Being part of the solution on pricing and access

Although we face a long and challenging road to meet the UN goal of universal health coverage, I see a young generation, armed with unprecedented technological power and mobility, who refuses to believe that the access-to-healthcare challenges cannot be solved.

Patrice Matchaba
Group Head, Global Health & Corporate Responsibility

2018 highlights

- Ranked second in the Access to Medicine Index, up from third in 2016
- Began implementing the Novartis Access Principles
- Reached almost 25 million patients with medicines and nearly 8 million people with health education through Novartis Social Business
- Accelerated the launch of local brands, reaching more than 220 000 patients
- Provided USD 1.9 billion in free medicines to more than 68 000 patients through the Novartis Patient Assistance Foundation in the US
- Obtained positive results for the Novartis Foundation ComHIP program; hypertension control rates for monitored patients improved from 36% to 71% over 12 months
- Decided to stop filing patent applications in nine LMICs, starting in 2019

Key challenges

- Consistently and rapidly implementing the Access Principles across Novartis
- Finding innovative financing solutions for cell and gene therapies for rare diseases, reflecting their value to patients and society while taking the realities of healthcare budgets into account
- Driving sales volume for Novartis Social Business programs to help ensure the programs are sustainable
Why is it important? Through our core business, we help prevent and treat diseases, ease suffering and improve quality of life for people worldwide. However, as the size and complexity of the world’s healthcare challenges grow, we must widen our scope and extend our impact even further. It begins with a fundamental shift in the way we do business – with the clear intention of bridging the divide between those with access to critical healthcare innovations, and those without.

Our approach and performance

Our medications reach more than 800 million people worldwide every year, but billions more still lack access to essential medicines and healthcare. As a significant part of our portfolio is innovative, first-in-class therapies, it is our responsibility to ensure these medicines are accessible to the patients who need them, irrespective of where they live. For this reason, we are making a fundamental shift in the way we do business and are reimagining how to expand access to critical healthcare innovations. The Access to Medicine Foundation recognized our efforts in this area by ranking us second in the 2018 Access to Medicine Index, up from third position in 2016.

In late 2017, we established the Novartis Access Principles and embarked on a journey to systematically integrate access into our business model. The Access Principles are built on three pillars: research and development (R&D), affordability and strengthening healthcare systems. At their core is the commitment that, for all our new medicines, we will systematically integrate access strategies into how we research, develop and deliver them globally.

These strategies include adopting innovative pricing and access models, refocusing research and development based on society’s healthcare needs, and supporting approaches to strengthen healthcare systems.

We made significant progress in setting up our internal systems and training our teams on our new business standards. We are taking steps to establish relevant key performance indicators to continually measure our progress. Access will be a key measure of success for our leaders and employees, and we will be transparent in sharing our successes and our learnings.

Assessing our R&D portfolio against unmet needs

As we research and develop new drugs, we systematically assess our product portfolio against the unmet needs of underserved populations and will integrate these needs, as appropriate, into our drug discovery and development strategy.

The Novartis Working Group for adaptive R&D, initiated in 2016, spans our innovative, established and generic medicines groups and aims to evaluate and execute adaptive development initiatives that deliver incremental benefits to vulnerable patient populations. Three main areas are considered: development of new formulations, expansion of the clinical use of existing medicines into new indications and populations (e.g., pediatric populations), and research to better understand issues of relevance for adaptive development (e.g., genetic polymorphisms).

In the first review cycle across all development units, 14 project proposals were endorsed to move forward. They include a new child-friendly formulation of hydroxyurea for sickle cell disease; the use of Entresto in heart failure related to Chagas disease; a project to identify potential differences in the pharmacokinetics of drugs in African patients, where such data is lacking; and the creation of a new Coartem formulation to treat malaria in infants below 5 kilograms of body weight. In addition, we...
joined forces with the Global Antibiotic Research & Development Partnership to accelerate the development and availability of generic antibiotic treatments for children in low- and middle-income countries.

**Developing effective affordability strategies**

We are working to make our medicines available by considering both effective affordability strategies and innovative solutions to disease management, as well as off-patent solutions, to complement our portfolio.

We are working to ensure that we price our medicines responsibly, based on the value they deliver to patients, healthcare systems and society.

In the US, we recently implemented guidelines for limiting average net price increases across our portfolio to the healthcare inflation rate, and we publish average price increases annually in the Novartis in Society US report. We also proceeded to proactively adjust prices downward in several low- and lower-middle-income countries. We will continue monitoring our prices and take relevant action where needed.

Novartis was one of the first companies to enter into value-based contracting for our medicines. While still at the early stages of this approach and learning from our experience, we already have multiple agreements in place whereby payments are linked to the outcomes delivered by our medicines (for example, our innovative heart failure medicine *Entresto*).

For *Kymriah*, our breakthrough treatment for certain types of cancers, we have developed a novel outcome-based contract for the indication of B-cell acute lymphoblastic leukemia, and have begun implementing agreements within the network of certified *Kymriah* treatment centers. Under the agreement, Novartis does not charge participating treatment centers for the cost of *Kymriah* when a patient does not achieve a response (as defined by the FDA label) within one month following infusion.

In 2018, the ECN reviewed plans for key brands in the launch phase to assess access strategies targeting underserved populations. For example, *Aimovig*, our innovative medicine for the treatment of migraine, is supported by programs designed to help accelerate access both before and after reimbursement, as well as to speed up introduction and access in low- and middle-income countries (LMICs). We are also co-creating employer-based access schemes in selected markets, including Russia and Mexico.

Our Sandoz Division drives access through the provision of quality generic medicines. It focuses increasingly on segments where it can make a real difference, either by making available the most competitive generic alternative or by offering a novel and more affordable alternative to existing therapies (e.g., leading biologic medicines through its global biosimilar business).

### NOVARTIS ACCESS FRAMEWORK

Our access framework can be adapted to the needs of people across income segments.

<table>
<thead>
<tr>
<th>Income segments</th>
<th>% of population size</th>
<th>Novartis access approaches</th>
</tr>
</thead>
<tbody>
<tr>
<td>High income</td>
<td>7%</td>
<td>Generics, original brands, patient assistance programs, tenders</td>
</tr>
<tr>
<td>Upper-middle income</td>
<td>9%</td>
<td>Equitable commercial models, Generics, Social business models, Patient assistance programs</td>
</tr>
<tr>
<td>Middle income</td>
<td>13%</td>
<td>Zero-profit models, Strategic philanthropy, Tenders</td>
</tr>
<tr>
<td>Low income</td>
<td>55%</td>
<td>Donations, strategic philanthropy, tenders</td>
</tr>
<tr>
<td>Poor</td>
<td>16%</td>
<td></td>
</tr>
</tbody>
</table>

1 PEW Research Center with data from World Bank PovcalNet (data 2011)
LOCAL BRANDS

We take local affordability into account when pricing our medicines. In LMICs, for instance, we have introduced more affordable local brands of many innovative therapies. These improve affordability by lowering the out-of-pocket burden for patients in these countries and help address the time lag between the launch of innovative medicines in developed Western markets and in developing countries. Prices are set to address affordability challenges, taking into consideration socio-economic factors such as a country’s gross domestic product per capita. By systematically integrating and optimizing our launch process, we are now able to introduce new medicines to LMICs in less than 12 months from approval in Europe or the US.

Local brands have launched for the following products: Exforge (chronic heart failure with reduced ejection fraction), Ultibro (chronic obstructive pulmonary disease), Xolair (asthma), Gilenya (multiple sclerosis), Galvus (diabetes), Cosentyx (psoriasis), Lucentis (wet age-related macular degeneration), Exjade (iron overload), Kisqali (metastatic breast cancer), Zykdia (non-small cell lung cancer), Jadenu (iron overload), and Farydak (multiple myeloma). Aimovig (migraine) is included in future plans.

Overall, we have launched over 60 local brands across more than 30 developing markets, reaching more than 220,000 additional patients to date. We are currently intensifying efforts to enable more patients to receive novel treatments, with plans to further expand these strategies and introduce around 50 additional local brands by 2020.

NOVARTIS SOCIAL BUSINESS

Established in 2016, Novartis Social Business (NSB) supports global public health through novel sustainable business models that enable access to high-quality medicines against infectious and chronic diseases in lower-income countries. In 2018, NSB reached almost 25 million patients with medicines and 7.9 million people with health education.

NSB comprises several legacy programs (Novartis Access, the Novartis Malaria Initiative and Novartis Healthy Family), supported by digital-enabling platforms. In January 2018, NSB assumed full responsibility for the entire Novartis product range in six countries in Africa and Asia (Malawi, Rwanda, Tanzania, Uganda, Laos and Cambodia), and it is now also leading the Sandoz business in Burundi, Kenya and India. These countries were selected because they are large enough for social business models to scale up and be sustainable over time.

In countries under NSB responsibility, we are exploring a new approach. In conjunction with health authorities, we are currently aligning our product portfolio with healthcare needs, with a view to launch in 2019 a tiered pricing (and packaging) strategy based on household wealth, and specific distribution channels. We plan to adapt this tiered-pricing model over time as we implement it in more countries.

Our goal is that, regardless of income, all patients in these countries will have full access to the range of products they need, across public and private channels, at prices they can afford. This is an important step toward achieving universal health coverage.

Local brands performance indicators

<table>
<thead>
<tr>
<th>Local brands</th>
<th>Patients reached (thousands)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Novartis Pharmaceuticals</td>
<td>213.3</td>
</tr>
<tr>
<td>Novartis Oncology</td>
<td>8.0</td>
</tr>
</tbody>
</table>

For more details, read the 2018 Novartis Social Business report.
In addition to addressing affordability issues, NSB delivers health system strengthening programs, several of which use digital technology to facilitate delivery.

NOVARTIS ACCESS
We continue to expand the Novartis Access program. Launched in 2015, Novartis Access offers a portfolio of 15 on- and off-patent medicines addressing key noncommunicable diseases: cardiovascular diseases, type 2 diabetes, respiratory illnesses and breast cancer. This basket of medicines is offered to governments, nongovernmental organizations (NGOs) and other institutional customers at a price of USD 1 per treatment, per month. The program also includes capacity-building activities to strengthen healthcare systems in lower-income countries.

Progress continued in 2018. The program delivered almost 2.3 million monthly treatments to five countries (Cameroon, Ethiopia, Kenya, Rwanda and Uganda). Further, we signed agreements for implementation in Colombia, El Salvador, Pakistan and Nigeria. Our objective remains to roll out the program in 30 countries in the coming years.

Over the past few years, we have also learned a great deal about the challenge of delivering a portfolio of medicines in many markets. Procurement processes that were built for single molecules are not easily amended to fit a portfolio approach. This has meant creating tailored solutions by country. We continue to learn and to apply these learnings to enhance the program for the future.

NOVARTIS HEALTHY FAMILY
The Novartis Healthy Family programs are innovative business models that are expanding access to community education, improved infrastructure and affordable healthcare products for people living at the base of the income pyramid — in a way that is sustainable. Programs are active in India (Arogya Parivar), Kenya (Familia Nawiri), and Vietnam (Cùng Sông Khoe). In 2018, the Novartis Healthy Family programs reached 7.8 million people through education, and more than 700,000 patients. Over the next five years, we plan to expand Arogya Parivar to more states in India, and make broader use of digital solutions to reach an expected 15 million people. In addition, we plan to roll out new Healthy Family programs in two additional countries in Africa in 2019.

QUANTIFYING THE AFFORDABILITY GAP
Even when medicines are available in low- and middle-income countries, many patients may not take their medicines as prescribed, if at all, due to cost. This is because out-of-pocket expenditure on health is particularly high in many emerging markets.

For example, the baseline study conducted by Boston University to evaluate the impact of Novartis Access in Kenya...
showed that among patients who had medicines, the poorest actually paid the most for them. This seems to be partly because the poorest people are located on “medicine islands,” where a lack of local competition leads to higher prices, and traveling to outlets where prices are lower is difficult. Our strategies and programs could have a substantial impact on equity by targeting remote communities with low-cost medicines.

In addition, teams in our Innovative Medicines Division are leveraging technology to better understand intra-country affordability challenges in LMICs. They have developed tools using curated data from publicly available sources such as the World Bank and Euromonitor (e.g., household disposable income), and inputs such as product prices, percent of household income allocated to healthcare, intermediary markups, payer mix and reimbursement levels. With these tools, the teams are able to better understand the affordability gaps at the household level (from the lowest- to highest-earning households) and assess which access solutions to use to help enable more patients to gain access to the medicines they need.

PATIENT ASSISTANCE PROGRAMS

Patient assistance programs play a crucial role in helping individuals gain access to healthcare when they are unable to afford it, even in countries with sufficient incomes and insurance schemes to help pay for healthcare. Having prescription drug coverage does not always guarantee that someone can afford the medicine they need, when they need it.

In the US, the Novartis Patient Assistance Foundation Inc. (NPAF) provides medicines at no cost to eligible US patients who are experiencing financial hardship and have limited or no prescription drug coverage. The number of patients needing help has continued to increase; in 2018, the foundation provided more than USD 1.9 billion in free medicines to more than 68,000 patients in the US, covering more than 65 medicines from our portfolio. Over the past five years, free medication valued at roughly USD 5.8 billion has been provided to around 273,000 patients.

We continue to look for opportunities to improve the efficiency of NPAF programs, using innovative technology solutions to enhance the patient’s journey. Improvements such as automation in the income check process and the use of e-signatures enable patients to move through the required application process more quickly and easily, speeding up their onboarding into the program and helping them get the medicines they urgently need.

We also realized that in certain indigent areas of the US, there are opportunities for NPAF to partner with others – for instance, with the NGO Direct Relief to provide bulk retail pharmaceutical medications to a network of qualified institutions that handle the enrollment and processing of individual medication orders. As Direct Relief supports various safety net clinics, this more efficient system allows patients to walk in and receive the medicines they need almost immediately, filling a critical gap in the system.

Through Novartis Oncology Access programs in developing markets – specifically Asia-Pacific, Latin America and the Middle East – Novartis makes medicines from its oncology portfolio, including Glivec, Tasigna and Exjade, available through copay and shared contribution equitable pricing models.

### Patient assistance programs performance indicators

<table>
<thead>
<tr>
<th>Patient assistance programs</th>
<th>Patients reached (thousands)</th>
<th>Value USD (millions) 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Novartis Patient Assistance Foundation Inc. (US)</td>
<td>68.1</td>
<td>55.5</td>
</tr>
<tr>
<td>Novartis Oncology Access</td>
<td>711</td>
<td>829</td>
</tr>
</tbody>
</table>

1 Wholesale acquisition cost (WAC) plus logistics costs for some programs

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1.9bn

In free medicines provided through the Novartis Patient Assistance Foundation Inc. to more than 68,000 patients in the US, covering more than 65 medicines from our portfolio (USD)
Donations

Donations remain an important tool in certain situations, such as disaster relief efforts, and help address outbreaks and neglected diseases, which mainly affect poor populations. Since 1999, Novartis has provided high-quality multidrug therapy (MDT) free of charge to all leprosy patients in the world through the World Health Organization (WHO), reaching more than 7 million people. In 2015, Novartis renewed its pledge with the WHO to work to end leprosy by extending its donation through 2020; the program extension is expected to reach an estimated 1.3 million patients.

Treating patients with leprosy is one of the key strategies to eliminate the disease, as successfully treated patients no longer transmit the infection.

Novartis has also been donating Egaten (triclabendazole) to the WHO for the treatment of fascioliasis, or liver fluke, for over a decade. In 2018, our agreement with the WHO was renewed until 2022. Fascioliasis infects more than 2.4 million people globally.

While the WHO supplies Egaten during epidemic outbreaks and for periodic prophylactic use in endemic countries, it has been urging endemic countries to pursue drug registration to facilitate drug import and ensure sufficient and prompt availability when needed. However, health authorities in many affected countries require approval from a reference health authority, such as the FDA, prior to approval locally. As Egaten is not approved in the US, Novartis is working to register an innovative clinical package leveraging real-world evidence to support a New Drug Application submission.

CMLPath to Care™ is a unique global initiative that connects people living with chronic myeloid leukemia (CML) and their carers with effective treatments, professional medical capabilities, trained physicians and hands-on support. The initiative is directed by The Max Foundation, with support from Novartis through drug donations and funding. CMLPath to Care™ is an evolution of the agreement between The Max Foundation and Novartis Oncology for the original Glivec International Patient Assistance Program (GIPAP), which began in 2002.

The transition of GIPAP to CMLPath to Care™, which started in 2017, continued in 2018, with 68 countries formally transferred to The Max Foundation by year-end. The final six countries will be transferred in 2019. Novartis has committed USD 29 million from 2017 to 2021 in the form of financial support and 150 million tablets to cover treatment for approximately 36,000 patients. The donation program will make Glivec and Tasigna (both life-saving treatments) available to patients and help expand access, particularly for Tasigna.

Our generics division, Sandoz, renewed its partnership with World Child Cancer, a global charity that aims to improve timely diagnosis and access to treatment for children suffering from cancer in the developing world. The collaboration focuses on four developing countries: the Philippines, Ghana, Mexico and Myanmar. The charity currently reaches 5,600 children worldwide each year and aims to double that to 10,000 over the next five years. Sandoz began its partnership with World Child Cancer in 2016; to date, 2,468 children have

Donations performance indicators

<table>
<thead>
<tr>
<th>Patients reached (thousands)</th>
<th>Value USD (millions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcon medical missions ²</td>
<td>414.0</td>
</tr>
<tr>
<td>Leprosy (WHO)</td>
<td>176.2</td>
</tr>
<tr>
<td>Fascioliasis/Egaten ³</td>
<td>294.0</td>
</tr>
<tr>
<td>CMLPath to Care™</td>
<td>14.4</td>
</tr>
<tr>
<td>World Child Cancer</td>
<td>0.1</td>
</tr>
<tr>
<td>Medicine donations (emergency relief)</td>
<td>4.7</td>
</tr>
</tbody>
</table>

¹ Wholesale acquisition cost (WAC) plus logistics costs for some programs ² Manufacturing, testing and FTE costs ³ Retail value for surgical products
been diagnosed in the four countries, and 2,791 healthcare professionals have received training, enabling them to provide better care for young cancer patients and their families.

Sandoz also works directly with Americares, a leading health-focused relief and development organization that aids people affected by poverty and disaster. It provides long-term assistance in five healthcare areas: maternal, newborn and child health; infectious diseases; health system strengthening; mental health; and hypertension and diabetes. Americares notifies Sandoz of products required, based on the healthcare needs of countries and partners. To date, Sandoz has provided more than USD 9 million worth of products to Americares.

Our donations go beyond medicines. Alcon, our eye care division, announced in May the Alcon Cares Project 100, which aims to reduce cataract blindness by providing equipment to perform cataract surgery. Alcon Cares, a foundation that oversees equipment and product donations to those in need, will give 100 reprocessed *Infiniti* units to eligible clinics in Asia, Central and South America, and Africa over the next three years, making it one of the largest eye care equipment donations of its kind.

**Strengthening healthcare systems for maximum impact**

A treatment is only as good as the system that delivers it. We therefore seek opportunities to lower local barriers to healthcare delivery, working in collaboration with governments and other partners to support patient care in areas where we can have the greatest impact.

**BUILDING CLINICAL TRIAL CAPACITY**

In the field of clinical trials, we are working to expand the capacity of sites for global trials of our novel antimalarial agents, in partnership with Medicines for Malaria Venture and the Wellcome Trust. Activities include Good Clinical Practice training and evaluation, drug supply handling, data collection and integrity, and qualification of local testing labs (including training of microscopists for parasite counts). These efforts also involve community outreach efforts for patient recruitment.

**INSPIRING THE NEXT GENERATION OF SCIENTISTS**

Most medical research is currently conducted in developed countries, yet most of the world’s population lives in the developing world. While opportunities for young scientists abound in the Western world, the scientific research scene in Africa, Asia and Latin America looks very different. In addition, the number of researchers in these countries is disproportionately low relative to the high burden of disease, while up to 70% of scientists emigrate from their native countries to seek education and employment elsewhere.

To help enhance professional development for scientists in LMICs, Novartis and the University of Basel developed a novel fellowship training program called Next Generation Scientist (NGS). Launched in 2011, NGS invites talented young scientists and clinicians from these countries to our Basel, Switzerland, campus for a three-month research internship. Participants are offered individualized mentoring, and engage in research activities tailored to their unique needs.

The program was evaluated, and the results were published in a research paper in BMC Medical Education. The results showed strong evidence of knowledge and skills transfer. There was a high retention rate of fellows in their home countries (more than 75%), with over 60% being employed in the public or academic sector.

In 2018, we welcomed a new group of 20 top students from 14 institutions in 11 emerging countries. NGS is a two-way relationship that benefits everyone involved. It improves our understanding of global healthcare challenges while providing young scientists with skills, knowledge, tools and inspiration to improve healthcare in their communities. Overall, more than 140 scientists and clinicians from 25 countries have participated in the program.
The Novartis Foundation is a philanthropic organization working with multisector partners on innovative initiatives that can have a transformational and sustainable impact on health in low-income communities. The foundation has sharpened its focus and streamlined its portfolio in recent years, focusing on two key areas: accelerating leprosy elimination and addressing cardiovascular disease. Its philanthropic and programmatic work reached over 9 million people in 2018, an increase of over 30% versus 2017.

The foundation has two hypertension programs – Communities for Healthy Hearts (CH2) in Ho Chi Minh City, Vietnam, and the Community-Based Hypertension Improvement Project (ComHIP) in Ghana – that are working to bring hypertension detection and management closer to local communities by maximizing screening and education opportunities through blood pressure checkpoints in local shops, pharmacies and other businesses.

We evaluated ComHIP with respect to its effectiveness in detecting, diagnosing and treating hypertension early. The results, released in September, showed that the innovative ComHIP model improved community health by bringing screening and management services closer to where people live, work and shop. This proved tremendously helpful in accelerating hypertension diagnosis and improving patient outcomes; hypertension control rates for patients who were monitored for 12 months rose from 36% to 71%. The positive results of the ComHIP model are contributing to policy change, as Ghana health authorities are working to scale the program to additional regions, and integrate the ComHIP training curriculum and treatment guidelines into the national system.

The CH2 program is designed to improve healthcare provision for adults living with hypertension in four districts and 16 wards within Ho Chi Minh City. To date, CH2 has developed a communications strategy to increase hypertension awareness, and more than 500 blood pressure checkpoints have been set up. In October, the Ministry of Health in Vietnam included the Novartis Foundation in a policy dialogue to review Vietnam’s progress in addressing cardiovascular diseases. The CH2 training curriculum and treatment guidelines will be integrated into the primary care-level improvement guidelines, and learnings from CH2 provided recommendations for strengthening policies that will enable effective interventions in the country.

Better Hearts Better Cities is an urban health initiative through which the foundation works together with governments, private sector partners and local communities work to improve cardiovascular health in urban populations.

In 2018, Better Hearts Better Cities covered 1.3 million people across three cities on three continents: Ulaanbaatar in Mongolia, Dakar in Senegal, and São Paulo in Brazil. As with ComHIP and CH2, the ultimate goal for Better Hearts Better Cities is to identify and validate a scalable approach that is sustainable and replicable in other cities and for other chronic diseases.

In October, the Novartis Foundation and the Syngenta Foundation for Sustainable Agriculture announced a partnership to address one of the root causes of cardiovascular disease: unhealthy diets. This collaboration aims to help curb cardiovascular disease in low-income urban communities by increasing access to healthy, affordable and nutritious foods through the Better Hearts Better Cities program.

**LEVERAGING DIGITAL TECHNOLOGY**

In addition to the work done by the Novartis Foundation, Novartis Social Business is working to develop digital solutions in lower-income countries to help improve their healthcare systems.

With Greenmash, we developed an IT system for Pakistan that registers patients, notifies patients of their next appointment, tracks medicine dispensing (addressing the risk of fraud by helping ensure medicines reach patients included in the prime minister’s national health insurance program), and
provides essential information to monitor and manage medicine stocks. Reports, charts and maps are automatically generated, providing aggregated, real-time information to support decision-making by the Ministry of Health. We plan to deploy this solution in Pakistan when Novartis Access products become available in 2019.

In the Philippines, we are experimenting with a social business startup, Allied World Healthcare (AWH), to use technology and innovative collaborations to help solve common barriers to access. Working with other partners (Microsoft, PwC, the National University of Singapore and Singtel), and using expertise and funding from Novartis, AWH has developed a digital platform called Curis. Patients registering on Curis during health camp sessions supported by health authorities and local community leaders have a digital patient record created based on their self-reported data. An algorithm flags potential health issues, and patients are then referred to a local healthcare practitioner who can address health concerns and add information to the patient record over time. The system also works offline, which is important in rural areas with weak internet connectivity.

The platform is now operational in one of the most populous districts of the Philippines, with 37,000 patients enrolled. We are also setting up a pilot to see whether community-based insurance could be offered to these communities, and we are developing a streamlined supply chain model with a leading distributor in the region. We have also started replicating this model in Cambodia.

In India, to address the shortage of qualified doctors in rural areas, the Arogya Parivar team set up a digital platform with information technology provider Tech Mahindra to connect patients to secondary care specialists. Doctors provide online consultations and diagnose patients based on an initial screening done by a trained nurse, who is with the patient. For the past year, we piloted this digital platform with Aquarelle, a supplier to apparel company Levi’s, near Bangalore.

Health camps were held with workers from one plant, on topics including anemia, menstrual health, hygiene and diarrheal disease. Pilot results showed that 16% of factory workers were diagnosed as anemic and subsequently treated, and a subgroup analysis showed that absenteeism was reduced by 4% on average in little less than a year. We are currently discussing how to sustainably scale up the program with Levi’s.

SUPPORTING HEALTHCARE SYSTEMS IN AFRICA

The Novartis Africa Health Alliance (NAHA) and the associated Health Education and Capability Fund (HECF) were formally launched in 2016 to contribute to long-term business growth in Africa through targeted health system strengthening initiatives. NAHA comprises commercial business leaders and global health experts from across the company. Since 2016, NAHA has provided almost USD 2 million for programs across Africa. Moving forward, it will expand to additional resource-limited settings, simultaneously contributing to health system strengthening needs while delivering long-term value to both the business and society.

TRAINING COMMUNITY HEALTHCARE WORKERS

Recognizing the importance of the role of community health workers (CHWs) in building stronger healthcare systems in developing countries, Novartis continues its support of Last Mile Health, which has partnered with the Liberian government to successfully establish a national CHW program called the National Community Health Assistant Program. In addition, Last Mile Health is developing the world’s first digital education platform, called the Community Health Academy, for CHWs and the health system leaders who support them. To help launch this academy, Novartis is providing a USD 1 million donation over three years, in addition to providing input on the program’s curriculum, content and strategic direction.
Reviewing our approach to intellectual property

A robust intellectual property (IP) system is essential to our purpose of reimagining medicine to improve and extend people’s lives. In our research-intensive field, the IP system provides a proven, practical means to attract the massive investments needed to conduct and sustainably finance research and development. However, we believe that the system needs to help ensure a fair balance between promoting creative and innovative activity and returning value to society. For that reason, among other factors, Novartis does not file or enforce patents in least developed countries or low-income countries.

In late 2018, we reviewed our approach to patent filing in low- and middle-income countries (LMICs) in an effort to better align it with the local socio-economic circumstances that exist in many of these countries. As a result, effective 2019, we decided to stop filing patent applications in nine LMICs, where Novartis had previously filed. In addition, in the remaining LMICs, we will aim to restrict patent filings to those patent applications covering new molecules or new chemical entities.

In September, the World Intellectual Property Organization and the International Federation of Pharmaceutical Manufacturers & Associations launched the Patent Information Initiative for Medicines (Pat-INFORMED). Pat-INFORMED, of which we are a founding member, is a unique public online resource that provides basic patent information for medicines of participating companies. It aims to help procurement agencies around the world better understand patent status to help inform procurement decisions. As of December, Novartis has listed patent information for all of our small-molecule medicines, which goes significantly beyond Pat-INFORMED’s near-term goal of capturing information for medicines in a more limited number of disease areas.

Photo  Marie Gratia Musanabera (left), a nurse entrepreneur who owns and runs a health clinic in rural Rwanda, speaks with one of her patients. Ms. Musanabera’s clinic is part of an innovative network of more than 90 healthcare outposts in Rwanda affiliated with One Family Health, a nongovernmental organization.