COVID-19
A GLOBAL PERSPECTIVE

2020 GOALKEEPERS REPORT
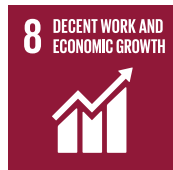
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GATES *foundation*

GOALKEEPERS

THE GLOBAL GOALS
FOR SUSTAINABLE DEVELOPMENT

1 NO POVERTY

2 ZERO HUNGER

3 GOOD HEALTH AND WELL-BEING

4 QUALITY EDUCATION

5 GENDER EQUALITY

6 CLEAN WATER AND SANITATION

7 AFFORDABLE AND CLEAN ENERGY

8 DECENT WORK AND ECONOMIC GROWTH

9 INDUSTRY, INNOVATION AND INFRASTRUCTURE

10 REDUCED INEQUALITIES

11 SUSTAINABLE CITIES AND COMMUNITIES

12 RESPONSIBLE CONSUMPTION AND PRODUCTION

13 CLIMATE ACTION

14 LIFE BELOW WATER

15 LIFE ON LAND

16 PEACE, JUSTICE AND STRONG INSTITUTIONS

17 PARTNERSHIPS FOR THE GOALS

In 2015, 193 world leaders agreed to 17 ambitious goals to end poverty, fight inequality, and stop climate change by 2030. Goalkeepers focuses on accelerating progress toward the Global Goals, with a particular focus on Goals 1–6.

The challenge of COVID-19 has only reinforced the fact that, for the goals to be met, everyone needs to do their part: governments, the private sector, civil society, and the general public. Please join us as we strive to create a better world.

ON THE COVER
Mumbai, India

CONTENTS

INTRODUCTION

AS WE WRITE, COVID-19 has killed more than 850,000 people. It has plunged the world into a recession that is likely to get worse. And many countries are bracing for another surge in cases.

In past editions of the Goalkeepers Report—almost every time we have opened our mouths or put pen to paper, in fact—we have celebrated decades of historic progress in fighting poverty and disease.

But we have to confront the current reality with candor: This progress has now stopped. In this report, we track 18 indicators included in the United Nations' Sustainable Development Goals (SDGs). In recent years, the world has improved on every single one. This year, on the vast majority, we've regressed.

And so this essay has two goals. First, we analyze the damage the pandemic has done and is still doing—to health, to economies, and to virtually everything else. Second, we argue for a collaborative response. There is no such thing as a national solution to a global crisis. All countries must work together to end the pandemic and begin rebuilding economies. The longer it takes us to realize that, the longer it will take (and the more it will cost) to get back on our feet.

BILL & MELINDA GATES
Co-chairs,
Bill & Melinda Gates Foundation

PREVIOUS PAGE
Johannesburg, South Africa

GLOBAL IMPACT

THE PREFIX "PAN" in the word "pandemic" means the disease exists all over the world. It might as well also mean that it affects every aspect of society. An article about the 1918 influenza pandemic in India referred to that experience as "a set of mutually exacerbating catastrophes." In the blink of an eye, a health crisis became an economic crisis, a food crisis, a housing crisis, a political crisis. Everything collided with everything else.

"Mutually exacerbating catastrophes" is an apt description for the COVID-19 pandemic, too. First, there was the disease itself. Then, governments moved resources to try to manage it and people stopped seeking health care to avoid being infected: building blocks of a comprehensive health catastrophe. Consider vaccine coverage, which is a good proxy measure for how health systems are functioning. Our data partner, the Institute for Health Metrics and Evaluation (IHME), found that in 2020 coverage is dropping to levels last seen in the 1990s. In other words, we've been set back about 25 years in about 25 weeks. One of the most important questions the world now faces is how quickly low-income countries can catch back up to where they were and start making progress again. The hardest-hit will need support to make sure that what should be temporary reversals don't become permanent.

Meanwhile, the catastrophes continued to pile up. As governments implemented necessary policies to slow the spread of the virus, and people changed their behavior to limit their exposure, global supply chains started to shut down, contributing to an economic catastrophe. Schools closed, and hundreds of millions of students are still trying to learn on their own at home, an educational catastrophe. (Data from the Ebola epidemic in West Africa suggests that, when schools open again, girls are less likely to return, thereby closing off opportunities for themselves and for their future children.) People in high- and low-income countries alike report skipping meals, a nutritional catastrophe that will make the others worse.

ABOVE

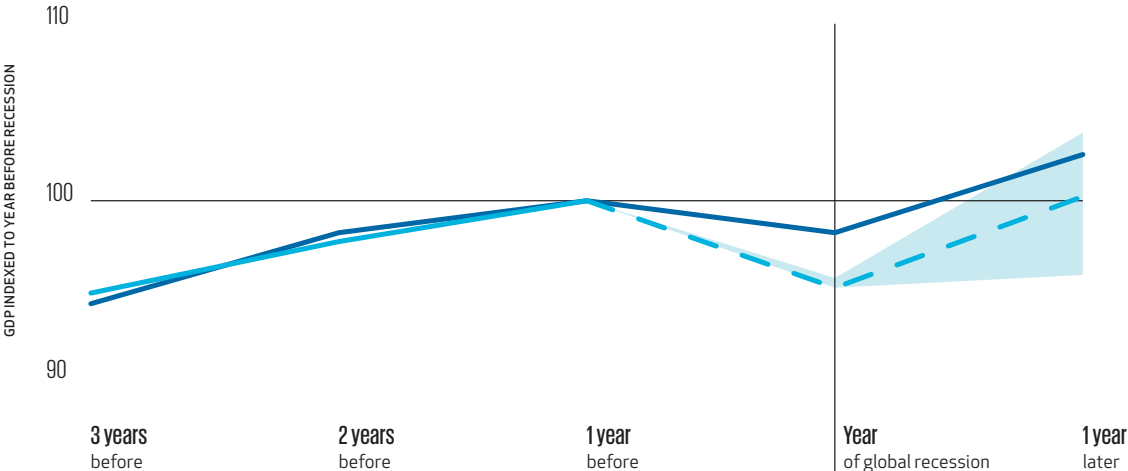Kolar, India (left); Amritsar, India (center); Kumasi, Ghana (right)

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Get more content and greater detail in the online version of the 2020 Goalkeepers Report.

🔗 http://gates.ly/GK20Report

All these catastrophes are undermining the progress we've made—and still need to make—toward equality. At the same time, they have made it crystal clear *how much* progress we still need to make. In our country, for example, the pandemic is hurting people of color the most: They are getting sick and dying from COVID-19 and suffering its economic consequences at much higher rates than white people. According to the U.S. Census Bureau, 23 percent of white Americans said they were not confident they could make rent in August, a frightening enough statistic. Among Black and Latinx Americans, though, the number was double that: 46 percent didn't think they could pay for the roof over their head.

IMPACT OF GLOBAL RECESSIONS ON GDP

● 2008 global financial crisis
● 2020 COVID-19 economic crisis (based on IMF projections)

GDP INDEXED TO YEAR BEFORE RECESSION

110				
100				
90				

| 3 years before | 2 years before | 1 year before | Year of global recession | 1 year later |

THE ECONOMIC CATASTROPHE

The widest-ranging catastrophe—the one that has spread to every country regardless of the actual spread of the disease—is economic. The International Monetary Fund projects that, even with the US$18 trillion that has already been spent to stimulate economies around the world, the global economy will lose US$12 trillion, or more, by the end of 2021.

That amount of money is impossible to fathom. Historical comparisons help: For example, in terms of global gross domestic product (GDP) loss, this is the worst recession since the end of World War II, when war production stopped in an instant, one entire continent and parts of another were destroyed, and 3 percent of the world's pre-war population was dead. In those same terms, the COVID-19 financial loss is twice as great as the "Great Recession" of 2008. The last time this many countries were in recession at once was in 1870, literally two lifetimes ago.

In some countries, spending on emergency stimulus and social protection has kept the absolute worst from happening. But these countries are not randomly determined. They are countries wealthy enough to raise billons and trillions by borrowing huge amounts and expanding the money supply.

By contrast, there are inherent limits to what lower-income countries are able to do to backstop their economies, regardless of how effectively those economies have been managed. On average, the economies of sub-Saharan African countries grew faster than the rest of the world every single year between 2000 and 2015, but sub-Saharan Africa is still the lowest-income region in the world. Most countries there can't borrow the money they need to minimize the damage, and their central banks don't have the range of options available to the European Central Bank and the U.S. Federal Reserve.

ABOVE
Siliguri, India

Among G20 countries, stimulus funding averages about 22 percent of GDP. Among sub-Saharan African countries, that average is just 3 percent—and of course their GDPs are much less. In short, theirs is a much smaller slice of a much smaller pie, and it's not enough.

Under these constraints, many low- and middle-income countries are innovating to meet these challenges. Vietnam's contact-tracing system is a global model: With a population of more than 100 million, the country has seen just 1,044 confirmed cases and 34 deaths from COVID. Ghana started pooling tests, instead of testing people individually, to conserve scarce resources while still tracking the spread of the disease. In Nigeria, more than 100 private-sector partners, including corporations and individuals, created the Coalition Against COVID and have raised $80 million (so far) to bolster the government's response. The Africa Centres for Disease Control and Prevention, the UN Economic Commission for Africa, the African Export-Import Bank, and dozens of other partners launched the African Medical Supplies Platform to ensure that countries on the continent have access to affordable, high-quality, lifesaving equipment and supplies, many of which are manufactured in Africa.

SIZE OF ECONOMIC STIMULUS IN RESPONSE TO COVID-19

- G20 countries
- Sub-Saharan Africa

ECONOMIC STIMULUS AS PERCENT OF GDP

GDP PER CAPITA ($)

Many developing countries are doing especially impressive work on digital cash transfers that put money directly in people's hands. According to the World Bank, 131 countries have either implemented new programs or expanded existing ones since February, reaching 1.1 billion people. India, which had already invested in a world-class digital identity and payment system, was able to transfer cash to 200 million women almost immediately once the crisis hit. This not only reduced COVID-19's impact on hunger and poverty but also advanced India's long-term goal of empowering women by including them in the economy. Other countries facilitated new cash transfer systems with nimble policy changes. The eight members of the West African Economic and Monetary Union, for example, allowed people to open accounts by text message or telephone and follow up later to verify their identity in person. More than 8 million West Africans signed up for accounts while their countries were in lockdown.

Even so, there is a cap on how much money many governments are able to spend on the safety net, and people are suffering. IHME estimates that extreme poverty has gone up by 7 percent in just a few months because of COVID-19, ending a 20-year streak of progress. Already in 2020, the pandemic has pushed almost 37 million people below the US$1.90 a day extreme poverty line. The poverty line for lower-middle-income countries is US$3.20 a day, and 68 million people have fallen below that one since last year. "Falling below the poverty line" is a euphemism, though; what it means is having to scratch and claw every single moment just to keep your family alive.

These newly impoverished people are more likely to be women than men. One reason is that women in low- and middle-income countries work overwhelmingly in the informal sector, which tends to operate in now-inaccessible spaces (like people's homes and public markets) and provides less access to government support. In Africa, the earnings of informal workers declined more than 80 percent in the first month of the pandemic.

Another reason is the avalanche of unpaid care work—like cooking, cleaning, caring for children and sick relatives—women are expected to do. Women already did most of it; now, with children at home instead of school, many men at home instead of at work, and many sick people at home instead of at health clinics, there is much more unpaid care work to be done, and the early evidence suggests that the distribution is growing more lopsided, not less.

FORECAST OF GLOBAL POVERTY TREND

PERCENT CHANGE IN NUMBER OF PEOPLE IN POVERTY ($1.90)

-1.2% 2018
-1.5% 2019
+7.1% 2020

ONE WOMAN'S STORY
SYLVIA (HOMA BAY, KENYA)

WE SUPPORT a multidisciplinary anthropology project called Pathways, in which locally embedded researchers observe and participate in the lives of women in Kenya and other countries, getting to know them over the span of two years. This deep knowledge can provide the context that is sometimes missing from the design of health and development programs. When COVID-19 struck, Pathways researchers spoke to women they had come to know well to learn about the mutually exacerbating impacts of the pandemic in their lives.

A Good Role Model

Sylvia, who was born with HIV, learned how to get by on her own in her teens, when both her parents died from HIV-related complications and she gave birth to her daughter Gift. She's outgoing and self-confident; she built up a network of family, friends, neighbors, and the staff at the health clinic where she goes for treatment. "My doctors," she said, "think I am a good role model to discuss HIV and support the cause"—so good, in fact, that they invited her to be a peer counselor for other HIV-positive mothers. Soon after the pandemic started, though, the facility ran out of money to pay her a stipend for her counseling--and ran out of Septrin, an antibiotic she takes with her HIV treatment to prevent pneumonia.

Less Room for Maneuver

The good news is that Sylvia can buy Septrin at the local pharmacy—but it costs 30 shillings (about 28 U.S. cents) a dose, which over the course of the month adds up to twice her rent. Her landlord, an old family friend, is usually understanding if she needs to pay late, but now he's worried about making ends meet, so he's asking to be paid on time. Sylvia washes clothes and braids hair for a living, but her customers can't pay her. Meanwhile, her sister, who sold *mandazies* (fried bread) at a school that closed, can no longer send money. In short, expenses are up, income is down, and there's less room for maneuver.

Caring for Gift

Gift, who is 4, is especially bright, so Sylvia enrolled her in school in January; it closed almost immediately. Neighbors used to watch Gift when Sylvia had to work, but that's become harder with social distancing. When Sylvia goes to the hair salon to braid hair, she now brings Gift along. When she's washing clothes in the neighborhood, she lets Gift play on her own—and trusts that she'll come to find her mother when she's hungry.

Above: Gift's teddy bear hangs in Sylvia's home.

Saving Money

Skipping meals, a money-saving strategy employed by many women, is an especially risky option for Sylvia because she shouldn't take her HIV medication on an empty stomach. Nearby Lake Victoria has been overfished for years, and the rains have been unusually heavy in recent years, so fish is harder to get and more expensive. Sylvia still buys *omera* (small sardines) from time to time but relies on maize flour. "My daughter is used to porridge," she says. "Even if you give it to her without sugar, she'll take it."

Experience two more women's stories online. 🔗 *http://gates.ly/GK20Pathways*

A COLLABORATIVE RESPONSE

THE US$18 TRILLION in economic stimulus proves that the world understands how massive the COVID-19 crisis is. But it's not just different in degree; it's also different in kind. Every person on the planet shares this crisis. We need to share solutions, too.

We see this difference every day in our communities. We cannot keep ourselves safe from coronavirus by ourselves. We have to rely on one another—to keep distance, wash our hands, wear a mask. So far, some governments have been able to contain the disease effectively; some have been able to cushion the economic shock; some have been able to do both. No matter where you live, though, whether your government is rich or poor, your country will never be able to meet this challenge alone.

The COVID-19 pandemic has taught us that just as everything collides into everything else, everywhere collides into everywhere else. No matter how good any individual place is at testing, contact tracing, and quarantining, a person who has no idea they are contagious can still get on an airplane and be in another place in a few hours.

These collisions deepen the economic crisis, too. In this century of sophisticated interconnections, no country's economy can be fully healthy if the global economy is sick. Consider the fact that 66% of the European Union's GDP is export- and import-related. Or that the economy of New Zealand, with extremely low case numbers, is shrinking. It is impossible to inoculate a national economy against a global economic catastrophe.

Our foundation has focused for years on global health equity. We concentrate especially on what some have called "residual pandemics"—infectious diseases like malaria and tuberculosis that barely exist in high-income countries but still kill millions (and trigger mutually exacerbating catastrophes) in many others. We try to bring attention to these diseases because they aren't top of mind for everyone.

COVID-19 *is* top of mind for everyone. The danger now is that the countries already dealing with residual pandemics will be sent permanently to the back of the line for solutions to this one. This would be a heartbreaking injustice. It would also go against the self-interest of the countries at the front of the line.

INNOVATING WITH EQUITY IN MIND

We have our work cut out for us in the years to come. We need a strong coalition of businesses, governments, and development banks—the entire international financing system—to come together to mount a global response equal to the challenge we've been describing in this essay.

But before the world can really begin to address the damage this set of mutually exacerbating catastrophes has caused, we need to stop the inciting one: the pandemic that is currently getting worse, not better, in many countries. We cannot rebuild health systems, economic systems, educational systems, and food systems—to say nothing of making them better than they were when this year began—until the virus that is tearing them all down is under control.

To get it under control, to end the pandemic, the world should collaborate on three tasks as quickly as possible:

1. Develop diagnostics and treatments to manage the pandemic in the short term and vaccines to end it in the medium term.

2. Manufacture as many tests and doses as we can, as fast as we can.

3. Deliver these tools equitably to those who need them most, no matter where they live or how much money they have.

The key to developing new vaccines, especially in the early stages, is to pursue as many candidates as possible. Some countries have started making deals with pharmaceutical companies to reserve doses of a given vaccine candidate in the event that it eventually succeeds. This is not a bad thing. Governments have a responsibility to protect the health of their people, and these investments help jump-start important R & D, pay for new manufacturing facilities, and bring the world closer to delivering a vaccine.

Yet the steady trickle of headlines about promising early-stage clinical-trial results obscures the fact that R & D is inherently very high risk: the probability of success is 7 percent in early stages and 17 percent once candidates move on to human testing. Governments are essentially placing long-shot bets on the vaccine candidates they hope will "win"—but most will lose. One way to minimize this risk is for countries to invest jointly in a large portfolio of candidates.

Manufacturing is one of the most under-the-radar challenges the world faces: Once we find a vaccine or vaccines that work, we will need to manufacture billions of doses as quickly as possible. Right now, we don't have anywhere near enough manufacturing capacity to do this—and no individual country has the incentive to scale up on its own. Yet every dose of vaccine that the world fails to manufacture quickly means a longer pandemic, more deaths, and a longer global recession.

Developing and manufacturing vaccines won't end the pandemic quickly unless we also deliver them equitably. Some governments that have made bets will win those bets, but if they use all the available vaccine to protect only their people, they will be extending the life of the pandemic everywhere. They will also be contributing to a much larger death toll. According to modeling from Northeastern University, if rich countries buy up the first 2 billion doses of vaccine instead of making sure they are distributed in proportion to the global population, then almost twice as many people could die from COVID-19.

It is not yet clear precisely how the world will organize a collaborative response. In April, many partners came together to launch the Access to COVID-19 Tools Accelerator (ACT-A), the most serious collaborative effort to

HOW MANY LIVES
COULD EQUITABLE VACCINATION SAVE?

NORTHEASTERN UNIVERSITY'S
Laboratory for the Modeling of Biological and Socio-technical Systems (MOBS LAB) has worked for years on modeling influenza transmission, which put them in a good position to model COVID-19. Because it is so difficult to predict the future, MOBS LAB ran counterfactual scenarios examining what would have happened if a vaccine had been available starting in mid-March. This allows the model to work with observed data related to events that have already taken place, instead of guesses about data related to events that might take place a year from now.

Northeastern ran two scenarios. In one, approximately 50 high-income countries received the first 2 billion doses (out of 3 billion) of an 80 percent effective vaccine. In the other, all countries received the 3 billion doses proportional to their populations. The outcome of the simulations is rendered as the percentage of deaths averted in each scenario, compared to the actual scenario of no vaccine.

**MODELED PERCENTAGE OF DEATHS
(COMPARED TO NO VACCINE)**

33% deaths averted — Vaccine distributed to high-income countries first

61% deaths averted — Vaccine distributed to all countries proportional to population

end the pandemic to date. The two main partners in ACT-A's vaccine strategy—the Coalition for Epidemic Preparedness Innovations (CEPI), which has nine COVID-19 vaccine candidates in its portfolio, and Gavi, the Vaccine Alliance, which has helped low- and middle-income countries deliver 750 million vaccines since it was founded in 2000—were built to solve problems like the one we're facing now. That is why our foundation supports ACT-A, and why we urge others to join us.

To be clear, funding these organizations and other key partners adequately will cost a lot of money—but not compared to the cost of a festering pandemic. Every single month, the global economy loses US$500 billion, and a collaborative approach will shave many months off of the world's timeline. Countries have already committed US$18 trillion to economic stimulus to treat the symptoms of the pandemic. Now they need to invest a small portion of that total to root out its cause.

CONCLUSION

WHAT THE WORLD DOES IN THE NEXT FEW MONTHS MATTERS A GREAT DEAL.

THE RESPONSE TO the COVID-19 pandemic has shown us some of the best of humanity: pathbreaking innovation, heroic acts by frontline workers, and ordinary people doing the best they can for their families, neighbors, and communities. In this report, we've focused on the threat before us. That's because the stakes are so immediate and so high. What the world does in the next few months matters a great deal.

Our tagline for Goalkeepers is "progress is possible but not inevitable"— and we stand by it. How bad the pandemic gets and how long it lasts is largely within the world's control. Ultimately, businesses and governments must really believe that the future is not a zero-sum contest in which winners win only when losers lose. It is a cooperative endeavor in which we all make progress together.

EXPLORE THE DATA

WE STARTED WRITING the Goalkeepers Report to track progress toward the Sustainable Development Goals (SDGs). We promised that, every year, we'd publish the most recent global data about the 18 indicators most closely related to the work our foundation does.

This year, as we explain on the following page, the estimates aren't perfect, but we believed it was important to try to quantify the impacts of COVID-19. As in previous years, the projections include better and worse scenarios. We are focused on the difference between the scenarios. It is up to world leaders to make the tough decisions to get as far away as possible from the worse scenario and as close as possible to the better one.

ABOVE
Lupiro village, Tanzania

THE MODELING EXPLAINED

Global health and development data usually involves a lag. It takes time (and a lot of work) to collect data on how many people have been vaccinated, who has been diagnosed with which diseases, or how people's income has changed. It takes even more time to standardize the data, fill in gaps and fix errors, validate it, analyze it, and share it.

This means that, with traditional methods, it would be 2021 before the impact of COVID-19 showed up in the data included in the Goalkeepers Report. The point of the report is to track (and promote) progress toward the Sustainable Development Goals, and the big thing standing in the way of that progress right now is the pandemic. So we decided not to wait the usual year-plus to try to quantify the impact of this disaster.

With this year's Goalkeepers, our data partner, the Institute for Health Metrics and Evaluation (IHME), worked together with many partners and used novel data collection methods to generate a set of contemporary estimates for how the pandemic has interrupted global progress on the SDGs. These estimates are not perfect (see below for some important caveats) and will likely need to be revised as more data becomes available.

These estimates break down into four time periods, each of which is informed by specific data and methods. On the following page, we describe the types of data used and the caveats associated with each time period.

Making our forecasting more contemporary comes with drawbacks. Given that the most recent data comes from this summer, or even earlier in the majority of cases, and that there is considerable uncertainty about the evolution of the pandemic, the datasets that IHME normally uses to validate findings simply aren't available yet. These estimates are based on the best information available through July 2020, but the situation and data are changing each day, and will continue to do so.

PERIOD 1 1990–2019 **PERIOD 2** JANUARY–JUNE/JULY 2020 **PERIOD 3** JULY 2020–END OF 2021 **PERIOD 4** 2022–2030

PERIOD 1: 1990–2019

This is the gold standard data for global health and development. Sources include IHME's Global Burden of Disease study, countries' national health agencies, the United Nations specialized agencies, and the World Bank Group. The data draws from administrative records and many different surveys, which have been cleaned, analyzed, verified, and then published.

PERIOD 2: JANUARY–JUNE/JULY 2020

In this period, the goal was to get an accurate sense of how the pandemic *has already* disrupted SDG progress by using more contemporary data sources. There are four key inputs:

1. For the health indicators, a commissioned series of smartphone surveys and telephone interviews in 82 countries (70,000 respondents), asking people how their behavior and ability to access health services had changed since the pandemic started.

2. Monthly administrative data that tracks the number of people receiving different health services. For each month since the beginning of the pandemic (March 2020–June 2020), the number of people receiving services in a country was compared to that number for the same month in 2019, controlling for changes between 2019 and 2020 that were observed before the pandemic started.

3. Monthly data on correlates of GDP, including tourist arrivals, employment rates, consumer price indices, interest rates, and electricity production.

4. Data on human mobility patterns, gathered from a number of sources. IHME's analysis shows that reductions in mobility as a result of the pandemic and social distancing mandates are a good predictor of decreased economic activity and access to health services.

PERIOD 3: JULY 2020-END OF 2021

The goal in this period was to project what will happen, rather than trying to measure what has happened. From what was learned in Period 2, and what the IHME team believes will happen to the spread of the virus, change is projected in the near-term future.

- A key input to this period is the IHME model of when, where, and how many COVID-19 deaths will occur over the next 18 months, as well as how population mobility will change as a result of social distancing mandates. This model includes assumptions about how governments will respond (e.g., social distancing mandates), based on the observed relationship between COVID-19 deaths and policy choices so far.

- IHME then uses these estimates of deaths and mobility, along with the relationship between these estimates, economic correlates, and health behaviors (based on what has been observed so far in Period 2), to estimate how they will change in Period 3.

PERIOD 4: 2022-2030

The goal in this period was to forecast how the world will do on these indicators after the pandemic ends, taking into account the lasting economic impacts.

- This relies on much the same modeling approach taken in previous editions of the Goalkeepers Report, with a focus on GDP, IHME's composite prediction about social development (the Socio-demographic Index, or SDI), and for some indicators related drivers such as health spending. The objective this year is that the modeling of these macro drivers reflect the economic effects of COVID-19 that will continue long after the pandemic ends.

- The trends on how GDP and social development relate to the SDG indicators have a long track record and have proven robust in the past.

CAVEATS (PERIOD 3)
- The model about how the virus will spread and how government will react will certainly not match real events exactly. The model presents one evidence-driven future scenario.
- IHME is assuming that people will respond to new restrictions on movement in the same way that they responded originally. They're also assuming that as government mandates lift, people's mobility and health-seeking behavior will return to pre-COVID-19 levels.

CAVEATS (PERIOD 4)
- IHME is assuming that the pandemic will end by the end of 2021.
- The analysis uses the relationship between GDP, SDI, and other key drivers on the one hand and health indicators at the population level on the other. Households and children living in poverty are likely to suffer more severe and longer-lasting impacts from COVID-19 than the averages imply.

POVERTY

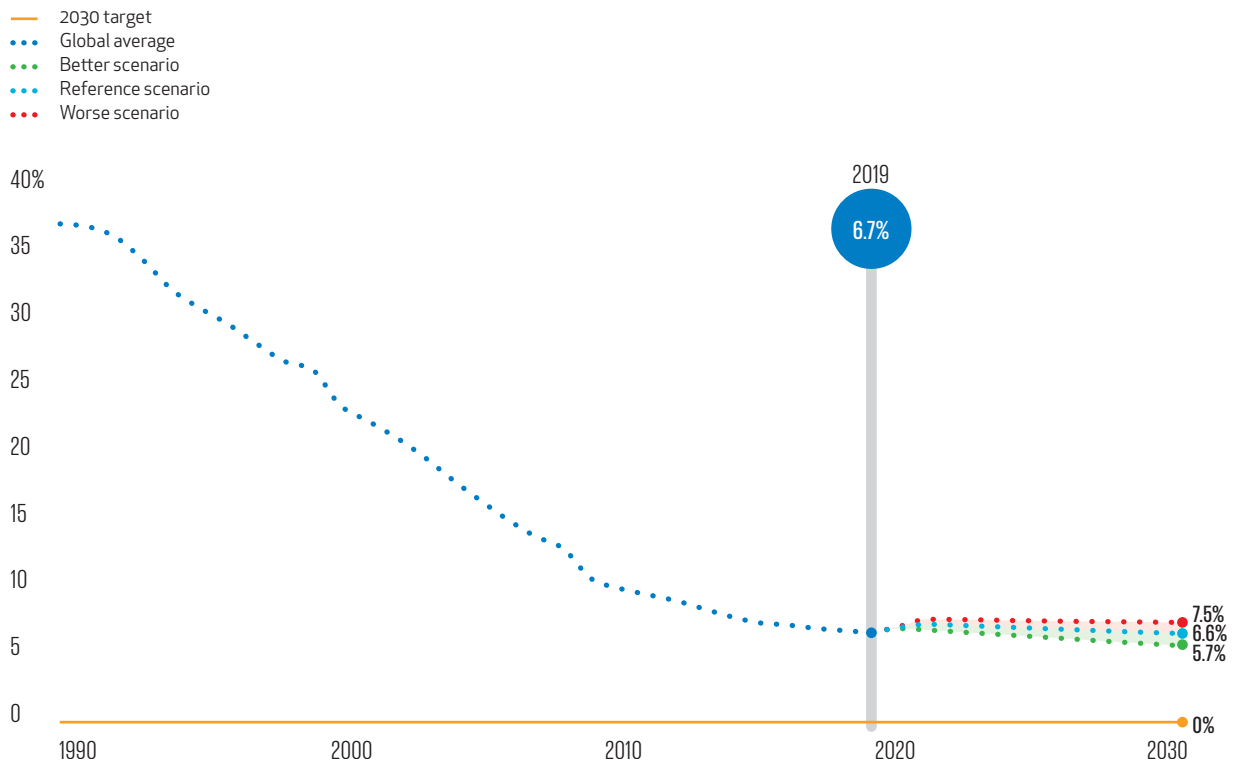SDG target: Eradicate extreme poverty for all people everywhere.

This crisis has thrust almost 37 million more people into extreme poverty, after 20 straight years of that number coming down. At the same time, it has revealed how fragile that progress is: People living just above the extreme poverty line who have fallen below it because of COVID-19 were obviously vulnerable despite not being officially poor.

In the short term, social-protection payments and emergency business loans—exactly the types of programs being used in high-income countries—can keep people from becoming extremely poor or help the poor avoid

destitution. Targeting those programs to women makes a difference, because women direct more income toward investments in their families, which leads to durable prosperity.

However, the longer the pandemic lasts, the worse its economic scars will be. But we can help people as they recover. As Goalkeepers has emphasized year after year, investments in human capital (like health and education) are key to generating economic growth and creating resilient households that don't just hover around the poverty line.

Percentage of population below the international poverty line (US$1.90/day)

— 2030 target
••• Global average
••• Better scenario
••• Reference scenario
••• Worse scenario

STUNTING

SDG target: End all forms of malnutrition, including achieving, by 2025, the internationally agreed-upon targets on stunting and wasting in children under five. Target shown on chart is provisional and has been extrapolated based on existing 2025 target.
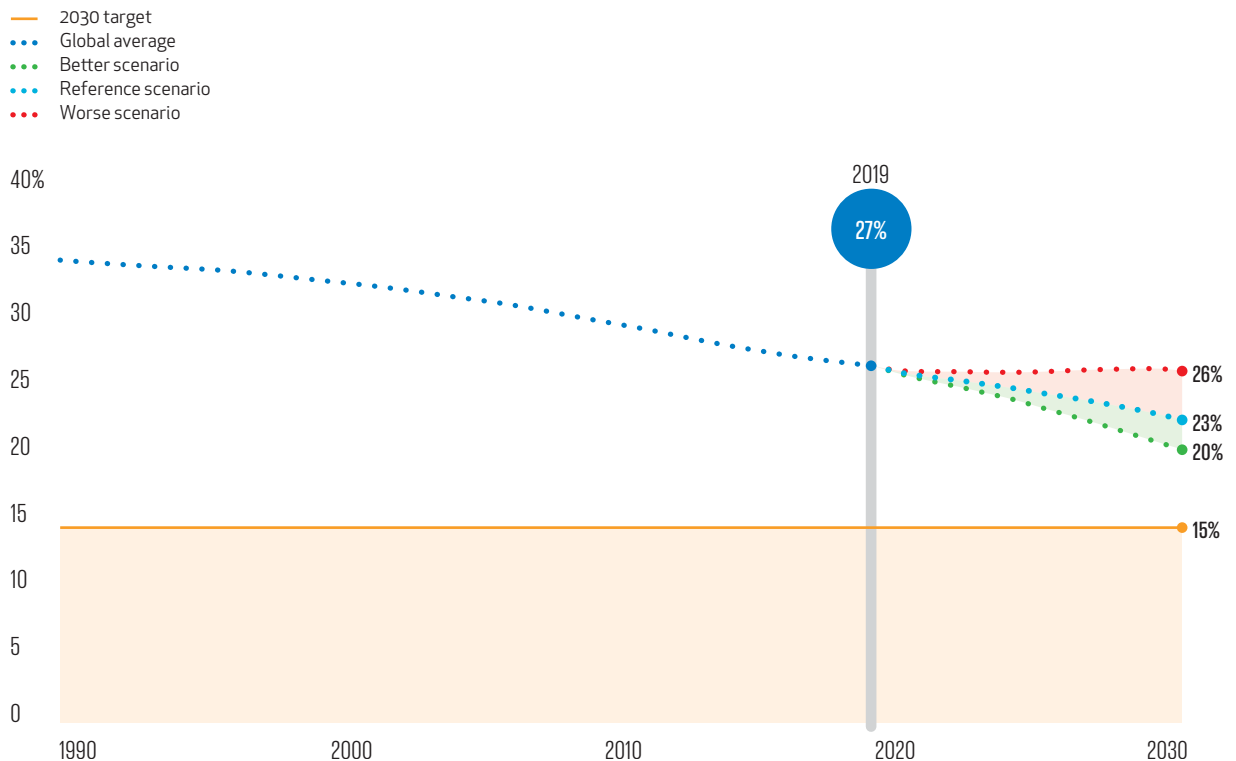
Goalkeepers measures progress on nutrition by tracking stunting (low height for age), a manifestation of chronic malnutrition. As the word "chronic" makes clear, stunting does not happen overnight—it compounds over weeks and months. When it comes to COVID, therefore, stunting is a lagging indicator whose impact we may not see for a year or more. The longer families suffer from food insecurity and spotty access to basic health services, the worse COVID's impact on stunting could eventually be.

If we were to look at other nutrition indicators, we'd see that the pandemic is already doing great harm. Wasting (low weight for height) is a manifestation of acute malnutrition—and

its prevalence is spiking right now. A recent *Lancet* study found that wasting could account for up to one-quarter of all COVID-related childhood deaths.

We must address wasting now without leaving children vulnerable to stunting later, which means strengthening health, food, and social-protection systems to deliver the care and food that children need in order to avoid malnutrition in the first place.

Prevalence of stunting among children under age 5

— 2030 target
••• Global average
••• Better scenario
••• Reference scenario
••• Worse scenario

2019 · 27%

26%
23%
20%
15%

1990   2000   2010   2020   2030

AGRICULTURE

SDG target: Double the agricultural productivity and incomes of small-scale food producers, in particular women, indigenous peoples, family farmers, pastoralists, and fishers.
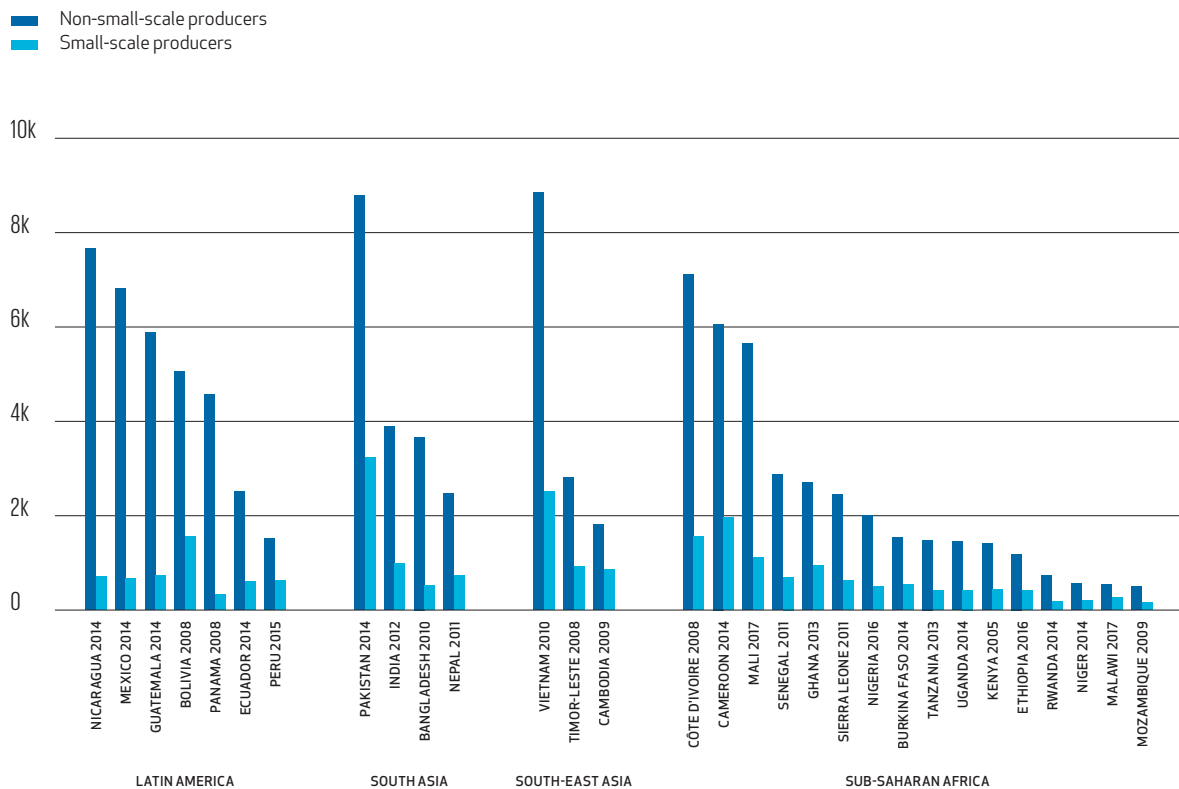
Due to the COVID-19 economic crisis, local food markets are less busy and consumers have less money to buy food, which means small-scale farmers are selling and earning less. This is on top of climate stresses that have been getting worse in recent years as well as this year's locust infestation in East Africa, both of which threaten their livelihoods.

In the meantime, small-scale farmers are less likely to have the flexibility to adapt, for example by adhering to new hygiene requirements or social distancing rules. To protect small-scale farmers from poverty and hunger, countries should strive to ensure food security (drawing on innovative data collection methods to target support to the most vulnerable households); maintain regional and global trade; and support domestic food production and trade.

In this report, we don't usually track food insecurity, but this year it is important to note that, according to the United Nations, economic shocks will plunge between 83 and 132 million people into food insecurity.

Average annual income from agriculture, PPP (constant 2011 international $)

■ Non-small-scale producers
■ Small-scale producers

MATERNAL MORTALITY

SDG target: Reduce the global maternal mortality ratio to less than 70 per 100,000 live births.
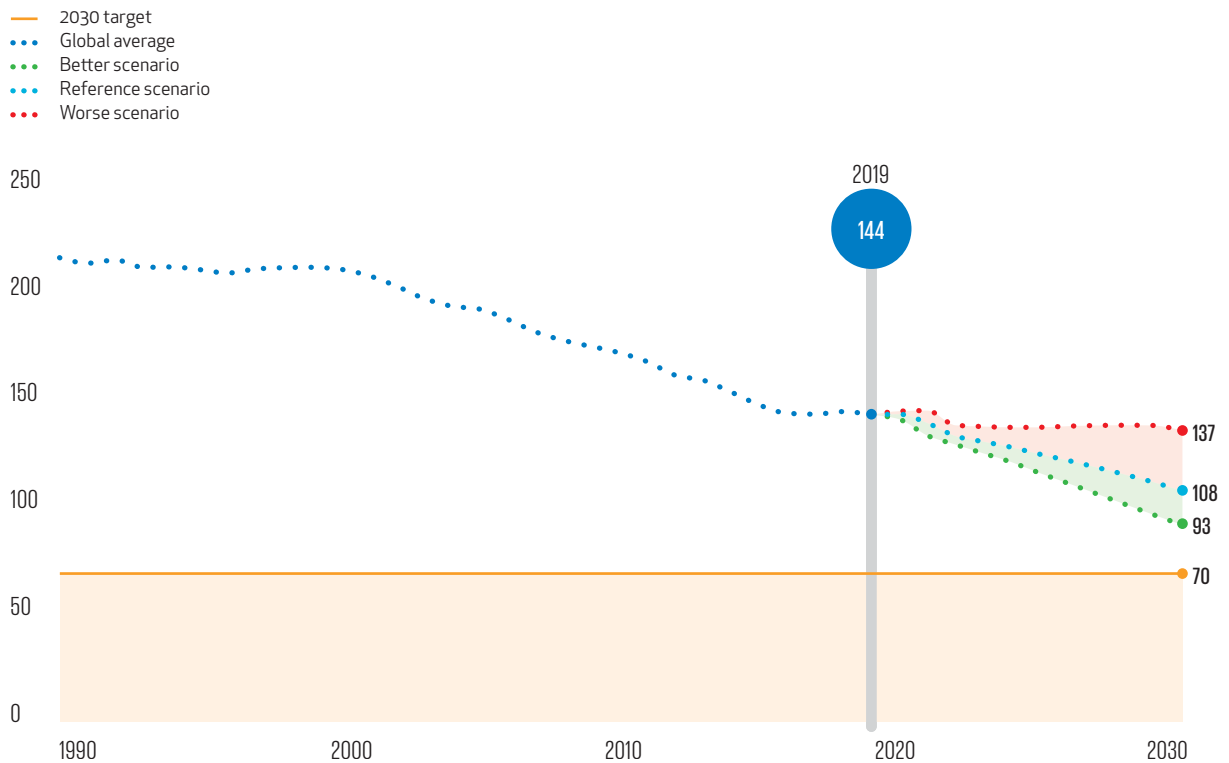
Indirectly, COVID will cause more women than men to suffer and die, in large part because the pandemic has disrupted health care before, during, and immediately after childbirth. Preventable, treatable complications such as severe bleeding, infection, and high blood pressure cause the vast majority of maternal deaths. Many health care workers who used to manage these emergencies, including experienced nurse-midwives, are being diverted to COVID wards.

Meanwhile, pregnant women and new mothers must weigh the benefits of visiting a clinic— where they may not have received high-quality care in the past—against the risk of exposure to COVID. Some are deciding to deliver at home or skip newborn care visits as a result.

Expert maternal care is the definition of an essential service. Unlike some other services, it can't be safely postponed and caught up later. A pregnant woman is pregnant now and delivers her baby when she delivers. It is imperative that health systems have all the resources they need to ensure that she can do so safely and with dignity.

Maternal deaths per 100,000 live births

— 2030 target
... Global average
... Better scenario
... Reference scenario
... Worse scenario

2019
144

137
108
93
70

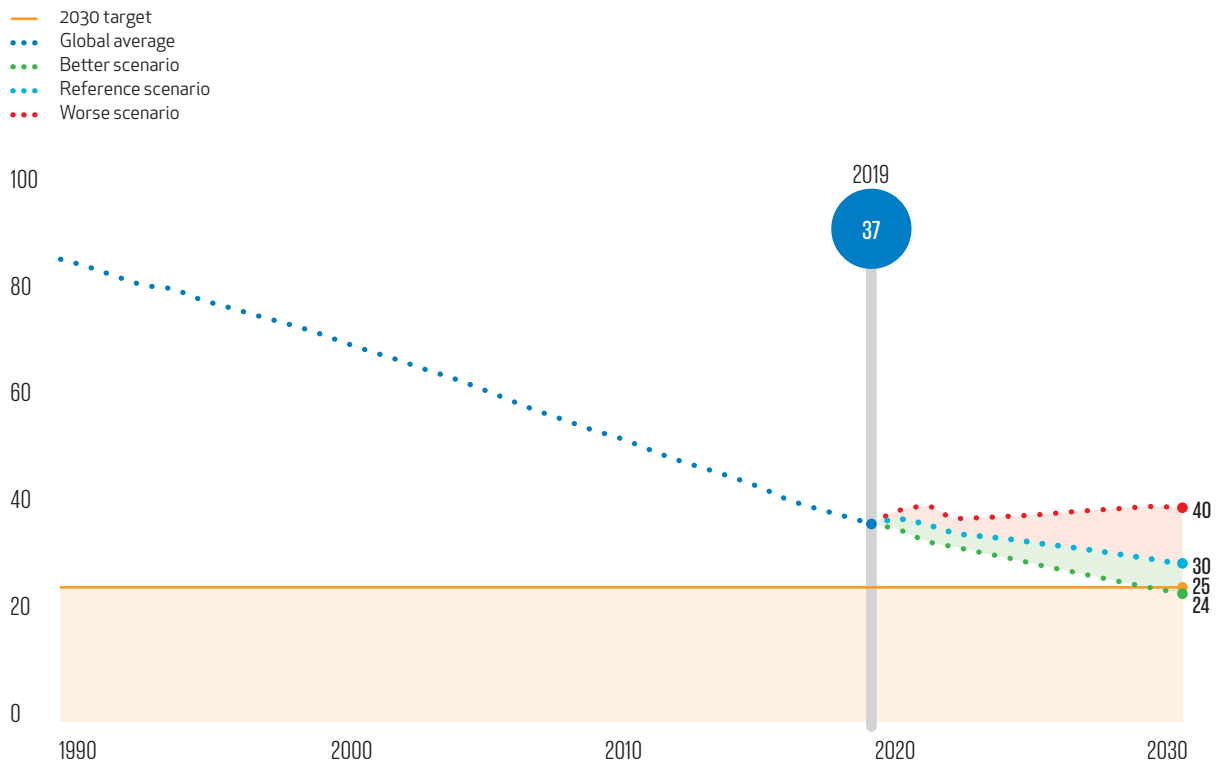1990   2000   2010   2020   2030

UNDER-5 MORTALITY

SDG target: End preventable deaths of newborns and children under age five, with all countries aiming to reduce under-five mortality to at least as low as 25 per 1,000 live births.

Current data suggests that children are less likely to have severe disease from coronavirus infection than older adults. However, as coverage for routine immunizations decreases and case management for pneumonia and diarrhea have been interrupted due to the pandemic, children are increasingly vulnerable. Models predict that acute malnutrition will increase dramatically, which will make it harder for children to fight off infectious diseases. These consequences of the pandemic emphasize the need to figure out how to prevent secondary and tertiary crises.

Yet even now, lifesaving innovation continues. Vaccines exist to protect against many causes of pneumonia, the leading infectious killer of young children. But they can be expensive—they account for about half the budget of Gavi, the Vaccine Alliance. Several months ago, however, the World Health Organization prequalified a new pneumonia vaccine that costs only US$6.00 for a three-dose regimen instead of US$9.00. And thanks to increased investment due to COVID-19, more health care facilities are providing access to oxygen to treat respiratory conditions; this will help save the lives of many children infected with pneumonia.

Under-5 deaths per 1,000 live births

— 2030 target
··· Global average
··· Better scenario
··· Reference scenario
··· Worse scenario

NEONATAL MORTALITY

Neonatal mortality has been declining, but more slowly than mortality among older children. Part of the reason for this pattern is that in general, newborns die when health systems falter.
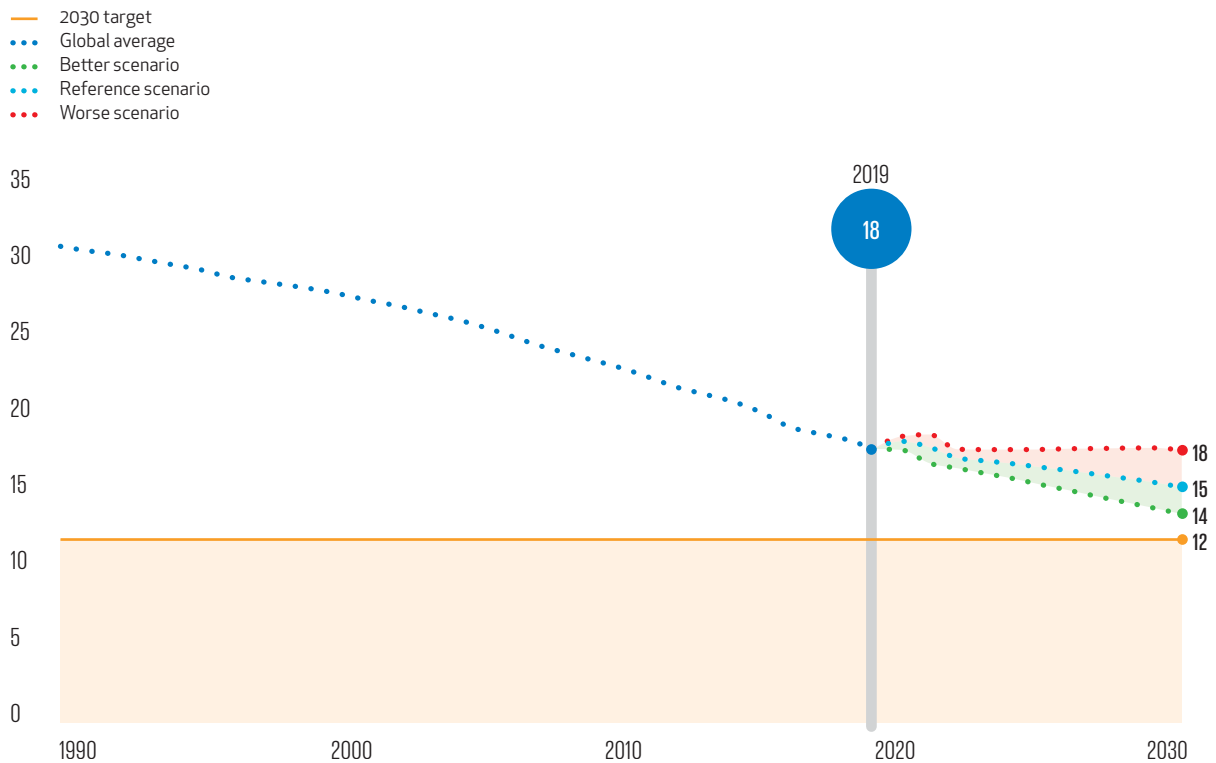
This is precisely what is happening now. Many facilities are even more short-staffed and under-equipped than usual. The pandemic is likely to push some pregnant women to deliver their babies at home. In either case, women and their babies may not have access to lifesaving care. Saving newborns requires providing pregnant women with high-quality, dignified prenatal care by a skilled facility provider—and when facility-based birth is

impossible, ensuring that in-home deliveries are attended by a skilled birth attendant with a safe birth kit to prevent infections and manage emergencies.

We also need to understand much more about the impact of COVID-19 itself on pregnant women and newborns. Specifically, pregnant and breastfeeding women and children should be included in vaccine clinical trials so that we know whether vaccines are safe and effective for them.

Neonatal deaths per 1,000 live births

- — 2030 target
- ⋯ Global average
- ⋯ Better scenario
- ⋯ Reference scenario
- ⋯ Worse scenario

HIV

SDG target: End the epidemics of AIDS, tuberculosis, malaria, and neglected tropical diseases.

Current evidence shows that people living with HIV are at increased risk of death due to COVID-19. But the indirect effects of the pandemic are also worrying.
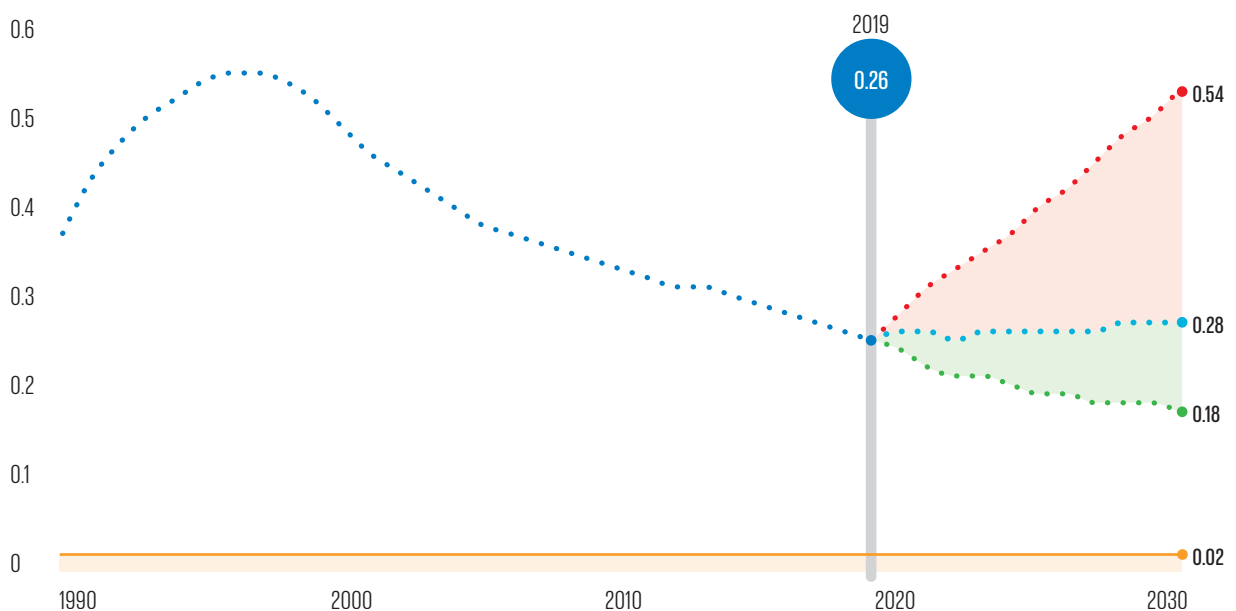
Disruptions to health services could mean people don't get antiretroviral therapy (ART), which would result in more deaths and more infections (because viral loads are higher in untreated patients, they are more likely to transmit to others). So far, this worst-case scenario has not happened, although some countries are struggling to maintain services.

One innovation that seems to be helping is multi-month dispensing—a simple approach that helps people fit treatment into their lives and keeps them out of overburdened clinics. Even after COVID is under control, this will be a more effective, efficient way to dispense ART.

This graph doesn't show it, but HIV prevention *is* suffering, according to other sources. We are working to limit these COVID-related disruptions and continue the long-term trend of more people accessing both prevention and treatment services.

New cases of HIV per 1,000 people

— 2030 target
••• Global average
••• Better scenario
••• Reference scenario
••• Worse scenario

2019
0.26

0.54
0.28
0.18
0.02

0.6
0.5
0.4
0.3
0.2
0.1
0

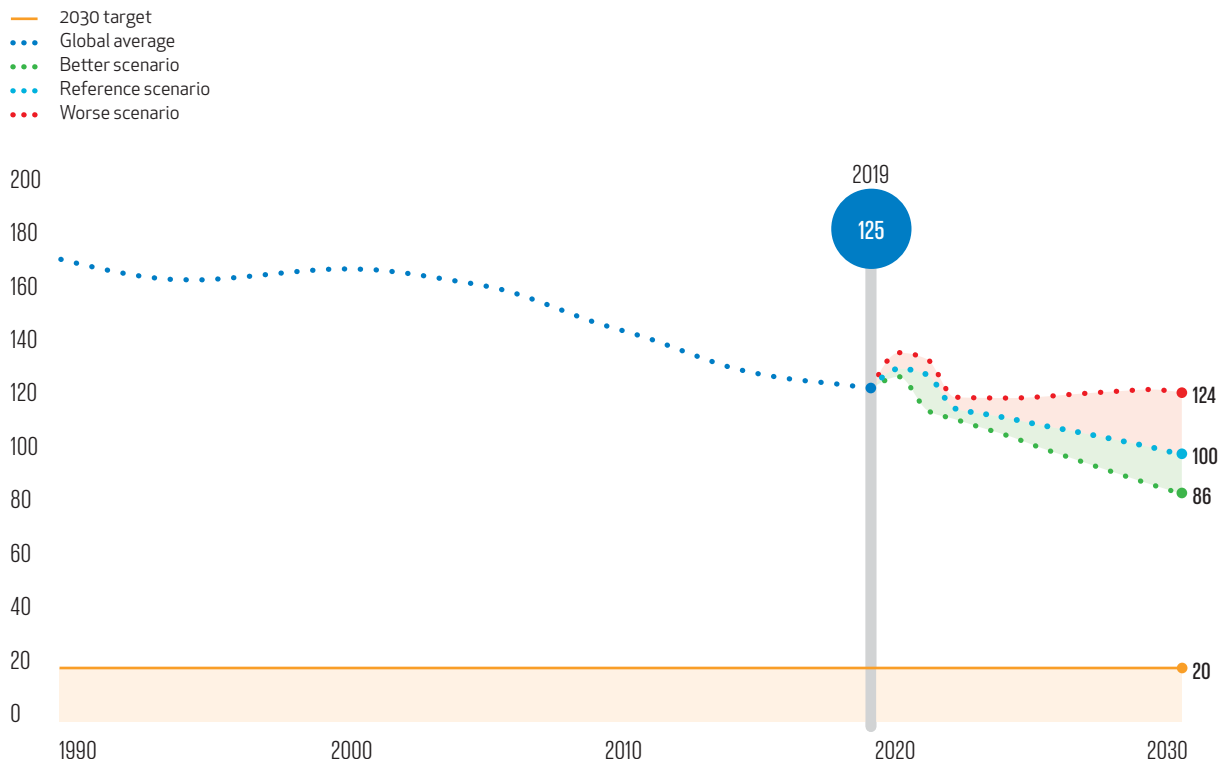1990   2000   2010   2020   2030

TUBERCULOSIS

SDG target: End the epidemics of AIDS, tuberculosis, malaria, and neglected tropical diseases.

Before COVID-19, there were already 3 million "missing cases" of TB: people with active TB who didn't know it and were passing the disease to others while going untreated themselves. Now, that number will grow even larger as people either cannot go to health facilities for diagnosis or choose not to go to avoid the possibility of exposure to COVID-19. For similar reasons, people who know they have TB may not go in for treatment.

Our fear is that this expanded pool of undiagnosed infections will lead to a long-term increase in the number of TB cases around the world. As they come out of COVID, countries are going to have to make case-finding—and funding—for TB a major priority.

New cases of tuberculosis per 100,000 people

— 2030 target
⋯ Global average
⋯ Better scenario
⋯ Reference scenario
⋯ Worse scenario

2019: 125
Worse scenario 2030: 124
Reference scenario 2030: 100
Better scenario 2030: 86
2030 target: 20

MALARIA

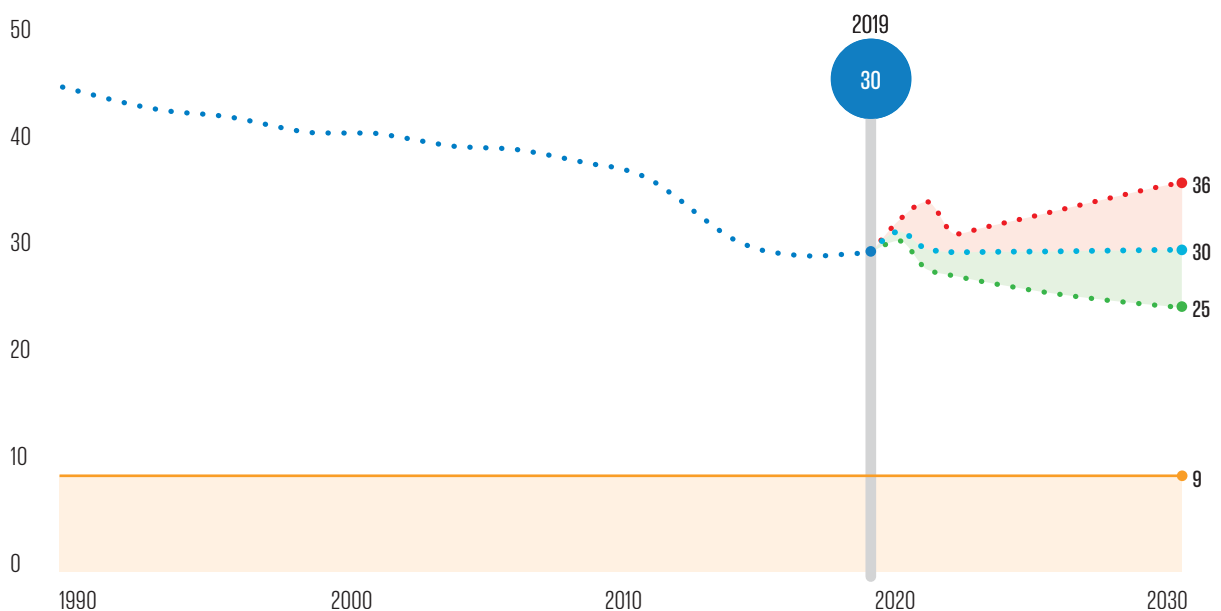SDG target: End the epidemics of AIDS, tuberculosis, malaria, and neglected tropical diseases.

Malaria is unforgiving: As long as it exists, it will kill the most vulnerable and take advantage of emergencies. That's why the Gates Foundation's malaria strategy is geared toward eradicating the disease. If we don't, every crisis will require devoting a lot of resources to avoid a big increase in preventable deaths.

Even under ordinary circumstances, both the malaria parasite and the mosquitoes that transmit it develop resistance to the drugs and insecticides we use to fight them, so we are constantly working to stay ahead of the

curve. We invest in modeling and surveillance technologies designed to help countries tailor strategies for deploying malaria tools so that they drive down ongoing, high-level transmission as much as possible. Modeling, in fact, helped many countries decide to continue bed net campaigns despite COVID-19, ensuring that, so far, the backsliding in 2020 has been less severe than it might have been. These same tools are also critical for epidemic preparedness and response—and it is essential that the global community keep investing in them.

New cases of malaria per 1,000 people

— 2030 target
⋯ Global average
⋯ Better scenario
⋯ Reference scenario
⋯ Worse scenario

NEGLECTED TROPICAL DISEASES (NTDs)

SDG target: End the epidemics of AIDS, tuberculosis, malaria, and neglected tropical diseases.

Ordinarily, a single curve that tracks a group of 15 neglected tropical diseases is a useful shortcut. During COVID-19, however, that shortcut doesn't work as well. Each disease is very different, with different treatment and prevention tools and programs, and the pandemic's impact on each one differs, too.
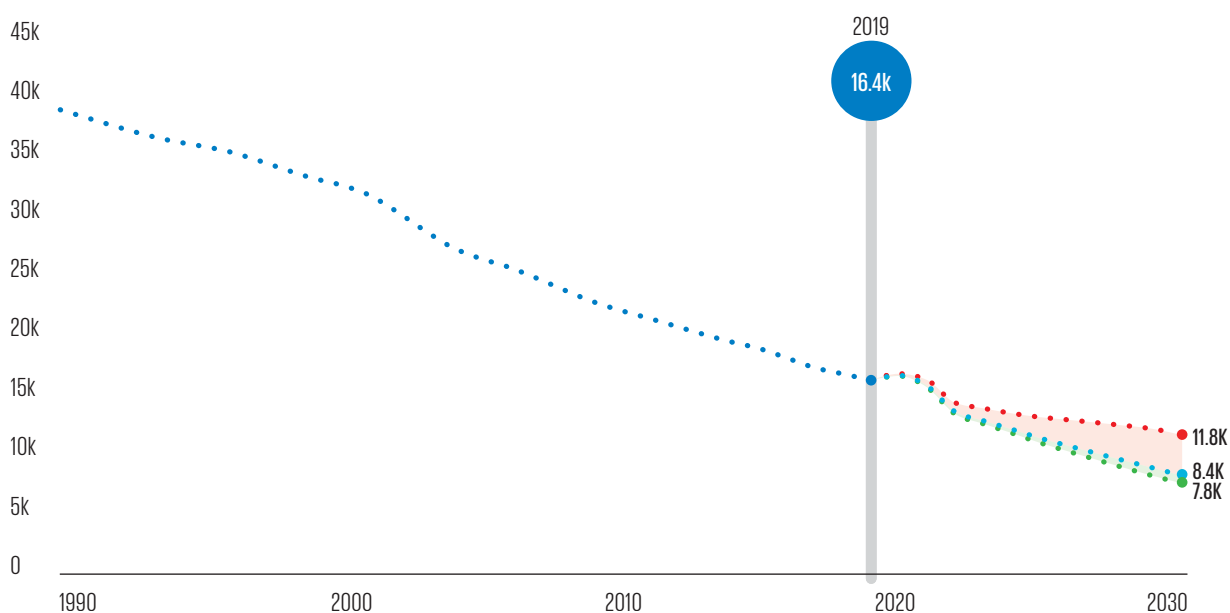
Some NTDs are treated using annual "mass drug administration" campaigns (MDAs), which many countries are postponing for fear that health care workers could spread COVID-19. For some NTDs, this delay may not pose a serious problem, because catching up later is relatively easy. However, for more contagious NTDs (like trachoma, schistosomiasis, and visceral leishmaniasis), delayed MDAs are likely to cause surges in infection.

Progress on this subset of NTDs was too slow in some settings before the pandemic, and modeling suggests that biannual or quarterly campaigns (trachoma) or detecting cases to better target campaigns (visceral leishmaniasis) is necessary in any case.

Prevalence of 15 NTDs per 100,000 people

- Global average
- Better scenario
- Reference scenario
- Worse scenario

2019 — 16.4k
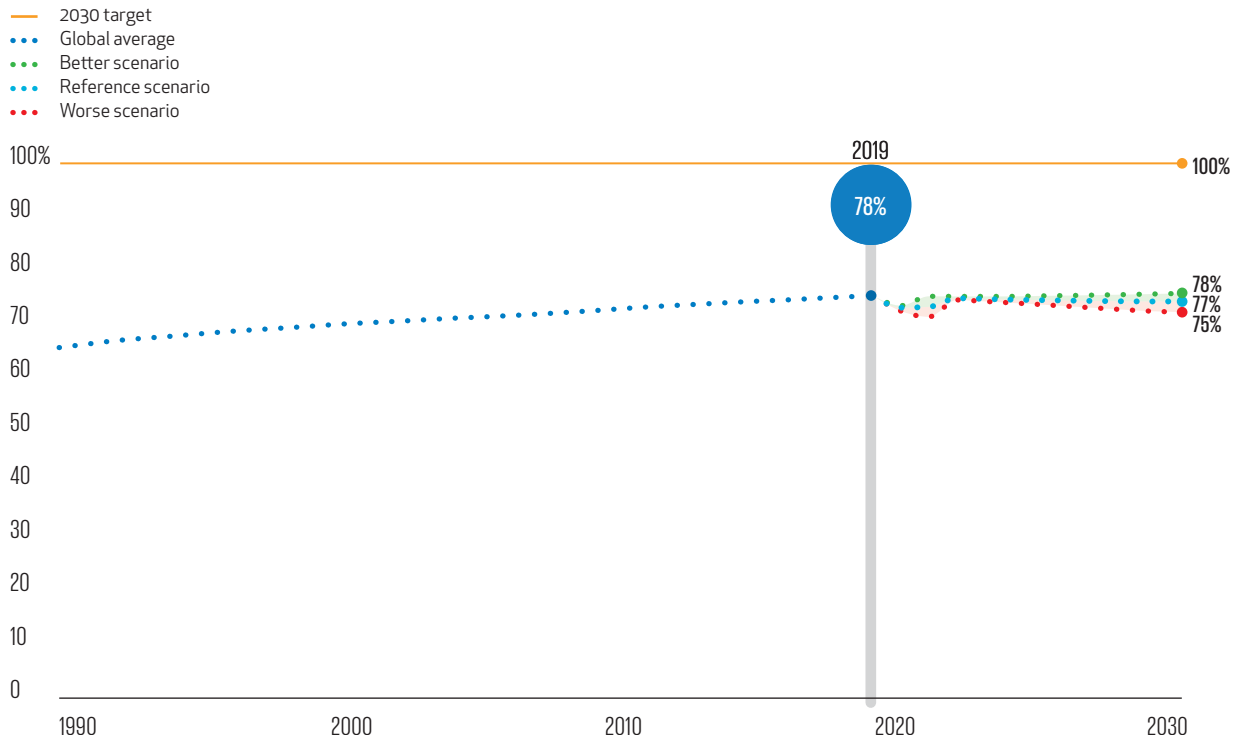
11.8K
8.4K
7.8K

FAMILY PLANNING

Before COVID-19, there was good news about this indicator. In West Africa, for instance, where progress had been slow, the number of women using contraceptives more than doubled between 2011 and 2020.

But as the chart shows, health care systems are now struggling to provide family planning services. For example, postpartum family planning—helping women space their next pregnancy after they have a baby—is vitally important but doesn't always happen at health facilities, let alone when women deliver at home. And because family planning can enable a healthier, more prosperous future for mothers and their babies, these gaps in care could have lasting adverse effects.

One solution is to shift toward a model of self-care that equips women and families with the expertise, tools, and confidence to plan without having to rely on the health care system. This can include specific interventions like self-injectable contraceptives or platforms like telemedicine, but it is broader than that. Self-care is deeply rooted in women's needs and can promote access to family planning and other essential health services.

Percentage of women of reproductive age (15–49) who have their need for family planning satisfied with modern methods

—— 2030 target
••• Global average
••• Better scenario
••• Reference scenario
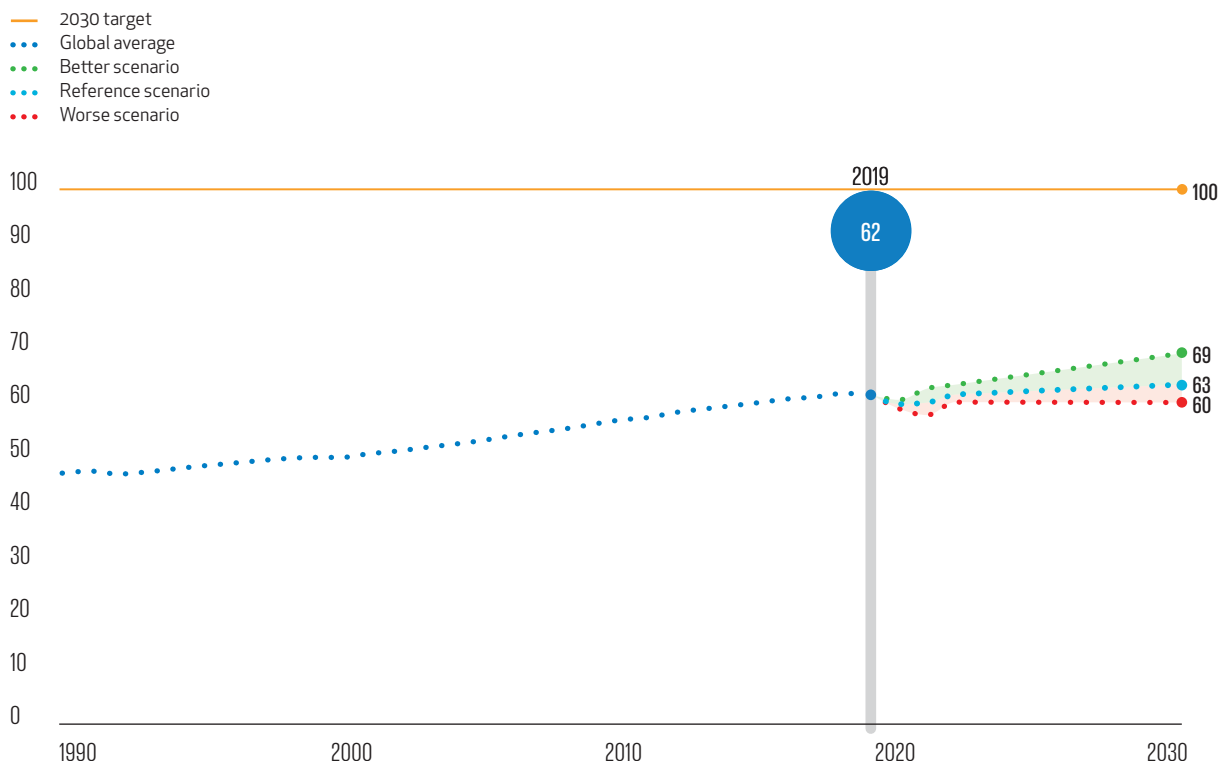••• Worse scenario

UNIVERSAL HEALTH COVERAGE

SDG target: Achieve universal health coverage for all.

The Universal Health Coverage (UHC) Effective Coverage Index produced by IHME includes 23 indicators that, together, are a shortcut for thinking about whether people in a country have access to essential health services. This year, COVID is pushing these numbers down. Supply chains are cut off; PPE is scarce; and resources are being shifted to acute COVID care. Demand is down, too, as people avoid (or can't get to) health facilities. Because the UHC index is a composite across different services provided through health systems, no single action can reverse this decline. Yet the ultimate pathway to UHC is primary health care (PHC). As Githinji Gitahi wrote in last year's report, PHC is the backbone of a comprehensive health care system: It is accessible and affordable, and it can address more than 80 percent of a person's health needs over the course of their lifetime. Steering more spending into PHC (and relatively less into secondary and tertiary care)—and spending that money more efficiently—will lead to better patient outcomes. Ultimately, it will also lead to the goal of UHC.

Performance score of the UHC Effective Coverage Index

— 2030 target
••• Global average
••• Better scenario
••• Reference scenario
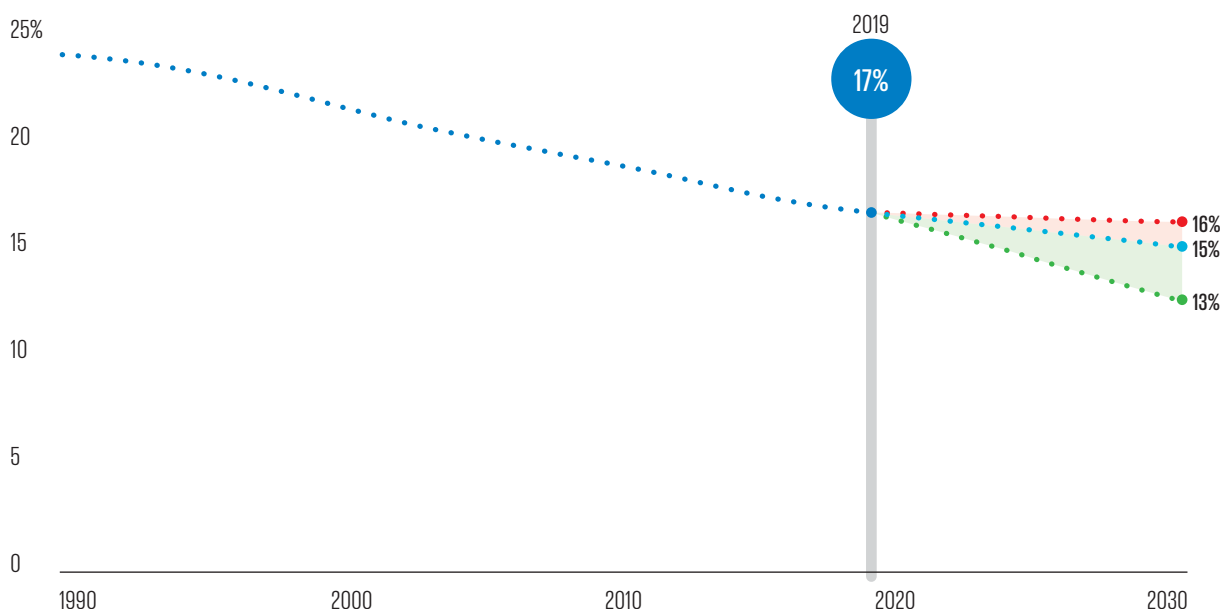••• Worse scenario

SMOKING

SDG target: Strengthen the implementation of the World Health Organization Framework Convention on Tobacco Control in all countries.

This is one indicator where we continue to see progress this year. Evidence shows that people stop buying tobacco or reduce the amount they smoke when the price goes up significantly—and we can surmise that it may also be something people forego when money is scarce. Just as important, the pandemic has helped people to see how smoking makes them more susceptible not only to noncommunicable diseases like cancer and heart disease but also to infectious disease. Because of the lung damage smoking causes, smokers are more likely to get seriously ill or die from COVID.

Several countries, including South Africa, Botswana, and India, temporarily banned the sale of tobacco during the COVID emergency. A number of African governments are defending health measures against intimidation from the tobacco industry, exploring adoption of proven tobacco control policies or, as in Côte D'Ivoire and Ethiopia, enforcing strong policies already in place, like graphic warning labels on cigarette packages and bans on tobacco advertising.

Age-standardized smoking prevalence among ages 15 and older

- Global average
- Better scenario
- Reference scenario
- Worse scenario

VACCINES

SDG target: Support the research and development of vaccines and medicines for the communicable and noncommunicable diseases that primarily affect developing countries; provide access to affordable essential medicines and vaccines.
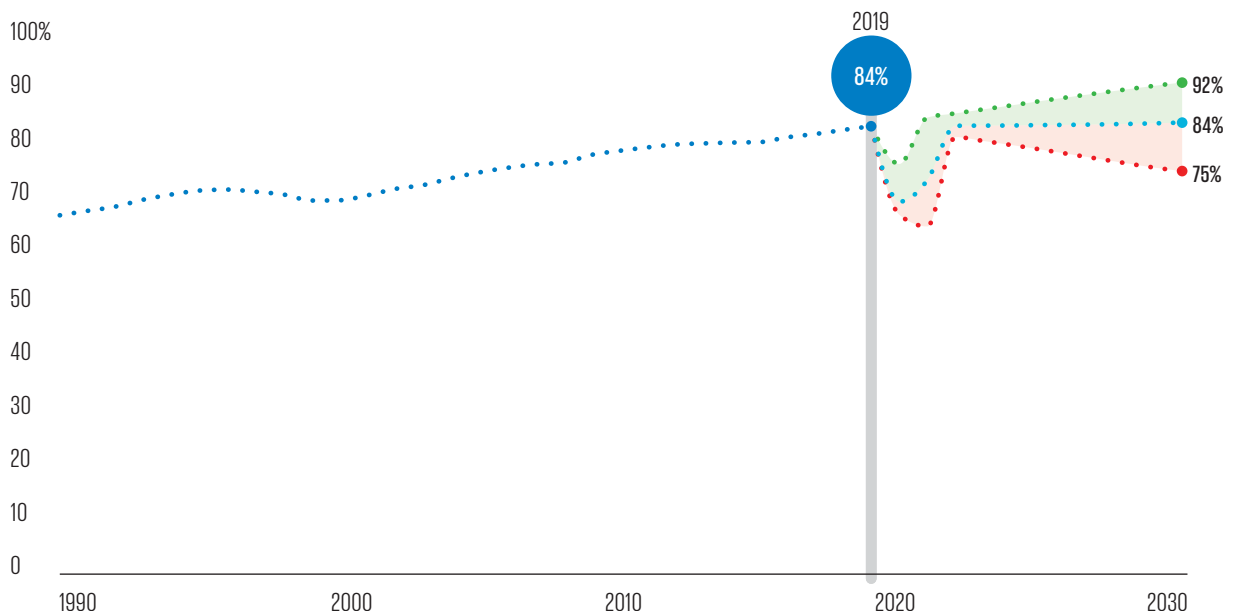
In the 1970s, vaccinations reached only about 5 percent of the world's children; by 2019, they reached over 80 percent and prevented more than 2 million deaths. That progress is now at risk. Because of COVID-19, vaccination rates are going back to 1990s levels. In some cases, these vaccinations are simply delayed, and kids can "catch up" later without much consequence. However, some infections, such as measles, spread easily, and even short-term disruptions can lead to immediate increases in illness and death.

Highly affected countries are innovating to regain this ground quickly. For example, combining health campaigns (for vaccines, deworming pills, bed nets, etc.) so that communities receive these services all at the same time instead of one by one would increase coverage while minimizing exposure during the pandemic. Innovations like this can help health systems reach the estimated 14 million children who didn't receive even the most basic vaccines in 2019 and the millions more at risk of being left behind in 2020 because of COVID-19.

Coverage of DTP (third dose)

- Global average
- Better scenario
- Reference scenario
- Worse scenario

EDUCATION

SDG target: By 2030, ensure that all girls and boys complete free, equitable, and quality primary and secondary education leading to relevant and effective learning outcomes.
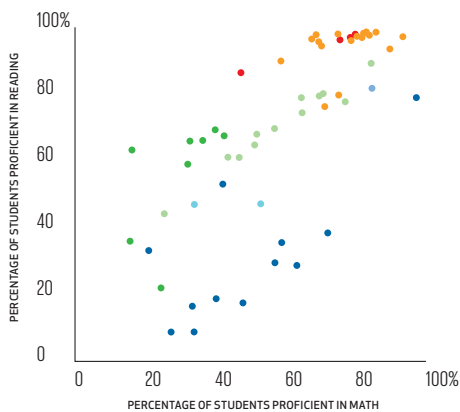
Before the pandemic, the world already faced a learning crisis, with 53 percent of students in low- and middle-income countries—and 87 percent in sub-Saharan Africa—unable to read a simple text by the time they are 10 years old. Constrained finances and school closures are likely to exacerbate these inequalities, with girls at particular risk of not returning to school.

Distance learning can help, but remote learning opportunities are also beyond the reach of many students. While we don't have exact numbers of students accessing ed tech, for instance, less than one-third of the population across Africa has access to broadband. So we need to focus on helping students catch up quickly when they return to their regular classrooms. That means a greater focus on helping build and rebuild basic skills like literacy and numeracy; tailoring instruction based on what students know and don't know; and supporting teachers with structured lesson plans that are proven to work. We've needed these changes for a long time. Maybe COVID-19 presents an opportunity to adopt them at scale.
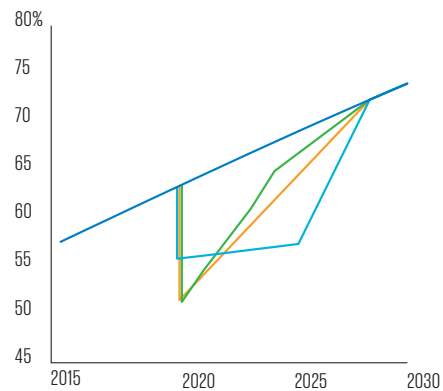
Percentage of students in grade 2 or 3 achieving at least minimum proficiency level in math or reading, both sexes

- Central Europe, Eastern Europe, and Central Asia
- High-income
- Latin America and Caribbean
- North Africa and Middle East
- South Asia
- South-East Asia, East Asia, and Oceania
- Sub-Saharan Africa

Projected percentage of students achieving minimum proficiency (end of primary, reading)

- Pre-COVID-19
- World Bank projection
- Gustafsson & Nuga projection
- Kaffenberger projection

GENDER EQUALITY

SDG target: Recognize and value unpaid care and domestic work.

We were already a long way from closing gender gaps in unpaid care work: Globally, women did nearly three times as much unpaid care and domestic work as men. Now, COVID-19 has increased the total amount of unpaid care work for everyone: more child care, more home health care, more food to cook, more mess to clean.
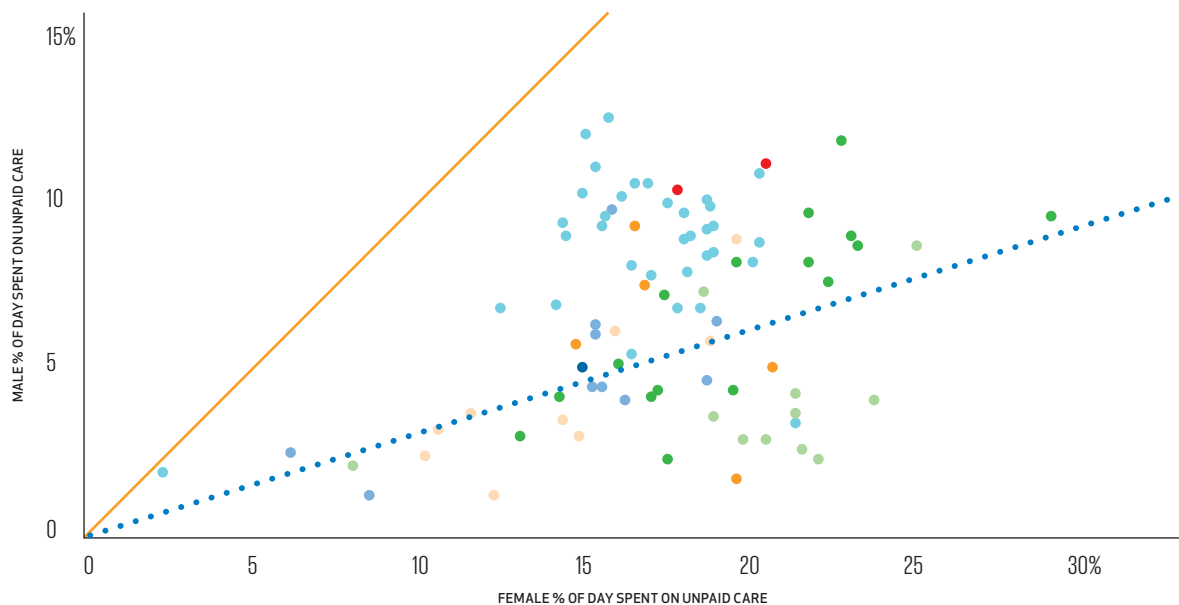
Men are doing more than ever before, but data suggests that women's unpaid care work has increased just as much, if not more. According to early data from Europe, women are spending 29 more hours per week, compared to 25 hours per men. We've seen this pattern before, during Ebola and Zika, and in those cases there was a long-term impact on girls' schooling, women's employment, and other SDGs.

In this moment of disruption, governments need to enact policies to push families toward a more equitable distribution of paid and unpaid work. Countries including Australia, Italy, and Fiji are showing the way by providing new or expanded family and medical leave benefits for employees.

Unpaid and domestic care work by sex and region

— Equal amount of work
···· Global average
● Australia and New Zealand
● Central Asia and South Asia
● East Asia and South-East Asia
● Europe and North America
● Latin America and Caribbean
● North Africa and West Asia
● Oceania (excluding Australia and New Zealand)
● Sub-Saharan Africa

MALE % OF DAY SPENT ON UNPAID CARE
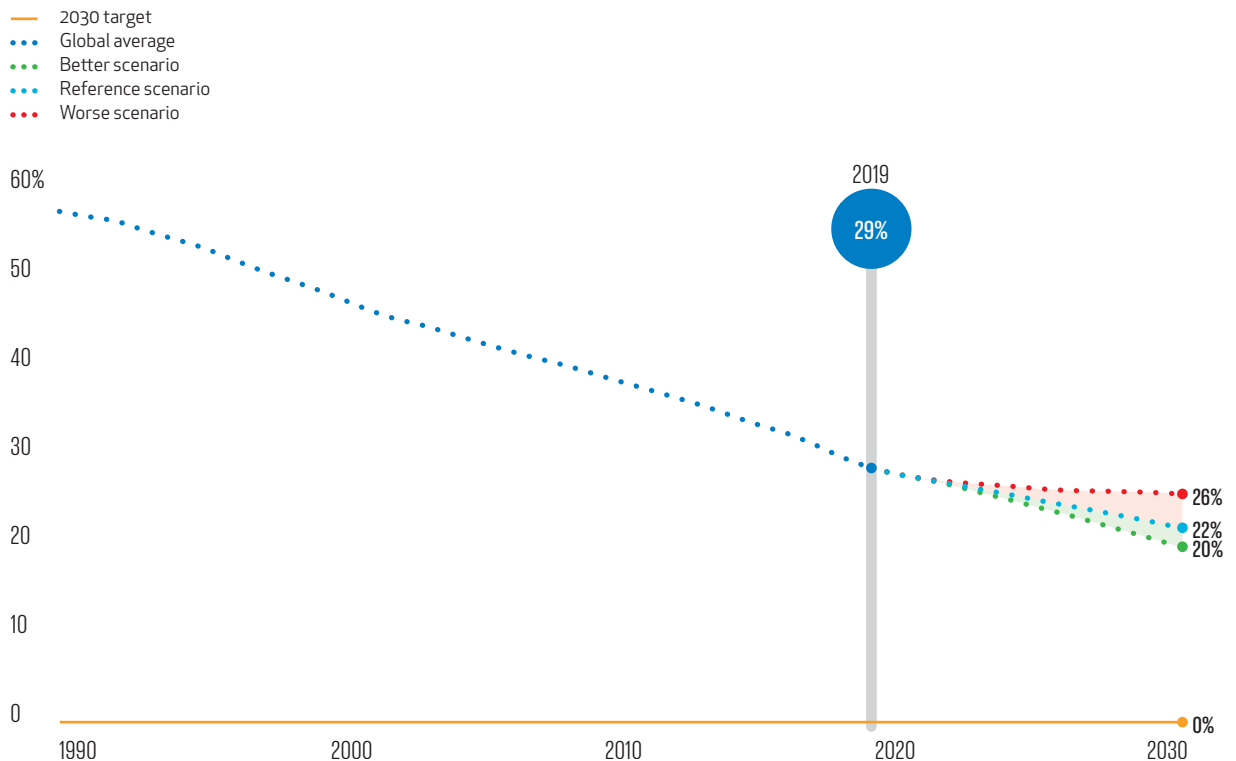
FEMALE % OF DAY SPENT ON UNPAID CARE

SANITATION

SDG target: Achieve access to adequate and equitable sanitation and hygiene for all and end open defecation, paying special attention to the needs of women and girls and those in vulnerable situations.

Water, sanitation, and hygiene (WASH) are usually grouped together in the development field. The pandemic has forced people to pay closer attention to hygiene—specifically to hand washing, which can help reduce the spread of COVID and other deadly diseases. Safe sanitation can do the same, but tracking sanitation progress is challenging. The SDGs rightly established a new, "safely managed" sanitation goal, but the world is behind schedule in tracking data according to this new framework. The data you see here measures access to sewered toilets. However, sewers are too expensive for many countries to build and maintain. Less-expensive pit latrines and septic tanks are also safe when their contents are emptied regularly and treated properly. Many people in low- and middle-income countries already use these solutions. The pandemic has likely reduced access to safely managed sanitation. We need to understand more about COVID-related trends to maintain recent hard-earned gains and meet rising community demand for safely managed sanitation, clean drinking water, and handwashing facilities.

Prevalence of populations using unsafe or unimproved sanitation

— 2030 target
••• Global average
••• Better scenario
••• Reference scenario
••• Worse scenario
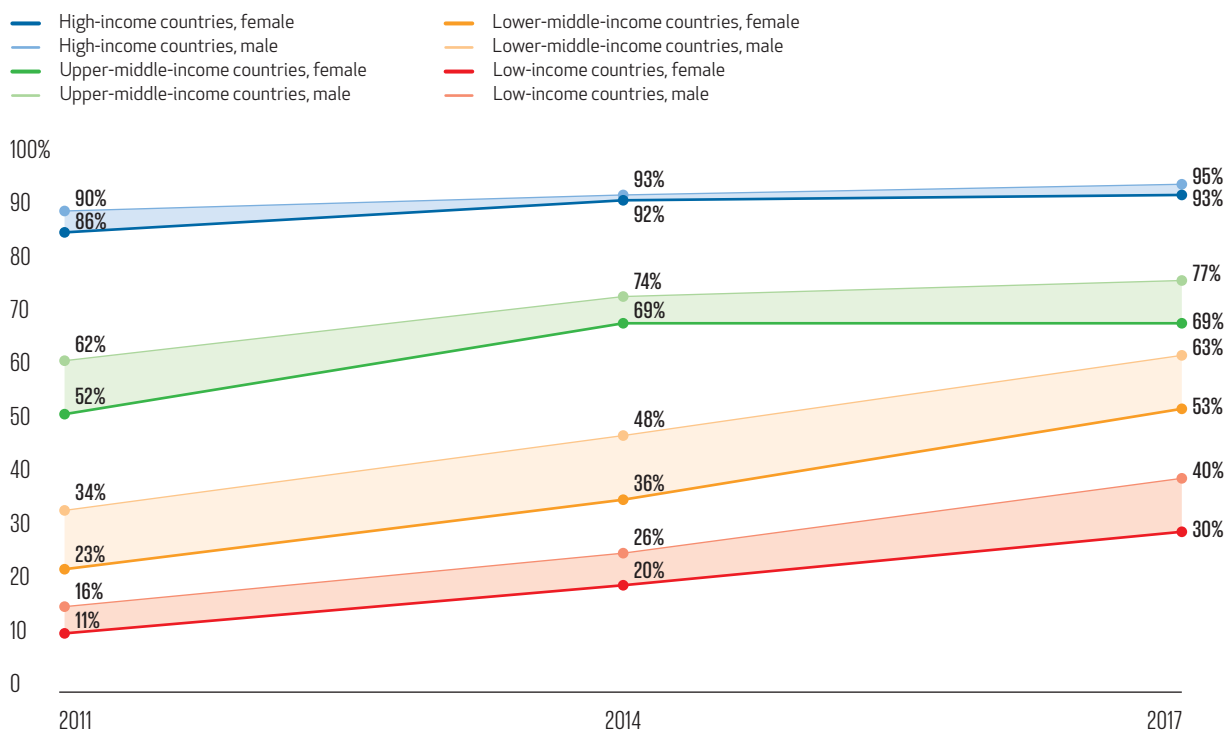
FINANCIAL SERVICES FOR THE POOR

SDG target: Strengthen the capacity of domestic financial institutions to encourage and expand access to banking, insurance, and financial services for all.

We do not have 2020 numbers for this indicator, but we expect they will show rising bank-account ownership. Faced with the urgent need to get cash to people quickly while helping them maintain social distance, more than 130 governments have created or improved digital cash transfer programs. Many are also updating policies and regulations to make mobile transactions easier for people, especially the poor. Countries (like India) that already had well-established digital infrastructure, including payment and identification systems, before the pandemic were able to respond especially effectively.

Now the priority is to ensure that these reforms help address the immediate crisis while laying a solid foundation for sustainable digital financial inclusion that both helps the most vulnerable people escape poverty and boosts economic growth. This means designing financial tools and systems to serve the needs of low-income customers who may not have smartphones or easy access to technology and tend to transact in tiny amounts. Services geared toward the specific needs of women can increase their financial inclusion and help lead to their economic empowerment.

Percentage of adults (ages 15 and older) with an account at a bank or other financial institution or with a mobile-money service provider

- High-income countries, female
- High-income countries, male
- Upper-middle-income countries, female
- Upper-middle-income countries, male
- Lower-middle-income countries, female
- Lower-middle-income countries, male
- Low-income countries, female
- Low-income countries, male

	2011	2014	2017
High-income, male	90%	93%	95%
High-income, female	86%	92%	93%
Upper-middle, male	62%	74%	77%
Upper-middle, female	52%	69%	69%
Lower-middle, male	34%	48%	63%
Lower-middle, female	23%	36%	53%
Low-income, male	16%	26%	40%
Low-income, female	11%	20%	30%

SOURCES AND NOTES

The data sources for facts and figures featured in the 2020 Goalkeepers Report are listed here by section. Brief methodological notes are included for unpublished analyses. Full citations, links to source materials, and additional references can be found on the Goalkeepers website (⇔ http://gates.ly/GK20Sources).

INTRODUCTION

World Health Organization (WHO), "WHO Coronavirus Disease (COVID-19) Dashboard."

GLOBAL IMPACT

Mills, "The 1918–1919 Influenza Pandemic;" and U.S. Census Bureau, "Week 11 Household Pulse Survey."

The Economic Catastrophe

Gentilini, et al., *Social Protection*; International Labour Organization, *ILO Monitor*; Gopinath, "Reopening;" International Monetary Fund (IMF), World Economic Outlook Database; Kazzaz, "Emergency Disbursements;" and Pollack, et al., *Emerging*.

Impact of Global Recessions on GDP chart: Dashed line represents the baseline scenario. The shaded area is bounded by alternative scenarios as defined by the IMF. See IMF, *World Economic Outlook Update*.

Size of Economic Stimulus in Response to COVID-19 chart: See Overseas Development Institute, *Country Policy Responses*. GDP ($) and population data are 2018 values from World Development Indicators database (World Bank). In the chart, South Africa is grouped with other G20 countries, but is included in the calculation of average stimulus funding for both G20 countries and sub-Saharan African countries, respectively.

Forecast Global Poverty Trends chart: See the "Explore the Data" section for notes on poverty. Rates of change are based on IHME's poverty estimates comparing number of people living at or below the extreme poverty line (US$1.90 a day 2011 purchasing power parity: PPP) annually between 2017 and 2020.

One Woman's Story

Pathways is a multidisciplinary project based in Bihar and Uttar Pradesh in India and in Kenya. It works with vulnerable women and their children to identify health risks and challenges and empower families

to seek and receive the health care services they need to thrive. During the COVID-19 pandemic, Pathways researchers have been able to use the relationships they've built with women in India and Kenya to learn more about their lived experiences in this especially difficult time. Sonder Collective is the lead organization for this work. Its collaborators are Final Mile, Vihara Innovation Network, and Desire Line.

A COLLABORATIVE RESPONSE

United Nations (UN), "2019 International Trade Statistics."

Innovating with Equity in Mind

WHO, "The Access to COVID-19 Tools (ACT) Accelerator;" and Pronker et al., "Risk in Vaccine Research."

How Many Lives Could Equitable Vaccination Save? chart: Laboratory for the Modeling of Biological and Socio-technical Systems (MOBS LAB), Northeastern University.

EXPLORE THE DATA

Indicators Estimated from IHME

A general description of the methodology used by IHME to estimate the effects of the COVID-19 pandemic on the 14 SDG indicators and their accompanying projections to 2030 is provided in a separate explainer section in the report. A more detailed description is available on the website. What follows are methodological notes specific to each indicator.

For the health and poverty indicators, IHME generates three future scenarios. The "reference" scenario represents the mean scenario. The "better" scenario applies the 85th percentile of the Socio-demographic Index (SDI)—which incorporates income, fertility, and education—and the 85th percentile of the observed annualized rate of change (AROCs) of the indicator or its drivers across country-years for the period 1990 through 2019. The "worse" scenario applies the 15th percentile of the SDI

combined with the 15th percentile of the AROCs of the indicator.

Poverty

Extreme poverty rates measure the fraction of a country's population that is estimated to live on less than $1.90 per day, measured in 2011 purchasing power parity (PPP) adjusted dollars. To estimate a complete time series of extreme poverty for all countries, all available data was first extracted from the World Bank and supplemented with data extracted from the United Nations' World Institute for Development Economics Research and country-specific surveys. IHME then modeled this extracted data using an approach that builds from available data and uses information from across time, geography, and predictive covariates (GDP per capita, female education, kilocalorie consumption, natural resource exports, and government expenditure).

IHME models the mean consumption rate for each country and year, and the consumption distribution for each country in order to estimate the value of consumption for each percentile of the population of each country and year through 2021. While no survey data was available beyond 2019, IHME uses this model to estimate poverty rates for 2020 and 2021 because it is more sensitive to economic shocks, like those currently being experienced in most countries. IHME forecasted extreme poverty rates (US$1.90) and lower-middle income poverty estimates (US$3.20) for 2022 to 2030 by estimating the year-over-year change in the poverty rate using an ensemble model. This model is based on GDP per capita, fertility, government expenditure, and education forecasts; it only indirectly captures the other impacts of the global economic recession.

Stunting

IHME measures stunting prevalence as height-for-age more than two standard deviations below the reference median on the height-age growth curve based on WHO 2006 growth standards for children 0–59 months. Projections to 2030 used SDI as a

key driver, which incorporates projections of income per capita and the effects of the COVID-19 pandemic.

Text accompanying data chart refers to Roberton et al., "Early Estimates."

Maternal Mortality Ratio

The maternal mortality ratio (MMR) is defined as the number of maternal deaths among women ages 15–49 years during a given time period per 100,000 live births during the same time period. It depicts the risk of maternal death relative to the number of live births and essentially captures the risk of death in a single pregnancy or a single live birth. Short-term effects (2020–2021) incorporated the effect of reductions in in-facility delivery. IHME estimated the level of interruption in in-facility delivery, using survey data on the level of interruptions in all health provider visits as a proxy. IHME did not, however, find statistically significant differences between the relative level of interruptions in in-facility delivery and any health provider visits in the pooled sample. Projections to 2030 used SDI as a key driver, which incorporates projections of income per capita and the effects of the COVID-19 pandemic.

Under-5 Mortality Rate

IHME defines under-5 mortality rate as the probability of death between birth and age 5. It is expressed as number of deaths per 1,000 live births. Projections were based on a combination of key drivers, including Global Burden of Disease (GBD) risk factors, selected interventions (e.g., vaccines, ITNs, ACTs), and SDI.

Neonatal Mortality Rate

IHME defines neonatal mortality rate as the probability of death in the first 28 completed days of life. It is expressed as the number of deaths per 1,000 live births. Short-term effects (2020–2021) incorporated the effect of reductions in in-facility delivery. IHME estimated the level of interruption in in-facility delivery using survey data on the level of interruptions in all health provider visits as a proxy for in-facility delivery. IHME did not, however, find statistically significant differences between the relative level of interruptions in in-facility delivery and any health provider visits in the pooled sample. Projections were based on a combination of key drivers, including GBD risk factors, selected interventions (e.g., vaccines), and SDI.

HIV

IHME estimates the HIV rate as new HIV infections per 1,000 population. Forecasts of HIV incidence were based on forecasted antiretroviral therapy (ART), prevention of maternal-to-child transmission (PMTCT) coverage, and incidence as inputs into a modified version of Avenir Health's Spectrum software. Adult ART is forecasted using the expected spending on HIV curative care—which in turn was forecasted based on income per capita, including the effect of the COVID-19 pandemic—and ART prices. Additionally, the short-term effect (2020–2021) of the COVID-19 pandemic on ART coverage was estimated using survey data. Due to sample size limitations, any medication interruption was used as a proxy for interruptions in ART medication by country. No statistically significant differences were found between ART medication and any medication interruption in the pooled sample.

Tuberculosis

IHME estimates new and relapse tuberculosis cases diagnosed within a given calendar year (incidence) using data from prevalence surveys, case notifications, and cause-specific mortality estimates as inputs to a statistical model that enforces internal consistency among the estimates.

In addition to historical trends, projections to 2030 use SDI as a key driver, which incorporates projections of income per capita and the effects of the COVID-19 pandemic. IHME also incorporated the short-term effects (2020–2021) of COVID-19 on TB incidence by using the level of interruption in any medication use as a proxy for interruption in TB treatment by country from the survey data and applied that effect using the historical relationship between health care access and quality (HAQ) and TB incidence.

Malaria

IHME estimates the malaria rate as the number of new cases per 1,000 population. Short-term effects (2020–2021) were measured via survey data on artemisinin-based combination therapy (ACT) coverage interruption and relative changes in the number of insecticide-treated bed nets (ITNs) received or purchased since the pandemic compared to before. Projections to 2030 were derived using a two-stage model. First, coverage of ACT and ITNs is forecast as a function of malaria development assistance for heath (DAH), which is predicted in turn by projections of income per capita. After fitting a spline

on intervention coverage in the first stage, IHME then uses the residuals from the first stage to fit a country-specific linear model on calendar year. For countries outside of sub-Saharan Africa, where there is no available data on intervention coverage, SDI is used in the first stage, and calendar year in the second stage.

Neglected Tropical Diseases

IHME measures the sum of the prevalence of 15 NTDs per 100,000 that are currently measured in the annual Global Burden of Disease study: human African trypanosomiasis, Chagas disease, cystic echinococcosis, cysticercosis, dengue, food-borne trematodiases, Guinea worm, soil-transmitted helminths (hookworm, trichuriasis, and ascariasis), leishmaniasis, leprosy, lymphatic filariasis, onchocerciasis, rabies, schistosomiasis, and trachoma. Short-term effects (2020–2021) varied by NTD. For the preventive chemotherapy NTDs, IHME assumed modest increases in prevalence as a result of missing a single round of mass drug administration (MDA) (lymphatic filariasis, onchocerciasis, soil-transmitted helminths, and schistosomiasis). For NTDs that rely on active case detection as a primary strategy for control, IHME assumed a discontinuation of active and passive case detection, which results in increased prevalence (leishmaniasis, human African trypanosomiasis, and Chagas). IHME further assumed that 15 percent of rabies cases not receiving post-exposure prophylaxis (PEP) and minimal adjustments for dengue due to geographic spread; IHME assumed increased leprosy prevalence due to moderate shifts in severity in grades 1 and 2 due to lack of treatment coverage. IHME assumed no change in prevalence for NTDs transmitted through contaminated food with a long latency period (food-borne trematodiases, cystic echinococcosis, and cysticercosis). No adjustments were made for prevalence of blindness or low vision due to trachoma or to Guinea worm disease. Projections to 2030 used SDI as a key driver, which incorporates projections of income per capita and the effects of the COVID-19 pandemic.

Text accompanying data chart refers to NTD Modelling Consortium, "Potential Impact."

Family Planning

IHME estimates the proportion of women of reproductive age (15–49 years) who have their need for family planning satisfied with modern contraceptive methods. Modern contraceptive methods include the current use of male or female sterilization, male or female condoms, diaphragms, cervical

caps, sponges, spermicidal agents, oral hormonal pills, patches, rings, implants, injections, intrauterine devices (IUDs), and emergency contraceptives. Short-term effects (2020–2021) were measured via survey data. Due to sample size limitations, IHME used any medication interruption as a proxy by country. There were no statistically significant differences found between contraception and any medication interruption in the pooled sample. IHME incorporated questions on method mix and changes in demand into the survey but ultimately was not able to incorporate these into the analysis due to small sample sizes. Projections to 2030 used SDI as a key driver, which incorporates projections of income per capita and the effects of the COVID-19 pandemic.

Universal Health Coverage

The universal health coverage (UHC) effective coverage index is a new metric composed of 23 effective coverage indicators that cover population-age groups across the entire life course (maternal and newborn age groups, children under age 5, youths ages 5–19 years, adults ages 20–64, and adults ages 65 years old or older). These indicators fall within several health service domains: promotion, prevention, treatment, rehabilitation, and palliation.

Health system **promotion** indicators include met need for family planning with modern contraception.

Health system **prevention** indicators include the proportion of children receiving the third dose of the diphtheria-tetanus-pertussis vaccine and children receiving the first dose of measles-containing vaccine. Antenatal care for mothers and antenatal care for newborns are also considered indicators of health system prevention and treatment of diseases affecting maternal and child health.

Indicators of **treatment** of diseases affecting maternal and child health and communicable diseases are the mortality-to-incidence (MI) ratios for lower respiratory infections, diarrhea, and tuberculosis, as well as coverage of antiretroviral therapy among those with HIV/AIDS. For non-communicable diseases they are the MI ratios for acute lymphoid leukemia, asthma, epilepsy, appendicitis, paralytic ileus and intestinal obstruction, the diabetes, stroke, chronic kidney disease, chronic obstructive pulmonary disease, cervical cancer, breast cancer, uterine cancer, colorectal cancer, and the risk-standardized death rate due to ischemic heart disease.

A novel weighting scheme was developed for the analysis: Each individual indicator was weighted by its theoretical potential impact on reducing disability-adjusted life years (DALYs) within each location and year to create the new UHC effective coverage index. The UHC effective coverage index differs from the UHC index produced for the 2019 Goalkeepers Report, which has led to different estimates in the 2020 Goalkeepers Report when compared to the 2019 Goalkeepers Report. To produce forecasts of the UHC index from 2020 to 2030, a meta-stochastic frontier model for UHC was fit, using total health spending per capita projections as the independent variable. Country- and year-specific inefficiencies were then extracted from the model and forecasted to 2030 using a linear regression with exponential weights across time for each country level. These forecasted inefficiencies, along with forecasted total health spending per capita estimates, were substituted into the previously fit frontier to obtain forecasted UHC for all countries for 2020–2030. Short-term effects (2020–2021) were included by adjusting our estimates for 2020 and 2021 downward based on adjustment factors from the survey data, using any missed medication as a proxy for reductions in UHC.

Smoking

IHME measures the age-standardized prevalence of the current use of smoked tobacco among ages 15 and older. IHME collates information from all available surveys that include questions about frequency of tobacco use (e.g., daily, occasional), either currently or within the last 30 days, and information on the type of tobacco product smoked (including cigarettes, cigars, pipes, hookahs, as well as local products). IHME converts all data to its standard definition so that meaningful comparisons can be made across locations and over time. Projections to 2030 used SDI as a key driver, which incorporates projections of income per capita and the effects of the COVID-19 pandemic.

Vaccines

IHME's measurement of immunization coverage reports on the coverage of the following vaccines separately: three-dose diphtheria-tetanus-pertussis (DTP3), measles second dose (MCV2), and three-dose pneumococcal conjugate vaccine (PCV3). IHME measured the short-term (2020–2021) effects via survey data based on missed visits for vaccination and administrative data on vaccine doses. Projections to 2030 used SDI as a key driver, which incorporates projections of

income per capita and the effects of the COVID-19 pandemic.

Sanitation

IHME measured households with piped sanitation (with a sewer connection or septic tank); households with improved sanitation but without a sewer connection (pit latrine, ventilated improved latrine, pit latrine with slab, composting toilet); and households without improved sanitation (flush toilet that is not piped to sewer or septic tank, pit latrine without a slab or open pit, bucket, hanging toilet or hanging latrine, no facilities), as defined by the Joint Monitoring Programme for Water Supply and Sanitation. Projections to 2030 used SDI as a key driver, which incorporates projections of income per capita and the effects of the COVID-19 pandemic.

Indicators Estimated from Other Sources

Agriculture

See RuLIS, "Rural Livelihoods Information System." Most recent year available was used for select countries, ranging from 2005–2017. For methodology, see Food and Agriculture Organization of the United Nations (FAO), *RuLIS: Technical Notes.*

Education

The UNESCO Institute for Statistics (UIS) updated its *Protocol for Reporting Indicator 4.1.1* (see the digital version on the Goalkeepers website) in February 2020. This change in protocol addressed the selection of data sources when there are more than one available for a given country and indicator, thus avoiding having multiple data sources in the time series. It also altered the criteria for use of the results from National Learning Assessments, which are now restricted to assessments using Item Response Theory (IRT). This has reduced the number of data points compared to the data published in the *SDG 4 Data Book: Global Education Indicators 2019* (see Goalkeepers website).

Concerning the UIS analysis on post-COVID learning loss, several estimates seek to model the impact of COVID-19 on students' achievement of minimum proficiency in reading at the end of primary: see Gustafsson & Nuga, *How Is the COVID-19 Pandemic*; Kaffenberger, "Modeling the Long-Run;" and Azevedo et al., *Simulating the Potential Impacts.* UIS analysis adapts the effects of three studies to show the projected percentage of students achieving minimum proficiency,

in a scenario where 68 percent of countries implement remediation activities (the percentage of countries that are planning remedial activities according to a UNESCO, UNICEF, and World Bank survey). More information on the projections is available on the Goalkeepers website.

Gender Equality

The chart is adapted from UN Women, *Progress of the World's Women*. The data is the most recent available for 88 countries and territories (2001–2017). The age group is 15 or older where available (18 or older in Ghana). In a number of cases, data is for those ages 10 or older or 12 or older. In the case of Thailand (2015) they are for those ages 6 or older, and in the United Republic of Tanzania (2014) for those ages 5 or older. Data for Bulgaria, Denmark, Latvia, the Netherlands, Slovenia, and Spain corresponds to time spent on unpaid care among those ages 20 to 74 only. In the case of Qatar, only urban areas are covered in the analysis. Differences across countries should be interpreted with caution, given heterogeneity across surveys and countries in definitions, methodology, and sample coverage. See the Global SDG Indicators Database of the United Nations Statistics Division for further information on the country-level data.

Text accompanying chart refers to UN Women, "Will the Pandemic Derail Hard-won Progress on Gender Equality?"

Financial Services for the Poor

World Bank, "Global Findex Database 2017."

PHOTOGRAPHY

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