

2022

ANNUAL REPORT

«SINCE MOTHERS AND CHILDREN ARE THE PRIMARY VICTIMS OF THE CHAOS CAUSED BY CRISES, WE ARE CONTINUING TO DEVELOP THE PROJECTS THAT WE HAVE DEVOTED TO THEM.»

ALAIN MÉRIEUX



ROOTS FOR LIFE



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MOBILIZED IN THE FIGHT AGAINST INFECTIOUS DISEASES SINCE 1967

The world is undergoing profound changes, leading to crises, which multiply in all regions. Whether political, security-related, demographic, economic and climatic in nature, all crises contribute to worsening the health conditions of affected populations, creating an ideal breeding ground of development and spread for epidemics. Low-income countries are the hardest-hit by these increasingly complex contexts, with mothers and children at the forefront.

This is why the Mériéux Foundation, **an independent foundation with public interest status**, has been fighting infectious diseases affecting vulnerable populations in resource-limited countries since its creation in 1967.

Operating directly in more than 25 countries, it is committed to strengthening local capacities, particularly in clinical biology, in order to improve access to care, surveillance and response to epidemics.

The foundation works side-by-side with local partners and builds networks to mobilize the skills and energies necessary to implement effective and sustainable actions.

It is particularly involved in the public health issues that have the greatest impact in the countries where it operates, such as **antimicrobial resistance, tuberculosis, acute respiratory infections, HIV, and emerging pathogens**.

Committed to a **global health approach**, the Mériéux Foundation goes beyond its expertise in biology to include the main and most impactful issues that influence the well-being of the populations in the countries where it operates.

The foundation works in particular with the support of the **Fondation Christophe et Rodolphe Mériéux**, an independent family foundation under the aegis of the Institut de France, to sustainably improve the quality of life and health of mothers and children.

THE MÉRIEUX FOUNDATION'S ACTION FOCUSES ON FOUR MAIN OBJECTIVES:

1

INCREASING

vulnerable populations' access to diagnostics by strengthening clinical laboratories in national healthcare systems;

2

ENHANCING

local applied research capabilities by creating Rodolphe Mériéux Laboratories transferred to local partners, training researchers and developing collaborative programs;

3

ENCOURAGING

knowledge-sharing and public health initiatives working with Les Pensières Center for Global Health;

4

IMPROVING

conditions for mothers and children taking a global health approach.



**60 %
OF CHILD
DEATHS
IN LMICs ARE DUE
TO INFECTIOUS
DISEASE**

THE MÉRIEUX FOUNDATION'S PHILOSOPHY OF ACTION

A collaborative dynamic driven

by partnerships with local healthcare stakeholders, international organizations, academic research, companies and NGOs;

A long-term vision

with sustained support leading to autonomy and local ownership of infrastructures and programs;

Building networks

for international cooperation to share experience and pool skills;

A global health approach

from humans to animals, taking into account healthcare, but also nutrition, environmental safety, education and socio-economic support for patients.

THE MÉRIEUX FOUNDATION WORLDWIDE

One of the main pillars of the Mériéux Foundation lies in its capacity for direct intervention in the field, from the network of 18 laboratories of excellence built at the source of outbreak-prone regions, to the presence of local teams in 16 countries.

To carry out its mission, the Mériéux Foundation can rely on its great experience in the field and its local partners.

Mériéux Foundation offices

- **Benin**
→ 1 employee
- **Burkina Faso**
Bobo-Dioulasso
→ 3 employees
- **Cambodia**
Phnom Penh
→ 5 employees
- **China**
Beijing
→ 1 employee
- **France**
Siège social, Lyon,
→ 70 employees
Centre des Pensières,
Annecy
→ 19 employees
- **Guinea**
Conakry
→ 3 employees
- **Haiti**
→ 1 consultant
- **Laos**
Vientiane
→ 10 employees
- **Lebanon**
Beirut
→ 3 employees
- **Madagascar**
Antananarivo
→ 9 employees
- **Mali**
Bamako
→ 5 employees
- **Myanmar**
Mandalay
→ 13 employees
- **Niger**
Niamey
→ 5 employees
- **Senegal**
Dakar
→ 8 employees
- **Togo**
Lomé
→ 3 employees
- **USA**
Mériéux Foundation USA
→ 1 employee



Rodolphe Mériéux Laboratories & Partner laboratories

- **Bangladesh**
Rodolphe Mériéux Laboratory within the BITID,
→ Chittagong
- **Burkina Faso***
Microbiology laboratory at the University Hospital of Bobo-Dioulasso
→ Bobo-Dioulasso
- **Brazil**
Rodolphe Mériéux Laboratory within the Fundhacre Hospital,
Rio Branco,
→ Rio Branco
- **Cambodia**
Rodolphe Mériéux Laboratory within the University of Health Sciences,
→ Phnom Penh
- **Cameroon**
Hygiene and Environment Laboratory at the Centre Pasteur du Cameroun
→ Yaoundé
- **China**
Christophe Mériéux Laboratory within the Institute of Pathogen,
→ Beijing
- **DRC**
Rodolphe Mériéux Laboratory within the INRB
→ Goma
- **Haiti**
Rodolphe Mériéux Laboratory within the GHESKIO Centers,
→ Port-au-Prince
- **Laos**
Rodolphe Mériéux Laboratory within the Center of Infectiology Lao Christophe Mériéux,
→ Vientiane
- **Lebanon**
Rodolphe Mériéux Laboratory within the Saint Joseph University
→ Beirut
- **Madagascar**
Rodolphe Mériéux Laboratory within the Charles Mériéux Center for Infectious Disease,
→ Antananarivo
- **Mali**
Rodolphe Mériéux Laboratory within the Charles Mériéux Center for Infectious Disease,
→ Bamako
- **Morocco***
Rodolphe Mériéux Laboratory within the Institut Pasteur du Maroc,
→ Casablanca
- **Myanmar**
Public Health Laboratory
→ Mandalay
- **Republic of Congo**
Christophe Mériéux Infectious Disease Research Center
→ Brazzaville
- **Tajikistan**
National Public Health Reference Laboratory (NPHRL)
→ Douchanbe
- **Tunisia**
Rodolphe Mériéux Laboratory within the Institut Pasteur de Tunis,
→ Tunis



*Projects under construction



Alain Mérieux,
President

2022 was the year that war returned to Europe. Meanwhile, the situation in some of the countries in which we have been active for several years (Haiti, Myanmar, Lebanon, Mali, Burkina Faso) continues to be of concern.

Against this increasingly complex geopolitical backdrop, our Foundation continues to stay the course, pursuing its mission as part of a global approach to healthcare involving our partner laboratories, our projects supporting vulnerable mothers and their children, and our initiatives encouraging the necessary sharing of knowledge.

Thanks to this network of laboratories, we have continued the work we started with our partners in Africa. In Morocco, for example, a P3 laboratory specializing in the diagnosis of mycobacterial infections, including TB, has been set up at the Institut Pasteur in Casablanca. In Burkina Faso, a microbiology laboratory has been built at the Bobo Dioulasso University Hospital. In DRC, the INRB-Goma Rodolphe Mérieux Laboratory has just been opened. And finally, in Cameroon, there is now a Hygiene and Environment laboratory at the Pasteur Center in Yaoundé.

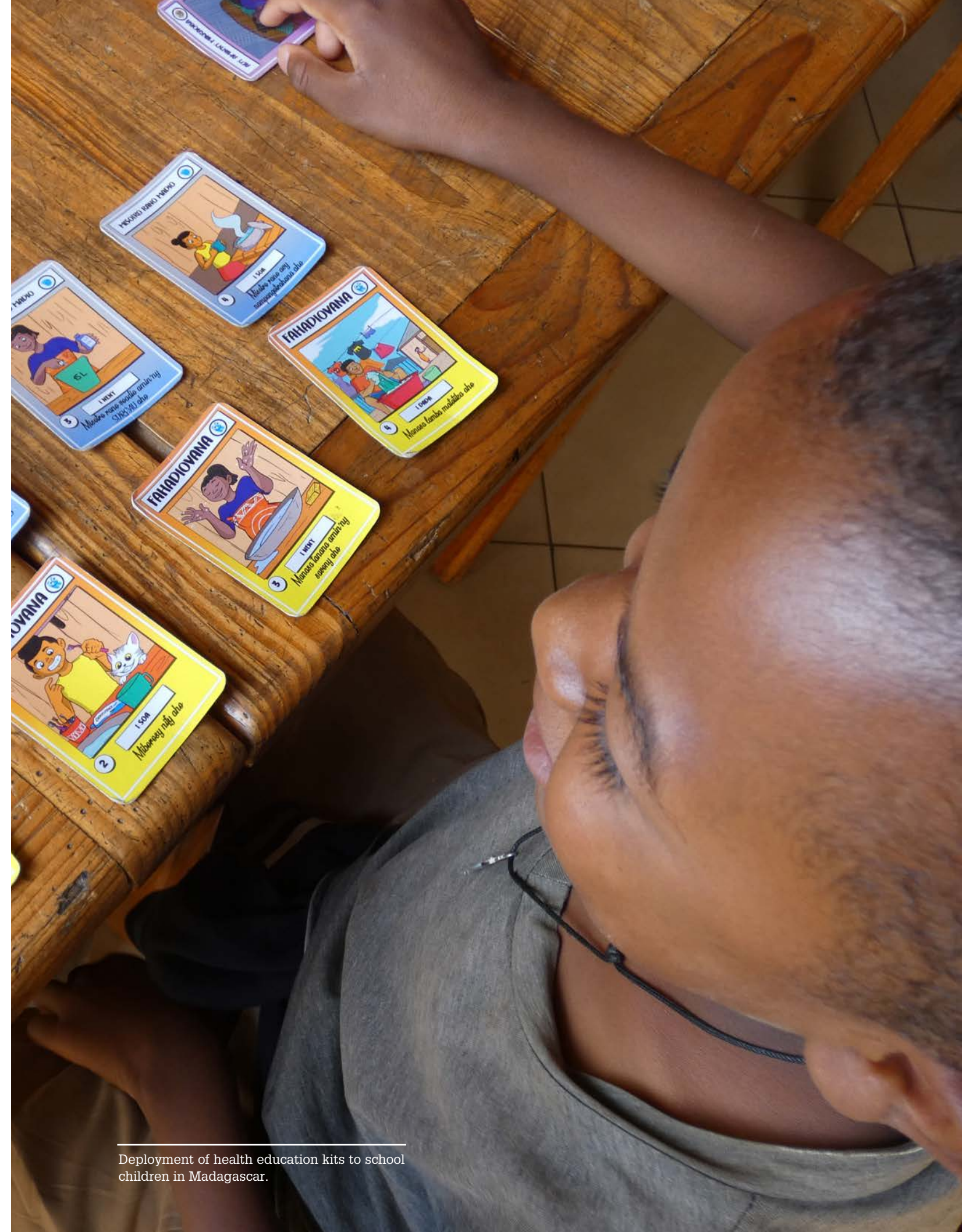
The Mérieux Foundation has also intervened in Europe for the first time, providing support in Moldova. We are helping this country on the border with Ukraine to deal with and fulfill the healthcare needs of its own population as well as refugees. We are going to set up a microbiology laboratory meeting the highest standards at the Toma Ciorba hospital in Chişinău to tackle the infectious diseases to which these populations are exposed.

Since mothers and children are the primary victims of the chaos caused by crises, we are continuing to develop the projects that we have devoted to them. Inaugurated in 2021, the Youssef Issabré maternity hospital on the outskirts of Bamako in Mali is now fully operational. The maternity and general medicine units currently being built for the Congolese Foundation for Medical Research in Brazzaville in the Republic of the Congo will also soon be up and running.

With the aim of ensuring that mothers and their children can benefit from dedicated centers, the Mérieux Foundation is continuing its work in challenging regions by providing Mother & Child centers offering general and specialist medical consultations. In Duris, in the Beqaa Valley in Lebanon, the Mother & Child healthcare center is now open to patients. Other projects were pursued in 2022 in Thiès, Senegal, and in Lebanon.

The Mérieux Foundation draws on the strength of a network of scientists all over the world, often in crisis-hit areas. Serving public health only makes sense if we all work together, sharing our knowledge so that we can deal with these challenges. To achieve this, the Mérieux Foundation relies on the Les Pensières Center for Global health, adding to its courses that bring scientists and international experts together.

We are fortunate to know these scientists. And we are proud and privileged to be able to support some of them as they devote their lives, in difficult conditions, to tackling infectious diseases and supporting public health in their countries. Whatever the situation may be, we shall remain, as always, at their side.



Deployment of health education kits to school children in Madagascar.



Jean Pierre Bosser,
Director General

2022 was a busy year for all the teams at the Mérieux Foundation, involving a great deal of movement and commitment.

After two years affected by the COVID-19 epidemic, normal operations were able to resume for our projects, making 2022 a historic year in terms of both financial performance and projects carried out.

The situation in the countries in which we operate continues to become more complex. Despite this increasingly difficult context, the Foundation's commitments remain 'guided' by the need to respond to the lack of access to healthcare for the most vulnerable populations and to adapt continuously to these contexts in order to pursue our actions.

At the same time, the flexibility required in terms of project management and a need to open up to new countries have encouraged us to turn to Burundi, Chad and the Republic of the Congo. And, for the first time, to a European country that is dealing with the direct consequences of the war in Ukraine: Moldova.

In these countries, as well as in the countries in which we have long been operational, we have been hit by an increase in public health needs, which only serve to confirm the central role played by biological diagnosis in all its dimensions: the quality of infrastructure and equipment, the essential training of health staff, the development of networks between parties involved and the sharing of experiences.

This complex period has also led us to appreciate the value of historic partnerships developed by the Foundation over the years. I'm referring in particular to the great scientists who have been recognized by the Christophe Mérieux prize, which has been awarded for the past 16 years by the Fondation Christophe et Rodolphe Mérieux. All these long-standing and close relations enable us to maintain a strong local presence and remain a key player in public healthcare, thanks to a wide range of tools for tackling infectious diseases: the state-of-the-art laboratories we work with, the regional and national networks of hospital laboratories we support, and a high level of potential in education and scientific seminars.

2022 was also marked by the welcome return of meetings held in person, both at the Les Pensières Center for Global Health, particularly the long-standing courses run by the Mérieux Foundation, and at the scientific conferences we organize all over the world on key public health topics.

All these achievements are testament to the guiding principles of the Mérieux Foundation: adaptability, responsiveness, direct connection to the specific needs of the regions in which we operate, ability to provide an efficient response, and of course special relations with our operational and financial partners.

I would like to give special thanks to our President for the confidence he instills in us and to our partners for their trust. I would also like to commend the commitment of the teams working at the Foundation, in the field and at head office, which allows us to pursue our mission to improve living conditions for the most vulnerable people.



The Mérieux Foundation and Amel Association teams at the Duris primary health center in Lebanon.

Highlights

January



LabMyNet project activities in Myanmar build diagnostic capacity for HIV and SARS-CoV-2 viral load surveillance.

March



New prospective study for the diagnosis of paediatric and extra-pulmonary TB starts in **Bangladesh** (see p.33).



APRECIT project steering committee reviews activities to improve management of latent tuberculosis in Madagascar and Cameroon (see p.32).

First field mission to Moldova to identify needs in the face of the influx of Ukrainian migrants (see p.12).

April



Partners of the project to **fight malnutrition** in southern Madagascar visit the Nutrisud container plant.

Burkina Faso Emerging and Re-emerging Pathogens Laboratory joins the **GABRIEL** international scientific network (see p.31).



The Mériex Foundation supports a tuberculosis screening campaign for the Lebanese population (see p.25).

Official visit to Moldova by Alain Mériex, President of the Mériex Foundation, to define a project between the «Toma Ciorba» Infectious Diseases Hospital and the «Nicolas Testemitanu» University of Medicine and Pharmacology (see p.12).



May



The ADVAC Advanced Course on Vaccinology goes back to the classroom for its 22nd edition (see p.41).

June



The Mériex Foundation deploys laboratory leadership training (GLLP) in Mali and Guinea (see p.19).

July



RESALAB members attend technical workshops in Lomé (see p.21).

August



The Mériex Foundation and the Every Breath Counts coalition announce the winners of the World Pneumonia Day small grants awards (see p.43).

October



The goal of promoting the role and value played by medical diagnostics in improving public health was achieved at the 11th edition of the ACDx (see p.40).

November



The Congolese Foundation for Medical Research joins the GABRIEL network (see p.31).



The 3rd edition of the AMR course defends the values of the OneHealth approach to fighting antimicrobial resistance (see p.41).



The BoliLab project final appraisal presents the results of its work to reinforce laboratories' diagnostic capacities (see p.26).

The second Afro-ACDx course brings together people involved in diagnosis in Africa to discuss leadership issues (see p.40).



December



End of the Fellowship Scheme for improving expertise in AMR in Senegal (see p.34).

The Mériex Foundation publishes the results of lessons learned from experience with RESAMAD (see p.20).

EMERGENCY SUPPORT FOR MOLDOVA



MOLDOVA

Covering an area of less than 13,000 square miles between Ukraine and Romania, Moldova is on the frontline of the Ukrainian refugee crisis

Moldova in the Ukraine crisis

- A landlocked country covering 12,741 square miles between Romania and Ukraine
- 2.6 million inhabitants, lowest GDP per capita in Europe
- Over 300,000 Ukrainians have sought refuge in Moldova since the start of the war: 200,000 continued their journey west to Europe and over 100,000 stayed in the country

In 2022, the Mérieux Foundation decided to support a two-pronged intervention: immediate back-up, followed by structural support for the healthcare reforms undertaken by the Moldovan Ministry of Health.

Since the start of the Russian invasion of Ukraine, many Ukrainians fleeing the conflict have sought shelter in neighboring Moldova, as an intermediate step before moving on to a European Union country. Such an influx of refugees, today making up 16% of the country's total population, is exerting considerable strain on the Moldovan healthcare system. Although the first wave of arrivals was mainly made up of individuals able to manage their own journey, subsequent waves have seen an increasing number of individuals needing healthcare before continuing their journey. This presents a real challenge for the Moldovan government.

Following the first exploratory mission in March 2022 during which the Foundation met the key parties involved in the healthcare system, several needs were identified:

- Immediate humanitarian needs, such as the refurbishment of a refugee reception center or the supply of IV bags for hospitals;
- The need to support laboratories so that they can absorb the requirements created by the influx of refugees and, over a longer-term period and as part of the implementation of healthcare system reforms, to support the reform of the laboratory system. To this end, the Foundation is assisting the Ministry of Health by focusing on renovating the laboratory at the main hospital for infectious diseases and ensuring its integration into the university hospital system, and by strengthening the laboratory system.

Meeting the country's needs

- **March 2022** : joint mission between the Mérieux Foundation and PHI (Pharmacie Humanitaire Internationale — International Humanitarian Pharmacy)
- **April 2022** : assessment mission to identify the needs of the country's laboratories
- **April 2022** : official visit of the Mérieux Foundation's President
- **June 2022** : mission to prepare the joint laboratory project between the Toma Ciorba Hospital for Infectious Diseases and the Nicolas Testemitanu University of Medicine and Pharmacy
- **September 2022** : mission of the Foundation's Senior Management to validate the project with the authorities

STRENGTHENING THE LABORATORY SYSTEM

Support for the Moldovan Ministry of Health in strengthening the national laboratory system was developed in two stages:

- The reinforcement of a key laboratory in order to upgrade the technical facilities and improve the capabilities and quality of biological diagnosis, in particular with regard to the needs and risks linked to the refugee crisis.
- The provision of technical assistance in terms of laboratories to the Ministry of Health as part of reforms to the Moldovan healthcare system.

REFURBISHMENT OF A MICROBIOLOGY LABORATORY

The refurbishment of the microbiology laboratory at the Toma Ciorba Hospital for Infectious Diseases was the first step in meeting the need to improve the quality of diagnosis and to take on a greater volume of analyses. This new facility will also provide students at the Nicolae Testemitanu University of Medicine and Pharmacy with a modern training and research platform in clinical microbiology. The Foundation is providing its expertise as an assistant to the contracting authority for the design and monitoring of refurbishment work on the building that will house the laboratory. It is also providing the equipment for the facility and taking care of staff training with the aim of obtaining the ISO 15189 international accreditation that applies to medical biology laboratories.

TECHNICAL SUPPORT TO REFORM THE LABORATORY SYSTEM

In accordance with the need expressed by the Moldovan Minister of Health, Ala Nemerenco, the Mérieux Foundation will provide support to reform the laboratory system, identified by local experts as the weak link in the Moldovan healthcare system. Through this intervention, the Foundation will assist local parties concerned to gain a better perspective and understanding of other systems and the different potential organizational scenarios. This will make it possible to select the most suitable option and to optimize the laboratory service offering to meet the needs of the population and public health, while guaranteeing an optimal level of quality, biosafety and biosecurity. Particular attention will be paid to certain aspects brought to the attention of the Foundation's teams, such as the referencing system and antimicrobial resistance.



PROVIDING EMERGENCY HUMANITARIAN AID

EMERGENCY MEDICAL AIDE MARCH 2022

In order to assist the Ministry of Health in providing healthcare to refugee populations, the Foundation participated in two emergency operations:

- Support for the humanitarian convoy of the NGO Pharmacie Humanitaire Internationale to transport medical equipment to the Republican Hospital of Chisinau (oxygen therapy equipment and ventilators, generators) and to the Carpineni refugee reception center (hygiene and baby food products, and medicines).
- Supply of IV bags (16,000 bags purchased in partnership with Pharmacie Humanitaire Internationale) at the request of the Moldovan Ministry of Health. The transport costs were covered by the Auvergne-Rhône-Alpes Region.

SUPPORT FOR THE CARPINENI RECEPTION CENTER FOR UKRAINIAN REFUGEES APRIL 2022

The Mérieux Foundation funded the installation of shower facilities in the Carpineni refugee reception center, located around 60 miles south of the Moldovan capital of Chisinau. With a capacity to accommodate 180 individuals, the building has mainly housed women and children since the start of the conflict but did not have any showers or hot water. The work, which was completed in April, resulted in the installation of six shower rooms and the purchase of equipment to access hot water, in order to house the refugee population in acceptable sanitary conditions.

FINANCIAL SUPPORT FOR THE DACIA ASSOCIATION DECEMBER 2022

The Foundation provided financial aid to the NGO Dacia, which has been strongly committed to housing refugees since the start of the war in Ukraine. This support was granted to ensure the running of the association over the winter period. The increase in the price of gas would have forced Dacia to close its doors to the public, as it was unable to pay the heating bills for the building. Over 400 people benefit from the association's support.

01 ACCESS TO BIOLOGICAL DIAGNOSIS

Enhancing access to biological diagnosis for vulnerable populations is the main area of intervention by the Mériex Foundation. This work involves reinforcing biomedical analysis laboratories and helps to improve the surveillance of infectious diseases in regions particularly exposed to threats of epidemics.

Reinforcing access to high-quality biological diagnosis is not only about improving patient treatment and follow-up care, but also about improving public health from the perspective of surveillance. The COVID-19 pandemic served as a reminder that biological diagnosis plays a key role in controlling epidemics. This involves renovating laboratories, setting up reliable equipment and quality management systems and enhancing the skills of laboratory staff in order to meet patients' needs. To this end, the Mériex Foundation is one of the organizations approved by the Global Fund as a technical laboratory expert.

As well as improving equipment and technical skills, the Foundation provides management consultancy services with the aim of guaranteeing financial autonomy for laboratories by introducing a range of services compatible with the local context. The Foundation also supports health authorities in consolidating efficient national laboratory systems to optimize laboratory services and maximize the impact of their activities on public health.

THE MÉRIEUX FOUNDATION'S ACTIVITIES SINCE 2001 IN THE CONTEXT OF ITS INFRASTRUCTURE EXPERTISE

- More than 90 laboratories constructed or renovated
- 23 health training centers redeveloped
- 4 mobile laboratories made available
- 40 consultancy and expertise assignments for partners including the WHO, the UNDP (United Nations Development Program) and the Global Fund to fight AIDS, TB, and malaria.

THIS SUPPORT IS BASED ON THREE KEY AREAS:

- **A collaborative approach** based on partnerships with local healthcare providers, international organizations, academic research, businesses, NGOs, etc.;
- **A long-term vision** offering lasting support to achieve autonomy and the local appropriation of infrastructures and projects;
- **The development** of networks to pool experience and share skills within the framework of multinational cooperation.

2022 marked the return to more normal operations after the pandemic, which had put the brakes on a number of projects affected by a surge in diagnosis requirements and the impact of lockdown and travel restrictions. Unfortunately, the political and security situation in several of the countries in which we operate is becoming increasingly concerning. To ensure the continuity of its activities, the Foundation relies on a solid network of local partners and institutions and on the exceptional ability of its teams to adapt and fulfill their missions while respecting the security conditions in place.

The following pages highlight a selection of projects that made particularly significant progress in 2022.



LABOGUI GUINEA

IMPLEMENTATION OF A NATIONAL MEDICAL BIOLOGY POLICY

The aid supplied to the Guinean Ministry of Health since 2017 by the Agence Française de Développement (AFD, French Development Agency) through the Mérieux Foundation and the Institut Pasteur in Guinea ended in 2022. The support for the network of 39 district and regional laboratories has allowed the **laboratories to be modernized, the equipment to be brought up to date, and practices to be harmonized**. Several major milestones have been achieved during this time: connection of buildings to water and electricity supplies, formalization of waste management processes, creation of a national manual of good laboratory practices (conduct of analyses, handling and transport of samples, quality assessments, etc.) and the adoption of software dedicated to laboratory activities (patient data and stock management).

LABOGUI was deployed in close collaboration with the National Laboratory Directorate and the project coordination unit at the Guinean Ministry of Health.

Achievements in 2022 include:

- **Renovation of four hospital laboratories** and supply of nine vehicles to regional biomedical analysis agents;
- Continuation of **training activities for national technical assistants** operating in the region and teacher training for staff at the École Nationale de Santé (National Health School) in Kindia, in partnership with Biologie Sans Frontières;
- Establishment of **relations between laboratory and hospital staff** with the help of regional laboratory managers appointed by the Ministry of Health;
- Installation of the **latest version of the LabBook software**, introduction of quality documents and launch of a study to measure the impact of the project on the performance of beneficiary laboratories.

LABBOOK VERSION 3

LabBook is an open-source laboratory management software program developed by the Mérieux Foundation in 2010 to help laboratories in low-income countries transition from paper processes to a computerized solution. Version 3 of the software, which is faster and more user-friendly, was developed by the company ÆGLÉ with financial support from the AFD and has been available since 2021.



GLOBAL LABORATORY LEADERSHIP PROGRAM (GLLP) MALI, GUINEA, CHAD

GLOBAL PROGRAM FOR LEADERSHIP TRAINING IN LABORATORIES

Since 2019, the Foundation has actively pursued the development of the GLLP (Global Laboratory Leadership Program). The Foundation was selected by the Global Fund to roll out this program in three countries: Mali, Guinea, and Chad. This is a leadership training program for laboratory staff based on a local mentoring system. The program is mainly aimed at laboratory professionals working at an intermediate or higher level and with experience in management, leadership, and decision-making. Participants working in the animal and environmental health sectors are also eligible.

The GLLP training program is firmly based on achieving operational results and aims to **strengthen the voice of laboratories to enable a community of active leaders to emerge** within institutions in the beneficiary countries. The project is based on three main cornerstones:

- **Reinforcing the skills of around 10-15 participants** per country in four key topics through an interactive, classroom-based course;
- Supporting each participant to **implement a defined project** to improve laboratory services;
- Organizing a **local mentoring scheme** (4 to 6 mentors per country).

In 2022, the selection stages took place in Guinea and in Mali, and training courses were carried out respectively at the National Laboratories Directorate in Conakry and at the Charles Mérieux Center for Infectious Disease in Bamako. The mentor/mentoree pairing process and project planning have begun. In Chad, the call for applications was launched at the end of last year with a view to starting the training courses in the first quarter of 2023.



THE ORGANIZATIONS INVOLVED IN THE GLLP PROGRAM

Association of Public Health Laboratories (APHL), Centers for Disease Control and Prevention (CDC), European Center for Disease Prevention and Control (ECDC), Food and Agriculture Organization (FAO), World Organization for Animal Health (OIE), World Health Organization (WHO).



RESAMAD MADAGASCAR

TECHNICAL SUPPORT FOR THE NATIONAL LABORATORY NETWORK

Launched in 2006, the RESAMAD project is a network covering biomedical analysis laboratories in 27 public hospitals in Madagascar with the objective of **strengthening their capacities for diagnosis and participation in epidemiological surveillance**. This technical support covers three main priorities: ensuring activities continue over the long term thanks to a process for recovering costs; creating a local infrastructure to improve the proximity of services available to patients; and setting up bacteriology units to meet patients' needs.

Fifteen years after the RESAMAD network was set up, the Foundation conducted an exercise to find out the lessons learned in order to identify the key factors behind RESAMAD's success and to demonstrate the added value of the network for laboratory professionals, patients, and public health. The results were published at workshops organized from December 5 to 9, 2022.

Among the lessons learned from this study, several success factors were identified:

- **The uniformity of activities** thanks to the use of shared standards, participation in training courses, and quality controls;
- **The interconnection of laboratories**, with multiple positive effects, such as the transfer of skills and the sharing of experiences;
- **Progress benefiting all parties involved in the care ecosystem:** patients, laboratory professionals, clinicians, and health authorities;
- **Appropriation by members of the network**, with an extremely active steering committee enabling ties to be strengthened and encouraging a genuine sense of belonging.

RESAMAD is operated in partnership with the Madagascan Ministry of Public Health, the Charles Mérieux Center for Infectious Disease in Madagascar, the Institut Pasteur in Madagascar and the support of IDDS (Infectious Disease Detection and Surveillance).



RESAOLAB WEST AFRICA

DEVELOPMENT OF BIOMEDICAL SERVICES IN 7 MEMBER COUNTRIES

Set up in 2009 on the initiative of the Mérieux Foundation, the RESAOLAB regional network of laboratories project entered its third phase in 2019 with the support of the Agence Française de Développement (AFD, French Development Agency). RESAOLAB is **the first network of laboratories in West Africa** and covers seven French-speaking countries: Benin, Burkina Faso, Guinea, Mali, Niger, Senegal, and Togo. In close partnership with the respective Ministries of Health, targeted actions focus on two main areas of improvement: the reinforcement of technical capacity in terms of biological diagnosis, and support for the implementation of national medical biology policies through a harmonized regional approach.

In 2022, the actions undertaken in response to the health crisis were finalized in the member countries with the receipt of the last laboratory equipment and the implementation of post-epidemic studies. Training and coordination activities continued: financing of numerous study grants, roll-out of the latest version of the LabBook software, support for the design of high-quality programs, presentation of the 4th edition of the WHO biosafety manual, etc.

As part of this third phase of the project, a **review of the operations of the national laboratory networks** was drawn up using the LabNet Scorecard assessment system. This status report will serve as the basis for each country to develop an action plan and a second stage will be carried out at the end of the project to measure the evolution of monitoring indicators. At the same time, compiling these works made it possible to gain a cross-sectional overview of the results, revealing the strengths and areas for improvement at a regional level. The Mérieux Foundation helps the countries to define priority initiatives for making improvements.

LABNET SCORECARD

Developed by the African Society of Laboratory Medicine (ASLM) and the Association of Public Health Laboratories (APHL), LabNet Scorecard makes it possible to measure the performance of national laboratory networks via the assessment of nine essential capabilities linked with international standards for laboratory networks.





EVAMAD MADAGASCAR

EXPANDING ACCESS TO HIV VIRAL LOAD TESTING

The Mérieux Foundation has been running the EVAMAD project since 2015 with the support of L'Initiative by Expertise France. This project has two objectives: to **expand the geographical coverage of HIV viral load testing and improve the care** of people living with HIV/Aids in Madagascar. Renewed in 2020 for a period of three years, EVAMAD helps to reinforce sampling circuits and provide continuous information for prescribing practitioners, healthcare workers, biologists, and associations.

In 2022, new sampling circuits were added to develop the network in five towns in the north and south of the island. The transfer of routine analysis activities from the Charles Mérieux Center for Infectious Disease (CICM) to the Ministry of Public Health laboratory remains ongoing (half of the needs covered in 2022). The emergency system for dealing with accidental exposure to the virus is currently being set up at the CICM and in a pilot maternity unit on the outskirts of Antananarivo.

Thanks to this project, **more than 50% of patients undergoing antiretroviral treatment in Madagascar now have access to viral load testing** as part of their follow-up care and more than 75% of patients have recorded virological success.

EVAMAD operates in collaboration with the Ministry of Public Health, the Global Fund, the Charles Mérieux Center for Infectious Disease in Antananarivo, the National AIDS Committee, the NGO MAD'AIDS, UNAIDS and the RESAMAD network of laboratories.



UNAIDS OBJECTIVES

EVAMAD contributes towards achieving the 95-95-95 targets set by UNAIDS, and in particular the objective of 95% of people receiving antiretroviral treatment having an undetectable viral load. Before the project was set up, the capacity for viral load testing covered 39% of the requirements.



C19-HAITILAB HAITI

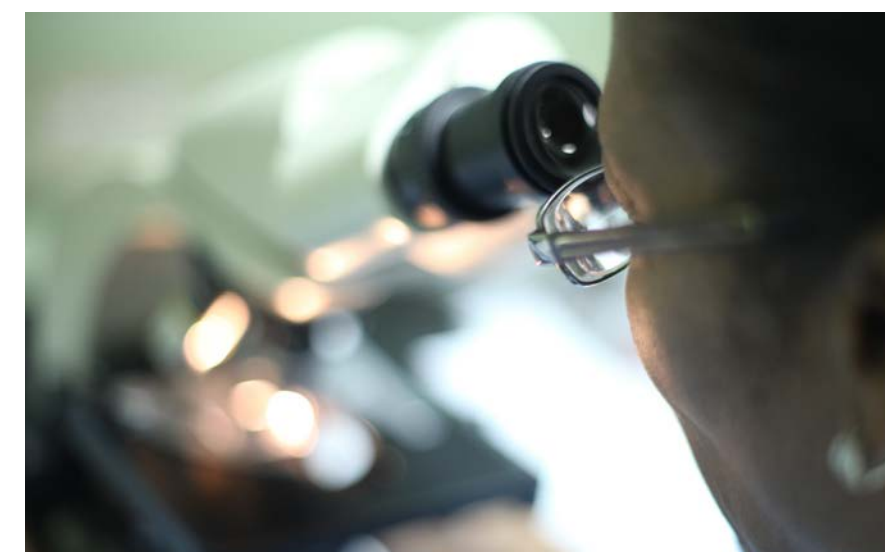
REINFORCING THE CAPACITY FOR DEALING WITH EPIDEMICS

Launched in January 2021 with financial support from the Agence Française de Développement (AFD, French Development Agency), the C19-HaïtiLab project aims to reinforce the testing capacity of biomedical analysis laboratories in Haiti's provinces. Designed to enable the health system in Haiti to monitor the COVID-19 epidemic, the project aims more globally to strengthen the national laboratory system so that it can play a role of surveillance and control in the event of an epidemic threat.

The project has two main components:

- **The reinforcement of peripheral laboratories** in association with the National Public Health Laboratory (LNSP), in particular by increasing levels of biosecurity and biosafety, the transport of samples and the transmission of laboratory data;
- **Targeted support for GHESKIO centers** (Haitian Group for the study of Kaposi's Sarcoma and other opportunistic infections) to improve the energy performance of their installations.

In 2022, all parts of the project were rolled out: training and practical workshops run in conjunction with the operational project partners, installation of ten microbiological safety cabinets in the different laboratories, energy audit of the GHESKIO building and installation of an air-handling unit.



SHORTFALL IN COVID-19 TESTING

In Haiti, laboratory capacities are limited and the detection of the SARS-CoV-2 virus in the provinces is very weak. The country has only four centers equipped for diagnosis: Cap Haïtien, Mirebalais, Cayes, and Fond des Blancs.



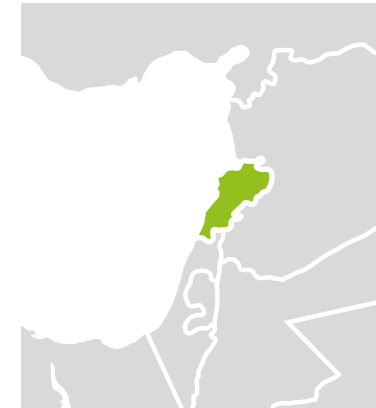
IDDS : INFECTIOUS DISEASE DETECTION AND SURVEILLANCE MADAGASCAR & DRC

PROJECT FOR THE DETECTION AND SURVEILLANCE OF INFECTIOUS DISEASES

Deployed in about twenty countries since 2020, IDDS is a project funded by the United States Agency for International Development (USAID) with the objective of **reducing global health risks linked to infectious diseases**. The Mérieux Foundation USA and the Mérieux Foundation are part of the project consortium led by the company ICF, and implement the project in Madagascar and in the Democratic Republic of the Congo.

■ **In Madagascar, activities to strengthen the national laboratory system are coordinated by the local Mérieux Foundation team, working with the RESAMAD network of laboratories and the Laboratory Development Service (SLab) of the Ministry of Public Health.** In 2022, this support was oriented towards strengthening capacities in bacteriology, hematology, and biochemistry. The National Strategic Plan for the Development of Laboratories was presented to technical and financial partners to engage them in the roll-out of this plan aimed at improving performance and service quality at all levels of the healthcare system.

■ **In DRC,** the Rodolphe Mérieux Laboratory at the National Biomedical Research Institute (INRB) in Goma serves as the reference laboratory for eastern DRC. 2022 achievements include the organization of a week-long training course by experts from the Mérieux Foundation and INRB Goma for biologists and laboratory technicians from the eastern provinces of the country.



NATIONAL PROGRAM FOR COMBATING TB LEBANON

ENSURING DIAGNOSIS ACTIVITIES IN THE CONTEXT OF A CRISIS

The Mérieux Foundation has supported the diagnosis activities of the National Tuberculosis Program (NTP) since 2018, with the objective of guaranteeing patient care despite the increasing fragility of the Lebanese healthcare system. The Foundation provides operational and strategic assistance with the aim of **improving access to diagnosis for vulnerable populations** (support for the Rodolphe Mérieux Laboratory in Beirut, help with supervision and with drawing up a National Strategic Plan).

Since July 2022, the Foundation has provided logistical support for transporting samples at national level. This project is managed in partnership with the WHO, the Lebanese Ministry of Public Health, and the Faculty of Pharmacy at the Saint Joseph University, and benefits from financial support from the International Organization for Migration (IOM).

NATIONAL SCREENING CAMPAIGN

To facilitate access to the diagnosis of tuberculosis, particularly in regions with reduced healthcare services, a screening campaign was organized from March 28 to 31, 2022, by the National Tuberculosis Program supported by the Mérieux Foundation.





FINAL APPRAISAL OF BOLILAB

A final appraisal was carried out at the end of the project in October 2022 to measure improvements in the quality of diagnosis services at the hospital in Bolikhamxay. The results of the audit, conducted using the WHO's Laboratory Assessment Tool, show an overall increase in quality of more than 30% and an increase in biosafety of more than 40%.

BOLILAB LAOS

REINFORCING THE CAPACITY OF HEALTH SERVICES IN THE PROVINCE OF BOLIKHAMXAY

The BoliLab project, supported financially by the Coopération Luxembourgeoise, ended in 2022 after **five years of providing support for healthcare services** in the province of Bolikhamxay. Launched in 2018 following the construction of a new provincial hospital, BoliLab was rolled out in close collaboration with local health authorities and the National Center for Laboratory and Epidemiology (NCLE), the leading national laboratory. Having helped to set up the hospital laboratory and introduced new analysis techniques, the Foundation also supported its integration into the national network of laboratories in Laos (with mentoring and training activities). The Foundation also supported the Maria Theresa hospital in the province of Vientiane in renovating its laboratory rooms.



PROJECT MANAGEMENT

The Mérieux Foundation USA was also in charge of project management in Cameroon in partnership with the Centre Pasteur in Cameroon, member of the GABRIEL network. In all the countries involved, TDDA/ACE was conducted in close cooperation with regional institutions such as the African Centers for Disease Control and the WHO/AFRO.

TDDA – TACKLING DEADLY DISEASES IN AFRICA MALI

IMPROVING GLOBAL HEALTH SECURITY BY REDUCING THE IMPACT OF EPIDEMICS

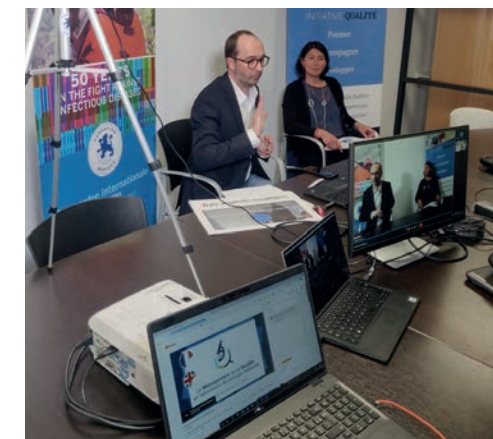
Funded by the UK government through the Foreign, Commonwealth & Development Office (FCDO) and led by DAI Global Health, the TDDA (Tackling Deadly Diseases in Africa) program was carried out in six countries in Sub-Saharan Africa between 2019 and 2022 (Mali, Ivory Coast, Chad, Cameroon, Uganda, as well as Niger until 2021). Its objective was **to improve health surveillance and coordination** to prevent local outbreaks of diseases leading to epidemics on an international scale.

In Mali, TDDA/ACE was run by the Mérieux Foundation in partnership with the Ministry of Health and Social Development and the Mérieux Foundation USA. The results were presented at the project closure meeting held in Bamako on September 30, 2022. Progress made during the project included the improvement of surveillance capabilities, the integration of the One Health approach, the deployment of the National Action Plan for Health Security, and better oversight of International Health Regulations (IHR).

QUALITY INITIATIVE 8 LABORATORY MEMBERS

SUPPORT FOR THE IMPLEMENTATION OF A QUALITY MANAGEMENT SYSTEM

The Mérieux Foundation's Quality Initiative aims to **reinforce quality management skills** as part of a continuous improvement system. The program provides support for laboratory teams as they adopt a quality management system (QMS), with a view to obtaining ISO15189:2012 accreditation. This support is based on the WHO LQSI (Laboratory Quality Stepwise Implementation) tool. Two YouTube live streaming events were organized in 2022 on the use of metrology and risk analysis in biosafety. Eight laboratories have joined the Quality Initiative to date and four of these have already been accredited.



REVIEW OF MOOC QUALITY INITIATIVE 2019-2022

- MOOC on 'Quality Management in Biomedical Analysis Laboratories' set up by the Mérieux Foundation in partnership with AFNOR and the Institut Pasteur
- 8 weeks of training devoted to learning about and setting up a quality management system in a laboratory
- More than 11,500 people registered for the course over three years
- Creation of a LinkedIn group with more than 1,000 members including participants and quality management professionals

02 APPLIED RESEARCH



Through the strengthening of its applied research capacities, the Mérieux Foundation encourages and supports local scientific teams in the development of research programs to target the fundamental needs of the most fragile populations. The results of this work contribute to the prerequisites for defining public health policies adapted to the priorities of the regions.

The Mérieux Foundation's activities for reinforcing research activities in countries with limited resources focus on main public health issues: antimicrobial resistance, tuberculosis and respiratory infections as well as emerging pathogens. This work relies on a network of outstanding laboratories located at the heart of regions exposed to infectious diseases with a high public health impact. The GABRIEL network, several members of which have been designated 'national reference laboratories' by the authorities in their countries, is a solid example of the Foundation's involvement in this area. These structures, which comply with the most exacting international standards, have been playing an increasingly important role in controlling and monitoring epidemics since the 2020 health crisis.

APPLIED RESEARCH INTERVENTIONS IN PUBLIC HEALTH

The reinforcement of local applied research capacities relies on three pillars of intervention:

- **Strengthening the capacities** of the GABRIEL network of laboratories, and in particular, the Rodolphe Mérieux Laboratories;
- **Training researchers** through the organization of courses and conferences focusing on major public health issues.
- **Developing collaborative projects** encouraging South-South collaboration;

WIDE-REACHING INITIATIVES

In 2022, the Foundation defined a strategic framework, formalizing the priority given to the promotion of operational and cross-functional research activities combining several of its areas of intervention: access to diagnosis, knowledge sharing and actions focusing on the mother and child. In this context, several diagnosis platforms were consolidated throughout the year, including the installation of a high-speed sequencer at the Charles Mérieux Center for Infectious Disease in Madagascar, training sessions on next-generation sequencing and bioinformatics in Guinea and Senegal, and strengthening the diagnosis and treatment of tuberculosis in Cameroon.



COLLABORATION AT THE HEART OF OUR ACTIONS

The Mérieux Foundation, which operates within the framework of multiple partnerships in all its areas of intervention, is a partner of three research organizations operating in French-speaking countries with limited resources:

- **The French National Research Institute for Sustainable Development (IRD)** for the introduction of support measures for young researchers and collaborative programs. A joint invitation to apply for grants was launched within the GABRIEL network in 2022;
- **The Pasteur Network** (Réseau International des Instituts Pasteur), including the participation of the Pasteur Center in Cameroon in the implementation of the APRECIT project involving the Institut Pasteur in Madagascar, the Pasteur Center in Cameroon, and the Mérieux Foundation;
- **The AVIESAN network** (French National Alliance for Life Sciences and Health) with a research project into antimicrobial resistance in partnership with scientists in Cambodia, Ivory Coast, Madagascar, and Burkina Faso.

Since 2020, the Foundation has also been a partner of three academic research teams working in its three main areas of intervention:

- **Antimicrobial resistance:** team led by Professor Jean-Yves Madec at ANSES (French national agency for food, the environment and work), a reference laboratory for the FAO (UN Food and Agriculture Organization) and the OIE (World Organization for Animal Health).
- **Tuberculosis:** team led by Professors Oana Dumitrescu and Florence Ader from the Hospices Civils de Lyon, with expertise in basic, translational and clinical research recognized by the international scientific community;
- **Respiratory infections:** team led by Professors Manuel Rosa-Calatrava and Bruno Lina from the VirPath laboratory (Université Claude Bernard, Lyon), a team linked to the main national center for respiratory viruses with a reputation for its pathophysiological and clinical research into respiratory infections and the analysis of new antivirals. The team of Professor Philippe Vanhems (Hospices Civils de Lyon [HCL] and the International Center for Research into Infectious Diseases [CIRI]) covering the epidemiological and public health aspects of respiratory infections.

These collaborations aim to capitalize on synergies in terms of expertise, in order to optimize the relevance of programs and their impact on the health of populations.



THE GABRIEL NETWORK IN FIGURES

- **18 research projects in progress** (4 TB, 3 AMR, 6 ARI, 5 COVID-19)
- **75 collaborative publications** (2012–2022)
- **984 scientists trained** (57 training sessions through mentoring schemes and 55 training workshops)
- **10 online training modules** on epidemiology, clinical research, molecular biology, the diagnosis of arboviruses, and biobanks.

EVAg CONSORTIUM

The GABRIEL network is a member of the EVAg (European Virus Archive global) consortium, which collects, characterizes, produces, and distributes viruses and derived products. This platform provides essential resources for the response to epidemics.

SUPPORT FOR THE SUBMISSION OF PROJECTS TO INTERNATIONAL FUNDERS

In 2022, two GABRIEL network projects were submitted to the Bill & Melinda Gates Foundation Grand Challenge 2022. One of them is among the four projects selected from 238 applications: the collaborative project to manage epidemiological data led by the Charles Mérieux Center for Infectious Disease in Madagascar and the Emerging and Re-Emerging Pathogens Laboratory in Burkina Faso.

GABRIEL NETWORK

Created in 2008 by the Mérieux Foundation, the GABRIEL network (Global Approach to Biology Research, Infectious diseases, and Epidemics in Low-income countries) works to develop the research and training capacities of local laboratories and improve the surveillance of diseases that have a major impact on public health. Since 2020, attention has increasingly been focused on strengthening local facilities and boosting the autonomy and initiatives of member laboratories of the network.

The GABRIEL network has 22 members in 15 countries: 8 Rodolphe Mérieux Laboratories (whose construction is financed and managed by the Mérieux Foundation before being transferred to local healthcare providers) and academic, university or hospital research institutes, both public and private. In 2022, two new members joined the network: **the Emerging and Re-Emerging Pathogens Laboratory at the Souro Sanou University Hospital in Burkina Faso and the Congolese Foundation for Medical Research based in Brazzaville in the Republic of the Congo.** These new members strengthen the presence of the network in Africa, as well as its link with RESAOLAB.

2022 was a year filled with structuring and collaboration initiatives within the GABRIEL network, including:

- The implementation of a **project to monitor variants of SARS-CoV-2** in Bangladesh, Cameroon, Lebanon, Madagascar and Mali, with the support of the Foundation to define the PCR screening method and data analysis;
- The organization of **three webinars presented by network participants** (study of the intragenomic variant of SARS-CoV-2 in Brazil, updates to SARS-CoV-2 studies in Bangladesh, moving from Ebola surveillance to the COVID-19 response in the DRC);
- The creation of **two working groups focusing on antimicrobial resistance** to develop 'One Health' collaborative projects with the assistance of ANSES experts;
- The launch of a **study on the benefits and expertise of the network** in order to strengthen international visibility and partnership opportunities for the network.

➡ SUPPORTING RESEARCH THROUGH THE FUNDING OF GRANTS

Funding of PhD research grants

For the fourth year in succession, the Mérieux Foundation launched a call for funding applications for PhD research grants within the GABRIEL network (€15,000/year for three years). In 2022, the grant was awarded to **André Nagalo from the Emerging and Re-Emerging Pathogens Laboratory in Burkina Faso** (Diagnosis of tuberculosis and transmission patterns in high-risk populations) and **Ian Nunes Valenca from the University of Sao Paulo in Brazil** (Genomic surveillance of emerging viruses).

MÉRIEUX FOUNDATION IRD JOINT PROGRAM

In 2022, a new grant program was launched by the Foundation, in partnership with the IRD. This is aimed at these carried out in association with an IRD team and for which half of the time was spent in a GABRIEL network laboratory. Two additional grants were awarded within this framework in 2022.

APPLIED RESEARCH PROJECTS

TUBERCULOSIS

► INTEGRATED ACTION FOR VULNERABLE POPULATIONS

The Mérieux Foundation has made tackling tuberculosis a priority, combining community intervention, the strengthening of laboratory systems and improved diagnosis within an operational research framework.

In partnership with health authorities and research institutions, the Foundation is contributing to the development of studies that assist National Programs for dealing with tuberculosis (PNLT) in defining an optimal screening and patient treatment strategy.

WORKSHOP DEDICATED TO LATENT TUBERCULOSIS IN CAMEROON

APRECIT's community approach was on the agenda at the workshop on the treatment of latent tuberculosis that took place on September 27 and 28, 2022. Held in Yaoundé, Cameroon, in partnership with the Pasteur Center in Cameroon and with the support of QIAGEN, the event brought together representatives from 11 countries in French-speaking Africa, along with a number of experts (Global Fund, Institut Pasteur in Madagascar, the Ministry of Health of Cameroon, WHO AFRO, WHO Cameroon, etc.) with the aim of creating a platform to discuss screening and treatment strategies for latent tuberculosis among high-risk groups.

APRECIT: CAMEROON AND MADAGASCAR IMPROVEMENT OF SCREENING FOR LATENT TUBERCULOSIS

APRECIT (Improved Treatment of Latent tuberculosis Infection) is a project led in partnership with the Institut Pasteur in Madagascar and the Pasteur Center in Cameroon with financial support from the Expertise France Initiative. Alongside the National Programs for dealing with tuberculosis in both countries, the aim of APRECIT is to improve the screening of latent tuberculosis (which develops into tuberculosis disease in 10% of cases) in accordance with the recommendations of the WHO, which stipulate the **early treatment of individuals living in the same home as a patient with tuberculosis**. The project addresses two of the strategic focus areas of the Foundation: **strengthening health systems through operational research and community intervention to help vulnerable populations**.

Since 2020, community agents and medical staff have been raising awareness among populations and monitoring individuals in household contact cases. In Madagascar, 390 index cases (individuals infected with tuberculosis) and over 1,000 contact cases were identified and are currently being monitored. In Cameroon, 170 index cases and over 630 contact cases were identified and are currently being monitored.

A study on the impact of the COVID-19 epidemic on the different cohorts was integrated into the project following the health crisis and the 'health economics' component is also underway. The latter is an assessment of the cost effectiveness of community interventions undertaken as part of the project.



TUBERCULOSIS

DEDICATE - BANGLADESH ASSESSMENT OF PEDIATRIC AND EXTRA PULMONARY TUBERCULOSIS DIAGNOSTIC TOOLS

Launched in 2022, the DEDICATE study aims to **identify an alternative to conventional diagnostic tests for pulmonary tuberculosis**, based on the analysis of sputum specimens. Used throughout the world, their sensitivity is greatly reduced with paucibacillary forms (small quantity of pathogens) of the disease, such as pediatric or extra pulmonary tuberculosis, leading to significant underdiagnosis. The DEDICATE project proposes to **measure the clinical performance of two molecular blood tests for the diagnosis of paucibacillary forms of the disease**. The project will then go on to assess their use as a **tool to monitor the effectiveness of tuberculosis treatments**.

This is a prospective hospital-based observational study based on the monitoring of two cohorts: children under 15 years of age with suspected pulmonary tuberculosis and cases of suspected extra pulmonary tuberculosis. Over 450 children, adolescents and adults were identified and monitored in 2022. DEDICATE is part of the WHO's plan to combat tuberculosis, and more specifically to reduce the morbidity and mortality of this disease in countries with limited resources and the highest rates of tuberculosis.

Funded in partnership with the AnBer Foundation, DEDICATE is led with the operational support of the icddr,b (International Center for Diarrheal Disease Research, Bangladesh) and the molecular diagnosis company Cepheid.

► RESULTS OF THE HINTT MULTICENTRIC STUDY: THE 'RISK6' BLOOD TEST

One of the two tests assessed as part of the DEDICATE project comes from the HINTT multicentric study conducted in five countries of the GABRIEL network with the support of the Fondation Christophe et Rodolphe Mérieux and the AnBer Foundation, the results of which were published in 2021.



ANTIMICROBIAL RESISTANCE (AMR)

THE BENEFICIARY INSTITUTIONS OF THE FELLOWSHIP SCHEME IN SENEGAL

- Directorate of Laboratories of the Ministry of Health and Social Action
- The Laboratory for Food Safety and Environmental Health
- Institut Pasteur, Dakar
- The Directorate of Veterinary Services of the Ministry of Livestock and Animal Production
- The Senegalese Agricultural Research Institute at the Ministry of Agriculture and Rural Infrastructure

FLEMING FUND FELLOWSHIP - SENEGAL : SUPPORTING NATIONAL GOVERNANCE WITH REGARDS TO TACKLING AMR

The Fleming Fund Fellowship Scheme came to an end in 2022. Aimed at **strengthening the skills of practitioners in the animal, environmental and human health sectors** involved in AMR surveillance, the Fleming Fund Fellowship Scheme is part of the UK government's Department of Health and Social Care's program tackling AMR. Its objectives are to **improve the quality and quantity of surveillance data and to promote the use of this data on a local, national and global level.**

Focusing on 24 low- and middle-income countries in Asia and Sub-Saharan Africa, the Fellowship Scheme was led by the Mérieux Foundation for activities carried out in Senegal. In addition to its role as a host institution for fellows, the Foundation coordinated the beneficiary institutions and the consortium with VetagroSup and the Hôpitaux de Paris to support six fellows. Together, the host institutions developed a training plan based on the 'One Health' approach comprising the implementation of a collaborative research project. Covering resistance to strains of the *E. coli* bacteria, this project was conducted in partnership with 3 hospitals, 50 poultry farms, 15 dairy farms, 20 abattoirs and 40 distribution channels.

The Fellowship Scheme enabled the fellows to acquire new knowledge of the detection of resistance mechanisms, molecular epidemiology and AMR surveillance. The program also created significant development opportunities for the fellows (integration into networks of expertise, design of training courses in their home institutions and professional development).



ANTIMICROBIAL RESISTANCE (AMR)

TRIUMPH - MADAGASCAR MONITORING ANTIMICROBIAL RESISTANCE WITH A MULTIDISCIPLINARY APPROACH

The TRIuMPH project is underway in three countries, which have already adopted the WHO TRICYCLE protocol: Malaysia, Pakistan and Madagascar. This is a **One Health antimicrobial resistance surveillance program** targeting two Enterobacteriaceae declared a critical priority by the WHO for their ability to resist certain classes of antibiotics. These are Enterobacteriaceae-producing extended-spectrum beta-lactamases (ESBL) and Carbapenemase-producing Enterobacteriaceae (CPE), which can be found in the human body, in the environment and in the food chain.

The Mérieux Foundation is supporting the team in Madagascar with training, quality control and bioinformatics. The project is being conducted in ten hospital laboratories in the RESAMAD network and the Charles Mérieux Center for Infectious Disease in Antananarivo. It benefits from financial support from the European JPI-AMR initiative (Joint Programming Initiative on Antimicrobial Resistance) and the Swedish agency for development and cooperation.

In 2022, several training courses in detection methods were provided and the sampling and analysis activities started in September.



➤ IMPROVING TRICYCLE WITH TRIuMPH

- The TRICYCLE protocol, developed in 2017 according to the 'One Health' approach by the WHO AGISAR group (Advisory Group on Integrated Surveillance of Antimicrobial Resistance), involves AMR surveillance in the human population, the animal sector and the environment (waste and surface water).
- The TRIuMPH project has two aims: to improve the TRICYCLE protocol and to extend it to new study regions and to samples from other surveillance campaigns (e.g. environmental surveillance for polio).

ACUTE RESPIRATORY INFECTIONS

PCV (PNEUMOCOCCAL CONJUGATE VACCINE) PROJECT CAMBODIA, INDIA, PARAGUAY

ASSESSING THE PREVALENCE OF PNEUMOCOCCAL SEROTYPES IN CIRCULATION

Although the pneumococcal conjugate vaccine (PCV) has been available since the 2000s, it was more recently introduced to countries with limited resources via the roll-out of pediatric vaccination programs. In order to generate robust surveillance data on the serotypes in circulation, the Mériex Foundation is leading a research project covering children and adults in three GABRIEL network countries: Cambodia, India and Paraguay.

Thanks to the implementation of a central prevalence data generation protocol, the study will make it possible to determine the colonization rate and distribution of pneumococcal serotypes in circulation in the three countries, then to **measure the impact of vaccination in different epidemiological situations**.

In 2022, the study cohorts were identified: around 870 individuals in Paraguay, 710 in Cambodia and 720 in India. In Cambodia, preliminary results have demonstrated that the introduction of the PCV13 vaccine as part of the national pediatric vaccination scheme has led to a decrease in serotype 13 infections in children under 5 years old. These results demonstrate the effectiveness of the vaccine in reducing pneumonia, in particular in children, who have been administered the vaccine since 2015.



NOSO-COR PROJECT - 7 COUNTRIES

REDUCING THE RISK OF NOSOCOMIAL TRANSMISSION OF SARS-COV-2

To address the high circulation of COVID-19 within healthcare institutions, the Mériex Foundation and the Hospices Civils de Lyon developed the NOSO-COR research protocol to assess and reduce the risk of nosocomial transmission of SARS-CoV-2. This is a non-interventional prospective study, the results of which should allow policies for the prevention and control of the SARS-CoV-2 virus in hospitals to be put forward. The aim is to document the occurrence of cases and clusters through an epidemiological study identifying the factors associated with serious cases. Skills mapping will also be carried out.

The project covers seven countries: Mali, Ivory Coast, Guinea, Madagascar, Bangladesh, Brazil, and Lebanon. The Mériex Foundation manages the implementation of the research protocol in the countries with the support of the Bill & Melinda Gates Foundation.

Recruitment was finalized in 2022 (around 2,700 cases) and data analysis is currently underway. The preliminary assessment has provided interesting initial information, demonstrating that the results of NOSO-COR will contribute to the understanding of the impacts of the COVID-19 pandemic in low- and middle-income countries, for which little data is available. The main results show a mortality rate of up to 14% and severity factors have been identified, such as being over 50 years old and the presence of cardiovascular disorders. The roll-out of the project has also made it possible to strengthen access to clinical diagnosis and clinical research capacities in the partner countries.

ACUTE RESPIRATORY INFECTIONS

FDP-COVID19 - BANGLADESH

STUDY ON THE TRANSMISSION OF SARS-COV-2 DURING A HUMANITARIAN CRISIS



FDP-COVID19 is a research program taking place in a camp for displaced Rohingyas in Bangladesh. The living conditions in refugee camps accelerate the spread of infectious diseases and this study proposes to **measure the prevalence and document the transmission of SARS-CoV-2 in the Cox's Bazar camp for displaced individuals in the Ukhia region**. The data obtained will make it possible to improve the understanding of viral transmission and the epidemiological patterns of SARS-CoV-2 circulation before and during the epidemic period.

The initial results compiled in 2022 suggest very high exposure to the virus. Once finalized, this study will describe in detail the circulation of SARS-CoV-2 and the seroprevalence situation in the refugee camp. These lessons will help improve prevention measures and the vaccination program in view of the dual challenge involved in managing an epidemic during a humanitarian crisis.

The study was presented during the ASTMH (American Society of Tropical Medicine and Hygiene) conference in October 2022 and the ASCODD (Asian Conference on Diarrheal Disease and Nutrition) meeting in November 2022. It is being conducted with the Institute for Developing Science and Health Initiatives in Bangladesh (ideSHi) with the support of the WHO and several humanitarian institutions and organizations in the field.

03 KNOWLEDGE SHARING



Sharing knowledge across national borders and disciplines is one of the Mériex Foundation's key missions. This commitment is based on promoting scientific exchange, training, and collaboration, with the objective of making advances in public health by tackling infectious diseases.

Based on international and interdisciplinary cooperation to ensure that progress in healthcare benefits as many people as possible, knowledge sharing is an activity involving all departments and all areas of intervention of the Mériex Foundation. This approach relies on a portfolio of advanced training courses, international scientific conferences and public health initiatives prioritizing six main themes: vaccinology, diagnostics, infectious diseases, antimicrobial resistance, cholera, and rabies.

MAINTAINING A HIGH-QUALITY DIALOGUE

Since 2020, the health crisis has led to the emergence of new forms of communication, which have enabled the Foundation to maintain a continuous and regular dialogue between scientific experts, political decision-makers, universities, and those working in the field. The Foundation is convinced of the importance of face-to-face meetings and the critical role they play in strengthening personal relationships, deploying collaborative practices, and stimulating collective intelligence.

In 2022, 20 events were held in person, bringing together more than 2,500 participants. These events included:

- **Four advanced training courses that the Foundation co-organized**, attended by more than 170 health professionals, some of whom came from countries with limited resources,
- **A meeting of the global alliance for rabies control** and meetings of the **consortium in charge of eradicating cholera**, attended by many participants.

Most of these events were organized at the Les Pensières-Center for Global Health, run by the Mériex Foundation near Annecy.

LES PENSIÈRES CENTER FOR GLOBAL HEALTH

Les Pensières is an international public health center situated beside Lake Annecy, with expertise based on over 40 years' experience in dialogue and a commitment to tackling infectious diseases. Designed as a space for sharing and reviewing knowledge, it provides the ideal working environment for health organizations, associations, and institutions sharing the same values as the Mériex Foundation (with conference rooms, catering facilities, and accommodation).

In 2022, in line with its commitment to global health, the center organized local conferences on social and environmental issues to raise public awareness. Les Pensières hosted 160 events and more than 6,800 people throughout the year.



ADVANCED TRAINING COURSES

After two years of adapting to restrictions due to the health crisis, all four of the Mérioux Foundation's advanced training courses were once again organized in person in 2022. The advanced training courses on vaccines (ADVAC), diagnosis (ACDx), and antimicrobial resistance (AMR/One Health) were held at Les Pensières-Center for Global Health. The second edition of the Afro-ACDx course was organized in Senegal.

For the participants, these training courses represent opportunities to create networks in which they can establish valuable and lasting professional relationships. Alumni networks linked to the Foundation's training courses provide effective platforms for sharing and exchanging information on problems and challenges encountered and the identified solutions.

AFRO-ACDx SECOND EDITION

— Advanced course on diagnostics in French on the African continent

For the second year in succession, the Afro-ACDx course brought together managers of biomedical analysis laboratories and decision-makers in the human and animal health sectors in Africa. **Afro-ACDx is a French-language course adapted to the needs of West and Central Africa** and was also developed to **strengthen the leadership skills** of laboratory directors and managers at community, regional, and national level as part of a One Health approach.

Launched in 2021 in partnership with the Institut Pasteur in Dakar, Afro-ACDx relies on the Mérioux Foundation's international ACDx training course and on the GLLP (Global Laboratory Leadership Program). The 2022 edition of the Afro-ACDx course took place in Senegal from November 20 to 25 and was attended by 33 participants from 16 French-speaking African countries.

ACDx COURSE

— Advanced course on diagnostics

Organized by the Mérioux Foundation and the London School of Hygiene & Tropical Medicine since 2010, the Advanced Course on Diagnostics (ACDx) aims to **promote the role and value of diagnostics** in global healthcare and to reinforce decision-making capacities in low-income countries. The course focuses on the absolute necessity of having access to high-quality diagnostic tests, particularly when it comes to **tackling antimicrobial resistance and being better prepared for dealing with epidemics**, whilst also encouraging collaborations and social and technological innovations.

An immersive one-week course in English, ACDx is aimed at decision-makers in the field of diagnostics at local, national, and international levels and at scientists involved in developing diagnostic tools and implementing disease control strategies. The 11th edition of ACDx was attended by 28 participants from 23 countries from September 18 to 23, 2022.



INTERNATIONAL MEETING FOR VACCINOLOGY TRAINING PROGRAMS

The second collaborative workshop on advanced training in vaccinology was held from March 22 to 24, 2022, at Les Pensières-Center for Global Health. Attended by 72 representatives from 32 training courses, this meeting aimed to reinforce global cooperation in terms of advanced teaching on vaccinology and to facilitate the sharing of information and best practices. This workshop follows on from an initial meeting organized in 2018 to review the existing advanced courses in vaccinology.



ADVAC COURSE

— Advanced course on vaccinology

Acknowledged as **one of the most prestigious courses in its field**, ADVAC was set up by the Mérioux Foundation and the University of Geneva in 2000. Aimed at local, national, and international decision-makers from academic, industrial, governmental, and non-governmental organizations working in all fields associated with vaccines and immunization, **the course offers a 360° perspective, providing a comprehensive overview of the sector** from immunology to the development of vaccines and clinical trials, as well as covering the social, economic, political, and ethical issues associated with vaccination.

This two-week training course enables participants to increase their leadership skills in vaccinology and their roles as prescribing practitioners in societies marked by widespread distrust and vaccine hesitancy. The 22nd edition of ADVAC was attended by 71 participants from 39 countries from May 9 to 20, 2022. Four meetings between former students were also organized throughout the year.

AMR COURSE

— Course on antimicrobial resistance

Based on the objectives of the WHO's Global Action Plan on antimicrobial resistance, the AMR course developed by the Mérioux Foundation and the Paris-Diderot University in 2019 aims to strengthen decision-making as part of a One Health perspective. This intensive five-day training course brings together professionals from various disciplines: doctors, vets, environmentalists, and experts in biological sciences, human and social sciences, and public health.

The course enables participants to work more efficiently together to develop **solutions that must be interdisciplinary** if they are to deal with the highly complex problem of antimicrobial resistance. Following on from the success of the 2019 and 2021 editions, the third AMR course brought together 40 students from 20 countries in Asia, Africa, and the Middle East from November 7 to 11, 2022.

PUBLIC HEALTH INITIATIVES

The Mérieux Foundation contributes to several global public health initiatives. By combining complementary areas of expertise, optimizing resources, and creating synergies, these partnerships play an essential role in the fight against infectious diseases.

EU RECOGNITION OF THE FOUNDATION'S ROLE

The Mérieux Foundation has played a crucial role in the introduction and launch of GloPID-R activities, providing constant support and working on improving the visibility of the project.

I would sincerely like to thank the Mérieux Foundation for its great commitment since 2014 to establishing the GloPID-R Secretariat and for providing the groundwork for the construction of the inspiring network we have in place today.

Barbara Kerstiens,
GloPID-R Co-Chair

COORDINATION OF RESEARCH ON INFECTIOUS DISEASES

— Global research collaboration for infectious disease preparedness

GloPID-R is a global alliance of 40 organizations investing in the fight against infectious diseases. Its objective is to **improve the response to emerging epidemics** by reinforcing cooperation between funding members of the alliance. In 2020/2021, the work of the GloPID-R network made it easier to coordinate research funding in response to COVID-19. The work undertaken in 2022 included the formalization of a road map to improve the global coordination of clinical trials and the introduction of coordinated measures to respond to epidemics of monkey pox and acute hepatitis.

Since 2014, the Mérieux Foundation has been responsible for coordinating the global activities of the GloPID-R Secretariat in partnership with the University of Oxford, in charge of the scientific aspects. From 2023, the Charité University in Berlin will take over from the Foundation. The GloPID-R Secretariat is funded by the European Union's Horizon 2020 program.

CONTROLLING RABIES

— 13th Meeting of the Partners for Rabies Prevention

The Mérieux Foundation organized the 13th meeting of the Partners for Rabies Prevention in partnership with the Global Alliance for Rabies Control (GARC) and United Against Rabies (UAR). Discussions took place on the ways in which the global community can strengthen its coordination of the **global strategic plan for the elimination of rabies** and provide more support for endemic countries as they aim to achieve the WHO's Zero by 30 objective to reduce the number of human deaths from dog-transmitted rabies to zero by 2030.

A total of 87 people participated in the hybrid event hosted at Les Pensières-Center for Global Health on June 13, 14, and 15, 2022. The Foundation also actively participated in UAR's strategic working groups and in the first UAR Forum held in December 2022.

PARTNERS FOR RABIES PREVENTION

PRP brings together representatives of organizations from the northern and southern hemisphere fighting against rabies: international organizations, leading laboratories, NGOs, research institutes, foundations, and private industry.

VACCINE HESITANCY AND TRUST

— An initiative for the acceptance of vaccines

The Mérieux Foundation has been organizing annual meetings on vaccine hesitancy and trust since 2008 as part of the Vaccine Acceptance Initiative. Throughout the entire health crisis, important work was carried out with the aim of offering a series of events encouraging the introduction of best communication practices to counteract misinformation. **A post-pandemic feedback webinar was organized in 2022:**

- The 'Vaccine adoption and equity: lessons learned from COVID-19' webinar (joined by 300 people).

The vaccine acceptance initiative campaigns for the adoption of vaccines and shares information on their acceptance, trust in vaccines, and the understanding of social and behavioral factors that guide acceptance in given populations, as well as the instruments and innovations that encourage the understanding, introduction, and adoption of vaccines on a global and national scale.

TACKLING PNEUMONIA

— Campaign with the Every Breath Counts coalition

To mark World Pneumonia Day on November 14, 2022, the Mérieux Foundation formed a partnership with the Every Breath Counts coalition, the world's first public-private partnership against pneumonia. Pneumonia is an acute pulmonary infection most often caused by a virus or bacteria and is the world's biggest infectious

EVERY BREATH COUNTS

- The Every Breath Counts coalition is made up of UN agencies, businesses, donors, academic institutions, and NGOs, and supports governments in countries most at risk from pneumonia.

- The coalition campaigns for urgent action to reduce the burden of pneumonia and prevent future respiratory pandemics from aggravating the situation further.

killer (2.5 million deaths in 2019, of which 672,000 were children under 5 and 1.2 million were adults over 70).

The two partners launched two campaigns to raise awareness of the damage caused by pneumonia:

- The webinar 'Fighting Pneumonia: An Agenda for Action': to influence decisions made by governments and international organizations and fill in the gaps in the prevention, diagnosis, and treatment of pneumonia (120 participants);

- The allocation of grants to support campaigns for raising awareness in the community: 11 NGOs in Africa and Asia have

received a **€2,000 grant to help them organize prevention activities** and encourage people to act against pneumonia, an essential part of the fight against the disease at local level.

GLOBAL PARTNERSHIP TO FIGHT CHOLERA

— Global Task Force on Cholera Control (GTFCC)

The Mérieux Foundation has been a member of the Global Task Force on Cholera Control (GTFCC) since 2017. This is a global multi-sector partnership bringing together more than 50 organizations (WHO, GAVI, the Bill & Melinda Gates Foundation, WaterAid, etc.) with the objective of **reducing the number of deaths from cholera by 90% by 2030**. This disease is responsible for 95,000 deaths each year. The Mérieux Foundation is actively involved in the development and implementation of activities linked to the knowledge sharing platform, taking responsibility for the website and the organization of meetings at Les Pensières.

In 2022, the annual meeting of the GTFCC was attended either in person or remotely by 233 people on June 27, 28, and 29. This hybrid format was also adopted for meetings of themed working groups, which meant that discussions could be held more widely with people working in the field. The meeting, which is traditionally organized alongside the World Health Assembly, took place remotely in the presence of 60 participants on May 25, 2022.

GTFCC THEMED WORKSHOPS 2022

→ WASH (Water, Sanitation, Health) working groups
March 9 and 10, 2022
90 participants

→ Surveillance working groups (epidemiology and laboratory)
April 20 and 21, 2022
97 participants

→ Oral cholera vaccine working groups
October 11 and 12, 2022
115 participants

SCIENTIFIC CONFERENCES

In partnership with a network of international experts, the Mérioux Foundation organizes scientific conferences attended by various health stakeholders to explore major topics of scientific and medical interest.

VACCINOLOGY CONFERENCE 2022

— International symposium in Asia Pacific

Manila, Philippines
November 30 to December 2
50 participants

In partnership with the Pediatric Infectious Disease Society of the Philippines

The Vaccinology Conference is a biannual event that also takes place in South America and other regions of the world. These meetings provide an **overview of current vaccination practices** and encourage the sharing of experiences for the definition of new approaches in the field of vaccination and vaccine acceptance. Those attending the conference included specialists in vaccines, public health, health economics, NIP (National Immunization Program) directors, and national and international organizations.



FIGHT AGAINST DENGUE

— Asia Dengue Voice & Action (ADVA)

Set up in 2013, Asia Dengue Voice and Action (ADVA) is a scientific working group dedicated to the prevention and control of dengue in Asia. Thanks to a collaboration with the government, universities, industry, non-governmental organizations, and the Mérioux Foundation, ADVA is continuing its mission to fight dengue throughout Asia with numerous local and regional workshops and webinars to raise awareness of dengue.

From June 13 to 15, 2022, Asia Dengue Voice & Action (ADVA) held its annual meeting for members in Singapore with 120 participants attending in person.

The objective of this meeting was to launch the ADVA Task Force with a publication in the study PLoS Negl Trop Dis 16(8): e0010586. This Task Force will include working groups responsible for various aspects involved in controlling dengue, such as surveillance, the collection and sharing of data, diagnosis, case management, the promotion of vaccines, education, and training.

Two webinars attended by more than 450 participants were also organized in 2022.

MEKONG HEPATITIS SYMPOSIUM

— Eradicating viral hepatitis by 2030

Center of Infectiology Lao Christophe Mérioux,
Vientiane, Laos
December 8

Every year, the Mérioux Foundation helps to organize a symposium on hepatitis in the Mekong region to **make progress in the fight against viral hepatitis B and C**. The 2022 event was organized in the form of a webinar bringing together around a 100 experts, researchers, and healthcare professionals from Laos, Cambodia, and Thailand, as well as around 50 people attending the event in person in Laos. This event received operational support from the Lyon Cancer Research Center, the Hospices Civils de Lyon, the Sorbonne University, the Institut Pasteur in Cambodia, and the University of Chiang Mai in Thailand.



GLOBAL PROGRAM FOR ELIMINATING HEPATITIS

■ In 2011, the WHO set up a global program for eliminating hepatitis by 2030, which has become part of the HIV/Aids, tuberculosis, malaria, and neglected tropical diseases group.

■ Viral hepatitis B and C affect more than 320 million people worldwide, causing 1.4 million deaths each year.

■ More than 80% of people suffering from hepatitis do not benefit from prevention, testing, and treatment services. Now that the cost of treatment has been significantly reduced in developing countries thanks to generics, the cost of diagnosis is becoming a limiting factor.

04 MOTHER & CHILD PROGRAMS



Working locally in the field to meet the needs of the populations most at risk, the Mérieux Foundation has gradually expanded its field of intervention to include the concept of global healthcare. It supports local projects in aid of vulnerable populations, particularly mothers and children, who are the primary victims of crises, instability and insecurity.

Faced with complex situations in the countries in which it operates, the Mérieux Foundation is committed to supporting local partners as they improve the living conditions of disadvantaged populations. These projects deal with access to healthcare, support for education and raising awareness of basic needs such as hygiene or food, all of which are prerequisites for making progress in public health and tackling infectious diseases.

Some of the achievements worth a particular mention include the construction of a Mother & Child health center in Lebanon in 2020 and the renovation of a maternity unit in Mali in 2022. Developed as part of a global healthcare approach (physical health services, psychosocial support), these flagship projects could be replicated in other countries with similar requirements.

MEETING THE NEEDS OF THE MOST VULNERABLE PEOPLE

In 2022, the Foundation formalized a dual intervention strategy – to continue deploying and supporting projects with its historic partners, as well as responding to emergency situations such as conflicts or natural disasters. To this end, aid was supplied to Moldova from spring 2022 to help the country host Ukrainian refugees (see p.12). Exceptional support was also provided for local associations assisting victims of the cyclone season in Madagascar.

These activities were mainly funded in 2022 by the Mérieux Foundation and the Fondation Christophe et Rodolphe Mérieux within the framework of a close partnership between the two foundations.

FONDATION CHRISTOPHE ET RODOLPHE MÉRIEUX

A key shareholder in the Institut Mérieux, the Fondation Christophe et Rodolphe Mérieux is an independent family foundation created in 2001 under the aegis of the Institut de France. It devotes most of its resources to funding projects in the field. It draws on the expertise and human resources of the Mérieux Foundation for the operational implementation of certain programs.

LEBANON INCREASED CAPACITY OF THE DURIS HEALTH CENTER

Access to healthcare

A project to build a primary healthcare center for mothers and children was launched in 2020 with the aim of improving maternal and infant health in the Beqaa Valley.

Coordinated by the Mérieux Foundation, this project is funded by the Department of International Cooperation of the Principality of Monaco and the Mérieux Foundation. The center is managed by the local NGO AMEL Association International and benefits from the support of the Governorate of Baalbek-Hermel and the municipality of Duris under the supervision of Lebanon's Ministry of Public Health.

Activities at the center were further developed in 2022, despite the crisis currently affecting Lebanon. Some of the achievements include:

- More than **13,000 patients** benefited from general and specialist consultations in 2022.
 - A volunteer dermatologist from the Mérieux Foundation stayed for five months to provide a screening program for dermatological problems, inform patients and train doctors working at the center on treatment protocols. More than **100 patients benefited from these consultations**.
 - Healthcare services were expanded to include **new medical (endocrinology) and paramedical (speech therapy and nutrition) specialist fields** available from September 2022 onwards.
- A dental practice and ophthalmological equipment were also introduced in November 2022.
- Several **awareness campaigns were organized for staff** at the center to teach them about infectious diseases (TB and cholera), cancer and mental health.
 - The Mother & Child room was adapted and fitted out to make it suitable **for training and support activities for women** (pregnant women and mothers) and children.



BURKINA FASO SUPPORT FOR THE GO PAGA ASSOCIATION

Access to education and healthcare

In 2022, the Mérieux Foundation started supporting the association Go Paga in Burkina Faso, which **helps the widows and orphans of soldiers** killed in combat, with funding from the Fondation Christophe et Rodolphe Mérieux. Since 2015, the deteriorating security context in the country has led to more than a thousand deaths among members of the defense and security forces, leaving many families without an income. Go Paga helps these families meet three fundamental needs: schooling, health insurance and psychological support.

In 2022, more than **500 orphans benefited from health insurance and 400 were provided with funding to cover school fees**. A daycare center was also built to provide a safe place and to provide mothers with training opportunities to help them develop an income-generating activity.

CAMBODIA SUPPORT FOR THE ENFANTS DU MÉKONG ASSOCIATION

Access to education and healthcare

Since 2010, the Mérieux Foundation, with the Fondation Christophe et Rodolphe Mérieux, has supported the **Dr Christophe Mérieux University Center** in Phnom Penh, managed by Enfants du Mékong. This center allows students from disadvantaged backgrounds to **continue their higher education and provides accommodation for the most vulnerable families** living in shanty towns. Since 2013, it has also provided places for nursery school children. After two years of being hit hard by the health crisis, activities at the center were almost back to normal in 2022 (face-to-face lessons, meals, workshops and out-of-school activities). In 2022, there were 157 students and 60 nursery school pupils at the center.

Since 2018, this funding has allowed Enfants du Mékong to run a **"Mother & Child" social project** providing individual support to help families gain financial independence (nutritional support, housing reconstruction, training and integration) by guaranteeing a safe emotional and physical environment for children. More than 180 families living in extreme poverty received regular aid in 2022 thanks to the distribution of food and hygiene kits. In addition, 61 mothers benefited from the distribution of milk for newborn babies and 21 construction/renovation projects were carried out during the year. As well as training in budget management for 118 families, 79 parents attended parenting courses and 19 social workers were trained in providing counseling services for young people and their parents.



MALI RENOVATION OF THE SIRAKORO HEALTH CENTER

Access to healthcare

The second phase of the aid program for the clinic in Sirakoro Meguetana on the outskirts of Bamako was finalized in 2022. Once the maternity unit had been transferred to a brand new building, which was opened in 2021, the initial building was renovated to improve the quality of patient care and the facilities. The **newly renovated community health center** opened its doors in March 2022.

This work was carried out with the financial support of the Fondation Christophe et Rodolphe Mérieux and with the help of teams from the Mérieux Foundation.



MALI - SENEGAL - BURKINA FASO STRONGER PARTNERSHIP WITH SAMUSOCIAL

Access to healthcare

Since 2005, the Mérieux Foundation has contributed towards Samusocial's activities in Mali, with the support of the Fondation Christophe et Rodolphe Mérieux, to help improve the care of children and young people facing serious exclusion. In 2009 this support was extended to include two other countries, Senegal and Burkina Faso, focusing mainly on the **provision of medical and psychosocial treatment and educational initiatives**.

In 2022, this aid allowed the three entities to organize 1,298 patrols providing medical, social and educational assistance to children and young people living in serious exclusion on the streets of Bamako, Ouagadougou and Dakar. This support also provided emergency housing for more than 1,400 children and young people in the Samusocial Senegal and Samusocial Burkina Faso centers and in accommodation organized by Samusocial Mali. Other achievements include the development of a day center in Ouagadougou providing access to sanitary facilities, medical and psychosocial consultations and sports and educational activities, as well as the purchase of a medical car for Samusocial Senegal. Over the course of 2022, a total of 4,536 children and young people benefited from at least one individual consultation, 339 were provided with support to get them off the streets, 87 were able to access a professional training program and 60 were given assistance in starting up their own professional activity.

MADAGASCAR OPENING OF THE FRENCH-ENGLISH LANGUAGE UNIVERSITY

Access to education

Since 2014, thanks to funding from the Fondation Christophe et Rodolphe Mérieux, the Mérieux Foundation has been supporting projects led by Akamasoa ("good friends"), a Madagascan association tackling poverty. These projects include the construction of a reception center, accommodation, a medical analysis laboratory and a high school. In 2022, construction work was completed on a French-English language university and the French and English languages building was officially opened on April 4, 2022. Located in the village of Vohitsara, it is already attended by **more than 1,000 students from poor families** from all regions of the island. A construction project for student housing has also begun.

The Mérieux Foundation is also working with Akamasoa on programs for health education and access to healthcare and hygiene to improve living conditions in the villages surrounding Antananarivo.



► SMALL GRANTS 2022

The Mérieux Foundation's Small Grants program is a €50,000-a-year fund that awards grants of up to €5,000 to small organizations and individual projects with a strong local impact. Two application review sessions are held each year.

Ten projects received support in 2022:

■ Support for primary healthcare facilities

- Modernization of the laboratory at the health outpost in Sombo, DRC, to improve access to primary healthcare for children (Baptist Community of the Congo River)
- Prevention of the transmission of HIV from mothers to children in the Uvira health zone in the DRC (Group of Volunteers for the Promotion of Safe Motherhood)
- Supply of solar power for the maternity unit at the Mfouladja health center in Cameroon (Membwa Actions Jeunes)

■ Education and training

- Training for people with a physical disability to help them set up income-generating activities in Cameroon (Solidarité des Handicapés)
- Awareness campaigns to tackle measles in the town of Manona in the DRC (Coalition of Anti-Slavery Civil Society Organizations)
- Project to help women gain independence with the aim of increasing the participation of the most excluded groups in Kanyosha, Burundi, by providing training in mental health and income-generating activities (Tabitha Community in Action)

■ Global health actions (WASH & Nutrition)

- Tackling infectious diseases by improving basic water management, hygiene and sanitation practices among communities in the municipality of Abomey-Calavi in Benin (Vidécon Environnement NGO)
- Project to support families in Siem Reap, Cambodia, to improve nutrition, income and knowledge about health (Human and Hope Association)
- Access to water and sanitation for a primary school in Antanetibe in Madagascar (Un Enfant Par la Main)
- Construction of toilet blocks and modern, sustainable wells in public schools in the rural community of Isandrandahy Ambony in Madagascar (Tafita association)

2022 GOVERNANCE

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 - **Aline FRIMON-RICHARD**
Director of Finance & Operations
 - **Allegra MOKKENTHIN**
Program and Operations Officer

2022 FUNDING PARTNERS

“Building on our expertise in biology, we are working closely with international and local partners as part of multidisciplinary, complementary and, above all, concerted approaches with a long-term perspective.”

ALAIN MÉRIEUX

To successfully carry out its development projects in LMICs and ensure they produce sustainable results, the Mérieux Foundation brings together national and international public and private partners with local organizations. The trust and commitment of its new or long-standing partners have made it possible for the Foundation to help local stakeholders in their fight against infectious diseases. The Mérieux Foundation thanks them warmly for their support.

REGIONAL, NATIONAL & INTERNATIONAL INSTITUTIONS

- Agence Française de Développement (AFD)
- Coalition for Epidemic Preparedness Innovations (CEPI)
- Defense Threat Reduction Agency (DTRA)
- Department of Foreign Affairs and Trade, Australian Government (DFAT)
- Department of International Cooperation of Prince's Government of Monaco
- Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)
- European Commission
- Expertise France
- Fleming Fund: UK Department of Health and Social Care via Mott McDonald
- Global Fund via UMRSS (Unité de mise en œuvre du renforcement du système de santé), Mali
- Horizon 2020 (European Commission)
- IFPMA (International Federation of Pharmaceutical Manufacturers and Associations)
- Infectious Disease Detection and Surveillance (IDDS-USAID)
- International Development Association (IDA) via WAHO
- International Organization for Migration (IOM)
- L'Initiative (Expertise France)
- Luxembourg Government Aid and Development Agency (LuxDev)
- Région Auvergne-Rhône-Alpes
- Swedish International Development Cooperation Agency (Sida)
- The Joint Programming Initiative on Antimicrobial Resistance (JPIAMR)
- U.S. Centers for Disease Control and Prevention (CDC)
- UK Foreign Commonwealth Development Office (FCDO)
- United States Agency for International Development (USAID)
- World Health Organization (WHO)

FOUNDATIONS & NGOS

- Bill & Melinda Gates Foundation
- Chinese Red Cross
- Fondation AnBer
- Fondation Christophe et Rodolphe Mérieux
- Fondation Pierre Fabre
- Fondation Raoul Follereau
- Fondation Saint-Irénée
- French Red Cross
- Global Alliance for Rabies Control (GARC)
- IPHARMEX
- The Global Fund to Fight AIDS, Tuberculosis and Malaria

UNIVERSITIES & RESEARCH INSTITUTES

- Emerging Infectious Diseases (ANRS)
- French National Research Agency (ANR)
- Institut de Recherche pour le Développement (the French National Research Institute for Sustainable Development)
- Oxford University
- University of Geneva

INDUSTRY & COMPANIES

- bioMérieux
- Cepheid
- CNine
- GlaxoSmithKline Biologicals (GSK)
- Illumina
- Institut Mérieux
- Janssen Vaccines & Prevention (JNJ)
- Merck/MSD
- Pfizer
- Roche
- Sanofi Pasteur
- Serum Institute of India
- Shearman & Sterling
- Société M.B.D.
- Takeda

2022 ACCOUNTS & KEY FIGURES

BALANCE SHEET

ASSETS (K€)	NET DEC. 31, 2022	NET DEC. 31, 2021
FIXED ASSETS		
Intangible fixed assets	875	1,158
Property, plant and equipment	4,396	4,536
Investments and other financial assets	45,436	38,541
TOTAL	50,706	44,235
CURRENT ASSETS		
Accounts receivable	909	952
Other receivables	13,302	17,560
Marketable securities	38,600	38,600
Cash and cash equivalents	16,616	22,441
Prepaid expenses	2,202	4,591
Unrealized exchange losses	6	2
TOTAL	71,635	84,146
TOTAL ASSETS	122,341	128,381
LIABILITIES AND FUND BALANCE (K€)	DEC. 31, 2022	DEC. 31, 2021
FUND BALANCE		
True endowment	68,216	68,216
Reserves	884	884
Retained earnings	15,437	9,003
Net income / loss for the period	203	6,433
Other endowment	7	7
TOTAL	84,747	84,544
QUASI ENDOWMENT		
Allowance for contingencies	117	238
Funds reserved for future engagements	2,200	3,961
TOTAL	2,318	4,199
LIABILITIES		
Loans	5,438	5,010
Accounts payable	3,270	1,541
Tax and social debts	1,704	1,719
Investment payable	-	228
Other payable	5,502	4,318
Deferred income	19,361	26,819
Unrealized exchange gains	2	3
TOTAL	35,276	39,638
TOTAL LIABILITIES AND FUND BALANCE	122,341	128,381

INCOME STATEMENT

(K€)	ACTUAL 2022	ACTUAL 2021
INCOME		
Services revenue	957	165
Income from third-party funders	19,021	20,310
Expenses refund	179	1,073
Other operating income	135	87
Use of dedicated funds	3,961	3,645
TOTAL INCOME	24,253	25,280
EXPENSES		
External purchases and expenses	14,214	13,240
Financial aid	4,348	3,869
Taxes and duties	891	765
Salaries and social contributions	6,718	5,749
Depreciations	760	719
Dedicated funds carried over	2,200	3,961
Other operating income	263	102
TOTAL EXPENSES	29,393	28,404
OPERATING RESULTS	-5,140	-3,124
FINANCIAL INCOME		
Dividends	884	911
Other financial income	5,210	3,687
Reverse on financial allowances	52	324
Net income from marketable securities	-	5,000
TOTAL FINANCIAL INCOME	6,147	9,922
FINANCIAL EXPENSES		
Financial allowances	227	170
Other financial expenses	537	118
TOTAL FINANCIAL EXPENSES	764	288
FINANCIAL RESULTS	5,383	9,634
EXCEPTIONAL INCOME		
Exceptional income	-	44
Exceptional reverse in allowances	97	-
TOTAL EXCEPTIONAL INCOME	97	44
EXCEPTIONAL COSTS		
Exceptional expenses	137	2
Exceptional allowances for contingencies	-	117
TOTAL EXCEPTIONAL COSTS	137	120
EXCEPTIONAL RESULT	-40	-76
Income tax	-	-
TOTAL INCOME	30,496	35,246
TOTAL EXPENSES	30,294	28,812
INTERMEDIATE BALANCE	203	6,433

2022 ACCOUNTS & KEY FIGURES



BREAKDOWN OF EXPENSES

• Excluding provisions and exceptional expenses

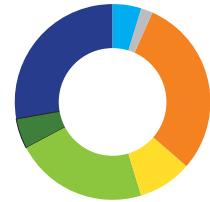
Missions	74 %
Administration	20 %
International support	6 %



BREAKDOWN OF EXPENSES BY STRATEGIC AREA OF FOCUS

• Excluding provisions and exceptional expenses

Diagnostics – Health Systems	70%
Applied Research	15%
Knowledge sharing	9%
Mother & Child Programs	6%



GEOGRAPHICAL SEGMENTATION OF ACTIVITIES

Africa	30%
Europe ⁽¹⁾	28%
Asia	22%
Madagascar	9%
Middle East	5%
Haiti	5%
South America	2%

⁽¹⁾ Activities carried out by teams based in Europe, in or for the other countries (including coordination)



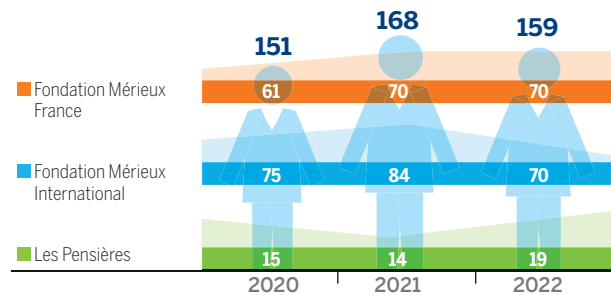
BREAKDOWN OF INCOME

• Excluding dedicated funds, provisions and non-recurring items

Public partnerships	29%
Sponsorship	26%
Other private partnerships	24%
Financial products & Real estate income	20%
Fondation Christophe et Rodolphe Mérieux	1%
Donations & legacies Dons et legs	0%

CHANGES IN HEADCOUNT* AS AT DECEMBER 31, 2022

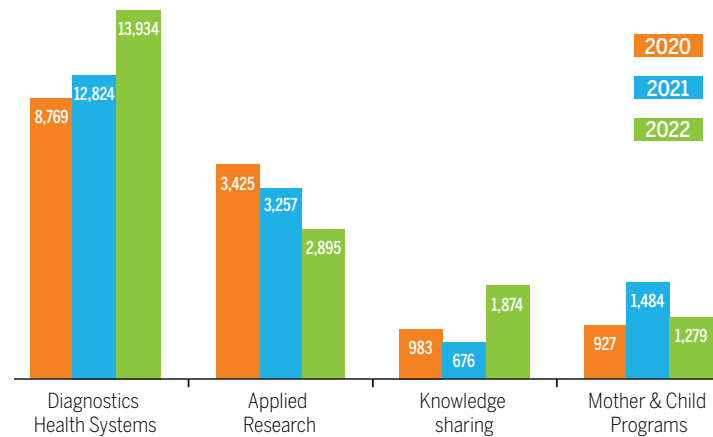
159 employees worldwide**



* Full-time equivalents
** Excluding interns, temporary employees

EVOLUTION OF EXPENSES BY STRATEGIC AREA OF FOCUS

• In K€, excluding depreciation, provisions, financial expenses and future engagement



Deloitte

Fondement de l'opinion

FONDATION MERIEUX

Fondation reconnue d'utilité publique
17 rue Bourgelat
69002 LYON

Statutory auditor's report on the financial statements

For the year ended 31 December 2022

To the Board of FONDATION MERIEUX

Opinion

In compliance with the engagement entrusted to us by your Board of Directors, we have audited the accompanying financial statements of FONDATION MERIEUX for the year ended 31 December 2022.

In our opinion, the financial statements give a true and fair view of the assets and liabilities and of the financial position of the Foundation as at 31 December 2022 and of the results of its operations for the year then ended in accordance with French accounting principles.

This is a translation into English of the statutory auditor's report on the financial statements of the Foundation issued in French and it is provided solely for the convenience of English speaking users.
This statutory auditor's report includes information required by French law, such as information about the appointment of the statutory auditor or verification of the management report and other documents provided to members.
This report should be read in conjunction with, and construed in accordance with, French law and professional auditing standards applicable in France.

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Basis for Opinion

Audit Framework

We conducted our audit in accordance with professional standards applicable in France. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Our responsibilities under those standards are further described in the "Statutory Auditor's Responsibilities for the Audit of the Financial Statements" section of our report.

Independence

We conducted our audit engagement in compliance with independence requirements of the French Commercial Code (code de commerce) and the French Code of Ethics (code de déontologie) for statutory auditors, for the period from January 1st, 2022 to the date of our report.

Justification of Assessments

In accordance with the requirements of Articles L.823-9 and R.823-7 of the French Commercial Code (code de commerce) relating to the justification of our assessments, we inform you of the following assessments that, in our professional judgment, were of most significance in our audit of the financial statements of the current period.

These matters were addressed in the context of our audit of the financial statements as a whole, approved in the conditions mentioned above, and in forming our opinion thereon, and we do not provide a separate opinion on specific items of the financial statements.

The note "Accounting principles, methods and rules" to the financial statements sets out in particular the accounting rules and methods relating to the valuation of Investments. As part of our assessment of the accounting rules and principles followed by your Foundation, we have verified the appropriateness of the accounting methods referred to above and the information provided in the notes to the financial statements, and have ensured that they are correctly applied.

Specific verifications

We have also performed, in accordance with professional standards applicable in France, the specific verifications required by French law and regulations.

We have no matters to report as to the fair presentation and the consistency with the financial statements of the information with respect to the financial position and the financial statements given in the management report of the Treasurer and in the other documents provided to the Board members.

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Responsibilities of Management and Those Charged with Governance for the Financial Statements

Management is responsible for the preparation and fair presentation of the financial statements in accordance with French accounting principles, and for such internal control as management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, management is responsible for assessing the Foundation's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless it is expected to liquidate the Foundation or to cease operations.

The financial statements were approved by the Treasurer.

Statutory Auditor's Responsibilities for the Audit of the Financial Statements

Our role is to issue a report on the financial statements. Our objective is to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with professional standards will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of these financial statements.

As specified in Article L. 823-10-1 of the French Commercial Code (code de commerce), our statutory audit does not include assurance on the viability of the Foundation or the quality of management of the affairs of the Foundation.

As part of an audit conducted in accordance with professional standards applicable in France, the statutory auditor exercises professional judgment throughout the audit and furthermore:

- Identifies and assesses the risks of material misstatement of the financial statements, whether due to fraud or error, designs and performs audit procedures responsive to those risks, and obtains audit evidence considered to be sufficient and appropriate to provide a basis for his opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.
- Obtains an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the internal control.
- Evaluates the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by management in the financial statements.

3 | FONDATION MERIEUX | Statutory auditor's report on the financial statements | For the year ended 31 December 2022

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- Assesses the appropriateness of management's use of the going concern basis of accounting and, based on the audit evidence obtained, whether a material uncertainty exists related to events or conditions that may cast significant doubt on the Foundation's ability to continue as a going concern. This assessment is based on the audit evidence obtained up to the date of his audit report. However, future events or conditions may cause the Company to cease to continue as a going concern. If the statutory auditor concludes that a material uncertainty exists, there is a requirement to draw attention in the audit report to the related disclosures in the financial statements or, if such disclosures are not provided or inadequate, to modify the opinion expressed therein.
- Evaluates the overall presentation of the financial statements and assesses whether these statements represent the underlying transactions and events in a manner that achieves fair presentation.

Lyon, 31 May 2023

The Statutory Auditor

French original signed by

Il nous appartient d'établir un rapport sur les comptes annuels. Notre objectif est d'obtenir l'assurance raisonnable que les comptes annuels pris dans leur ensemble ne comportent pas d'anomalies significatives. L'assurance raisonnable correspond à un niveau élevé d'assurance, sans toutefois garantir qu'un audit réalisé conformément aux

Amauld de GASQUET

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2022 KEY FIGURES

- **More than 50 years in the fight against infectious diseases**
- **4 areas of intervention**
- **25 countries where we work**
- **159 employees in 16 countries**
- **An annual budget of over 27 million euros**
- **More than 100 ongoing projects in development or support**
- **17 laboratories of excellence built or under construction, and transferred to local partners, including 12 Rodolphe Mérieux Laboratories since 2004**
- **More than 70 laboratories renovated since 2005**
- **16 scientific conferences and workshops organized worldwide**
- **4 advanced courses for public health experts**



*Discover our
annual report
online!*

PHOTOS

- Amel Association
- Association Fitia
- Go Paga
- Les Pensières
- Martin Grosjean
- Mérieux Foundation
- Olivia Mérieux
- Robert Sebbag
- Sango
- Studio Prezzo

WRITING

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