

2019 ANNUAL REPORT



ROOTS FOR LIFE



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PRESENTATION OF THE FOUNDATION

The world is undergoing profound changes, leading to crises, which impact and multiply in all regions. Whether political, demographic, economic or even climatic in nature, all crises contribute to worsening the health conditions of affected populations, creating an ideal breeding ground for epidemics. Here again, developing countries are the hardest-hit, with mothers and children at the forefront.

This is why the Mérieux Foundation, an **independent family foundation with public interest status**, has been fighting infectious diseases affecting vulnerable populations in developing countries for over 50 years.

The foundation works closely with **Fondation Christophe et Rodolphe Mérieux**, 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.

Taking a global health approach, the **Mérieux Foundation** looks beyond medical care to address the health and socio-economic issues that compromise the well-being of populations in countries where it operates.

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.

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

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

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

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

Improving conditions for mothers and children taking a global health approach.

60% of child deaths
in developing countries are due to
infectious diseases

► 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



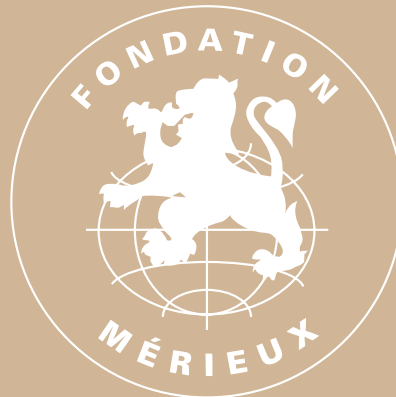
HAITI

Rodolphe Mérieux Laboratory of Port-au-Prince
-> 1 volunteer



BRAZIL

Rodolphe Mérieux Laboratory Charles Mérieux Center for Infectious Disease in Rio Branco



FRANCE

LYON
Emerging Pathogens Laboratory
BSL4 Jean Mérieux Inserm
ANNECY
Les Pensières Center for Global Health

TUNISIA

BSL3 Laboratory within the Institut Pasteur unit of Tunis



MALI

Rodolphe Mérieux Laboratory Charles Mérieux Center for Infectious Disease in Bamako
-> 1 expatriate and 5 Malian employees

BURKINA FASO: 2 Burkinabe employees

GUINEA: 16 Guinean employees

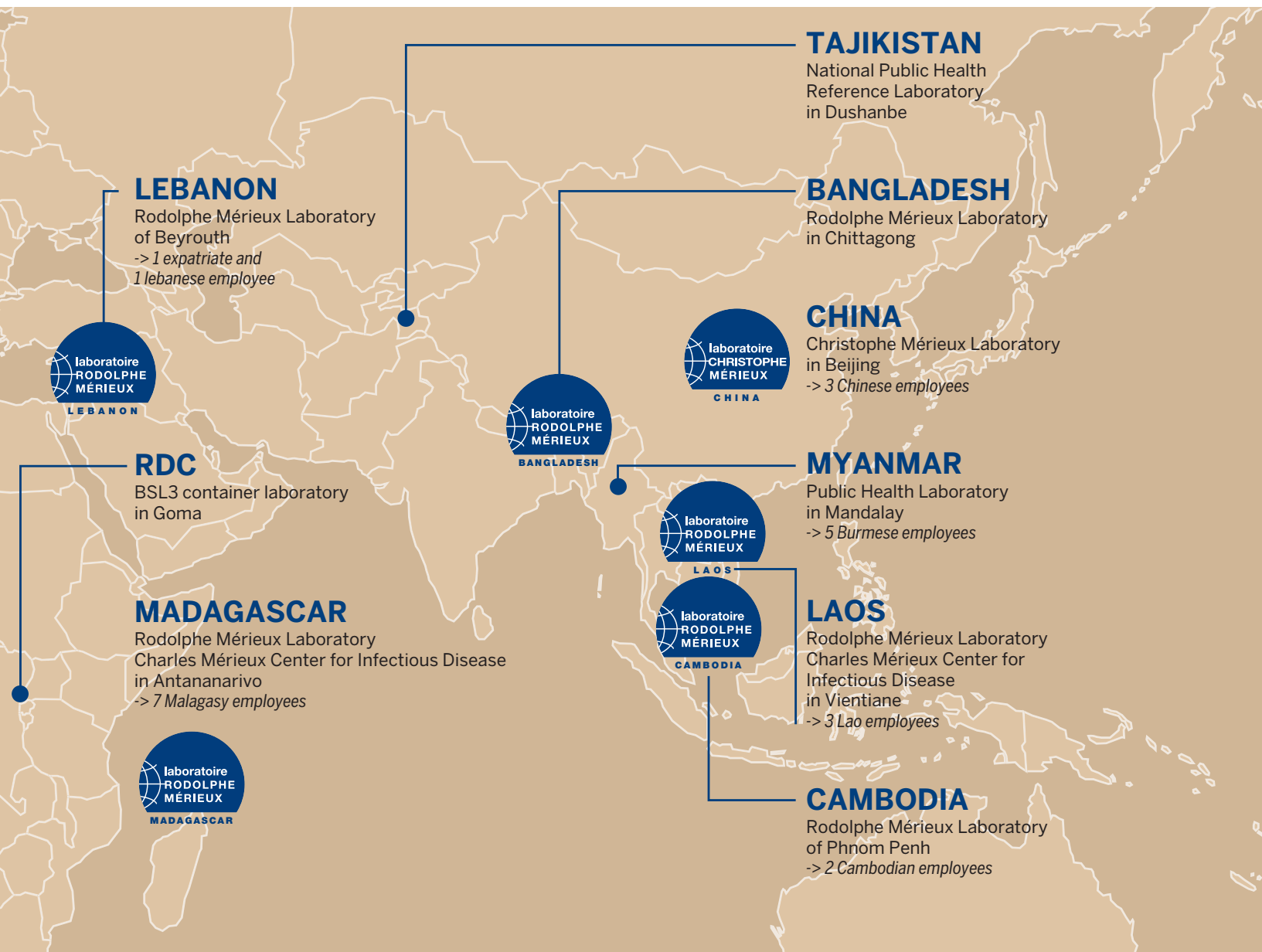
NIGER: 1 expatriate (non resident) and 3 Nigerian employees

SENEGAL: 2 expatriates and 3 Senegalese employees

TOGO: 2 Togolese employees

2019 KEY FIGURES

- 25 countries where we work
- 23 training centers built or renovated
- 19 applied research units
- Over 25 collaborative research programs
- 17 laboratories built including 9 Rodolphe Mérieux Laboratories
- 34 laboratories renovated
- 4 mobile laboratories or containers deployed
- 4 health centers built or renovated
- 14 scientific conferences and 3 advanced courses
- 127 employees in 13 countries
- An annual budget of over 21 million euros





Alain Mérieux,
President

“A global vision for the fight against infectious diseases, based on long-term, borderless cooperation.”

The COVID-19 epidemic reminds us of the ever-present threat of infectious disease, significantly increased by globalization. An epidemic that originated at the other side of the world has rapidly become, through the multiplication and acceleration of international trade and mobility, a pandemic affecting both industrialized and low-income countries.

Faced with an unknown pathogen for which there is no vaccine or treatment, diagnostic testing has emerged as a crucial tool in the response to the COVID-19 pandemic. This was also the case during the Ebola outbreak that struck West Africa in 2014, for which the responsible virus was identified at the Jean Mérieux-Inserm BSL4 Laboratory.

By detecting and identifying the pathogen, diagnostic testing is essential for epidemiologists and clinicians. It enables them to improve patient care and follow-up, and to decide whether quarantine and contact-tracing is necessary. On a more global level, it sheds light on public health strategies by helping authorities establish appropriate control strategies.

Clinical biology laboratories are thus at the forefront of the fight against epidemics in a battle that must be fought globally, as viruses and bacteria know no borders.

The relevance of the Mérieux Foundation's strategy, aimed at strengthening the health infrastructure of disadvantaged countries, particularly diagnostic testing capacities, has come to the fore.

It is essential to have an international network of sentinel laboratories in countries in Asia and Africa where many epidemics emerge. Giving particularly exposed populations in these countries access to reliable diagnostic testing to fight epidemics is essential if we are to deploy effective and long-term public health policies.

The stakes are even more critical in regions confronted with conflict and geopolitical instability, where the health risks are greater.

For more than 15 years, the Mérieux Foundation has been deploying a sentinel network in countries with limited

resources whose health systems are often fragile. This is always done hand in hand with local health authorities and partners, as is the case in West Africa, Madagascar, Haiti, Latin America, Asia and the Middle East. Our network includes close to a dozen reference laboratories.

In these countries, in addition to strengthening diagnosis and as part of a global health approach, we also help the most vulnerable through specific mother-child programs.

I would like to take this opportunity to recognize Benoît Miribel for the work he accomplished as Director General of our foundation for 12 years, and for his role in building this network.

During the COVID-19 crisis, we have worked with our partners in the field to ensure they have the necessary support and diagnostic tests. As infectious diseases are fought on many fronts, we also took action last October, in the Democratic Republic of the Congo, by sending a mobile diagnostic laboratory to fight the Ebola outbreak that was raging in Goma and which is now re-emerging at a major crossroads for population exchange, which is further spreading the epidemic.

In 2020, thanks to an exceptional donation of 12 million euros from bioMérieux, we will enhance the foundation's proven model of creating clinical biology laboratories in countries that have expressed the need for them, entrusting them to local scientists, and deploying mother-child programs.

We will thus bring new technological resources to existing infrastructure and open laboratories in Burkina Faso, at the Institut Pasteur of Morocco, and in the Republic of the Congo in Brazzaville. This will bring the number of sentinel laboratories in our network to 15.

Jean-Pierre Bossier joined us as Director General last September, and I know that he shares the same vision for the future of our foundation and its public health mission. A global vision for the fight against infectious diseases, based on long-term, borderless cooperation.





“... Indeed,
I firmly believe that
we are acting for a noble
cause, focused on health
for all.”



Jean Pierre Bosser,
Director General

For several months now, I have had the honor and pride of leading the Mérieux Foundation, an institution upholding important values, heir to a long public health history and driven by high-level humanist and scientific projects.

Even before my arrival at the foundation, I perceived in the eyes of others, the recognition and respect that the foundation inspires. This is an opportunity for me to salute the actions carried out by my predecessors, Bernard Sinou and Benoit Miribel.

Indeed, I firmly believe that we are acting for a noble cause, focused on health for all and truly contributing to the security and development of the countries we support and, of course, to the quality of life of their populations. I am thinking of those who are most vulnerable, namely women and children, and of the poorest countries.

It is with the ambition to always be as close as possible to needs in the field that the foundation has, for more than fifty years, built close and complementary relationships with both local and international partners, laying the groundwork for a long-term engagement in the countries where it operates.

More recently, the upheavals that have severely challenged health systems in the face of Covid-19 have highlighted the importance of having a presence in the field and the responsiveness made possible by long-standing trust established between health actors.

The pandemic we are facing makes a global and comprehensive approach to healthcare, sharing expertise, transferring skills and training resonate strongly. Working through networks, a pillar of the foundation's action, is particularly valuable in this context. It makes a coordinated response possible, even in an emergency, and gives the actions initiated a substantial impact.

Beyond this crisis, this year has been marked by transition, renewal and acceleration at the foundation. We are living in an everchanging environment, punctuated by health emergencies and growing needs, especially in the field of biology. We can capitalize on the lessons learned in recent years, particularly in developing our area of intervention, but we also need to keep adapting.

It is with the support of a solid base, comprising a Board of Directors, a Finance Committee and a Scientific Advisory Board of the highest level, and backed by the strong commitment of the foundation's President, that I wish to set out new perspectives. Carried out by our teams in France and abroad, they will strengthen the foundation's organization, while remaining true to its trailblazing spirit and humanitarian commitment to Act, Unite, Support and Empower.



COVID-19

THE MÉRIEUX FOUNDATION TAKES ACTION IN THE FIELD

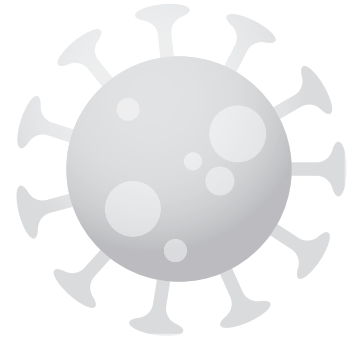
In the fight against infectious diseases, the Mérieux Foundation has always worked as closely as possible with local partners in the field. From the first COVID-19 epidemic alerts, the foundation took action to provide aid adapted to the low-income countries where it works.

First reported on December 31, 2019 in Wuhan, China, the Coronavirus disease 2019 (COVID-19) rapidly reached global epidemic proportions and destabilized some of the world's most robust health systems. True to its commitment to public health in developing countries, the Mérieux Foundation, with its partners, mobilized resources to respond to the crisis. The foundation has made the fight against COVID-19 a priority, by massively dispatching diagnostic tests, launching or expanding projects and supporting local health authorities.

STRENGTHENING LOCAL DIAGNOSTIC CAPACITIES

Diagnostic kits that are essential for identifying patients and implementing effective quarantine measures were sent to fourteen laboratories in thirteen countries between March and June. A program of training and technology transfer was set up to support local laboratories in performing these tests: transmission of operating procedures and WHO recommendations on bio-safety, dispatch of protective equipment and disinfectants, and organization of training teleconferences with each laboratory.

To ensure sufficient volumes to meet demand, the foundation has provided **two different detection kits**: one developed by the Charité laboratory in Berlin, validated by the WHO, and the other developed by the Christophe Mérieux Laboratory in Beijing, validated by the Chinese CDC (test used for all COVID-19 screening in China).



➔ RODOLPHE MÉRIEUX LABORATORIES AT THE HEART OF THE FIGHT AGAINST COVID-19

- **The Rodolphe Mérieux Laboratory in Beirut** was mandated by the Lebanese Ministry of Health to carry out COVID-19 screening alongside the Rafik Hariri University Hospital laboratory.

- In Brazil, **the Rodolphe Mérieux Laboratory in Rio Branco** is the only facility in the State of Acre responsible for the COVID-19 testing (by the end of May 2020, nearly 12,000 tests had been performed). It has been integrated into the State's public health network.

LIMITING NOSOCOMIAL INFECTIONS

To address the high circulation of COVID-19 within healthcare structures, the Mérieux Foundation and the Lyon Civil Hospitals (Hospices Civils de Lyon) developed the NOSO-COR research protocol to assess the risk of nosocomial transmission.

The project, which receives funding from the Bill & Melinda Gates Foundation, will document cases of COVID-19, nosocomial transmission processes, and hospital infection prevention and control practices and policies.

The foundation manages the protocol implementation in seven countries on three continents (Mali, Senegal, Côte d'Ivoire, Guinea, Burkina-Faso, Madagascar, Bangladesh, Brazil, Lebanon) and the The Lyon Civil Hospitals is responsible for the implementation in eight French University Hospitals.

PROVIDING PUBLIC HEALTH ADVICE

Throughout the crisis, the foundation's experts have been in regular contact with healthcare decision-makers and professionals in the field, particularly through its laboratory networks.

By providing individualized support, in close connection with those working in the field, the foundation's teams facilitated and guided the work of laboratory personnel. They provided advice both on testing - choice of tests to be used, handling of samples, transport protocols - and on the screening strategies and response policies to be implemented at the national level.

A special effort was made regarding biosafety in the face of a disease that is highly contagious, with strong support for the implementation of local production of hydroalcoholic solution.

- The foundation has also been asked by the Laboratory Directorates to address issues related to diagnostic strategy and the development of public health interventions.



ADAPTING CURRENT PROJECTS

Several projects already initiated have benefited from additional top-up payments or budget reallocation to respond to the COVID-19 emergency.

This responsiveness and adaptability owe much to the mutual trust between the foundation and its funding partners - a strength of the foundation that made a tremendous difference in the context of the health crisis of Spring 2020.

This emergency funding included:

- L'AFD (Agence Française de Développement) has allocated an additional envelope to support the Laboratory Directorates of the seven member countries of the **RESAOLAB program**, and has allocated COVID-19 funding to the **LABOGUI project** in favor of 39 hospital laboratories in Guinea (protective equipment, reagents and disinfectants).

- AFD is also helping the **GHESKIO Centers in Haiti**, the Mérieux Foundation's longstanding partner, to strengthen diagnostic capacities and provide technical assistance to the Public Health Laboratory.

- Expertise France provided additional funding to introduce a COVID-19 component to the **APRECIT project in Madagascar and Cameroon**. APRECIT, whose initial objective was to compare tuberculosis screening strategies, now integrates COVID-19 screening tests and will analyze the interactions between the two pathologies.

- Expertise France is funding a COVID-19 extension to the **EVAMAD project in Madagascar** which focuses on increasing the coverage of HIV viral load testing: prevention and initiation of a study on HIV/COVID-19 co-infection.

► SOLIDARITY ACTIONS IN FRANCE

The Mérieux Foundation also intervened in France through two solidarity actions:

- Thanks to the coordination of the foundation and its office in China, **30,000 FFP2 protective masks** were sent by the China Red Cross to the Auvergne-Rhône-Alpes Region in May.

- The Pensières Center for Global Health took part in local solidarity efforts **by providing meals** for the Ancey-Genevois Hospital's **medical teams** working the night shift at the height of the crisis.

FIGHTING ANTIMICROBIAL RESISTANCE, A GLOBAL PUBLIC HEALTH EMERGENCY

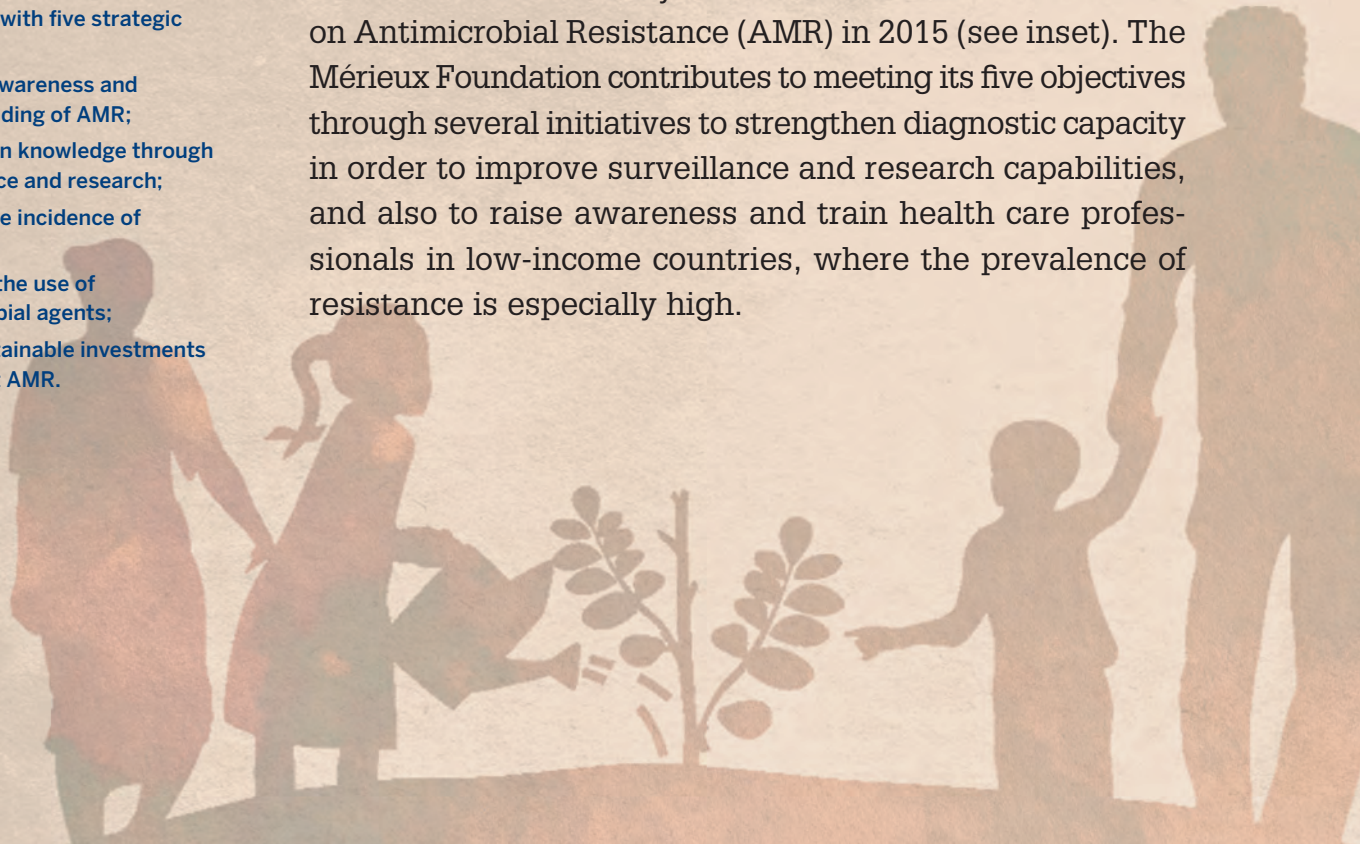
GLOBAL ACTION PLAN ON ANTIMICROBIAL RESISTANCE

Worldwide, antimicrobial resistance causes 700,000 deaths each year, and this figure could reach 10 million by 2050 (source: Review on Antimicrobial Resistance 2014). To respond to this challenge, the World Health Assembly endorsed a Global Action Plan with five strategic objectives:

- Improve awareness and understanding of AMR;
- Strengthen knowledge through surveillance and research;
- Reduce the incidence of infection;
- Optimize the use of antimicrobial agents;
- Make sustainable investments to combat AMR.

Even though antibiotics and, more widely, antimicrobials have significantly reduced mortality due to infectious diseases during the 20th century, their large-scale and repeated use has led to the appearance of resistant and even multi-resistant bacteria, viruses and parasites that no longer respond to treatment.

In view of the growing number of resistant microbes, the World Health Assembly launched the Global Action Plan on Antimicrobial Resistance (AMR) in 2015 (see inset). The Mérieux Foundation contributes to meeting its five objectives through several initiatives to strengthen diagnostic capacity in order to improve surveillance and research capabilities, and also to raise awareness and train health care professionals in low-income countries, where the prevalence of resistance is especially high.



STRENGTHENING SURVEILLANCE

By setting up laboratory networks for blood culture and antibiotic susceptibility testing, the Foundation contributes not only to improving patient care but also to better understanding AMR and to monitoring control policy measures. Data from the network helps to guide health authorities as they implement national action plans, as in Madagascar through the RESAMAD hospital surveillance network.

In West Africa, the third phase of the RESAOLAB program (which today connects over 700 laboratories in seven countries) is highlighting antibiotic resistance through training and grants to earn antibiotic therapy qualifications. The Foundation also received support from the Fleming Fund* to strengthen laboratory capacity in Laos with WHO and LOMWRU (Lao-Oxford-Mahosot Hospital-Wellcome Trust Research Unit). A similar project should be carried out in Myanmar. In Haiti, a pilot project was launched in 2019 to allow the country's laboratory information systems use the WHO's GLASS** protocol.

FINANCING RESEARCH PROGRAMS

In order to better understand the causes of antimicrobial resistance, the Foundation takes part in a number of research projects alongside partner organizations. Several studies are targeting resistant and multi-resistant tuberculosis, in Georgia and in Mali for example, and through the HINTT research project conducted in five countries in the GABRIEL network.

In Southeast Asia, as part of the COMPARE project, the Foundation is participating in a study to more effectively identify the source and transmission of highly-resistant *Salmonella Typhi*. In West Africa, a study of the prevalence of antibiotic resistance is being conducted with the AMRIWA consortium (Burkina Faso, Ghana and Benin). Also ongoing: surveillance of resistance in Madagascar, as part of the Tricycle project, and in Togo and Burkina Faso through the OASIS (One Health AMR Surveillance through Innovative Sampling) study.

*UK Aid program for the fight against antimicrobial resistance in low-income countries

**GLASS: standardized global system for data collection, analysis and sharing which pools clinical, epidemiological and laboratory data on the pathogenic agents representing the greatest threats to public health

OPTIMIZING ANTIBIOTIC USE

Several programs led or supported by the Foundation are helping to raise awareness about the appropriate use of antibiotics, such as in China with the CARE program, in partnership with the Chinese medical association. Some research programs also result in recommendations being issued to doctors on the front line, such as in Bangladesh in the Rohingya refugee camps, where the Foundation is conducting a study on the etiology of acute respiratory infections. This is also the case in Cameroon and Madagascar, where the APRECIT project on the detection of latent tuberculosis aims to reduce the number of cases of active tuberculosis and limit the use of antibiotics, thus helping to reduce the risk of resistance.

More generally, the Foundation is working to implement cross-cutting approaches to foster dialogue between medical laboratories and the health care offer. In Lebanon and in Mali, the Foundation has made it possible to set up laboratories performing antibiotic susceptibility tests for tuberculosis patients nationwide.



DEVELOPING TRAINING

In 2019, the Mérieux Foundation and the Paris-Diderot University Faculty of Medicine launched an intensive course on antibiotic resistance. The course aims to build decision-making capabilities and help developing countries to devise their national action plans.

The first course was held from November 3 - 8, 2019, at Les Pensières center for Global Health near Annecy (France).

It will take place once a year and the Foundation is exploring ways to organize satellite classes in Africa and Asia.

01 ACCESS TO DIAGNOSIS



Disease diagnosis is an essential prerequisite to providing appropriate patient care and follow-up, and it lies at the heart of health challenges in developing countries.

The scarcity of medical laboratories, the state of dilapidation of existing facilities, and their lack of resources all impact the care given to patients. They also weaken health systems and compromise the surveillance, monitoring and control of epidemics.

In view of the shortcomings of the laboratory systems in the most vulnerable countries, the Mérieux Foundation has made access to diagnosis one of its priorities. This commitment consists of strengthening human, material and technical support and financial resources through actions targeting the most important local needs, as part of joint efforts with governments, national and international organizations, both private and public. The Mérieux Foundation brings together biologists and health professionals to work on projects to provide support and develops systemic approaches involving all the laboratories in a given geographic area.

All of these projects are driven by a common objective: to help to set up quality medical biology laboratories involved in the diagnosis and surveillance of infectious diseases, and the fight against antimicrobial resistance.

The Mérieux Foundation's support covers the overall running of medical biology activities, with a view to developing the quality and self-reliance of laboratories:

- Creating appropriate environments for biological examinations (infrastructure, equipment, computer systems, waste management, etc.);
- Developing skills to improve biological diagnostics;
- Improving infrastructure management and efficiency (cost recovery system, audits);
- Providing support for authorities to build a laboratory system that will serve an entire region, improve access to diagnosis and bolster disease prevention and monitoring (supervision, laboratory policy, mapping, epidemiological surveillance, information network and sharing).

THE MÉRIEUX FOUNDATION'S FOCUS ON LABORATORIES AND DIAGNOSTICS

- 51 laboratories built or renovated
- 23 training centers built or renovated
- 4 mobile or container laboratories deployed
- 40 consultancy projects on behalf of partners such as WHO, the United Nations Development Program (UNDP), and the Global Fund to Fight Aids, Tuberculosis and Malaria.



SHIPPING CONTAINER LABORATORIES TO DRC

COMBATING THE EBOLA VIRUS DISEASE EPIDEMIC

With the Ebola virus disease epidemic hitting the Kivu region and at the request of the Congolese authorities, the Mériex Foundation and its partners shipped three prefabricated laboratories in containers to the Democratic Republic of the Congo in 2019. This type of equipment, which can be set up to operate almost immediately, makes it possible to rapidly start diagnostic testing and has been identified as the most appropriate means of responding to the health emergency.

FUTURE RODOLPHE MÉRIEUX LABORATORY

Three containers were shipped in October 2019:

- **One level-3 sealed laboratory (BSL3)** for handling biological samples potentially infected by the Ebola virus (or other highly pathogenic infectious agents) for diagnostic and biological monitoring tests;
- **One BSL2+ laboratory** for larger volumes of diagnostic testing (around 100 patients per day) in the event of an epidemic outbreak;
- **One refrigerated container** for storing samples.

These laboratories will be operational in 2020 and will be part of the Rodolphe Mériex Laboratories of the Mériex Foundation's GABRIEL network. They were financed as part of a broad partnership between USAID (United States Agency for International Development), the French government via CDCS (Centre De Crise et de Soutien), Institut Mériex, bioMériex, Fondation Christophe and Rodolphe Mériex, the Mériex Foundation and the Mériex Foundation USA. The National Institute of Biomedical Research (INRB) of Kinshasa is the operational partner.

AN UNPRECEDENTED HEALTH CRISIS IN DRC

The ongoing epidemic in DRC is the most severe in the country's history. Despite international efforts, it continues to progress in areas that are hard to reach, in a context of extremely violent military conflict, making health response missions very difficult. In October 2019, the WHO reported over 2,000 deaths, with almost 7,000 people exposed to a suspected or confirmed case. Given these conditions, and faced with the risk of the disease spreading, diagnostics and access to testing facilities are essential concerns.



RESAOLAB, WEST AFRICA



LAUNCH OF PHASE 3 OF THE PROGRAM

The Agence Française de Développement (AFD) is a long-standing partner of the West African Network of Biomedical Analysis Laboratories, known as RESAOLAB. In 2019, AFD renewed its support for the Mérieux Foundation to implement a new phase of support for RESAOLAB, the first regional network of laboratories in West Africa.

2009-2019: REINFORCING AND COORDINATING RESOURCES REGIONALLY

The RESAOLAB program, started in 2009 by the Mérieux Foundation, aims to strengthen the efficiency and the governance of laboratory systems in seven French-speaking West African countries (phase 1: Burkina-Faso, Mali, Senegal; phase 2: Guinea, Niger, Benin and Togo) while improving regional cooperation for a coordinated and harmonized network approach.

Conducted in partnership with the Ministries of Health of these seven countries, and with the support of WHO AFRO and the West African Health Organization (WAHO), RESAOLAB has given rise to a framework for the development of medical biology, the construction and rehabilitation of diagnostic facilities, the deployment of continuing education, and the implementation of laboratory-based surveillance tools and shared quality assurance programs.

2019-2023: PERPETUATING THE MODEL AND STEPPING UP ADVOCACY

The RESAOLAB International Steering Committee officially launched the third phase of the project on 18 November 2019 in Niamey, Niger. Three main objectives were confirmed:

- The development of more efficient and more reliable laboratory services through enhanced monitoring;
- Surveillance of antimicrobial resistance in liaison with WHO, and biological monitoring of major pandemics (HIV and tuberculosis) covered by the Global Fund;
- Ensuring long-term laboratory management by continuing to build networks and stepping up advocacy within countries in order for adequate budgets to be allocated.

SUPPORTING MEDICAL BIOLOGY MEANS FIGHTING INFECTIOUS DISEASES

At the core of the healthcare system, medical biology is one of the pillars of infectious disease prevention, screening and responses. Despite the efforts by the international community, especially since the tragic Ebola epidemic in 2014, there are still tremendous needs within the laboratory sector in West Africa.



SPHaitiLAB HAITI

FIRST NATIONAL HEALTH RESEARCH POLICY

The SPHaitiLAB project is part of the European Union's "Supporting Public Health Institutes" program. It aims to improve the health of people in Haiti by providing strategic support for the Ministry of Public Health and for the National Public Health Laboratory. The project draws on the complementary expertise of its operational partners: the Ministry of Public Health, the GHEKIO Centers (Haitian Group for the Study of Kaposi's Sarcoma and other Opportunistic Infections), the African Institute of Public Health in Burkina Faso and the Mérieux Foundation.

MAKING STRIDES IN NATIONAL PUBLIC HEALTH PRIORITIES

In 2019, several advances were made concerning the formalization of public health issues. After publishing the first National Laboratory Policy in 2018, the Ministry of Public Health defined the first **National Health Research Policy** in 2019. The health research sector thus benefits from an institutional framework, a development strategy, and a national agenda promoting studies on local public health priorities.

A new **National Strategic Plan for the Laboratory System 2019-2023** is also being finalized, as is the resulting **National Quality Plan** and **National Initial and Continuing Training Plan**, which set out operational deployment priorities. Together, these documents will form the basis of a robust, consistent and sustainable public health policy.

STUDY ON TUBERCULOSIS

The study on the prevalence of multi-resistant tuberculosis launched in 2016 in the GHEKIO Centers continued in 2019. The mobile team supervised fifteen laboratories implementing a quality improvement initiative and trained nine more technicians to use the GeneXpert® MTB/RIF rapid screening test.





LABOGUI GUINEA



REHABILITATION WORK STARTS

Since 2017, the Agence Française de Développement has entrusted the implementation of a project to support the Guinean Ministry of Health in defining a National Medical Biology Policy to the Mérieux Foundation and Institut Pasteur in Guinea. The LABOGUI project covers 30 laboratories and is based on two areas for progress: infrastructure renovation (water and electricity, purchase of equipment, waste management, etc.) and improved training and medical biology practices.

After defining improvement plans in 2018, the project entered its operational phase in 2019 with the start of redevelopment work, the launch of requests for proposals for the acquisition of equipment, and the supply of reagents and consumables, etc. The Foundation also renovated and updated the biology technicians' work rooms at the Kindia National Health School, building an extension, modernizing the premises, creating an autonomous electrical system, and restoring the water supply (which also restored water for over a thousand residents whose access had been cut off for several years).

TRAINING THE TRAINERS

In November 2019, the Mérieux Foundation Quality Initiative team (see page 20) organized a one-week training in Conakry for around twenty Guinean trainers (biologists and laboratory technicians) in order to consolidate their skills and enable them to support professionals from the LABOGUI network.





RESAMAD MADAGASCAR

ANTIMICROBIAL RESISTANCE SURVEILLANCE

As part of the RESAMAD project begun in 2006 in collaboration with the Madagascar Ministry of Public Health, the Mérieux Foundation provided support to connect the laboratories of 24 public hospitals in Madagascar via a network. The Foundation provides technical support for setting up medical biology analyses, especially those used to diagnose and control infectious diseases, and for antimicrobial resistance surveillance.

RESAMAD's antimicrobial resistance (AMR) surveillance activities have earned it both national and international recognition. After contributing to the development of the National Antimicrobial Resistance Action Plan, the network is currently helping to implement it. Since 2019 seven of the network's biology laboratories have participated in the transmission of surveillance data to the GLASS (Global Antimicrobial Resistance Surveillance System) platform as part of the Global Action Plan on Antimicrobial Resistance.

SUPPORT AND COLLABORATION IN 2019

- **The RISE** (Research, Innovation, Surveillance, Evaluation) program was launched with the Institut Pasteur in Madagascar to support RESAMAD's activities to strengthen laboratory capacities. This program is financed by USAID (the United States Agency for International Development) for a five-year period and will make it possible to step up long-term actions such as renovations, training and quality control;
- **A partnership has been signed with WHO** for the allocation of equipment to three laboratories in the south of the country (Antsirabe, Andrainjato Fianaratsoa and Ambositra);
- RESAMAD works alongside Institut Pasteur, WHO, and the Ministry for Public Health to provide **PCR-plague assay training** in order to diagnose the plague, which is still present in Madagascar.



LabMyNet MYANMAR



SCALE-UP OF VIRAL LOAD TESTING

The Mérieux Foundation has been working in Myanmar since 2010, and specifically for the monitoring of HIV viral load since 2011. Since 2018, through the LabMyNet program, the Foundation has been supporting the national AIDS prevention program focused on **increasing HIV viral load testing capacities**. These tests are carried out by a network of laboratories managed by the National Public Health Laboratory in Yangon.

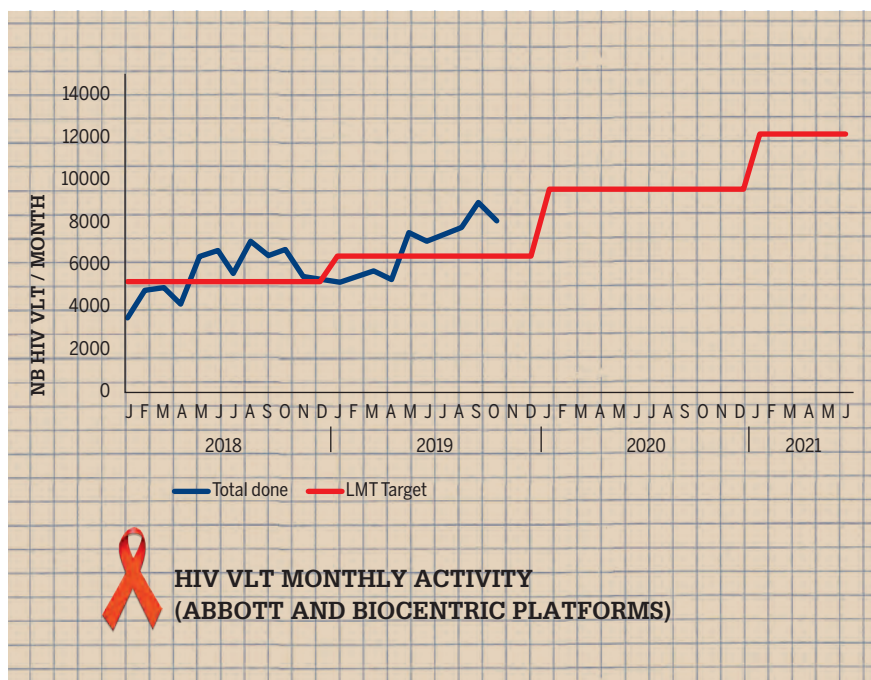
The Mérieux Foundation uses several molecular biology platforms which should be able to scale up to reach a **coverage rate of 90% of people living with HIV** (compared to 20% at the start of the project), in line with the UNAIDS program's objectives. In 2019, the results were highly encouraging, with an average of 8,000 tests carried out per month, well above the projected average of 6,200 tests monthly.

NEW FRAMEWORK AGREEMENT WITH THE MYANMAR GOVERNMENT

In June 2019, the Mérieux Foundation and the Myanmar Ministry of Health and Sports signed a new partnership agreement, which provided for the expansion of the project scope to include five new biological monitoring sites. LabMyNet is funded by the 5% Initiative and conducted in partnership with the National AIDS Control Program, NGOs Doctors without borders and The Union, the US Centers for Disease Control and Prevention (CDC), and the WHO.

THE IMPORTANCE OF VIRAL LOAD TESTING

The viral load test measures the quantity of virus in the blood, or the virological status for people living with HIV. It is used by doctors to adjust patients' treatment, with the aim of rendering the viral load undetectable by around 6 months after the start of treatment, and of preventing resistance to treatment.





QUALITY INITIATIVE

9 MEMBER LABORATORIES IN 9 COUNTRIES IN 2019

- **HAITI:**
GHESKIO Centers (Haitian Group for the Study of Kaposi's Sarcoma and other Opportunistic Infections)
- **LAOS:**
Center of Infectiology Lao
Christophe Mérieux in Vientiane
- **MALI:**
Charles Mérieux Center for Infectious Disease in Bamako
- **PARAGUAY:**
Molecular Biology and Biotechnology Department, Research Institute for Health Sciences of the National University of Asunción
- **BANGLADESH:**
Rodolphe Mérieux Laboratory of Chittagong
- **LEBANON:**
Rodolphe Mérieux Laboratory of Beirut
- **MADAGASCAR:**
Charles Mérieux Center for Infectious Disease of Antananarivo
- **MOROCCO:**
Institut Pasteur in Casablanca
- **CAMBODIA:**
Rodolphe Mérieux Laboratory of Phnom Penh

THREE NEW MEMBERS IN 2019

The Mérieux Foundation's Quality Initiative is a program providing support for laboratories in developing countries to set up a quality management system, especially the members of the GABRIEL network. The initiative has nine members, three of which joined in 2019: the Charles Mérieux Center for Infectious Disease in Madagascar, the Institut Pasteur in Casablanca and the Rodolphe Mérieux Laboratory in Cambodia.

DELIVERING RELIABLE TEST RESULTS

The Quality Initiative's support for laboratories aims to meet the requirements of international standard ISO 15189 (a frame of reference specific to medical biology laboratories). Adopting a quality management system responds to the objective of continuous improvement of laboratory processes and general organization, with a view to delivering reliable services and results to ensure appropriate patient care.

The initiative involves developing a set of tools, methods and job training courses. It also requires sharing knowledge and experience among the members.

In 2019, the **Rodolphe Mérieux Laboratory of the Center of Infectiology Lao Christophe Mérieux was awarded dual accreditation** for quality management with standard ISO 15189:2012 and biosafety management via ISO 15190:2003.

Other achievements in 2019 included continued training and assessment, an accreditation audit in Mali, and publication of the Foundation's first MOOC (Massive Open Online Course) in partnership with AFNOR and Institut Pasteur.

MOOC ON QUALITY MANAGEMENT IN MEDICAL BIOLOGY LABORATORIES

This online, interactive course, which is open to all, marked a first for the Foundation. It is intended for professionals working in a medical biology laboratory or as part of a quality team, as well as students in the same field, especially in developing countries.

Highlights of the first session, from October to December 2019, included:

- over 4,000 enrollments
- 558 certifications and 88 certificates
- 64 countries represented
- over 500 discussion threads

AN INITIATIVE BASED ON THE WHO LQSI TOOL

The Quality Initiative is based on the WHO Laboratory Quality Stepwise Implementation (LQSI) tool, which translates the ISO standard into activities. It involves four phases:

- Ensuring processes operate correctly and safely;
- Controlling and ensuring quality;
- Ensuring appropriate management, leadership and organization;
- Creating a continuous improvement system and preparing for accreditation.

MULTI-COUNTRY PROJECTS

INTERNATIONAL COORDINATION IN LAOS

In Laos, a National Training Plan for Laboratory Staff was also developed with the National Center for Laboratory and Epidemiology, ESTBB and WHO.

The aim is to identify priority actions and to determine the role of the international stakeholders working to help strengthen laboratories.

MEDICAL BIOLOGY TRAINING

MALI AND HAITI BAMS INCLUDED IN THE MEDICAL BIOLOGY MASTERS PROGRAMS

Since 2019, the two BAMS (Bachelor of Science in Biological and Applied Medical Sciences) courses, started at the initiative of the Foundation in Mali and Haiti, have been transferred to the university curriculum of both countries. In Mali, the BAMS degree was converted into a first year Masters at the University of Sciences, Techniques and Technologies of Bamako. The Mérieux Foundation, the ESTBB (School of Biology-Biochemistry-Biotechnologies) and the Charles Mérieux Center for Infectious Disease in Mali remain partners of the program. In Haiti, BAMS was included in the fourth year of the Medical Biology Bachelor's degree at Haiti State University within the scope of a partnership with the Foundation, the ESTBB and the National Public Health Laboratory.

CONTINUING EDUCATION OF TEACHERS IN CAMBODIA AND LAOS

As part of the training schemes established with the help of the Mérieux Foundation, the Ministries of Health in Cambodia and Laos have devised a continuing education course for medical biology teachers. These courses were developed with the aid of the ESTBB at the Catholic University of Lyon. They enable instructors to stay up to date with developments in scientific and medical knowledge and pass them on to others. In 2019, around twenty teachers from each country took part in this initiative.



MULTI-COUNTRY PROJECTS

G5 SAHEL ALLIANCE

The G5 Sahel Alliance aims to develop the biosafety capacities of the sub-region (Mali, Burkina Faso, Mauritania, Niger and Chad) and to place Mali at the center of the system for the detection of highly dangerous pathogens. The Mériex Foundation is the technical partner of the G5 Sahel Alliance, providing the training required for using mobile laboratories, in partnership with the Charles Mériex Center for Infectious Disease in Mali. In 2019, a simulation exercise took place in Burkina Faso in order to test the response of rapid intervention teams. The Alliance also submitted an application to the G5 Sahel permanent secretary to make the network official.

The project is run by the Mériex Foundation, the Charles Mériex Center for Infectious Disease in Mali, the German Federal Enterprise for International Cooperation (GIZ), and the Bundeswehr Institute of Microbiology as part of the German Ministry of Foreign Affairs' partnership program for excellence in biosafety and health security.



TDDAP PROGRAM LAUNCH IN SUB-SAHARAN AFRICA

Financed by the British government's UK Aid scheme, the **Tackling Deadly Diseases in Africa Program (TDDAP)** aims to improve global health security by reducing the impact of diseases and epidemics in sub-Saharan Africa. The TDDAP began in 2019 and focuses on strengthening health systems in six countries: Mali, Niger, Ivory Coast, Chad, Cameroon and Uganda.

The program started in Mali and Niger in 2019 with initial assessment missions. Backed by the Mériex Foundation USA (with the Mériex Foundation and Pasteur Center in Cameroon for implementation), the project is managed by DAI UK in collaboration with ICI-Santé and the Liverpool School of Tropical Medicine, Operations Partnership and UK-Med, in association with the Institute of Development Studies, EHealth Nigeria and IntraHealth.

COMPLETION OF THE FIRST PHASE OF REDISSE IN WEST AFRICA

The initiative to strengthen 47 district laboratories in five countries Guinea, Guinea-Bissau, Liberia, Sierra Leone, Togo, entrusted by the West African Health Organization to the Mériex Foundation in 2017, came to an end in 2019. According to the terms of their agreement, the Mériex Foundation conducted assessments, training and supervision that led to the **implementation of a quality management system and the organization of a regional meeting between laboratories**. Financed by the World Bank, the REDISSE (Regional Disease Surveillance Systems Enhancement) project was conducted in collaboration with the ministries of health of the countries involved, with the support of the Canadian NGO CCISD (Centre for International Cooperation in Health and Development). A second phase, concerning 53 health districts in five countries, should be launched in 2020.

COUNTRY PROJECTS

Mali | Niger | Cambodia | China | Laos | Myanmar



MALI

LABOMEDCAMP: EIGHT NEW OPERATIONAL LABORATORIES

After a first phase, with the creation of ten new medical laboratories, the **LABOMEDCAMP project has focused on installing eight laboratories in community healthcare centers in four rural regions of Mali since 2017**. The aim is to provide access to quality biological diagnostics to improve the health of people living in remote areas. In 2019, the second phase was being finalized and supervision assignments were being carried out. Funded by the Government of Monaco and the Mérieux Foundation, the project is run in partnership with the Malian Ministry of Health and Public Hygiene, the NGO Santé Sud, the Charles Mérieux Center for Infectious Disease in Mali and the Association des Médecins de Campagne.

NIGER

RELABNI: ENSURING SUSTAINABLE PROGRESS IN ACCESS TO DIAGNOSIS

The RELABNI project launched in 2019 aims to consolidate the progress made by Niger in terms of quality and access to diagnosis, made possible through the RESAOLAB program (see page 15). Conducted in close collaboration with the Niger Directorate of Health Laboratories, RELABNI focuses on three priorities: improving the national laboratory strategy, ensuring that facilities are run properly, and strengthening regional cooperation in medical biology. In 2019, in addition to training, quality assessment procedures were developed and the external assessment program was launched. The **first National Biology Day** in Niger was organized on November 16, 2019. RELABNI is financed by the Mérieux Foundation and the Department of International Cooperation of the Principality of Monaco.

CAMBODIA

SUPPORT FOR THE CAMLAB
LABORATORIES NETWORK

The Mérieux Foundation supports the CamLab laboratory network set up by the Cambodian Ministry of Health's Bureau of Medical Laboratory Services (BMLS) as part of its 2015-2020 strategic plan. After participating in the **development of a national plan for the continuing education of laboratory technicians**, the Foundation supervises its implementation in liaison with its partners in the field. In 2019, the Foundation helped organize several training modules with the School of Biology-Biochemistry-Biotechnologies (ESTBB) and the Cambodian NGO DMDP (Diagnostic Microbiology Development Program).



CHINA

CONTROLLING TUBERCULOSIS IN
YUNNAN PROVINCE

A third phase of the tuberculosis diagnosis decentralization program was launched in 2019 in Nujiang, a remote mountainous area in Yunnan province, which has a multi-resistant tuberculosis incidence rate among the highest in China. The project, conducted within the scope of a partnership with the Chinese Ministry of Health and the Chinese CDC, is part of the Chinese central government's efforts to eradicate extreme poverty. Through its office in China and thanks to the financial support of the Chinese Red Cross, the Mérieux Foundation supports the deployment of new diagnostic tools and helps devise training programs and raise awareness about voluntary screening.

CARE PROGRAM FOR
THE APPROPRIATE USE OF
ANTIBIOTICS

The CARE (China Against Drug Resistance) program, initiated in 2013 between the Mérieux Foundation and the Chinese Medical Association, was renewed in 2019 and will be gradually extended to nine hospitals in eight Chinese provinces. Its objective is to **strengthen the appropriate use of antibiotics and control hospital-acquired infections** through the introduction of new diagnosis and treatment practices. Assistance Publique-Hôpitaux de Paris, a partner to the project, provides access to infectious risk specialists who dispense training and pass on know-how, especially for defining procedures and setting up risk assessment studies.

LAOS

AUTONOMY FOR THE LAB KHAM LABORATORY NETWORK

Launched in 2016 with the financial backing of the Auvergne-Rhône-Alpes region, **the Lab Kham project promotes access to quality diagnosis in Khammouane province** by enhancing the laboratory system, providing continuing education and developing a laboratory network. Supervised by the provincial hospital in Thakhek, in liaison with district hospitals and the provincial health directorate, the network is gaining its autonomy. In 2019, training was dispensed to all laboratory technicians and hospital prescribing physicians.

BOLI-LAB, THE BOLIKHAMXAY LABORATORIES NETWORK

After the launch of operations at the medical analysis laboratory at Bolikhamxay provincial hospital in 2018, the Boli-Lab project continues and is now focused on **strengthening the capacities of six district laboratories and integrating the provincial laboratory in the national laboratory network**. In 2019, analysis and quality control activities were launched and six trainers were identified to monitor the district laboratories. Boli-Lab is coordinated by the Mérieux Foundation's Laos office, in close collaboration with the Laos National Center for Laboratory and Epidemiology (NCLE) and with the support of LuxDev, the Luxembourg agency for development cooperation.

MYANMAR

➔ CONSTRUCTION OF A NEW NATIONAL HEALTH LABORATORY

The Mérieux Foundation advises and supports the Myanmar Ministry of Health for the creation of a new National Public Health Laboratory in Yangon. Preliminary studies were finalized in 2019, and the subcontracting company pre-qualification process began. The new building will be home to level-2 and -3 biosafety laboratories, including a Rodolphe Mérieux Laboratory which will join the Foundation's

GABRIEL network. The building used previously will be renovated and converted into a continuing education center for professionals in the sector. The project is being financed by the Agence Française de Développement and the European Commission, and conducted in partnership with Institut Pasteur.



02 APPLIED RESEARCH



The Mériex Foundation contributes to strengthening research capabilities in low-income countries. Forced to allocate the bulk of their health resources to public health initiatives, these countries struggle to deploy applied research programs, which remain essential to organize effective interventions.

The Mériex Foundation works to facilitate and support applied research programs in limited-resource countries that lack the necessary financial and human means to organize them. It runs a network of laboratories of excellence located in infectious disease hotspots and brings together international researchers from the public and private sectors to share the know-how, tools and knowledge needed to perform high-level research driven by experts in the field.

The Mériex Foundation is committed to three priorities:

- Developing **collaborative research programs** to identify new diagnostic solutions and new therapeutic approaches;
- Helping young researchers build **careers in science** and strengthening local research teams;
- Engaging GABRIEL network members in setting up **multicentric studies**, especially to assess the impact of public health interventions.

AN INTEGRATED APPROACH

The Mériex Foundation teams work closely with all of the competent local stakeholders to make a meaningful contribution to effective public health policy. Its aim, at all times, is to develop autonomy and local initiatives to ensure that the organizations and projects it supports can continue to operate over the long term.

EMERGING PATHOGENS LABORATORY

REFERENCE LABORATORY IN LYON

Dedicated to applied research on infectious diseases that affect vulnerable populations, the Emerging Pathogens Laboratory is a founding member of the GABRIEL network, which it supports in its dual role as reference laboratory and applied research unit.

The Emerging Pathogens Laboratory, located on the Charles Mérieux campus in Lyon, has BSL2 and BSL3 biosafety level areas. The team is also qualified to access the BSL4 Jean Mérieux-Inserm Laboratory.

The laboratory focuses on three priorities:

- Acute respiratory infections;
- Tuberculosis;
- Antimicrobial resistance.

And two pivotal activities:

- Developing and transferring technologies for infectious disease diagnostics and epidemiological surveillance;
- Supporting the development of researchers' careers in developing countries by establishing partnerships and collaborative research programs, and delivering scientific training.

INTERNATIONAL ISO 17025 ACCREDITATION

The Emerging Pathogens Laboratory was awarded accreditation under European standard 17025 **encompassing the general requirements of competence, impartiality and consistency of laboratory activities**. This accreditation is the result of a quality approach launched three years ago. Granted by the Comité Français d'Accréditation (COFRAC) for a four-year period, it guarantees the quality of the techniques developed and the results obtained, for employees and funders.





GABRIEL NETWORK



THE GABRIEL NETWORK'S SCIENTIFIC CONTRIBUTIONS IN 2019

- 125 publications in international peer-reviewed scientific journals
- 2 talks given at the International Center for Infectiology Research (CIRI)
- 18 oral presentations and 4 scientific posters at international conferences and symposia
- 3 doctoral theses based on results from the Foundation's research projects

ENHANCING LOCAL CAPACITIES, COORDINATING PROJECTS

The GABRIEL (Global Approach to Biological Research, Infectious diseases and Epidemics in Low-income countries) international scientific network was created in 2008 by the Mérieux Foundation to strengthen the research and training capacities of laboratories in developing countries.

This international scientific network operates in synergy to develop the research and training capabilities of local laboratories, and to improve surveillance of diseases with a major impact on public health in developing countries.

The GABRIEL network has 19 members in 16 countries across four continents: eight Rodolphe Mérieux Laboratories (set up by the Mérieux Foundation with support from the Fondation Christophe et Rodolphe Mérieux), in addition to research laboratories at public and private academic research centers, universities and hospitals. Four new organizations are set to join the network in 2020, including the Institute of Tropical Medicine of São Polo in Brazil.

SYMPOSIUM “ADDRESSING INFECTIOUS DISEASE RESEARCH PRIORITIES”

LEBANON • June 17 to 20, 2019

►► The first day of the 10th international meeting of the GABRIEL network, held in Lebanon from June 17 to 20, 2019, was devoted to the symposium on “Hot Topics in Infectious diseases” attended by the Lebanese Minister for Public Health.

Over 100 researchers, doctors, specialists of diagnostics, university academics and scientists from over 20 countries took part in this meeting, which featured specialists of antimicrobial resistance, tuberculosis and pneumonia and experts on the role of infection in chronic diseases.

CHRISTOPHE MÉRIEUX PRIZE

ENCOURAGING RESEARCH IN THE FIELD

Every year since 2007, the Fondation Christophe et Rodolphe Mérieux has awarded the Christophe Mérieux Prize to a researcher or a research team studying infectious diseases in developing countries.

The winner is chosen by the Institut de France from a range of candidates working in the field, identified by the Mérieux Foundation. The prize is worth €500,000.

Doctor Maryline Bonnet, an epidemiologist and research director in Uganda, received the 2019 Christophe Mérieux Prize for her research on tuberculosis in developing countries.



A specialist in pulmonology and epidemiology, Maryline Bonnet is research director for the TransVIHMI unit at the Institut de Recherche pour le Développement. She has been posted in Uganda since 2014, where she conducts several research projects on tuberculosis and HIV. She shares her knowledge as a teacher, especially at the Mbarara University of Science and Technology. A humanitarian doctor for Médecins Sans Frontières in Georgia, Armenia and Russia early on in her career, Maryline Bonnet then joined MSF's epidemiological research center as a medical epidemiologist in charge of tuberculosis research. She conducted and coordinated several multicenter studies there, some of which have contributed to the formulation of new international recommendations.

RESEARCH PROJECTS

ACUTE RESPIRATORY INFECTIONS

LARI-RMN STUDY: IDENTIFYING THE PATHOGENIC AGENTS RESPONSIBLE FOR ACUTE RESPIRATORY INFECTIONS DURING HUMANITARIAN CRISES

As the recommendations on the prevention and treatment of pneumonia in refugee camps had no solid basis of evidence, the LARI-RMN study sets out to examine the etiology of respiratory infections among displaced Rohingya people in Bangladesh. This work makes it possible to put forward prevention and patient care recommendations for the Bangladesh Ministry of Health. It also serves to assess the feasibility of a rapid diagnostic test and to identify the burden of various risk factors.

This multicentric, randomized study is being conducted at a Rohingya refugee camp in the Cox's Bazar district. In 2019, 800 people were recruited (420 patients and 380 case-control subjects of all ages).



The LARI-RMN study is conducted in collaboration with the Ministry of Health of Bangladesh, iccdr,b (International Center for Diarrheal Disease Research), IdeSHi (Institute for Developing Science and Health Initiatives, Bangladesh), BITID (Bangladesh Institute of Tropical and Infectious Diseases) and the International Organization for Migration for the clinical part of the study.

➤ MEDICINE AND HUMANITARIAN CRISIS

In the refugee camps, in the absence of diagnostic tests, patient care is essentially guided by clinical signs. Identifying pathogenic agents responsible for acute respiratory infections serves to organize vaccination campaigns and appropriate treatment protocols especially for antibiotic prescriptions, which will reduce the development of resistance.

RESPIRATORY INFECTION SURVEILLANCE IN LAOS

The third phase of the LaCoRIS study, which measures the prevalence of pathogenic agents that cause acute respiratory diseases, involved more than 5,000 individuals from the town of Vientiane. Among the lessons learned, influenza is present all year round in South-East Asia and is the main pathogenic agent responsible in the villages in the center of Laos. LaCoRis is financed by NAMRU-2

(Naval Medical Research Unit Two) as part of a partnership between the Center of Infectiology Lao Christophe Mérieux, the Vientiane LOMWRU (Lao-Oxford-Mahosot Hospital Wellcome Trust Unit), the National Center for Laboratory and Epidemiology, the Phnom Penh Faculty of Pharmacy, the London School of Hygiene and Tropical Medicine of Bangkok and the Emerging Pathogens Laboratory.

STUDYING CIRCULATING PNEUMOCOCCAL SEROTYPES

A vast surveillance plan to monitor the rate of colonization by pneumococcus among children under the age of 15 and adults was launched by the GABRIEL network in three countries: Cambodia, Paraguay and India. The aim is to establish a biobank of samples which will be used to assess the impact of vaccination campaigns conducted with PCV (pneumococcal conjugate vaccine). The samples were taken in 2019, and the tests will be completed in 2020. The preliminary results for Paraguay were presented at the 19th Pan American Infectious Diseases Congress in June 2019, and were awarded first prize in the Epidemiology session.



TUBERCULOSIS

HINTT PROJECT: MULTICENTRIC STUDY ON THE EFFICACY OF TUBERCULOSIS TREATMENTS

Tuberculosis, the number one infectious cause of death in the world, is treated with multiple long-term antibiotics, often associated with adverse effects that cause patients to stop their treatment, thereby encouraging the spread of tuberculosis.

The members of the GABRIEL network started a clinical research project in 2017 named HINTT (which stands for HBHA-IGRA New Tool for Tuberculosis) that aims to identify and assess blood immune biomarkers for improving the diagnosis and follow-up of tuberculosis patients during their treatment.

In 2019, as part of the HINTT study, cohorts of patients were set up and monitored in five countries of the GABRIEL network: Madagascar,

Bangladesh, Paraguay, Georgia and Lebanon, with support from the Fondation Christophe et Rodolphe Mérieux. At the end of the year, the study was deployed in France in collaboration with the Hospices Civils de Lyon and with the support of the Agence Nationale de la Recherche.

In-depth analyses conducted in France and in Madagascar revealed a specific inflammatory response during treatment, suggesting that immunomonitoring holds promise to improve the management of tuberculosis patients. These results help to specify host-pathogen interactions during tuberculosis treatment for furthering understanding of patients' clinical response, and to enable the members of the GABRIEL network to enhance their tuberculosis diagnostic capacity.

APRECIT: IMPROVING CARE MANAGEMENT IN COMMUNITIES

The APRECIT (Amélioration de la PRise En Charge de l'Infection Tuberculeuse - Improvement of Tuberculosis Infection Management) study, financed by Expertise France and coordinated by the Mérieux Foundation, aims to provide support for the national tuberculosis prevention program in Cameroon and Madagascar. Efforts will be **focused on screening for latent tuberculosis infection, a strategic focus of intervention, in line with the new WHO recommendations** which advocate early treatment among vulnerable populations.

In Madagascar and Cameroon, latent tuberculosis infection screening is not routine and no care is available. The APRECIT multicentric study involves community intervention to identify, screen, treat and follow up intrafamilial contacts of active tuberculosis cases. The Pasteur Center in Cameroon and Institut Pasteur in Madagascar will coordinate the project, based on recruiting 2,500 household contacts of 250 patients with declared cases of active TB.

➡ LATENT TUBERCULOSIS INFECTION (LTBI)

- People with LTBI are infected by the tuberculosis bacillus but have not yet developed the disease;
- The risk of developing tuberculosis is 5 to 15%. For people with immune deficiency (young children, people living with HIV), there is a high probability that they will go on to contract the disease within 6 months to 1 year among vulnerable populations.
- 2 to 3 billion individuals in the world are believed to have LTBI.

EARLY DETECTION OF LEPROSY IN MADAGASCAR

Like the HINTT-Tuberculosis project, with which it coordinates certain activities, this study aims to develop an early diagnostic test based on the host immune response, rather than on bacterial samples. Screening for leprosy uses clinical methods with poor sensitivity, which limits the early detection of new cases. As tuberculosis and leprosy are caused by similar bacteria, the study seeks to transpose the IGRA (Interferon Gamma Release Assay) test method to detect cases of leprosy, and to monitor the efficacy of treatment, for which there is currently no marker. Financed jointly by the

Mérieux Foundation and the Raoul Follereau Foundation, research is being conducted by the Charles Mérieux Center for Infectious Disease of Madagascar (recognized as the National Reference Laboratory for leprosy) within the scope of a partnership with the dermatology department of Befelatanana University Hospital Center and the National Leprosy Control Program.

SUPPORT FOR THE NATIONAL TUBERCULOSIS PROGRAM IN GEORGIA

Since 2017, the Mérieux Foundation has been supporting the National Tuberculosis Program in Georgia for its **prevention and treatment actions and also for monitoring cases by studying the transmission and surveillance of multi-resistant strains circulating in the region of Tbilisi.** The collection and genotyping of isolates using whole genome sequencing continued until the end of 2019. The aim is to complete and define the criteria for targeting contact investigations. This project is financed jointly by Expertise France and the Mérieux Foundation and has the support of the National Center for Tuberculosis and Lung Disease in Tbilisi, Assistance Publique-Hôpitaux de Paris, APHP International and the Ministry of Social Affairs.

ANTIMICROBIAL RESISTANCE



TRICYCLE: SURVEILLANCE OF BACTERIAL RESISTANCE IN MADAGASCAR

The Mériex Foundation began to implement the Tricycle project in Madagascar in May 2018, for the detection and surveillance of bacterial resistance in humans, the environment, and the food chain. The pilot study is being conducted in seven hospital laboratories in the RESAMAD network (see page 18): three in Antananarivo and four in the provinces, which are analyzing clinical isolates, and by the Charles Mériex Center for Infectious Disease, which analyzes samples from poultry intended for human consumption and surface water samples.

The first results obtained in 2019 were presented at several meetings, in particular at the International Conference on Prevention and Infection Control which was held in Madagascar from September 4 to 6, 2019, with the support of ICAN (Infection Control Africa Network).

This research is funded by the European initiative JPI-AMR (Joint Programming Initiative on Antimicrobial Resistance) for 2020-2022 and has the backing of the Ministry of Public Health of Madagascar. It is carried out as part of a collaboration

between the Charles Mériex Center for Infectious Disease in Antananarivo, the RESAMAD laboratory network, WHO, and Bichat-Claude Bernard Hospital in Paris.

▶ TRICYCLE: SURVEILLANCE OF THE BACTERIAL RESISTANCE OF ESBL-PRODUCING *E. COLI*

The Tricycle project was developed by the Advisory Group on Integrated Surveillance on Antimicrobial Resistance (AGISAR) and WHO Department of Food Safety and Zoonoses. It involves monitoring a single indicator: *Escherichia coli* bacteria that produce extended-spectrum beta-lactams (ESBL), enzymes that make the bacterium resistant to beta-lactam antibiotics. Tricycle is being conducted in Ghana, Madagascar, Malaysia, Pakistan and Indonesia, and since 2019 in Senegal.

GENOMIC ANALYSIS OF *E. COLI* BACTERIA

The Mériex Foundation is a partner of the COMPARE project to develop methods for the rapid detection of epidemics using new genome technologies. COMPARE is financed by the European Commission's Horizon 2020 program and brings together a consortium of 29 partners coordinated by the Technical University of Denmark and Erasmus MC. **A genomic study of *Escherichia coli* strains in circulation in Bangladesh was started in 2019** (reasons for resistance, factors of resistance and colonization). It is backed by the Institute for Developing Science & Health Initiatives, the Child Health Research Foundation and the iccdr,b of Bangladesh (International Center for Diarrheal Disease Research), as well as the Laboratório Nacional de Computação Científica of Brazil.

▶ *E. COLI* INFECTIONS

Escherichia coli is an intestinal bacterium which makes up a large part of the intestinal flora. Certain forms of *E. coli* can, however, be pathogenic and lead to serious infections. These infections cause over 500,000 deaths each year in emerging countries, in particular among children under the age of five.

OTHER TOPICS

CLINICAL TRIALS OF A NEW TYPHOID VACCINE

The **tyVEGHA project aims to determine the safety and protection conferred by the vaccine Vi-TCV (Vi-polysaccharide typhoid conjugate vaccine)** by means of a comparative study with the MCV-A vaccine (meningococcal conjugate vaccine A). This research is based on a cohort of over 30,000 children age 9 months to 15 years in Ghana and Congo. Financed by the ECDTP (European Developing Countries and Clinical Trials Partnership), tyVEGHA is implemented by several operational partners: International Vaccine Institute, Seoul, Institute of Tropical Medicine, Antwerp, National Biomedical Research Institute, Zaire, International Center for Diarrheal Disease Research, Bangladesh, and Kwamr Nkurumah University in Ghana, Cambridge University in the United Kingdom and the University of Maryland in the United States.

SYNCYTIAL RESPIRATORY VIRUS STUDY

Since 2018, the Mérieux Foundation has been conducting a project to **further the understanding of the role of the syncytial respiratory virus (RSV) in morbidity and mortality in newborns**. A major cause of acute respiratory infection in children in their first year of life, RSV is not sufficiently documented. Surveillance studies are necessary in order to better understand the impact of the disease in terms of public health, and to assess the potential role of future vaccines (several are currently in development). The

project, which involves the development of a serology test, is being deployed with the help of the National Institutes of Health, Bethesda (USA), the Institut des Agents Infectieux of the Civil Hospitals of Lyon and the Oswaldo Cruz Foundation in Brazil.

DIAGNOSTIC TEST FOR SICKLE CELL DISEASE

Conducted in partnership with the Fondation Pierre Fabre and Inserm (Université Toulouse 3), **the Drepatest study evaluates the performances of a new diagnostic test for sickle cell disease**, a particularly widespread hereditary disease on the African continent. More accessible, easier to use and more rapid than existing techniques, this test is expected to make widespread early screening possible to allow effective treatment of the disease. After being deployed in Mali and Togo, to prove the effectiveness of the test in adults, this comparative study (with two standard reference techniques) was rolled out in Kinshasa, Democratic Republic of the Congo in 2019 on 2,000 children under 6 months.

➡ SICKLE CELL DISEASE

Sickle cell disease is the most widespread genetic disease in the world, with an estimated 300,000 births per year of children who are carriers of sickle cell traits, with 75% of these births in Africa.

According to WHO, the prevalence in equatorial Africa ranges from 10 to 40% of the population. The symptoms of this hemoglobin disorder include anemia, acute painful episodes and an increased risk of infection.

RAPID TESTS

DIAGNOSING NEGLECTED TROPICAL DISEASES

The “diaTROPiX” project is the result of a shared vision by Institut Pasteur in Dakar, FIND (Foundation for Innovative New Diagnostics), Institut de Recherche pour le Développement (IRD) and the Mérieux Foundation. It aims to **contribute to the creation of an organization for the development and production of diagnostic tests for neglected tropical diseases** in line with WHO recommendations. The World Health Organization estimates that over one billion people are affected by tropical diseases, mainly in areas with insufficient diagnostic capacity. In 2019, the project became official with the implementation of a financing plan, transfer of equipment, renovation of the facilities, and the formation of a team to be hosted by Institut Pasteur in Dakar, Senegal.

03 KNOWLEDGE-SHARING



Sharing knowledge as part of a multidisciplinary approach with no borders is a strategic priority that guides everything the Mériex Foundation does. By organizing and participating in meetings, courses and conferences, the Foundation promotes the exchange of expertise, the circulation of new ideas, emulation among scientists, and progress to benefit the greatest number.

Because progress cannot happen without exchange, knowledge-sharing is one of the driving forces behind the Mériex Foundation's initiatives worldwide. Along with its partners, the Foundation organizes international conferences and courses at Les Pensières, the Mériex Foundation conference center near Annecy (France) and internationally, to align closely with local needs.

At the same time, the Mériex Foundation believes in the power of networks and supports collaborative initiatives to develop synergies that serve global public health.

LES PENSIÈRES CENTER FOR GLOBAL HEALTH



Les Pensières is an international public health center with over 40 years of experience in dialog and engagement in the fight against infectious diseases. Designed to as a hub for sharing perspectives and ideas, it offers a unique working environment where over 6,000 people came together at 140 events in 2019, attending Mériex Foundation conferences and advanced training courses (ADVAC, ACDx, and AMR), the Institut Pasteur ICARE course on antibiotic resistance, Institut Mériex conferences, and

the international EpiConcept meeting on influenza. There was also the Académie de Médecine France-China TB symposium, the Inserm Young Researchers seminar and several conferences with WHO and other international public health organizations. Les Pensières Center also hosted conferences of general interest, as part of a global health approach. Among these events were the Global Dignity conference, the Centre des Fonds et des Fondations workshop, the Forum Espace Humanitaire (FEH) and Aspen Institute conferences.

SCIENTIFIC CONFERENCES

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

CONFERENCES HELD AT LES PENSIÈRES CENTER IN 2019

— Febrile illness: a unified approach for the design of multicentric study protocols

→ January 2019 – 41 participants

In partnership with the London School of Hygiene & Tropical Medicine

Objectives: to promote international exchange, develop new strategies to fight febrile illness, and define key research issues to be addressed through multicentric studies.

— Global Vaccine Network meeting

→ January 2019 – 46 participants

In partnership with the Global Vaccine Network and the Bill & Melinda Gates Foundation

This event aimed to set up a network of analysis sites for the evaluation of vaccine safety, efficacy and benefits.

— Global Task Force on Cholera Control (GTFCC) workshops

→ February, April, November and December 2019

In partnership with WHO's GTFCC

The GTFCC's WASH (Water, Sanitation and Hygiene), Surveillance, Case Management and Oral Cholera Vaccine working groups organized four meetings to address their respective contributions to the 2030 roadmap.

— 6th Annual Meeting of the Global Task Force on Cholera Control (GTFCC)

→ June 2019 – 91 participants

In partnership with GTFCC

This annual meeting is organized to monitor the cholera prevention strategy "A Global Roadmap to 2030," which has set the target of a 90% reduction in the number of cholera deaths by 2030. In 2019, the agenda focused on assessing progress to date, reviewing the activities of GTFCC partners, and presenting the Cholera Elimination Framework. Discussions also covered the advocacy and

resource mobilization strategy and the GTFCC target structure for effective support to endemic countries.

— Vaccine Acceptance Conference Series

→ September 2019 – 81 participants

Conference organized with support from MSD and Sanofi Pasteur

The aim of this 7th conference was to present perspectives and strategies to improve acceptance of vaccines, from training to political intervention, via message platforms stressing the importance of vaccination.

— The Cent Gardes Conference (HIV)

→ September 2019 – 73 participants

In partnership with the ANRS (Agence Nationale de Recherche sur le Sida et les hépatites virales-French Agency for Research on AIDS and Viral Hepatitis) and Inserm

The Cent Gardes conference brings together international world-class speakers on questions related to HIV prevention and control strategies in developing countries. In 2019, the conference was organized around five sessions: HIV prevention, neutralizing antibodies, antibody induction, transmission, and host response modulation.

► THE CENT GARDES, A BIENNIAL SYMPOSIUM

The Cent Gardes conference was launched in 1986 by Doctor Charles Mérieux and takes place once every two years, attended by scientific experts from public and private research, hospitals, universities and representatives of health authorities. One of the very first international scientific events to focus on HIV/AIDS, it takes its name from the Cent Gardes building in Saint Cloud near Paris which hosted the first conference in the series.

INTERNATIONAL CONFERENCES

— Workshop on rabies elimination in the SAARC region

→ Nepal – June 2019 – 72 participants

Conference organized by SAARC (South Asian Association for Regional Cooperation)

This second regional workshop, following the one held in Sri Lanka in 2015, received support from the “One Health” tripartite alliance (WHO-FAO-OIE), made up of the World Health Organization, the United Nations Food and Agricultural Organization, and the World Organization for Animal Health. It also received support from GARC (Global Coalition for Rabies Control) and the international NGO World Animal Protection. The meeting was attended by representatives of human health, animal health, and wildlife management from the seven rabies-endemic SAARC member states. The workshop aimed to map the ground situation, develop roadmaps, and identify gaps where support is required.

— Partners for rabies prevention

→ United Kingdom – July 2019 – 45 participants

In partnership with GARC (Global Coalition for Rabies Control)

Objective: to continue developing the network of rabies experts in order to improve control and prevention through experience-sharing, stronger advocacy and applying the latest know-how on the ground.

— 4th Asia Dengue Summit

→ Malaysia – July 2019 – 110 participants

In partnership with the ADVA (Asian Dengue Vaccine Advocacy) working group, GDAC (Global Dengue and Aedes-transmitted Diseases Consortium) and the SEAMEO TROPMED network of Southeast Asia (Southeast Asian Ministers of Education Tropical Medicine and Public Health Network)

Objective: to improve prevention strategies through regional stakeholders' heightened awareness.

— SIHI network meeting: Social Innovation in Health Initiative

→ Uganda - October 2019 – 51 participants

In partnership with SIHI, TDR (special research and training program for tropical diseases) and Makerere University

This meeting was attended by the members of the SIHI network to discuss future collaborations and to improve the network's ability to manage crowdsourcing projects (participative activities calling on the public to contribute).

— SARE workshop: Stepwise approach to eliminate rabies

→ Algérie - October 2019 – 40 participants

In partnership with GARC (Global Coalition for Rabies Control) and Institut Pasteur

Objective: to draw up the strategic national rabies control plan in Algeria, where the disease is endemic.

➡ THE BURDEN OF RABIES

Even though tools are available to eliminate it (human and animal vaccines), human rabies remains a public health priority. According to WHO, 55,000 deaths are recorded each year in the world and over 3.3 billion people live in areas that are enzootic for rabies.

— 6th Charles Mérieux Conference

→ Cambodia – November 2019 – 50 participants

In partnership with the Cambodian Ministry of Health and the DMDP (Diagnostic Microbiology Development Program)

As part of the national plan for continuing education in medical biology, the 2019 Charles Mérieux conference was designed to strengthen the hematology capacity of laboratory personnel in Cambodia.

— Consultation on the “One Health” approach to infectious diseases

→ Congo – Décembre 2019 – 30 participants

In partnership with WHO and TDR (special research and training program for tropical diseases)

Objective: to identify the needs of African countries for the implementation of a One Health approach for vector-borne diseases (such as malaria and Rift valley fever).

➡ THE “ONE HEALTH” APPROACH

The One Health approach promotes an integrated, systemic and unified approach to public, animal and environmental health, on local, national and global scales.

— Regional Symposium on Viral Hepatitis (Mekong Hepatitis Symposium)

→ Laos – October 2019 – 100 participants

In partnership with the Center of Infectiology Lao Christophe Mérieux Center and the Ministry of Health

This symposium is held once a year to update knowledge about chronic hepatitis B and C for the region's health stakeholders. It allows participants to share their experience and helps encourage national and regional policy-makers to step up the fight against chronic hepatitis.

➡ CHRONIC HEPATITIS

Viral hepatitis B and hepatitis C affect over 320 million people and cause 1.4 million deaths each year.

They are responsible for more than 80% of cases of hepatocellular carcinoma (primary liver cancer), the fastest growing cause of cancer worldwide. Hepatitis can be prevented, treated and, in the case of hepatitis C, cured. However, more than 80% of people with hepatitis do not have access to prevention, screening or treatment services.

ADVANCED COURSES

With its partners, the Foundation has developed international advanced courses. In 2019, the Foundation launched the 1st AMR/One Health course on antimicrobial resistance, which completes its two long-standing courses: the vaccinology course, which celebrated its 20th anniversary this year, and the diagnostics course, which celebrated its 10th anniversary.

FIRST COURSE ON ANTIMICROBIAL RESISTANCE (AMR)

The Mérieux Foundation and Paris-Diderot University have developed a course to support the objectives of the WHO Global Action Plan on Antimicrobial Resistance and to strengthen decision-making capacity in low- and medium-income countries. The AMR course is based on the “One Health” principle, which takes a holistic view of health, encompassing all disciplines in an approach that includes training, awareness-raising and communication.

The course takes place over five days, and addresses the focus areas of the WHO action plan. The format fosters interaction and dissemination of information. The first class in 2019 was attended by 36 participants from 31 countries, taught by 35 instructors. The AMR course receives financial backing from bioMérieux and Inserm.



ADVAC: 20 YEARS IN FIGURES

- Over 70 students a year
- 1,142 participants trained since 2000
- 113 countries represented since 2000
- Over 60 lecturers each year

ADVAC PARTNERS

- Bill & Melinda Gates Foundation
- European Commission (EDCTP)
- European Centre for Disease Prevention and Control (ECDC)
- European Society for Pediatric Infectious Diseases (ESPID)
- The Mériex Foundation
- Johns Hopkins Bloomberg School of Public Health
- National Foundation for Infectious Diseases (NFID)
- National Institute of Allergy and Infectious Diseases/National Institutes of Health (NIAID/NIH) and Fogarty International Center
- World Health Organization (WHO)
- Centers for Disease Control and Prevention (CDC)
- University of Geneva

Coalition for Epidemic Preparedness Innovations (CEPI), GlaxoSmithKline, Janssen, Merck, Pfizer, Sanofi Pasteur, Serum Institute of India and Takeda also provided education grants.

2019 ACDX SUPPORT

- Funding of grants for participants from resource-limited countries: Clinton Health Access Initiative, Doherty Institute, DTRA (Defense Threat Reduction Agency), FIND (Foundation for Innovative New Diagnostics), Institut Pasteur in Dakar, WHO/TDR;
- Education grants: Becton Dickinson, bioMériex, Cepheid, CNine Biosolutions.

20th ANNIVERSARY OF THE ADVANCED COURSE OF VACCINOLOGY

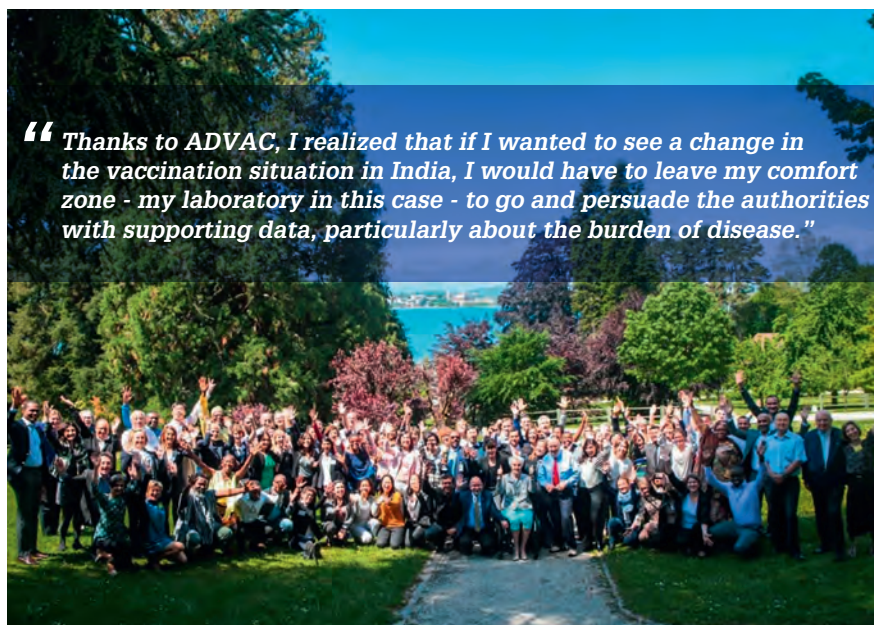
— ADVAC (Advanced Course of Vaccinology)

The advanced course of vaccinology (ADVAC) celebrated its 20th anniversary in 2019. It covers all the phases of development of a vaccine, through to marketing, and aims to improve key decision making in the field of immunization. The program includes two weeks' immersion and intensive courses. The curriculum is updated to keep pace with scientific advances and the development of new techniques of administration.

Today, over 1,000 ADVAC alumni are shaping the vaccination landscape and are helping to protect the health of people throughout the world. In 2019, 74 students of 33 nationalities joined the network, including 26 education grant recipients from developing countries. ADVAC is organized by the Mériex Foundation and the University of Geneva.

For the 20th anniversary of ADVAC in May 2019, celebrated at Les Pensières Center, several former students spoke about their experience. One of these was Gagandeep Kang, Executive Director of THSTI (Translational Health Science Technology Institute) in India, an ADVAC 2003 attendee:

“ Thanks to ADVAC, I realized that if I wanted to see a change in the vaccination situation in India, I would have to leave my comfort zone - my laboratory in this case - to go and persuade the authorities with supporting data, particularly about the burden of disease.”



10th ANNIVERSARY OF THE ADVANCED COURSE ON DIAGNOSTICS

— ACDx (Advanced Course on Diagnostics)

In 2019, the Mériex Foundation and the London School of Hygiene & Tropical Medicine organized the 10th ACDx, a one-week intensive course focusing on the value of medical diagnostics as a driver to improve global public health. The program is intended for decision-makers and scientists involved in implementing infectious disease control policies. This year, the course focused on the difficulty of access to diagnostic tests while highlighting social and technological innovation. In 2019, 89 participants and instructors from 24 countries took part in ACDx.

PUBLIC HEALTH PARTNERSHIPS

The Mérieux Foundation contributes to several global public health initiatives. By combining complementary areas of expertise and pooling public and private sector resources in different regions of the world, these partnerships play an essential role in the fight against infectious diseases.

HELPING ELIMINATE DENGUE

PDC: Partnership for Dengue Control

The Mérieux Foundation is the operational partner to the PDC, which contributes to the elimination of dengue and other arboviral diseases in emerging countries. Its action is based on an integrated approach involving various tools (vaccines, therapeutics, insecticides etc.). PDC's activities are developed in collaboration with GDAC (Global Dengue & Aedes-transmitted Diseases Consortium) and numerous academic and institutional entities, in particular the World Health Organization.

A screening strategies workshop for the use of dengue vaccines was held at Les Pensières Center in 2019, with the support of bioMérieux, Roche and Sanofi Pasteur. It was attended by over 60 international specialists to explore several innovative rapid test solutions and screening strategies. The results of this workshop appeared in a scientific publication. The Lancet's committee on Aedes-transmitted arboviral diseases was also set up in 2019 and is made up of 20 experts from different fields. Taking an integrated approach, this committee will publish scientific recommendations by the start of the 2021 World Health Assembly.

COORDINATING RESEARCH ON INFECTIOUS DISEASES

GloPID-R: Global Research Collaboration for Preparedness for Infectious Disease Research



GloPID-R is an international network of funding bodies for research on infectious diseases. Its objective is to invest in epidemic preparedness and response. In liaison with WHO, this involves improved coordination of its members and their institutional, academic and industrial partners, to prepare the rapid roll-out of priority research activities in the event of an epidemic threat. Working with the University of Oxford, the Mérieux Foundation coordinates the GloPID-R secretariat, financed by the European Commission through its Horizon 2020 program.

In 2019, funding for the program was extended for three years. Advances have been recorded especially in the production of scientific recommendations, data pooling, integration of social sciences in the response to epidemics and the setting-up of international clinical trials networks. GloPID-R also moved forward in its partnership with WHO on priority diseases requiring R&D investment.





GLOBAL PARTNERSHIP TO FIGHT CHOLERA

GTFCC: Global Task Force on Cholera Control

GTFCC, a global multi-sector partnership on cholera control, brings together more than 50 organizations including WHO, GAVI, the Bill & Melinda Gates Foundation and Wateraid. It aims to achieve the objective of a 90% reduction in cholera deaths by 2030 based on a shared roadmap. GTFCC operates as a series of inter-disciplinary working groups, tasked with helping to implement actions that fall within their respective areas of focus.

The Mériex Foundation has been a GTFCC partner since 2017 and takes an active part in the development of activities related to the knowledge-sharing platform. In 2019, all the workshops and working group meetings took place at Les Pensières Center.

► CHOLERA: A HIGHLY CONTAGIOUS BACTERIAL INFECTION

- **2.9 million people contract cholera each year**
 - **95,000 people die from cholera each year**
- (source: GTFCC)*

FIGHTING ZIKA VIRUS DISEASE

ZikaPLAN: ZikaPreparedness Latin American Network

The Mériex Foundation is one of 25 research and public health organizations that are members of the ZikaPLAN financed by the European Commission's Horizon 2020 program. The initiative adopts a global approach to develop knowledge about the virus and build sustainable preparedness capacity in Latin America. It combines several scientific disciplines in order to meet the various challenges of Zika virus disease control, such as epidemiological monitoring, clinical studies, screening and control tools, training and knowledge-sharing activities.

The Mériex Foundation helps organize training workshops on rapid diagnostic tests for trainers in various countries. In 2019, a workshop took place in Brazil in partnership with the Sao Polo Institute of Tropical Medicine. The Foundation also oversees communication and publishing the research results from the project.

TOWARDS RABIES CONTROL AND ELIMINATION

MERACON: Middle East, Eastern Europe, Central Asia and North Africa Rabies Control Network

MERACON is a regional consultancy and networking initiative set up under the aegis of the Global Alliance for Rabies Control (GARC) secretariat, with the ongoing support of the Mériex Foundation.

MERACON aims to federate all the countries and rabies control networks by taking a One Health approach, to help governments in the Middle East, Eastern Europe, Central Asia and North Africa and other decision makers to commit to improving rabies control and elimination programs in their respective regions.

MERACON has been created by the transformation of the MEEREB network and will build on its substantial efforts to draw up and implement rabies control and elimination strategies, moving towards a concerted regional approach by relying on the use of specially-developed tools and resources.

A group of women and children are gathered in a community setting. The women are wearing colorful headscarves and saris. Some are holding informational pamphlets. The children are sitting on the floor. The scene is brightly lit, suggesting an indoor or well-lit outdoor area. The overall atmosphere is one of a community meeting or a health education session.

04 MOTHERS & CHILDREN


In the countries where it operates, the Mérioux Foundation works to help the victims of crises and insecurity, in particular women and children. In response to the suffering of refugee, displaced and impoverished populations, the Foundation contributes to improving living conditions, facilitating access to care and strengthening the prevention of infectious diseases.

As part of its global health approach, which encompasses all primary health needs, the Mérioux Foundation works with partner organizations to help the most vulnerable populations in developing countries. It supports numerous projects to improve access to care, hygiene and education, as well as socio-economic inclusion projects for the poorest members of society. Its commitment contributes to preventing the spread of infectious diseases, which remains closely correlated to living conditions and standards of living.

These activities are funded by the Fondation Christophe et Rodolphe Mérioux as part of the close partnership between the two family foundations.

FONDATION CHRISTOPHE ET RODOLPHE MÉRIEUX

The Fondation Christophe et Rodolphe Mérioux 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 Mérioux Foundation for the operational implementation of its projects on the ground.



IMPROVING ACCESS TO MEDICAL CARE FOR POOR, DISPLACED AND REFUGEE POPULATIONS

IRAQ: INAUGURATION OF A CENTER FOR YAZIDI WOMEN AND CHILDREN

The Shekhan health and social center in Iraqi Kurdistan, inaugurated on May 8, 2019, was built thanks to funding from a partnership between the Mérieux Foundation, Fonds pour Eux, Fondation AnBer, Fondation Saint Irénée and the Auvergne-Rhône-Alpes region. The project was initiated at the request of the Yazidi Spiritual Council. The center welcomes Yazidi women and children who are victims of persecution by ISIS, and who have suffered such trauma that rebuilding their lives would be impossible without appropriate support.

In addition to medical and psychological care (a doctor and therapist are on site weekly), the team organizes sewing lessons (there are 15 sewing machines) and a food production workshop making sesame paste, an activity that generates income for the center. A hairdressing and beauty salon and play areas complete this facility to provide support for Yazidi women and children.



BANGLADESH: SUPPORTING THE HEALTH CENTER ON MOHESHKALI ISLAND

After helping to set up a **center for the treatment of rickets and disability in children** on Moheshkali Island in 2018, the Mérieux Foundation provided further financial support in 2019 to buy equipment and to implement new initiatives, especially with a focus on newborns. These actions are conducted in partnership with the NGOs AMD (Medical Aid for Development) and SARVP (Social Assistance and Rehabilitation for the Physically Vulnerable) with the financial backing of Fonds pour Eux.

Specialized in the treatment of infantile diseases such as rickets and congenital malformations, the Moheshkali health center was built to make up for the lack of health care facilities on this island of 250,000 inhabitants. Bangladesh ranks 149th out of 197 countries on the Human Development Index*, and it has a very low health-coverage to population-density ratio (it is the 8th most densely populated country in the world).

LEBANON, THE COUNTRY WITH THE HIGHEST NUMBER OF REFUGEES

According to the United Nations High Commission for Refugees, Lebanon has the highest density of refugees per capita.

This country of 4 million inhabitants hosts around 1.5 million refugees, mainly in Akkar in Northern Lebanon and in the Beqaa Valley, a rural area located along the Syrian border, where the health infrastructure network is particularly weak.

LEBANON: INAUGURATION OF THE HEALTH AND SOCIAL CENTER

The Duris Health Center in Northeast Lebanon was inaugurated on June 21, 2019. Built by the Mérieux Foundation with support from the Department of International Cooperation of the Principality of Monaco, the center provides care for **Syrian refugee populations in the Beqaa Valley and for impoverished Lebanese populations**. Managed by the Lebanese NGO Amel Association, it provides medical care, social support and education about good hygiene. Pediatric, gynecological and obstetric consultations will also be offered.

MALI: SUPPORT FOR THE SANTÉ MALI RHÔNE-ALPES ASSOCIATION

In 2019, the Mérieux Foundation supported three projects run by the Santé Mali Rhône-Alpes (SMARA) Association, a long-standing partner working to improve the health of populations in Northern Mali for over 30 years. Projects include **funding for training** as part of a program for tuberculosis patients, **support for the design of diagnostic tools** for rural health centers, and specialized medical consultations (in dermatology, ophthalmology and pediatrics).

MALI: BUILDING THE SIRAKORO MATERNITY HOSPITAL

Construction work for the **new Sirakoro maternity hospital** on the outskirts of Bamako began in late 2019. Financed by the Mérieux Foundation, the maternity hospital will be named after Doctor Youssouf Issabré, who initiated the Foundation's activities in Mali and was the first director of the Charles Mérieux Center for Infectious Disease in this country.

* Source World Bank 2015

SUPPORTING **EDUCATION AND SOCIO-ECONOMIC DEVELOPMENT**



MADAGASCAR: HEALTH EDUCATION

In partnership with the Ministry of Education and Public Health, and the Ministry of Energy, Water and Hygiene, the Mérieux Foundation takes part in several initiatives managed by local associations to raise awareness and help families **adopt good hygiene and health practices**. Activities include training medical personnel and community workers and developing awareness-raising tools.

In 2019, the WASH (water, sanitation and hygiene) kit and the Nutrition kit were integrated into the national education program. **A sex education kit**, based on WHO recommendations, has also been developed and approved by the Foundation's partners addressing topics such as contraception, the prevention of sexually transmitted diseases and greater awareness about gender-based violence.

CAMBODIA: SUPPORT FOR THE NGO ENFANTS DU MÉKONG

Since 2010, through a partnership with the NGO Enfants du Mékong, the Mérieux Foundation has supported the **Centre Universitaire Docteur Christophe Mérieux** in Phnom Penh, which gives students from disadvantaged backgrounds the opportunity to pursue higher education. In 2017, a second focus of the partnership was introduced with social support for mothers and children, which includes social worker visits to children who have dropped out of school, to mothers in difficulty, and to marginalized communities.



MALI: SCIENCE AND HEALTH EDUCATION

From 2015 to 2019, the Mérieux Foundation and the “La Main à la Pâte” Foundation designed and developed a **pilot science and health education program in primary schools in Mali**, in a partnership with Malian government ministries. The project, based on **hands-on learning**, was rolled out in seven schools in Bamako, with the support of the Charles Mérieux Center for Infectious Disease, which contributed scientific expertise. Since it began, nearly 140 teachers and 3,500 students have taken part in the program. In 2019, the Mali Ministry of Education expressed its wish to consolidate the project and adopt the hands-on approach as part of initial teacher training.

IRAQ: BUILDING THE QARAQOSH SCHOOL

With the financial support of Fondation Raoul Follereau, the Ile-de-France (Paris) region and Fondation Saint-Irénée, the Mérieux Foundation began renovation **work to rebuild the public school** in Qaraqosh in 2019. A Christian town in Northern Iraq, Qaraqosh was occupied and destroyed by ISIS, and today has around 15,000 inhabitants, including 4,000 children. In response to a request from regional education authorities, the project focuses on the construction of three buildings for a total of 12 classrooms, set to welcome 360 students.

HAITI: SUPPORTING THE CENTRE DE L'ESPOIR

Since 2010, the Mérieux Foundation has been working with the association AKTKK (Klib Timoun Kè Kontan) which manages the Centre de l'Espoir, a **vocational training center offering courses in carpentry, sewing, embroidery and flower arranging** for young adults in difficulty from isolated villages in the Artibonite department of Haiti. In 2019, a dormitory was built to accommodate 10 young girls who were unable to travel to and from the center each day, and a new income-generating activity was developed: hen and chicken farming. The center hosts 65 young people on average.

HAITI: PROMOTING MICROFINANCING

Since 2017, the Mérieux Foundation has been a **partner of the Association for Cooperation with Micro-Companies (ACME)**, which provides microcredit services to microentrepreneurs who do not have access to bank loans. Through a network of 30 agencies, ACME supports borrowers with structuring, marketing and managing their business and earnings. The Mérieux Foundation takes on the risk of non-repayment of loans through a credit guarantee fund. It also covers the cost of training social workers who provide guidance to beneficiaries of the **Microcredit Program for Women Affected by HIV**. Developed in partnership with the GHESKIO centers, these loans are intended to help the most vulnerable women in the working-class areas of Haiti develop a business.

ADDRESSING BASIC NEEDS



MADAGASCAR: THE NEW ALAIN MÉRIEUX HIGH SCHOOL

In 2019, the Mérieux Foundation paid for **the Mahatsara village high school** to be built on the outskirts of Antananarivo. Inaugurated in early 2020, the new Alain Mérieux high school is part of the Foundation's support for **Akamasoa, an association created to fight poverty**. Since 2014, thanks to this partnership, various facilities have been built: a center for the poor, housing for patients with contagious conditions, and a medical diagnostic laboratory. A program to pay for hospital care and cover fees for the poor has been in place since 2018, and the Foundation supports Akamasoa's health and hygiene education activities.

BANGLADESH: PARTNERSHIP WITH THE NGO FRIENDSHIP

The Mérieux Foundation and the NGO Friendship have been partners since 2014 and have worked on several **projects to help isolated communities in Bangladesh**. In 2019, the Foundation contributed to providing psychosocial support in the Rohingya refugee camps (in Ukhia, Cox's Bazar) and helped set up the maternity ward at Shyamnagar hospital, in the southern part of the country. It also contributed to the hospital laboratory's activities through training, audit and advisory projects.

HAITI: SUPPORTING THE CHILDREN'S HOME IN LÉOGANE

Following the 2012 earthquake in Haiti, the Mérieux Foundation funded the construction of the orphanage in Léogane, located around 40 kilometers from Port-au-Prince. **The children's home welcomes and cares for almost 70 young girls**, providing housing, education and activities. Renovation work was carried out in the classrooms in 2019 and the Foundation also participated in the renovation of the center built in Port-au-Prince for junior high school students who have left the orphanage.

Several income-generating activities such as market gardening, orchards, and raising livestock ensure that the children eat balanced meals.



SMALL GRANTS

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

IN 2019, TEN PROJECTS RECEIVED SUPPORT IN THREE PROGRESS AREAS:

EQUIPMENT

- Construction of the laboratory in a mother and child clinic in Kenya (VHI Toto Laboratory)
- Renovation of a laboratory in Uganda (Kagamu Development)
- Construction of a mother and child center in Bangui, in the Central African Republic (Humanists International)
- Fitting out a health center in Cameroon (Tchotézo Madaho center)
- Fitting out the laboratory at Kigoma hospital in the DRC (Familia)

HEALTH EDUCATION AND AWARENESS

- Child malnutrition prevention in Togo (Yendubé hospital)
- Fight against gender-based violence in Papua New Guinea (Morobé Development)

NEW TECHNOLOGIES APPLIED TO ACCESS TO HEALTH CARE

- HIV prevention and screening in Nigeria (Active Voices)
- Mother and infant health digital platform in Burundi (Health Healing Network)
- Video raising awareness about prenatal infections in Ivory Coast (Association 3535)

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CEO ■ Replaced by Koren Wolman-Tardy in March 2020
- **Emily PENROSE**
Program and Operations Director ■ Replaced by Dr. Barbara Jauregui Wurst in February 2020

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 and research projects in emerging countries 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 nearly 80 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

- African Society for Laboratory Medicine (ASLM)
- Agence Française de Développement (AFD)
- Auvergne-Rhône-Alpes Region
- Coalition for Epidemic Preparedness Innovations (CEPI)
- Defense Threat Reduction Agency (DTRA)
- Department of Foreign Affairs and Trade, Australian Government (DFAT)
- Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)
- European and Developing Countries Clinical Trials Partnership (EDTCP)
- European Commission
- Expertise France
- Fleming Fund
- Global Fund to Fight AIDS, Tuberculosis and Malaria
- Initiative 5% / Expertise France
- Kreditanstalt für Wiederaufbau (KfW)
- Luxembourg Government Aid and Development Agency (LuxDev)
- Ministère de l'Europe et des Affaires étrangères - via Expertise France
- Prince's Government of Monaco
- Swedish International Development Cooperation Agency (SIDA)
- The Joint Programming Initiative on Antimicrobial Resistance (JPIAMR)
- U.K. Department for International Development (DFID) via DAI
- U.S. Agency for International Development (USAID)
- U.S. Centers for Disease Control and Prevention (CDC)
- World Bank – via the West African Health Organisation (WAHO)
- World Health Organization (WHO)

FOUNDATIONS & NGOS

- Agence universitaire de la Francophonie
- Bill & Melinda Gates Foundation
- Foundation for Innovative New Diagnostics (FIND)
- Fondation AnBer
- Fondation Christophe et Rodolphe Mérieux
- Fondation Pierre Fabre
- Fondation Raoul Follereau

INDUSTRY & COMPANIES

- Becton Dickinson (BD)
- Biocentric
- Biodiagnostic
- bioMérieux
- Bioteck
- BluSense*
- Cepheid
- Chembio
- CNINE Biosolutions
- Gilead
- GlaxoSmithKline Biologicals (GSK)
- Institut Mérieux
- Janssen Vaccines & Prevention (JNJ)
- Merck
- Mérieux NutriSciences
- Oxford Immunotec
- Pfizer
- Qiagen
- Roche
- Sanofi Pasteur
- Saramed
- Serum Institute of India
- Shearman & Sterling*
- Takeda

UNIVERSITIES & RESEARCH INSTITUTES

- Agence nationale de la recherche (ANR)
- Bioaster
- Centre International de Recherche en Infectiologie (CIRI)
- Institut de recherche biomédicale des armées (IRBA)
- Institut de Recherche pour le Développement (IRD)
- LabEx ECOFECT (Dynamiques éco-évolutives des maladies infectieuses)
- Lyonbiopôle
- Naval Health Research Center (NAMRU-2)
- Oxford University
- University of Geneva

2019

ACCOUNTS & KEY FIGURES

BALANCE SHEET

ASSETS (K€)	NET DEC. 31, 2019	NET DEC. 31, 2018
FIXED ASSETS		
Intangible fixed assets	14	48
Property, plant and equipment	1,668	1,335
Investments and other financial assets	36,568	25,200
TOTAL	38,250	26,583
CURRENT ASSETS		
Accounts receivable	743	1,286
Other receivables	19,027	10,870
Marketable securities	41,814	47,096
Cash and cash equivalents	3,086	10,166
Prepaid expenses	1,123	1,176
Unrealized exchange losses	-	23
TOTAL	65,794	70,617
TOTAL ASSETS	104,044	97,200
LIABILITIES AND FUND BALANCE (K€)		
	DEC. 31, 2019	DEC. 31, 2018
FUND BALANCE		
True endowment	64,916	64,916
Reserves	884	884
Retained earnings	13,367	16,415
Net income / loss for the period	(562)	(3 047)
Other endowment	7	-
TOTAL	78,613	79,168
QUASI ENDOWMENT		
Allowance for contingencies	153	120
Funds reserved for future engagements	2,040	2,666
TOTAL	2,193	2,786
LIABILITIES		
Loans	2,100	2,264
Accounts payable	1,443	2,487
Tax and social debts	1,177	1,023
Investment payable	-	244
Other payable	2,008	1,642
Deferred income	16,510	7,578
Unrealized exchange gains	1	8
TOTAL	23,238	15,246
TOTAL LIABILITIES AND FUND BALANCE	104,044	97,200

INCOME STATEMENT

(K€)	ACTUAL 2019	ACTUAL 2018
INCOME		
Services revenue	710	1,129
Contributions	7	-
Reverse on operating allowances	11,227	14,650
Expenses refund	1,970	1,462
Other operating income	4	1
TOTAL INCOME	13,918	17,243
EXPENSES		
External purchases and expenses	9,328	11,343
Taxes and duties	747	861
Salaries and social contributions	5,006	4,663
Depreciations	278	551
Donations and subsidies received	6,730	7,027
Other operating income	49	9
TOTAL EXPENSES	22,137	24,455
OPERATING RESULTS	(8,219)	(7,212)
FINANCIAL INCOME		
Dividends	3,150	1,105
Other financial income	1,302	331
Reverse on financial allowances	834	292
Net income from marketable securities	2,291	2,731
TOTAL FINANCIAL INCOME	7,577	4,458
FINANCIAL EXPENSES		
Financial allowances	57	615
Other financial expenses	553	435
TOTAL FINANCIAL EXPENSES	610	1,050
FINANCIAL RESULTS	6,967	3,408
EXCEPTIONAL INCOME		
Exceptional income	66	966
Exceptional reverse in allowances	-	-
TOTAL EXCEPTIONAL INCOME	66	966
EXCEPTIONAL COSTS		
Exceptional expenses	1	89
Exceptional allowances for contingencies	-	-
TOTAL EXCEPTIONAL COSTS	1	89
EXCEPTIONAL RESULT	65	877
Income tax	-	-
TOTAL INCOME	21,561	22,667
TOTAL EXPENSES	22,748	25,594
INTERMEDIATE BALANCE	(1,187)	(2,928)
Prior funds carried forward	2,666	2,545
Funds reserved for future engagements	2,040	2,665
NET INCOME / LOSS FOR THE PERIOD	(561)	(3,047)

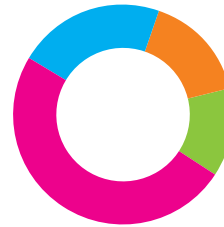
2019 ACCOUNTS & KEY FIGURES



BREAKDOWN OF EXPENSES

• Excluding provisions and exceptional expenses

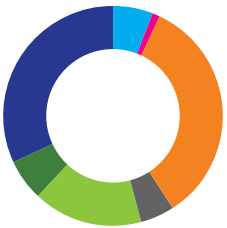
Missions	75%
Administration	20%
International support	5%



BREAKDOWN OF EXPENSES BY STRATEGIC AREA OF FOCUS

• Excluding provisions and exceptional expenses

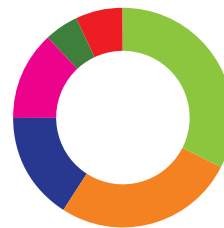
Increasing vulnerable populations' access to diagnosis	50%
Enhancing local applied research capabilities	21%
Encouraging knowledge-sharing	16%
Improving conditions for mothers and children	13%



GEOGRAPHICAL SEGMENTATION OF ACTIVITIES

Europe ⁽¹⁾	32%
Africa	34%
Asia	16%
Middle East	6%
Caribbean	6%
Indian Ocean	5%
South America	1%

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



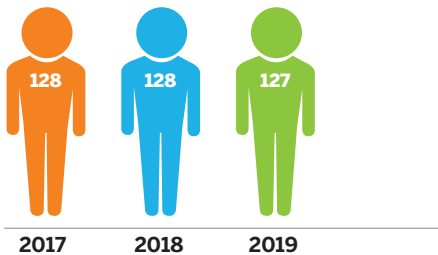
BREAKDOWN OF INCOME

• Excluding dedicated funds, provisions and non-recurring items

Fondation Christophe et Rodolphe Mérieux	33%
Endowment income & investment	27%
Private partnerships	16%
Public partnerships	12%
Other income	7%
Real estate income	5%

CHANGES IN HEADCOUNT* AS AT DECEMBER 31ST

127 employees worldwide**

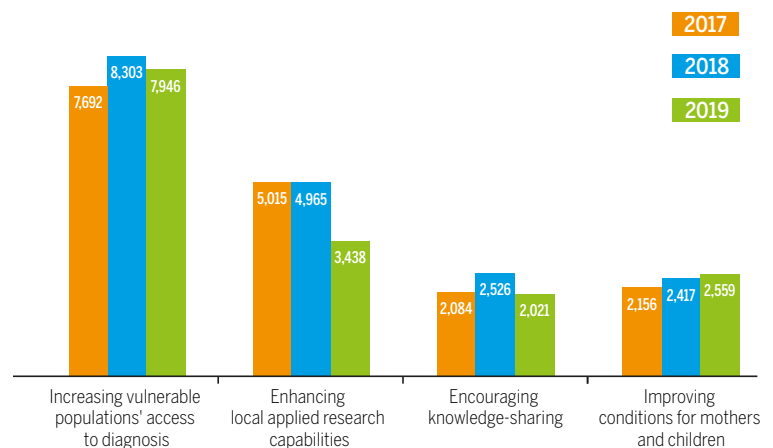


* Full-time equivalents

** Excluding interns, temporary employees and local research and training center staff

EVOLUTION OF EXPENSES BY STRATEGIC AREA OF FOCUS

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



FONDATION MÉRIEUX

Fondation reconnue d'utilité publique
17 rue Bourgelat
69002 LYON

**Statutory auditor's report
on the financial statements**

For the year ended 31 December 2019

To the Board of FONDATION MÉRIEUX,

Opinion

In compliance with the engagement entrusted to us by your Board of Directors, we have audited the accompanying financial statements of FONDATION MÉRIEUX for the year ended 31 December 2019. These financial statements were approved by the Treasurer on 2 June 2020 on the basis of the information available at that date in the evolving context of the Covid-19 health crisis.

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 2019 and of the results of its operations for the year then ended in accordance with French accounting principles.

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.

Deloitte & Associés, une société membre du réseau Deloitte, est une société par actions simplifiée au capital de 100 000 000 euros, immatriculée au Tribunal de Commerce de Lyon sous le numéro SIREN 522 075 423. Elle est soumise au droit français et relève des sociétés régies par le Code de Commerce. Elle est soumise à la loi française.

Independence

We conducted our audit engagement in compliance with independence rules applicable to us, for the period from 1 January 2019 to the date of our report and specifically we did not provide any prohibited non-audit services referred to in the French Code of ethics (code de déontologie) for statutory auditors.

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 key audit matters relating to risks of material misstatement that, in our professional judgment, were of most significance in our audit of the consolidated financial statements of the current period, as well as how we addressed those risks.

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 net amount in the balance sheet on 31 December 2019 of equity securities amounted to 15 250 049 euros. Those are valued at acquisition price and depreciated on the basis of their fair value as described in the note "Investments" of the notes to the financial statements. Based on the information made available to us, our work has consisted in assessing the data underlying these values in use and checking the consistency of assumptions.

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 approved on 2 June 2020 and in the other documents provided to the Board members. With regard to the events which occurred and the facts known after the date the financial statements were approved by the Treasurer relating to the impact of the Covid-19 crisis, the management indicated to us that they will be communicated to the Board members called to approve the financial statements.

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.

- 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, 8 June 2020
The Statutory Auditor
French original signed by
Deloitte & Associés

Dominique VALETTE

“Infectious diseases cause 17 million deaths each year around the world, predominantly in developing countries.

For over 50 years, the Mériéux Foundation, an independent family foundation, has been taking action to ensure that every man, woman and child has fairer access to essential healthcare.”

PHOTOS

- ANTASH
- ANTONIN BOUVIER
- BEN DAUCHEZ -
INSTITUT DE FRANCE
- CATHERINE COCHET
- FONDATION MÉRIEUX
- FONDATION PIERRE FABRE
- LES PENSÉES
- GETTYIMAGES
- KHELIL AITOUT
- LAURENCE VON DER WEID
- LIGNE DE FRONT
- MARTIN GROSJEAN
- MICKA PERIER
- ODAIR LEAL
- OLIVIA MÉRIEUX
- PIERRE RAPEY
POUR BIOFORCE
- RÉGIS SODOYER

WRITING

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**CREATIVE CONCEPT,
DESIGN,
PRODUCTION**

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July 2020



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