

# Annual Review 2019

 NOVARTIS





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**Cover photo** Matteo Almeida, 4, was born with spinal muscular atrophy, a rare genetic disease that leads to progressive muscle weakness. If left untreated, infants with the severest form of the illness often don't live to see their second birthday. Matteo received a single treatment of a gene therapy, *Zolgensma*, when he was 27 days old as part of a clinical trial.

Matteo enjoys a laugh with his parents, Nicole and Derwin Almeida.

# Chairman's letter

Novartis delivered strong performance in 2019. New product launches together with a disciplined focus on costs and operational efficiency helped us increase sales, operating income and operating profit margin. Looking ahead, we are well positioned to continue our growth trajectory as we pursue our goal of driving science-based medical innovation.

With the successful spin-off of our former eye care division, Alcon, in early 2019, we concluded a major step in our portfolio transformation to create a more focused medicines company. We are active in disease areas with high unmet needs and have a leading portfolio of highly innovative drugs, including recently launched breast cancer therapy *Piqray*, eye care treatment *Beovu*, multiple sclerosis drug *Mayzent*, and our gene therapy *Zolgensma* for spinal muscular atrophy.

Going forward, we continue to strive for business excellence across all our divisions and functions. We are continually streamlining our business services and production platforms. We are also introducing innovative digital technologies to support our research, development and production efforts. As the digitization of our operations and the overall healthcare industry gains pace, we are also taking action to minimize cyber risks and protect patient data.

As a global healthcare leader, we are working to spearhead cutting-edge medical development. Our recent moves in the areas of gene therapies, radioligand therapies and digital health reflect our position at the forefront of scientific discovery. To develop breakthrough therapies that can help change the practice of medicine, we are intent on attracting the best industry talent, collaborating with leading technology partners, and pursuing acquisitions to strengthen and expand high-tech therapy platforms.

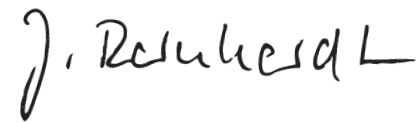
We have also established clear environmental, social and governance (ESG) targets for our management. With a view to reaching the highest international environmental standards, we aim to become carbon neutral by 2025, and plastic and water neutral by 2030, and have put processes in place to minimize the carbon footprint of our supply chain. Likewise, the implementation of our Access Principles is gaining pace with the approval of innovative medicines in low- and middle-income countries, including migraine treatment *Aimovig* and cancer drug *Kisqali*.

Although we still have work to do, we are also making good progress in efforts to enhance our integrity standards as part of a broader cultural transformation. In our strengthened governance framework, our Ethics, Risk & Compliance (ERC) function is developing a princi-

ples-based Code of Ethics to support our employees in navigating the increasingly complex healthcare landscape and managing associated risks. The Board of Directors and the Executive Committee are fully committed to further improving our business ethics principles to become one of the most trusted healthcare partners in the industry.

I thank you for the confidence you have placed in our company and am pleased to be able to propose a dividend increase of 4% to CHF 2.95 at the next Annual General Meeting.

Sincerely,



**Joerg Reinhardt**  
Chairman of the Board of Directors



Our recent moves in the areas of gene therapies, radioligand therapies and digital health reflect our position at the forefront of scientific discovery

Joerg Reinhardt

We are increasingly recognized as a leader in our industry in integrating data science and digital technologies into all aspects of our work – from discovering new medicines in the lab to improving manufacturing efficiency and serving our customers more effectively

Vas Narasimhan



## CEO's letter

The Novartis team works tirelessly to bring life-changing medical innovation to the world. We had a strong year in 2019 – delivering on our strategy, producing strong financial results, and making a significant impact on society by improving and extending the lives of people across the globe.

In April, we took an important step with the spin-off of our former Alcon eye care devices division, further transforming Novartis into a focused medicines company.

Our research and development teams launched five all-new medicines in 2019, from our groundbreaking gene therapy *Zolgensma*, to the first targeted biologic medicine for sickle cell disease patients. We also advanced the development of more than 25 potential blockbuster treatments that we hope to launch in the coming years. This progress shows the power of our innovation engine, and of our people.

We are taking steps to make our treatments available to more people worldwide by integrating access strategies into the core of our business. Our work to tackle sickle cell disease is one example. *Adakveo*, our new treatment for this life-threatening, inherited blood disorder, was approved for use in the US last November. At the same time, we launched a collaboration in Ghana to expand diagnosis and treatment of the disease and to strengthen the broader healthcare system – an approach that could become a model for other African countries.

We are increasingly recognized as a leader in our industry in integrating data science and digital technologies into all aspects of our work – from discovering new medicines in the lab to improving manufacturing efficiency and serving our customers more effectively. We are making progress on 12 major projects to deploy key digital technologies and data analytics at scale, and we're collaborating with other companies to accelerate our efforts in areas such as artificial intelligence.

There's significant work underway to transform how we operate, expand our capabilities and make us more efficient. In our manufacturing operations, we are adding capabilities in areas such as cell therapies, where we now have processing capacity in place on every major continent. In business services, we're getting smarter at procurement and redesigning our work to get at the root of inefficiencies, such as how we prepare marketing materials across the company.

Delivering on our strategy supported our financial performance in 2019. Strength in key products helped us post net sales of USD 47.4 billion, up 9%, measured in constant currencies (cc). Our core operating income rose 17% (cc) to USD 14.1 billion, increasing core margin by 1.9 percentage points (cc) to 29.7%.

I'm incredibly grateful for the hard work of our employees, whose passion and commitment is driving our momentum on every front. They are helping us transform our company culture, which I

believe will be a core performance driver for Novartis. It will take time, but after visiting Novartis sites in nearly 40 countries since I took over as CEO two years ago and seeing the results from our internal surveys, I'm confident our culture change is taking hold.

The progress we made this past year is helping set the foundation for a remarkable future for our company as we strive to create long-term value for patients, for society and for our shareholders. Thank you for your support as we continue reimagining medicine together.

Sincerely,

**Vas Narasimhan**  
Chief Executive Officer

# Who we are

## Our purpose

We reimagine medicine to improve and extend people’s lives. We use innovative science and technology to address some of society’s most challenging healthcare issues. We discover and develop breakthrough treatments and find new ways to deliver them to as many people as possible. We also aim to reward those who invest their money, time and ideas in our company.

## Our company

### INNOVATIVE MEDICINES

The Innovative Medicines Division has two business units:

#### Novartis Oncology

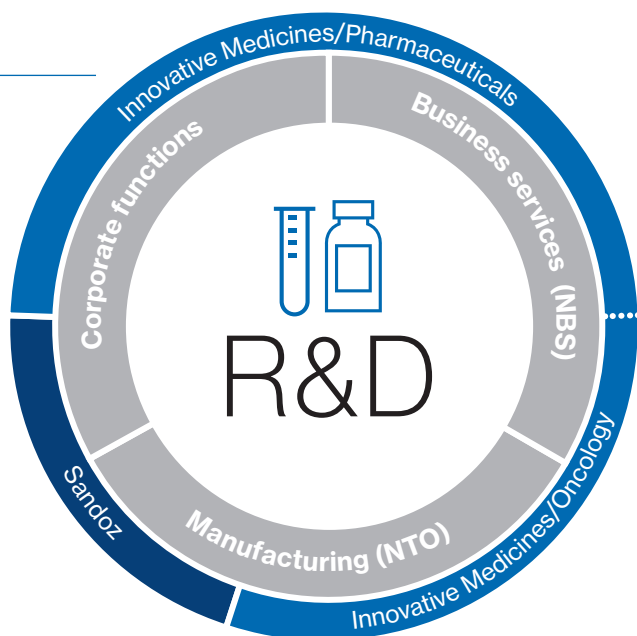
Novartis Oncology focuses on patented treatments for a variety of cancers and rare diseases.

#### Novartis Pharmaceuticals

Novartis Pharmaceuticals focuses on patented treatments in multiple disease areas to enhance health outcomes for patients and offer solutions to healthcare providers.

### SANDOZ

Sandoz offers patients and healthcare professionals high-quality, affordable generics and biosimilars.



### NOVARTIS TECHNICAL OPERATIONS (NTO)

is responsible for making our innovative medicines, devices and Sandoz products and delivering them to our customers across the world.

### NOVARTIS BUSINESS SERVICES (NBS)

consolidates support services across our organization, helping drive efficiency, simplification, standardization and quality.

### CORPORATE FUNCTIONS

support the enterprise in specific areas of expertise, including finance, human resources, legal and communications.

## RESEARCH AND DEVELOPMENT (R&D)

**The Novartis Institutes for BioMedical Research (NIBR)** is the innovation engine of Novartis. NIBR focuses on discovering new drugs that can change the practice of medicine.

**The Global Drug Development (GDD)** organization oversees the development of new medicines discovered by our researchers and partners.



**Our culture**

Curious  
Inspired  
Unbossed

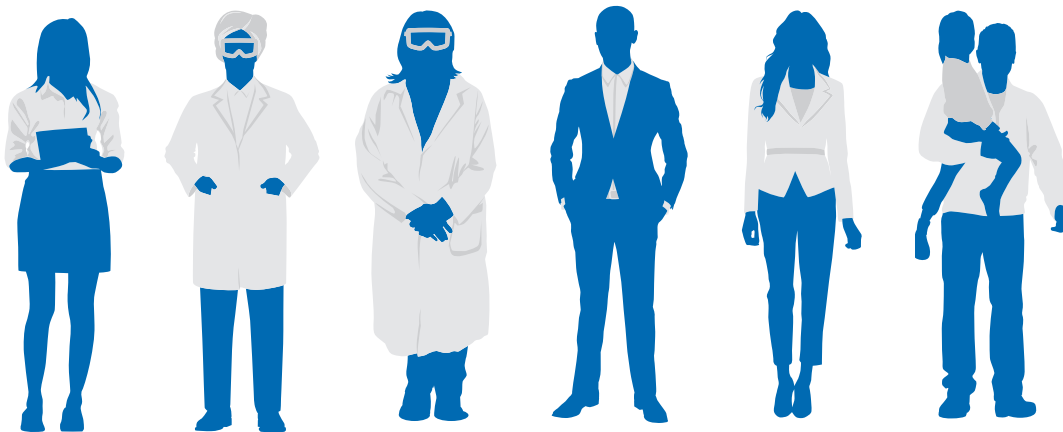


**Our values**

Innovation      Performance  
Quality          Courage  
Collaboration    Integrity

**Our people**

The greatest strength of Novartis is our people, whose diversity, energy and creativity are crucial to our success.



HEADCOUNT	NATIONALITIES	ANNUAL TRAINING HOURS PER EMPLOYEE	WOMEN IN MANAGEMENT
108 775	149	35.8	44%

# What we do

## Our business model

### RESOURCES WE USE

#### TALENTED PEOPLE

We depend on the skills and creativity of our employees to discover, develop and produce new medicines, and deliver them to patients.

#### FINANCIAL CAPITAL

We use cash, equity and debt to meet our financial commitments, make investments and pay dividends.

#### INTELLECTUAL CAPITAL

We use expertise and data to develop and market our products. We hold patents and trademarks that protect the long-term investments required for our business.

#### NATURAL CAPITAL

We consume energy, water and other resources to manufacture our products and operate our business.

#### TECHNOLOGY

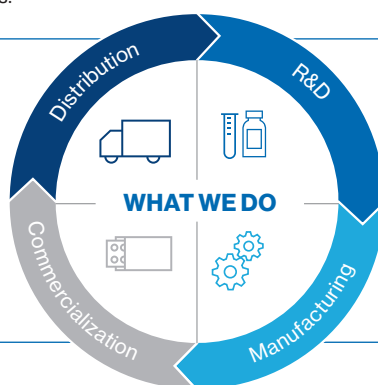
We use artificial intelligence, gene editing and other cutting-edge technologies to spur innovation and increase efficiency.

#### INFRASTRUCTURE AND FACILITIES

We own or lease research laboratories, manufacturing sites, offices and distribution facilities around the world.

#### RELATIONSHIPS

We work with doctors to get effective treatments to patients. We partner with external organizations to accelerate drug discovery, develop business opportunities and expand patient access.



### THE VALUE WE CREATE

#### JOBS

1.3 m

Indirect, induced (2018)

#### SHAREHOLDER RETURNS

22.3%

2019 total shareholder return (USD), including Alcon spin-off

#### TAXES PAID

1.9 bn

(USD)

#### IMPROVED HEALTH AND WELL-BEING

67 bn

Social impact (USD, 2018), based on estimated value of health benefits to patients

#### ACCESS TO MEDICINE AND HEALTHCARE

799 m

Patients reached with Novartis medicines

108 775

Own operations

6.6 bn

Total dividends paid (USD)

10 m

People reached through training and health education programs

## Our products

Our products address most major disease areas and are sold in approximately 155 countries around the world. Our manufacturing facilities produced 72 billion treatments in 2019.

We develop and produce innovative medicines to address patient needs in disease areas where our experience and knowledge have the potential to produce transformative treatments.

We also offer about 1 000 generic and bio-similar medicines covering a broad range of therapeutic areas. They can bring substantial savings to patients and healthcare systems, and help improve access to healthcare.

 ONCOLOGY	 RESPIRATORY	 NEUROSCIENCE
 CARDIOVASCULAR, RENAL AND METABOLISM	 IMMUNOLOGY, HEPATOLOGY AND DERMATOLOGY	 INFECTIOUS DISEASES
 OPHTHALMOLOGY		

 PILLS	 INJECTIONS	 INHALERS
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## Our environment

We live in an era of amazing medical innovation, driven by better understanding of the genetic and biological roots of disease, and surging use of data analytics and digital technology in science and healthcare. At the same time, the world's population continues to grow and people are living longer, fueling a rise in chronic diseases. Together, these factors are increasing demand for high-quality care worldwide and pressuring healthcare systems to restrain spending growth.

### ACCELERATING INNOVATION

39%

The rise in the average yearly number of new drugs approved by the US FDA's Center for Drug Evaluation and Research from 2015-2019, compared to 2010-2014

235bn

The projected value of the global digital health market by 2023 (USD), a 60% increase from 2019, according to the Frost & Sullivan Global Digital Health Outlook 2020

### AGING POPULATION

997m

The projected number of people in the world aged 65 or older by 2030, a 64% increase from 2015, according to the United Nations World Population Prospects

### HEALTHCARE SPENDING

5%

The expected annual average growth in healthcare spending between 2019 and 2023, according to the Economist Intelligence Unit

## Our strategy

### Our strategy is to build a leading, focused medicines company powered by advanced therapy platforms and data science.

As we implement our strategy, we have five priorities to shape our future and help us continue to create value for our company, our shareholders and society.

### STRATEGIC PRIORITIES



#### Unleash the power of our people

We are transforming our culture to ensure people can fully apply their talent and energy. We're creating an organization where people are inspired, curious and unbossed.

→ p. 18



#### Deliver transformative innovation

In our pursuit of transformative treatments, we challenge medical paradigms and explore possibilities to cure disease, intervene earlier in chronic illnesses, and find ways to dramatically improve quality of life.

→ p. 22



#### Embrace operational excellence

We are rethinking how we work, embracing agile teams and building better productivity into our company to free resources that we can invest in innovation and help boost returns.

→ p. 30



#### Go big on data and digital

We aim to spark a digital revolution at Novartis, embracing digital technologies, advanced analytics and artificial intelligence to help drive innovation and improve efficiency.

→ p. 32



#### Build trust with society

We strive to build trust with society through our efforts to operate with integrity, and to find new ways to expand patients' access to our treatments.

→ p. 36

# Key performance indicators consolidated highlights

## Financial

### Key figures<sup>1</sup>

(in USD millions, unless indicated otherwise)

	2019	2018	% Change	
			USD	Constant currencies
Net sales to third parties from continuing operations	<b>47 445</b>	44 751	6	9
Operating income from continuing operations	<b>9 086</b>	8 403	8	14
Return on net sales (%)	<b>19.2</b>	18.8		
Net income from continuing operations	<b>7 147</b>	12 800	- 44	- 41
Net income from discontinued operations	<b>4 590</b>	- 186	nm	nm
Net income	<b>11 737</b>	12 614	- 7	- 3
Basic earnings per share <sup>2</sup> (USD) from continuing operations	<b>3.12</b>	5.52	- 43	- 40
Basic earnings per share <sup>2</sup> (USD) from discontinued operations	<b>2.00</b>	- 0.08	nm	nm
Basic earnings per share <sup>2</sup> (USD)	<b>5.12</b>	5.44	- 6	- 2
Core operating income from continuing operations	<b>14 112</b>	12 557	12	17
Core return on net sales (%)	<b>29.7</b>	28.1		
Core net income from continuing operations	<b>12 104</b>	10 920	11	15
Core earnings per share <sup>2</sup> from continuing operations (USD)	<b>5.28</b>	4.71	12	17
Free cash flow from continuing operations	<b>12 937</b>	11 256	15	

### Share information

	2019	2018	% Change
Share price at year-end (CHF) <sup>3</sup>	<b>91.90</b>	84.04	9
ADR price at year-end (USD) <sup>3</sup>	<b>94.69</b>	85.81	10
Dividend <sup>4</sup> (CHF)	<b>2.95</b>	2.85	4

<sup>1</sup> This Novartis Annual Review 2019 includes non-IFRS financial measures such as core results, constant currencies and free cash flow. Novartis believes that investor understanding of the Group's performance is enhanced by disclosing these non-IFRS measures. A definition of non-IFRS measures used by Novartis, and further details, including reconciliation tables, can be found in "Item 5. Operating and Financial Review and Prospects" of the Novartis Annual Report 2019.

<sup>2</sup> 2019 weighted average number of shares outstanding: 2 291 million (2018: 2 319 million)

<sup>3</sup> The share price and ADR price at year-end 2019 exclude the business of Alcon, which was spun off in April 2019 into a separately traded standalone company.

<sup>4</sup> Dividend 2019: proposal to shareholders for approval at the Annual General Meeting on February 28, 2020

## Innovation

### Key figures<sup>1</sup>

	2019	2018
Projects entering development pipeline <sup>2</sup>	8	8
Ongoing Phase III programs <sup>3</sup>	38	35
US FDA breakthrough therapy designations <sup>4</sup>	3	4
Major submissions (US, EU, JP, China) <sup>5</sup>	33	27
Major approvals (US, EU, JP, China) <sup>5</sup>	24	30
New molecular entity (NME) approvals <sup>6</sup>	5	3

## Social

### Access<sup>7</sup>

	2019	2018
Total patients reached (millions)	799	765
Patients reached through access-to-healthcare <sup>8</sup> programs (millions)	16 <sup>9</sup>	25
People reached through training and health education programs (millions) <sup>10</sup>	10	8

### People<sup>7</sup>

Full-time equivalent positions / headcount <sup>11</sup>	103 914 / 108 775	125 161 <sup>12</sup> / 129 924 <sup>12</sup>
Turnover: % voluntary / % overall	7.0 / 14.0	7.1 <sup>12</sup> / 11.5 <sup>12</sup>
Women in management: % of management <sup>13</sup> / % of Novartis Top Leaders <sup>14</sup> / % of Board of Directors	44 / 31 / 25	41 / 27 <sup>12</sup> / 23 <sup>12</sup>
Misconduct cases (central matters) <sup>15</sup> reported / allegations substantiated <sup>16</sup>	205 / 113	289 / 356

### Health, safety and environment<sup>7,17</sup>

Lost-time injury and illness rate (per 200 000 hours worked) <sup>18</sup>	0.18	0.16
Greenhouse gas emissions, total Scope 1 and Scope 2 (1 000 t) <sup>19</sup>	895.1	931.2

<sup>1</sup> Includes Innovative Medicines and Sandoz biosimilars only

<sup>2</sup> Includes programs entering confirmatory development, based on internal R&D activities. First patient, first visit (FPFV) has occurred in post-proof-of-concept stage after NIBR or external entry.

<sup>3</sup> Includes projects with FPFV in a Phase III study but not yet filed in the US, EU, Japan or China

<sup>4</sup> Number of breakthrough therapy designations granted by the US Food and Drug Administration for therapies under development by Novartis

<sup>5</sup> Includes small molecules, biologics; new fixed-dose combinations of existing APIs; and new target indications, defined as new disease or new line of treatment (e.g., first line vs. second line)

<sup>6</sup> Includes NMEs such as small molecules, biologics; in the EU, new fixed-dose combinations of existing APIs

<sup>7</sup> Data represent continuing operations.

<sup>8</sup> Novartis Social Business, local brands, patient assistance programs, donations

<sup>9</sup> Our patient reach has steadily declined over the past five years, due to the increasing availability of WHO prequalified generic ACTs, eligible for international donor-funded procurement. In addition, to harmonize the patient reach calculation methodology across Novartis, the malaria patient reach calculation was revised. We no longer consider a time lag between treatment shipment and patient reached. The calculation for malaria is now based on the treatments shipped in the respective calendar year.

<sup>10</sup> Programs run by Novartis Social Business

<sup>11</sup> Headcount reflects the total number of associates in our payroll systems. Full-time equivalent adjusts headcount for associates working less than 100%. All data as of December 31

<sup>12</sup> Data represent continuing and discontinued operations.

<sup>13</sup> Management defined by Global Job Level Architecture and Novartis Top Leaders

<sup>14</sup> Novartis Top Leaders comprise the approximately 350 most senior managers at Novartis, including the Executive Committee of Novartis.

<sup>15</sup> Decrease in number of misconduct cases reported is due to change in methodology: As of January 1, 2019, we only report on central matters (higher-risk cases). A central matter applies to a senior leader or manager, potentially disruptive reputational impact, sexual harassment, discrimination, retaliation and financial significance.

<sup>16</sup> The number of misconduct cases reported may change, as matters may be reassessed in the course of the case lifecycle. The number of substantiated allegations may change due to the fact that investigation reports with assessments are received on an ongoing basis, which potentially leads to a difference in numbers at a later stage. A case can have more than one allegation and therefore the number of allegations is higher than the actual number of cases.

<sup>17</sup> The 2019 environmental sustainability data published in this report are actual data for the period from January through September, and best estimates for the period from October through December, which will be updated with actual data in the first quarter of 2020. Significant deviations will be reported on our website and restated in next year's end-of-year reports.

<sup>18</sup> Data include Novartis associates and third-party personnel managed by Novartis associates.

<sup>19</sup> Scope 1: combustion and process, and vehicles; Scope 2: purchased energy



A baby in Ghana at Kumasi General Hospital, which screens newborns for sickle cell disease. The inherited blood disorder can be life-threatening, and only about 4% of babies in Ghana are currently tested for the disease. In 2019, Novartis launched a collaboration with the Sickle Cell Foundation of Ghana and the Ministry of Health of Ghana that aims to expand newborn screening and improve access to treatment.



DH. I  
KSI.

# News highlights

## FEBRUARY

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### **Complete acquisition of CellforCure**

The deal expands our manufacturing capacity for cell and gene therapies

### **Announce FDA approval of Egaten**

It is the only medicine recommended by the WHO for liver fluke, a neglected tropical disease

## MARCH

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### **Announce FDA approval of Mayzent**

It treats active secondary progressive multiple sclerosis. EU approval announced in January 2020

### **Receive Kymriah approval in Japan**

It follows the launch of the CAR-T therapy in the US, the EU and other countries

## APRIL

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### **Complete Alcon spin-off**

The move enables Novartis to focus fully on medicines

### **Announce acquisition of IFM Tre**

It is developing a potentially effective new way to treat inflammatory diseases

## MAY

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### **Announce FDA approval of Zolgensma gene therapy**

It is a treatment for children with spinal muscular atrophy

### **Announce acquisition of Xiidra**

It is the only prescription medicine that addresses both the signs and symptoms of dry eye

### **Receive FDA approval of Piqray**

The treatment can improve survival for patients with advanced breast cancer

## JULY

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### **Launch Sandoz generic gefitinib in Europe**

It is expected to expand access to a first-line lung cancer treatment

### **Begin phased launch of new global parental leave policy**

All Novartis employees will be eligible for a minimum of 14 weeks' paid leave

## OCTOBER

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### **Announce data science collaboration with Microsoft**

The alliance focuses on using AI to discover, develop and produce medicines more quickly and efficiently

### **Receive FDA approval for Beovu**

It treats a leading cause of vision loss that affects 20 million people worldwide

## NOVEMBER

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### **Receive FDA approval for bio-similar Zixtenzo**

It is the fourth Sandoz biosimilar approved in the US

### **Announce Sandoz purchase of Japan generics business**

The planned acquisition from Aspen Pharmacare would complement our generics portfolio and pipeline

### **Announce acquisition of The Medicines Company**

Its experimental drug may help high-risk patients who struggle to lower their cholesterol. The deal closed in January 2020

### **Receive FDA approval for Adakveo**

The medicine reduces the frequency of pain crises in patients with sickle cell disease

## DECEMBER

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### **Announce collaboration with Amazon Web Services**

It will use cloud-based AI software to improve how we manufacture and deliver medicines

# Performance

Novartis delivered strong performance in 2019,<sup>1</sup> driven by accelerating sales in key products and successful new launches. Our results underscore the strength of our innovation and the progress we have made in transforming Novartis into a focused medicines company.

## Growth drivers

Strong sales of key products and successful new launches bolstered our performance in 2019. Novartis net sales were USD 47.4 billion in our continuing operations, rising 9% from the prior year when measured in constant currencies (cc) to remove the impact of exchange rate movements. We had 15 products with annual sales of USD 1 billion or more.

Products that we consider our key growth drivers continued to underpin our performance. These include *Cosentyx*, our treatment for psoriasis and other autoimmune diseases, which showed strong results across indications and regions: Sales rose 28% (cc) from the prior year to USD 3.6 billion. *Entresto*, a treatment for heart failure that has been used to treat more than 1.4 million patients worldwide, further solidified its position with sales of USD 1.7 billion, an increase of 71% (cc).

*Promacta*, a treatment for blood disorders that is known as *Revolade* outside the US, grew 23% (cc) to USD 1.4 billion. *Tafinlar + Mekinist*, a combination treatment for skin and lung cancers, increased 20% (cc) to USD 1.3 billion. *Jakavi*, a treatment for blood disorders and cancers, grew 20% (cc) to USD 1.1 billion, achieving blockbuster status for the first time. *Kisqali*, a breast cancer treatment, had sales of USD 480 million, up 111% (cc). Meanwhile, *Lutathera*, a radioligand therapy for a rare type of cancer in the pancreas or gut, registered USD 441 million in sales in its first full year after launch.

We also saw significant contributions in 2019 from newly launched or acquired products. *Piqray*, a breast cancer medicine, registered sales of USD 116 million. *Zolgensma*, a breakthrough gene

therapy for children with spinal muscular atrophy, had sales of USD 361 million. *Xiidra*, a treatment for dry eye disease that we acquired in July, contributed USD 192 million to sales. *Beovu*, a treatment for neovascular (wet) age-related macular degeneration that was approved in October, started well with sales of USD 35 million.

Sales of Sandoz biopharmaceuticals increased 16% (cc) to USD 1.6 billion. Biopharmaceuticals include biosimilars, which are less expensive follow-on versions of complex biologic drugs that are being embraced by healthcare systems, particularly in Europe.

In Europe, our largest market, Novartis sales grew 10% (cc). Sales in the US rose 11%. Sales in emerging growth markets grew 10% (cc), led by a double-digit increase in China.

Operating income was USD 9.1 billion, up 14% (cc) from the prior year, mainly

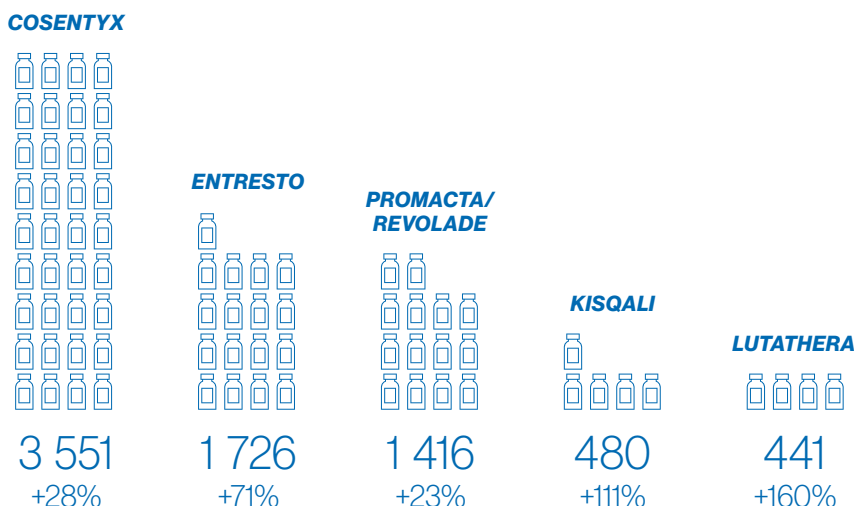
driven by higher sales and improved productivity, but partly offset by increased investment in marketing and sales and provisions for legal settlements. Net income of USD 7.1 billion declined 41% (cc), reflecting a large net gain in 2018 from the sale of our stake in a consumer health joint venture with GlaxoSmithKline. Earnings per share were USD 3.12.

To help people understand our underlying performance, we also present our core results, which exclude the impact of amortization, restructurings, acquisitions and other significant items. Core operating income of USD 14.1 billion rose 17% (cc). Core net income of USD 12.1 billion rose 15% (cc). Core earnings per share were USD 5.28, up 17% (cc). Free cash flow of USD 12.9 billion was up 15%.

For more detail on our financial performance, please see our Annual Report 2019 at [www.novartis.com/annualreport2019](http://www.novartis.com/annualreport2019)

## SELECTED GROWTH CONTRIBUTORS – INNOVATIVE MEDICINES IN 2019

(in USD millions, % growth in constant currencies)

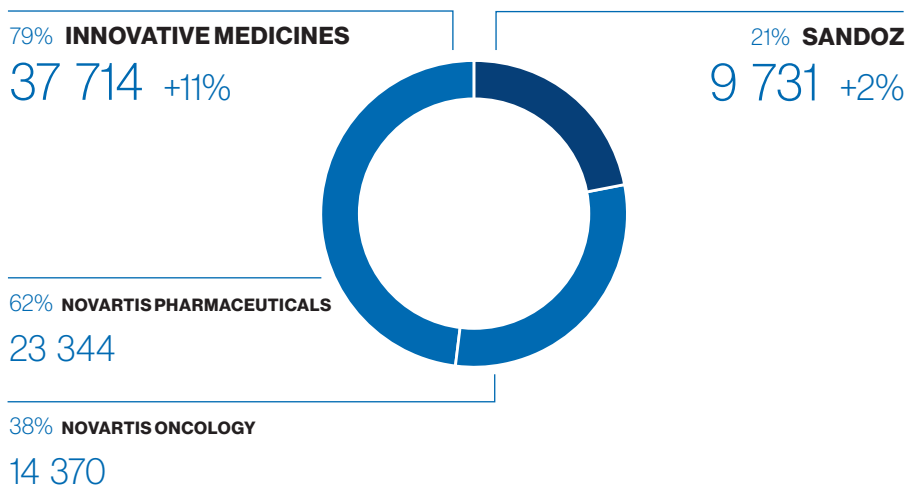


<sup>1</sup> The commentary focuses on continuing operations and excludes the performance of Alcon, which was spun off to Novartis AG shareholders on April 9, 2019.

Novartis delivered strong performance in 2019, with both divisions contributing to growth

**2019 NET SALES BY DIVISION**

(in USD millions, % growth in constant currencies, and divisional or business unit share of net sales)



**NET SALES FROM CONTINUING OPERATIONS**

	USD millions	% growth in cc
2019	47 445	+9%
2018	44 751	+5%

**OPERATING INCOME FROM CONTINUING OPERATIONS**

	USD millions	% growth in cc
2019	9 086	+14%
2018	8 403	-3%

**NET INCOME FROM CONTINUING OPERATIONS**

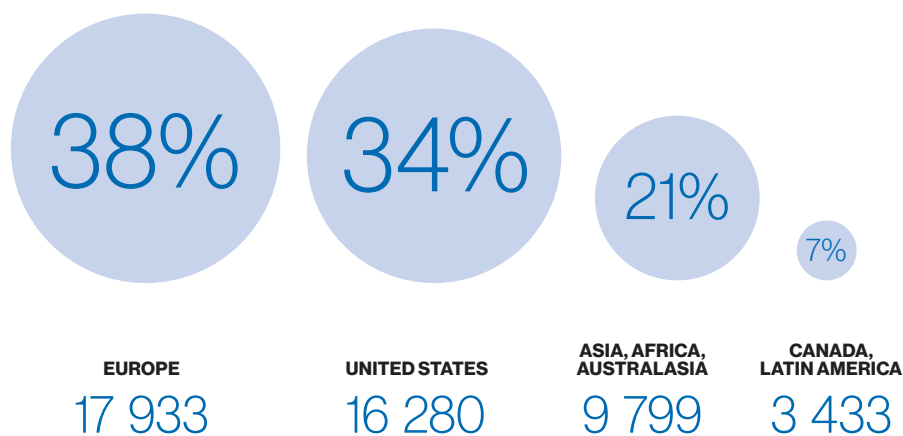
	USD millions	% growth in cc
2019	7 147	-41%
2018	12 800	+71%

**CORE OPERATING INCOME FROM CONTINUING OPERATIONS**

	USD millions	% growth in cc
2019	14 112	+17%
2018	12 557	+7%

**2019 NET SALES BY GEOGRAPHICAL REGION**

(% of net sales and in USD millions)



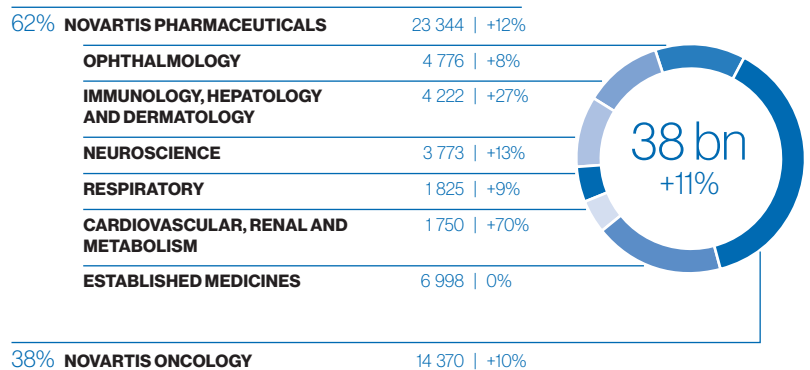


### Innovative Medicines

Continued growth in sales of key products underpinned strong performance in the Innovative Medicines Division (IM) in 2019. Net sales of USD 37.7 billion grew 11% (cc) from the prior year. Both business units registered double-digit growth: Novartis Pharmaceuticals had net sales of USD 23.3 billion, up 12% (cc), driven primarily by increases for *Cosentyx*, our treatment for psoriasis and other autoimmune diseases, and *Entresto*, our heart failure treatment. Net sales in Novartis Oncology were USD 14.4 billion, up 10% (cc) from 2018, driven by increases for *Lutathera*, a radioligand therapy; *Promacta* (known as *Revolade* outside the US); and *Kisqali*, a breast cancer treatment. Newly launched or acquired products – including *Piqray*, *Zolgensma*, *Xiidra* and *Beovu* – also contributed to the strong IM performance. Overall, products that we consider our key growth drivers contributed 35% of IM net sales in 2019. Core operating income was USD 12.7 billion, up 18% (cc), driven by higher sales and improved productivity, but partly offset by increased investment in marketing and sales.

### INNOVATIVE MEDICINES 2019 NET SALES BY BUSINESS UNIT AND FRANCHISE

(in USD millions, % growth in constant currencies, and business unit share of net sales)

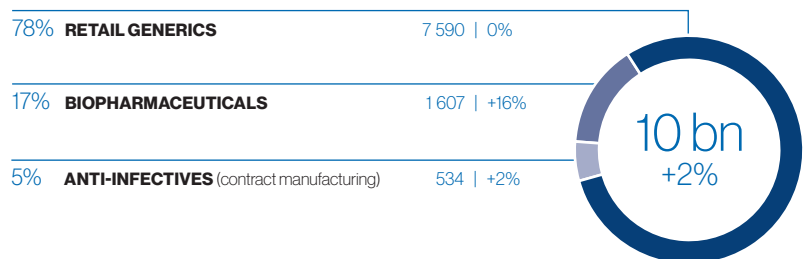


### Sandoz

Our Sandoz Division returned to sales growth, up 2% (cc) to USD 9.7 billion, and margin expansion in 2019. Globally, growth continued to be driven by sales of biopharmaceuticals, including biosimilars, which rose 16% (cc) to USD 1.6 billion. Sales in Europe rose 9% (cc). Sales in the US declined 10% amid continued pressure on prices for generic medicines industrywide. Core operating income was USD 2.1 billion, up 10% (cc). Sandoz continued to become a more autonomous and leaner division within Novartis in 2019 and sharpened its focus on core generics and biosimilars. In November, Sandoz announced plans to expand its presence in Japan, the world's third-largest generics market, through the acquisition of Aspen Pharmacare's Japanese generics business.

### SANDOZ 2019 NET SALES BY FRANCHISE

(in USD millions, % growth in constant currencies, and franchise share of net sales)





Finn Song (left), an associate clinical scientist at Novartis in Shanghai, China, and a friend enjoy some free time together on the weekend.



## STRATEGIC PRIORITIES

# Unleash the power of our people

To help us fulfill our company purpose of reimagining medicine, we are changing the way we work to unleash the talent and creativity of our people. We made progress in 2019 on our cultural transformation, which is a strategic priority for Novartis. We aim to make our culture a driver of innovation, performance and reputation, and a source of sustainable competitive advantage.

Cultural transformation means ensuring employees feel **inspired** by our purpose. We want them to be constantly **curious** about new ideas that can improve health outcomes for patients, physicians and society as a whole. And we strive to create an “**unbossed**” culture in which leaders are encouraged to serve their teams, remove obstacles, and empower people to attain their personal and professional ambitions.

To support this transformation, our goal is to attract, develop and promote highly talented people who embody the new culture, and to build a diverse and inclusive workforce so we can tap the broadest possible range of skills, experiences and backgrounds.

## Progress in cultural transformation

### Providing inspiration and sustaining impact

Our purpose provides a major source of inspiration for employees, and we constantly seek ways to show how their work contributes to its fulfillment. In 2019, Novartis senior leaders increased communication about the impact we are having on global health – whether through the launch of innovative cell and gene therapies, or through our efforts to fight malaria. The company’s purpose was a constant theme on our internal social media platform and intranet. We also held a series of live global events featuring external thought leaders to inspire employees with ideas from outside the organization.

We aim to sustain inspiration by providing employees with a working environment and practices that encourage them to do their best work. In 2019, for instance, we began experimenting with

a new approach to managing people’s performance. In trials involving more than 16 000 employees in eight countries, we eliminated individual performance ratings, stressing instead the importance of teamwork and collaboration. People got regular feedback from peers as well as managers, and we increased the focus on coaching to improve performance. The experience we gained will inform how we extend the process across the company in the next two years.

In 2019, we began experimenting with a new approach to managing people’s performance. In trials involving more than 16 000 employees in eight countries, we eliminated individual performance ratings, stressing instead the importance of teamwork and collaboration

We also began implementing a global guideline providing for at least 14 weeks’ paid leave for all new parents employed by Novartis, regardless of gender, to support the well-being of their families after the birth or adoption of a child. Currently 82% of employees in more than 40 countries can benefit from the guideline, and by January 2021, we expect it to cover all Novartis employees, helping them feel more fulfilled and inspired in their work and home lives.

We continued our Energized for Life initiative, including programs to improve employees’ health and well-being. For example, we expanded a program that supports people affected by medical

## 14 weeks

The minimum paid leave provided to parents, regardless of gender, under our new global parental leave guideline announced in 2019

conditions such as cancer and neurological and cardio-metabolic disorders to cover 80 000 employees and their families in more than 70 countries. Our alliance with an external company that gives advice and support in areas like nutrition, movement, mindset and recovery now extends to all employees worldwide. In addition, we started rolling out mindfulness and mental health support programs globally.

### Encouraging curiosity and learning

We are building a culture that stimulates curiosity, encouraging people to challenge the status quo and explore new ways of working. To support that culture, we provide multiple opportunities for employees to learn from colleagues and external experts. This is vital to help us keep pace with the digital revolution in healthcare and accelerating innovation in biomedical research.

A popular employee-crowdsourced idea to support culture change prompted us to announce a new investment of USD 100 million over the next five years, on top of our existing annual training budget of about USD 200 million. And we are encouraging all employees to devote 100 hours per year to learning activities.

About 2 000 people completed a digital immersion course for leadership teams that included a hands-on simulation with opportunities to experience and use the latest technologies. Our online Digital Awareness Hub launched in 2018 to help demystify digital technology was used by 33 000 people, or nearly a third of all employees.

In 2019, we began giving employees free access to 3 500 virtual courses provided by Coursera in conjunction

with 200 leading global universities. During the first year, more than 7 000 people took part in over 1 800 different courses, many relating to leadership and digital skills, amounting to nearly 85 000 hours of training. In addition, we started offering virtual master's programs in data science via Coursera with two US universities. In collaboration with LinkedIn Learning, 11 000 employees completed more than 370 000 shorter courses and training videos. We also launched virtual language training and around 14 000 people took part, supporting effective communication among colleagues from 120 countries.

This activity reached its peak in our second Novartis Learning Month in September, when over 15 000 employees devoted 100 000 hours to learning and participated in 130 webinars and 250 local learning events. For the full year, employees spent an average of 35.8 hours on learning activities, up from 22.6 hours the prior year.

We are building a culture that stimulates curiosity and provides multiple opportunities for employees to learn from colleagues and external experts

### Creating unbossed leadership

Leaders are critical for driving culture change, and this means developing strong and self-aware managers who act in an unbossed way. In other words, they set clear priorities, empower their teams, and encourage employees to speak their mind and take smart risks.

In 2019, 350 senior leaders began a year-long leadership development program

# 33 000

The number of employees – nearly a third of the company – who used our online Digital Awareness Hub

### UNBOSSED

Our approach to empowering our people is inspired by ideas explored in the book "UNBOSS" by Lars Kolind and Jacob Bøtter

to build the capabilities they need to help transform our culture. So far, 120 have completed it, with the rest due to finish in 2020. Members of the Executive Committee of Novartis (ECN) are going through the same intensive program, which includes a two-week immersion session supported by coaching, as well as webinars, and three 360-degree evaluations to track progress. We plan to cascade key aspects of the program to 10 000 leaders over the next three years, helping embed the new leadership approach in our organization.

We expect the benefits of the new approach to grow as more leaders adopt it, but there are indications it is already beginning to change the way people work. For example, in a technique borrowed from the technology industry, self-directed project teams in our manufacturing and commercial operations are developing digital applications more quickly than they were able to in the past. And when our medical liaisons in the US were free to organize their own approach to telling doctors about some positive research results in heart failure patients taking *Entresto*, they doubled the number of customer engagements in a 90-day period, compared to the typical top-down approach.

We believe effective leadership is grounded in self-awareness, and in 2019, we rolled out a new online assessment tool that allows leaders to get feedback from colleagues and team members on how well they are encouraging an inspired, curious and unbossed culture. In addition, a range of tools monitor progress within the organization and provide regular feedback. In an annual survey, employees gave their managers an approval score of 82.5 points higher than a global benchmark. A new quarterly survey to assess employee engagement in November 2019 showed a score of 74.4 points above the pharmaceutical industry benchmark, with a score of 78 for sense of purpose, 2 points above the benchmark.

## Ensuring a wealth of diverse talent

The future success of Novartis depends on our ability to recruit and promote talented individuals who can drive the company's performance in an era of accelerating innovation. In 2019, we continued our progress on initiatives to promote a diverse and inclusive workforce.

Novartis made progress toward our goal of gender balance in management by 2023, with the percentage of women managers at 44%. The number of women on the ECN rose from two to three, and women now head both the Novartis Pharmaceuticals and Novartis Oncology business units.

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We also made progress toward our United Nations Equal Pay International Coalition (EPIC) pledge to close the gender pay gap by 2023. One major step is to remove potential bias from the system by eliminating historical salary data when making job offers, and in 2019 we achieved this in seven countries covering 40% of global hiring, including the US and India.

We are encouraging more open discussion of pay so employees can see how their income compares to peers and, where possible, to external benchmarks. We have already launched pay transparency in France and plan to add seven more countries in 2020, including the US and Switzerland. In a further sign of our commitment, Novartis has been included in the 2020 Bloomberg Gender-Equality Index, which tracks a range of measures including female leadership and talent pipeline, gender pay parity and inclusive culture.

Derwin Almeida romps in a backyard pool with his son Matteo, 4, who was born with spinal muscular atrophy. This devastating genetic-disease leads to progressive muscle weakness and paralysis. Matteo received the gene therapy *Zolgensma* as an infant to treat the disease.

Our progress in diversity and inclusion (D&I) was reviewed in two global surveys. We were pharmaceutical industry leaders in the Refinitiv (formerly Thomson Reuters) D&I Index and were seventh out of more than 7 000 companies worldwide. We were also ranked No. 7 in the Dow Jones Sustainability Index, which compares the environmental, social and governance performance of the world's leading companies. We were industry leaders in a number of environmental areas and in labor practice indicators covering D&I, equal remuneration, and freedom of association.

In addition to the focus on D&I, our talent strategy aims to anticipate future business priorities. Internal promotion has played a vital role in revitalizing the company's leadership as we transform our culture, with four out of 10 new ECN members in the last two years coming from within the organization. Among the company's top 293 leaders, 38% were appointed during the past year and 82% of these positions were filled internally. We are also stepping up external recruitment, both to refill the talent pipeline and to develop our capabilities in key areas such as data science.

A major driver of recruitment is our new Employer Value Proposition, which captures our appeal as an employer and provides a framework for attracting talented individuals to the organization. One year after launch, we have already seen an 88% increase in hires made via the Glassdoor recruitment website and a 72% increase in hires made through LinkedIn, compared to 2018.



## STRATEGIC PRIORITIES

# Deliver transformative innovation

Dedicated researchers across the globe contribute to our industry-leading pipeline of therapies for serious diseases. Nearly 23 000 scientists, physicians and business professionals design and develop new treatments, focusing on projects and technologies with the potential to have a significant impact on lives.

24

**MAJOR APPROVALS**

Major approvals granted to Novartis in 2019 by health authorities in the US, the EU, Japan and China for new treatments as well as new indications for existing treatments

In 2019, we delivered new therapies for patients with a variety of illnesses, receiving key approvals for medicines ranging from a gene therapy for a rare neurodegenerative disease to a biologic drug for neovascular (wet) age-related macular degeneration, the leading cause of blindness in industrialized countries. And pivotal study readouts and filings lay the foundation for additional drug launches in 2020.

The latest data and digital technologies aid this decision-making while also helping us accelerate and improve the drug development process. Our research and development teams are at the forefront of a companywide effort to harness advances in machine learning and predictive analytics to transform the way we work. We're scaling up programs and launching new ones to mine petabytes of data – from images of cells to patient test results from thousands of clinical trials – for insights.

33

**MAJOR SUBMISSIONS**

Major submissions by Novartis in 2019 to health authorities in the US, the EU, Japan and China for marketing approval for new treatments and new indications

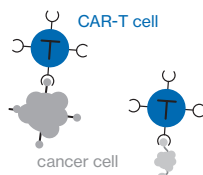
Our consistent investment in research and development – USD 9.4 billion in 2019 alone – fuels this progress. It is also a key pillar of our strategy to build a leading, focused medicines company powered by advanced therapy platforms and data science. Unsatisfied with incremental advances, we prioritize game-changing technologies, with 90% of treatments in development anticipated to be first in class or first in a specific medical indication. We have the resources and the breadth and depth of expertise to place big bets.

An enterprise data and analytics platform built by Novartis called Nerve Live demonstrates our progress. It includes modules that help teams better manage project resources. They can plan and run more effective clinical trials based on what happened in previous studies. In 2019, we finished rolling out the latest Nerve Live modules and launched two new insights centers where we can monitor trials across the company and predict potential issues, such as delays in recruiting patients before they become a problem.

We're pursuing drug targets that seem intractable and working on difficult-to-treat diseases. Novartis researchers employ emerging technologies – from inside and outside our walls – to make progress, collaborating across disciplines. We're particularly interested in technologies that can be applied to multiple therapeutic areas, allowing us to leverage our scale.

## Advanced therapy platforms

We constantly challenge convention, including by questioning the very definition of a medicine. Most pills and injections contain small molecules or proteins. We're exploring new ingredients such as genes and therapeutic viruses, fundamentally rethinking the tools in a drug hunter's arsenal. This work centers around advanced therapy platforms – broadly applicable tools with the potential to become therapeutic staples and game-changers for patients.

**CAR-T CELL**

Within the patient's body, CAR-T cells have the potential to recognize cancer cells and other cells expressing a specific antigen, and attach to them, which may initiate direct cell death

For example, we're exploring novel anti-inflammatory compounds that block a cellular danger sensor because they have many potential applications. We recently acquired IFM Tre, a company that is developing some of these compounds, to bolster our own broad portfolio of immunomodulatory medicines. We're identifying and prioritizing opportunities for these assets across our therapeutic areas.

Adeno-associated viruses (AAVs) are one such example. They are small, benign viruses that can be used to deliver genes



to cells inside the body, and they're powering a wave of gene therapies, including our new treatment *Zolgensma*. This novel medicine was approved in 2019 in the US for spinal muscular atrophy (SMA) in patients less than 2 years old who have mutations in both copies of a gene called survival motor neuron 1 (SMN1). Infants with the most severe form of the disease, SMA type 1, rapidly lose the motor neurons responsible for muscle functions such as breathing, swallowing and walking. Scientists at AveXis, a Novartis company, designed *Zolgensma* to address the genetic root cause of the disease in an attempt to halt disease progression.

Teams at AveXis and the Novartis Institutes for BioMedical Research (NIBR) are developing additional AAV-based gene therapies in neuroscience, including potential treatments for Rett syndrome, a genetic form of amyotrophic lateral sclerosis (ALS), and Friedreich's ataxia. Our researchers have also applied this technology to eye diseases. An experimental gene therapy designed by NIBR researchers for a rare blinding disease began testing in patients in the spring. This complements our ex-US commercialization rights for *Luxturna*, a gene therapy originally developed by Spark Therapeutics for a rare blinding disease.

AAVs are particularly useful for delivering genes to cells inside the body. We're using different tools, however, to deliver and modify genes outside the body to generate cell therapies. Take our chimeric antigen receptor T-cell (CAR-T) programs, which employ lentiviruses. A patient's T-cells are extracted and reprogrammed to recognize and fight cancer cells before being infused back into the patient, where they become a "living drug."

We continued to build on the success of our flagship CAR-T therapy, *Kymriah*, in 2019. It's now approved in more than 20 countries for certain pediatric and young adult patients with B-cell acute lymphoblastic leukemia (ALL) that is refractory or in second or later relapse. It's also approved in these countries for a particular type of relapsed or refractory large B-cell lymphoma in adult patients. Some of the first patients to receive *Kymriah* have shown no signs of relapse for more than five years.

But not all patients have such a positive outcome. We're designing new CAR-T therapies and exploring how to combine them to overcome resistance and relapse in a variety of difficult-to-treat cancers. Novartis has a deep CAR-T pipeline. Our focus is to broaden the impact of this advanced therapy platform by going deeper in B-cell malignancies and reaching patients with other hematological cancers and solid tumors.

We're designing new CAR-T therapies and exploring how to combine them to overcome resistance and relapse in a variety of difficult-to-treat cancers. Novartis has a deep CAR-T pipeline

Teams are also examining ways to improve the manufacturing of these personalized treatments to better serve patients. We're using a new, innovative manufacturing process, for example, to generate YTB323, an investigational CAR-T therapy that's being studied in certain blood cancers.

CRISPR is another tool that we're exploring for cell and gene therapies. It's a popular method of genome editing that's used in countless labs around the world. We aim to make medicines with it. For example, we're working on a potential treatment for sickle cell anemia with CRISPR technology licensed from Intellia Therapeutics.

Our pioneering work with novel technology extends beyond cell and gene therapies. For example, researchers at Advanced Accelerator Applications (AAA) and Endocyte, both Novartis companies, are developing radioligand therapies, targeted drugs that are designed to deliver radiation to tumors. *Lutathera* – a treatment for gastroenteropancreatic neuroendocrine tumors – received new approvals from health regulators in Canada, Switzerland and Israel in 2019. And an experimental radioligand therapy for metastatic castration-resistant prostate cancer is advancing through late-stage clinical trials.

Our researchers are also exploring a new class of therapeutics called molecular glues. The cellular world is full of compounds that either lock proteins in an inhibited format or bind two protein molecules together. Such "glues" can help cells function and thrive. Inspired by Mother Nature, Novartis scientists are now creating new, synthetic glues to short-circuit disease cells and treat serious illnesses. Four of our experimental glues have already entered clinical testing for the treatment of certain cancers and immunologic and neurodegenerative diseases.

2m

The amount of data, measured in patient-years, we have collected through our clinical trials. We're taking steps to make the most of this strategic asset

## Data science and digital technologies

We're working to transform the way that we find and test medicines by harnessing the latest data science and digital technologies. There are parallels between this effort and our investment in advanced therapy platforms. In both cases, we're leveraging our size and expansive disease area research to focus on innovations with relevance beyond a single research project. Our aim is to apply emerging tools at scale to bring treatments to patients faster while reducing costs.

Novartis is a data powerhouse. We've collected approximately 2 million patient-years of data through our clinical trials alone. And we're taking steps to make the most of this strategic asset. In 2019, we expanded and launched major data and digital initiatives while forming new collaborations to augment our growing internal capabilities.

Data42 is a program that's laying the technical and cultural foundation for a revolution in our organization. The ambition is to change the way that we conduct drug discovery and development in this era of big data. We're integrating massive amounts of data that previously existed in silos inside and outside the company and taking a holistic look at it. The data ranges from images of cells that have been treated with different chemicals, to blood samples from patients analyzed within clinical trials. We're using machine learning and artificial intelligence to mine the integrated, anonymized data for connections and patterns that are indiscernible to the human brain. Our data scientists are building models and applications that will empower Novartis teams to ask new questions, make better predictions and save time. We can use the platform to prioritize drug targets, identify development opportunities for compounds, and more.

We're combining our own data with external data to make progress. Take a collaboration with the University of

Oxford's Big Data Institute, which will draw on data from multiple sources, including Novartis clinical trials as well as UK Biobank, Genomics England and China Kadoorie Biobank. The team will develop new machine learning algorithms to identify patterns across massive datasets in an effort to better understand disease and predict how patients will respond to existing and new medicines, beginning with programs in multiple sclerosis, dermatology and rheumatology.

Novartis researchers aspire to help patients through their work on medicines. Yet interactions with patients haven't been a major focus of most drug discovery and development programs. That's changing. We're systematically employing data and digital tools to make clinical trial participation easier and more worthwhile for patients. We're also using sensors and cutting-edge technology to measure new clinical endpoints and determine if experimental treatments help patients with symptoms that matter in their daily lives.

Collaborations promise to accelerate this effort. This includes an alliance with Verily, an Alphabet company, and other pharmaceutical companies. Verily has built a platform that fosters the testing of patient-centric, technology-enabled research approaches. Initially, we're using it to test digital recruitment for clinical trials. Pharmaceutical companies have historically relied on doctors at a limited number of sites to identify participants for clinical trials. We might be able to improve patient participation in research by connecting with them in new ways, including through online health registries.

Mental health is another area of exploration for us. We are finding new ways to measure and address it. Many patients with serious diseases suffer from anxiety and depression, which can exacerbate their underlying conditions. Imagine being able to deliver proven but difficult-to-access interventions such as cognitive behavioral therapy via smartphone.

That's the goal of a collaboration with Pear Therapeutics, which develops software applications to treat disease. We're working together to design and test a prescription digital therapeutic to treat depressive symptoms in patients with multiple sclerosis, a project with potential applications in other diseases.

As we continue to develop platforms and processes with the potential to scale, we're changing the way that we approach the development of medicines to take advantage of them. We've started to convene agile teams of digital experts to identify and prioritize risks and opportunities for each molecule during development and for clinical care. In 2019, we examined the possibilities for our most promising assets, including CFZ533 (iscalimab), an experimental immunomodulatory therapy with the potential to make kidney and liver transplants durable. And we plan to routinely take this approach in the future.

## Advancing transformative therapies

Our investment in CFZ533 illustrates our ability to explore areas that are difficult for other companies to pursue, yet where there is high unmet need for patients. We have the scale and breadth and depth of scientific expertise to explore new frontiers, take smart risks, and attack problems from multiple angles.

Another big bet is TQJ230, a novel molecule designed to alter mRNA, which carries instructions for protein synthesis from DNA. We recently licensed the investigational therapy from Akcea Therapeutics, an affiliate of Ionis Pharmaceuticals. It has the potential to be the first medicine approved to treat patients with elevated levels of lipoprotein(a) and established cardiovascular disease.

In early 2020, we also acquired The Medicines Company, which has developed an investigational cholesterol-lowering therapy called KJX839 (inclisiran). It's a small-interfering RNA molecule that

reimagines the treatment of atherosclerotic heart disease and familial hypercholesterolemia. The Medicines Company submitted a New Drug Application for KJX839 with the US Food and Drug Administration (FDA) in late 2019.

As we pursue such innovative projects, we remain focused on delivering new treatments for patients. In 2019, we launched several medicines in addition to *Zolgensma*, the novel gene therapy. These treatments have the potential to change the standard of care for devastating diseases. We also shared promising clinical trial results throughout the year.



### OPHTHALMOLOGY

We received approval in the US for *Beovu*, a biologic drug designed to treat neovascular (wet) age-related macular degeneration, which affects up to 20 million people worldwide. The standard of care for this common cause of vision loss – which occurs due to abnormal, leaky blood vessels in the retina – involves injections into the eye. *Beovu* is a VEGF pathway inhibitor.



### NEUROSCIENCE

In March, we launched *Mayzent*, the first oral drug approved to treat secondary progressive multiple sclerosis (SPMS), an advanced form of the autoimmune disease. It's a selective sphingosine-1-phosphate receptor modulator. The FDA approved our therapy based on trial results that showed it significantly reduced the risk of disease progression, including impact on physical disability and cognitive processing speed. It represents a breakthrough for patients. We are authorized to market the drug broadly to treat adults with relapsing forms of multiple sclerosis, including SPMS with active disease, relapsing-remitting multiple sclerosis and clinically isolated syndrome.

We continue to search for new solutions for multiple sclerosis and reported strong results for OMB157 (ofatumumab) in patients with relapsing forms of the disease. In two Phase III studies, our experimental therapy – a biologic drug that targets CD20 – significantly reduced the relapse rate in patients compared to a standard treatment, teriflunomide. OMB157, if approved, will potentially become a treatment for a broad relapsing multiple sclerosis population and the first B-cell therapy that is easy to manage in a monthly self-administered injection at home.



### ONCOLOGY AND HEMATOLOGY

We received approval in the US and other markets for *Piqray* in a particular form of advanced breast cancer. *Piqray* offers a more personalized approach to treatment. It is a targeted, small-molecule drug designed to inhibit the effects of a mutation in the gene PIK3CA, the most commonly mutated gene in hormone receptor-positive (HR+)/human epidermal growth factor receptor 2-negative (HER2-) breast cancer. The treatment is approved in combination with fulvestrant for postmenopausal women, and men, with HR+/HER2- advanced or metastatic breast cancer with a PIK3CA mutation. A Phase III trial showed that *Piqray* plus fulvestrant nearly doubled patients' median progression-free survival compared to fulvestrant alone.

Our work in hematology covers blood cancers and other blood disorders. In 2019, we advanced a treatment for sickle cell disease, a debilitating inherited genetic blood disorder. We received approval for *Adakveo* in the US for sickle cell pain crises, which are unpredictable, severe events associated with life-threatening complications. The approval was based on data showing a reduction in the annual rate of pain crises in patients. *Adakveo* is a biologic agent designed to block P-selectin-mediated multicellular adhesion.

# Selected products in development

Novartis is consistently rated as having one of the industry's most respected development pipelines, with more than 160 projects in clinical development, as of December 31, 2019. We highlight some promising programs, including new molecules and existing treatments that are under investigation for new indications.

**AVXS-101** (onasemnogene abeparvovec, approved in the US as *Zolgensma*) is a gene replacement therapy for spinal muscular atrophy. It targets the defective or missing gene that causes this fatal disease.

**LJN452** (tropifexor) is an investigational treatment for the liver disease nonalcoholic steatohepatitis (NASH). LJN452 is designed to break the cycle of fatty buildup in the liver and harness the body's built-in mechanisms for coping with excess bile acid.

**KAF156** (ganaplacide) is a treatment in development for malaria. This new class of molecules has the potential to clear malaria infections and block parasite transmission.

**MBG453** is an investigational treatment for myelodysplastic syndrome.

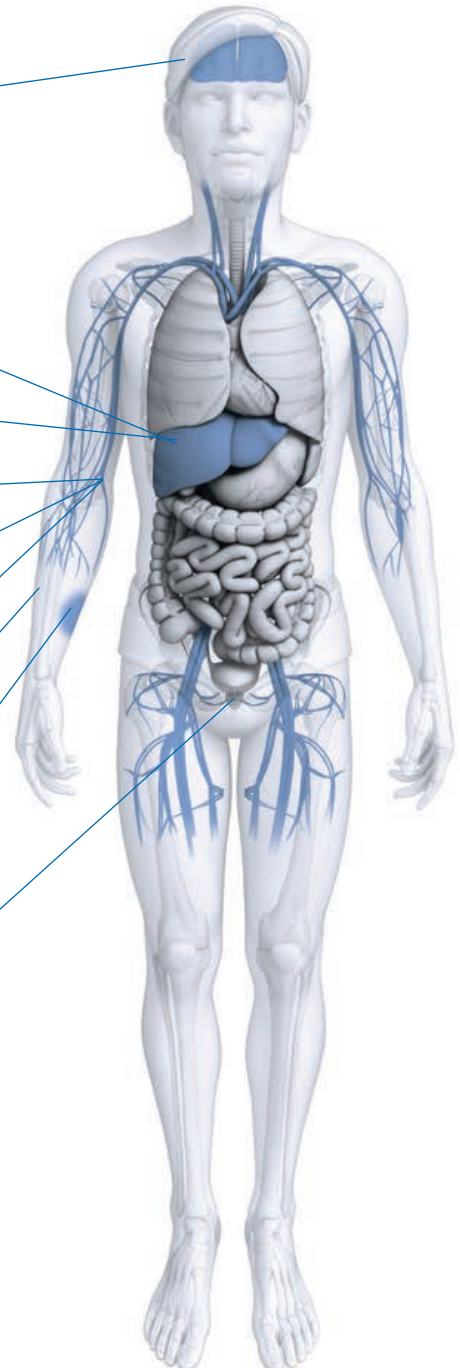
**Kymriah** is a CAR-T therapy that genetically reprograms a patient's immune cells to fight certain types of cancer. *Kymriah* is approved for B-cell acute lymphoblastic leukemia and diffuse large B-cell lymphoma, and is in development for other blood cancers.

**SEG101** (crizanlizumab, approved in the US as *Adakveo*) is a treatment to reduce the frequency of vaso-occlusive crises (VOCs) in patients with sickle cell disease. Novartis continues to study SEG101 for the treatment of VOCs and other complications.

**ZPL389** (adriforant) is an investigational treatment for atopic dermatitis.

**CFZ533** (iscalimab) is an investigational treatment for preventing graft rejection in transplant patients and for the treatment of several autoimmune diseases.

**<sup>177</sup>Lu-PSMA-617** is an investigational treatment for metastatic castration-resistant prostate cancer.



9.4bn

**R&D SPENDING**

Our investment in research and development in 2019, amounting to 19.8% of net sales (USD)

160+

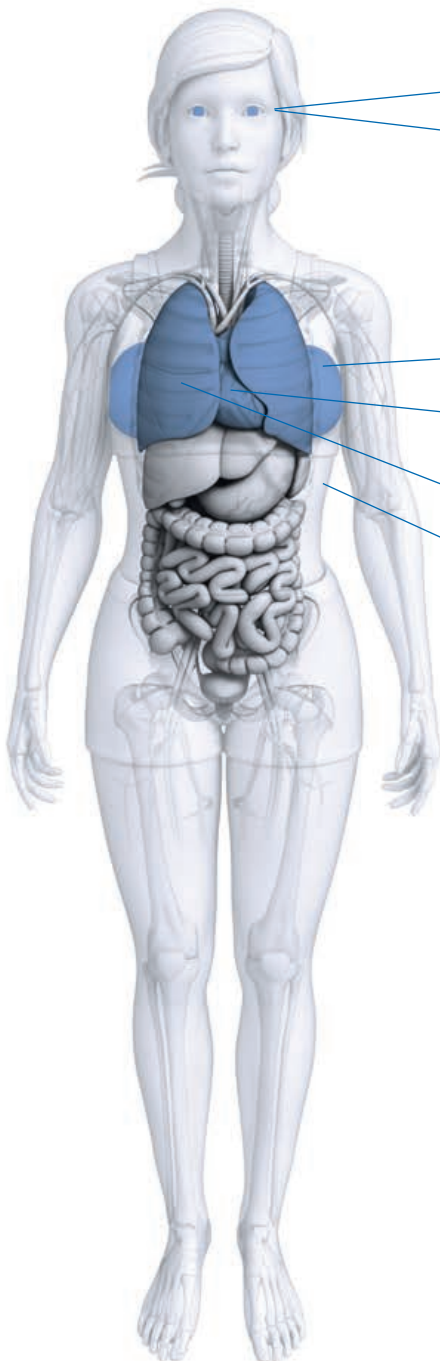
**PIPELINE PROJECTS IN CLINICAL DEVELOPMENT**

Projects with ongoing clinical trials in Phases I to III

3

**BREAKTHROUGH THERAPIES**

The number of our drugs that received breakthrough therapy designation from the US FDA in 2019



**SAF312** is a treatment in development for chronic ocular surface pain.

**UNR844** is an investigational treatment for presbyopia, the age-related loss of near-distance vision.

**BYL719** (alpelisib, approved in the US as *Piqray*) is a therapy for use in combination with fulvestrant for the treatment of postmenopausal women, and men, with HR+/HER2-, PIK3CA-mutated, advanced or metastatic breast cancer. It is also in development for other related cancers.

**TQJ230** is an investigational treatment for the secondary prevention of cardiovascular events in patients with elevated levels of lipoprotein(a).

**ACZ885** (canakinumab) is an antibody treatment in development for non-small cell lung cancer. ACZ885 is approved under the name *Ilaris* for various inflammatory conditions, including cryopyrin-associated periodic syndrome and some forms of arthritis.

**LNP023** is a treatment in development for a range of renal diseases.

For more information about the pipeline and progress on individual development programs

 [www.novartis.com/our-science/novartis-global-pipeline](http://www.novartis.com/our-science/novartis-global-pipeline)





Olivia Zhu, a drug development scientist in China, uses X-ray powder diffraction to study the crystal form of a drug.

## STRATEGIC PRIORITIES

# Embrace operational excellence

We are improving the effectiveness and efficiency of our operations to free up resources that can help bring more and better treatments to patients more quickly. We are addressing cost management and productivity, simplifying our operations, and using digital technologies to help enhance processes across the enterprise. We are also improving how we launch new products as we prepare to potentially bring 10 innovative medicines to market in the next two years.

## Transforming business services

Our global Novartis Business Services (NBS) organization continues to make progress on improving efficiency and supporting our business units as they implement our strategy.

NBS is helping our teams pursue the company's priorities more effectively, for instance by building the IT infrastructure and technical capabilities that are the backbone of our data and digital transformation. In 2019, we began building an enterprise-wide, cloud-based data and analytics platform to replace more than 400 different analytics services across the company. The platform is designed to support more than 20 000 users globally and help us discover, develop and launch new treatments more quickly and efficiently. We aim to complete it in 2020.

We're rethinking how we deliver services inside the company to simplify and improve routine tasks our employees perform every day. For instance, we streamlined the process of booking travel and getting reimbursed for business expenses. In the area of human resources, we are simplifying the process of hiring new people and automating the creation of employment contracts.

The streamlined approach was piloted in Mexico and is being rolled out worldwide. In Germany, for instance, instead of 40 different contracts we now have one harmonized template as a basis for different employment situations. Such steps have a significant impact because we hire thousands of people annually.

One part of our efficiency effort involves consolidating NBS operations into five

global service centers. We are well advanced in the relocation of about 1 800 service jobs that were previously spread across individual countries. We are managing this transition with respect for the affected employees, supporting them as they look for new roles at Novartis or other organizations.

We are also making more efficient use of our real estate. We are discontinuing leases on some facilities we don't own and moving people to underutilized offices and labs at our campuses in Switzerland, China and the US.

## Smarter procurement

We have taken steps to instill greater spending discipline and are on track to meet our target of reducing outlays for goods and services across the company.

To make buying of routine supplies more efficient, we are standardizing specifications and consolidating suppliers. The example of laboratory gloves illustrates our progress: We went from 100 different types of laboratory gloves worldwide to just 14, and from 55 suppliers to one, saving USD 0.6 million.

We are also building a database to provide a more comprehensive view of our purchasing and are starting to use data analytics to help us better manage what we buy, when and from whom.

## Improving processes

In some aspects of our operations we realized we must fundamentally change how we work in order to achieve significant savings or improve performance. So we're streamlining and automating

### QUALITY FOCUS

Of 177 health inspections of our facilities worldwide, 96% were without major findings



several company-wide processes to improve efficiency and free our people for tasks that add greater value to the enterprise.

One area is how we prepare and use marketing materials across the company, a complex process that involves about 17 000 employees globally in some way. We are shifting from a fragmented approach to a common enterprise-wide one for sharing advertisements, videos and other marketing materials for key products among marketing teams at the global, regional and local levels. We are creating a central digital repository for these materials so that they can be repurposed and reused globally. We anticipate this effort will save about USD 130 million over five years and reduce by 5–13% the time some employees spend creating and managing marketing materials.

## Transforming manufacturing

We are creating a more flexible and agile manufacturing network of our more than 60 production facilities globally, complemented by an external network of strategic partners. Across our network, we continue to adapt our manufacturing capabilities to facilitate our shift toward making more specialized medicines, such as cell and gene therapies, as well as expanding our capacity to make complex biologic drugs.

For instance, in 2019 we began producing *Kymriah*, a cell therapy for blood cancers, at a new facility in Stein, Switzerland. We also completed the acquisition of CellforCure, whose facility near Paris, France, augments our capacity to produce cell and gene therapies.

At the same time, we continued to consolidate and divest some production sites. In 2019, we sold a California facility that makes cystic fibrosis medicines, a sterile filling and packaging operation in Switzerland and a facility in China. We also announced plans to close two manufacturing facilities and a packaging operation in Turkey between 2019 and 2021.

The transformation of our manufacturing network continues, and we are evaluating which activities are core to our business and which ones can be most effectively managed by our suppliers and partners. We are consolidating manufacturing support services such as supply chain management, engineering and quality assurance in operations centers in Slovenia and India. We believe this approach will help us develop deeper expertise and promote innovation.

We're also using digital technologies to help harmonize our processes and data collection around the world. For instance, quality assurance reporting is now standardized across our sites and all data is collected digitally. For more on how we are using digital technologies to improve manufacturing operations, please see the section "Go big on data and digital."

While pursuing our transformation, we maintained a focus on quality. Of 177 inspections of our facilities by health authorities around the world, all but seven were found to be good or acceptable (96%). In cases where inspectors identified areas for improvement, we agreed on actions with the relevant health authorities to reinforce our systems in product quality, patient safety, clinical trial monitoring and manufacturing compliance.

## Strengthening product launches

We are reinforcing our approach to product launches to become more consistent across markets and ensure we deploy our resources more effectively. For our most promising potential products, we are investing in earlier preparations, including talking with doctors, patients and insurers to better understand their needs and help us develop medicines to address them.

For example, we took several steps before *Adakveo* was approved by the US Food and Drug Administration in late 2019 to treat sickle cell disease, a painful and deadly genetic blood disorder. To better understand how the disease affects people, in late 2018 we launched an extensive ethnographic study. Researchers accompanied patients in their normal routines for two or three days – including visits to doctors – to capture their feelings about living with the cycles of pain associated with the disease.

We also created ways for people with sickle cell disease to show how it affects their lives. We commissioned a series of videos of patients from around the world talking about their experience with the disease. And we launched a campaign called Generation S whereby patients can share their own videos online, with more than 1 000 submitted so far.

These efforts, along with outreach to physicians, aim to raise awareness about sickle cell disease and its impact on patients as well as healthcare systems.

## STRATEGIC PRIORITIES

# Go big on data and digital

As the digital revolution gains momentum in our industry, one of our strategic priorities is to be a leader in harnessing data science and digital technologies to boost effectiveness and efficiency across our enterprise. Digital technologies are helping improve how our scientists discover and develop innovative new treatments, how we make decisions, how we engage with customers and how we run our operations.

12

The number of major projects we are pursuing to build large-scale digital solutions across every aspect of our business

As part of our data and digital strategy, we are pursuing 12 major projects to build large-scale digital solutions across every aspect of our business. We are creating a strong foundation to support our digital transformation through such steps as building massive databases and improving our people's digital capabilities. To reinforce and accelerate our progress, we are forging partnerships with leading technology companies. And we are taking bold bets to prepare for a more digitally enabled future in healthcare.

For more detail on how we are using data and digital in R&D, please see the section "Deliver transformative innovation."

## How we engage with customers

Our ambition is to use data science, new communications channels and other digital technologies to help us better serve our customers and ultimately increase revenues.

5 000

The number of sales representatives in 11 countries using the ACTalya platform

In parallel, we are prioritizing responsible use of patient data. In January 2020, we adopted a new, principles-based privacy policy, and we are training employees on its use. And we are developing a specific approach for applying the principles to patient data.

We continue to expand the use of a digital personal assistant for sales representatives, called ACTalya. It uses AI to search through information in dozens of databases and provide daily suggestions to our salespeople on how to best support doctors with information about our products. The system aims to promote more meaningful interactions with doctors and is now being used by about 5 000 people in our top 11 countries for products such as *Entresto*, *Aimovig* and *Cosentyx*.

## How we innovate

Artificial intelligence (AI) and other digital technologies are helping us improve and streamline the research and development (R&D) of new treatments. We are working to shave two years from the R&D process, make clinical trials more accessible to patients, and uncover new ways to fight disease by applying powerful analytical tools to data from more than 2 500 clinical trials and 2 million patient-years of research results.

Initial indications in countries where it has been in use for at least six months show the system helps improve productivity, enabling salespeople to schedule one or two additional doctor visits per day. The system is being adapted for use by others in the organization, such as salespeople working with oncologists, and our medical science liaisons.

For instance, through a project called data42 we aim to fundamentally reshape how we discover and develop treatments, using AI to sift through huge amounts of data from our clinical trials and other sources to find new insights into illnesses and how to treat them. To make this possible, we are bringing together diverse data sources, from images to blood test results. And we are building the analytical tools that could help us identify potential new drugs, for example, or ways that existing drugs might be applied to different diseases.

In the Novartis Oncology business unit, we are building a data platform that uses AI to help optimize marketing, among other applications. Called DROID, it integrates data from 110 different sources from inside and outside Novartis, and deploys AI in several ways. One application helps marketers decide how best to reach doctors or patients interested in learning more about treatments for specific cancers. The algorithm suggests the optimum mix of marketing

approaches for an individual product – whether through television advertising, social media or other means. DROID has been rolled out in our oncology organization in the US and is now being introduced in other countries.

Building on the tools already in place, we began work at the end of 2019 on a platform of digital solutions to support all commercial efforts in innovative medicines.

## How we operate

We are finding new ways to use data and digital technologies to improve our operations, increase efficiency and support our ambitious cost-reduction efforts.

For instance, in the finance function in our Innovative Medicines Division, we are using AI and predictive analytics to forecast sales and cash flow. In our top markets, we generated sales and cash flow forecasts for the period from 2020 to 2022, shortening the budget process. We also used AI to recommend the most effective way to allocate our marketing and sales resources in top markets.

In our manufacturing operations, we're building an advanced analytics platform to help improve production processes. To enable this approach, we linked together data captured manually, or in different systems that until recently operated independently, providing an end-to-end view.

In 2019, we built a prototype of the analytics platform to help us make better business decisions based on insights from our data. We focused on the end-to-end production process for one of our key products, *Cosentyx*. And we worked with our *Cosentyx* production site in Stein, Switzerland, to improve its process execution.

We expect the approach will help us identify and predict bottlenecks, accelerate production and ensure our medicines reach patients faster. In 2020, we plan to expand this approach to additional locations and products.

Our digital team is also looking at further potential applications whereby we can use data to improve operations or extract useful new insights, such as ways to help us accelerate cultural change in the organization, or streamline commercial operations.

## Technology partnerships

To reinforce our adoption of data analytics and digital technologies, we continued to collaborate with everyone from big, leading companies in the field, to small entrepreneurial startups.

In 2019, we began a multiyear alliance with Microsoft to create the Novartis AI Innovation Lab to bolster AI capabilities across our organization, from research through commercialization. Data scientists from both organizations will work together to apply the power of AI to fundamental challenges, such as improving the design of drug molecules to make treatments more effective, finding smarter dosing patterns and improving the production process for cell therapies. The alliance also aims to empower people without data science backgrounds to use AI to help make better, faster decisions, whether they work in laboratories, factories or our commercial operations.

We also began a collaboration with Amazon Web Services to use its cloud services for an enterprise-wide data and analytics platform to help transform our business operations. The first application will be in manufacturing, where the platform is designed to give employees access to real-time information that can

help increase efficiency in production processes and our supply chain.

At the other end of the scale, we continue our work with health technology startups that are finding creative new ways to harness the power of digital technologies in strategically important areas. Through a program called the Novartis Biome, we've created a bridge between startups and our own teams to help accelerate digital programs across our business.

During 2019, the Novartis Biome added an outpost in Paris, France, to complement the existing one in San Francisco in the US, with additional locations planned for 2020. Through collaboration with groups such as technology accelerator Plug and Play, as well as pitch events for entrepreneurs, we are engaging with startups to find creative solutions to some of our difficult challenges. One of them is Aidar Health, whose respiratory platform we are evaluating for inclusion in our drug development program. Another is Hemex Health, which is developing a portable diagnostic device for malaria and sickle cell disease.

We're also pursuing bolder bets with partners. For instance, we're working with technology giant Tencent to create an AI-powered digital nurse to support heart failure patients in China, where increasing life expectancy and an aging population are driving increased demand for healthcare.

Using Tencent's WeChat application, the collaboration aims to provide heart failure patients with personalized education materials and help them manage their disease, schedule follow-up appointments with their doctor, and order prescription medication refills. During 2019, we collaborated to build a prototype of the application. In 2020, we plan to pilot it with selected patients, and then roll it out more widely.





As part of a collaboration in Ghana to improve early diagnosis and treatment of sickle cell disease, Novartis is working with Zipline, an innovative logistics company, to help deliver medicines to remote areas. Workers at Zipline's distribution centers receive orders from healthcare workers, quickly pack critical medical supplies into distinctive red boxes, and load them into drones to be launched into the sky. After a short flight, the drones drop their precious cargo at hospitals or rural health centers. To learn more about Zipline and our work with them in Ghana, watch this video:

<https://youtu.be/5EdHA62jrzE>.

STRATEGIC PRIORITIES

# Build trust with society

We are making good progress on integrating ethics, access to medicine, global health and corporate responsibility into the core of our business strategy. In 2019, we pursued changes to strengthen governance; took steps to improve decision-making and reinforce our speak-up culture; further integrated access into how we research, develop and deliver our medicines; and made progress on our environmental sustainability strategy and third-party risk management efforts.

16m

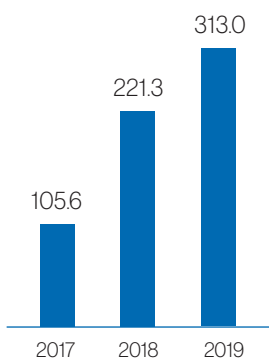
Patients reached through our access-to-healthcare programs

10m

People reached through training and health education programs

**PATIENTS REACHED THROUGH LOCAL BRANDS**

Total patient equivalent (000's)



50m

People reached with health education through Healthy Family since 2010

4.5m

Novartis Access monthly treatments delivered since 2015

## Holding ourselves to the highest ethical standards

As we reimagine medicine, we need to help ensure that our leaders and employees act appropriately when faced with ethical dilemmas and effectively meet society's increasingly high expectations.

To further reinforce principles-based thinking and ethical decision-making in our organization, we embarked on a journey to move away from our traditional Code of Conduct and develop a Novartis Code of Ethics, a set of values-based principles to guide conversations and decision-making. Building on our Professional Practices Policy, and rooted in behavioral science, the code is being co-created by Novartis people, for Novartis people. More than 2 500 associates shared ideas and insights during early-stage crowdsourcing, and 1 500 participated in a global engagement event to encourage open conversations around ethical dilemmas at Novartis. Development of the code is now underway, with more than 500 associates volunteering to be part of the network that will launch the code in 2020.

We also transformed our whistleblower hotline, the SpeakUp Office, to help ensure we assess and resolve cases promptly, fairly and respectfully. The office is now working even closer with our Global Security organization to drive fair, timely and thorough investigations of higher-risk cases. At the same time, a new process and web-based reporting are driving faster resolution, empowering leaders to respond to day-to-day concerns at the local level.

In addition, we introduced an integrated enterprise risk management (ERM) approach. It is based on risk discussions conducted by the leadership teams of business units at the global

level in alignment with their own strategic planning processes, and in close collaboration with all risk functions within units and countries. This process resulted in a single holistic view of risks across the company, known as the Novartis Risk Compass.

We also completed the global rollout of our Third-Party Risk Management program, strengthening our efforts to mitigate risk in our supply chain. In 2020, we aim to expand the program's scope to include distributors and wholesalers, as well as additional risk areas covering third-party business continuity management and financial risk.

We recognize society's increasing expectations of our industry and our company. We are constantly learning and remain committed to not only meeting but exceeding these expectations as we endeavor to increase our positive impact everywhere we work. It is with this mindset that we approached the situation when, in August, the US Food and Drug Administration (FDA) released a statement addressing data integrity issues with the regulatory submission for *Zolgensma*, our gene therapy for spinal muscular atrophy (SMA). The statement followed the voluntary disclosure by AveXis, a Novartis company, to the FDA, and to other health authorities that some data previously submitted to the agency as part of our submission were inaccurate. The assays in question were used for initial product testing and are not currently used for commercial product release. We immediately initiated an investigation to understand any implications and address the situation. At no time during the investigation did the findings indicate issues with product safety, efficacy or quality. As noted by the FDA, the data in question were a small portion of our overall submission and limited to an older process no longer in use.

We have a firm commitment to data integrity and transparency in our engagements with regulators, and we are confident that the actions we are taking will help prevent data integrity issues from occurring in the future. We swiftly proceeded to implement leadership changes in the AveXis research and development organization, while also taking steps to integrate the AveXis quality organization more formally in the Novartis quality organization. Going forward, and taking the important learnings from this experience, we have voluntarily committed to notify the FDA within five business days of receipt by our quality organization of any credible allegation related to data integrity issues impacting any pending application in the Novartis Group. We will take a similar approach with other regulatory bodies in the absence of specific local regulations.

## Being part of the solution on pricing and access

We have a responsibility to society to help ensure our innovative treatments benefit more people who need them, no matter where they are. We are making progress with our efforts to systematically integrate access strategies into how we research, develop and deliver our new medicines globally, and we aim to be transparent in sharing successes, challenges and learnings. Expanding access to our medicines is an important measure of our success and is one of the ways we aim to create long-term value for healthcare systems, society and our company.

In 2019, we developed access strategies for all medicines preparing for launch, including *Mayzent* for multiple sclerosis, *Beovu* for neovascular (wet) age-related macular degeneration, and *Piqray* for advanced breast cancer. We also intro-

duced targets to track our progress in reaching patients in low- and middle-income countries (LMICs). For example, in 2020, we aim to increase the number of patients reached with our innovative medicines in LMICs by 20% versus 2019.

Expanding access to our medicines is an important measure of our success and is one of the ways we aim to create long-term value for healthcare systems, society and our company

### Pursuing R&D for unmet needs

We are working to incorporate the needs of underserved and neglected populations in our research and development (R&D) programs.

In Latin America, we launched the first-ever multinational clinical study in people with Chagas-related heart failure, the most important clinical manifestation of the disease, which is responsible for the majority of deaths and disability among patients. The study, which started recruitment in Argentina, aims to assess the efficacy and safety of our heart failure drug, *Entresto*, in 900 patients. Chagas disease is a potentially life-threatening neglected tropical disease estimated to affect approximately 6 million people, primarily in Latin America. With up to 30% of chronically infected people developing cardiac disorders, Chagas disease is the second leading cause for developing chronic heart failure in the region.

In Africa, we announced that two sites in Ghana and two in Kenya will participate in clinical trials for SEG101 (crizanlizumab), a monoclonal antibody recently

approved by the FDA as *Adakveo* to help prevent the painful and potentially life-threatening complications of sickle cell disease. Recruitment is expected to start in 2020, marking one of the first times that a biologic therapy that is not a vaccine enters multicenter clinical trials in sub-Saharan Africa. At the same time, we are developing a child-friendly formulation of hydroxyurea, the current standard of care for the treatment of sickle cell disease. These efforts are part of our program to improve access to treatment and care for people with sickle cell disease in Africa. Approximately 80% of individuals with sickle cell disease globally are born in sub-Saharan Africa, while more than half of children with the disease die before the age of 5 due to preventable complications.

In September, we announced the European approval of *Lucentis* for preterm infants with retinopathy of prematurity, making it the first and only licensed pharmacological treatment for this indication. *Lucentis* is already available as a local brand in many developing countries, and we are committed to working with our teams to further improve access.

We also entered a five-year collaboration with GlaxoSmithKline to fund research into genetic diversity in Africa and its potential effect on therapeutics. The aim is to collect data from currently under-represented regions, with an initial focus on evaluating the potential implications of genetic diversity on the dosing and efficacy of drugs for malaria and tuberculosis.

### Driving affordability for lower-income segments

We continue further integrating access strategies into our new product launches. For example, the access strategy for *Beovu*, co-created across country teams and with input from patients, physicians and payers around the world, includes a local brand strategy as well as plans for novel distribution models and digital solutions to improve diagnosis. We are also developing approaches for one-time gene therapies such as *Zolgensma*, working with payers to create five-year outcome-based agreements and novel pay-over-time options.

In December, we announced a global Managed Access Program to provide *Zolgensma* free of charge to eligible patients with SMA who are under the age of 2 and are citizens or legal residents of countries where the therapy is not yet approved by regulatory authorities. Recognizing that the program will not be a solution for all families in all countries, we are working to increase supply and design sustainable solutions to further expand access.

Our portfolio of local brands, which takes local affordability into account, is expanding with over 90 brands launched for some of our most innovative medicines across more than 50 developing markets, reaching more than 300 000 patients. For example, currently about 1 in 5 patients on our heart failure treatment, *Entresto*, are receiving a local brand. Through our local brand strategy, we are now introducing some innovative therapies in developing countries within approximately five months of approval in the US or Europe, a process that could have taken several years in the past.

In November, we announced a new strategy to reach more patients in sub-Saharan Africa (SSA) with our portfolio of medicines. As part of this strategy, the regional organization will prioritize driving access to medicines and helping reach more patients across income levels, in addition to traditional business metrics, such as profits and margins. In addition, we plan to continue working with governments and nongovernmental organizations to build stronger healthcare systems. SSA

is home to the largest underserved patient population in the world, with a quarter of the global disease burden but only 3% of the world's health workers.

We continue our efforts to make medicines accessible to people at the bottom of the income pyramid. Novartis Access, which offers a portfolio of medicines to governments, nongovernmental organizations and other institutional customers for USD 1 per treatment, per month, delivered more than 4.5 million monthly treatments since launch to 12 countries in Africa, Asia and Latin America. Further, we signed agreements for implementation in three additional countries. And we expanded our Healthy Family program to more states in India and Vietnam. Overall, the program, which aims to expand access to community education and affordable healthcare for low-income, rural populations, has delivered health education to more than 50 million people since launch.

### Building a sustainable healthcare ecosystem

Improving access to medicine and healthcare is a complex challenge that cannot be solved by any one organization alone. We collaborate with public and private partners with diverse capabilities to deliver sustainable solutions.

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Through the Bill & Melinda Gates Foundation CEO Roundtable, we are driving an industry effort to expand the training of frontline health workers in developing countries. We each committed USD 1.5 million over three years to further support the efforts of Last Mile Health and Living Goods. The Audacious Project, an innovative funding body, will match the contribution of the partners to reach a total of USD 18 million.

We also launched a partnership with Zipline, a medical logistics company, to help ensure last-mile delivery of our products using drones. In Ghana, Zipline is supporting our collaboration with the government to improve screening, diagnosis and treatment of sickle cell disease by helping ensure that screening tests and medicines are widely available.

Novartis invests in the training and support of scientists and researchers from developing countries through a number of programs and collaborations. For example, our Next Generation Scientist program has hosted more than 180 interns from 30 developing countries since 2011. In 2019, we launched a career development fellowship with the European and Developing Countries Clinical Trials Partnership to facilitate opportunities for early- and mid-career scientists in SSA. We are co-funding at least five fellowships over three years for research proposals in maternal and child health, and specifically on the interaction between poverty-related and noncommunicable diseases.

### Tackling global health challenges

For our four flagship programs to fight leprosy, malaria, sickle cell disease and Chagas disease, we are pursuing an end-to-end strategy ranging from the discovery and development of new treatments, to their availability and distribution, and our broader efforts to reinforce healthcare systems.

At the World Economic Forum, we announced a five-year partnership with the Ghanaian government and the Sickle Cell Foundation of Ghana to improve diagnosis and accelerate treatment for people with sickle cell disease, making Ghana the first African country to commit to offering the global standard of care.

In 2018, Novartis registered hydroxyurea, the current standard of care, for the specific indication of sickle cell disease in Ghana, and has since delivered more than 20 000 treatments to 11 trained treatment centers. Our goal is to build a scalable model for addressing sickle cell disease and replicate it in 10 African countries by 2022.



We have also made progress in our commitment to address Chagas disease. In March, we joined the Global Chagas Disease Coalition, an alliance that aims to increase awareness of Chagas disease, foster synergies in controlling the spread of the disease, and promote access to diagnosis and treatment. In parallel, together with the World Heart Federation and the Inter-American Society of Cardiology, we developed an end-to-end roadmap (to be launched in 2020), exploring the patient journey from diagnosis to treatment, in order to identify areas of improvement.

This year, we celebrated the 10<sup>th</sup> anniversary of the first dispersible artemisinin-based combination therapy developed by Novartis and Medicines for Malaria Venture to treat malaria in children and infants. Since launch, we have distributed more than 390 million treatments in 50 countries, contributing to a significant reduction in malaria deaths.

At the same time, we continue the development of our drug candidates to support malaria elimination efforts and address the emerging threat of artemisinin resistance. Our Phase II trial assessing the efficacy and safety of KAF156 (ganaplacide) in combination with a new once-daily formulation of lumefantrine in adults and children with uncomplicated Plasmodium falciparum malaria has been temporarily paused due to difficulties with the clinical supplies of KAF156. We anticipate restarting the trial in the first half of 2020. Our Phase II dose escalation study to better understand the safety and efficacy of KAE609 (cipargamin) is on track, and results are expected in 2020.

We presented results of the five-year Leprosy Post-Exposure Prophylaxis initiative, implemented by the Novartis Foundation in eight countries to test the real-world effectiveness of preventative treatment for reducing the risk of leprosy in close contacts of newly diagnosed patients. The results, to be published in 2020, showed through epidemiological modeling that large-scale implementation of this strategy could reduce the number of new leprosy cases globally by 75% by 2030 and 90% by 2040.

### Being a responsible citizen

We aim to conduct business responsibly, wherever we operate. This includes minimizing our environmental impact, helping ensure patient health and safety, and managing risk in our supply chain. In 2019, we established an internal Trust & Reputation Committee, chaired by our CEO, to oversee progress and speed up decision-making in key areas related to the fifth pillar of our corporate strategy: building trust with society. We introduced new management targets covering environmental, social and governance (ESG) topics such as the environment, access to medicines, global health, human rights and third-party risk.

We are investing in renewable energy, such as our wind farm developed with Invenery, which went online in Texas in the US in 2019. The carbon-free energy it produces entirely covers the electricity currently used at Novartis offices and R&D facilities in the US. We are exploring similar opportunities in Europe.

In addition, we launched a program to phase out single-use plastics at all Novartis sites by 2021, starting with plastic bottles. The majority of our sites around the world have already replaced plastic straws and stirrers, cups, garbage bags and styrofoam with biodegradable alternatives.

The health and safety of the patients our medicines treat is an utmost priority. We are actively combating falsified and counterfeit medicines, which pose a significant threat to public health, and are scaling up efforts to address their root causes. Through our actions, we estimate that we've prevented falsified and counterfeit medicines from reaching and harming more than 1.2 million patients since 2017. In 2019, we launched a mobile solution to empower low- and middle-income countries to detect falsified medicines. We deployed 50 smart sensor devices, primarily in Africa, to test medicines in the Novartis Access portfolio, as well as treatments for malaria, heart failure and sickle cell disease. In 2020, we aim to deploy another 200 sensors worldwide, covering the most at-risk products in our portfolio.

7m+

People have received free treatment for leprosy since 2000

### ENVIRONMENTAL TARGETS



Carbon neutral in own operations by 2025






Water neutral in all areas by 2030



Plastic neutral by 2030

For more information

-  **Novartis in Society ESG Report 2019**
-  **Corporate responsibility section of our website**
-  **Transparency and disclosure section of our website**





Kwaku Ohene-Frempong (left), a physician who earned his medical degree at Yale University in the US and has devoted his life to treating people with sickle cell disease, speaks with a mother at Kumasi General Hospital in Ghana. Dr. Ohene-Frempong is head of the Sickle Cell Foundation of Ghana and program coordinator for the National Newborn Screening Program for Sickle Cell Disease. He is working with Novartis and the Ministry of Health of Ghana on a program to expand early diagnosis and treatment of the disease in his home country. To learn more about Dr. Ohene-Frempong and the collaboration in Ghana, go to <https://youtu.be/iIYZ6evCQbQ>.

# Our corporate governance approach

We strive to manage our company in a way that creates long-term value for our shareholders and society. Our system of corporate governance includes a fully independent Board of Directors, clearly defined shareholder rights, and transparency in executive compensation. These rules and principles support our ability to deliver sustainable financial performance and build trust with shareholders, customers, patients and the public.

## Our governance structure

Novartis operates under a governance structure designed to establish effective checks and balances in the management of our company, and create long-term value for shareholders, patients, employees and other stakeholders.

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### GENERAL MEETING OF SHAREHOLDERS

Shareholders vote to approve Group consolidated financial statements and other financial information, decide the dividend, and approve the compensation of the Board and Executive Committee. They also elect the Chairman, Board members, Compensation Committee members, Independent Proxy and external auditor.

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### BOARD OF DIRECTORS

The Board holds the ultimate decision-making authority for Novartis AG, with the exception of decisions reserved for shareholders. All Board members, including the Chairman, are independent and non-executive. The Board's effectiveness is enhanced by its diversity, as reflected in nationality, gender, experience, age and tenure. Diversity is an important criterion when identifying new Board member candidates. Among its responsibilities, the Board defines the strategic direction of Novartis; reviews and approves major mergers, acquisitions and divestments; engages in risk and crisis management; and oversees succession planning for the CEO and other members of senior management. The Board exercises some of its responsibilities through the following committees:

#### AUDIT AND COMPLIANCE COMMITTEE

Assists the Board with monitoring the integrity of the Group financial statements, and the company's compliance with relevant legal and regulatory requirements

#### COMPENSATION COMMITTEE

Assists the Board with defining the compensation strategy, as well as the compensation of the Chairman, Directors, the CEO and other executives

#### GOVERNANCE, NOMINATION AND CORPORATE RESPONSIBILITIES COMMITTEE

Assists the Board with overseeing governance and corporate responsibility activities, as well as identifying candidates for CEO and for election as Board members

#### RESEARCH & DEVELOPMENT (R&D) COMMITTEE

Assists the Board with overseeing the R&D strategy, evaluates the Novartis pipeline and the effectiveness of our R&D functions, and reviews emerging scientific trends and activities critical to our R&D success

#### RISK COMMITTEE

Assists the Board with ensuring that risks are properly assessed and managed, oversees the company's risk portfolio and risk management system, and reviews related actions implemented by management

#### EXTERNAL AUDITOR

The external auditor provides their opinion on the compliance of Novartis Group consolidated statements and other financial information, the Compensation Report, internal controls over financial reporting, and corporate responsibility reporting, with applicable standards and laws.

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### EXECUTIVE COMMITTEE

The Board delegates the operational management of Novartis to the Executive Committee. Under the leadership of the CEO, the Executive Committee assumes overall responsibility for and oversight of the business, including achieving financial and strategic objectives, and advancing a culture of empowerment and responsibility at the company. The CEO regularly informs the Board of current developments, and Executive Committee members regularly attend Board meetings to discuss specific topics. Board members have access to the minutes of Executive Committee meetings.

## Board highlights in 2019

The Board met eight times in 2019. Typically, these meetings lasted two days, with the first day for Board committee meetings and the second for a meeting of the full Board.

The Board and its committees continued to focus on our strategy to transform Novartis into a focused medicines company. The Board approved major transactions during the year that expand our therapeutic platforms, including the acquisition of The Medicines Company, which adds a late-stage cardiovascular treatment to our pipeline, as well as the acquisition of *Xiidra*, a treatment for dry eye disease. The Board also approved the required steps for the spin-off of Alcon as an independent company, which allows Novartis to focus its capital and management attention fully on medicines.

Comprehensive risk management is an important responsibility of the Board and its committees. In 2019, both the Board and the Risk Committee evaluated the risks and opportunities associated with our digital transformation, including retaining an independent commission to advise on additional measures related to cybersecurity. The Risk Committee also analyzed drug pricing in various markets and the status of our anti-counterfeiting measures, among other topics. In addition, both

the Board and the Audit and Compliance Committee reviewed the *Zolgensma* data integrity issue, including lessons learned and additional management actions to further strengthen the governance of newly acquired companies.

*In 2019, both the Board and the Risk Committee evaluated the risks and opportunities associated with our digital transformation, including retaining an independent commission to advise on additional measures related to cybersecurity*

The Board also continued to focus on developing a strong and diverse executive leadership team. In January 2019, it appointed Susanne Schaffert as President, Novartis Oncology, and in June, it appointed Marie-France Tschudin as President, Novartis Pharmaceuticals. These appointments increased the number of women on the Executive Committee from two to three, with women now leading both of our Innovative Medicines business units. The Board made a further addition to the Executive Committee in July, with the appointment of Richard Saynor as CEO, Sandoz.

Additional topics for the Board and its committees were a review of our corporate strategy, including culture as a key driver of our performance, and the results of an external evaluation of the productivity of our research and development (R&D) operations. The R&D Committee discussed broadening its remit to cover science and technology matters, including digital innovation and data science. Topics addressed during private meetings included Board self-evaluation and the performance assessment of the Executive Committee members, as well as CEO and Executive Committee succession planning.

# Our Board of Directors



**Joerg Reinhardt, Ph.D.**

Chairman  
German



**Enrico Vanni, Ph.D.**

Vice Chairman  
Swiss



**Nancy C. Andrews, M.D., Ph.D.**

American/Swiss



**Ton Buechner**

Dutch/Swiss



**Patrice Bula**

Swiss



**Srikant Datar, Ph.D.**

American



**Elizabeth (Liz) Doherty**

British



**Ann Fudge**

American



**Frans van Houten**

Dutch



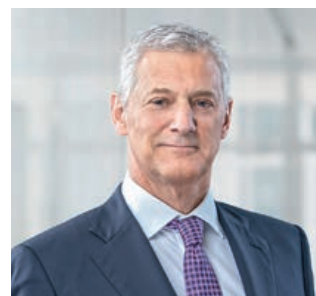
**Andreas von Planta, Ph.D.**

Swiss



**Charles L. Sawyers, M.D.**

American



**William T. Winters**

British/American

**Audit and Compliance Committee**

E. Doherty (Chair)  
T. Buechner  
S. Datar  
A. von Planta  
E. Vanni

**Compensation Committee**

E. Vanni (Chair)  
P. Bula  
S. Datar  
A. Fudge  
W. Winters

**Governance, Nomination and Corporate Responsibilities Committee**

A. von Planta (Chair)  
A. Fudge  
C. Sawyers  
E. Vanni  
W. Winters

**Research & Development Committee**

J. Reinhardt (Chair)  
N. Andrews  
F. van Houten  
C. Sawyers

**Risk Committee**

S. Datar (Chair)  
N. Andrews  
E. Doherty  
A. Fudge  
A. von Planta

For full CVs of our Board members

[www.novartis.com/BoD](http://www.novartis.com/BoD)

# Our Executive Committee



**Vasant (Vas) Narasimhan, M.D.**

Chief Executive Officer  
*American*



**Steven Baert**

Chief People & Organization Officer  
*Belgian*



**Bertrand Bodson**

Chief Digital Officer  
*Belgian*



**James (Jay) Bradner, M.D.**

President of the Novartis Institutes  
for BioMedical Research (NIBR)  
*American*



**Harry Kirsch**

Chief Financial Officer  
*German/Swiss*



**Shannon Thyme Klinger**

Group General Counsel  
*American*



**Steffen Lang, Ph.D.**

Global Head of Novartis Technical  
Operations (NTO)  
*German/Swiss*



**Klaus Moosmayer, Ph.D.**

Chief Ethics, Risk &  
Compliance Officer  
*German*



**Richard Saynor**

Chief Executive Officer of Sandoz  
*British*



**Susanne Schaffert, Ph.D.**

President of Novartis Oncology  
*German*



**John Tsai, M.D.**

Head of Global Drug Development  
and Chief Medical Officer  
*American*



**Marie-France Tschudin**

President of Novartis  
Pharmaceuticals  
*Swiss*



**Robert Weltevreden**

Head of Novartis Business  
Services (NBS)  
*Dutch*

For full CVs of our ECN members and other members of senior management

 [www.novartis.com/ECN](http://www.novartis.com/ECN)

## Novartis AG and Group companies

Novartis AG, with its registered office in Basel, Switzerland, is a corporation organized under Swiss law. As the holding company, Novartis AG owns or controls directly or indirectly all entities worldwide belonging to the Novartis Group and conducting its business operations.

Novartis shares are listed on the SIX Swiss Exchange (symbol: NOVN) and the New York Stock Exchange (symbol: NVS). The latter are in the form of American depositary receipts representing Novartis American depositary shares.

## Shareholder rights

Shareholders have the right to receive dividends and to vote at the Annual General Meeting of Shareholders (AGM), among other rights granted under Swiss law and the Articles of Incorporation. Shareholders can vote at the AGM by themselves, or appoint another shareholder or the Independent Proxy to vote on their behalf. The AGM normally takes place at the end of February or the beginning of March.

## Shareholder engagement

Shareholder engagement is fundamental to our commitment to governance and transparency. The feedback we receive during these engagements helps us to create long-term, sustainable value.

We concentrate our outreach efforts on our largest 100 shareholders – portfolio managers, buy-side professionals, stewardship teams and environmental, social and governance (ESG) analysts – who represent 60% of our ownership. While the Chairman, CEO and CFO together with Investor Relations are accountable for ensuring effective shareholder engagement, other senior managers from within and outside the Executive Committee also participate in the meetings. We conduct regular outreach to investors throughout the year.

In the last two years, we have more than doubled the number of investor engagements on environmental, social and governance (ESG) matters

Shareholders increasingly seek information not only on financial metrics but also on performance against ESG criteria. We are committed to continuing our efforts to integrate ESG into our overall strategy. In the last two years, we have more than doubled the number of investor engagements on ESG matters, and in 2019, we held our first in-person ESG Day in London, led by our CEO, and our first ESG roadshow in the Netherlands. For more details on our corporate responsibility approach and performance, please see the Novartis in Society ESG Report 2019.

More information on our corporate governance is provided in the Annual Report 2019.

 [www.novartis.com/annualreport2019](http://www.novartis.com/annualreport2019)



## Website information

Topic	Information
<b>Share capital</b>	Articles of Incorporation of Novartis AG <a href="http://www.novartis.com/investors/company-overview/corporate-governance">www.novartis.com/investors/company-overview/corporate-governance</a> Novartis key share data <a href="http://www.novartis.com/key-share-data">www.novartis.com/key-share-data</a>
<b>Shareholder rights</b>	Articles of Incorporation of Novartis AG <a href="http://www.novartis.com/investors/company-overview/corporate-governance">www.novartis.com/investors/company-overview/corporate-governance</a>
<b>Annual General Meeting of Shareholders</b>	Annual General Meeting of Shareholders <a href="http://www.novartis.com/investors/shareholder-information/annual-general-meeting">www.novartis.com/investors/shareholder-information/annual-general-meeting</a>
<b>Board Regulations</b>	Board Regulations <a href="http://www.novartis.com/investors/company-overview/corporate-governance">www.novartis.com/investors/company-overview/corporate-governance</a>
<b>Novartis code for senior financial officers</b>	Novartis Code of Ethical Conduct for CEO and Senior Financial Officers <a href="http://www.novartis.com/investors/company-overview/corporate-governance">www.novartis.com/investors/company-overview/corporate-governance</a>
<b>Novartis in Society ESG Report</b>	Novartis in Society ESG Report <a href="http://www.novartis.com/nisreport2019">www.novartis.com/nisreport2019</a>
<b>Novartis financial data</b>	Novartis financial data <a href="http://www.novartis.com/investors/financial-data">www.novartis.com/investors/financial-data</a>
<b>Press releases</b>	Press releases <a href="http://www.novartis.com/news/news-archive?type=press_release">www.novartis.com/news/news-archive?type=press_release</a> Free email service <a href="http://www.novartis.com/news/stay-up-to-date">www.novartis.com/news/stay-up-to-date</a>
<b>Additional information (including Novartis investors event calendar, registered office, contact and email addresses, phone numbers, etc.)</b>	Novartis Investor Relations <a href="http://www.novartis.com/investors">www.novartis.com/investors</a>

# Compensation Report

## summary

Novartis delivered a strong performance in 2019 as we continue our transformation into a leading, focused medicines company, powered by advanced therapy platforms and data science. We continued to engage with shareholders and proxy advisors to gather feedback on our compensation systems and practices. This feedback helped shape further enhancements and simplifications in our compensation system.

### 2019 CEO pay for performance

Financial performance significantly exceeded targets set at the beginning of the year, which enabled the company to raise its guidance every quarter. Net sales to third parties for Novartis continuing operations grew 6% in reported terms and 9% measured in constant currencies (cc) to remove the impact of exchange rate movements. Core operating income grew by 12% (17% cc) and free cash flow amounted to USD 12.9 billion (+15%), mainly driven by higher operating income. The Alcon eye care business was successfully spun off on April 9, 2019, creating significant value for shareholders.

In addition to delivering a strong financial year, there were significant achievements across all our strategic pillars. Highlights include performing above target on the delivery of our innovation pipeline; strong commercial execution; accelerating our push into data and digital, including through collaborations with major technology companies; further embedding an inspired, curious and unbossed

culture across the organization; continuing to improve operational efficiency in Novartis Technical Operations and Novartis Business Services; and returning more to society through access strategies for all new products.

The 2019 total realized compensation for the CEO was **CHF 10 615 740**. The Board assessed the performance of the CEO in his second year and determined that he will be awarded a 2019 Annual Incentive of CHF 4 017 639, which is 160% of target, within the payout range of 0% to 200%. Also included is CHF 4 618 769 of Long-Term Incentive (LTI) income. This comprises the 2017-2019 Long-Term Performance Plan (LTPP) award vesting at 164% of target and, as a result of Novartis ranking 6 out of 16 among our global healthcare peer group for the relative TSR measure, the 2017-2019 Long-Term Relative Performance Plan (LTRPP) vesting at 138% of target. Both plans have a payout range of 0% to 200%.

### Executive Committee compensation system

During 2019, the Compensation Committee continued to engage with shareholders and proxy advisors to gather feedback on the compensation system for the Executive Committee and our disclosures. In response to this feedback, and in order to better align with the interests of shareholders, we have introduced a mandatory holding period of two years beyond the vesting date for all LTI awards (after applicable taxes) to the CEO and CFO granted from 2020 onwards.

Reflecting our commitment to shareholders regarding transparency in executive compensation, we would like to draw attention to the following changes and enhanced disclosures:

- Increased disclosure on the balanced scorecard for the CEO's Annual Incentive, in particular, on targets related to environmental, social and governance (ESG) metrics
- Increased transparency on innovation metrics for the 2019-2021 Long-Term Performance Plan (LTPP) by taking them from published Novartis filing charts in the Annual Report
- Added an interim update of how performance is tracking against targets for all metrics relating to the ongoing 2018-2020 and 2019-2021 LTPP performance cycles to provide an upfront indication of ongoing performance
- Provided explanations of pension benefits for members of the Executive Committee, which are fully aligned with the pensions of all other associates at Novartis

## Current Executive Committee compensation system

	2019 fixed pay and benefits		Performance-related variable pay		
	Annual base salary	Pension and other benefits	2019 Annual Incentive	Long-Term Incentive awards cycle 2017-2019	
				LTPP <sup>1</sup>	LTRPP <sup>2</sup>
<b>Purpose</b>	Reflects responsibilities, experience and skill sets	Provides retirement and risk insurances (tailored to local market practices/regulations)	Rewards for performance against short-term financial and strategic objectives, and Values and Behaviors	Rewards long-term shareholder value creation and innovation in line with our strategy	
<b>Form of payment</b>	Cash	Country/individual-specific and aligned with other employees	50% cash 50% equity <sup>3</sup> deferred for three years	Equity, vesting following a three-year performance period	
<b>Performance measures</b>	-	-	Balanced scorecard comprising: • Financial measures (60%) • Strategic objectives <sup>4</sup> (40%)	• Novartis Cash Value Added (75%) • Innovation milestones (25%)	• Relative TSR versus global sector peers (100%) <sup>5</sup>

<sup>1</sup> LTPP = Long-Term Performance Plan

<sup>2</sup> LTRPP = Long-Term Relative Performance Plan

<sup>3</sup> Executive Committee members may elect to receive more of their Annual Incentive in equity instead of cash.

<sup>4</sup> Strategic objectives are aligned with the five strategic pillars: innovation, operational excellence, data and digital, people and culture, and building trust with society.

<sup>5</sup> For the 2017-2019 performance cycle, the peer group comprises 16 global healthcare companies, including Novartis.

As disclosed in the 2018 Compensation Report, from cycle 2019-2021, the LTRPP plan is discontinued and the LTPP metrics are transformed into four equally weighted measures: net sales compound annual growth rate, core operating income compound annual growth rate, innovation and relative TSR.

### Alignment with company strategy

Our strategy is to become a leading, focused medicines company powered by advanced therapy platforms and data science. We foster a company culture that is inspired, curious and unbossed. We believe these elements drive continued innovation and will support the creation of value over the long term for our company, society and shareholders. To align the compensation system with this strategy and to ensure that Novartis is a high-performing organiza-

tion, the company operates both a short-term Annual Incentive and an LTI plan with a balanced set of measures and targets. The Board of Directors determines specific, measurable and time-bound performance measures for the Annual Incentive and LTI plan. The Compensation Committee has reviewed the existing compensation system and determined that it continues to support our new strategy.

### Executive Committee compensation governance

A summary of the compensation decision authorization levels within the parameters set by the Annual General Meeting (AGM) is shown below, along with an overview of the risk management principles.

#### Decision on

Compensation of CEO
Compensation of other Executive Committee members

#### Decision-making authority

Board of Directors
Compensation Committee

### Executive Committee compensation risk management principles

- Rigorous performance management process
- Balanced mix of short-term and long-term variable compensation elements
- Performance evaluation under the Annual Incentive includes an individual balanced scorecard
- Performance-based Long-Term Incentives, with three-year cycles
- All variable compensation is capped at 200% of target
- Contractual notice period of 12 months
- Post-contractual non-compete period limited to a maximum of 12 months from the end of employment. Resulting compensation is limited to the annual base salary plus prior-year Annual Incentive as per contract, if applicable
- Good and bad leaver provisions apply to the variable compensation of leavers
- No severance payments or change-of-control clauses
- Clawback and malus principles apply to all elements of variable compensation
- Share ownership requirements; no hedging or pledging of Novartis share ownership position

## 2019 CEO pay for performance – outcomes

Measure	Target <sup>1</sup>	Achievement versus target
<b>2019 ANNUAL INCENTIVE</b>		
<b>Financial measures – 60% of total Annual Incentive, comprising:</b>		
Group net sales (cc) (30%)	USD 45 384 million	Significantly above
Group operating income (cc) (30%)	USD 8 129 million	Significantly above
Group free cash flow as a % of sales (cc) (20%)	24.8%	Significantly above
Share of peers for Novartis Group (USD) (20%)	7.9%	Above
<b>Overall assessment of Group financial targets in constant currencies</b>		<b>Significantly above</b>
<sup>1</sup> For performance evaluation purposes, Target as well as Actual financial KPIs excluded the results of the Sandoz US dermatology business and generic US oral solids portfolio, which was expected to be divested to Aurobindo. The transaction is now expected to close in the first quarter of 2020 pending regulatory approval.		
<b>Strategic objectives – 40% of total Annual Incentive, comprising:</b>		
Innovation (20%)		Significantly above
Operational excellence (20%)		Significantly above
Data and digital (20%)		Above
People and culture (including Values and Behaviors) (20%)		Above
Building trust with society (including access to healthcare and reputation and other ESG topics) (20%)		Met
<b>Overall assessment of strategic objectives</b>		<b>Above</b>
<b>Overall assessment of CEO balanced scorecard</b>		<b>Outstanding</b>
<b>TOTAL Annual Incentive:</b>	<b>160% of target (payout range 0% – 200%)</b>	
<b>2017-2019 LONG-TERM INCENTIVES</b>		
<b>Long-Term Performance Plan (LTPP)</b>		
Novartis Cash Value Added (cc) (75%)	USD 6.1 billion	Significantly above
Key innovation milestones (25%)		Above
<b>TOTAL LTPP:</b>	<b>164% of target (payout range 0% – 200%)</b>	
<b>Long-Term Relative Performance Plan (LTRPP)</b>		
Relative TSR against a global healthcare peer group (USD)		Above threshold
<b>TOTAL LTRPP:</b>	<b>138% of target (payout range 0% – 200%)</b>	

## 2019 total realized compensation for the CEO

The 2019 total realized compensation for the CEO was **CHF 10 615 740**, and includes the payouts of the Annual Incentive, LTPP and LTRPP based on actual performance assessed for cycles concluding in 2019.

CHF 000s	Fixed pay and benefits		Variable pay performance-related			Total realized compensation
	Annual base salary <sup>1</sup>	Pension and other benefits	2019 Annual Incentive	LTPP 2017-2019 <sup>1</sup>	LTRPP 2017-2019 <sup>1</sup>	
Vasant Narasimhan	1 653	326	4 018	3 511	1 108	<b>10 616</b>

<sup>1</sup> The shown amounts represent the underlying share value of the total number of shares vested (including dividend equivalents) to the CEO for the LTPP and LTRPP performance cycle 2017-2019.

## 2019 Board of Directors compensation

All fees to Board members are delivered at least 50% in equity and the remainder in cash. Board members receive no variable or performance-based compensation, no share options, and no additional fees for attending meetings. Board members do not receive any company pension or insurance benefits.

CHF 000	AGM 2019-2020, annual fee
Compensation of Chairman	3 800
Board membership	280
Vice Chairman	50
Chair of the Audit and Compliance Committee	130
Chair of the Compensation Committee	90
Chair of the following committees: • Governance, Nomination and Corporate Responsibilities Committee • Research & Development Committee • Risk Committee	70
Membership of the Audit and Compliance Committee	70
Membership of the following committees: • Compensation Committee • Governance, Nomination and Corporate Responsibilities Committee • Research & Development Committee • Risk Committee	40

Total actual compensation earned by Board members in the 2019 financial year was CHF 3 804 373 for the Chairman of the Board and CHF 4 386 628 for the other 12 members of the Board (one of whom stepped down at the 2019 AGM).

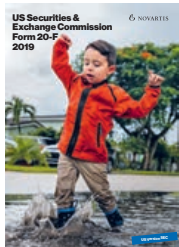
## Shareholder votes on compensation at the 2020 Annual General Meeting

In line with our Articles of Incorporation, at the 2020 AGM, shareholders will be asked to approve the maximum aggregate amount of compensation for the members of the Executive Committee of CHF 93 million. This is broadly the same level as 2019. For the Board of Directors, the maximum aggregate amount proposed to shareholders is in line with the prior term, except for a reallocation of committee

memberships and the increase from 12 to 14 proposed Board members compared to last year. Full details on compensation for the CEO, other Executive Committee members and Board members can be found in the Compensation Report of our Annual Report 2019, and in the compensation votes at the 2020 Annual General Meeting.

# Novartis annual reporting suite

## Annual Report and US Securities & Exchange Commission Form 20-F



These reports, filed with the SIX Swiss Exchange in Switzerland and the US Securities and Exchange Commission in the US, provide a comprehensive overview of Novartis, including our company structure, corporate governance and compensation practices. They also disclose our operating and financial results, accompanied by audited annual financial statements.

[www.novartis.com/reportingsuite](http://www.novartis.com/reportingsuite)

## Novartis in Society ESG Report



The Novartis in Society ESG Report details progress and demonstrates the company's commitment in global health and corporate responsibility.

[www.novartis.com/nisreport2019](http://www.novartis.com/nisreport2019)

## Annual Review



The Annual Review explains who we are and what we do, and highlights our progress against the company's five strategic priorities in 2019.

[www.novartis.com/ar19english](http://www.novartis.com/ar19english)

[www.novartis.com/ar19german](http://www.novartis.com/ar19german)

## Digital Annual Review



A digital and interactive version of the Annual Review

[www.annualreview.novartis.com](http://www.annualreview.novartis.com)

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## Disclaimer

These materials contain forward-looking statements that can generally be identified by words such as "potential," "expected," "will," "planned," "pipeline," "outlook," "may," "could," "would," "anticipate," "seek," or similar terms, or by express or implied discussions regarding potential new products, potential new indications for existing products, or regarding potential future revenues from any such products; or regarding the potential outcome, or financial or other impact on Novartis, of the acquisition of The Medicines Company or the proposed divestiture of certain portions of our Sandoz Division business in the US; or regarding the potential impact of share buybacks; or regarding potential future sales or earnings of the Group or any of its divisions or potential shareholder returns; or regarding potential future credit ratings of the Group; or by discussions of strategy, plans, expectations or intentions. Such forward-looking statements are based on the current beliefs and expectations of management regarding future events, and are subject to significant known and unknown risks and uncertainties. Should one or more of these risks or uncertainties materialize, or should underlying assumptions prove incorrect, actual results may vary materially from those set forth in the forward-looking statements. You should not place undue reliance on these statements. In particular, our expectations could be affected by, among other things: global trends toward healthcare cost containment, including ongoing government, payer and general public pricing and reimbursement pressures and requirements for increased pricing transparency; uncertainties regarding potential significant breaches of information security or disruptions of our information technology systems; uncertainties regarding the success of key products and commercial priorities; our ability to obtain or maintain proprietary intellectual property protection, including the ultimate extent of the impact on Novartis of the loss of patent protection and exclusivity on key products that commenced in prior years and is expected to continue this year; uncertainties in the research and

development of new healthcare products, including clinical trial results and additional analysis of existing clinical data; regulatory actions or delays or government regulation generally, including potential regulatory actions or delays with respect to the proposed transactions or the development of the products described in this Annual Review; uncertainties regarding actual or potential legal proceedings, including, among others, litigation or other legal disputes with respect to the proposed transactions, product liability litigation, litigation and investigations regarding sales and marketing practices, intellectual property disputes and government investigations generally; our reliance on outsourcing key business functions to third parties; our ability to comply with data privacy laws and regulations, and uncertainties regarding potential significant breaches of data privacy; safety, quality, data integrity or manufacturing issues; uncertainties involved in the development or adoption of potentially transformational technologies and business models; the potential that the strategic benefits, synergies or opportunities expected from our recent and proposed future transactions may not be realized or may take longer to realize than expected; the uncertainties involved in predicting shareholder returns; our performance on environmental, social and governance measures; political, economic and trade conditions, including uncertainties regarding the effects of ongoing instability in various parts of the world; uncertainties regarding the effects of recent and anticipated future changes in tax laws and their application to us; uncertainties regarding future global exchange rates; uncertainties regarding future demand for our products; and other risks and factors referred to in Novartis AG's current Form 20-F on file with the US Securities and Exchange Commission. Novartis is providing the information in these materials as of this date and does not undertake any obligation to update any forward-looking statements as a result of new information, future events or otherwise.

All product names printed in italics in this Annual Review are trademarks owned by or licensed to the Novartis Group.

The use of a <sup>TM</sup> or the registered trademark symbol <sup>®</sup> in combination with a brand name in a normal script indicates a third-party brand.

The business policy of Novartis takes into account the OECD's Guidelines for Multinational Enterprises, with their recommendations on the disclosure of information.

Our Annual Review is published in English; a German translation is also available.

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In Accra, Ghana, John Dzido holds his son Caleb, 11, who has suffered a series of strokes due to sickle cell disease. To learn more about Mr. Dzido and his son, as well as efforts to expand early diagnosis and treatment of sickle cell disease in Ghana, go to <https://youtu.be/iIYZ6evCQbQ>.

**Back cover photo** A nurse takes a blood sample from a baby as part of a newborn screening program for sickle cell disease in Ghana.



