MIGRATION HEALTH ASSESSMENTS AND TRAVEL HEALTH ASSISTANCE

2019 OVERVIEW OF PRE-MIGRATION HEALTH ACTIVITIES

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UN MIGRATION

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Cover photo: Health education at the IOM MHAC in Bangkok, Thailand © IOM 2018

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LIST OF ACRONYMS

AVRR	assisted voluntary return and reintegration
CALS	comprehensive advanced life support
CDC	United States Centers for Disease Control and Prevention
CMHO	chief migration health officer
CXR	chest X-ray
DICOM	digital imaging and communications in medicine
DOPT	directly observed preventive therapy
DOT	directly observed treatment
DST	drug susceptibility testing
EDN	Electronic Disease Notification system
EPHR	electronic personal health record
EVD	Ebola virus disease
FAP	family assistance programme
HAP	IOM Global Migration Health Assessment Programme
HIV	human immunodeficiency virus
IAP	IOM-affiliated panel site
IGRA	interferon gamma release assay
IHAP	Inbound Health Assessment Programme (Sri Lanka)
IMS	immunization management system
IOM	International Organization for Migration
IPPA	International Panel Physicians Association
IT	information technology
LIMS	laboratory information management system
LTBI	latent tuberculosis infection
MAC	Manila Administrative Centre
MAF	medical assessment form
MDR-TB	multidrug-resistant tuberculosis

MERS-CoV	Middle East respiratory syndrome coronavirus
MHAs	migration health assessments
MHACs	migration health assessment centres
MHD	Migration Health Division
MHI	migration health informatics
MiMOSA	Migrant Management Operational Systems Application
MoHP	Ministry of Health and Population (Nepal)
NCD	non-communicable disease
NGO	non-governmental organization
NTP	national tuberculosis programme
PACS	picture archiving and communication system
PDE	pre-departure evaluation
PDMP	pre-departure medical procedures
PEC	pre-embarkation check
PMHA	pre-migration health activities
PPM	public–private mix
QA	quality assurance
QC	quality control
SOP	standard operating procedure
STI	sexually transmitted infection
TB	tuberculosis
TB IMS	tuberculosis information management system
TST	tuberculin skin test
UKTB GS	United Kingdom Tuberculosis Global Software
UNHCR	United Nations High Commissioner for Refugees
USRAP	United States Refugee Admissions Program
VHR	voluntary humanitarian return
VPD	vaccine-preventable disease
WHO	World Health Organization
WRAPS	Worldwide Refugee Admissions Processing System
XDR-TB	extensively drug-resistant tuberculosis

2019 KEY FACTS

71 IOM migration health assessment centres (MHACs) globally

429,150 migration health assessments (MHAs) were conducted worldwide; **74.1%** were on behalf of immigrants and **25.9%** on behalf of refugees

141,343 individuals were vaccinated, with **445,812** total doses administered

347,918 chest X-rays were taken as part of the MHAs process, of which **15,166 (4.4%)** had abnormal findings suggestive of Tuberculosis

26 IOM laboratories worldwide, with **9** IOM TB laboratories* among these

622 active TB cases were detected. **379** patients **(60.9%)** were provided treatment by IOM while the rest were referred to national TB programmes

1,522 migrants with significant medical conditions travelled to their countries of destination under the care of a medical escort

9,893 DNA samples were collected in IOM migration health assessment centres in **27** countries worldwide to facilitate family reunification

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

Pre-migration health activities (PMHAs) are one of the longest-standing services offered by IOM, delivered through the IOM Global Migration Health Assessment Programme (HAP) at the request of receiving country governments. 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), undertaken one to three weeks before departure; pre-embarkation checks (PEC) taking place one to three days before departure; travel; and post-arrival care. There may also be an interim period before departure to allow for interventions such as the management of conditions detected and stabilization care.

PMHAs are carried out for purposes of resettlement, obtaining a temporary or permanent visa, international employment, specific migrant assistance programmes and during post-emergency relocation and reintegration. The scope and requirements are dependent on the receiving country protocol and the epidemiological profile of the country of origin but are all based on the principle that the migration process should not endanger the health of migrants or host communities.

Key Definitions

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

- **Migration health assessment (MHA)**: An assessment of the physical and mental health of migrants conducted by a clinical team inclusive of a physician as part of the pre-migration process.
- **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 vaccinations, health education and counselling, surveillance for communicable diseases, testing and treatment for parasites and more. PDMP includes 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.
    - **Pre-embarkation check (PEC)**: A final action to assess migrants' fitness to travel[1], ensuring that the individual does not pose any health threat to themselves and/or to other persons encountered.

[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.

Global footprint

IOM currently undertakes operations through 71 IOM Migration Health Assessment Centres (MHACs) located in 51 countries across Africa, Asia, Europe and the Middle East. 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.

Since 2010 alone, IOM has provided or assisted the delivery of migration health assessments (MHAs) for over 3.2 million migrants[2] on behalf of more than 30 destination countries, in over 90 countries across Africa, Asia, Europe, Latin America and the Middle East. There was an overall increase in the number of MHAs performed for immigrants in all regions except Europe since 2017. Over the same period, the MHAs for refugees declined slightly, then increased for most regions, particularly in the Middle East, due to ongoing conflict. The 10-year trend is illustrated by region of MHAs and country of destination in Figures 7 to 10 in the Annex. In addition to its traditional pre-migration activities, IOM also provides MHAs in the post-arrival phase for migrants applying for resident visas in Sri Lanka, through its Inbound Health Assessment Programme (IHAP).

In 2019, more than 429,000 IOM and IOM-assisted MHAs were conducted globally, covering both immigrants (74.1%) and refugees (25.9%). This represented a 13.5 per cent overall increase in MHAs from 2018, with a 19.6 per cent overall increase among refugee MHAs, particularly for refugees bound for Australia (19.6% increase), Canada (25.4% increase) and European countries (17.7% increase), such as France, Germany, Ireland, Portugal and Spain. The main destination countries for migrants assisted by IOM in 2019 were the United Kingdom (30.1%), the United States of America (24.7%) and Canada (24.2%). Most MHAs were provided in Asia (44.5%), followed by Africa (32.6%) and the Middle East (13.3%). A detailed breakdown is presented in Figure 1 on page 8 and in Figures 11, 12 and Table 2 in the Annex.

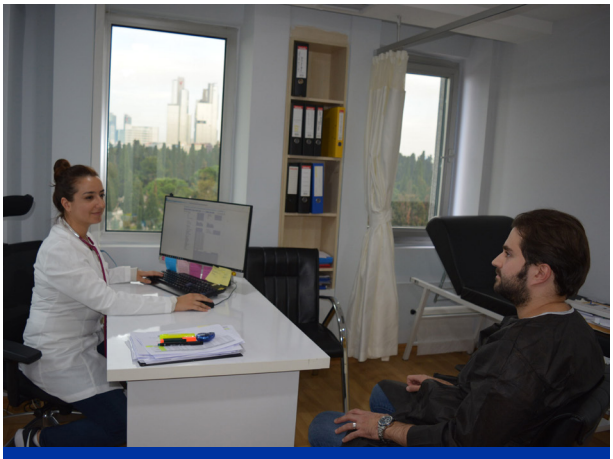
Profile of immigrants

Pakistan (13.0%), Viet Nam (11.5%) and Nigeria (10.6%) accounted for most MHAs for immigrants conducted in 2019. The top destination countries were the United Kingdom (38.4%), Canada (22.9%) and the United States (19.5%). Of the MHAs conducted, 54.1 per cent were for females and 45.9 per cent for males. The majority of MHAs were among immigrants under the age of 30 (61.3%), with the highest number in the 20–29 age group (see Figure 13 in the Annex).

Preparing for a migration health assessment at the IOM MHAC in Ho Chi Minh, Viet Nam.© IOM 2018

Profile of refugees

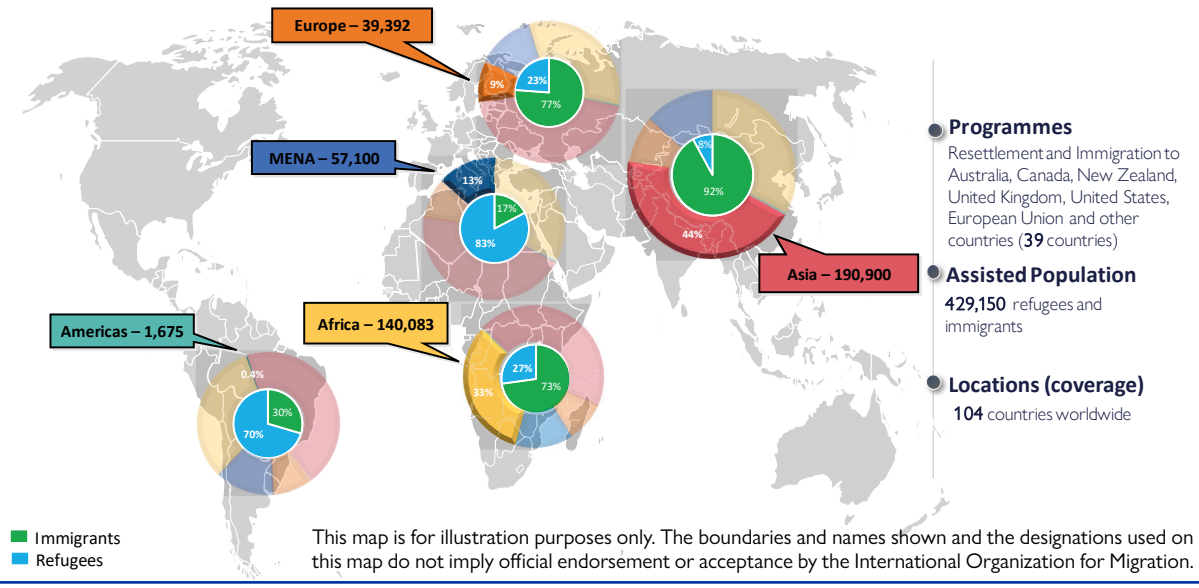
Most MHAs among refugees in 2019 were conducted in Lebanon (11.7%), Turkey (11.1%) and Jordan (8.8%). The top destination countries were the United States (39.7%), Canada (27.9%) and Australia (14.6%). The sex distribution differed slightly from that of immigrants, with 48.8 per cent of MHAs conducted among females and 51.2 per cent among males. The majority of MHAs were among refugees younger than 30 (67.1%), with the highest number in the under-10 age group (see Figure 14 in the Annex).



Migration health assessment at an IOM MHAC in Turkey. © IOM 2018

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

Figure 1: IOM global migration health assessment programme global footprint (IOM and IOM-assisted migration health assessments)



SERVICES AND CAPACITIES

Figure 2: Snapshot of IOM capacity for pre-migration health activities

71 IOM MHACs across **51** countries, with a network of partner facilities covering an additional **53** countries (total of **104** countries covered)

Approximately **40%** of IOM MHACs with IOM-owned X-ray units

2 teleradiology centres networked to **83** locations worldwide

9 biosafety level 3 IOM TB laboratories

Serology and other testing provided at **26** IOM laboratories

DNA sample collection services in **27** countries to facilitate family reunification

Radiology services

Chest X-ray (CXR) examination is the mainstay of imaging used for screening for tuberculosis (TB) and monitoring patient responses to TB treatment as part of PMHAs and is one of the main criteria for referral for laboratory investigations. Approximately 40 per cent of IOM MHACs provide CXR services through IOM-owned X-ray units, while all others are assured through external providers; most sites are in countries with an intermediate to high TB burden.

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 2019, 347,918 migration health assessments included CXRs, of which 15,166 (4.4%) had abnormalities suggestive of TB requiring further laboratory investigations.

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 the sub-Saharan Africa region. The Centres provide a quality real-time teleradiology programme that includes primary reading, second consultation and radiology support to both IOM and non-IOM locations[3] across the globe.

The teleradiology centres use global Picture Archiving and Communication System (PACS) networking and DICOM image transfer from both IOM and non-IOM panel sites, innovative web-based teleradiology reporting applications and a live-chat system to provide teleradiology support. As of December 2019, the IOM Teleradiology Centres were networked to

[3] 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.

a total of 83 locations worldwide, including 70 IOM field operations with local PACS and 13 non-IOM panel sites. Of these, 35 locations across Africa were networked to the Nairobi Teleradiology Centre (28 IOM locations and 7 non-IOM locations), while the rest were networked to the Manila Teleradiology Centre. The IOM teleradiology centres interpreted a total of 267,077 CXRs in 2019, accounting for 76.8 per cent of the total CXR caseload, of which 174,080 (65.2%) were read in Manila and 92,997 (34.8%) in Nairobi. The remaining CXR caseload (80,841 or 23.2%) was read by IOM radiologists in different missions.

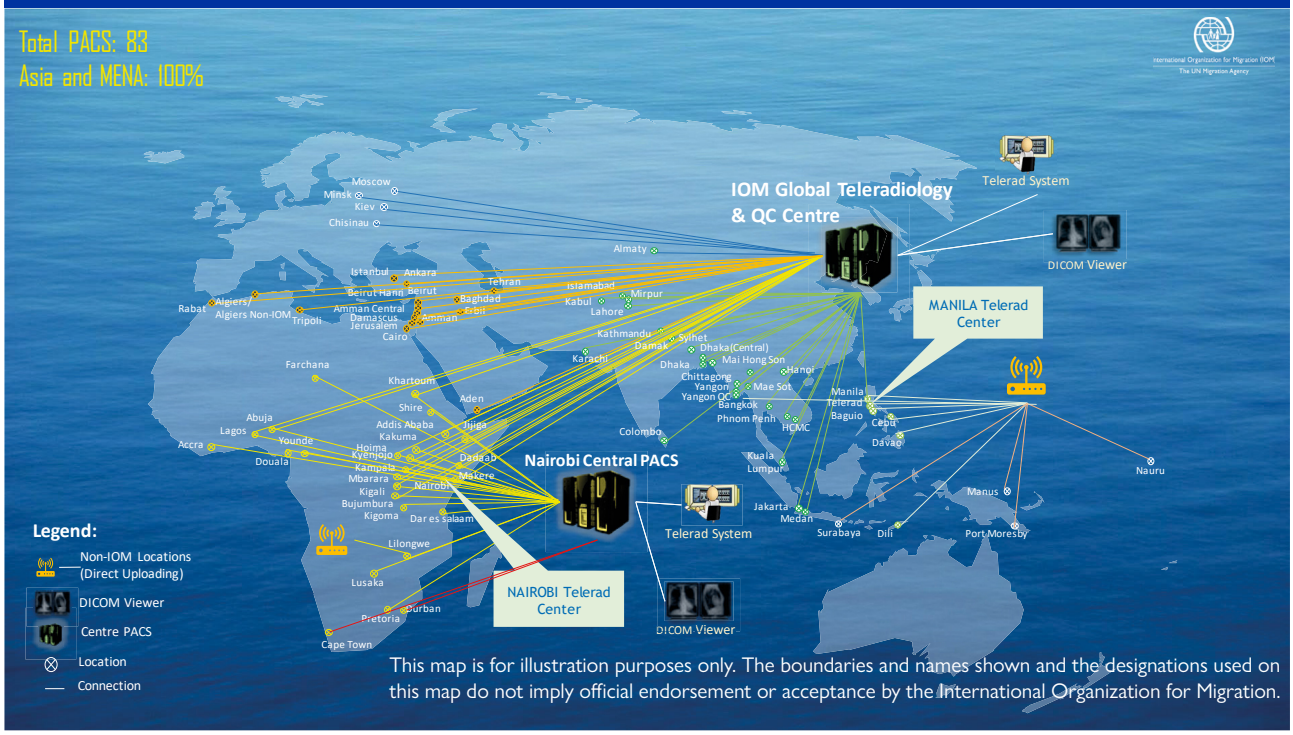
The Manila Teleradiology Centre also provides a global quality control (QC) service, which was established in 2015 to help field operations identify gaps in the radiology service and implement corrective actions based on expert recommendations. In 2019, the QC programme covered 36 IOM field operations, with plans for future expansion and improvements in 2020; in coordination with governments, IOM's QC service was provided to nine non-IOM panel sites.

In 2019, to enhance the quality of teleradiology services provided, the Centres strengthened their internal monitoring by implementing an internal peer review process for 10 per cent of cases from all locations assisted with primary reading, including analysis of performance indicators, regular training of consultant radiologists and support staff, and regular consultations and image viewing sessions.

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

Chest X-ray reading at the IOM Global Teleradiology Centre in Manila, Philippines. © IOM 2018

Figure 3: IOM Global Teleradiology PACS Network as of December 2019



Laboratory services

Laboratory services are integral to the migration health assessment process and differ in scope according to the receiving country protocol. Serology and clinical laboratories perform tests for syphilis, human immunodeficiency virus (HIV), hepatitis B and C, tuberculosis (interferon gamma release assay, or IGRA), malaria and pregnancy, as well as conducting urine tests and blood chemistry. TB laboratories conduct sputum smear microscopy and culture testing. Molecular testing for TB and gonorrhoea is also conducted in many locations.

As of 2019, IOM operates 26 laboratories across Africa, Asia and the Middle East. All undertake serology and clinical testing, while nine are biosafety level 3 TB laboratories. In addition, IOM collaborates with external partner laboratories in various countries, particularly in the European region. All IOM and partner laboratories participate in internal and external quality assurance programmes and are periodically evaluated by IOM's Regional and Global Laboratory Coordinators.

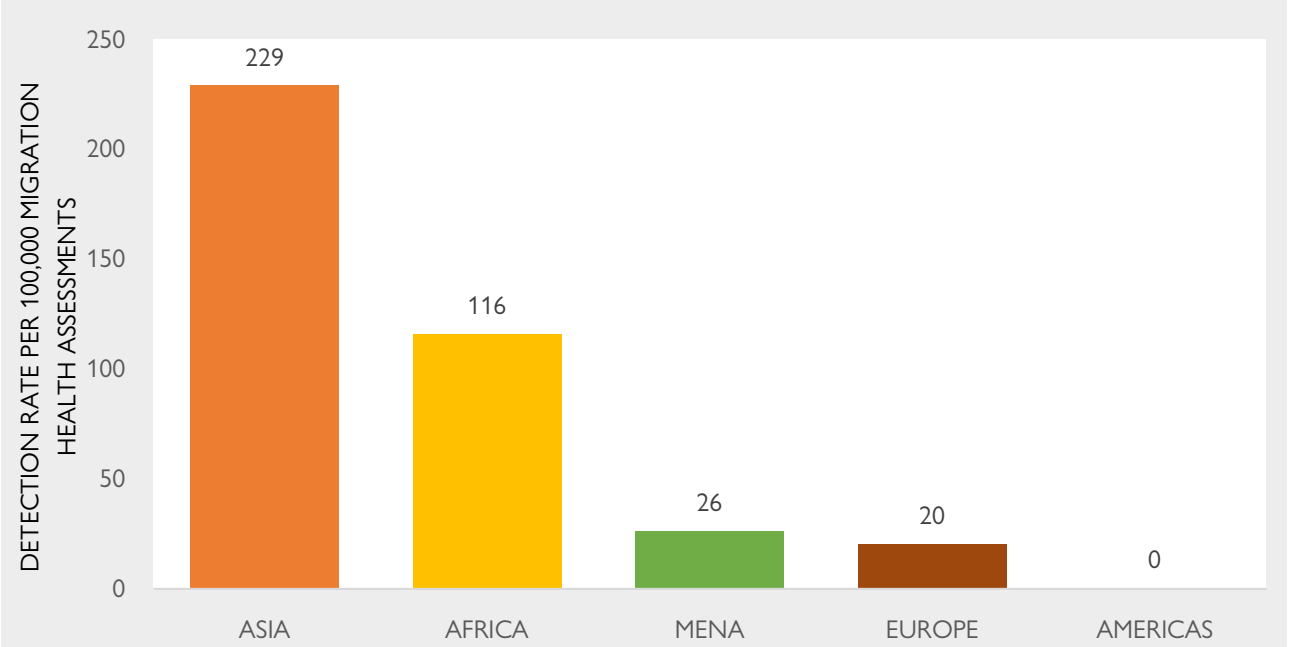
Tuberculosis diagnostics

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

During 2019, laboratory investigations for TB were undertaken as part of 12,992 migration health assessments, leading to the diagnosis of 465 bacteriologically confirmed cases of TB. When combined with diagnoses made on the basis of clinical or radiological findings meeting the case definition for active TB requiring treatment, it amounted to 622 cases; an overall detection yield of 145 per 100,000 migration health assessments, with a detection yield of 147 per 100,000 migration health assessments among immigrants and 140 per 100,000 migration health assessments among refugees.

The majority of active TB cases were detected in Asia (70.3%) and Africa (26.0%). The countries with the highest TB detection yield were the Niger (2,152 per 100,000 migration health assessments), the Philippines (789 per 100,000 migration health assessments) and Malaysia (714 per 100,000 migration health assessments). Detailed breakdown of detection yields by region and by country of migration health assessment is available in Figure 4 below and Tables 3 to 5 in the Annex.

Figure 4: Tuberculosis detection* among all migrants by region (IOM, 2019)



* Detection represents all active TB cases (laboratory confirmed and clinically diagnosed TB) = 622. Total number of migration health assessments = 429,150

DST results were obtained for 460 (98.9%) positive culture specimens, finding 382 (82.2%) susceptible to all first-line drugs, 55 (11.8%) resistant to one or more first-line anti-TB drugs, 15 (3.2%) multidrug-resistant (MDR-TB) and 1 (0.2%) extensively drug-resistant (XDR-TB) (see Table 6 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 interferon gamma release assay (IGRA), commonly required for close household contacts of migrants with active TB or for screening children from countries with a high TB burden 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 2019, IGRA was performed as part of 26,386 migration health assessments, including 39.0 per cent for immigrants and 61.0 per cent for refugees, finding 1,498 positive tests (5.7%) requiring further TB work-up. 4,994 TST were performed, of which 69.1 per cent were for immigrants and 30.9 per cent for refugees, leading to 154 positive tests (3.1%). Detailed data is available in Table 7 and 8 in the Annex.

Testing in the IOM laboratory in Kuala Lumpur, Malaysia. © IOM 2018

Molecular diagnostics

IOM has established a network of laboratories for performing molecular testing using the GeneXpert platform, Cepheid (Sunnyvale, CA). This system uses different cartridges for the detection of bacterial pathogens, such as Neisseria gonorrhea and Mycobacterium tuberculosis, and the detection of drug resistance, using the one instrument. Molecular testing is a requirement for the rapid detection of pathogens for different resettlement programmes and its use is defined in individual technical instructions of destination countries.

In 2019, IOM provided molecular testing in 18 locations.

Other laboratory diagnostics

Laboratory testing for conditions other than TB may be requested by the receiving country. Testing for HIV and sexually transmitted infections (STIs), such as syphilis, gonorrhoea and chlamydia, 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 more.

In 2019, a total of 65,001 tests for hepatitis B were conducted globally, with a diagnostic yield of 2.5 per cent. The highest yields were in Asia (3.7%) and Africa (3.0%). Hepatitis C had a lower overall diagnostic yield than hepatitis B at 1.1 per cent of 19,724 tests conducted. The highest diagnostic yields of hepatitis C were in Europe and Central Asia (2.1%) and in Asia (1.8%).

With respect to STIs, overall, 173,580 tests were conducted for syphilis, 73,851 for gonorrhoea and 42,104 for chlamydia. Of those tested for syphilis, the overall diagnostic yield was 0.3 per cent, while for gonorrhoea and chlamydia it was 0.2 per cent and 1.8 per cent, respectively. The highest yields for gonorrhoea and chlamydia were detected in Africa (0.4% and 2.5%, respectively) and for syphilis, in the Americas (0.8%).

A total of 113,251 HIV tests were undertaken in 2019, yielding 556 positive cases, or 0.5 per cent. The highest diagnostic yield was in Africa (1.1%).

Malaria testing, through a rapid diagnostic test or by light microscopy may also be included in endemic areas, particularly in sub-Saharan Africa. In 2019, 6,029 malaria tests were conducted in Africa, Asia and the Middle East, with an overall diagnostic yield of 8.9 percent (539 positive cases), with all cases except one detected in Africa.

Diagnostic yields per condition and region can be found in Table 9 in the Annex.

A laboratory technologist preparing samples at the IOM laboratory in Nairobi, Kenya. © IOM 2020

Treatment of communicable diseases

IOM provides treatment for certain communicable diseases detected through PMHAs.

Treatment of tuberculosis

TB treatment is provided directly by IOM or through referral to either the national TB programmes (NTPs) or to centres designated by receiving countries. In 2019, directly observed treatment (DOT), which is the strategy recommended internationally for TB treatment, was provided by IOM to 379 (60.9%) 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 MHACs.

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 (DOPT) for latent tuberculosis infection (LTBI) is 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.

Directly observed treatment (DOT) for TB at the IOM MHAC in Nairobi, Kenya. © IOM 2020

Treatment of other communicable diseases

IOM also provides treatment for several other conditions, including syphilis, gonorrhoea, malaria, intestinal parasites, 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 2019, 397 individuals found to have syphilis (80.0% of those with positive results) were provided with treatment and 76 individuals found to have gonorrhoea (67.9% of those with positive results) were treated; all others were referred for treatment.

Treatment (both presumptive and curative) for malaria and intestinal parasites was provided for 815 and 51,150 beneficiaries, respectively. Additionally, 81 beneficiaries were provided with treatment for scabies and 240 for lice. Others were referred for treatment.

Vaccinations

IOM provides vaccinations as part of PMHAs on behalf of various receiving countries, such as Australia, Canada, Finland, Germany, Ireland, Italy, Japan, Malaysia, New Zealand, Spain, the United Kingdom and the United States. Vaccination is conducted both routinely and in response to outbreaks of vaccine-preventable diseases (VPDs). IOM's vaccination activities aim to improve the health of migrants by increasing key vaccine coverage, particularly for refugees over five years not covered by traditional immunization programmes, and to reduce the risk of arrival in destination countries with VPDs.

Figure 5: Snapshot Overview of Vaccination (IOM, 2019)

* Vaccines provided against: Diphtheria, Haemophilus influenzae type b, hepatitis A, hepatitis B, human papillomavirus, influenza, Japanese encephalitis, measles, meningitis, mumps, pertussis, pneumococcal infection, polio, rotavirus, rubella, tetanus, varicella, yellow fever

In 2019, 141,343 individuals were vaccinated, with a total of 445,812 doses administered in over 80 countries. The majority of vaccinations were provided to migrants travelling to the United States, Canada and Australia, and most frequently protected migrants against measles, mumps, rubella, hepatitis B, tetanus, diphtheria and polio.

Quality and safety of the IOM Vaccination Programme

IOM has developed a robust vaccine procurement and distribution framework, which is necessary for the delivery of safe vaccination programmes, particularly in remote locations or in countries with weak infrastructure. IOM works in coordination with partners to supply field operations with required cold chain equipment and procurement of vaccines from reputable manufacturers and distributors. IOM uses a global vaccine inventory management system, the IOM Immunization Management System (IMS) 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.

Oral vaccine administration at the IOM MHAC, Amman, Jordan. © IOM 2018

Non-communicable diseases (NCDs) and mental health disorders

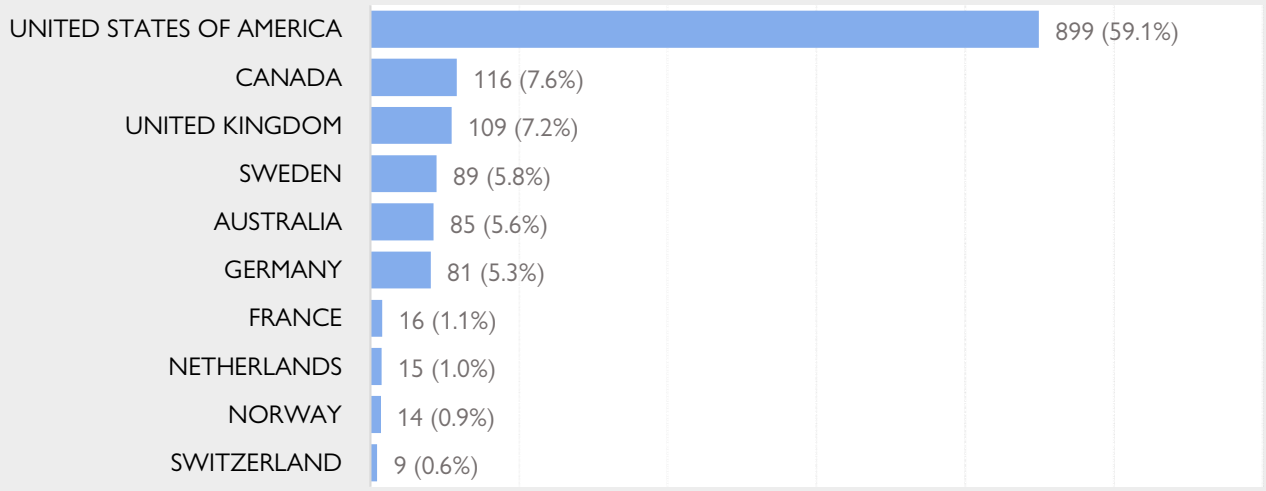
IOM PMHAs also facilitate detection of non-communicable diseases (NCDs) through MHAs and bridge pre-departure and post-arrival services by ensuring continuity of care. This is done through comprehensive history taking, review of medical records, physical and mental examinations, further investigations,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

In 2019, mental health conditions were identified in 2,728 MHAs (0.4%). Where indicated, migrants were referred to a specialist for further evaluation. Further details can be found in the Annex (Table 10).

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 2019, 1,522 migrants were escorted to their destinations (see Figure 6 below).

Figure 6: Number of migrants travelling with a medical escort by country of destination* (IOM, 2019)



* Only the 10 destination countries with the highest number of migrants travelling with a medical escort were included. Total number of migrants travelling with a medical escort =1,522.

IOM medical escorts with their equipment in Manila, Philippines. © IOM 2018

DNA sample collection

DNA sample collection is frequently used as a tool to facilitate family reunification. Over the last several 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 2019, 9,893 DNA samples were collected at IOM MHACs in 27 countries for migrants wishing to reunite with their families in 9 destination countries. Samples were also collected at the request of the United Nations High Commissioner for Refugees (UNHCR) as part of the refugee resettlement process. The highest number of samples were collected at IOM MHACs in Ethiopia (20.7%), Pakistan (14.5%) and Viet Nam (13.3%), with the main destinations being the United Kingdom (28.2%), the United States (20.8%) and Italy (16.9%). Further details are presented in Figures 16 and 17 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 Medical Assessment Form (MAF). The aim of the MAF is to identify refugees who need priority resettlement on medical grounds. IOM conducts an assessment of a refugee's medical condition, prognosis and the possibility of management in the country of asylum and provides recommendations on the need and urgency of resettlement.

Requests for assistance with the MAF are presented to IOM in writing, and IOM ensures that the forms are completed comprehensively and that their enclosed information is handled confidentially.

In 2019, 926 MAFs were completed across 13 countries in Africa (13.8%), Asia (17.5%), Europe (0.2%) and the Middle East (68.5%).

Family Assistance Programme

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

Based on its experience in the provision of migration health assessments, 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 is then categorized according to the severity of their condition and this, along with other information, such as the need for medical escort services for travel, is provided to the German Embassy.

In 2019, 233 reviews were undertaken for FAP operations, with the majority of these in the Middle East (93.1%).

Sri Lanka Inbound Health Assessment Programme

The Inbound Health Assessment Programme (IHAP) in Sri Lanka was established in 2019 by IOM in partnership with the Sri Lanka Ministry of Health, Nutrition and Indigenous Medicine. This programme involves the provision of migration health assessments for resident visa applicants soon after arrival to Sri Lanka and aims to promote the health of migrants by screening for and addressing their health needs, as well as the public health of the receiving communities. Migrants are screened for four conditions of public health concern, namely filariasis, malaria, HIV and TB and, if needed, treatment is provided through national programmes. Continuity of care is facilitated by ensuring access to primary health care, emergency care and ambulatory care through a health protection plan.

In 2019, 13,893 migration health assessments were conducted as part of the IHAP. Overall, 238 beneficiaries were found to have filariasis, 29 with HIV and 2 with malaria. Molecular testing was performed for the rapid detection of TB, found in 9 beneficiaries.

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 migration health assessment, including pre- and post-test counselling, as well as health education through various media, such as posters, pamphlets and videos in MHACs waiting areas.

An IOM staff plays with children who came for PMHA, in Mae Sot, Thailand. © IOM 2017

Outbreak response

IOM performs surveillance for outbreaks of communicable diseases in refugee camps and transit centres in several 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. Cases are notified to IOM staff, partners such as UNHCR, the United States Centers for Disease Control and Prevention (CDC) and the World Health Organization (WHO), and local governments for implementation of response measures and programmatic and technical support.

IOM's response aims to limit the spread of disease and may include carrying out laboratory investigations, providing additional vaccinations, contact tracing, health education, surveillance, isolation and treatment. Measures are generally implemented in coordination with resettlement countries.

During 2019, measles was the most common disease outbreak identified in several IOM countries of operation globally. Table 1 below includes reported outbreaks impacting IOM movements in 2019 and their respective locations.

Table 1: Outbreaks impacting IOM movements by country of departure, 2019

Outbreak	Country of departure
Chikungunya	Thailand
Cholera	Burundi, Chad, Yemen
Dengue	Bangladesh, Philippines, Thailand, Yemen
Diphtheria	Indonesia, Philippines
Ebola virus disease	Democratic Republic of the Congo, Uganda
Measles	Algeria, Burundi, Georgia, Israel, Jordan, Kazakhstan, Kyrgyzstan, Lebanon, Malaysia, Philippines, Republic of Moldova, Thailand, Turkey, Ukraine
MERS-CoV*	Qatar, Saudi Arabia, United Arab Emirates
Polio	Afghanistan, China, Ghana, Indonesia, Malaysia, Myanmar, Philippines
Varicella	Burundi, Kenya, Thailand

* MERS-CoV – Middle East respiratory syndrome coronavirus.

IOM's responses involved a range of measures primarily directed towards the resettlement population but with certain aspects applying more widely, as well as the implementation of additional disease-specific actions. The latter included, for example, providing Ebola virus disease (EVD) preparedness and infection control training in Uganda to strengthen capacity and implementing 21-day surveillance for all departing refugees, as well as enhancing hygiene measures in response to a cholera outbreak in Chad.

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 MHI unit in the Manila Administrative Centre (MAC) 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 systems in 2019:

- Migrant Management Operational Systems Application (MiMOSA): A web-based migrant management software used for capturing data on migration health assessments, pre-departure procedures and health-related travel requirements.
- Immunization Management System (IMS): A system for tracking vaccine inventory levels, stock movement and lot details.
- United Kingdom Tuberculosis Global Software (UKTB GS): A health information management system customized to capture data on migration health assessments for visa applicants to the United Kingdom.
- Interfaces between MiMOSA, the Worldwide Refugee Admissions Processing System (WRAPS) and the CDC Electronic Disease Notification system (EDN).
- Interface between MiMOSA and the eMedical system for Australian migration health assessments.
- Quality control (QC) application for IOM teleradiology services.
- HAPSTAT QC: An automated system for data validation and quality control based on the health protocols of destination countries.

Systems in development:

- Interfaces between MiMOSA and eMedical for Canadian and New Zealand migration health assessments.
- IOM's Laboratory Information Management System (IOM LIMS): A web-based application that provides a platform for IOM to manage laboratory-related data. Initially developed

in 2018, a second phase of software development was undertaken in 2019 (LIMS 2.0) to link the system with MiMOSA and the UKTB GS, enabling the automatic submission of laboratory results and saving time on data entry while increasing accuracy and efficiency.

- MiMOSA IAP (IOM-affiliated panel sites): An information management system for data related to pre-migration health activities for United States-bound refugees at IOM-affiliated panel sites.
- Tuberculosis (TB) Information Management System (TB IMS): An information management system for TB-related migrant health records that can be interfaced with existing IOM applications, such as MiMOSA, IOM LIMS, teleradiology and UKTB GS.
- MedStock: An expansion of the IMS for the management of drugs and pharmaceuticals.
- Electronic personal health record lite system (ePHR-Lite): An online platform to facilitate data entry, analysis and transfer of migration health assessment data in Italy. The platform was originally developed within the framework of a European Commission-funded project, based upon IOM's experience in pre-migration health activities and migration health data management, and was adapted for the Italian context in partnership with local health authorities.

Quality control

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. PMHAs procedures are conducted in accordance with internal and international standards and receiving country technical instructions, and monitoring and evaluation activities are regularly undertaken.

Standard operating procedures (SOPs) are widely used at country, regional and global levels. As of 2019, there was a comprehensive range of SOPs in place globally, covering a broad set of programmatic activities, including pre-departure medical procedures, vaccinations and other topics relevant to the migration health assessment process.

LINKAGES WITH OTHER MIGRATION HEALTH PROGRAMMATIC AREAS

Leveraging its global presence and experience in the provision of PMHAs, IOM HAP staff also contribute to other migration health-related initiatives in IOM country offices, wherever possible. Selected examples from 2019 are detailed below.

Situation analysis of migrant health in Viet Nam

From November 2018 to July 2019, IOM undertook a situation analysis in Viet Nam, in collaboration with the Ministry of Health and WHO, to assess the health of migrants in the country and the barriers and facilitators to accessing health care. The study aimed to develop recommendations on areas of prioritized action to promote migrant health in Viet Nam. Based on the study results and recommendations, going forward, IOM aims to support the capacity of the government to develop a five-year national action plan on migrant health for Viet Nam.

Tuberculosis REACH project in Nepal

In 2019, IOM Nepal was successfully awarded a grant by the Stop TB Partnership Wave 7 TB REACH initiative for the implementation of an innovative intervention using a public-private mix (PPM) approach. The intervention aims to develop linkages and referral mechanisms between private centres providing migration health assessments for Nepali labour migrants and the public health system, thereby improving TB case detection in this population and facilitating treatment from national TB programme (NTP) treatment centres.

In addition, the project aims to engage and empower women by providing training for female clinicians and technicians at private health assessment centres, as well as through training female labour migrants in TB-related peer education.

Project activities are organized in collaboration with a range of stakeholders, including the NTP, private health assessment centres, UN agencies such as WHO, the Ministry of Health and Population (MoHP) in Nepal and non-governmental organizations (NGOs).

Electronic Personal Health Record project in Siracusa, Italy

As part of the project "Technical Assistance and Support to the Local Health Authority of Siracusa",

IOM conducted an information technology (IT) needs assessment for the Provincial Health Authority in Siracusa, Italy, one of IOM's local partners participating in the European Commission's Re-Health initiative.

The purpose was to improve the capacity of their health information management systems to:

- Manage the medical records of migrants arriving by sea;
- Ensure continuity of care;
- Provide inclusive health-care services, capable of catering to increasingly diverse populations;
- Transfer medical records from the ePHR platform to the local patient management system.

Siracusa was one of the pilot locations for this initiative; feedback from the participants indicated that the platform was too complex and not well adapted to local settings. Based on the requirements gathered during the needs assessment and in coordination with various stakeholders, IOM undertook to streamline and adapt the ePHR system to the Sicilian context. Medical forms for the different local settings were designed by the IOM MHI team and used as the basis for the development of the online platform, which ran from April to October 2019.

MHI then led the roll-out of the platform with on-site testing and training in November 2019, which saw the participation of approximately 20 people, including medical doctors and cultural mediators from the various provincial authorities. On 18 December 2019, IOM Italy announced the official launch of the platform (www.ephrlite.com).

Contribution to emergency response

As MHD's largest programme area in terms of staffing, the IOM HAP supports the Organization's ability to rapidly mobilize clinical and technical expertise in the event of an emergency requiring a health response. IOM staff working in pre-migration health activities around the world may be requested to assist in a variety of capacities in emergency settings.

In 2019, a number of HAP physicians, nurses and medical assistants were deployed to contribute to emergency response efforts in locations such as Ethiopia, the Philippines and South Sudan. They undertook a range of roles, such as facilitating the planning and coordination of the emergency health response, providing technical support, assisting with the provision of psychosocial support for crisis-affected communities, participating in mobile health teams and involvement in other public health interventions, such as mass immunization campaigns.

LINKAGES WITH OTHER IOM PROGRAMMES

Return and reintegration

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

IOM offices providing return programming seek Migration Health Division (MHD)'s assistance, generally on an ad hoc basis, with determining what measures are needed for individual cases in order for the return to take place in a safe and dignified manner, in accordance with IOM standards.

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

Over the course of 2019, MHD provided technical guidance and support, mainly in the context of assisted voluntary return and reintegration (AVRR) programmes. Support was 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.

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

IOM also carries out voluntary humanitarian return (VHR) for migrants stranded or detained in Libya, facilitating safe return to their home countries. MHD supports this process by providing pre-embarkation checks, identifying conditions of concern and making health-related travel arrangements, including medical escorts if necessary.

OTHER 2019 HIGHLIGHTS

Publications

IOM internal publications in 2019

1. IOM, Resettlement and Movement Management (RMM), Migration Health Division (MHD), and Labour Mobility and Human Development (LHD). IOM Resettlement: The UN Migration Agency. Available at: https://migrationhealthresearch.iom.int/iom-resettlement-un-migration-agency
2. IOM, Migration Health Division (MHD). DNA Sample Collection for Facilitated Migration. Available at: https://migrationhealthresearch.iom.int/dna-sample-collection-facilitated-migration
3. IOM, Migration Health Division (MHD). Prélèvements d'échantillons d'ADN aux fins de migration assistée. Available at: https://migrationhealthresearch.iom.int/dna-sample-collection-facilitated-migration-french
4. IOM, Migration Health Division (MHD). Programmes de l'OIM d'évaluation sanitaire pour les migrants. Available at: https://migrationhealthresearch.iom.int/ioms-migration-health-assessment-programmes-french-0
5. IOM, Migration Health Division (MHD). Programas de evaluación de la salud de la OIM para migrantes. Available at: https://migrationhealthresearch.iom.int/ioms-migration-health-assessment-programmes-spanish-0

Peer-reviewed publications with contributing IOM authors in 2019

1. Luis C. Berrocal-Almanza, Ross Harris, Maeve K. Lalor, Morris C. Muzyamba, John Were, Anne-Marie O'Conell, Adil Mirza, Onn-Min Kon, Ajit Lalvani, Dominik Zenner, "Effectiveness of pre-entry active tuberculosis and post-entry latent tuberculosis screening in new entrants to the UK: a retrospective, population-based cohort study", *The Lancet Infectious Diseases*, 19(11):1191–1201 (2019). Available at: https://migrationhealthresearch.iom.int/effectiveness-pre-entry-active-tuberculosis-and-post-entry-latent-tuberculosis-screening-new
2. Jacob Creswell, Zhi Zhen Qin, Rajendra Gurung, Bikash Lamichhane, Deepak Kumar Yadav, Mohan Kumar Prasai, Nirmala Bista, Lal Mani Adhikari, Bishwa Rai, Santat Sudrungrot, "The performance and yield of tuberculosis testing algorithms using microscopy, chest x-ray, and Xpert MTB/RIF", *Journal of Clinical Tuberculosis and Other Mycobacterial Diseases*, 14:1–6 (2019). Available at: https://migrationhealthresearch.iom.int/performance-and-yield-tuberculosis-testing-algorithms-using-microscopy-chest-x-ray-and-xpert-mtbrif
3. Barbara H. Bardenheier, Meda E. Pavkov, Carla A. Winston, Alex Klosovsky, Catherine Yen, Stephen Benoit, Stefan Gravenstein, Drew L. Posey, Christina R. Phares, "Prevalence of Tuberculosis Disease Among Adult US-Bound Refugees with Chronic Kidney Disease", *Journal of Immigrant and Minority Health*, 21:1275–1281 (2019). Available at: https://migrationhealthresearch.iom.int/prevalence-tuberculosis-disease-among-adult-us-bound-refugees-chronic-kidney-disease
4. Sweetmavourneen Pernitez-Agan, Kolitha Wickramage, Catherine Yen, Elizabeth Dawson-Hahn, Tarissa Mitchell, Dominik Zenner, "Nutritional profile of Syrian refugee children before resettlement", *BMC Conflict and Health*, 13:22 (2019). Available at: https://migrationhealthresearch.iom.int/nutritional-profile-syrian-refugee-children-resettlement
5. Andrew T. Boyd, Susan T. Cookson, Ibrahim Almashayek, Hiam Yaacoub, M. Saiful Qayyum, Aleksandar Galev, "An evaluation of a tuberculosis case-finding and treatment program among Syrian refugees—Jordan and Lebanon, 2013–2015", *BMC Conflict and Health*, 13:32 (2019). Available at: https://migrationhealthresearch.iom.int/evaluation-tuberculosis-case-finding-and-treatment-program-among-syrian-refugees%E2%80%94jordan-and-lebanon
6. Zhi Zhen Qin, Melissa S. Sander, Bishwa Rai, Collins N. Titahong, Santat Sudrungrot, Sylvain N. Laah, Lal Mani Adhikari, E. Jane Carter, Lekha Puri, Andrew J. Codlin, Jacob Creswell, "Using artificial intelligence to read chest radiographs for tuberculosis detection: A multi-site evaluation of the diagnostic accuracy of three deep learning systems", *Scientific Reports*, 9(1):15000 (2019). Available at: https://migrationhealthresearch.iom.int/using-artificial-intelligence-read-chest-radiographs-tuberculosis-detection-multi-site-evaluation

Blog posts

1. Kolitha Wickramage and Dominik Zenner. Health assessments of refugees: What can the data tell us? Available at: https://migrationhealthresearch.iom.int/health-assessments-refugees-what-can-data-tell-us

2. IOM. It's time…to set ambitious goals for TB treatment success. Available at: https://weblog.iom.int/its-time

Events

- The IOM Migration Health Division TB Focal Point Global Meeting was held in Bangkok, Thailand from 20 to 22 February 2019. It brought TB focal points and other colleagues from various missions across IOM regions together for a three-day workshop that covered different aspects of TB management in IOM programmes, including the development of standard operating procedures (SOPs) and a data management system.
- The International Panel Physicians Association (IPPA) Seventh Annual Intergovernmental Panel Physicians Training Summit was held in Accra, Ghana from 9 to 12 April 2019. It was implemented in partnership with the Migration Five countries (Australia, Canada, New Zealand, the United Kingdom and the United States) and aimed at both IOM and non-IOM panel physicians and other staff working in migration health assessment programmes worldwide. Over 100 IOM staff from 36 countries participated in the training; IOM subject matter experts were also involved in the delivery of workshops and presentations on topics such as refugee health and tuberculosis.
- The IOM Training on Health and Emergencies for the MENA and sub-Saharan Africa regions was held from 10 to 13 June 2019 in Nairobi, Kenya. While primarily intended for health staff already working in emergency settings, HAP staff from several missions also participated in the training. The training covered a range of topics, including field epidemiology, communicable disease control in emergencies, the humanitarian programme cycle and population mobility mapping.
- The North American Refugee Health Conference was held from 14 to 16 June 2019 in Toronto, Canada. This event was aimed at health-care providers, policymakers, public health specialists and other experts in the field of refugee health. Several abstracts were presented by IOM staff on research related to global migration in a range of subject areas, such as the role and conduct of migration health assessments in refugees, mental health, vaccination and outbreak surveillance.
- The Second IOM Chief Migration Health Officer (CMHO) Global Training was held in Geneva, Switzerland from 9 to 11 September 2019 and was attended by over 40 CMHOs managing IOM HAP operations around the world, in addition to colleagues from Manila, Washington, D.C. and regional HAP hubs. The training aimed to reinforce and advance institutional processes, procedures and messaging around critical themes such as risk management, financial management, legal aspects, information technology and data management, procurement and human resources, in line with the IOM International Governance Framework. The training was opened by the IOM Director General, followed by the Deputy Director General; Headquarters heads of divisions and other senior colleagues contributed to many of the sessions. The training provided an opportunity to convey important updates, information and resources to health operation managers, in addition to hands-on workshops and group work.

The Second Global Chief Migration Health Officer (CMHO) Training in Geneva, Switzerland. © IOM 2019

- Trainings on Comprehensive Advanced Life Support (CALS) and physical examinations were held in Bangkok, Thailand from 21 to 26 October 2019 and in Jakarta, Indonesia from 28 to 29 October 2019. Additional trainings on physical examinations were undertaken in Pakistan (March and September 2019), Jordan (October 2019) and Ukraine (December 2019), and aimed to improve physical examination technique and consolidate clinical skills.
- The Fiftieth Union World Conference on Lung Health was held between 30 October and 2 November 2019 in Hyderabad, India. Several presentations related to TB diagnostic guidelines and policy were delivered by the IOM Global Laboratory Coordinator, who was also involved in facilitating a meeting for the TB and Migration Working Group to review progress and discuss ongoing and planned activities.

ANNEX

Figure 7: Trend of IOM and IOM-assisted migration health assessments for immigrants by region of health assessment, 2010–2019

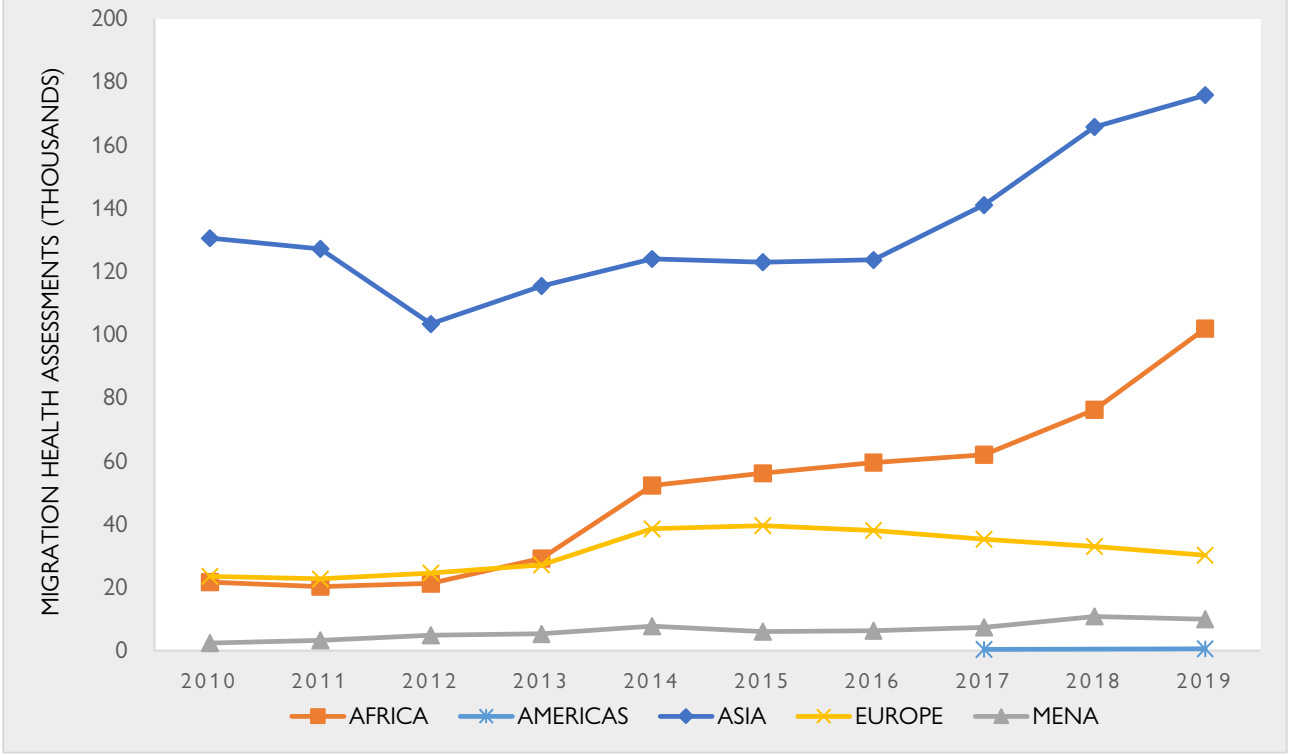


Figure 8: Trend of IOM and IOM-assisted migration health assessments of refugees by region of health assessment, 2010–2019

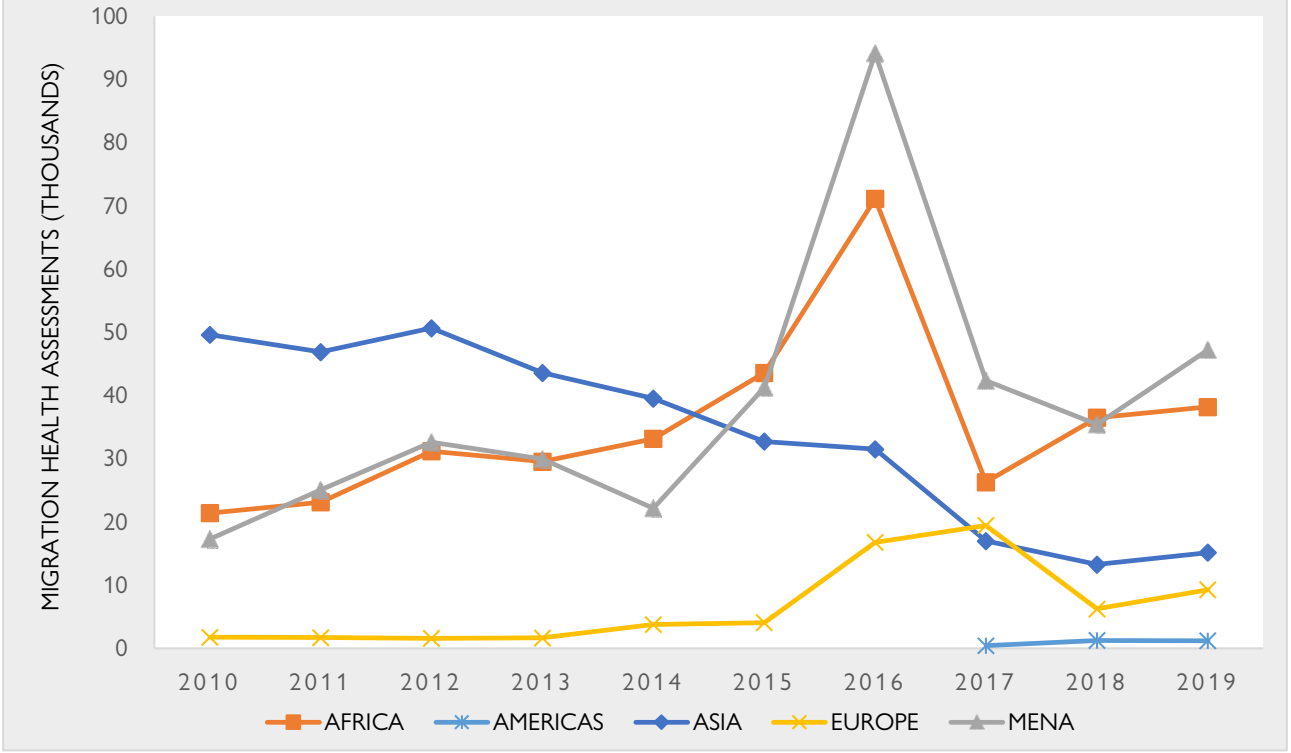


Figure 9: Trend of IOM and IOM-assisted migration health assessments for immigrants by country of destination, IOM, 2010–2019

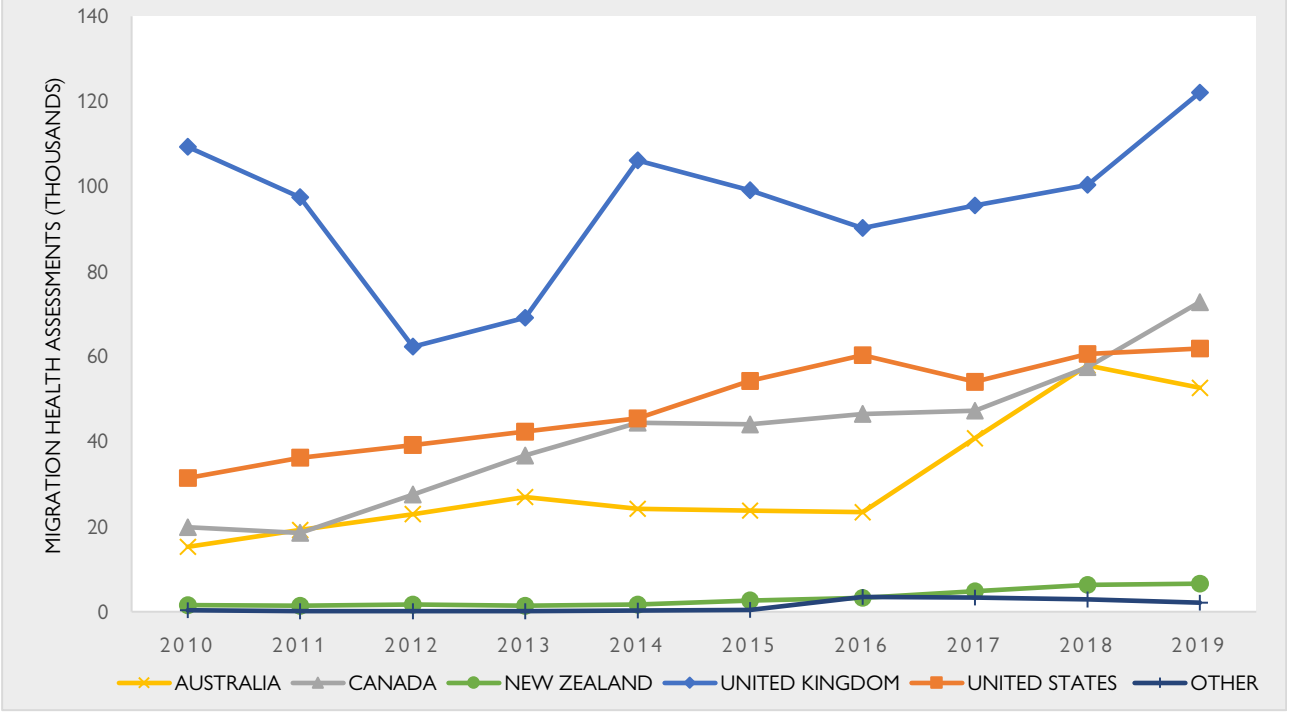


Figure 10: Trend of IOM and IOM-assisted migration health assessments for refugees by country of destination, IOM, 2010–2019

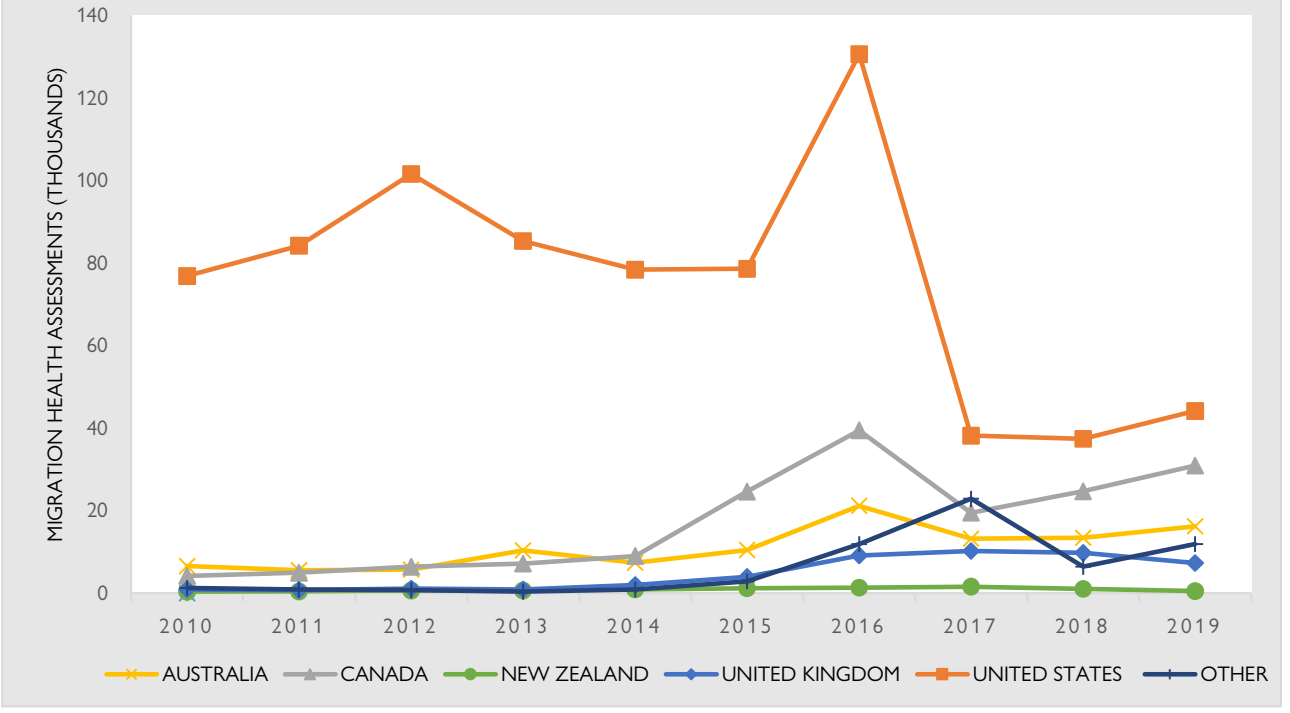


Table 2: IOM and IOM-assisted migration health assessments by country of assessment, country of destination and migrant category, 2019

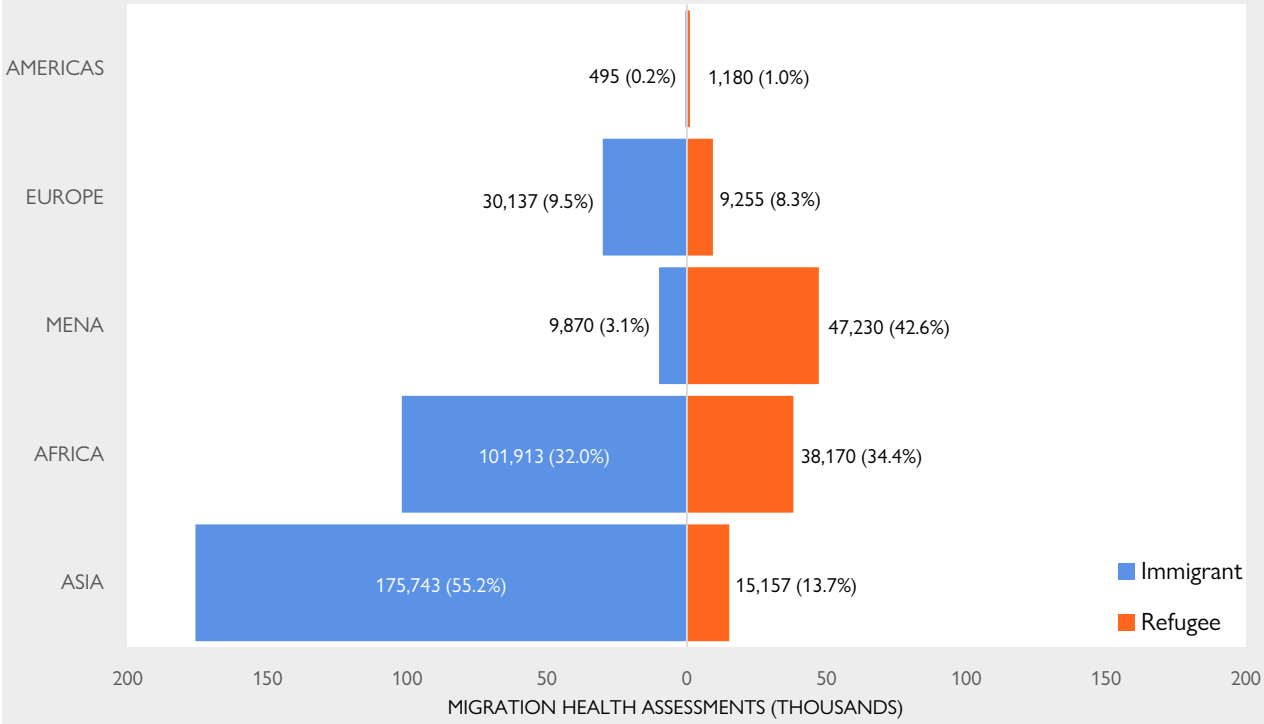
COUNTRY OF MIGRATION HEALTH ASSESSMENT	COUNTRY OF DESTINATION							
	AUSTRALIA		CANADA		GERMANY		NEW ZEALAND	
	Immigrant	Refugee	Immigrant	Refugee	Immigrant	Refugee	Immigrant	Refugee
AFRICA	4,785	4,000	31,364	11,910	5	534	327	33
BURUNDI	77	536	1,337	415	0	0	5	0
CAMEROON	0	0	5,945	271	0	0	0	0
CHAD	0	0	0	656	0	0	0	0
DEMOCRATIC REPUBLIC OF THE CONGO	18	1	1,804	25	0	0	6	0
ETHIOPIA	680	107	2,222	2,470	0	532	121	16
GHANA	120	575	731	73	0	0	25	0
GUINEA	11	0	280	2	0	0	0	0
KENYA	2,087	1,475	1,955	2,488	5	0	73	2
MALAWI	0	521	0	189	0	0	0	0
NIGER	0	0	0	391	0	2	0	0
NIGERIA	1,374	0	13,280	1	0	0	59	0
RWANDA	58	48	1,913	226	0	0	8	7
SIERRA LEONE	0	0	0	0	0	0	0	0
SOUTH AFRICA	0	0	256	502	0	0	0	0
SUDAN	0	0	216	1,618	0	0	0	0
UGANDA	358	376	1,425	1,882	0	0	30	8
UNITED REPUBLIC OF TANZANIA	2	361	0	626	0	0	0	0
ZAMBIA	0	0	0	63	0	0	0	0
ZIMBABWE	0	0	0	12	0	0	0	0
ASIA	42,810	3,288	31,908	2,941	0	0	5,040	470
AFGHANISTAN	1,009	75	835	11	0	0	82	14
BANGLADESH	1,659	0	733	0	0	0	74	0
CAMBODIA	1,575	0	368	0	0	0	438	0
INDONESIA	0	119	0	658	0	0	0	1
MALAYSIA	0	1,035	0	738	0	0	0	406
MYANMAR	0	83	0	0	0	0	0	0
NEPAL	5,898	293	364	59	0	0	251	0
PAKISTAN	6,638	1,031	11,205	899	0	0	456	9
PHILIPPINES	0	0	9,719	3	0	0	0	0
SRI LANKA	15,492	97	335	44	0	0	1,857	35
THAILAND	432	554	212	517	0	0	454	5
VIET NAM	10,107	1	8,137	12	0	0	1,428	0
EUROPE	2,526	0	7,014	6	6	0	869	0
BELARUS	90	0	227	0	0	0	17	0
BOSNIA AND HERZEGOVINA	183	0	131	0	0	0	12	0
KAZAKHSTAN	392	0	863	0	0	0	147	0
NORTH MACEDONIA	150	0	62	0	0	0	41	0
REPUBLIC OF MOLDOVA	52	0	369	0	0	0	7	0
ROMANIA	102	0	438	0	0	0	28	0
RUSSIAN FEDERATION	936	0	1,817	1	0	0	399	0
SERBIA	171	0	284	1	6	0	92	0
UKRAINE	434	0	2,823	4	0	0	126	0
KOSOVO[a]	16	0	0	0	0	0	0	0
MIDDLE EAST AND NORTH AFRICA	2,518	8,912	2,421	14,363	6	7,286	380	6
ALGERIA	0	0	14	86	0	0	0	0
EGYPT	821	696	274	585	0	1,198	162	4
IRAQ	393	1,607	239	410	0	67	44	0
JORDAN	183	2,938	264	2,950	3	589	40	1
LEBANON	644	3,587	393	5,386	0	1,273	16	1
LIBYA	0	0	0	425	0	0	0	0
SYRIAN ARAB REPUBLIC	147	75	299	46	0	0	6	0
TURKEY	330	9	938	4,475	3	4,159	112	0
OTHER COUNTRIES[b]	0	0	93	1,694	0	129	0	6
WORLDWIDE	52,639	16,200	72,800	30,914	17	7,949	6,616	515
	68,839		103,714		7,966		7,131	

[a] References to Kosovo shall be understood to be in the context of United Nations Security Council resolution 1244 (1999).
[b] Migration health assessments are provided in 53 other countries through IOM mobile medical teams or through partner providers.

COUNTRY OF DESTINATION								
UNITED KINGDOM		UNITED STATES OF AMERICA		OTHER[c]		TOTAL		GRAND TOTAL
Immigrant	Refugee	Immigrant	Refugee	Immigrant	Refugee	Immigrant	Refugee	No.
50,985	551	11,962	20,032	304	300	99,732	37,360	137,092
0	52	19	2,422	0	5	1,438	3,430	4,868
630	0	0	95	0	0	6,575	366	6,941
0	0	0	380	0	0	0	1,036	1,036
326	0	0	10	0	0	2,154	36	2,190
2,509	0	3,163	1,766	0	34	8,695	4,925	13,620
7,290	0	1	4	260	0	8,427	652	9,079
0	0	56	34	0	0	347	36	383
3,377	414	7,043	574	1	69	14,541	5,022	19,563
324	0	0	264	0	0	324	974	1,298
0	85	0	76	1	49	1	603	604
17,607	0	1,339	0	15	0	33,674	1	33,675
227	0	0	4,190	0	45	2,206	4,516	6,722
666	0	0	0	0	0	666	0	666
9,283	0	0	118	0	0	9,539	620	10,159
2,864	0	0	169	0	0	3,080	1,787	4,867
2,463	0	341	2,244	27	98	4,644	4,608	9,252
625	0	0	6,710	0	0	627	7,697	8,324
514	0	0	919	0	0	514	982	1,496
2,280	0	0	57	0	0	2,280	69	2,349
60,851	179	35,194	7,641	27	91	175,740	14,610	190,350
1,387	89	8,325	0	0	0	11,548	189	11,737
7,415	0	3,488	0	11	0	13,380	0	13,380
221	0	1,920	0	8	0	4,530	0	4,530
0	0	0	531	0	0	0	1,309	1,309
0	25	0	3,173	0	85	0	5,462	5,462
614	0	0	93	0	0	614	176	790
5,727	0	7,110	71	0	0	19,350	423	19,773
23,100	0	0	179	3	0	41,402	2,118	43,520
9,540	0	0	0	0	0	19,259	3	19,262
3,484	40	0	326	0	0	21,168	542	21,710
6,695	25	0	3,150	5	0	7,798	4,251	12,049
2,668	0	14,351	118	0	6	36,691	137	36,828
6,170	0	11,660	8,478	1,803	1	30,048	8,485	38,533
271	0	1,415	59	4	0	2,024	59	2,083
0	0	0	0	0	0	326	0	326
1,565	0	0	141	2	0	2,969	141	3,110
0	0	0	0	0	0	253	0	253
55	0	1,017	676	0	0	1,500	676	2,176
0	0	0	0	0	0	568	0	568
2,794	0	5,951	44	1,664	1	13,561	46	13,607
0	0	261	0	132	0	946	1	947
1,485	0	3,016	7,558	1	0	7,885	7,562	15,447
0	0	0	0	0	0	16	0	16
1,875	6,379	2,640	5,300	10	3,424	9,850	45,670	55,520
0	0	0	19	0	0	14	105	119
0	1,493	0	1,125	0	395	1,257	5,496	6,753
1,737	707	1,492	1,196	5	14	3,910	4,001	7,911
138	1,394	1,148	1,030	5	924	1,781	9,826	11,607
0	1,655	0	267	0	1,029	1,053	13,198	14,251
0	0	0	0	0	21	0	446	446
0	163	0	0	0	27	452	311	763
0	967	0	1,663	0	1,014	1,383	12,287	13,670
2,177	202	428	2,661	0	175	2,788	4,867	7,655
122,058	7,311	61,884	44,112	2,144	3,991	318,158	110,992	429,150
129,369		105,996		6,135		429,150		

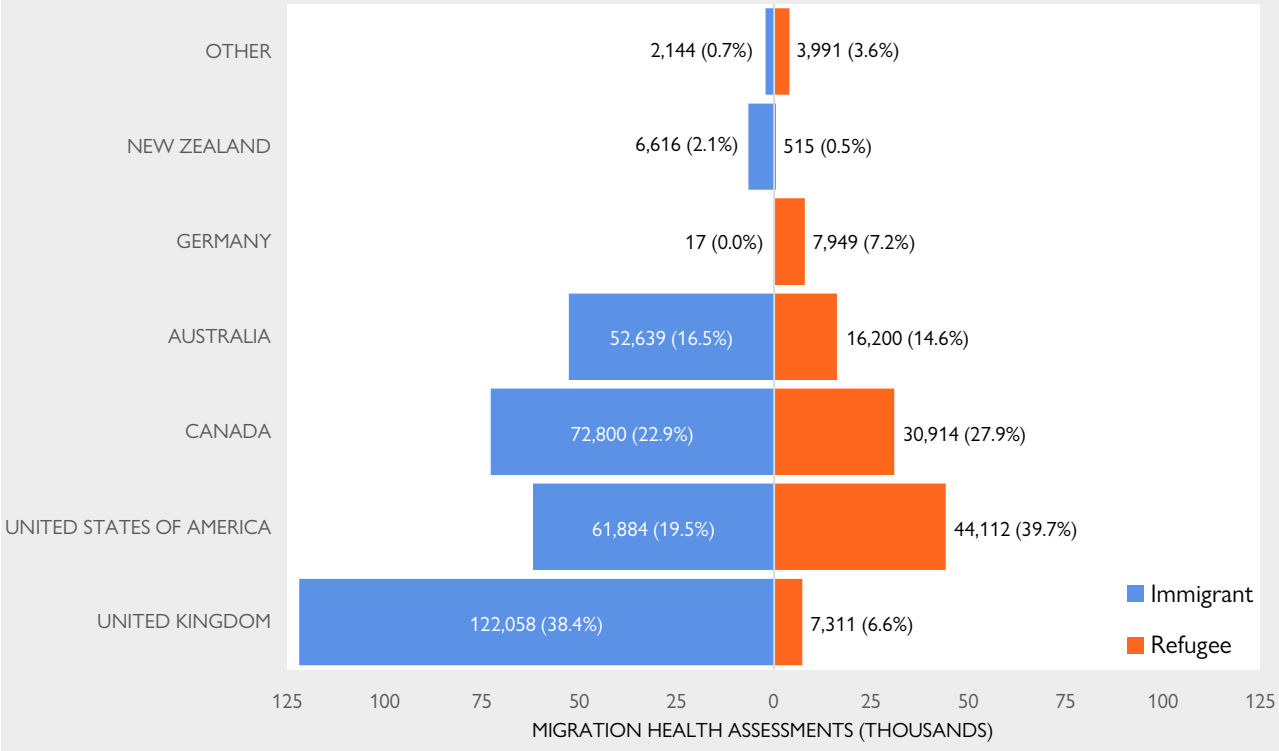
[c] Note: "Other" includes destination country programmes on behalf of Argentina, Belgium, Brazil, Cyprus, Denmark, Finland, France, Ireland, Italy, Japan, Luxembourg, Malaysia, Netherlands, Norway, Portugal, Republic of Korea, Romania, Spain, Sweden and Switzerland, as well as ad hoc migration health assessments for migrants destined for China, Dominica, Egypt, El Salvador, Fiji, Kuwait, the Maldives, Mauritius, Paraguay, Poland, Qatar, the Seychelles, Singapore, Thailand, Ukraine, the United Arab Emirates and Viet Nam.
Other IOM destination country programmes also include Sri Lanka, where IOM operates the Inbound Health Assessment Programme, which performed 13,893 MHAs in 2019 (not included in the table).

Figure 11: IOM and IOM-assisted migration health assessments by migrant type and region of health assessment (IOM, 2019)



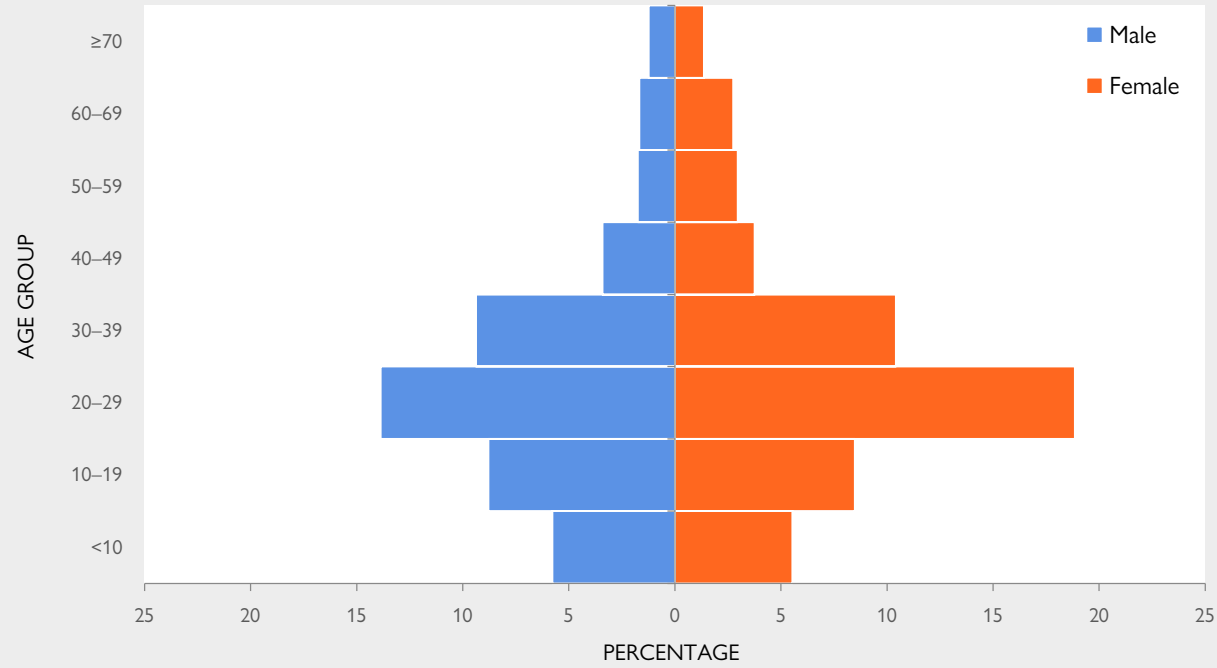
Total number of migration health assessments for refugees = 110,992.
Total number of migration health assessments for immigrants = 318,158.

Figure 12: IOM and IOM-assisted migration health assessments by migrant type and country of destination (IOM, 2019)



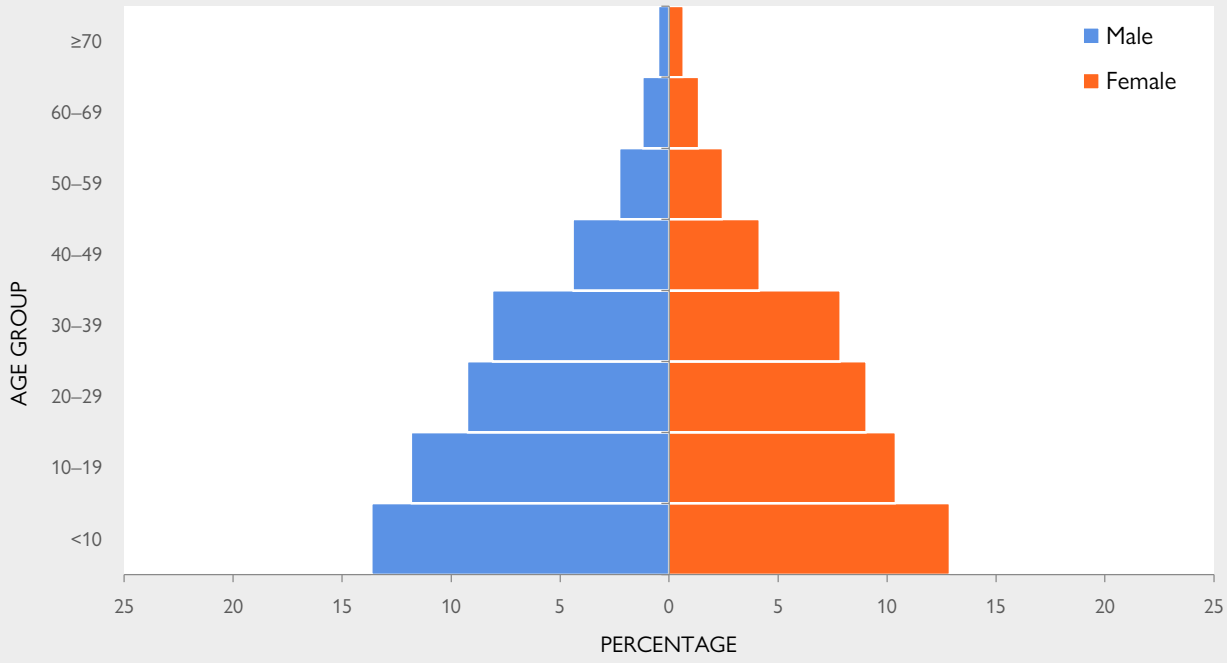
Total number of migration health assessments for refugees = 110,992.
Total number of migration health assessments for immigrants = 318,158.

Figure 13: Distribution of migration health assessments among immigrants by sex and age, globally (IOM, 2019)



Total number of health asessments among immigrants = 318,143.

Figure 14: Distribution of migration health assessments among refugees by sex and age, globally (IOM, 2019)



Total number of health assessments among refugees = 110,988.

Note: Records classified as "unknown" were excluded from these graphs.

Table 3: Tuberculosis detection among all migrants, selected IOM operations, 2019

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	4,868	11	0	11	226	0	226
CAMEROON	6,941	7	1	8	101	14	115
CHAD	1,036	2	0	2	193	0	193
DEMOCRATIC REPUBLIC OF THE CONGO	2,190	3	0	3	137	0	137
ETHIOPIA	13,620	1	4	5	7	29	37
GHANA	9,079	2	0	2	22	0	22
KENYA	19,563	32	10	42	164	51	215
MALAWI	1,298	1	0	1	77	0	77
NIGERIA	33,675	15	15	30	45	45	89
RWANDA	6,722	2	1	3	30	15	45
SOUTH AFRICA	10,159	5	0	5	49	0	49
SUDAN	4,867	1	0	1	21	0	21
UGANDA	9,252	20	1	21	216	11	227
UNITED REPUBLIC OF TANZANIA	8,324	9	0	9	108	0	108
ZAMBIA	1,496	4	0	4	267	0	267
ZIMBABWE	2,349	2	0	2	85	0	85
ASIA							
AFGHANISTAN	11,737	0	0	0	0	0	0
BANGLADESH	13,380	4	0	4	30	0	30
CAMBODIA	4,530	17	2	19	375	44	419
INDONESIA	1,309	4	1	5	306	76	382
MALAYSIA	5,462	24	15	39	439	275	714
NEPAL	19,773	29	1	30	147	5	152
PAKISTAN	43,520	45	1	46	103	2	106
PHILIPPINES	19,262	72	80	152	374	415	789
SRI LANKA	21,710	1	0	1	5	0	5
THAILAND	12,049	19	4	23	158	33	191
VIET NAM	36,828	105	11	116	285	30	315
EUROPE							
BELARUS	2,083	0	0	0	0	0	0
KAZAKHSTAN	3,110	1	0	1	32	0	32
REPUBLIC OF MOLDOVA	2,176	0	0	0	0	0	0
RUSSIAN FEDERATION	13,607	1	1	2	7	7	15
UKRAINE	15,447	3	0	3	19	0	19
MIDDLE EAST AND NORTH AFRICA							
EGYPT	6,753	5	1	6	74	15	89
IRAQ	7,911	0	0	0	0	0	0
ISRAEL	1,366	0	0	0	0	0	0
JORDAN	11,607	0	0	0	0	0	0
LEBANON	14,251	1	0	1	7	0	7
TURKEY	13,670	5	2	7	37	15	51
OTHER LOCATIONS[e]	12,170	12	6	18	99	49	148
TOTAL	429,150	465	157	622	108	37	145

[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 examinations when the migrant undergoes more than one screening process to meet immigration health requirements.
[c] "Lab" refers to TB cases confirmed by sputum culture result.
[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 4: Tuberculosis detection among immigrants, selected IOM operations, 2019

Selected Country Operations[a]	Total MHAs	Active TB			TB detection[b] per 100,000 MHAs		
		Lab[c]	Clinical[d]	Total	Lab[c]	Clinical[d]	Total
AFRICA							
BURUNDI	1,438	4	0	4	278	0	278
CAMEROON	6,575	6	0	6	91	0	91
DEMOCRATIC REPUBLIC OF THE CONGO	2,154	3	0	3	139	0	139
ETHIOPIA	8,695	0	1	1	0	12	12
GHANA	8,427	2	0	2	24	0	24
KENYA	14,541	24	5	29	165	34	199
NIGERIA	33,674	15	15	30	45	45	89
RWANDA	2,206	1	0	1	45	0	45
SOUTH AFRICA	9,539	3	0	3	31	0	31
SUDAN	3,080	1	0	1	32	0	32
UGANDA	4,644	7	1	8	151	22	172
ZIMBABWE	2,280	2	0	2	88	0	88
ASIA							
AFGHANISTAN	11,548	0	0	0	0	0	0
BANGLADESH	13,380	4	0	4	30	0	30
CAMBODIA	4,530	17	3	20	375	44	419
NEPAL	19,350	29	1	30	150	5	155
PAKISTAN	41,402	39	0	39	94	0	94
PHILIPPINES	19,259	72	78	150	374	415	789
SRI LANKA	21,168	1	0	1	5	0	5
THAILAND	7,798	10	1	11	128	13	141
VIET NAM	36,691	104	11	115	283	30	313
EUROPE							
BELARUS	2,024	0	0	0	0	0	0
KAZAKHSTAN	2,969	1	0	1	34	0	34
REPUBLIC OF MOLDOVA	1,500	0	0	0	0	0	0
RUSSIAN FEDERATION	13,561	1	1	2	7	7	15
UKRAINE	7,885	1	0	1	13	0	13
MIDDLE EAST AND NORTH AFRICA							
EGYPT	1,257	0	0	0	0	0	0
IRAQ	3,910	0	0	0	0	0	0
JORDAN	1,781	0	0	0	0	0	0
LEBANON	1,053	0	0	0	0	0	0
TURKEY	1,383	0	0	0	0	0	0
OTHER LOCATIONS[e]	8,456	2	0	2	24	0	24
TOTAL	318,158	349	118	467	110	37	147

[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.
[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 5: Tuberculosis detection among refugees, IOM selected operations, 2019

Selected Country Operations[a]	Total MHAs	Active TB			TB detection[b] per 100,000 MHAs		
		Lab[c]	Clinical[d]	Total	Lab[c]	Clinical[d]	Total
AFRICA							
BURUNDI	3,430	7	0	7	204	0	204
CHAD	1,036	2	0	2	193	0	193
ETHIOPIA	4,925	1	3	4	20	61	81
KENYA	5,022	8	5	13	159	100	259
RWANDA	4,516	1	1	2	22	22	44
SUDAN	1,787	0	0	0	0	0	0
UGANDA	4,608	13	0	13	282	0	282
UNITED REPUBLIC OF TANZANIA	7,697	9	0	9	117	0	117
ASIA							
INDONESIA	1,309	4	1	5	306	76	382
MALAYSIA	5,462	24	15	39	439	275	714
PAKISTAN	2,118	6	1	7	283	47	331
THAILAND	4,251	9	3	12	212	71	282
EUROPE							
UKRAINE	7,562	2	0	2	26	0	26
MIDDLE EAST AND NORTH AFRICA							
EGYPT	5,496	5	1	6	91	18	109
IRAQ	4,001	0	0	0	0	0	0
ISRAEL	1,366	0	0	0	0	0	0
JORDAN	9,826	0	0	0	0	0	0
LEBANON	13,198	1	0	1	8	0	8
TURKEY	12,287	5	2	7	41	16	57
OTHER LOCATIONS[e]	11,095	19	7	26	171	63	234
TOTAL	110,992	116	39	155	105	35	140

[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.
[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 6: Drug susceptibility test (DST) results among cases with Mycobacterium tuberculosis (MTB) growth on culture (IOM, 2019)

DST	Number	%
RH sensitive[a]	7	1.5
Pansusceptible[b]	382	82.2
Monoresistant[c]	48	10.3
Polyresistant[d]	7	1.5
MDR TB[e]	15	3.2
XDR TB[f]	1	0.2
Not done[g]	5	1.1
TOTAL	465	100

[a] Sensitive to rifampicin and isoniazid first-line anti-TB drugs, sensitivity to other first-line anti-TB drugs was not asssessed in this category.
[b] Susceptible to all first-line anti-TB drugs.
[c] Resistant to one first-line anti-TB drug only.
[d] Resistant to more than one first-line anti-TB drug (other than both isoniazid and rifampicin).
[e] Resistant to at least both isoniazid and rifampicin.
[f] Resistant to any fluroquinolone and to at least one of three second-line injectable drugs, in addition to multidrug-resistance.
[g] Not done due to:
1 - Died
1 - Mixed MTB colony
1 - TB culture was positive but 10 colonies/tube hence DST was not requested
2 - DST not available at the time when samples were collected.

Table 7: Immunological test results for latent tuberculosis by test and migrant type (IOM, 2019)

Migrant Type	Interferon gamma release assay (IGRA) Positive			Tuberculin skin test (TST) Positive			IGRA / TST Positive		
	Tested	No.	%	Tested	No.	%	Tested	No.	%
IMMIGRANTS	10,279	396	3.9	3,449	92	2.7	13,728	488	3.6
REFUGEES	16,107	1,102	6.8	1,545	62	4.0	17,652	1,164	6.6
TOTAL	26,386	1,498	5.7	4,994	154	3.1	31,380	1,652	5.3

Table 8: Immunological test results for latent tuberculosis by test and region (IOM, 2019)

Region	IGRA Positive			TST Positive			IGRA / TST Positive		
	Tested	No.	%	Tested	No.	%	Tested	No.	%
AFRICA	10,546	577	5.5	294	23	7.8	10,840	600	5.5
AMERICAS	421	22	5.2	1	0	0.0	422	22	5.2
ASIA	8,324	243	2.9	3,685	89	2.4	12,009	332	2.8
EUROPE AND CENTRAL ASIA	4,220	525	12.4	197	6	3.0	4,417	531	12.0
MIDDLE EAST AND NORTH AFRICA	2,875	131	4.6	817	36	4.4	3,692	167	4.5
TOTAL	26,386	1,498	5.7	4,994	154	3.1	31,380	1,652	5.3

Table 9: Detection yield of selected communicable diseases by region (IOM, 2019)

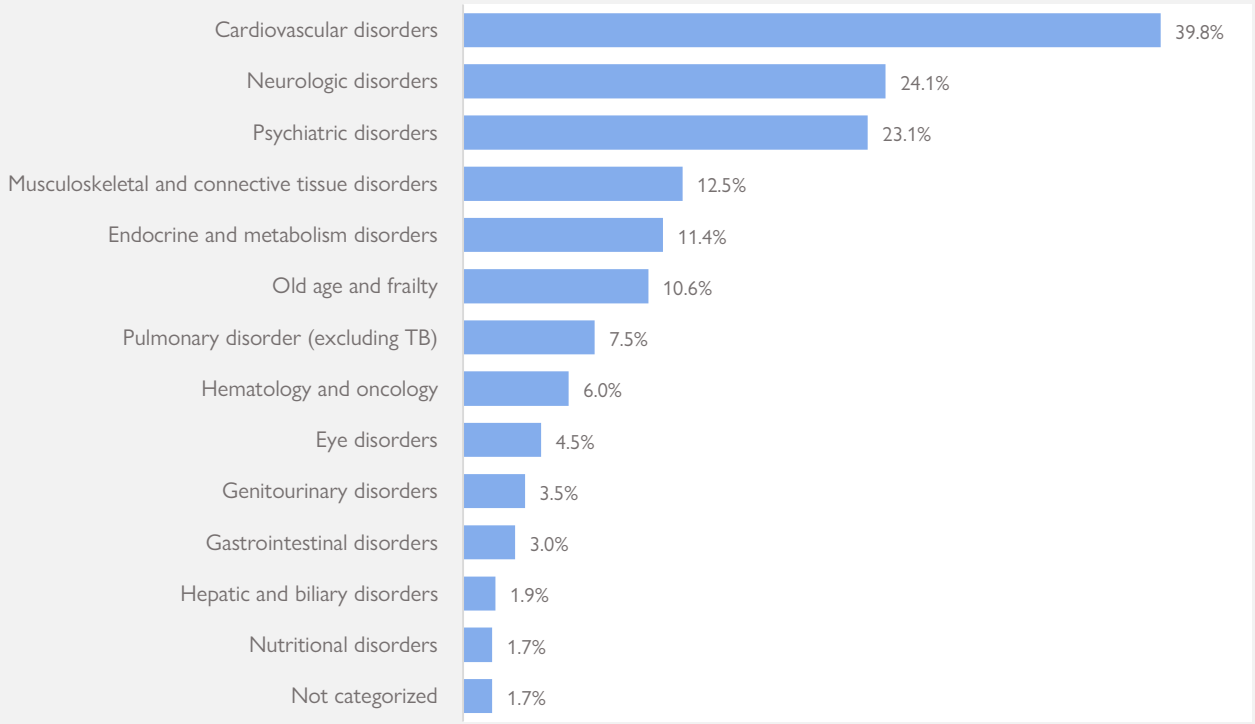
Communicable disease	Percentage positive by region (Total number of tests conducted)					
	Africa	Americas	Asia	Europe	Middle East	Overall
Chlamydia	2.5% (19,424)	2.4% (1,215)	1.1% (18,068)	0.0% (11)	1.1% (3,386)	1.8% (42,104)
Gonorrhoea	0.4% (20,726)	0.1% (1,233)	0.1% (30,968)	0.0% (15,103)	0.1% (5,821)	0.2% (73,851)
Hepatitis B	3.0% (23,325)	0.0% (1,172)	3.7% (15,513)	1.1% (9,741)	1.5% (15,250)	2.5% (65,001)
Hepatitis C	1.0% (2,898)	0.0% (3)	1.8% (6,998)	2.1% (815)	0.5% (9,010)	1.1% (19,724)
HIV	1.1% (37,445)	0.0% (1)	0.2% (40,674)	0.04% (6,955)	0.3% (28,176)	0.5% (113,251)
Malaria	12.2% (4,401)	0	0.1% (1,618)	0	0.0% (10)	8.9% (6,029)
Syphilis	0.5% (55,647)	0.8% (1,218)	0.2% (63,049)	0.04% (21,431)	0.2% (32,235)	0.3% (173,580)

Table 10: Mental health conditions detected according to region (IOM, 2019)

Region	Immigrants					Refugees					Overall				
	Total MHAs	With mental health condition[a]		Psychiatric evaluation referral[b]		Total MHAs	With mental health condition[a]		Psychiatric evaluation referral[b]		Total MHAs	With mental health condition[a]		Psychiatric evaluation referral[b]	
		No.	%	No.	%		No.	%	No.	%		No.	%	No.	%
AFRICA	101,913	154	0.2	151	0.1	38,170	333	0.9	297	0.8	140,083	487	0.3	448	0.3
AMERICAS	495	20	4.0	20	4.0	1,180	80	6.8	67	5.7	1,675	100	6.0	87	5.2
ASIA	175,743	184	0.1	178	0.1	15,157	381	2.5	348	2.3	190,900	565	0.3	526	0.3
EUROPE AND CENTRAL ASIA	30,137	103	0.3	88	0.3	9,255	209	2.3	173	1.9	39,392	312	0.8	261	0.7
MIDDLE EAST AND NORTH AFRICA	9,870	18	0.2	4	0.04	47,230	1,246	2.6	236	0.5	57,100	1,264	2.2	240	0.4
TOTAL	318,158	479	0.2	441	0.1	110,992	2,249	2.0	1,121	1.0	429,150	2,728	0.6	1,562	0.4

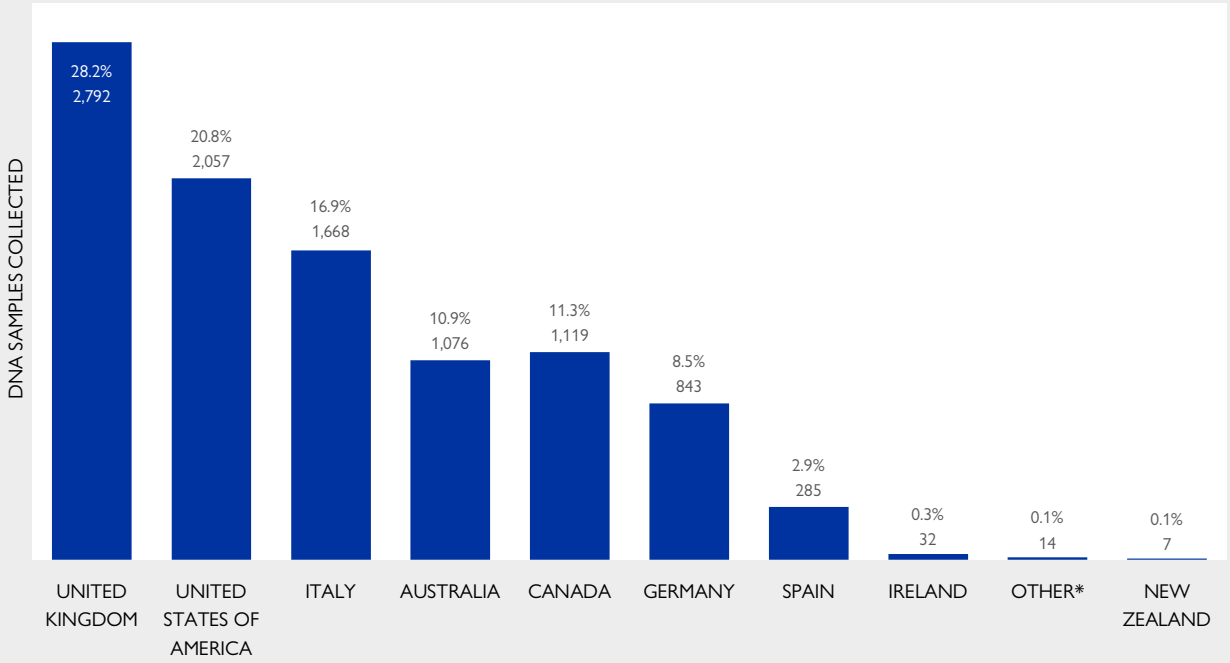
[a] Refers to mental health conditions detected by IOM migration health physicians during the migration health assessment.
[b] Refers to migration health assessments which included a further referral for specialist psychiatric evaluation following detection during the migration health assessment, where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

Figure 15: Pre-travel medical conditions of all escorted migrants (IOM, 2019)



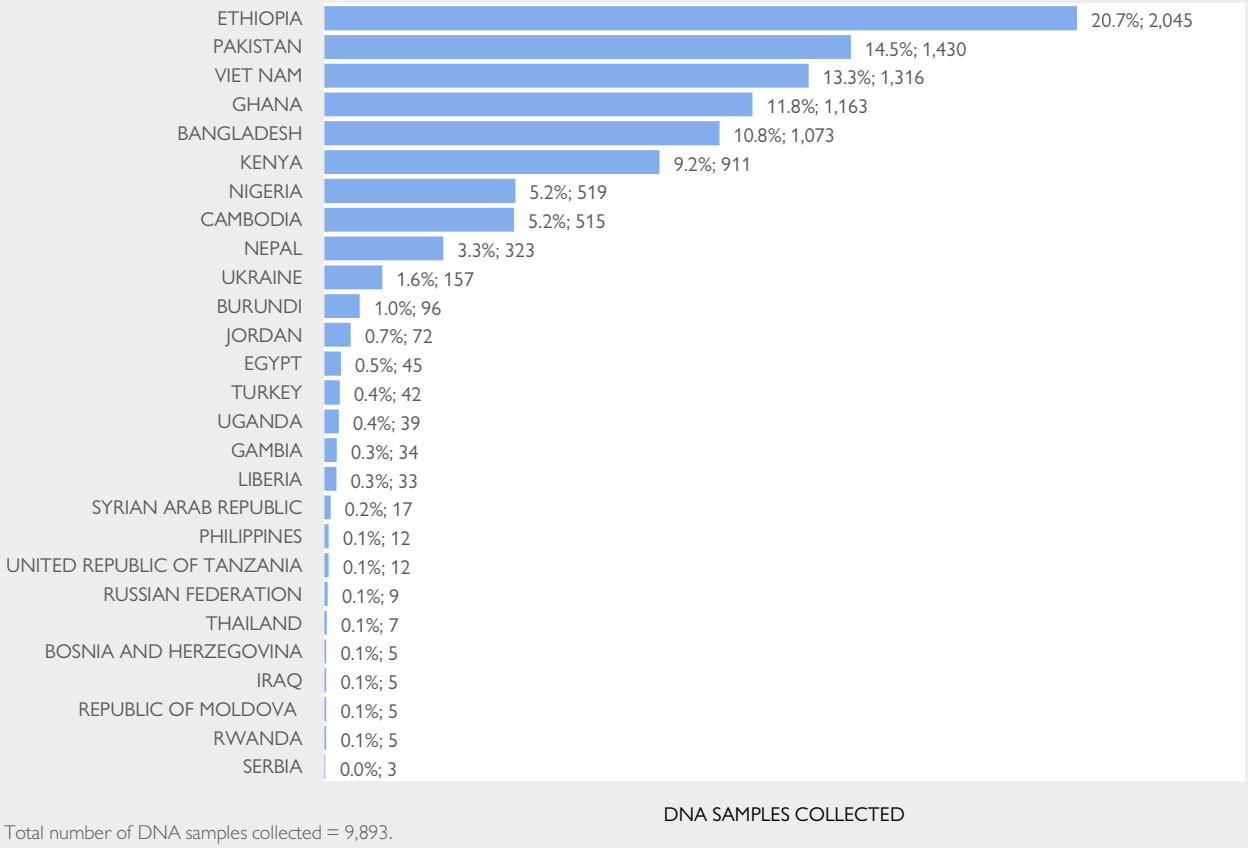
Note: Percentages are based on the total number of medical conditions found = 1,077; multiple conditions were identified in some individuals. Total number of migrants travelling with a medical escort =1,522.

Figure 16: IOM DNA sample collection services by country of destination (IOM, 2019)



Total number of DNA samples collected = 9,893.
Other* refers to samples collected on behalf of UNHCR where the destination country has not yet been identified.

Figure 17: DNA samples collected by country of IOM migration health assessment centre (IOM, 2019)



Total number of DNA samples collected = 9,893.

Table 11: Pre-migration health activities expenditure by funding source, 2018–2019

FUNDING SOURCE	2019 EXPENDITURE		2018 EXPENDITURE		INCREASE/(DECREASE)	
	In USD	%	In USD	%	In USD	%
GOVERNMENTS	52,831,465	53.5	50,458,117	56.7	2,373,348	4.7
FEE-BASED SERVICES	45,891,490	46.4	37,259,712	41.9	8,631,778	23.2
EUROPEAN COMMISSION	77,024	0.1	1,254,876	1.4	-1,177,852	-93.9
TOTAL	98,799,979	100	88,972,704	100	9,827,275	11

Figure 18: Funding sources for pre-migration health activities, 2019

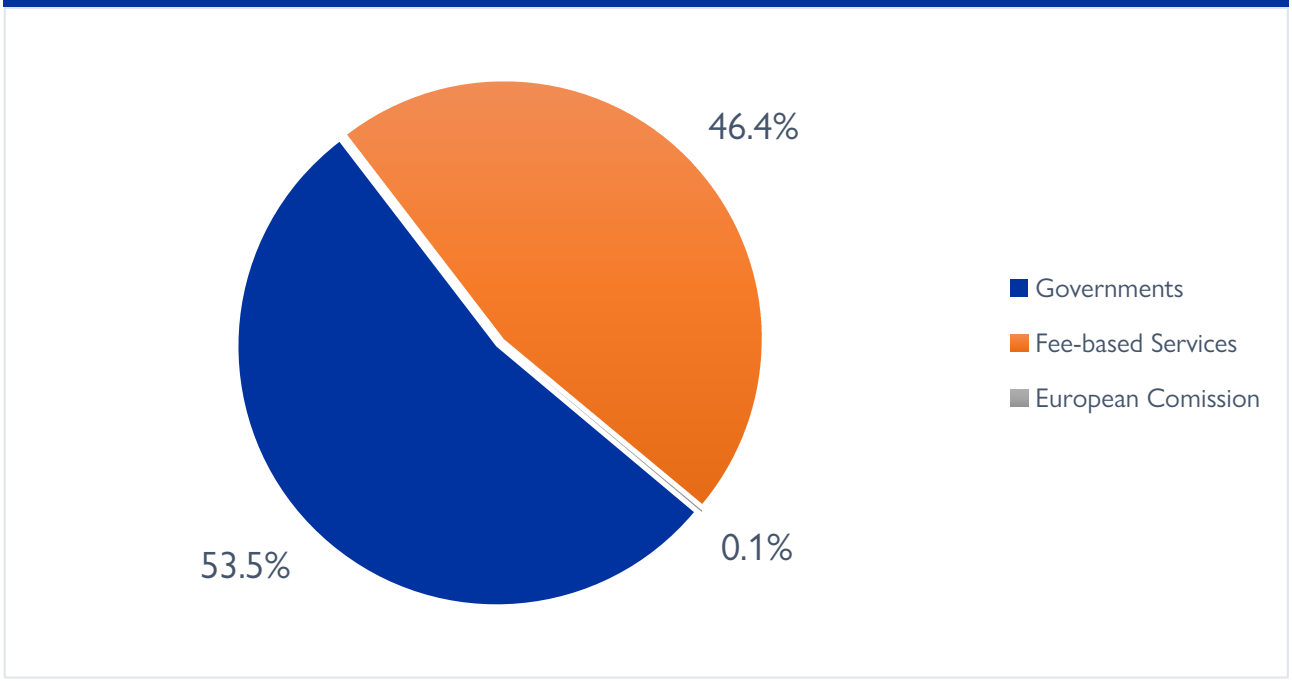
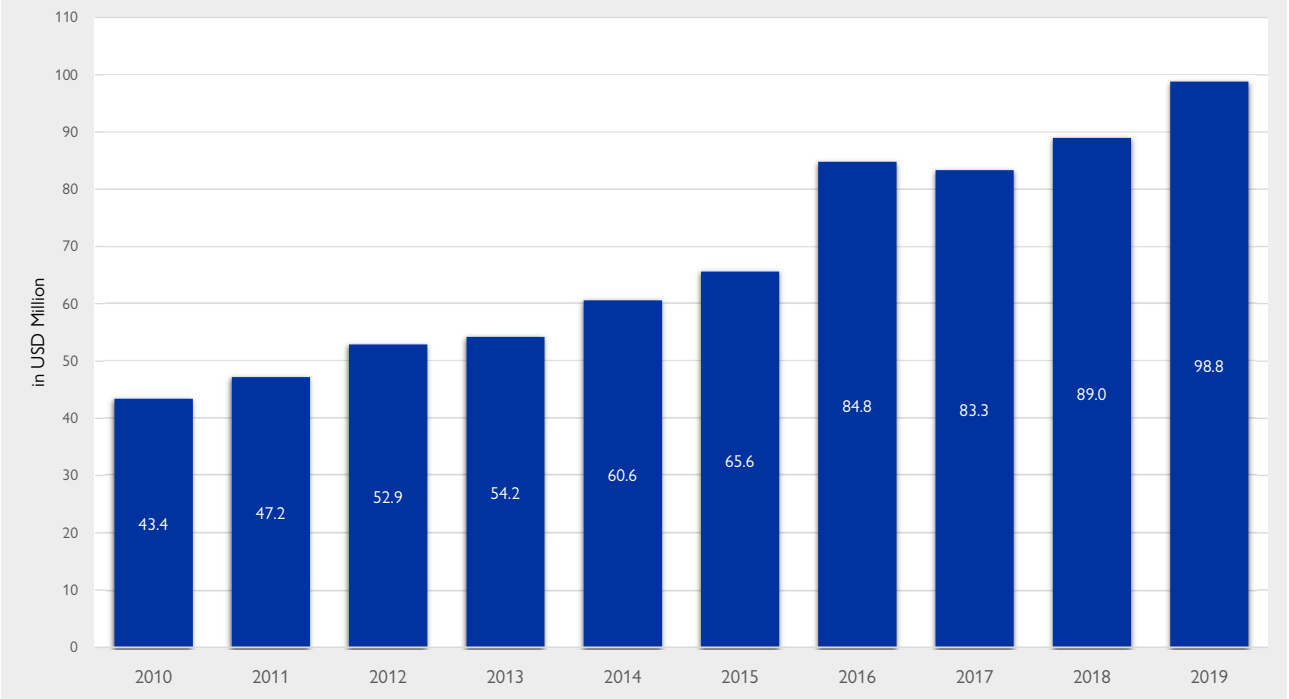
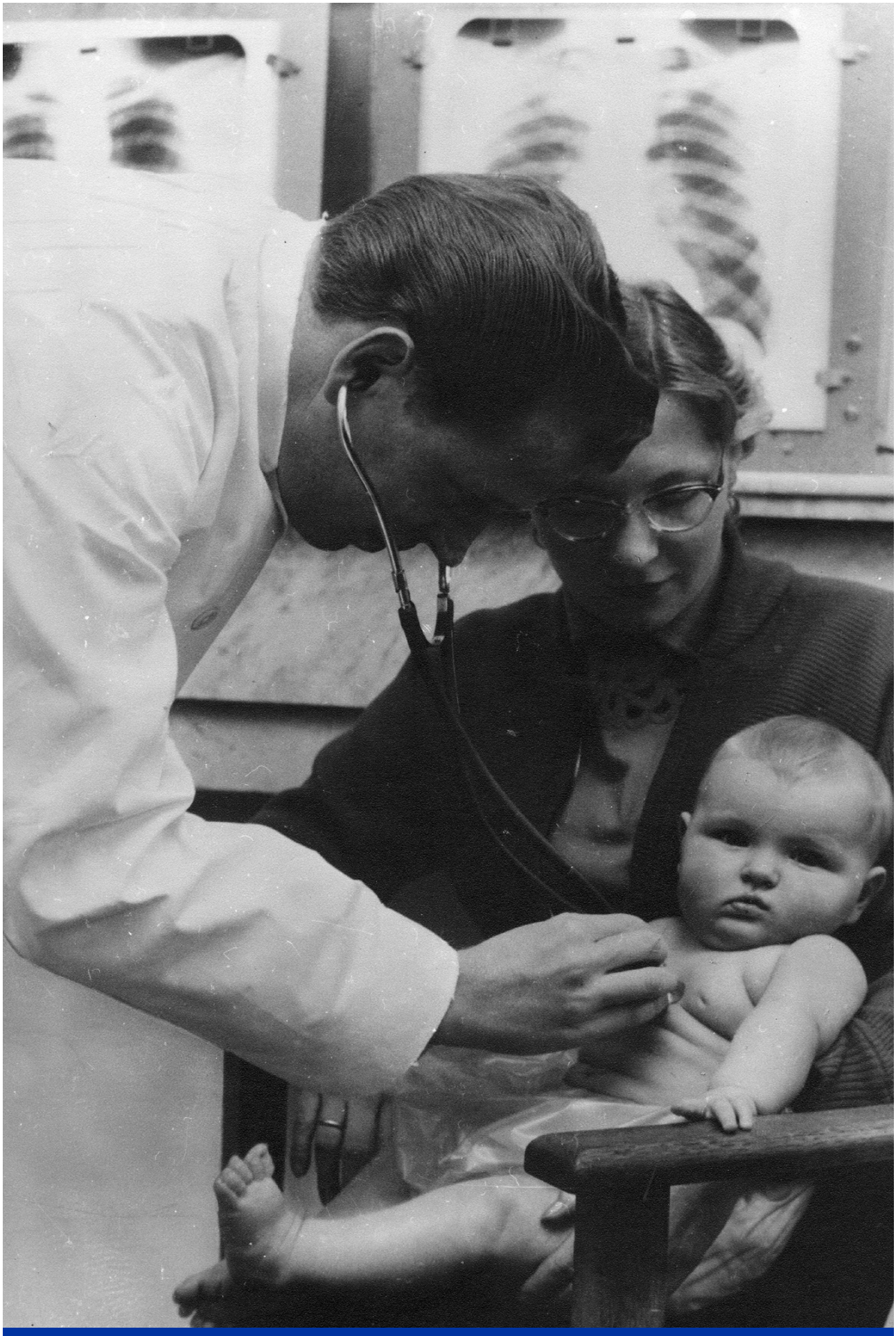


Figure 19: IOM pre-migration health activities expenditure, 2010–2019





IOM, formerly known as the Intergovernmental Committee for European Migration, was responsible for the medical treatment of Hungarian refugees who arrived in Austria. Refugees were registered and all necessary documentation required for emigration such as X-rays, blood tests and medicals were provided. © IOM 1957

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