyiv
Ethiopia, Addis Ababa	Malaysia, Kuala Lumpur	Qatar, Doha	United Republic of Tanzania, Dar es Salaam
Ethiopia, Jijiga	Morocco, Rabat	Republic of Moldova, Chisinau	United Republic of Tanzania, Makere
Ghana, Accra	Myanmar, Yangon	Romania, Bucharest non-IOM	Viet Nam, Da Nang non-IOM
Greece, Athens	Myanmar, Yangon non-IOM	Romania, Timisoara non-IOM	Viet Nam, Hanoi
Indonesia, Makassar	Nauru, Nauru non-IOM	Russian Federation, Moscow	Viet Nam, HCMC Care1
Indonesia, Medan	Nepal, Damak	Rwanda, Kigali	Viet Nam, Ho Chi Minh City
Indonesia, Surabaya non-IOM	Nepal, Kathmandu	South Africa, Pretoria	Yemen, Aden
Indonesia, Tangerang	Nigeria, Abuja	Sri Lanka, Colombo	Zambia, Lusaka
Iran (Islamic Republic of), Tehran	Nigeria, Lagos 1	Sri Lanka, Colombo IHAP	Kosovo*, Pristina

CONNECTED TO IOM NAIROBI REGIONAL TELERADIOLOGY CENTRE			
Angola, Luanda	Ethiopia, Addis Ababa	Mozambique, Maputo	South Africa, Pretoria non-IOM
Botswana, Francistown	Ethiopia, Jijiga	Namibia, Windhoek	South Sudan, Juba
Botswana, Gaborone	Gambia (the), Banjul IOM	Niger (the), Niamey	Sudan (the), Khartoum
Burundi, Bujumbura	Gambia (the), Banjul non-IOM	Nigeria, Abuja	Togo, Lomé
Cameroon, Douala	Ghana, Accra	Nigeria, Lagos 1 and 2	Uganda, Hoima
Cameroon, Yaoundé	Guinea, Conakry	Rwanda, Kigali	Uganda, Kampala
Central African Republic, Bangui	Kenya, Dadaab	Senegal, Dakar	Uganda, Kyenjojo
Chad, N'Djamena	Kenya, Kakuma	Sierra Leone, Freetown	Uganda, Mbarara
Congo (the), Brazzaville	Kenya, Nairobi	Sierra Leone, Freetown non-IOM	United Republic of Tanzania, Dar es Salaam
Côte d'Ivoire, Abidjan	Kenya, Nairobi Teleradiology	Somalia, Hargeisa	United Republic of Tanzania, Makere
Democratic Republic of the Congo, Kinshasa	Madagascar, Antananarivo	Somalia, Mogadishu	Zambia, Lusaka
Djibouti, Djibouti	Malawi, Lilongwe	South Africa, Cape Town	Zambia, Lusaka non-IOM
Eswatini, Mbabane	Mauritania, Nouakchott	South Africa, Pretoria	Zimbabwe, Harare

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

LABORATORY SERVICES

As of December 2022, IOM HAP operated 34 in-house laboratories in 23 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, 18 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, 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 three laboratories in Egypt (Cairo), Jordan (Amman) and Qatar (Doha). 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), Sri Lanka (Colombo inbound and outbound programmes) and Thailand (Bangkok, Mae Sot).

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

Preparing sputum samples in the IOM TB containment laboratory in Nairobi, Kenya. © IOM 2022/Raber AZIZ

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 multi-disease 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.

Ten 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 also play a role in the detection of mutations associated with resistance to the newer medicines used to treat drug-resistant TB.

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.

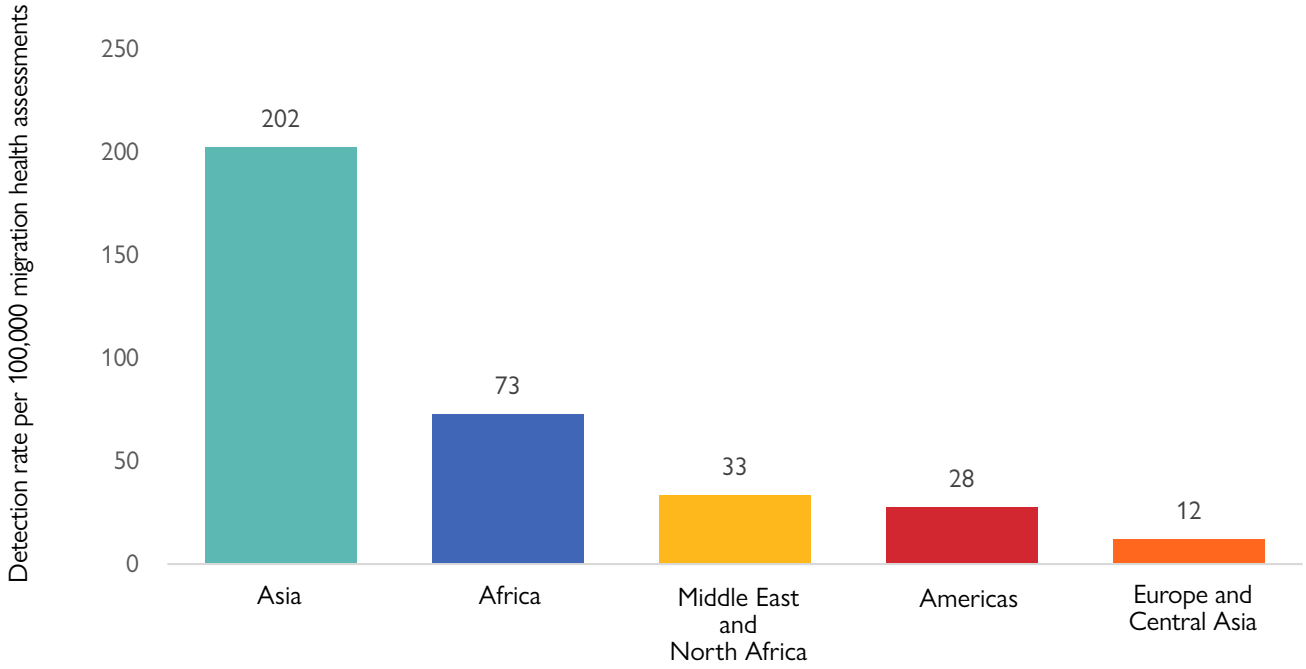
IOM works in collaboration with national TB programmes (NTPs) and other partners and is committed to improving TB detection and management, reducing cross-border transmission and enhancing the capacity of NTPs.

During 2022, laboratory investigations for TB were undertaken as part of 21,150 MHAs, leading to the diagnosis of 844[5] bacteriologically confirmed cases of TB. When combined with diagnoses made based on clinical or radiological findings alone meeting the case definition for active TB requiring treatment, it amounted to 1,043 cases: an overall detection yield of 115 per 100,000 MHAs, with a detection yield of 118 per 100,000 MHAs among immigrants and 98 per 100,000 MHAs among refugees.

Most active TB cases were detected in Asia (64.6%) and Africa (32.9%). The countries with the highest TB detection yield were the Philippines (686 per 100,000 MHAs), the Niger (504 per 100,000 MHAs) and Viet Nam (363 per 100,000 MHAs). Detailed breakdown of detection yields by region and by country of migration health assessment is available in Figure 4 below and Tables 2 to 4 in the Annex.

[5] 844 is the total count of bacteriologically confirmed TB cases (of which 806 were culture-confirmed and an additional 38 were confirmed using the Xpert MTB/RIF or Xpert MTB/RIF Ultra assays alone).

Figure 4. Tuberculosis detection among all migrants by region



Source: IOM, 2022.
Note: Detection represents all active TB cases (laboratory-confirmed and clinically diagnosed TB) = 1,043. Total number of migration health assessments = 904,464.

DST results were obtained for 776 (96.3%) of the 806 positive culture specimens, finding 667 (82.8%) susceptible to all first-line drugs, 83 (10.3%) resistant to one or more first-line anti-TB drugs, 12 (1.5%) rifampicin resistant (RR) or multidrug-resistant (MDR-TB) and 2 (0.2%) 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 2022, IGRA was performed as part of 35,566 MHAs, of which 33.2 per cent were for immigrants and 66.8 per cent were for refugees, finding 1,660 positive tests (4.7%) requiring further TB work-up. In addition, 2,890 TSTs were performed, of which 43.6 per cent were for immigrants and 56.4 per cent for refugees, leading to 216 positive tests (7.5%). Detailed data is 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 2022, a total of 78,033 tests for hepatitis B were conducted globally, with a diagnostic yield of 2.4 per cent. The highest yields were in Asia (4.3%) and Africa (2.9%). Hepatitis C had a lower overall diagnostic yield than hepatitis B at 1.5 per cent of 18,564 tests conducted. The highest diagnostic yields of hepatitis C were in Asia (2.5%) and Europe and Central Asia (1.2%).

With respect to sexually transmitted infections, overall, 11,492 tests were conducted for chlamydia, 15,781 for gonorrhoea and 201,433 for syphilis. Of those tested, the overall diagnostic yields were 0.2 per cent for syphilis, 0.4 per cent for gonorrhoea and 3.9 per cent

A laboratory technician performing light microscopy at the IOM laboratory in Bangkok, Thailand. © IOM 2022/Raber AZIZ

for chlamydia. The highest yield for gonorrhoea was in Africa (0.7%), and for chlamydia and syphilis, in the Americas (5.1% and 0.6% respectively).

A total of 173,210 HIV tests were undertaken in 2022, yielding 734 positive cases, or 0.4 per cent. The highest diagnostic yield was in Africa (0.8%).

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 2022, 15,950 malaria tests were conducted in Africa and Asia, with an overall diagnostic yield of 0.9 per cent (136 positive cases, 96.3 per cent of which were detected in Africa).

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

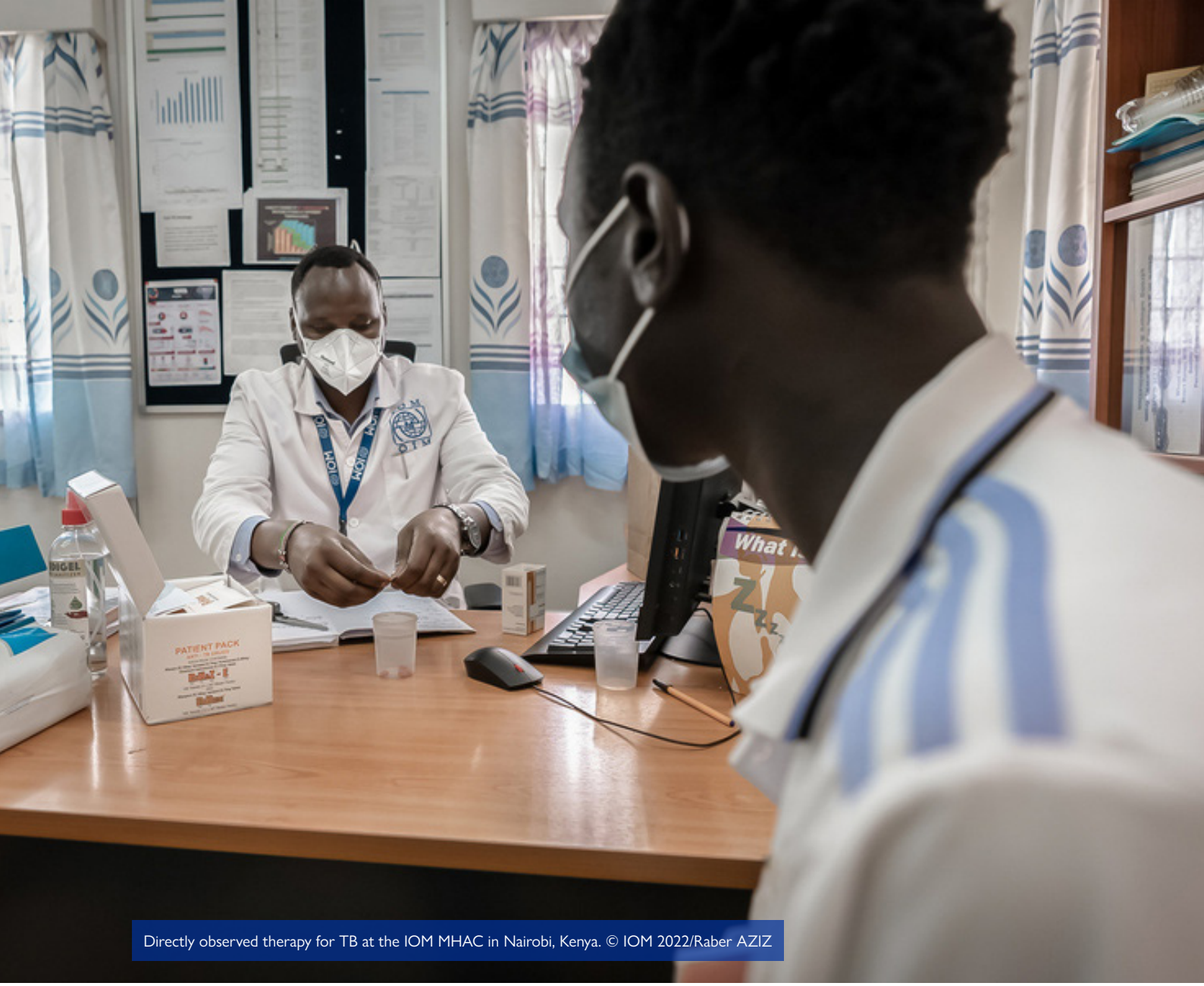
TREATMENT OF COMMUNICABLE DISEASES

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 NTPs or to centres designated by receiving countries. In 2022, directly observed therapy (DOT), which is the strategy recommended internationally for TB treatment, was provided by IOM to 44.3 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.



Directly observed therapy for TB at the IOM MHAC in Nairobi, Kenya. © IOM 2022/Raber AZIZ

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 2022, 79.9 per cent of individuals found to have syphilis and nearly all 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 by IOM for 13,435 persons, and for intestinal parasites to 47,021; in general, the treatment for both conditions was presumptive (98.3% and 99.7% 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.

VACCINATION

IOM provides vaccination as part of PMHAs on behalf of various receiving countries, such as Australia, Canada, Germany, Italy, New Zealand, Spain, the United Kingdom and the United States. Vaccination is conducted routinely, based on the specific schedules coordinated with the receiving countries and in response to outbreaks of vaccine-preventable diseases. IOM's vaccination activities aim to improve the health of migrants, to facilitate the migration process, and to reduce the risk that migrants arrive in destination countries with vaccine-preventable diseases.

Vaccine administration at the IOM MHAC in Bangkok, Thailand. © IOM 2022/Raber AZIZ

Figure 5. 2022 snapshot overview of vaccination

Approximately **483,000** doses of vaccine

Against **22** vaccine-preventable diseases*

To over **121,000** 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 2022, 121,107 migrants were vaccinated, with a total of 483,066 doses administered in 92 countries. Most vaccines were provided to migrants travelling to the United States, Canada and Germany. Most frequently administered vaccines were against measles, mumps, rubella, hepatitis B, tetanus, diphtheria and varicella.

In order to increase vaccine uptake, it is crucial to address barriers to vaccination, including logistical challenges, cultural and linguistic factors and vaccine hesitancy. Throughout the year, projects on vaccine demand and confidence were undertaken in the Republic of Moldova and Thailand. With plans to continue in 2023, these projects are geared towards enhancing communication and trust by disseminating reliable information, with a particular focus on COVID-19 vaccines.

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, that is supported by agreements with the United Nations Children's Fund (UNICEF), ministries of health and regional procurement hubs. 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 2022, thanks to its partnership with Nexleaf Analytics, IOM continued supporting cold chain monitoring in over 60 locations providing vaccination services to migrants and was working on expanding this ongoing collaboration to strengthen cold chain capacity of migrant vaccine providers across several countries. Training for staff on cold chain, protocol strengthening, vaccine safety and monitoring, and various other topics were also attended by staff throughout the year.

SIGNIFICANT MEDICAL CONDITIONS

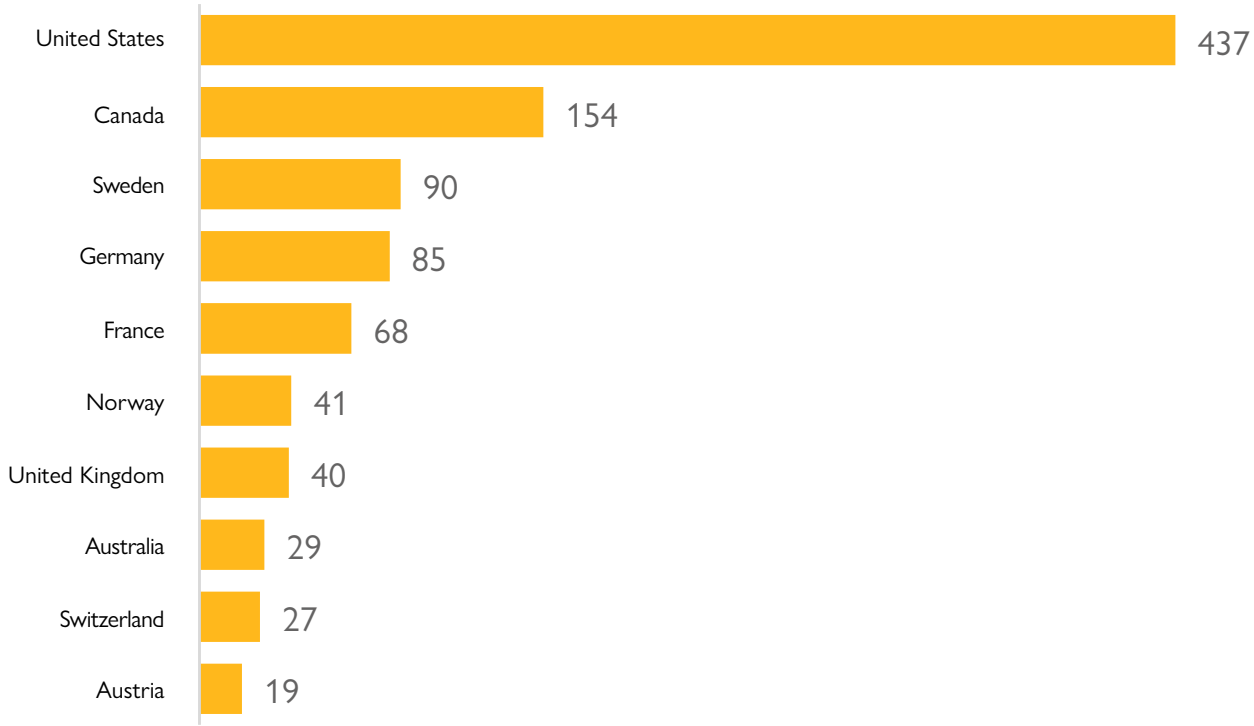
IOM PMHAs also facilitate detection of non-communicable diseases and bridge pre-departure and post-arrival services to ensure continuity of care. This is done through comprehensive history taking, review of medical records, physical and mental examinations, further investigations, and specialist referral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

In the context of PMHAs, a significant medical condition (SMC) is any condition, disease or disability of a migrant, which is likely to require specific and additional arrangements or management before departure, during travel or after arrival. In 2022, SMCs were identified in 47,914 MHAs (5.3%). In addition, 885 referrals for psychiatric evaluation were undertaken.

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 2022, 1,055 medical escorts were assigned to refugees for travel to their destinations, most frequently from Türkiye, Egypt and the Republic of Moldova (see Figure 6 below and Figure 17 in the Annex).

Figure 6. Number of medical escorts assigned to refugees by country of destination



Source: IOM, 2022.
**Note:* Only the top 10 destination countries with medical escort services were included on this chart.
Total number of medical escorts assigned to refugees = 1,055.

A medical escort preparing a medical kit for travel at the IOM MHAC in Manila, the Philippines. © IOM 2022/Raber AZIZ

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 2022, 10,126 DNA samples were collected at IOM MHACs in 36 countries for migrants wishing to reunite with their families in 13 destination countries. Samples may also be 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 Viet Nam (21.3%), Kenya (15.7%), Ethiopia (15.5%) and Bangladesh (5.8%), with the main destinations being the United States (28.4%), Italy (16.5%) and Canada (14.2%) 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 in a timely manner, forms are completed comprehensively, and that the information is handled confidentially. Throughout the year, 924 MAFs were completed across 12 countries globally. In addition, a new standard services agreement template was developed and signed jointly by IOM and UNHCR, which provides a framework for streamlining collaboration related to the processing of the MAF at country level.

FAMILY ASSISTANCE PROGRAMME

To facilitate the family reunification of vulnerable migrants 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 2022, 271 reviews were undertaken for FAP operations, most of which in the Middle East and North Africa region (76.8%).

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.

During 2022, key partnerships with resource centres in Canada and the United States led to the development and distribution of a range of health education materials and campaigns related to COVID-19 and other important health topics, which are accessible in over 40 languages.

Counselling at the IOM MHAC in Manila, the Philippines. © IOM 2022 / Raber AZIZ

OUTBREAK SURVEILLANCE AND RESPONSE

IOM performs surveillance for 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 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 2022, IOM outbreak response activities covered over 50 countries for measles, 35 countries for polio, 10 for cholera and several other conditions of public health significance, such as varicella and yellow fever. IOM's response aimed to limit the spread of disease and included delaying refugee movements, carrying out laboratory investigations, and providing additional vaccination, contact tracing, health education, enhanced surveillance, isolation and treatment activities, where needed. In response to the Ebola virus disease resurgence in Uganda, resettlement operations were temporarily suspended in coordination with receiving countries and a 21-day surveillance mechanism was implemented at the IOM transit centre once travel resumed.

Refresher training is carried out for HAP staff to enhance skills in outbreak preparedness and response. For instance, in December 2022, a webinar was delivered by the IOM Regional Office in Nairobi, Kenya to review surveillance and response guidelines pertaining to outbreaks occurring in the region, share lessons learned and reinforce key principles. The need to strengthen partnerships with public health authorities and other health providers, and actively engage in local information-sharing networks to remain abreast of outbreaks occurring within the catchment areas were among the topics emphasized.

Enhanced infection prevention and control measures continued to be implemented in MHACs to promote the delivery of safe services in the ongoing COVID-19 context. Where necessitated by destination countries, additional PECs including COVID-19 testing and vaccination were undertaken, with confidential sharing of information across borders.

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 (Global) 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 2022

- 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.
- Evaluation tool: A web application for recording evaluations for panel physicians performing MHAs for refugees bound for the United States.
- United Kingdom Tuberculosis Global Software: A health information management system customized to capture data on MHAs for visa applicants to the United Kingdom. Several enhancements to improve workflow and features such as scheduling capacity are in development.
- Interfaces between MiMOSA and the:
  - CDC Electronic Disease Notification system
  - United States Refugee Admissions Program (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: An online tool hosted on the Freshservice® Information Technology 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.
- A series of operational and statistical web reports.
- Online medical appointment system (MyMedical): This platform enables immigrants to conveniently schedule and manage their appointments online for MHAs at participating MHACs and provides access to information about IOM's PMHAs. As of December 2022, it was actively used across 11 countries.

Digital photography as part of registration at the IOM MHAC in Manila, the Philippines. © IOM 2022 / Raber AZIZ

Systems in development

- JPETS Information Management System (JIMS): 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 the quality of medical escort and other related data.

Registration at the IOM MHAC in Bangkok, Thailand. © IOM 2022 / Raber AZIZ

- 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 Department of Information and Communications Technology and vendors as medical business requirements subject matter experts and advisors.
- United States refugee vaccine application: This mobile application, with a desktop-counterpart, interfaces with MiMOSA Web. This tool, to be used primarily by United States beneficiaries, will showcase a verifiable record of the migrant's vaccination record; results of tests for those who have not yet been vaccinated; notifications for the schedule of required vaccine(s) and other related migrant health information; as well as the ability to report changes in health condition status and adverse effects following immunization.
- IOM data warehouse redesign: The overall objective is to build a new data platform that enables self-service reporting and data analysis. This platform will consolidate data from all business areas and systems.

Biometrics for pre-migration health activities

The IOM HAP biometric system project seeks to modernize and enhance risk management in HAP by incorporating passport readers as the initial phase, followed by facial recognition technology to verify client identity during registration and throughout the provision of medical services. The use of passport readers was piloted in December 2022 and became operational in seven countries (Jordan, Kenya, the Philippines, the Republic of Moldova, the Russian Federation, South Africa and Viet Nam); it has shortened registration time by automating capture and validation of passport details in MiMOSA.

Additionally, the use of facial recognition is expected to strengthen the integrity of the MHA process by limiting identification errors. Mobilization is ongoing for the procurement of face recognition software and a systems integrator to develop and integrate the biometric solution in existing IOM corporate databases.

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, as well as receiving country technical instructions, and monitoring and evaluation activities are regularly undertaken.

A comprehensive range of standard operating procedures covering various programmatic activities including clinical procedures and other topics relevant to the MHA process are widely used and regularly updated in all implementing locations globally. To complement these, a package of checklists is utilized by designated focal points in each MHAC to aid in monitoring compliance, identifying areas for improvement and implementing corrective measures. Regional and global programmatic and technical coordinators provide oversight through periodic monitoring visits.

Various capacity-building initiatives are implemented at all levels to ensure that staff remain up to date with new developments and refine their technical skills. Globally, specific trainings are mandated for clinical staff undertaking PMHAs across MHACs. Throughout 2022, these encompassed topics such as infection prevention and control, basic and advanced cardiovascular life support, vaccination and others. Workshops and webinars were also conducted at country and regional levels, tailored to specific needs.

As part of broader efforts to reinforce clinical governance principles, IOM headquarters delivered webinars on incident management within PMHAs during the year, with attendance from chief migration health officers and regional HAP coordinators. These gave regional HAP coordinators the opportunity to present examples of past incidents and the processes followed for their resolution, including the subsequent implementation of recommendations.

Collecting, analysing and responding to client feedback is also widely recognised as an important aspect of maintaining quality. To this end, several MHACs have implemented client satisfaction surveys and complaint boxes. Furthermore, a standardized global client feedback mechanism is under development, to ensure consistency across all MHACs.

IOM health worker at the IOM MHAC in Mae Sot, Thailand. © IOM 2022 / Raber AZIZ

CONTRIBUTION TO CRISIS RESPONSES

Leveraging its global presence and experience in the provision of PMHAs and as the largest programme area in the Migration Health Division (MHD) 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, in collaboration with other IOM programmes and external partners. Selected examples from 2022 are detailed below.

ADAPTATION AND RESPONSE TO THE UKRAINE CRISIS

On 24 February 2022, the Russian Federation launched a full-scale invasion against Ukraine. Continued escalation of the war triggered one of the largest humanitarian crises on record, seriously affecting access to crucial services throughout Ukraine and disproportionately impacting the lives of those displaced.

The migration health unit in Ukraine had been a regional hub for IOM HAP in Europe and Central Asia, covering one of the largest immigrant and refugee programmes in the region. At the onset of the invasion, HAP operations in the country were abruptly suspended due to security concerns, resulting in the evacuation and relocation of staff. The regional hub subsequently relocated to Warsaw, Poland to continue processing refugees ready to be resettled, who were displaced from Ukraine across neighbouring countries.

Pre-migration health activities in the Republic of Moldova. © IOM 2022 / Muse MOHAMMED

Due to the limited operational presence of IOM HAP in the region, there was a need to identify innovative solutions to ensure beneficiaries could continue to be processed. In Poland, a hybrid model for PMHAs for refugees bound for the United States was established, in collaboration with non-IOM panel physicians and a private health facility in Warsaw. This entailed IOM engaging mobile medical teams to support data processing, provide technical supervision, and make further arrangements, including referrals and travel assistance where required. Under this model, 700 USRAP refugees received PMHAs in the third and fourth quarters of the year. In addition, the IOM MHAC in Lviv, Ukraine, which was previously used as a reserve for certain destination country programmes, was engaged for a larger caseload. While the suspension of IOM HAP in Ukraine continued until end of June 2022, requests by the immigration authorities of destination countries for IOM to assist urgent immigrant cases inside Ukraine resulted in gradual resumption of HAP services in early July 2022 in the capital, Kyiv, which remained operational into 2023. Furthermore, after internal and external consultations with relevant stakeholders in late 2022, the USRAP processing for those families who were not restricted to leave the country under the martial law resumed.

Several other activities were facilitated by IOM HAP teams in neighbouring countries. For instance, in the Republic of Moldova, the IOM HAP team undertook PECs for Ukrainian refugees and third country nationals departing to various destinations, including referrals, stabilization treatment, provision of medication and medical escorts where indicated. Approximately 17,800 Ukrainian refugees and third country nationals were assisted, nearly 900 of whom received pre-departure stabilization treatment, with over 200 hospitalized prior to travel. Medical escorts were assigned to almost 200 individuals requiring additional support during travel. Travel kits containing information on how to protect against COVID-19 along with protective masks, and rapid COVID-19 antigen tests were provided to all individuals travelling under the auspices of IOM, as well.

In addition, HAP staff were deployed to provide essential health services to displaced populations through mobile clinics in affected areas.

TRAN-MED PROJECT: THE REPUBLIC OF MOLDOVA

In close partnership with the Ministry of Health of the Republic of Moldova and funded by the United States Bureau of Population, Refugees and Migration, the TRAN-MED project was implemented from May to December 2022.

This aimed to facilitate the safe transfer of people with medical needs from Ukraine to locations where they could receive appropriate care. The project successfully addressed a gap in the national contingency plan between medical evacuation of individuals with life-threatening conditions and regular medical interventions for those with non-life-threatening conditions.

Medical consultation during the TRAN-MED project in the Republic of Moldova. © IOM 2022

Medical escort services as part of the TRAN-MED project in the Republic of Moldova. © IOM 2022

In particular, this included people with trauma-related medical needs, people living with disabilities and non-communicable diseases, and the elderly.

Over the project implementation period, 115 people were assisted with medical care and movement support; 50 of whom were referred for hospitalization and specialized care. Medical escort services were provided for 123 beneficiaries.

The project also contributed to capacity-building through medical staff training and donation of vital diagnostic and urgent care devices and equipment for disability care at the borders with Ukraine. Donation of an ambulance to support medical movements and assistance was planned for early 2023.

CONTINUED SUPPORT TO THE RESETTLEMENT OF AFGHAN REFUGEES

IOM HAP support to the resettlement and relocation of Afghan nationals following the deterioration of the security situation in August 2021 continued throughout 2022. Notably, in Camp As Sayliyah, Qatar, IOM HAP was involved in the establishment of a large operation as part of the USRAP. This entailed the provision of MHAs, public health interventions such as vaccination and administration of presumptive treatment for intestinal parasites, rapid COVID-19 testing and assistance with quarantine and isolation where needed. Treatment for TB was provided in coordination with the Qatar national TB programme and timely provision of specialized medical care for the stabilization of medical conditions prior to departure and medical escorts, where indicated, were ensured. Complex coordination with multiple stakeholders was required to streamline the workflow and processes for efficient and high-quality service provision. By the end of 2022, over 10,000 MHAs had been carried out, and over 100,000 vaccine doses administered.

In addition, across Europe and Central Asia, IOM continued to provide PMHAs for USRAP and special immigrant visa applicants displaced from Afghanistan and relocated across Europe, Central Asia and Western Balkan countries through IOM and non-IOM panel sites.

IOM COVID-19 FIRST LINE OF DEFENCE

The United Nations' "First Line of Defence" framework was established in response to the COVID-19 pandemic, and IOM was a key contributor to this effort from July 2020. In 2022, as COVID-19 rates stabilized in many countries worldwide, a significant decline in service demand was noted.

Over the year, several countries provided COVID-19 testing services, home monitoring and psychosocial support. Nearly 8,600 United Nations staff and eligible dependents used at least one service.

As part of the United Nations System-wide COVID-19 vaccination programme, over 600 COVID-19 vaccines were administered.

Sample collection for COVID-19 testing as part of the IOM First Line of Defence project in Nairobi, Kenya. © IOM 2022 / Raber AZIZ

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 implementing return programmes 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 and supervision, as well as support with developing guidance, standards and policies around the return of migrants with health needs.

During 2022, in the Europe and Central Asia region, medical support to assisted voluntary return and reintegration took place from Greece, Germany, Switzerland, and several other countries across the region. Over 1,500 individuals received medical support, 250 of whom were assigned medical escorts.

IOM also carries out voluntary humanitarian return for migrants stranded or detained in Libya, facilitating safe and orderly return to their home countries. MHD supported this process in 2022 by identifying conditions of concern, making health-related travel arrangements and providing post-arrival assistance. A total of 13,175 migrants underwent PDMP as part of this framework in 2022, with 11,200 returns to 29 countries. Among the migrants returned, 1,197 were classified as medical cases, and 52 received medical escorts.

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

OTHER 2022 HIGHLIGHTS

EVENTS

A **virtual training on cold chain and inventory management** was delivered for MHACs in Africa on 31 May. Attended by nurses, physicians and pharmacists, the training sought to enhance technical skills in this area and to sensitize clinical staff on the importance of continuous cold chain management. It also emphasized the need to minimize interruptions on vaccine supply.

The **International Panel Physicians Association Third Annual Migration Five Updates Meeting** was held virtually from 14 to 17 June. The aim was to provide panel physicians undertaking PMHAs for the Migration Five countries (Australia, Canada, New Zealand, the United Kingdom, the United States) with best practices, updates on programmatic requirements and other new initiatives. Topics covered included TB, vaccination, mental health, and general programmatic guidelines, among others. The training was attended by over 140 IOM panel physicians and managers across nearly 40 countries.

A **regional training on laboratory and quality management** for IOM laboratory supervisors from the Asia-Pacific region was held from 19 to 22 September in Bangkok, Thailand. This aimed to showcase and share resources related to the implementation of a quality management system towards accreditation.

A **radiology training** was held in Lagos, Nigeria from 24 to 28 October. This aimed to increase the capacity of IOM panel physicians in screening CXR interpretation, as well as radiologic technologists and teleradiology focal points on the use of the IOM teleradiology systems. The training was conducted by radiologists from the Manila and Nairobi teleradiology centres.

The **third global IOM Chief Migration Health Officer Training** was held from 5 to 9 December 2022 in Geneva. It brought together CMHOs, senior global and regional HAP managers from over 40 countries. The training aimed to strengthen and advance institutional processes and procedures related to critical themes such as policy, protection and diversity, risk assessment and management, legal aspects and information technology, among others, as well as to provide a platform for introducing new health assessment procedures and sharing key updates in several programmatic areas. The training was attended by a total of 60 participants and an action plan was prepared to mitigate various challenges and issues related to programme implementation.

HAP-RELATED PUBLICATIONS

Selected IOM internal publications in 2022

IOM, Migration Health Division (MHD). IOM Migration Health Assessment Programme - Pre-Migration Health Activities. Available at www.iom.int/sites/g/files/tmzbdl486/files/our_work/DMM/Migration-Health/MHD_Infosheet_HAP_2021_29.11.2022.pdf.

IOM, Migration Health Division (MHD). Vaccination services in IOM Migration Health Assessment Programmes (HAP) and First Line of Defence (FLoD). Available at www.iom.int/sites/g/files/tmzbdl486/files/documents/MHD_Infosheet_Vaccination%20Services_HAP_2021_14.12.2022.pdf.

Selected peer-reviewed publications with contributing IOM authors in 2022

Tim Kummer, Alexandra M. Medley, Alexander Klosovsky, Erin Mann, Patricia Mburu, Karen Ekernas, Betty Bonass, Jacob C. Stauffer, Stewart Walukaga, Michelle Weinberg, Stephen J. Dunlop, William M. Stauffer, "Use of Point-of-Care Handheld Ultrasound for Splenomegaly in United States-Bound Refugees: A Novel Technology with Far-Reaching Implications", *The American Journal of Tropical Medicine and Hygiene* 108(1):12–14. Available at https://migrationhealthresearch.iom.int/use-point-care-handheld-ultrasound-splenomegaly-united-states-bound-refugees-novel-technology-far.

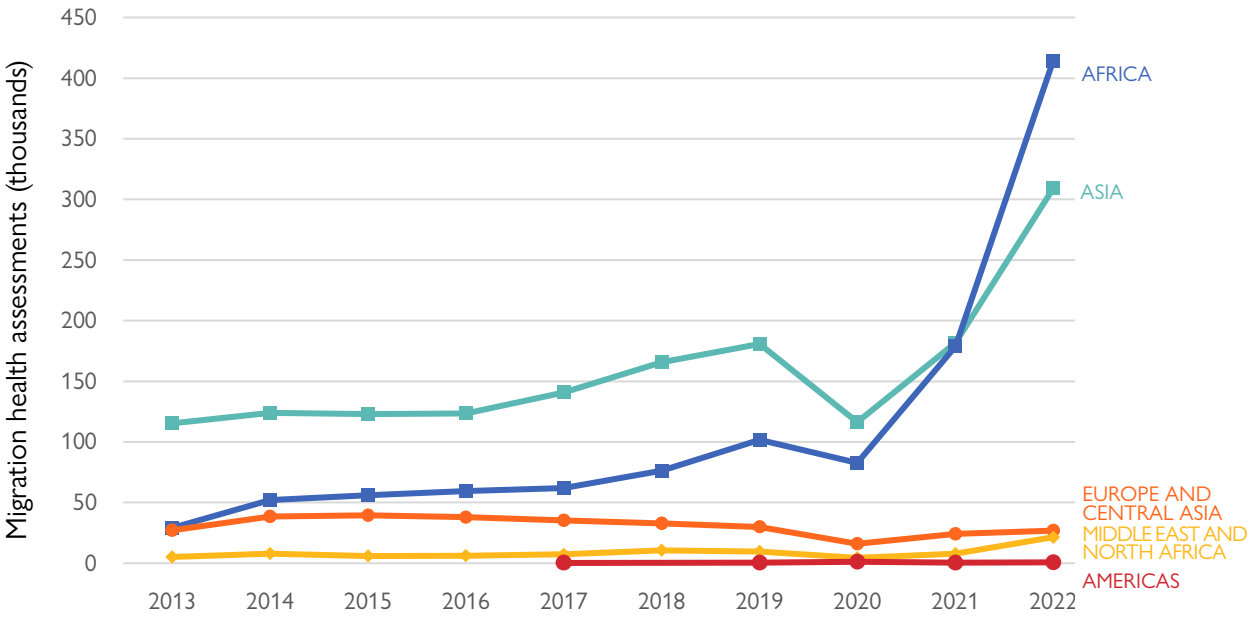
Anna Deal, Sally E Hayward, Alison F Crawshaw, Lucy P Goldsmith, Charles Hui, Warren Dalal, Fatima Wurie, Mary-Ann Bautista, May Antonnette Lebanan, Sweetmavourneen Agan, Farah Amin Hassan, Kolitha Wickramage, Ines Campos-Matos, Sally Hargreaves, "Immunisation status of UK-bound refugees between January, 2018, and October, 2019: a retrospective, population-based cross-sectional study", *Lancet Public Health* 7(7):E606–E615. Available at https://migrationhealthresearch.iom.int/immunisation-status-uk-bound-refugees-between-january-2018-and-october-2019-retrospective.

Sifrash Meseret Gelaw, Sandra V. Kik, Morten Ruhwald, Stefano Ongarello, Tesfa Semagne Egzertegegne, Olga Gorbacheva, Christopher Gilpin, Nina Marano, Scott Lee, Christina R. Phares, Victoria Medina, Bhaskar Amatya, Claudia M. Denkinger, "Diagnostic accuracy of three computer-aided detection systems for detecting pulmonary tuberculosis on chest radiography when used for screening: analysis of an international, multicenter migrants screening study", *medRxiv*: Preprint (2022). Available at https://migrationhealthresearch.iom.int/diagnostic-accuracy-three-computer-aided-detection-systems-detecting-pulmonary-tuberculosis-chest.

Dominik Zenner, Ana Requena Méndez, Steffen Schillinger, Elena Val, Kolitha Wickramage, "Health and illness in migrants and refugees arriving in Europe: analysis of the electronic Personal Health Record system", *Journal of Travel Medicine* 29(7):taac035 (2022). Available at https://migrationhealthresearch.iom.int/health-and-illness-migrants-and-refugees-arriving-europe-analysis-electronic-personal-health-record.

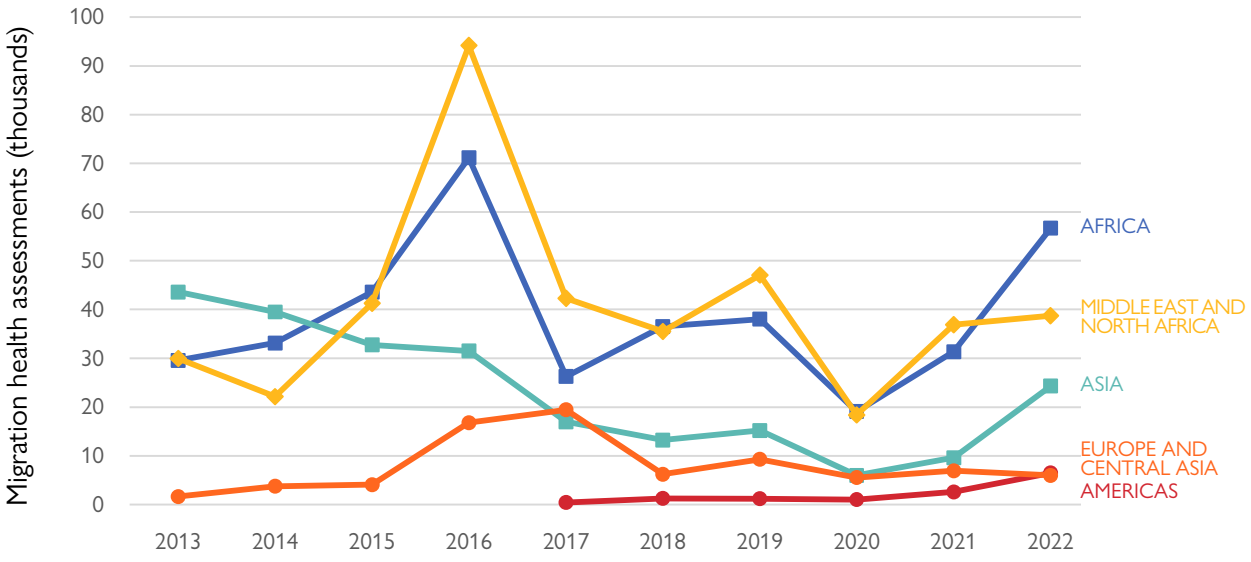
Sandra V. Kik, Sifrash M. Gelaw, Morten Ruhwald, Rinn Song, Faiz Ahmad Khan, Rob van Hest, Violet Chihota, Nguyen Viet Nhung, Aliasgar Esmail, Anna Marie Celina Garfin, Guy B. Marks, Olga Gorbacheva, Onno W. Akkerman, Kgaugelo Moropane, Le Thi Ngoc Anh, Keertan Dheda, Greg J. Fox, Nina Marano, Knut Lönnroth, Frank Cobelens, Andrea Benedetti, Puneet Dewan, Stefano Ongarello, Claudia M. Denkinger, "Diagnostic accuracy of chest X-ray interpretation for tuberculosis by three artificial intelligence-based software in a screening use-case: an individual patient meta-analysis of global data", *medRxiv*: Preprint (2022). Available at https://migrationhealthresearch.iom.int/diagnostic-accuracy-chest-x-ray-interpretation-tuberculosis-three-artificial-intelligence-based.

Figure 7. Trend of IOM and IOM-assisted migration health assessments for immigrants by region of health assessment, 2013–2022



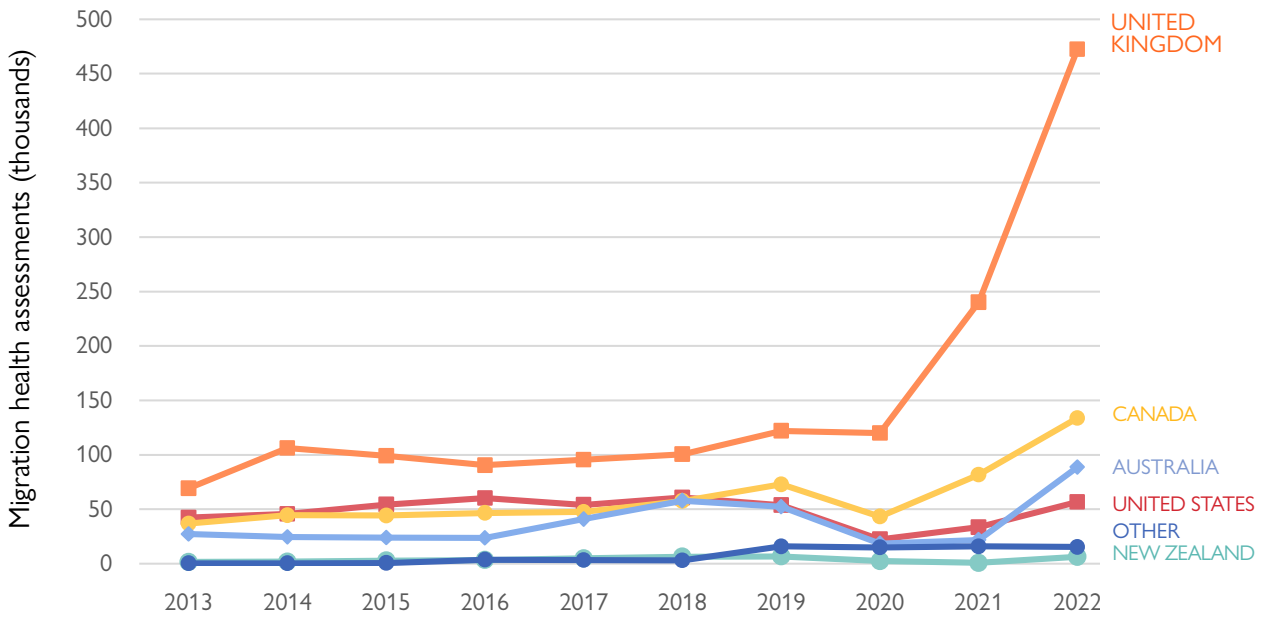
Source: IOM, 2022.

Figure 8. Trend of IOM and IOM-assisted migration health assessments for refugees by region of health assessment, 2013–2022



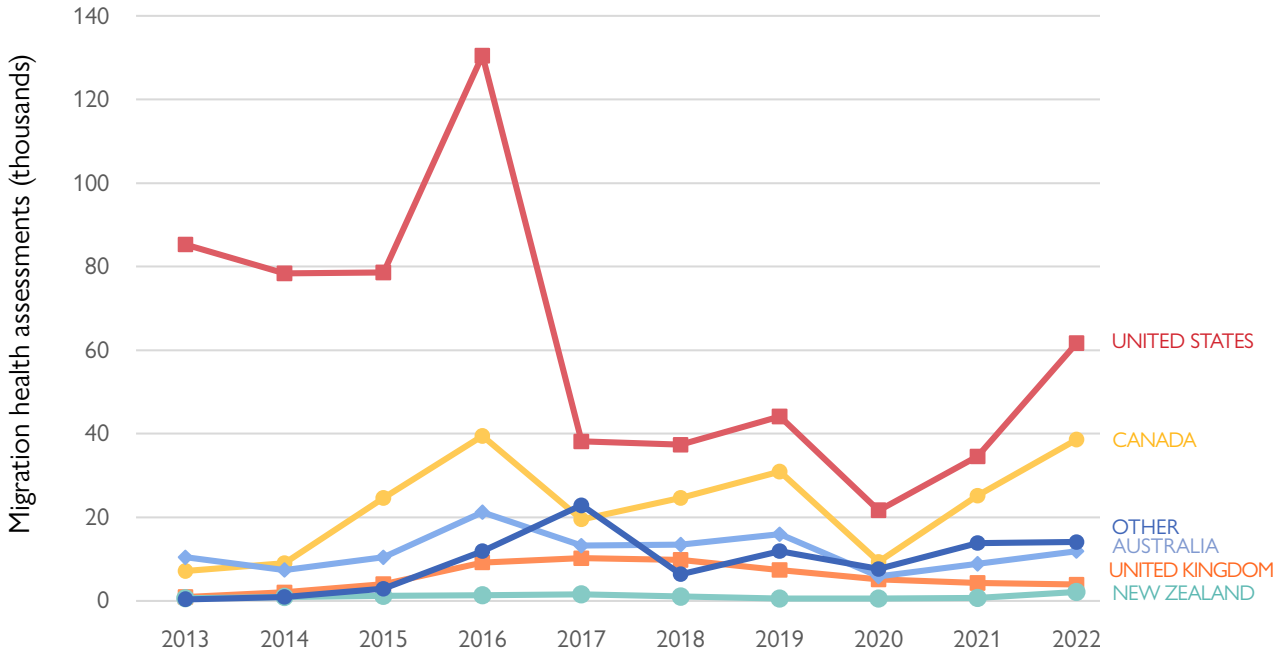
Source: IOM, 2022.

Figure 9. Trend of IOM and IOM-assisted migration health assessmens for immigrants by country of destination, 2013–2022



Source: IOM, 2022.
Note: "Other" includes over 35 destination countries worldwide, mainly in Asia, Europe and South America.

Figure 10. Trend of IOM and IOM-assisted migration health assessments for refugees by country of destination, 2013–2022



Source: IOM, 2022.
Note: "Other" includes over 25 destination countries worldwide, mainly in Europe.

Table 1. Overview of IOM and IOM-assisted migration health assessments, 2022

PLACE OF MIGRATION HEALTH ASSESSMENT	COUNTRY OF DESTINATION							
	AUSTRALIA		CANADA		GERMANY		NEW ZEALAND	
	Immigrant	Refugee	Immigrant	Refugee	Immigrant	Refugee	Immigrant	Refugee
AFRICA	9 575	2 828	74 099	17 098	8	731	521	651
Angola	0	0	0	1	0	0	0	0
Botswana	0	0	0	3	0	0	0	0
Burundi[a]	75	419	1 028	97	0	0	7	0
Cameroon[a]	0	18	13 732	598	0	0	0	0
Chad[a]	0	135	0	100	0	0	0	0
Côte d'Ivoire	0	0	0	14	0	0	0	0
Democratic Republic of the Congo[a]	27	1	3 865	84	0	0	0	0
Ethiopia[a]	788	51	3 708	4 140	2	0	115	216
Gambia (the)[a]	0	0	0	0	0	0	0	0
Ghana[a]	181	72	1 406	336	0	11	38	0
Guinea[a]	19	1	1 670	7	0	0	0	0
Kenya[a]	4 504	1 673	2 924	2 036	6	551	151	5
Madagascar	0	0	0	0	0	0	0	0
Malawi[a]	0	215	0	46	0	0	0	0
Mozambique	0	0	0	18	0	0	0	0
Namibia	0	0	1	52	0	0	0	0
Niger (the)[a]	0	0	0	12	0	169	0	0
Nigeria[a]	3 313	0	40 828	0	0	0	115	0
Rwanda[a]	119	53	2,115	795	0	0	5	155
Senegal	0	0	0	13	0	0	0	0
Sierra Leone	0	0	0	0	0	0	0	0
South Africa[a]	1	0	516	288	0	0	61	275
Sudan (the)[a]	4	0	240	2 643	0	0	0	0
Uganda[a]	537	65	2 053	5 537	0	0	29	0
United Republic of Tanzania (the)[a]	7	125	1	180	0	0	0	0
Zambia[a]	0	0	1	4	0	0	0	0
Zimbabwe[a]	0	0	11	94	0	0	0	0
AMERICAS	0	0	0	0	0	0	0	0
Dominican Republic	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
Peru	0	0	0	0	0	0	0	0
ASIA	74 227	5 062	51 173	9 466	0	0	4 781	1 046
Bangladesh[a]	1 757	0	812	5	0	0	139	0
Cambodia[a]	1 399	90	429	0	0	0	433	0
India	0	0	0	0	0	0	0	0
Indonesia[a]	0	187	0	414	0	0	0	494
Iran (Islamic Republic of)	0	0	0	0	0	0	0	9
Malaysia[a]	1	1 051	0	670	0	0	0	442
Myanmar[a]	0	32	0	0	0	0	0	0
Nepal[a]	24 939	70	1 721	88	0	0	311	0
Pakistan[a]	9 247	2 109	18 492	7 679	0	0	529	53
Philippines (the)[a]	862	0	17 689	10	0	0	0	0
Sri Lanka[a]	20 591	16	478	78	0	0	899	19
Thailand[a]	636	1 507	418	502	0	0	411	29
Viet Nam[a]	14 795	0	11 134	20	0	0	2 059	0
EUROPE AND CENTRAL ASIA	2 496	0	5 347	575	3	233	634	0
Albania	0	0	0	0	0	0	0	0
Armenia	0	0	0	0	0	0	0	0
Belarus[a]	158	0	276	18	0	0	31	0
Bosnia and Herzegovina[a]	175	0	117	0	0	0	8	0
Greece[a]	0	0	0	244	0	53	0	0
Italy[a]	0	0	0	0	0	167	0	0
Kazakhstan[a]	509	0	974	40	0	0	127	0
Kyrgyzstan	0	0	0	0	0	0	0	0
North Macedonia[a]	125	0	50	271	0	0	45	0
Poland	0	0	0	0	0	0	0	0
Republic of Moldova[a]	58	0	371	0	0	13	12	0
Russian Federation[a]	1 197	0	1 810	2	0	0	313	0
Serbia[a]	146	0	299	0	3	0	78	0
Spain	0	0	0	0	0	0	0	0
Tajikistan	0	0	0	0	0	0	0	0
Ukraine[a]	118	0	1 197	0	0	0	20	0
Uzbekistan	0	0	0	0	0	0	0	0
Kosovo[a, b]	10	0	253	0	0	0	0	0
MIDDLE EAST AND NORTH AFRICA	2 219	3 976	2 982	11 369	157	5 378	289	437
Egypt[a]	1 006	100	88	1 947	0	848	111	0
Iraq[a]	258	1 564	83	271	0	0	31	93
Israel	0	0	0	2	0	0	0	0
Jordan[a]	230	940	327	1 516	0	712	47	70
Lebanon[a]	215	1 350	1 000	2 511	157	1 004	8	274
Libya[a]	5	0	0	441	0	0	0	0
Qatar[a]	0	0	0	1	0	0	0	0
Türkiye[a]	505	17	1 448	4 669	0	2 814	92	0
United Arab Emirates	0	5	0	0	0	0	0	0
Yemen[a]	0	0	36	11	0	0	0	0
OTHER COUNTRIES[c]	6	0	0	74	0	0	0	0
WORLDWIDE	88 523	11 866	133 601	38 582	168	6 342	6 225	2 134
	100 389		172 183		6 510		8 359	

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).

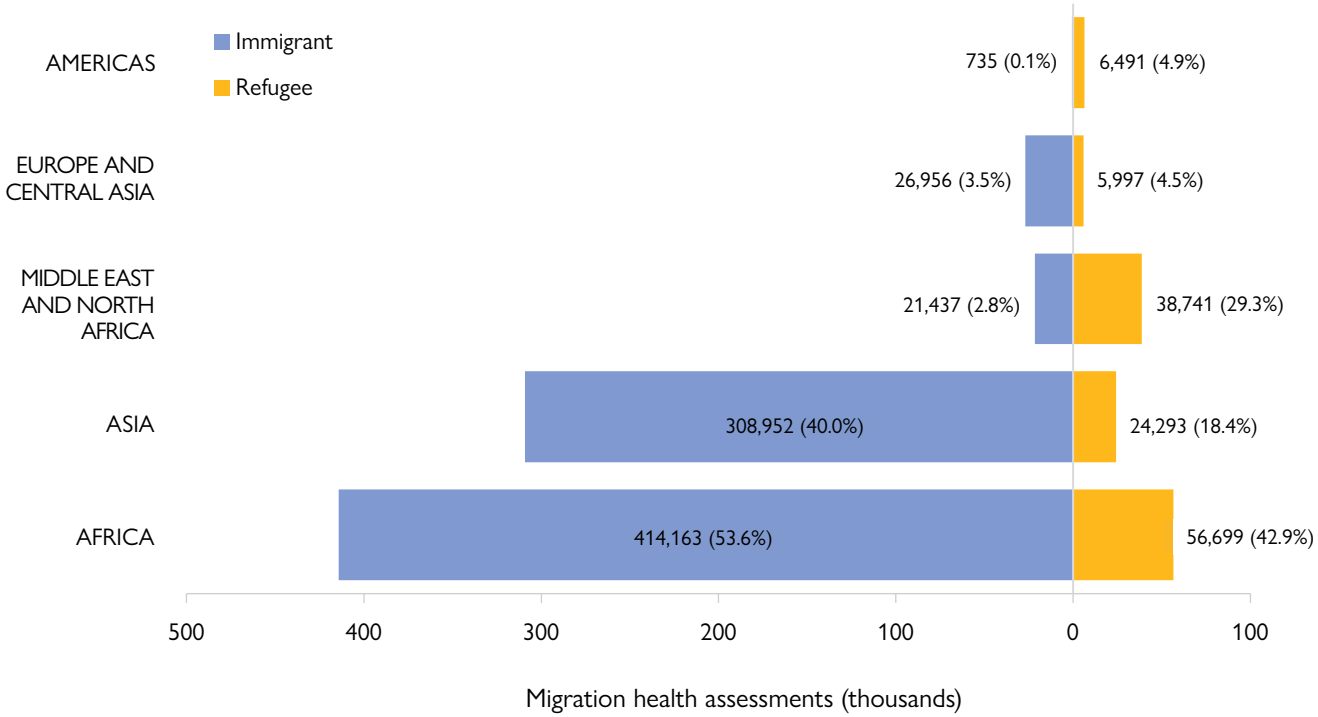
[c] Other countries include an additional 31 locations with a total of 100 or fewer MHAs.

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	316 529	679	13 131	32 474	298	2 099	414 161	56 560	470 721
0	0	318	0	0	21	0	0	318	22	340
0	0	1 293	0	0	10	0	0	1 293	13	1 306
0	0	29	23	49	3 444	0	29	1 188	4 012	5 200
0	0	2 006	0	0	389	0	483	15 738	1 488	17 226
0	0	0	0	0	1 356	0	438	0	2 029	2 029
0	0	300	0	0	2	0	0	300	16	316
0	0	312	0	0	7	0	0	4 204	92	4 296
0	0	1 181	238	1 373	2 239	0	240	7 167	7,124	14 291
0	0	806	2	0	0	0	0	806	2	808
0	0	23 572	0	2	10	295	0	25 494	429	25 923
0	0	0	0	161	44	0	0	1 850	52	1 902
0	0	8 668	416	7 880	2 300	0	49	24 133	7 030	31 163
0	0	60	0	0	152	0	0	60	152	212
0	0	847	0	0	760	0	0	847	1 021	1 868
0	0	152	0	0	18	0	0	152	36	188
0	0	509	0	4	10	0	0	514	62	576
0	0	0	0	0	1	0	215	0	397	397
0	0	196 700	0	2 818	0	3	0	243 777	0	243 777
0	0	346	0	487	5 803	0	539	3 072	7 345	10 417
0	0	231	0	0	0	0	4	231	17	248
0	0	773	0	0	0	0	0	773	0	773
0	0	23 456	0	0	196	0	5	24,034	764	24 798
0	0	2 286	0	0	138	0	16	2 530	2 797	5 327
0	0	4 399	0	357	3 716	0	68	7 375	9 386	16 761
0	0	807	0	0	9 843	0	9	815	10 157	10 972
0	0	2 110	0	0	1 029	0	0	2 111	1 033	3 144
0	0	45 368	0	0	986	0	4	45 379	1 084	46 463
0	0	0	0	735	6 339	0	0	735	6 339	7 074
0	0	0	0	0	106	0	0	0	106	106
0	0	0	0	0	1 117	0	0	0	1 117	1 117
0	0	0	0	675	1 341	0	0	675	1 341	2 016
0	0	0	0	2	2 671	0	0	2	2 671	2 673
0	0	0	0	58	845	0	0	58	845	903
0	0	0	0	0	259	0	0	0	259	259
11 684	0	144 222	1 228	22 859	6 857	0	468	308 946	24 127	333 073
0	0	37 578	0	2 361	75	0	0	42 647	80	42 727
0	0	183	0	1 713	0	0	3	4 157	93	4 250
0	0	0	48	7	322	0	0	7	370	377
0	0	0	28	0	229	0	0	0	1 352	1 352
0	0	0	524	0	0	0	156	0	689	689
0	0	0	47	0	4 376	0	133	1	6 719	6 720
0	0	1 277	0	0	51	0	0	1 277	83	1 360
0	0	15 518	0	8 145	45	0	7	50 634	210	50 844
0	0	39 138	504	6	78	0	166	67 412	10 589	78 001
0	0	19 026	0	0	0	0	0	37 577	10	37 587
11 684	0	22 004	43	0	14	0	0	55 656	170	55 826
0	0	6 735	34	0	1 446	0	3	8 200	3 521	11 721
0	0	2 763	0	10 627	221	0	0	41 378	241	41 619
0	0	7 282	2	8 234	4 547	2 959	440	26 955	5 797	32 752
0	0	0	0	51	542	0	0	51	542	593
0	0	0	0	0	396	0	0	0	396	396
0	0	547	0	1 519	3	0	0	2 531	21	2 552
0	0	0	0	139	0	0	0	439	0	439
0	0	0	0	0	0	0	347	0	644	644
0	0	0	0	2	39	0	90	2	296	298
0	0	1 735	0	0	22	0	0	3 345	62	3 407
0	0	0	2	0	129	0	0	0	131	131
0	0	0	0	0	98	0	0	220	369	589
0	0	0	0	0	1 085	0	0	0	1 085	1 085
0	0	161	0	1 055	1 375	17	2	1 674	1 390	3 064
0	0	4 390	0	3 924	16	2 637	1	14 271	19	14 290
0	0	11	0	236	0	130	0	903	0	903
0	0	0	0	0	104	0	0	0	104	104
0	0	0	0	0	165	0	0	0	165	165
0	0	438	0	1 308	322	175	0	3 256	322	3 578
0	0	0	0	0	231	0	0	0	231	231
0	0	0	0	0	20	0	0	263	20	283
0	0	4 195	2 005	11 587	10 621	8	4 724	21 437	38 510	59 947
0	0	0	656	0	1 887	4	335	1 209	5 773	6 982
0	0	4 054	359	312	766	0	77	4 738	3 130	7 868
0	0	0	0	0	179	0	58	0	239	239
0	0	139	181	1 359	3 704	0	476	2 102	7 599	9 701
0	0	0	294	0	19	0	2 701	1 380	8 153	9 533
0	0	0	0	0	0	0	0	5	441	446
0	0	0	0	7 520	2 586	0	0	7 520	2 587	10 107
0	0	2	515	0	0	4	1 064	2 051	9 079	11 130
0	0	0	0	2 396	1 480	0	0	2 396	1 485	3 881
0	0	0	0	0	0	0	13	36	24	60
0	0	0	0	3	811	0	3	9	888	897
11 684	0	472 228	3 914	56 549	61 649	3 265	7 734	772 243	132 221	904 464
11 684		476 142		118 198		10 999		904 464		

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

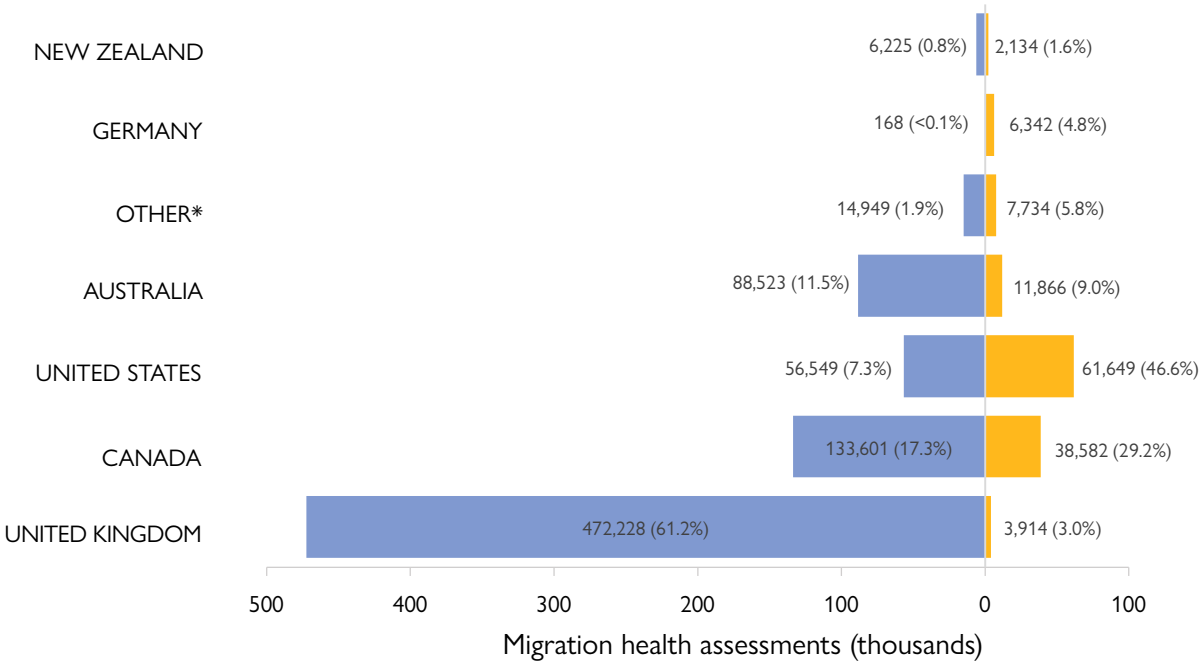
[e] "Other" includes the following destination countries: Argentina, Austria, Belgium, Bulgaria, China, Cyprus, Denmark, Finland, France, Iceland, Ireland, Italy, Japan, Lithuania, Luxembourg, the Kingdom of the Netherlands, Norway, Poland, Portugal, the Republic of Korea, Romania, Singapore, Slovenia, 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 11. IOM and IOM-assisted migration health assessments by migrant type and region of health assessment



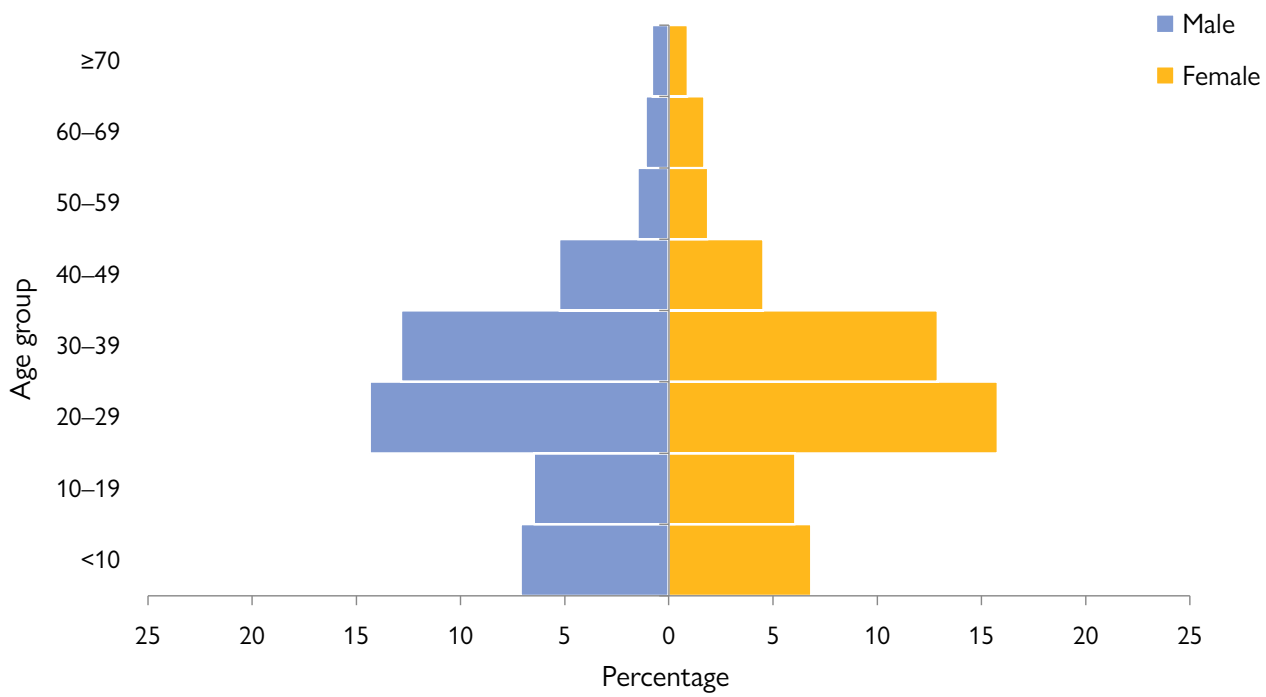
Source: IOM, 2022.
Notes: Total number of migration health assessments among refugees = 132,221.
Total number of migration health assessments among immigrants = 772,243.

Figure 12. IOM and IOM-assisted migration health assessments by migrant type and country of destination



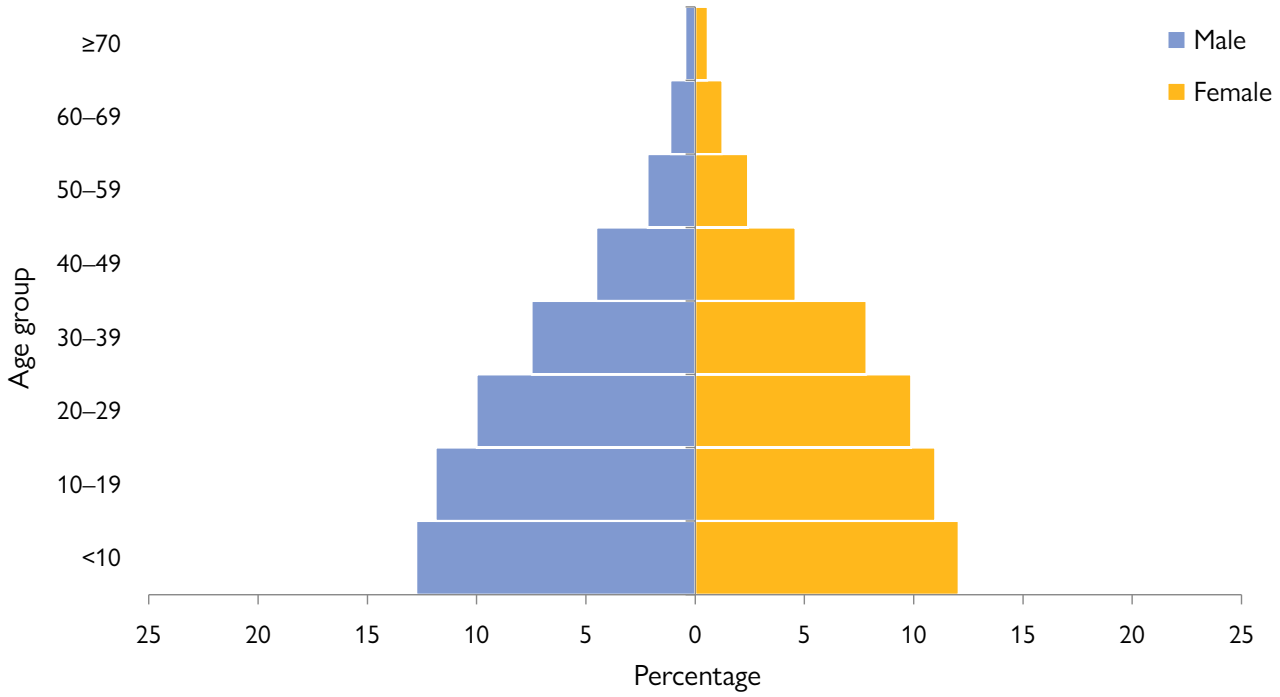
Source: IOM, 2022.
Notes: *Other also includes the IOM Sri Lanka Inbound Health Assessment Programme caseload = 11,684.
Total number of migration health assessments among refugees = 132,221.
Total number of migration health assessments among immigrants = 772,243.

Figure 13. Distribution of migration health assessments among immigrants by sex and age



Source: IOM, 2022.
Note: Total number of migration health assessments among immigrants = 772,223 (excluding unknown or indeterminate sex category = 20).

Figure 14. Distribution of migration health assessments among refugees by sex and age



Source: IOM, 2022.
Note: Total number of health asessments among refugees = 132,214 (excluding unknown or indeterminate sex category = 7).

Table 2. Tuberculosis detection among all migrants, selected IOM operations, 2022

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							
Botswana	1 306	2	1	3	153	77	230
Burundi	5 200	4	1	5	77	19	96
Cameroon	17 226	18	5	23	104	29	134
Chad	2 029	2	0	2	99	0	99
Democratic Republic of the Congo	4 296	1	0	1	23	0	23
Ethiopia	14 291	9	1	10	63	7	70
Ghana	25 923	0	0	0	0	0	0
Guinea	1 902	4	0	4	210	0	210
Kenya	31 163	40	16	56	128	51	180
Malawi	1 868	2	0	2	107	0	107
Nigeria	243 777	134	6	140	55	2	57
Rwanda	10 417	11	2	13	106	19	125
South Africa	24 798	13	1	14	52	4	56
Sudan (the)	5 327	2	1	3	38	19	56
Uganda	16 761	17	1	18	101	6	107
United Republic of Tanzania (the)	10 972	7	1	8	64	9	73
Zambia	3 144	3	0	3	95	0	95
Zimbabwe	46 463	31	2	33	67	4	71
AMERICAS							
Ecuador	1 117	0	0	0	0	0	0
El Salvador	2 016	0	0	0	0	0	0
Guatemala	2 673	2	0	2	75	0	75
ASIA							
Bangladesh	42 727	32	0	32	75	0	75
Cambodia	4 250	10	0	10	235	0	235
Indonesia	1 352	0	2	2	0	148	148
Malaysia	6 720	11	3	14	164	45	208
Myanmar	1 360	0	1	1	0	74	74
Nepal	50 844	88	3	91	173	6	179
Pakistan	78 001	73	5	78	94	6	100
Philippines (the)	37 587	137	121	258	364	322	686
Sri Lanka	55 826	12	0	12	21	0	21
Thailand	11 721	22	3	25	188	26	213
Viet Nam	41 619	130	21	151	312	50	363
EUROPE AND CENTRAL ASIA							
Belarus	2 552	0	0	0	0	0	0
Kazakhstan	3 407	3	1	4	88	29	117
Poland	1 085	0	0	0	0	0	0
Republic of Moldova	3 064	0	0	0	0	0	0
Russian Federation	14 290	0	0	0	0	0	0
Ukraine	3 578	0	0	0	0	0	0
MIDDLE EAST AND NORTH AFRICA							
Egypt	6 982	3	1	4	43	14	57
Iraq	7 868	0	0	0	0	0	0
Jordan	9 701	0	0	0	0	0	0
Lebanon	9 533	1	0	1	10	0	10
Qatar	10 107	13	0	13	129	0	129
Türkiye	11 130	1	0	1	9	0	9
United Arab Emirates	3 881	1	0	1	26	0	26
OTHER LOCATIONS[e]	12 610	5	0	5	40	0	40
TOTAL	904 464	844	199	1 043	93	22	115

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, 2022

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							
Botswana	1 293	2	1	3	155	77	232
Burundi	1 188	1	0	1	84	0	84
Cameroon	15 738	17	4	21	108	25	133
Democratic Republic of the Congo	4 204	1	0	1	24	0	24
Ethiopia	7 167	5	1	6	70	14	84
Ghana	25 494	0	0	0	0	0	0
Guinea	1 850	4	0	4	216	0	216
Kenya	24 133	31	8	39	128	33	162
Nigeria	243 777	134	6	140	55	2	57
Rwanda	3 072	0	0	0	0	0	0
South Africa	24 034	13	1	14	54	4	58
Sudan (the)	2 530	1	0	1	40	0	40
Uganda	7 375	8	0	8	108	0	108
Zambia	2 111	3	0	3	142	0	142
Zimbabwe	45 379	31	1	32	68	2	71
ASIA							
Bangladesh	42 647	32	0	32	75	0	75
Cambodia	4 157	10	0	10	241	0	241
Myanmar	1 277	0	1	1	0	78	78
Nepal	50 634	88	3	91	174	6	180
Pakistan	67 412	57	2	59	85	3	88
Philippines (the)	37 577	137	121	258	365	322	687
Sri Lanka	55 656	12	0	12	22	0	22
Thailand	8 200	11	1	12	134	12	146
Viet Nam	41 378	130	20	150	314	48	363
EUROPE AND CENTRAL ASIA							
Belarus	2 531	0	0	0	0	0	0
Kazakhstan	3 345	3	1	4	90	30	120
Republic of Moldova	1 674	0	0	0	0	0	0
Russian Federation	14 271	0	0	0	0	0	0
Ukraine	3 256	0	0	0	0	0	0
MIDDLE EAST AND NORTH AFRICA							
Egypt	1 209	0	0	0	0	0	0
Iraq	4 738	0	0	0	0	0	0
Jordan	2 102	0	0	0	0	0	0
Lebanon	1 380	0	0	0	0	0	0
Qatar	7 520	7	0	7	93	0	93
Türkiye	2 051	0	0	0	0	0	0
United Arab Emirates	2 396	1	0	1	42	0	42
OTHER LOCATIONS[e]	7 487	4	0	4	53	0	53
TOTAL	772 243	743	171	914	96	22	118

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, 2022

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	4 012	3	1	4	75	25	100
Cameroon	1 488	1	1	2	67	67	134
Chad	2 029	2	0	2	99	0	99
Ethiopia	7 124	4	0	4	56	0	56
Kenya	7 030	9	8	17	128	114	242
Malawi	1 021	0	0	0	0	0	0
Rwanda	7 345	11	2	13	150	27	177
Sudan (the)	2 797	1	1	2	36	36	72
Uganda	9 386	9	1	10	96	11	107
United Republic of Tanzania (the)	10 157	7	1	8	69	10	79
Zambia	1 033	0	0	0	0	0	0
Zimbabwe	1 084	0	1	1	0	92	92
AMERICAS							
Ecuador	1 117	0	0	0	0	0	0
El Salvador	1 341	0	0	0	0	0	0
Guatemala	2 671	2	0	2	75	0	75
ASIA							
Indonesia	1 352	0	2	2	0	148	148
Malaysia	6 719	11	3	14	164	45	208
Pakistan	10 589	16	3	19	151	28	179
Thailand	3 521	11	2	13	312	57	369
EUROPE AND CENTRAL ASIA							
Poland	1 085	0	0	0	0	0	0
Republic of Moldova	1 390	0	0	0	0	0	0
MIDDLE EAST AND NORTH AFRICA							
Egypt	5 773	3	1	4	52	17	69
Iraq	3 130	0	0	0	0	0	0
Jordan	7 599	0	0	0	0	0	0
Lebanon	8 153	1	0	1	12	0	12
Qatar	2 587	6	0	6	232	0	232
Türkiye	9 079	1	0	1	11	0	11
United Arab Emirates	1 485	0	0	0	0	0	0
OTHER LOCATIONS[e]	10 124	3	1	4	30	10	40
TOTAL	132 221	101	28	129	76	21	98

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]	12	1.5
Pansusceptible[b]	667	82.8
Monoresistant[c]	64	7.9
Polyresistant[d]	19	2.4
RR/MDR-TB[e]	12	1.5
XDR-TB[f]	2	0.2
Not done[g]	22	2.7
Missing result[h]	8	1.0
TOTAL	806	100.0

Source: IOM, 2022.
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] Rifampicin resistant (RR): Resistant to Rifampicin, with or without resistance to other anti-TB drugs. Multidrug resistant (MDR): 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:
Referral to national tuberculosis control programme or non-IOM clinic; DST failure.
[h] Reasons for missing result: 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	11 817	328	2.8	1 259	162	12.9	13 076	490	3.7
Refugees	23 749	1 332	5.6	1 631	54	3.3	25 348	1 411	5.6
TOTAL	35 566	1 660	4.7	2 890	216	7.5	38 424	1 901	4.9

Source: IOM, 2022.

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	16 884	1 136	6.7	561	48	8.6	17 438	1 204	6.9
Americas	2 131	115	5.4	0	0	0	2 131	115	5.4
Asia	5 377	183	3.4	1 928	166	8.6	7 282	354	4.9
Europe and Central Asia	2 346	24	1.0	29	0	0	2 375	24	1.0
Middle East and North Africa	8 828	202	2.3	372	2	0.5	9 198	204	2.2
TOTAL	35 566	1 660	4.7	2 890	216	7.5	38 424	1 901	4.9

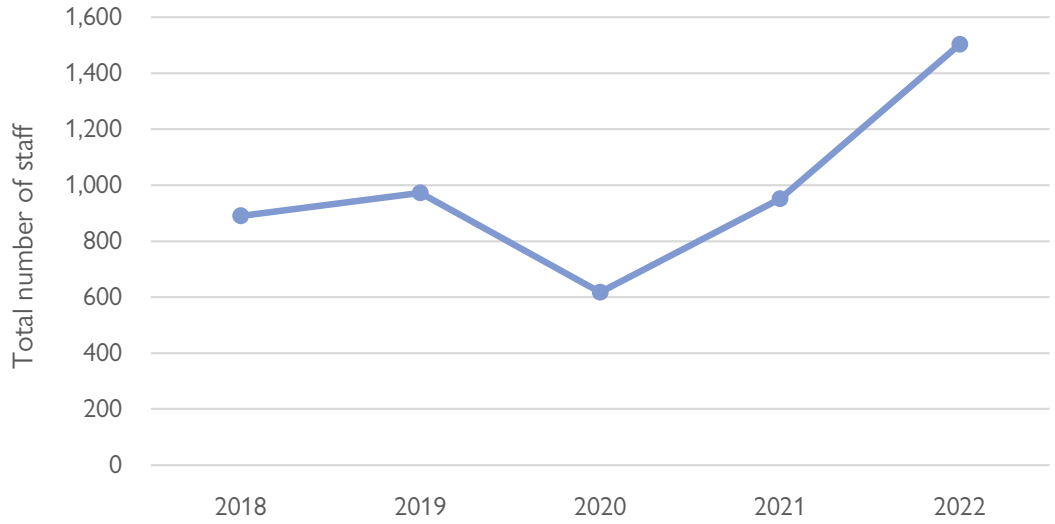
Source: IOM, 2022.

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	4.5% (5 223)	5.1% (937)	2.5% (2 392)	0 (1)	3.6% (2 939)	3.9% (11 492)
Gonorrhoea	0.7% (7 269)	0 (1 138)	0.2% (3 793)	0 (1 199)	0.1% (2 382)	0.4% (15 781)
Hepatitis B	2.9% (34 422)	0.2% (6 083)	4.3% (15 740)	0.6% (5 234)	0.9% (16 554)	2.4% (78 033)
Hepatitis C	0.9% (3 920)	0 (3)	2.5% (8 637)	1.2% (641)	0.5% (5 363)	1.5% (18 564)
HIV	0.8% (74 994)	0 (7)	0.2% (72 927)	<0.1% (5 542)	0.2% (19 740)	0.4% (173 210)
Malaria	7.1% (1 842)	0 (0)	<0.1% (14 108)	0 (0)	0 (0)	0.9% (15 950)
Syphilis	0.2% (91 750)	0.6% (3 505)	0.1% (68 284)	<0.1% (11 101)	0.3% (26 793)	0.2% (201 433)

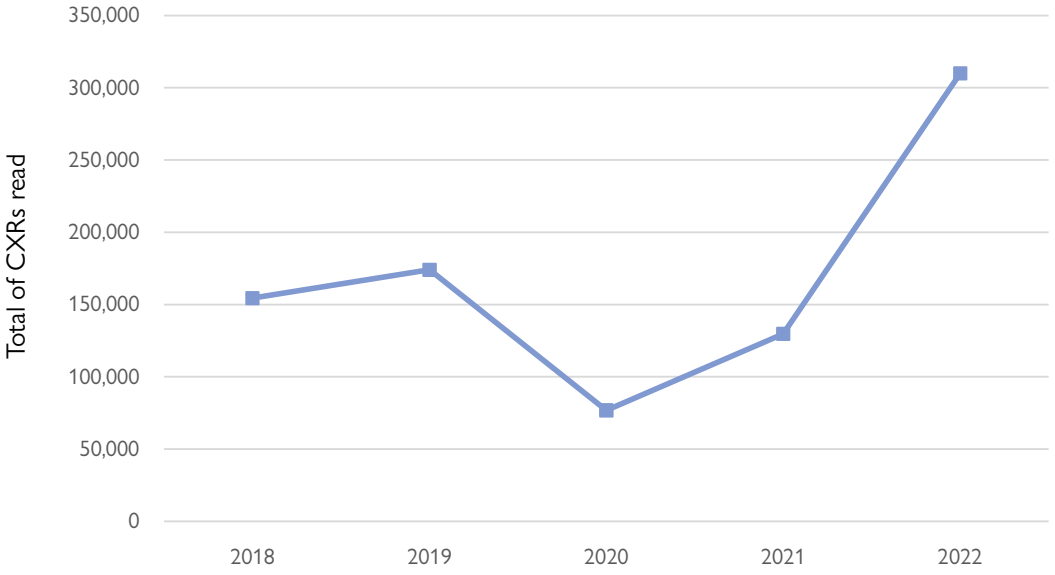
Source: IOM, 2022.

Figure 15. Pre-travel medical conditions of all escorted refugees



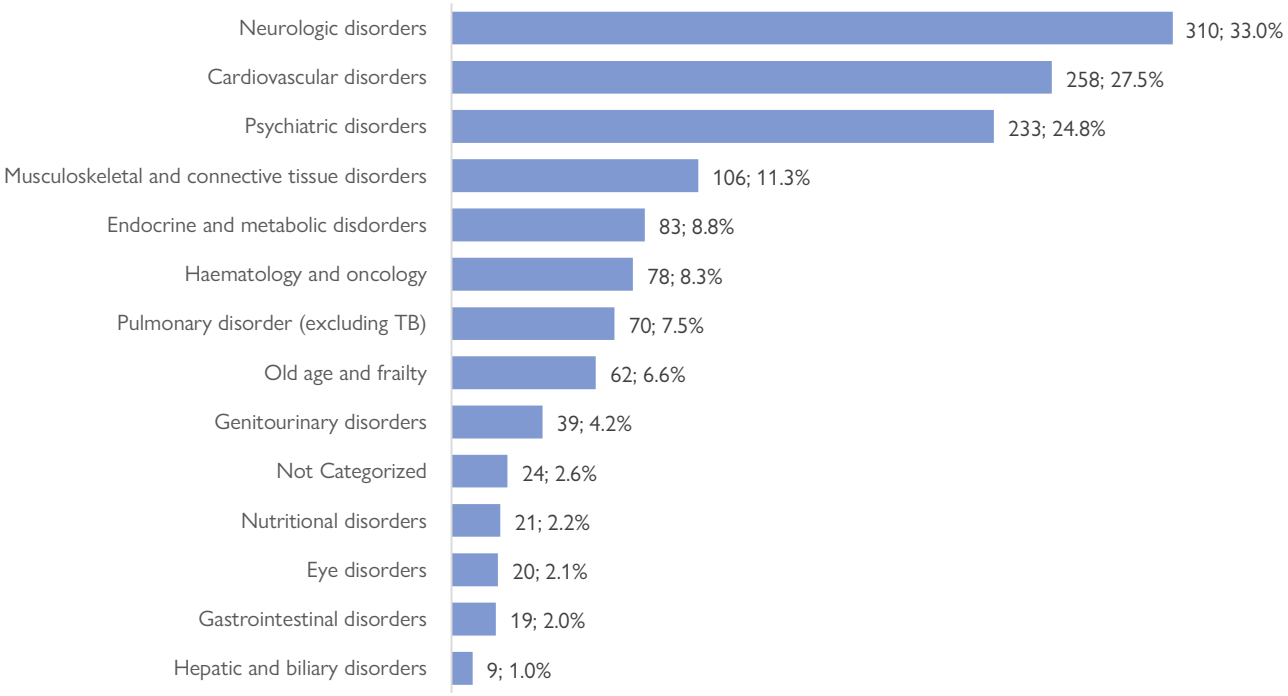
Source: IOM, 2022.

Figure 16. Five-year primary CXR reading trend, IOM Global Manila Teleradiology Centre



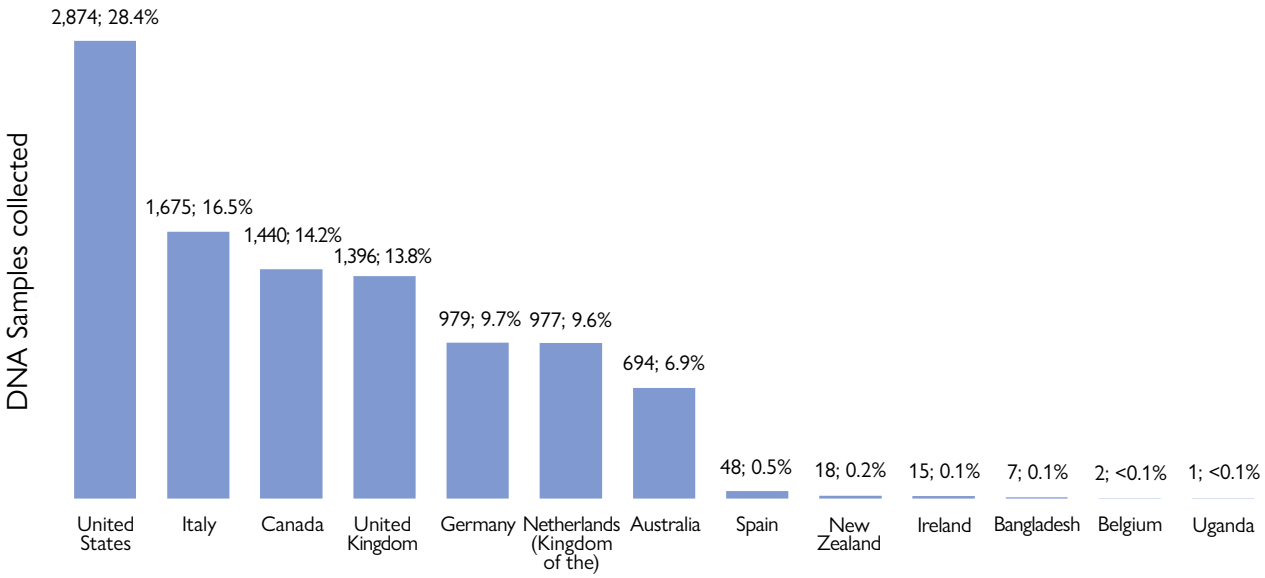
Source: IOM, 2022.

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



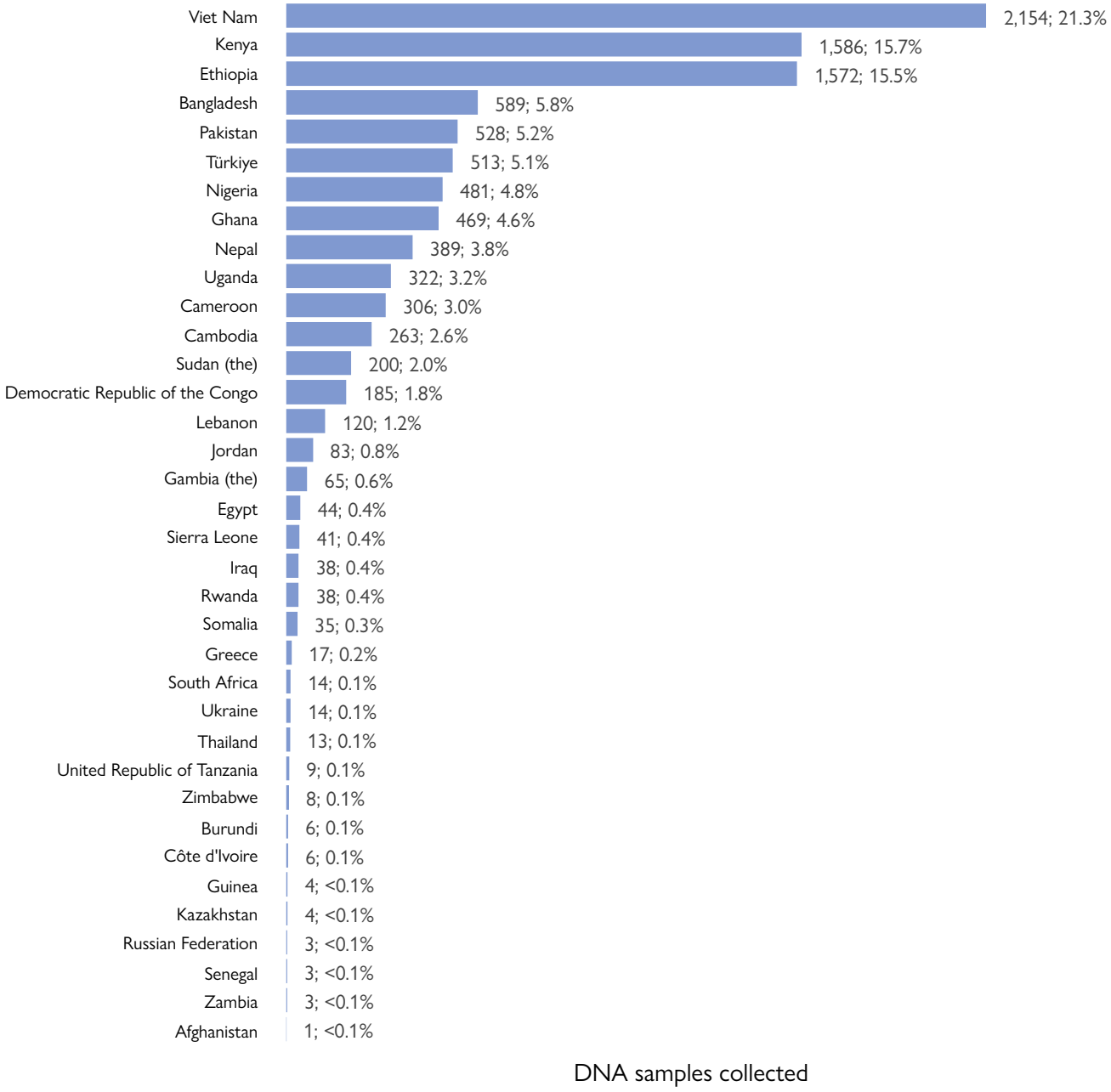
Source: IOM, 2022.
Note: Percentages are based on total number of medical conditions found = 938; multiple conditions were identified in some individuals. Total number of medical escorts assigned to refugees = 1,055.

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



Source: IOM, 2022.
Note: Total number of DNA samples collected = 10,126.

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

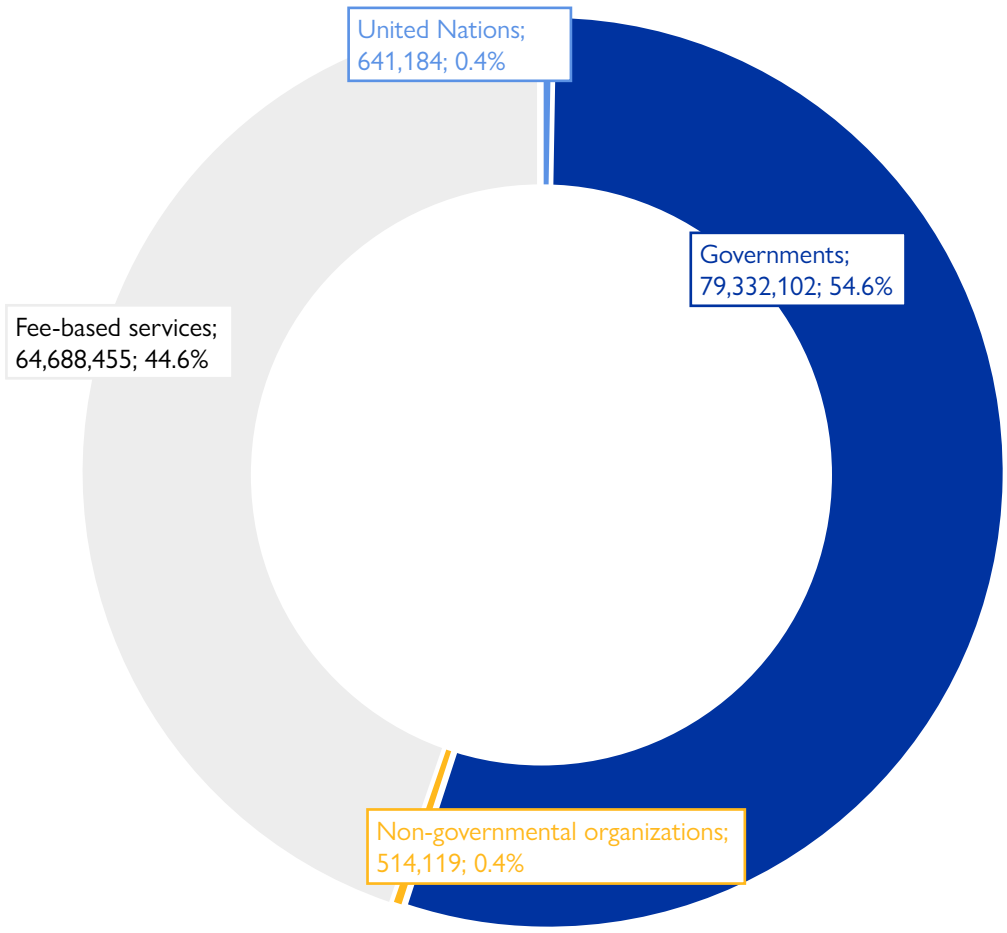


Source: IOM, 2022.
Note: Total number of DNA samples collected = 10,126.

Table 9. Pre-migration health activities expenditure by funding source, 2021–2022

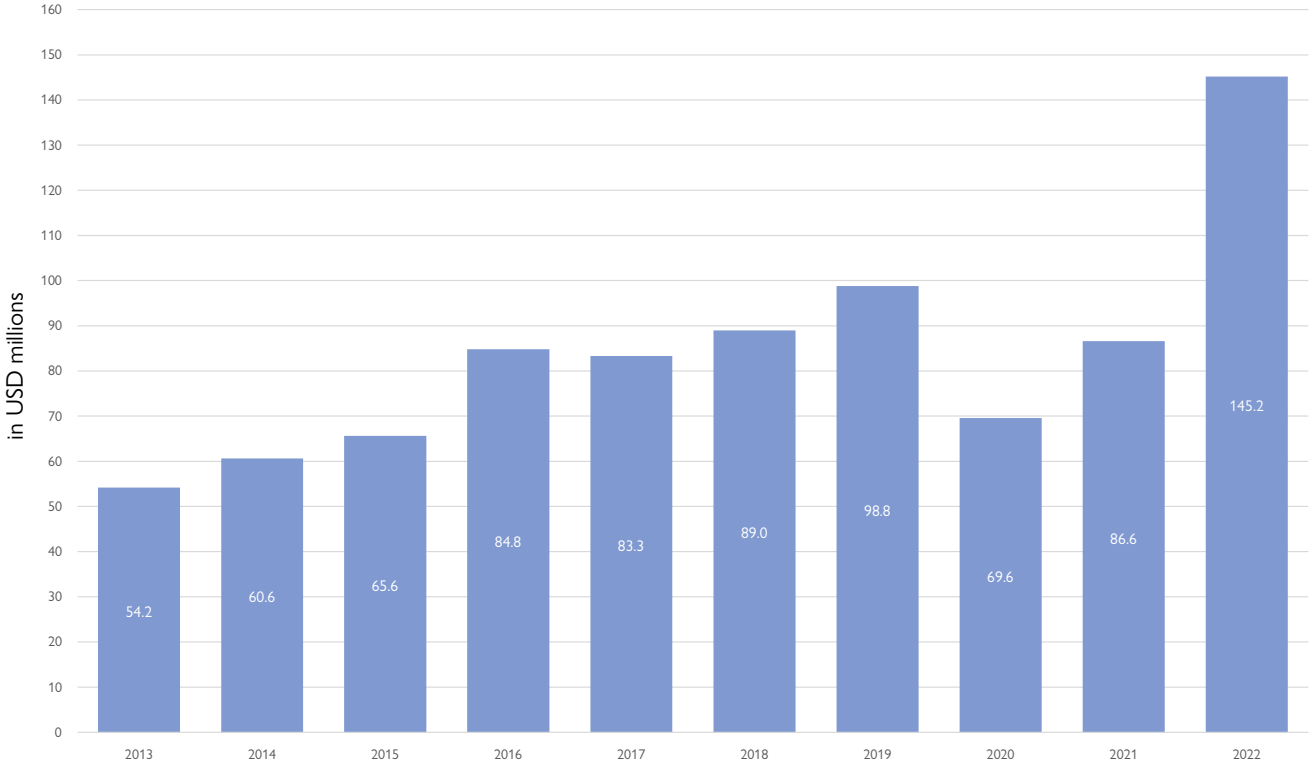
FUNDING SOURCE	2022 EXPENDITURE		2021 EXPENDITURE		Increase/(Decrease)	
	(in USD)	%	(in USD)	%	(in USD)	%
Governments	79 332 102	54.65	46 966 096	54.26	32 366 006	68.91
Non-governmental organizations	514 119	0.35	0	0.00	514 119	0.00
Fee-based services	64 688 455	44.56	38 718 122	44.73	25 970 332	67.08
United Nations	641 184	0.44	865 889	1.00	(224 704)	(25.95)
TOTAL	145 175 859	100	86 550 107	100	58 625 752	67.74

Figure 20. Funding sources for pre-migration health activities, 2022



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

Figure 21. IOM pre-migration health activities expenditure, 2013–2022



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