TOGETHER, FORWARD

People powering the future of health and well-being





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Institute for the Future is the world's leading futures organization. For over 50 years, businesses, governments, and social impact organizations have depended upon IFTF global forecasts, custom research, and foresight training to navigate complex change and develop world-ready strategies. IFTF methodologies and toolsets yield coherent views of transformative possibilities across all sectors that together support a more sustainable future. Institute for the Future is a registered 501(c)(3) nonprofit organization based in Palo Alto, California.

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TABLE OF CONTENTS

Foreword

We are living in a time of turbulent change that has altered us all and shown the resilient nature of people and society. At Philips, our belief is that there's *always a way to make life better*. Meaningful innovation is at the heart of all we do, and it is not always about the newest technology but sometimes it is simply a different way of working, a fresh perspective on new or old problems. The global pandemic has proven that this vision is shared across society as we worked together to deliver impactful, meaningful solutions to improve lives. In this report, we look at the good that came from recent times and how together, we might shape the next decade.

It is natural that many of us are keen to return to our pre-pandemic lives, but we have seen that in times of difficulty, people found opportunities to improve life and to move conversations, connections and innovation forward. Philips partnered with the Institute for the Future (IFTF) to explore the forces affecting our health, well-being and our planet; and how these will shape the future so that we can do our part to build on these positive changes—hopefully inspiring others to do the same.

The year's challenges provided an opportunity to refocus on what is most important to us. From this, we saw disruptive innovation in health, technology and communications which all played a new part in our lives. We reset our expectations around how long it takes to find new solutions to new problems because each time we hit a barrier, people came together to overcome it, like we have seen in the amazing speed at which COVID vaccines have been developed and virtual care has been deployed. This report found five people-powered "future forces" that may transform personal, community, and planetary health over the next decade. The pandemic showed that now more than ever, there is a real appetite for optimism amidst the pandemic fatigue, as we all reimagine how we live, work and care.

Together, Forward explores how the year 2020 impacted our perceptions and actions and heightens our understanding about how connected we are. We all play a role in shaping the future and at Philips, we are striving to make a healthier and more sustainable world through innovation, with the goal of improving the lives of 2.5 billion people a year by 2030.

Philips believes that the forecasts and insights within this report are truly people-centered and importantly, it shows that it is not just a select group that can make a difference, but rather that each of us have an opportunity and responsibility to try to improve our own lives and the lives of those around us. Our commitment at Philips is that *Together, Forward* will help to us to deliver on this goal and, critically, it will help us support communities around the globe to make life better.

Philips

Introduction

We knew the 2020s would be tumultuous—we just didn't realize the decade would start with such a bang. Even before the coronavirus spread across the globe, uprooting all aspects of our daily lives and putting the health of individuals and communities front and center, change was on the horizon. We knew the population was increasing and aging. We'd have 1.4 billion people over 60 by 2030: a world record.[1] We knew we'd experience climate-change impacts more frequently and more potently over the next decade. We understood that the demographic transition and ecological crisis predicted for the coming decade would strain existing social, economic, and health systems throughout the world, and would require us to rethink how to provide decent health, social, and economic well-being for the anticipated 8.5 billion inhabitants of the Earth.[2]

And then, not even three months into the new decade, a microscopic virus rocked the world. On March 11, 2020, the World Health Organization (WHO) declared that severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) was officially a pandemic.[3] The same day, the Merriam-Webster dictionary's website experienced a 116,000% increase in searches for the word "pandemic" as people began to grapple with this alarming health risk.[4]

As we enter the second year of the decade, we are eager to return to pre-pandemic life. But pre-pandemic life was always unsustainable. We were already on a path toward ecological, societal, and economic crises. Now we're at an inflection point: do we return to the way things were? Or do we build back better?

People are already creating a new, better path forward, one that leads to a healthier planet, a more inclusive approach to research and invention, and an appreciation of the importance of living a happy and meaningful life as core to health and well-being. More than any technology or medical innovation, these everyday people and their movements hold the potential to shape a healthier future.

This report, *Together, Forward,* describes five people-powered future forces that could transform personal, community, and planetary health in the next decade. They build on the cutting-edge work of today's innovators and activists who are reimagining research and discovery in life sciences, integrating human and environmental health in exciting new ways, pioneering inventive new roles in health systems, and demanding a more inclusive and expanded definition of health and healthy lifestyles.

We all play a role in shaping the future. These innovators' and activists' creative and audacious work can lead us—together, forward—toward a healthier future for humanity and our planet.

About This Report

In late 2020, Institute for the Future, the world's leading futures organization, explored how enterprising, ambitious people are pioneering new approaches to life-science discovery, planetary health, healthcare delivery, and definitions of health. We drew from our ongoing research on the social, scientific, economic, and technological forces shaping the future, with a particular focus on people who are actively creating the future.

How this report is organized

Together, Forward has three sections:

1. **"Foresight"** looks at five people-powered future forces that imagine and anticipate what human and ecological health could look like in 2030.
2. **"Insights"** presents ways to engage with the people already powering the future forces, recommending guidelines for working with these vanguard individuals and communities to amplify and accelerate their work.
3. **"Urgent Questions"** asks what we will need to address over the next decade.

Taken together, the foresight, insights, and urgent questions strengthen our collective capacity to be future-ready.

The events and chaos of 2020 remind us that the future is not predetermined. Foresight reports like this one are not attempts to predict the future; instead, they are provocations, visions of possibilities, and glimpses into unchartered territories, written to spark the imagination and broaden the reader's sense of possibilities for the future.

The five future forces included in this report are plausible, internally consistent directions of change, but they are in no way guaranteed to happen as described. How far they spread and how deep an impact they have on health over the next decade will depend on the work we all do to elevate and amplify the inspiring efforts already underway by today's innovators and activists.

Pandemic-preneurs

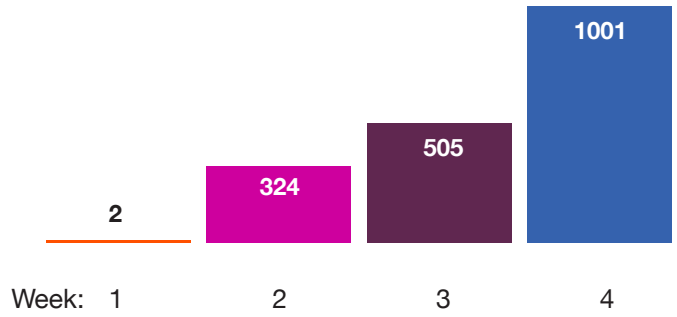
Transforming crises into opportunities to accelerate innovation

Teleport yourself back to early March of 2020. Countries across the globe were declaring public health emergencies. Global travel was being restricted, and international agencies were issuing guidelines and recommendations for schools to protect children and prevent the virus's spread.

Almost daily, major conferences and sporting events were being canceled or postponed, and by mid-March the WHO had declared the novel coronavirus a pandemic. By month's end, billions of people across 100 countries were living in a partial or full lockdown.[5] Life slowed to a standstill for millions worldwide, and we suddenly became dependent on the courageous labor of "essential workers" to care for the ill and produce and deliver the food and supplies people needed while under stay-at-home orders.

This abrupt and extreme restriction in movement upended business as usual as schools, job sites, and institutions of all kinds shuttered their doors, literally and figuratively. Yet the lockdown also opened doors for motivated individuals to find ways to work together to solve (or at least soften the impact of) the overlapping health, economic, and social crises. Within weeks, enterprising, digital-savvy problem-solvers transformed into ***pandemic-preneurs.*** They launched digital accelerators to seek out biological, computational, and social solutions to the issues surrounding the pandemic, with open collaboration and complete transparency as core values driving the work. They combined the skills and energy of hundreds and thousands of people looking to help with the technological capabilities needed to make meaningful advancements quickly and at scale.

Pandemic-preneurs organized hackathons and launched accelerators to speed up the time needed to get from good ideas to workable solutions. For instance, in March, a grassroots initiative called COVID Accelerator hosted a virtual COVID-19 hackathon to "activate talented people to tackle [the] crisis when the centralized approach wasn't working."[6] Participants discussed ideas such as devices that, upon detecting a cough, would prod the users to wash their hands, or apps that seamlessly connect people who had supplies with those that needed them. A few weeks later, COVID Accelerator hosted its first "demo day" to showcase how the hackathon's ideas had transformed into software and hardware.



Number of participants in COVID Accelerator Community Project

Source: COVID Accelerator, 2020

Through the expert use of digital tools, ***pandemic-preneurs*** collaborated effectively to develop mobile apps that made it easier to connect people in communities with resources. They devised innovative solutions to compensate for the shortages and bottlenecks in distributing personal protective equipment (PPE) by quickly converting ideas into projects. In Oregon, the Portland 3D Printing Lab launched a "pop-up supply chain" to respond to the shortage of PPE for first responders, health professionals, and educators by 3D-printing and sewing face masks and face shields.[7]

Pandemic-preneurs also demonstrated the speed and efficacy of open-source, community-led science. Headquartered in Paris, Just One Giant Lab launched its OpenCovid19 Initiative to discover and advance affordable, accessible tools needed to detect, treat, prevent, and analyze COVID-19.[8] OpenCovid19 projects are open to anyone who wants to participate; the initiative also awards micro-grants to fund new projects that anyone is welcome to apply for.

Over the next decade, the impact of ***pandemic-preneurs*** on innovation, research, and discovery will be felt broadly. ***Pandemic-preneurs*** reset expectations around how long it takes to get an experiment up and running, what is needed to solve global supply chain challenges, and who can help meet social and community needs. New norms have been set to rewrite how science and innovation will be conducted in a post-pandemic future, opening the door for a future of citizen-led open science and technological discovery.

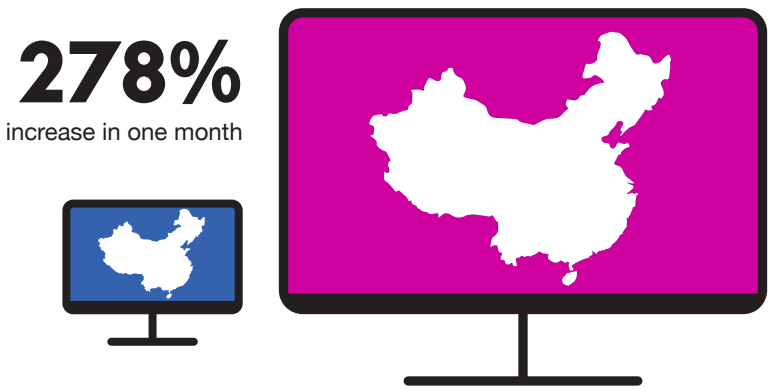
House-pitalists

Building the telehealth workforce

Of all the dramatic ways our lives changed in the spring of 2020, nobody knew which ones would stick. Would learning pods, virtual gyms, and Zoom happy hours sustain after it was safe to gather in large groups in public again? What about sidewalk and parking-lot dining and working from home—or from anywhere in the world, for that matter? And what about health systems throughout the world? What would healthcare look like after the pandemic?

In 2020, health systems underwent a massive transformation from in-person to virtual visits. For years before, the transition to telemedicine had inched along at a snail's pace, with no sign it would be speeding up soon. It's almost impossible to overstate how much this shift accelerated as soon as the pandemic hit. The United States saw virtual visits increase by 154% compared to the same period one year before.[9] In Scotland, video visits for health shot up a staggering 1,000%, and as one Indian physician and policy-maker explained, the pandemic "breach[ed] barriers to virtual healthcare faster than anything in history."[10]

China led the way in swapping face-to-face visits with virtual interactions, building on a longer-term strategy to integrate online and offline health services across the country. Since 2018, the Chinese government had been working actively to standardize and build an "online and offline medical service model covering prognosis, diagnosis, and postdiagnosis."[11] As a result, as COVID-19 spread, medical institutions and Internet companies could open so-called "internet hospitals" to blend digital and physical care and quickly respond to increased demand for telehealth services. These internet hospitals mushroomed across China during the pandemic. The 4.26 million online consultations between January 22 and February 25 represented a 278% increase from the number of consultations the month before.[12] Children's Hospital of Shanghai was one of the internet hospitals to launch during COVID-19, conducting almost 400 medical consultations remotely in its first week of operations.[13]



Growth in virtual healthcare in China during pandemic

Source: "China empowers Internet Hospital to fight against COVID-19," Journal of Infection, 2020

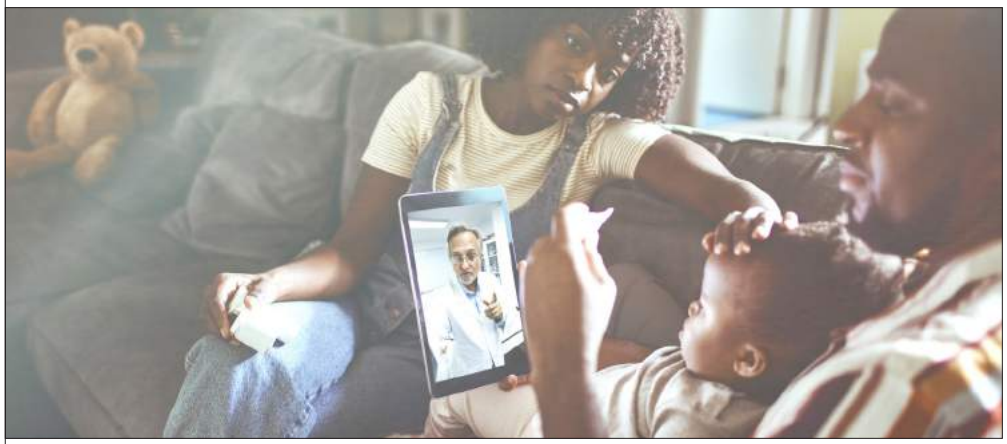
The rapid transition away from face-to-face to telehealth services is one of the changes most likely to stick in most health systems. Even as COVID-19-related reasons for avoiding face-to-face care in clinical settings dissipate, telehealth is proving too convenient, affordable, and accessible to revert to face-to-face medical consultations. But this new norm for accessing healthcare services will do more than just change how health professionals and patients interact; it will move the primary location of routine care from the clinic to the home.

Across the world, nurses, therapists, aides, and other health professionals have been making millions of home visits for decades. But programs implemented during the pandemic will help modernize the home health care infrastructure. Programs such as "Acute Hospital Care at Home," which granted U.S. hospitals "unprecedented regulatory flexibilities to treat eligible patients in their homes," will accelerate the steady yet slow-moving trend toward home-centered care.[14]

By 2030, many individuals and families will expect to receive standard, routine care from their health providers primarily through digital devices. But even those in need of more complex care will not want to travel to a hospital or a clinic unless necessary. Enter the ***house-pitalist*** and the resurgence of house medicine to meet post-pandemic care preferences.

Although in some ways the ***house-pitalist*** will be similar to that of the doctor making house calls 100 years ago, they will also play the role of a connector. They'll be a key player in the health systems' multidisciplinary care teams to support people, even those suffering from debilitating chronic illnesses, as they pursue their health at home. They will coordinate all the resources a person needs: referrals to the right doctors and specialists; troubleshooting tech to make sure the person can effectively communicate with their care team and receive care remotely; making sure the person has all the material resources (medications, bandages, assistive technologies, etc.) they need for their health and recovery. This will go far beyond just meeting people's biological or physical health needs. ***House-pitalists*** will also integrate social, psychological, and spiritual wellness resources into the care model to nurture a more holistic understanding of health.

In many ways, ***house-pitalists*** will play the role of an orchestra conductor, directing the remote monitoring sensors and communications devices, the team of home care professionals, and the medical specialists delivering care primarily through telemedicine. Yet the most crucial strength ***house-pitalists*** will bring to future care systems is their humanity. They will be consistent, informed, and caring human presences in a future in which many healthcare services are delivered via technology. This invaluable role will ensure that digitally enabled home care remains person-centered and compassionate.



Planetary Health Mobilizers

Interlinking human and environmental health

As early as 2014, global health leaders were advocating a transformation of public health toward "planetary health."[15] Today, while most public health leaders and politicians understand the interconnection between ecological and human health, globally connected youth activists are pushing them to act on this understanding.

Already power users of the most advanced information and communication technologies and experts at navigating porous, distributed networks of people, these activists will be the ***planetary health mobilizers*** of the next decade, catalyzing millions to fight for the health of the planet because it is central to protecting human health.

Today's youth and young adults are the leaders of the planetary health movement. They include Malala Yousafzai, who, at the age of 14, became the youngest person to win the Nobel Peace Prize for her leadership in girls' education; and climate activist Greta Thunberg, who in 2018 spearheaded the Fridays For Future movement, a global community of youth activists demanding climate action.[16] They are also the U.S. students who participated in "March For Our Lives," one of the largest political protests and now one of the largest political movements against gun violence organized in response to the 2018 school shooting in Parkland, Florida.[17]

In fact, young people taking the lead in confronting climate, social, and health issues has become so common that *Time*, known for awarding "Person of the Year," launched a parallel "Kid of the Year" award to recognize youth leaders making exceptional contributions. The inaugural awardee, Gitanjali Rao, is a 15-year-old scientist whose inventions range from a device that detects lead in drinking water to a web tool that detects early signs of cyberbullying.[18]

Planetary health mobilizers also include students at universities. A 2015 survey of 3,700 students enrolled in business schools in Asia and the Pacific Islands, the Middle East, Africa, Europe, Latin America, and North America demonstrated a "nearly unified perspective that the private sector must aggressively lead in searching for solutions to climate change."[19] And they are the medical students demanding that studying and treating the health effects of climate change at a personal and community level be compulsory in medical education.

Source: Rising Leaders on Environmental Sustainability and Climate Change: A Global Survey of Business Students, 2019

COVID-19 illustrated the link between human and planetary health. As Harvard University professor and physician Dr. Gaurab Basu argued, "Testing, vaccines, and treatment solutions for COVID-19 cannot come soon enough, but neither can they prevent the next pandemic unless we clearly and forcefully advocate for restoring our ecosystems and biodiversity."[20]

Artivists are another group of powerful ***planetary health mobilizers***.[21] These artists and data scientists use their creative talents and analytical skills to draw connections and present scientific data through stories and beauty. They collaborate to visualize climate data in sensory-rich formats and make the science more accessible and understandable. Technologists and programmers use emerging technologies such as VR to transform data sets into immersive experiences. For instance, virtual-reality journalist Nonny de la Peña partnered with science and investigative journalists to produce an immersive, innovative film that showcased the impacts of melting glaciers. Using VR, viewers of the movie *Greenland Melting* stand on the edge of melting glaciers and dive deep into the ocean to see the impacts of climate change from below.[22] *Artivists* will continue to inspire actions by blending cutting-edge art, technology, and science to inform us about the science behind climate change though beautiful, gripping, persuasive storytelling.

Finally, ***planetary health mobilizers*** are predominantly female. In addition to activist leaders such as Yousafzai and Thunberg, they include female political and corporate leaders who routinely show a greater willingness to act to protect the climate. A study published in 2019 that looked at the legislatures in 91 countries found that having more female representatives in government leads to more climate-related policies.[23]

Planetary health mobilizers are incredibly diverse in terms of the people they include, the specific issues they focus on, and the tools they use. But one thing many of its members have in common is an ability to master new technology quickly, whether it's the new tools of open science or emerging information and communication platforms. As a movement, this allows them to effectively advocate for the issues they care about and to craft solutions quickly.

As technologies advance, so will their movement. They will use new communication and media creation tools to mobilize millions of people, dispersed worldwide, without depending on formal media channels or organizations. Their ability to connect local, ground-level influencers to high-level policymakers will only get more refined, which will help them bring both rigorous scientific evidence and persuasive storytelling to decision-makers. They'll also be savvy scientific investigators with tools to monitor individuals, companies, and governments' actions and expose them when they harm ecological health. It's fair to assume that ***planetary health mobilizers*** will experiment with every new tool and approach in order to build the momentum needed to drive change on the global scale over the decade.

Health Hedonists

Redefining health as happiness, purpose, and comfort

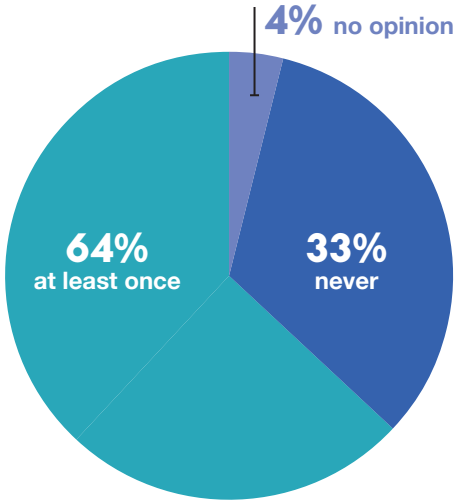
People spend countless amounts of time, energy, money, and willpower trying to improve their health. At first glance, this makes sense. "No pain, no gain" is something we largely take for granted as a truism—a fact of life. But there's a big problem with this approach to health: despite all the money we throw at it and all the suffering we do in its name, it doesn't seem to work for most people.

The vast majority of diets aren't very effective in practice.[24] Surveys in the U.S. and Australia have found that while many people have fitness club memberships, most don't make it to the gym very often.[25,26] We still see little mainstream skepticism in this approach. In a decade, though, things could be very different.

A research initiative to uncover the key to living a long, healthy life by studying the places where people live the longest has revealed a series of surprising insights. This research suggests that a "healthy lifestyle" isn't characterized by frequent, fervent trips to the gym or by strict adherence to a disciplined diet. Instead, it is about maintaining strong family and community relationships, a sense of purpose and belonging, and a slower pace of life, in which exercise occurs organically throughout the day, stress is addressed with unhurried contemplation, and food is not consumed frantically between appointments.[27]

Unfortunately, fewer and fewer people were living such a lifestyle. Even before COVID-19, stress and loneliness were endemic to life in many countries, and inequality was reaching record highs in wealthy countries.[28, 29] In the U.S., for example, economic inequality was showing no signs of abatement—itself a significant health issue, given the fact that considerable research suggests financial income has a big role in shaping U.S. health outcomes—and work, money, and affordable housing are consistently reported as major sources of stress in the country as well.[30, 31,32]

Yet over the next decade we could see these issues animate a new movement that embraces a very different strategy for getting "healthy": giving up. The ***health hedonists***' philosophy is to reject the "pain = gain" mentality. The best way to be healthy, they believe, is to stop trying so hard and focus on feeling good. From their perspective, the best way to build financial security and resilience is not to work harder in the formal economy but instead to work less, share more, and pool resources with their friends, family, and community.



Percentage of U.S. adults who have made at least one serious attempt to lose weight

Source: "Americans spending $1.8 billion on unused gym memberships annually," Finder.com, 2019

These ***health hedonists*** aim to make good health effortless by understanding it as a downstream consequence of living a happy and meaningful life, automating anything health-related that can be automated and relying on health-promoting environments and relationships.

Health hedonists minimize time spent doing work they don't find meaningful and maximize time spent socializing with family and friends, pursuing hobbies, and working on things they believe are personally meaningful and societally valuable. Reducing work time, of course, means reducing income. But the lifestyle ***health hedonists*** embrace addresses this issue too. Living a more community-oriented lifestyle, they can both spend more quality time socializing and pool resources and risk in ways that increase financial security and resilience.

Not only are ***health hedonists*** skeptical of conventional ways to achieve health, they are also wary of conventional definitions of health. In particular, though they highly value mental health, they harbor deep misgivings that mainstream understandings of it are rooted in concerns about productivity and social conformity. That is, they reject the idea that being mentally healthy means being "normal," able to adhere to social conventions, concentrate at work, and feel fulfilled and engaged while spending most of their waking hours on the job.

While health hedonism rejects many aspects of modern life, it doesn't have a problem with technology in and of itself. ***Health hedonists*** automate health tasks through the savvy use of bots and other forms of technology to reduce the number of touchpoints within the traditional medical system. They even use automation to manage the social relationships that they see as their top priority.

Already in 2020, activists and innovators are creating bots that help underserved populations navigate the legal system and gain access to mental health services. By 2030, ***health hedonists*** will turn to bots that act as coordinators to connect them with health and well-being resources they need in unobtrusive ways, pushing them towards community and peer support when it's available and acting as patient advocates when they engage with the traditional medical system. And precisely because health hedonists put so much value in meaningful social relationships, they often turn to bots for social advice, mediation, and even some basic cognitive behavioral therapy.

Lastly, ***health hedonists*** understand how vital their environments are for shaping health. They design their spaces for fresh air, natural light, and abundant plant life. Rejecting the trend of exercise programs that pack increasingly concentrated bursts of activity into small time slots, often meant to be done alone, they pool resources to create shared indoor and outdoor spaces that encourage movement and rely on activities like team sports, dancing, walking, crafts, cooking, and gardening to get adequate exercise.

By 2030, not everyone will be living the health-hedonist lifestyle, of course. But their successes at weathering an increasingly volatile economy and chaotic environmental-related events will prove highly persuasive, not only as a better way to get healthy but a better way to live, period.

Inclusive Design Champions

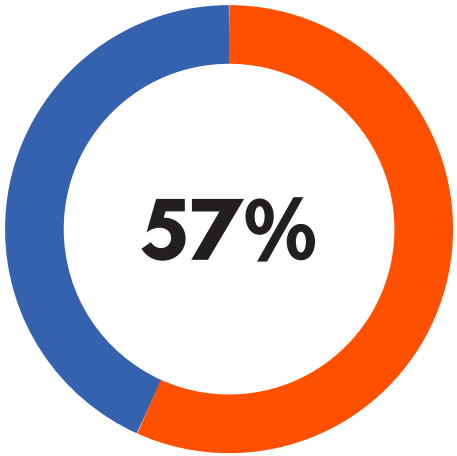
Demanding inclusion in all aspects of health—from research to delivery

You can live in a country with an excellent health system or a city with a world-renowned hospital full of top-ranked health professionals delivering exceptional care. But that doesn't mean you have access to those health resources.

Your economic or immigration status, gender, race, and language preference, as well as your general understanding of how your local healthcare system works *and* your level of comfort interacting with healthcare professionals could all deny you access. That would hardly make you an anomaly; the WHO estimates that more than half of the world's population lacks adequate access to what they call "essential health services."[33]

The good news is that global and national initiatives are raising awareness of the urgent need for universal health coverage (UHC). This doesn't mean that everyone should have access to every possible health treatment or service, but rather access to the "full spectrum of essential, quality services, from health promotion to prevention, treatment, rehabilitation, and palliative care."[34] At the same time, grassroots racial, economic, environmental justice, and disability rights movements worldwide are increasingly making health central to their demands. And they have a different understanding of what access to health resources means.

For them, access to health care includes improving access to essential health services and ensuring that treatments, resources, and care are appropriate, effective, and equitable for all. They believe that true access in health means being included as primary decision-makers in all policies, programs, product design, and developments related to their healthcare needs. And they see this as not a matter of charity or courtesy but as a matter of justice, asserting that marginalized groups are entitled to the same dignity as everyone else.



People with disabilities left out of decision-making

Source: Sandy Ho, Susan Eaton, and Monika Mitra, "Civic Engagement and People with Disabilities: A Way Forward through Cross-Movement Building." Waltham, MA: The Lurie Institute for Disability Policy, Brandeis University / New York, NY: Ford Foundation Civic Engagement and Government Program, April 2020

Inclusive design champions embrace a "nothing about us without us" ethos and believe it is never too early to involve the people for whom a health product or service is being designed in the process. They applaud efforts already underway in the autism community, efforts such as the UK-based research lab Heart n Soul, that co-create research studies with people with learning disabilities and autism. Heart n Soul is "reversing the microscope that is usually on people with learning disabilities and autistic people so that they are in control of the questions we ask in our research."[35] Flipping who controls the research inquiries requires an entirely new approach to how research is designed and conducted and holds the promise of building more appropriate, and therefore more effective, health solutions.

A similar level of engagement is needed in all aspects of health research. Women and racial and ethnic minorities continue to be underrepresented in clinical trials, which means the trials do not necessarily represent the people who will use the medicines, vaccines, or devices studied. According to a 2017 study by the U.S. Food and Drug Administration, only 43% of clinical study participants were women, and almost 80% were Caucasian.[36] In the same study, it was pointed out that within the clinical trials for cardiology, only 2.5% of participants identified as Black or African American.[37] These disparities in representation in research are troubling, not least because African Americans have an elevated risk for heart disease.

Inclusive design champions are equally interested in increasing decision-making in the development of assistive, wearable, and health technologies. Assistive technologies such as wheelchairs or prosthetics have been useful tools for many with physical disabilities, but access to these life-changing tools and technologies is inadequate and unequal. Currently, 90% of those who would benefit from assistive technologies lack access. Given that the number of people who will need assistive technologies is anticipated to grow to 2 billion by 2050, solving this unmet need is an urgent challenge.[38]

It's exciting to see the jaw-dropping innovations emerging from the convergence of computer science, robotics, engineering, and medicine. AI-powered wheelchairs, voice-enabled exoskeletons, and intelligent prosthetic limbs controlled by apps, to name just a few, hold the promise of increasing independence and improving the quality of life for many of those living with physical disabilities today. And yet the people for whom these technologies are intended are rarely included in the design or innovation processes. The interdisciplinary teams often include neuroscientists, biologists, physicians, and technologists—yet often lack users' perspective. And while the innovation team may survey users about their needs or ask for feedback on a product they have created, they aren't likely to include them as core members.

By 2030, ***inclusive design champions*** will change all that. They will transform the innovation pipeline for next-generation assistive technology by insisting that people with disabilities are decision-makers in all policies, programs, product design, and development. Access will mean that people with disabilities will have, as biohacker Ryan O'Shea promotes, "the capacity to self-direct what they want to become" and the ability to determine the role technology will play in how they pursue health and wellness in distinct and diverse ways.[39]

Finally, these ***inclusive design champions*** will improve the inadequate and unequal distribution of health resources globally. Movements like the Global Open Science Hardware (GOSH) aim to transform today's predominantly closed science hardware system into an open model, increasing access to the tools needed for creating medical technologies. The movement is worldwide, but the urgency is most potent in places in which many of the finished medical products are either too expensive or not relevant to be useful in their local contexts.[40] As Thomas Mboa, a GOSH leader in Haiti and French-speaking Africa, explains, improving access to the development of medical technologies has the "potential to overcome most of the challenges the African health system faces" by making more healthcare tools more modifiable to fit local needs and preferences.[41]

Over the next decade, getting buy-in or feedback from the communities a health organization serves will not be enough for the people redefining what access to health care means. Access will not be limited to a fairer distribution of the health services, treatments, or interventions. Instead, the ***inclusive design champions*** will redefine access to include having a hand in how the product or service was conceptualized, designed, and distributed. Doubling down on their ethos of "nothing about us without us," they will demand that no health intervention or new technology be designed and developed without buy-in from the community for which it is purported to serve.

Insights

The innovators and activists powering these future forces inspire us to imagine a future where the ways we pursue individual and societal well-being and ecological health are more enterprising, intersectional, and inclusive. They show us pathways toward building a future, but they need all of us to help turn their visions into our future reality. Here are some suggestions for what can be done to support, elevate, and amplify the work of those powering these future forces—as well as what *not* to do.

Strive for in-depth understanding

Get to know future health innovators and activists better. Their primary goals may seem obvious, but being helpful requires a different level of understanding.

Go deep into ***health hedonists'*** personal and dynamic definitions of health.

Watch how ***house-pitalists*** help advance the field of telehealth by refining how to deliver care in homes most effectively and humanely.

Engage directly with movements

Explore the work of ***pandemic-preneurs,*** and open all design and innovation processes to unconventional innovators.

Design devices and services *with* and not just *for* the intended users. Tap the deep well of under-recognized creativity and expertise of the ***inclusive design champions*** to create breakthrough innovations that are affordable and appropriate.

Draw inspiration from *artivists* like Nonny de la Peña to imagine more radical solutions. Invite Fridays for Future, Extinction Rebellion, and other ***planetary health mobilizers*** to critique your practices and identify alternatives that do not harm the planet.

Reach out to the youth innovators and activists regularly. Their insights, ideas, and disruptions will only be more unique and more critical in our post-pandemic future.

Act now

Engage with innovators and activists now, before everyone wants to. It could be your only chance.

Build back better by co-creating blueprints for resilience with communities now. Have robust, ready-to-go plans for the next big climate disaster, pandemic, or economic collapse.

Make genuine commitments

Don't support health innovators and activists' causes to their faces while undermining them behind their backs. They will be savvy at identifying insincerity and adamant in calling it out.

Demonstrate good faith to ***planetary health mobilizers*** by rethinking supply chains and designing for disassembly and reuse.

Partner with ***pandemic-preneurs*** and ***inclusive design champions***, and don't restrict access to the tools and resources that could be put to immediate use in solving critical social, environmental, and health issues.

Urgent Questions

These five people-powered future forces pose several urgent questions we will need to address over the next decade. Here are catalysts for a series of critical conversations that will that will put us on a more promising path toward individual, community, and planetary health in 2030:

1 How can we redefine health and reinvent innovation in life science?

If there's one thing these future forces make abundantly clear, it's that how we define health will be highly contentious over the next decade. This makes sense because so much depends on it. As a new, overarching definition of health emerges, our current innovation approaches will need to change. Can we coordinate conversations with the people powering these different future forces to align innovation processes with a more expanded understanding of health?

2 Who do we need to convince?

Not everyone has equal power to make new definitions of health matter. While movements start with everyday people, they eventually need to convince institutions and individuals with significant power to adopt their understanding. For instance, a simple change in a government definition of "healthy" can have huge ripple effects across multiple domains, from work to food to learning. Likewise, movements that start at the margin often make it to the mainstream when celebrities or others with a big platform amplify their message. Can we identify the people and institutions most worth convincing and bring them into the conversation?

3 What's standing in the way?

Often, getting people on board with an idea *in theory* and getting them to move the idea *into practice* are two different things. Key structural barriers must change, both formally and informally.

Some laws and policies—such as those that obligate publicly traded companies to prioritize shareholders' financial interests—explicitly prohibit people from taking part in change-making." And there are norms, attitudes, and habits (like bias, bigotry, or just plain inertia) that make people resistant to adopt a more holistic definition of health. Can we work together systematically to identify barriers to change and create scenarios for how we might overcome them?

4 Where do we begin?

With a long-term vision in place, it's time to start taking action. Tackling issues this big can be intimidating, and it's often hard to know where to begin. Can we work together to map out a dynamic plan of action that starts small by testing assumptions and adjust it along the way? Can we identify milestones in the short-, mid-, and long-term that will help us measure our progress and see how small actions can lead to impactful change?

After the year we've had, it's tempting to fantasize about a future that's better than the present. But ensuring that our future is healthier and more equitable than our present requires that we take action today. The work of the future is now. **LET'S MOVE TOGETHER, FORWARD.**

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