The statistics are startling—a billion people across the world are overweight, 700 million people worldwide will be diagnosed with diabetes by 2030, and an estimated 130 million Americans suffer from chronic illnesses. We’ve transformed our bodies and changed our lifestyles in ways that discourage well-being; we move less and sit more, we cook less and eat more prepared foods, we spend more time indoors, and we are under more stress.

In the face of these troubling trends, our approaches to health and well-being have yet to evolve. We continue to rely on a health-care system that’s designed to treat specific health problems, even though our health needs and goals have grown well beyond occasional treatments to alleviate suffering. With the expansion signals a variety of new responses to improving health it also poses new dilemmas and challenges. The boundary between a new capacity and a physical or mental advantage over others is not always distinct. The landscape of possible responses to this challenge has expanded (see figure below). For most of us, health goals extend beyond the absence of disease to involve creating and immediate managing chronic illness.

This series of forecast perspectives is part of Health Horizon’s year-long exploration of the Future of Science, Technology, and Well-being. Developed as part of Health Horizons’ research deliberations, they provide insight into how advances in science and technology enable new efforts at well-being. After you purchase this overview and series of four perspectives, think about how you can develop your own responses aimed at building capacities for well-being.

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Well-being: Response Landscape

Here’s a set of cards that provides the building blocks of our forecasts, this deck explains many of the emerging possibilities or to focus long-term strategic planning efforts.

The future of science, technology, and well-being

This series of ten-year forecasts set out to provide insight into how advances in science and technology enable new efforts at well-being. After years of research and development, we are now beginning to lay the foundation for these developments on your work. From them, you can plan actions that take these long-term possibilities into account.

Below are descriptions of this year’s research deliverables along with guidance for using them to inform your strategic responses over the coming decade.

Well-being: Response Landscape

Mapping actions in the global health and well-being economy

CAPACITY

Response cards: from triggering a burst of joy to treating an acute medical illness can range from the sudden need to the potential impact of illness. The capacity means as the practice, strategies, and interventions that focus on building our capacity for well-being may be quite different than those that focus on treating illness.

IMMEDIATE

responsive cards: Mapping actions in the global health and well-being economy

LONG-TERM

ILLNESS

2020 Forecast Map: The Future of Science, Technology, and Well-Being

The ten-year forecast map explores the exciting convergences shaping our responses to health challenges and the related opportunities for wellbeing. We draw on recent developments and connections to gain insights into some of the possible convergences of advances in science and technology.

Forecast Perspectives: Building Capacities for Well-Being

The overview and series of four perspectives offers detailed forecasts on how we can increase our capacities for health and well-being. The series includes:

Making Sense of Sensors offers a comprehensive look at how measurement tools will enable us to continuously measure and understand our bodies, networks, and environments.

High-Risk Diversity explores how advances in neuroscience and genomics will help us better understand meaningful variations among people in order to improve health and well-being.

Tinkering Toward Innovation argues that the practice of tinkering will lead to new insights that drive a new wave of innovation in health.

Embedded Health examines new ways to curate and filter information in order to provide contextual cues to shape health choices.

As you consider these forecast perspectives, think about how you can develop your own responses aimed at building capacities for well-being.

Artifacts from the Future

A series of artifacts from the future depict how new products, services, and innovations will improve well-being for individuals, networks, and environments. Designed to provoke new thinking and make forecasts more tangible, use these artifacts to consider how innovative responses might fit into different contexts.

Response Innovation Deck

A set of cards that provide the building blocks of our forecasts, this deck explores many of the emerging opportunities or to focus long-term strategic planning efforts.

About the Health Horizons Program

Health Horizons Program | 124 University Avenue, 2nd Floor | Palo Alto, CA 94301 | www.iftf.org

As practices in health and medicine move from hospitals and doctors’ offices to more diverse areas of our lives, the meaning of health is also shifting. Purely pathologiological definitions of health are giving way to more holistic, personal concepts of well-being. This shift is opening up an expanded landscape where health interventions are not solely focused on mitigating risk but are also aimed at building our capacities for health, happiness, and satisfaction. Our evolving relationship with stress is an example of the shifting nature of health and happiness.

Overview

Well-being is an emerging area at the same time that advances in life science are extending our abilities to treat illness and manage disease—not only in our bodies, but also in our social and physical environments. As the global population ages and many of us have to deal with chronic illness and obesity, we need to consider how our evolving notions of well-being fit within the contradictory context of increased disease.

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Generating well-being responses

Your responses to illness can range from an emergency intervention to an ongoing behavior for navigating and managing chronic illness. The increase in chronic illness is already felt away from episodic interventions to continuous care. In the coming decade, it will be essential to create responses that not only work on the level of the individual body, but also tap resources in our networks and environment. Understanding an illness such as hypertension may seem like a quagmire, but a growing body of research shows that effective responses to hypertension can range from helping individuals with food choices to reconfiguring neighborhoods.

We tend to favor immediate care when it comes to wounds and immediate attention to the impact of our daily behaviors. For example, we know antibiotic is bad for us, yet 95% of Americans still suffer, with the rate ranging as high as 55% in parts of Asia. A disconnect between immediate rewards and long-term efforts is often a contributing factor in many illnesses. A strategy that usesImmediate responses and long-term health might include daily point-in-time measures encouraging people to quit smoking.

Interventions that manage long-term health range from controlling blood pressure with medication to redesigning urban spaces in a way that encourages physical activity. In many cases, our responses and decisions involve struggling with long-term mid-effects of reckless choices. We have to adjust to healthy living on a day-to-day basis, and any poor living habits can develop unhealthy behaviors.

As you consider your efforts toward improving well-being, keep these responses in mind. How are your responses already applying to various bodies? And where do you want to live five years from now?

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The sections below highlight the four major shifts described in this series of forecast perspectives. For each forecast, a key response strategy is mapped onto the well-being response framework below. Viewed individually, the responses offer examples of different strategies to build capacities for well-being.

Immediate

Immediate responses take immediate action to improve long-term health. They respond to the immediate and the long-term aspects of social determinants of health. For example, your immediate response to managing your diet or other behaviors to improve your health.

Long-term

Long-term responses focus on understanding and acting on longer-term changes to improve health. They involve understanding and acting on changes to improve health for the long term, such as changes in policies, environments, or personal behaviors.

Forecast: Making Sense of Sensors

Seniors and senior networks are not new; they already play a role in our health and well-being. Over the next ten years, seniors will become smarter and more pervasive, making possible more continuous monitoring and new understandings of our bodies and the world we live in. They’ll allow us to see, at far greater resolution than currently possible, the factors affecting our well-being and the choices we make, as well as provide a sense of how our health is changing over time.

Forecast: High-Resolution Diversity

Our understanding of the differences among humans is evolving. Over the next decade, advances in science and technologycess will help us perceive our differences and similarities at the level of cells, molecules, genes, and entire patients. These high-resolution views will provide insight into our biological health as well as our responses to chemical, social, and environmental factors.

Forecast: Trinkering Toward Innovation

The worldwide practice of tinkering—experimenting, repairing, and often failing—will become a fundamental source and driver of innovation in many areas, particularly for the social initiatives of health and well-being. The capacity of organizations to evaluate and reiterate the global practice of tinkering will be critical for strengthening the innovation pipeline and improving both individual and collective capacity for health and well-being.

Forecast: Embodied Health

In the coming decades, the introduction of real-time tracking tools and feedback to increase choices, options, and support for advancing health and well-being. Individuals and groups will have their own customized and embedded feedback mechanisms and questions in personal devices, local environments, and even workplaces. These solutions will encourage people to stick with their long-term health goals by reconfiguring the context of their daily lives.

Forecast: Illness Information

Understanding the role of design in environmental health.

We have the environmental health knowledge on the impact of pollution and chemicals on society. The future will witness the move to the removal of individual spaces to promote healthier behaviors and choices. Over the next decade, we will need to develop better understanding of how social environments shape human information processes and health-related behavior will act as real-time and building environments that promote well-being.
As you work with this response landscape, you can begin to consider innovations that address both immediate and long-term well-being. You can also consider appropriate responses to the paradoxical relationship between increased disease burdens and expanded conceptions of health that give the chronically ill greater avenues for improving their well-being.

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### Forecast: Tinkering Toward Innovation

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### Forecast: Encumbered Health

In the coming decades we’ll see the introduction of real-time filtering tools and feedback to curate information, choices, and options for advancing health and well-being. Individuals and groups will have their own custom tools and embedded feedback mechanisms and rules into personal devices, local environments, and even buildings. These solutions will encourage people to stick with their long-term health goals by reiterating the context of their daily lives.

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Sensors and sensor networks are not new; they already play a role in our health and well-being. Over the next ten years, sensors will become smaller and more pervasive, making possible more continuous monitoring and new understandings of our bodies and the world we live in. They’ll allow us to see, at far greater resolution than currently possible, the factors affecting our well-being and the choices we make, as well as provide a view of our health at a cellular level.

### CAPACITY

**IMMEDIATE**
- We tend to favor immediacy when it comes to rewards and punishments. This is a strategy that uses a bottom-up approach to helping individuals with food choices to redesigning processes, but a growing body of research shows that it will be essential to create responses that not only work in the short-term, but also address the long-term.

**LONG-TERM**
- As we consider our efforts toward improving well-being, keep this landscape in mind. How are we responding today? and where do you want to be five years from now?

### FORECAST: GENERATING WELL-BEING RESPONSES

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The statistics are startling—a billion people across the world are overweight, 700 million world-wide live with chronic illness, and an estimated 135 million Americans suffer from chronic illnesses. We’ve transformed our bodies and changed our lifestyles in ways that discourage well-being; we move less and sit more, we cook less and eat more prepared foods, we spend more time indoors, and we are under more stress.

In the face of these troubling trends, our approaches to health and well-being have yet to evolve. We continue to rely on a health-care system that’s designed to treat specific health problems even though our health needs and goals have grown well beyond occasional treatments to alleviate suffering. While this paradigm signals a scarcity of new responses to improving health it also poses new dilemmas and challenges. The boundary between a new capacity and a physical or mental advantage over others is not always distinct. The landscape of our possible responses to this challenge has expanded (see figure above). For most of us, health goals extend beyond the absence of disease to involve creating and maintaining well-being. And the practices, strategies, and interventions that focus on building our capacity for well-being may be quite different than those that focus only on treating illness.

Well-being: Response Landscape

**Mapping actions in the global health and well-being economy**

**CAPACITY**

- Immediate: Trangiting from frangting a burst of joy to treating an acute medical emergency
- Immediate-response grants our attention

**IMMEDIATE**

- Long-term: Long-term health stances stem from carefully planned efforts as well as unintended consequences accumulating over time

**LONG-TERM**

- Well-being: Greater satisfaction and happiness, improved emotions and social, as well as physical health

**ILLNESS**

- Illness: Your responses directed at illness can range from the sudden need to respond to a health emergency to the ongoing process of navigating and managing chronic illness.

The future of science, technology, and well-being

This series of scenario perspectives is part of Health Horizons’ year-long exploration of the Future of Science, Technology, and Well-Being. Developed as part of Health Horizons’ research delieables, they provide insights into how advances in science and technology enable new efforts at well-being. After your peers have used your vision of the future to guide these developments on your work. From there, you can plan actions that take these long-term possibilities into account.

Below are descriptions of this year’s research deliverables along with guidance for using them to inform your strategic responses over the coming decade.

**Well-being: Scenarios of the Future**

**2020 Forecast Map: The Future of Science, Technology, and Well-Being**

The ten-year forecast map explores the exciting convergences shaping our responses to health management and the emergence of the potential impact of illness. This shift is opening up an expanded landscape where health interventions are not solely focused on mitigating risk but are also aimed at building our capacities for health, happiness, and satisfaction. Our evolving relationship with illness is an example of the shifting nature of health risks and capacities. Reducing stress improves emotional well-being and, in the process, reduces blood pressure and risk for other diseases, making improved psychological well-being a means of improving long-term physical health. From the foods we eat to the neighborhoods we live in, we are increasingly structuring our lives around building capacities to improve health and well-being.

These broader concepts of well-being are emerging at the same time that advances in the health sciences are extending our abilities to treat illness and manage disease—not only in our bodies, but also in our social and physical environments. As the global population grows and more of us have to deal with chronic illnesses and mobility, we will need to consider how our evolving notions of well-being fit within the contradictory context of increased disease.

This year, the Institute for the Future’s Health Horizons Program set out to systematically explore a future in which one can leverage advances and emerging technologies to create new possibilities or to focus long-term strategic planning efforts.