



Robert Wood Johnson Foundation

Health and Health Care in 2032:

Report from the RWJF
Futures Symposium
June 20-21, 2012



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The Institute for Alternative Futures
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Letter from Risa Lavizzo-Mourey, MD, MBA

“Long-range planning does not deal with future decisions, but with the future of present decisions.”

– Peter Drucker

Dear Colleagues,

This is the Robert Wood Johnson Foundation’s 40th year of working to improve the health and health care of all Americans. Like most people, we enjoy looking back at where we’ve been. But our real focus is on where we are going – and I am excited to report that the prospects are breathtaking.

We move forward with confidence. Our history of involvement with America’s people and communities is a great teacher. It tells us that society’s aspirations for better health and health care are evergreen and universal – a core expectation of the modern American character, just as pressing and loaded with opportunity today as they were 40 years ago.

Anticipating the future is part of our larger strategy to help the private and public sectors come up with smart answers to the formidable problems about our health that we face each day. That led us recently to invite several dozen of America’s best and brightest leaders to Kansas City, Missouri, to brainstorm what the future has in store for the health and health care of individuals, families, businesses and communities.

We asked the non-profit Institute for Alternative Futures (IAF) to develop four different scenarios to envision what health and health care could look like in 20 years. Then we asked the Kansas City meeting participants to project what we need to do now to see that we achieve the best status for health and health care by 2032.

These were men and women involved every day in critical decisions that affect all of us. They included clinicians, academics, social and biomedical scientists, policy makers, entrepreneurs and big business executives from global brands that ranged from Google to IBM. For two days they free-wheeled possibilities running out to 2032 and beyond. Strengths and weaknesses were identified. Threats targeted. Defenses determined. Opportunities spotlighted. Resources allocated. Conventions challenged. Judgments made. Solutions divined.

This was way more than classic predictive analysis, which mines the depths of depersonalized data to decipher the future. Instead, we ignited a high-energy exchange of suppositions and conceptions high on the order of what Disney calls “imagineering” – the generation of ideas without limitation.

IAF, in this analysis, converts our Kansas City dialogues into a complex of envisioned pathways and actionable opportunities to reset society’s trajectory toward a shared future of better healing, hope and good health for all Americans. The challenge for leadership across all sectors is to begin working together toward this goal without delay. Tomorrow will be at the front door before today slips out the back. Company is coming. It is time to get America’s house in order.

A handwritten signature in black ink, reading "Risa Lavizzo-Mourey MD". The signature is fluid and cursive, with the letters "R", "L", and "M" being particularly prominent.

Risa Lavizzo-Mourey

President and CEO, Robert Wood Johnson Foundation

Introduction

What will health and health care look like in the U.S. in the year 2032? It is a complex question, particularly given the immediate challenges facing the U.S. today. We are nowhere near being the healthiest nation on earth and we are all too aware of health care costs that continue to rise faster than inflation. We spend more on health care than any other nation, yet we have a high number of Americans lacking health insurance. We give higher incomes to health care providers yet face provider shortages that in many communities leave even those with insurance struggling for access to care. We worry about obesity and an older, sicker population. Our underlying social and economic conditions undermine the health potential for many Americans. Yet we also see the great promise of emerging technologies, new treatments, innovative policy options, and social movements promising health equity and food justice. What do we want health and health care to be in the U.S. in 2032? We really could improve health and health care in this country over the decades to come. However, there is a good chance that we could also spend more than we can afford on an American population whose health continues to decline.

Alternative scenarios of the future can help us understand such uncertainties. Scenarios are stories describing how the future may unfold in different ways. They help us view the dynamic systems around us in more complex terms that accept uncertainty, and then clarify and challenge the assumptions about what we can do. We have carried many assumptions with us from the past that constrain our thinking about options for the future. While the future is inherently uncertain, scenarios help us bound that uncertainty into a limited number of likely paths. We can then explore the uncertainty to find the opportunities and challenges that might otherwise surprise us. People and organizations who work with scenarios find more creative options than those who develop plans based only on the past and present.

To find these more creative options for health and health care, the Robert Wood Johnson Foundation engaged the Institute for Alternative Futures (IAF) to develop a set of four scenarios of health and health care in 2032. The purpose of these scenarios is to help leaders in health and health care apply a futures perspective to their own work, and to access the kind of creativity and dynamism that can lead to surprising success. IAF's scenario development process leveraged IAF's more than three decades of health futures expertise and included futures research conducted for this project as well as interviews with experts in relevant fields. (Interviewed experts are listed in the Appendix.) The development of the scenarios was also informed by a series of discussions that IAF had with six leaders comprising the judges panel for the RWJF Young Leader Awards competition, which IAF has coordinated as part of the Foundation's 40th anniversary recognition. (Recipients will be announced in October 2012.)

Given these inputs, IAF developed four scenarios of health and health care in the U.S. in 2032 using its "Aspirational Futures" approach. This approach describes scenarios in three distinct "zones" (see **Figure 1** below):

- A **"zone of conventional expectation"** reflecting the extrapolation of known trends, the expectable future;
- A **"zone of growing desperation"** which presents a set of plausible challenges that an organization or a society may face, a challenging future; and

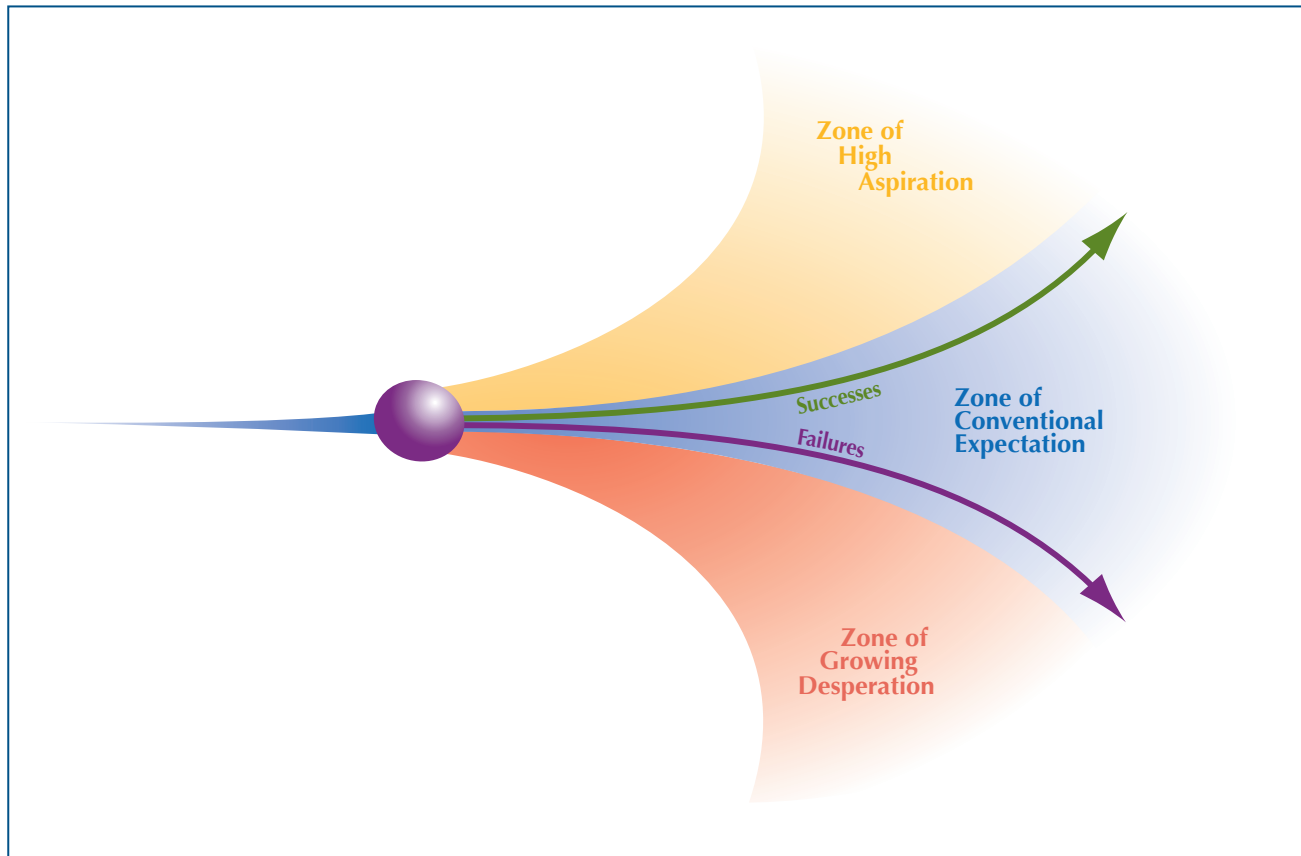


Figure 1. IAF's aspirational futures approach.

- A “**zone of high aspiration**” in which a critical mass of stakeholders pursues visionary strategies and achieves surprising success, an aspirational future. *Two scenarios are developed in this zone* in order to offer two alternative pathways to surprisingly successful or visionary futures.

This approach to scenarios invites the application of two different lenses to the future. An objective lens defines the probability space in which the future will unfold, and helps assess the possibility in terms of plausibility and likelihood for the range of imagined outcomes. A subjective lens articulates the shared hopes and fears that we often project – consciously or unconsciously – onto the future. Neither lens is sufficient without the other. When a group uses only one of these lenses, the future becomes either an intellectual exercise that loses inspiration, or a playful fantasy devoid of import. However, by applying these two lenses together, people can identify meaningful images of surprising success that illuminate strategic insights and invite concerted action. These images can motivate and guide individual, organizational and societal change.

IAF's scenarios for health and health care in the U.S. in 2032 are included in their entirety in Section I of this report. As mentioned earlier, IAF developed one scenario in each "zone," as well as an additional scenario in the "zone of high aspiration" so as to describe two alternative pathways to visionary success. In summary, the scenarios are:

■ **Scenario 1: Slow Reform, Better Health** ("zone of conventional expectation")

Health and effectiveness of health care vary among states. Health, not health care, becomes the main political issue. Communities address social determinants of health, prevention and population health while enacting "health in all policies." Self-care and health knowledge reduce demand for medical care and are enhanced through risk behavior management, social networks, digital technologies, pre-disease identification, data and new cures and therapies.

■ **Scenario 2: Health If You Can Get It** ("zone of growing desperation")

Medicare and Medicaid experience severe budget cuts, most Americans are underinsured, medical tourism increases, epidemics spread and health and inequality worsen. The primary care physician shortage hurts community health centers, which struggle to treat many new patients who otherwise visit unreliable fee-for-service minute clinics. The public becomes highly fractured and disillusioned with the ineffectiveness of governance.

■ **Scenario 3: Big Data, Big Health Gains** ("zone of high aspiration")

Health becomes the primary concern. Initiatives regarding health innovation, health equity, the social determinants of health and health in all policies reduce health care expenditures. The public demands anticipatory democracy, cooperation, sustainability and transparency. Innovative technologies, "big data," and knowledge transform manufacturing, the economy and health, yielding cures for Alzheimer's disease, effective management of cancers and widespread implementation of personalized medicine and health avatars.

■ **Scenario 4: A Culture of Health** ("zone of high aspiration")

Leaders create environments to support and improve all domains of health as a "health culture" arises. The nation's focus shifts to disenfranchised youth, and to the development and comprehensive health for children. Health care spending is capped. Avatars, enhanced self-care and transparency in health education and medical knowledge all reduce demand for medical interventions. "Health wisdom" expands as social networks "crowd-source" health. Environmental monitoring is widely implemented among communities.

These scenarios were used in a national symposium designed and facilitated by IAF on June 20-21, 2012, in Kansas City, Missouri. The symposium brought together leaders in health care delivery, government, academia, and industry to explore the implications of the scenarios and to identify areas of opportunity to improve health and health care between now and 2032. (Symposium participants are listed in the Appendix.) These areas of opportunity and the associated recommendations to the nation are included in Section II of this report.

How to Read this Report

Section I – Scenarios of Health and Health Care in 2032

Section I presents the scenarios, as well as a matrix that allows for comparison of key factors across the four scenarios. Approach these scenarios with an open mind and with a willingness to challenge your own assumptions about the future. After reading each scenario, ask yourself what life would be like in that future. What are the scenario's implications for health, for health care, and for your own field or sector? What would you do differently in that scenario from what you do today? If you doubt the scenario's plausibility, then ask yourself what else would need to change in order to make it plausible? Which scenario do you think is most likely, and which is most preferable? And if they are different, then what can you do to make the "preferred future" more likely?

Section II – Areas of Opportunity and Recommendations to the Nation

Consider the areas of opportunities identified by thought leaders during the national symposium's scenario exploration. After reading each recommendation, ask yourself whether you agree with the recommendation. If so, then what could you or your organization do to advance it? What partnerships would be required? After reading all of the recommendations, ask yourself if there are any other recommendations that emerged from your own exploration of the scenarios, and how they could be advanced.

Section I:

Scenarios of Health and Health Care in 2032

Scenario 1: Slow Reform, Better Health

Note to reader: These scenarios were used for the first time in a national workshop on June 20-21, 2012, one week before the U.S. Supreme Court largely upheld the Affordable Care Act. Thus, IAF initially developed two variants of this scenario for the period from 2012 to 2020 – one in which the ACA was upheld, and one in which it was overturned. At the time of the symposium, it was impossible to determine which of these variants was more “expectable” than the other. It is noteworthy, however, that the two variants converged in the late 2010’s, suggesting that the fate of the ACA may be less significant than other factors in shaping what health and health care will look like in the year 2032.

2012-2020

Variant A

In June 2012, the Supreme Court upheld the ACA. By 2014, most of the law’s provisions had taken effect. 32 million uninsured people would gain health insurance coverage by 2020. The law’s impact varied from state to state, particularly with respect to health insurance exchanges (HIXes). In some states, HIXes effectively reduced both the number of uninsured and the cost of health insurance for the already insured. In states where the exchanges offered little choice, the large numbers of uninsured were converted to large numbers of underinsured.

Newly covered prevention services contributed to improved health for many. Demonstration projects and policy changes included in the ACA reduced the age-adjusted per-capita cost of care delivered by Accountable Care Organizations (ACOs). Still, the growing number of people seeking insured care and the aging cohort of Baby Boomers combined to drive up total medical costs. Payers instituted new policies to drive down payments, but provider shortages and physician opposition reduced their ability to do so. By 2018, the Secretary of Health and Human Services was forced to initiate a global annual budget cap for Medicare and stringent usage caps for Medicaid, calling on the private sector to follow suit. Employers and governors followed the federal lead, offering only capitated plans. Over the next three years, most care nationwide came under capitation payment in integrated systems with some additional incentive payments for service providers who met the relevant quality standards. These systems helped constrain the growing costs for medical care and improved overall quality.

Population health improvement came much more slowly. Despite the prevention coverage in the ACA and the initiatives of the National Prevention Strategy, obesity and diabetes rates continued to climb. Cancer incidence rates declined, but the aging population made breast and prostate cancers more prevalent. By 2020, health care accounted for 20 percent of GDP and population health measures showed the U.S. still lagging far behind other OECD countries. As a result, health – not health care – became a major election issue in 2020 as candidates debated how reform of health care had failed to adequately improve the nation’s health and to slow the growth of health costs.

With the campaign slogan “It’s our health, stupid!” catching on with the American public, the 2020 election set the stage for the second phase of health care reform, including a greater emphasis on non-medical factors affecting population health. During the 2010s, comparative effectiveness studies using years’ worth of data from electronic health records had shown that enhanced health system performance and attention to the social determinants of health offered new and better ways to address quality, cost and population health.

Variant B

In June 2012, the Supreme Court overturned the ACA in its entirety. Subsequent battles over the health care system moved to the states. Some states, like Vermont, launched single-payer systems. Some, like Maryland, used capitation and government regulation to encourage prevention, care integration and other aims of the ACA. Others, like Kansas, obtained waivers in order to privatize their Medicaid programs. Over the years following 2012, states seeking market solutions emphasized individual responsibility to keep costs down and demand quality. States using capitation increased access and drove providers and patients into integrated systems.

Confused by the different state policies, many employers opted for Consumer-Directed Health Plans, offering their employees catastrophic insurance alone. However, large employers moved their employees into integrated delivery systems as a competitive edge for attracting and recruiting top talent. As a result, even without the ACA in place, the growth of integrated care systems with capitated payments continued, even in states that did not favor capitation plans.

At the national level, Republicans continued to oppose an increased government role in the health care system, while Democrats continued to run on a platform of expanded Medicare and Medicaid programs funded by higher taxes on the wealthiest Americans. The elections of 2012 and 2016 were hard-fought but inconclusive as a divided public produced a divided government in which Congress, administrations and the courts continued to contest policy directions.

By 2020, studies clearly showed the trade-offs between states that relied on market solutions and those that actively regulated health care insurance to increase access, promote integrated systems and support prevention. In states favoring integration, costs had risen as the population had grown. States that relied on markets had also faced higher costs from faster growth in illness rates where prevention efforts had stalled. In effect, neither the market nor the government regulation could effectively meet the need to constrain cost, provide a quality experience for patients and improve population health.

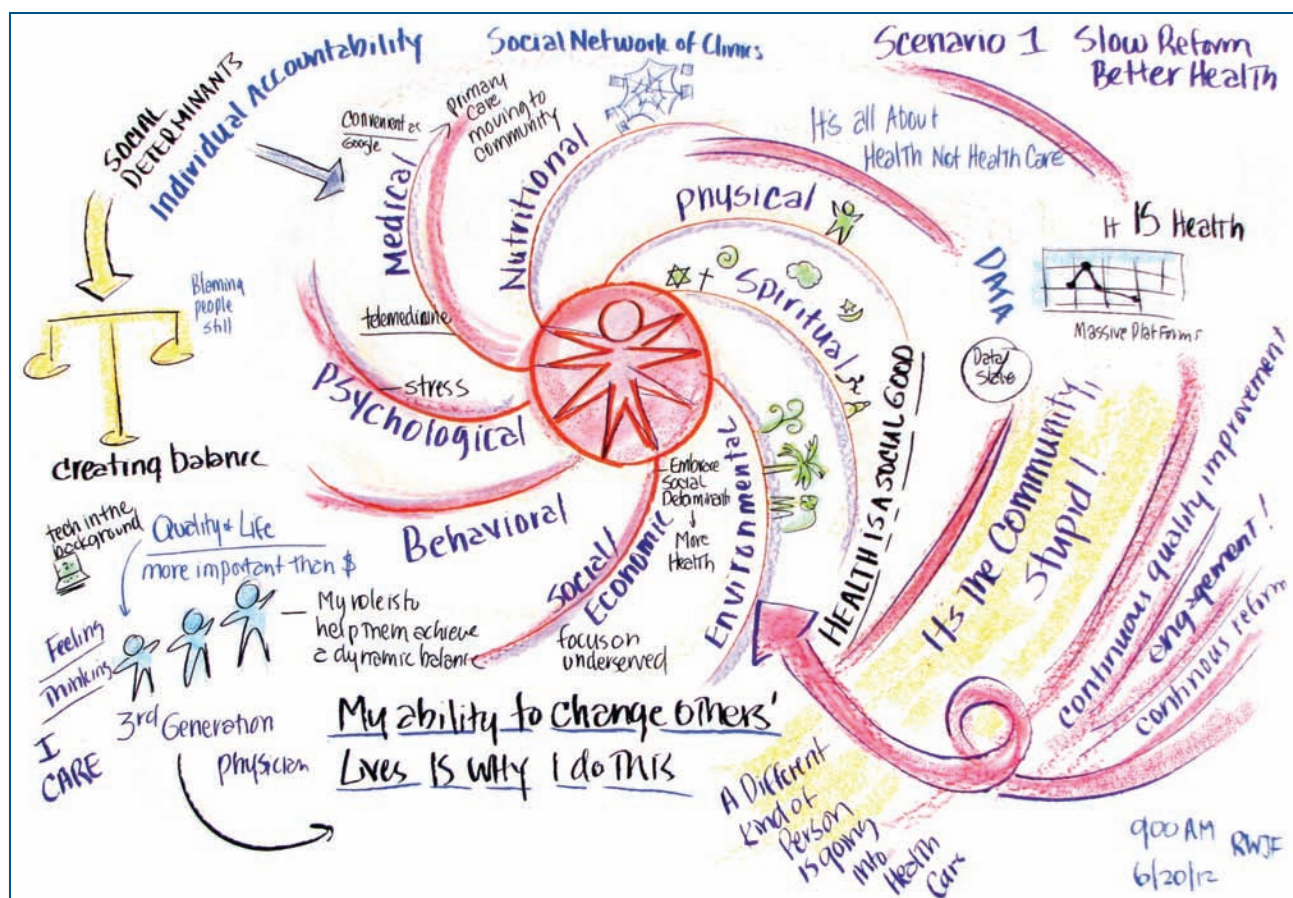
The 2020 campaign slogans, most prominently “It’s our health, stupid!”, revealed a growing realization that it was health – more than health care – that needed national attention. After almost a decade of rigorous comparative effectiveness research using electronic medical records, the 2020 election set the stage for priorities and reforms that placed a greater emphasis on integrated health systems and on the non-medical factors affecting the health of the population.

2020-2032

After 2020, the health gains from prevention became clearer; study after study showed that communities could succeed and flourish by developing environments that support health while reducing health care spending. With zettabytes¹ of data from personal health records and community health projects, researchers showed that increasing population health could reduce the costs of care. Encouraged by these findings, communities shifted their focus from federal and state initiatives to local efforts that exemplified “health in all policies” and created conditions for health at the community level. Strikingly, those communities that paid the most attention to social health and equity had better outcomes than similar communities that focused more narrowly on physical, nutritional, and medical health. The most successful community efforts addressed all of the health domains, including environmental, behavioral, psychological, and spiritual forms of wellbeing. ACOs partnered with these community efforts and drew from the experiences and shared learnings to continuously guide improvements in their own services and coordination.

By 2025, prevention had taken off. Fiscal pressures on the government and on employers led to new ways to contain cost by keeping people out of hospitals and away from doctors, which created a high-growth market for innovative

¹ A unit of information or computer storage equivalent to 10²¹ bytes, or 10¹² GB.



Mural depicting key themes for Scenario 1

companies launching products and services to improve health and avoid disease. People reflected on their risk behaviors and changed them with the help of personalized health informatics, games, and digital agents that drew on the clouds of health data surrounding individual patients. These clouds integrated data from new molecular diagnostics that identified biomarkers of pre-disease. Systems biology articulated how molecular disease processes affect different organs. Thus, health care and supporting technologies were able to target and motivate individuals to manage and in some cases reverse pre-disease conditions. The focus on health in communities further reinforced healthy behaviors that became specifically focused on indicators of molecular, cellular and organ-level health.

New treatments were also developed for expensive diseases like Alzheimer's and many cancers. An emerging science that used genomics, proteomics and metabolomics to identify the pathways that diseases take at the cellular and organ levels provided some fully decisive cures and a host of therapies to slow disease processes. This greatly reduced the anticipated burden of an aging population by delaying the onset and slowing the progression of chronic disease and enabling better treatment at lower cost. Digital technologies such as virtual models and simulations, social networks where patients share health data and advocate for new treatments and surveillance systems that continuously monitor treatment safety and efficacy enhanced this learning and accelerated the dissemination of innovations.

At the same time, a series of disruptive innovations created opportunities for health and health care outside the formal health care system. These included individual genome mapping for under \$100, biomonitoring devices that interfaced with smart phones and health records and natural language ontologies that helped consumers directly

access the best in medical knowledge. Digital health coaches integrated this knowledge and interpreted it for individuals. Most integrated systems were willing to pay for the value these technologies offered, and provided their own branded digital health coach to their members. Many consumers who were not in integrated systems paid out-of-pocket for these services, which they saw as quality-of-life enhancements. Although insurance companies continued to pool risk as they had done in the past, the growing personalized understanding of health raised public debates about personal responsibility and fairness. People asked if they really should have to pay more for insurance because of another person's health behavior choices, or because of their own genetic predispositions for diseases. The questions put new social pressure on people to take care of themselves.

As politics became less divisive in the 2020s, leaders at the state and national levels found common ground in the broader application of payment systems that incentivized the coordination of care through bundled payments linked to health outcomes. Tax exemption for health insurance was eliminated. Integrated health systems grew in their ability to transform care so it was safer and better coordinated. Providers had been receiving global payments from Medicare, Medicaid and employer-based insurance for each patient with exquisitely tuned risk adjustments based on data available on every individual in the plan. In the late 2020s, most plans shifted from actuarially-based insurance to budgets and payments personalized based on predictions of individual health outcomes.

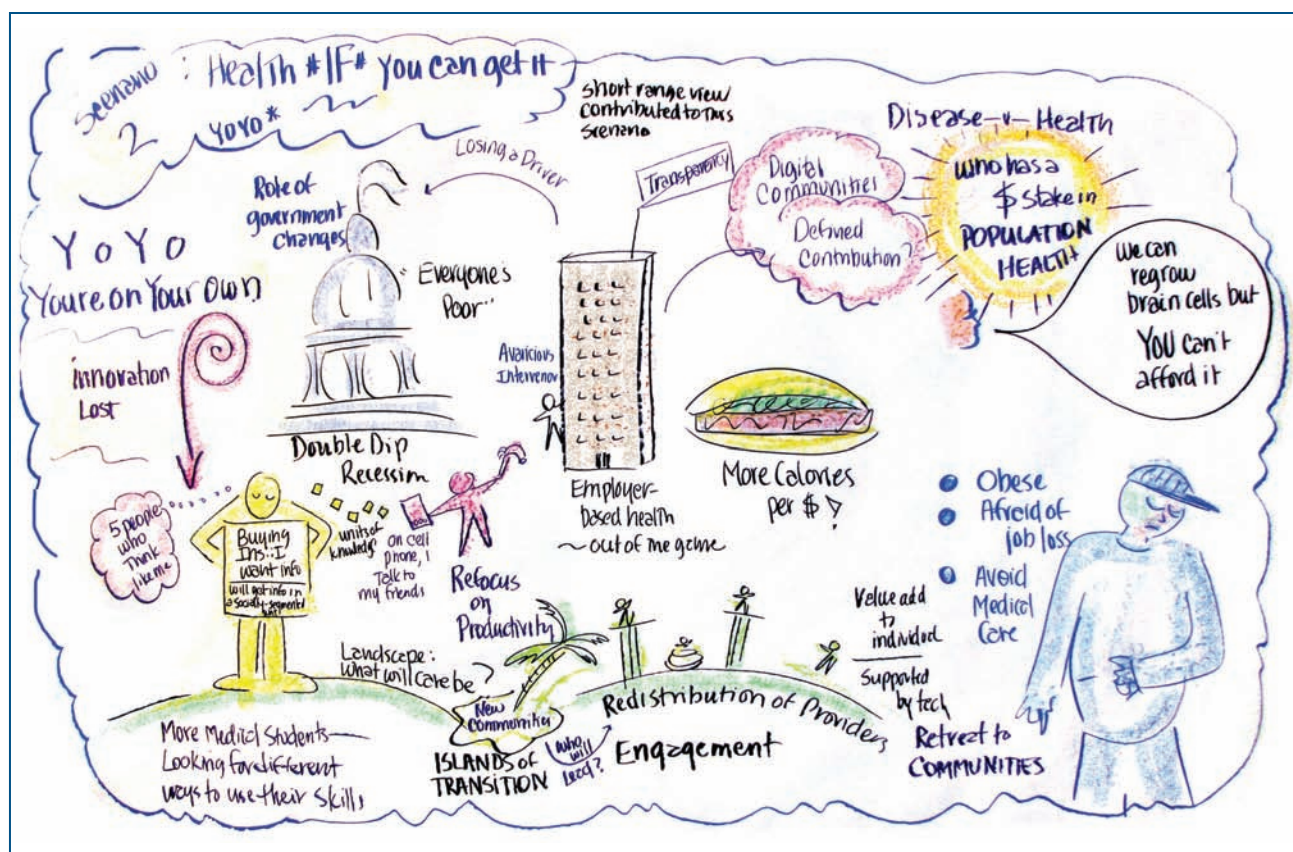
Looking back, the shift to a focus on the social determinants of health in the 2020s made the greatest difference for health. Politicians now find it popular to promote programs addressing factors like housing, employment, and community resilience, which demonstration projects had shown could significantly improve health and reduce the local cost of health care. Mayors love nothing better than to pose in photos of earlier “hotspots” of ill health that have become health exemplars. Public health officials often use an “adaptive trial” methodology to allocate new resources to interventions, and political leaders tout the results. Subpopulations that once took the lion's share of Medicare and Medicaid spending have begun receiving targeted services that prevent hospitalizations and thus reduce costs. The positive effect on government deficits has earned bipartisan support for these measures in 2032.

Scenario 2: Health If You Can Get It

Throughout the 2010s, the changes brought about by the Affordable Care Act did little to make health care better or to improve the health of the nation. The budget sequestration in late 2012 led to draconian cuts that paralyzed many government agencies, created business uncertainty and sparked a recession worse than what Europe was suffering. Unemployment peaked at 14 percent in 2014. Medicare was “modernized” in 2014 with vouchers for those turning 65 beginning in 2020 and with payment cuts that made it difficult for those already over 65 to find providers willing to accept them.

Society fragmented into demographic, ethnic and economic factions, each of which looked out for its own interests at the expense of the others. With an ever growing gulf between the “haves” and the “have-nots,” the affluent cared little about society's most vulnerable, the ranks of which expanded every year as unemployment bounced up and down around an average of 10 percent. In periods of economic growth, more than 95 percent of new wealth was captured by the richest five percent. In periods of economic decline, the poorest 50 percent experienced the greatest suffering.

Spiritual health eroded as hope turned to despair. The optimism for which Americans were once known became a pronounced pessimism over a political and economic system that no longer seemed to care about the poor and middle class. Social health declined terribly for families and communities, as the psychosocial burden of illness spread apathy, fed further economic malaise, and diminished Americans' desire to interact with one another. Psychological and behavioral health got worse as depression and substance abuse became ever more entangled problems feeding off each other. Economic downturns saw many people lose their jobs, homes and hopes and then start turning to junk foods, alcohol and drugs for relief. Heart disease, cancers and diabetes all became more prevalent, with incidence rates increasing for youth as well as for elders.



Mural depicting key themes of Scenario 2

The political consequences were pronounced: the center did not hold and elections oscillated between ideological extremes as policy battles raged over health care, energy, climate change, immigration, taxes and budgets. Each election cycle was more passionate and less reasoned than the last, and while each political party blamed the other, neither could govern effectively. Americans became increasingly alienated from a process that consistently produced divided governments in which the minority sabotaged any majority-led legislative effort, often using arcane rules and procedures. As a result, national politics were at best ineffective and at worst toxic, with major policy decisions increasingly made by the Supreme Court, often by narrow majorities.

In this political context, the national government was unable to address the crisis in health care. Federal entitlement programs had been enlarged with good intentions, but resources remained stagnant and forced agencies to limit – and in some cases even ignore – actions they were legally bound to carry out. State governments were similarly unable to address the crisis given their own fiscal constraints and the massive cuts to government services that they had already enacted. By 2020, 75 million Americans were uninsured, while the great majority of Americans were underinsured. Yet the cost of care continued to grow as hospital costs increased and the ability to constrain fees diminished outside the integrated systems used by the well-insured.

Among health care providers, the business ethic of profitability trumped long-standing medical ethics. Physicians drove their own revenues by ordering tests and procedures with little value for health, and many became co-owners of the hospitals and laboratories where these services were delivered as previous restrictions were overturned by

free market advocates. To tighten their stranglehold on the delivery of care, physicians organized through well-funded networks to have states sanction their competitors among complementary and alternative medicine (CAM) practitioners, nurse practitioners, retail clinics, online services and personal health avatars. States also had to fight against a growing “back alley” medical industry that provided care at highly variable levels of quality. Further, medical associations aggressively lobbied the Department of Health and Human Services to cut federal funding for community health centers, which as the “health care provider of last resort” had achieved high standards of quality and were taking more business from private practice physicians. Thus, it became harder for the poor to find good care and easier to be sold bad care.

While some U.S. consumers were able to discern good care from bad, many affluent consumers sought care overseas when they needed major medical procedures. India, Singapore, Mexico and several other countries built successful medical tourism industries to meet this need. This further challenged U.S. hospitals for some of their best-paying business. In addition, new diseases and bacteria – some of them antibiotic-resistant – emerged to find hospitable environments in the U.S. in the wake of global climate disruption. Infectious disease epidemics, including infections acquired in hospitals, spread even among those in “good” care systems while the toll on the uninsured was far worse.

The suffering experienced in low-income areas was immense and could be measured in terms of reduced life expectancy and declining health status. Poor and minority populations with the highest rates of obesity, diabetes, preventable cancers and drug-resistant infectious disease were generally blamed for their own ill health. Sensationalistic media and misleading measures of community risk had fed into an “us versus them” narrative that stigmatized the sick and thus further marginalized poor and minority populations. Some ethnic populations were scapegoated as having overburdened the health care system with their unhealthy cultural norms. If someone was sick, he or she was often better off hiding it to avoid further discrimination.

Of course, not all news in health and health care was bad. Remarkable advances in science offered new treatments that could decisively address many diseases. Targeted drugs based on a molecular understanding of disease pathways meant that many cancers and Alzheimer’s could be controlled. The revolution in molecular biology combined with an information infrastructure that supported increasingly personalized treatments using genomics, proteomics and microfluidic diagnostics to identify disease long before patients felt a symptom. Yet the high cost of these technologies kept markets small and allowed only those with means to receive the great benefits of 21st century science.

For the others, health care was limited to what could be obtained in the fee-for-service “minute clinics” run by large retail chains or from online services, many of which were offering free – and often substandard – treatment advice. Some providers still accepted Medicare and Medicaid vouchers, but cuts in these programs hastened retirement of those physicians who could retire. Those who refused the reduced payments from Medicare and Medicaid went out of business unless they had affluent patients or were affiliated with an organization that could help them get paid. With the worsening provider shortage, community health centers were inundated by individuals and families seeking high-quality, affordable care. Health care spending had dropped to 17 percent of GDP, but only because of cuts in Medicare and Medicaid payment levels and because many Americans had decided to forgo care or to find care overseas. Poorer Americans in particular were frequently forced to go without. By the mid-2020s, health for most Americans was measured not in terms of wellness but by the absence of debilitating disease, from which the poor had little real protection.

Despite the aggregate national decline in health, some successes could be found in so-called “transition communities” that explicitly strengthened community bonds and addressed social inequities. These communities, which proactively pursued alternatives to expensive oil-based energy, fostered initiatives to address the social

determinants of health, in particular through community agriculture and home food production, lower-cost and sustainable energy and housing and better but low-cost education, particularly for low-income people. These communities often thrived in areas beyond health, particularly as they emerged as hubs of innovation and economic dynamism.

By 2027, the stark difference in health status between rich and poor created a national outcry, fed by media personalities and by researchers whose clear evidence of the negative impact of past policies served as an indictment of many policymakers in the eyes of the public. The growing engagement of UN health agencies and global development NGOs in poor communities in the U.S., as well as the success of “bottom of the pyramid” innovations from the developing world, became a source of national shame. Responding to this outcry for basic fairness, the President demanded and the Congress passed legislation to create a single-payer health care system in 2028, with the mandate to lower cost and enhance quality so that all Americans will have access to basic care.

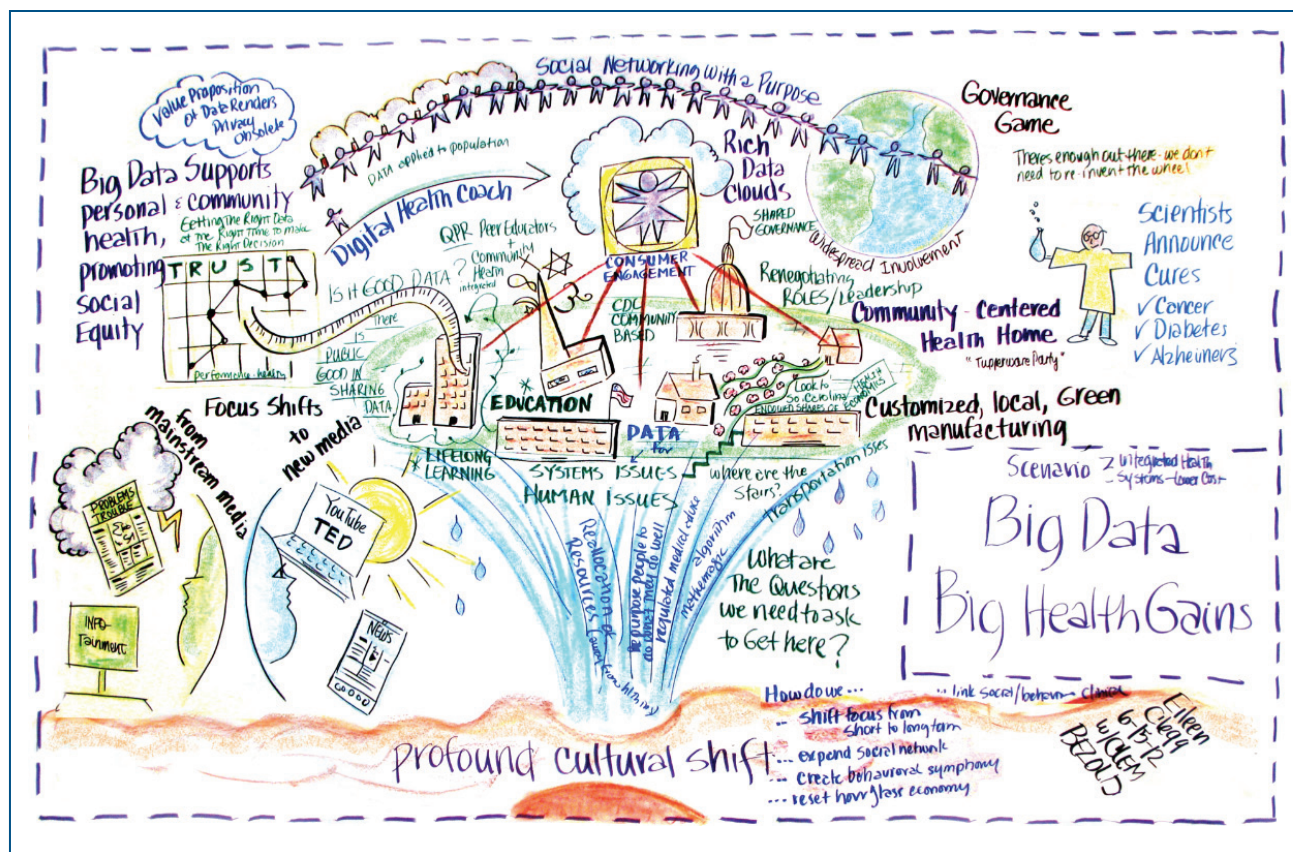
However, the legislation left it to the Centers for Medicare and Medicaid Services (CMS) to work out the details. Medical experts still struggle to sift through two decades’ worth of often biased comparative effectiveness research, while health economists try to envision a payment system that can rein in a highly disparate delivery system. A government task force has recommended new investments to salvage the billions misspent on the nation’s patchwork of computer-based medical records. Four years later, in 2032, many remain skeptical that the U.S. will ever be able to afford the level of disease it has created, and few believe that the long-awaited single-payer system will finally resolve the U.S. health care crisis.

Scenario 3: Big Data, Big Health Gains

While early 21st century politics roiled with the sound and fury of polarized Baby Boomers, deep below the surface a profound cultural shift was reshaping society by lifting a broader conception of health up to become a central concern of the nation. While the mainstream media focused public attention on the many divides (e.g., political, ideological, legal, and societal), deeper trends were uniting Americans in the face of major challenges. The remarkable changes that were to become central to the national identity were beginning to surface in the 2010s. However, up to 2020 most of the public attention was captivated by contentious arguments marked by denial, fear and a romanticizing of the country’s past.

Yet around the country, great programs were demonstrably improving health and health care even in the early 2010s. The Harlem Children’s Zone, for example, demonstrated that fundamentally caring about health meant addressing nutrition, housing and education. Cities all over the country followed the lead of Detroit, Milwaukee and Baltimore to tackle food deserts by promoting access to affordable healthy food, often grown locally. A growing number of communities used open-source tools such as CreativeCommons.org and the Urban Institute’s “Community Platform” to map social problems and identify effective solutions. The Convergence Partnership brought resources together in communities around the vision of “healthy people, healthy places.” As a result, people – especially poor people – in many neighborhoods, communities and cities began eating better and getting healthier. By 2015, programs germinating all over the country were showing that communities could tackle many of the great problems of the day.

People in 2032 find it hard to believe that in 2012 the mainstream media was able to shape the public discourse so that these stories of remarkable success barely made the news – that political competition overshadowed cooperation for the public good. However, people’s focus shifted in the 2010s to the new media, including social networking, YouTube and TED Talks, that helped turn public attention from bad news to good. While aging and shrinking audiences still tuned into the television networks, the majority of the population and virtually all of the nation’s youth began taking in a new reality. By 2015, new ideas from entertaining success stories began to be reflected in



Mural depicting key themes of Scenario 3

a variety of alternative conferences for the policy community that prompted government action to improve 21st century life.

The vitality visible online stood in stark contrast to the solutions put forth by the country's elected leaders, who often relied on the ignorance of the many and the wealth of the few to advance narrow, short-term objectives. The transparency afforded by the new technologies exposed the failings of established power structures and fueled a frustration with the political and economic status quo. As a result, in the elections of 2016 a majority of Americans recognized that competitive excesses had converted the political system into a win-lose venture that was inefficient at best. Power was controlled by a small number of people who had benefited from what many perceived as a "winner-take-all" economy. A series of stories about political manipulation of legislation for corporate gain galvanized the public to demand better representation. While some longtime politicians were able to see the parade and get in front of it, many others could not and were swept from office. In subsequent elections, voters rewarded candidates who articulated a vision of political cooperation, transparency and "anticipatory democracy" – a democracy where citizens and decision-makers are active, future-conscious partners who collectively shape the future of their community, state and nation.

Throughout the 2020s, innovative technologies spurred the growth of a new, decentralized manufacturing sector, which followed the agricultural sector in making customized, local and green production successful and economical.

What began as a “buy local” fringe movement grew into a reshaping of economics at the community level. These shifts destroyed some jobs while creating others, and reshaped whole industries around new value propositions and business models. By connecting to global networks, communities were able to access the capital they needed for transformative investments at the local level. By 2025, the recognition that communities implementing these changes were far healthier than others prompted a reorientation of entertainment and other services toward improving health. Education systems, which had been designed largely to create a productive workforce, now had an added mandate: to improve health from conception to death.

The success of these communities also highlighted the correlation between health and social equity, which was revealed by massive databases with sophisticated software analytics. As new knowledge came flooding from the consilience of the physical, life and social sciences, millions of people engaged with this knowledge through “social networking with a purpose,” opening up a new period of creativity and accelerating a societal mind change. While in earlier times such changes had taken decades, in the 2020s it only took a few years to galvanize a broad-based commitment to achieving a healthy, equitable society.

As cooperation displaced the divisive politics of the past, government agencies aggressively used online technologies to engage the public and enhance governance. In 2021, the White House conducted a 72-hour “governance game” in which more than 80 million Americans helped to identify the priorities that the new President should address in her first term. Many of the priorities built on historical antecedents from state and local anticipatory democracy programs going back to the 1970s. More recent or ongoing local healthy community efforts and broader initiatives like Healthy People 2020 and 2030 and the Millennium Development Goals raised even more interest in shaping a healthy future. Health arose as the top priority as massively multiplayer online game dialogues highlighted the role of health as an input to fiscal stability, national security and economic vitality. Many game participants volunteered to go to work right away on these priorities in their own towns and cities. In doing so, they were able to draw upon “big data” applications that aggregated data from national, community and individual health records.

At the level of the individual, “big data” facilitated health improvement by applying massive computational utilities and the profound knowledge of systems biology to rich data clouds around each person. The billions of bits in each cloud came from inexpensive microfluidic devices enabling nearly continuous testing of blood for circulating proteins with biomonitoring devices that could interface with personal simulations to predict future wellbeing. These simulations were fed by whole genome sequencing – the cost of which had dropped below \$100 by 2020. Exploration of this data led to an explosion in the understanding of genotype/phenotype relationships and of epigenetic factors, allowing the generation of personalized therapies to prevent chronic disease or at least to slow its progression. Recognition that the so-called “silent” regions of DNA were part of the complex control mechanisms during human development led to earlier interventions in developmental and certain neurodegenerative disorders, including Parkinson’s and Multiple Sclerosis. By collecting a person’s genetic code, zip code and everything in between, these systems offered the capacity to predict when people were likely to get a major disease and to die, what level of health status they could achieve along the way and what achieving this health status would require. Thus the individual “big data” clouds could be aggregated into community health status reports with indices to compare individuals and communities across the country.

Personal avatars (digital health coaches) helped people recognize and leverage the extent to which their health was shaped by social, psychological, and behavioral factors. This reduced the reliance on heroic medical procedures and pointed to many new opportunities to improve health and wellbeing. Clinical testing could commonly be conducted on computers or via in silico simulations. Thus, clinical trials on actual patients were primarily used to confirm what had already been observed in the simulations, which markedly reduced the time and cost for developing new drugs and therapies. Patients played an assertive role in stimulating and using these innovations. What had started decades before on sites like PatientsLikeMe.com had by 2032 become large-scale public engagement with what

had previously been elite scientific domains and the esoteric knowledge of the few. For example, SNPsLikeMe.org became one of the most popular social networks, allowing people to organize around similar genetic profiles.

Most cancers were effectively preempted and managed by 2030. In 2026, the world cheered when a consortium of businesses, NGOs and government scientists announced a cure for Alzheimer's. People whose physical disabilities once placed them in care homes could be seen walking along the streets of America because of the widespread availability of robotic walking aids. Former Type I and II diabetics now faced happier and longer lives due to the ability to grow and transplant pancreatic islet cells from pluripotent stem cells.

These advances prompted a somewhat paradoxical transformation of health care delivery during the 2020s. In 2018, a tax had been placed on all medical care expenditures to support public health. Governments recognized that expenditures in other policy areas led to more health gains than expenditures on health care. The tax on health care enables public health to play its health protection, inspection and health advocacy roles. Health care adjusted its focus as primary care evolved from the Patient-Centered Medical Home (PCMH) to the Community-Centered Health Home (CCHH). These homes deploy broader primary care teams that coordinate care for the individual, while also analyzing community conditions and health patterns and working with the communities to improve them. Healthier communities, more effective personal health care and more sophisticated self-care decreased the demand for physician services and hospital care. The continuous pursuit of the Triple Aim (better care, lower per-capita cost and improved population health) by health care providers, as well as effective cost reductions by large payers (and in many states single-payers), led to a reduction in health care spending to 15 percent of GDP by 2032.

In the eyes of many, the revolutionary transformation in both health and health care in the decades leading to 2032 was inevitable given the rapid diffusion of knowledge to an engaged population with a deeply held aspiration to be healthy. In 2032, most Americans feel a shared responsibility for the health of all and participate in the formulation of health policy and in the expansion of health knowledge.

Scenario 4: A Culture of Health

In 2032, most Americans know what only a few knew before – that the human being is a profoundly resilient organism with an innate drive for healthy growth. While familiar to the fields of psychology and spirituality, this knowledge initially encountered resistance from those focused solely on the biological mechanisms of disease. However, systems biology evolved into a health ecology that encompassed all the domains of health, and leaders across all domains of health care learned to unleash the innate human health potential by creating environments for health using a blend of federal, state, local and private resources and methods. As people live, play, work and pray in these environments, the benefits extend far beyond what was once considered health. In 2032, these benefits are rigorously measured and publicized, and individuals and communities that achieve the greatest health gains are lifted up as health exemplars and cultural icons. These people and places are more innovative, creative and economically vibrant than most, and they fascinate the public.

Many attribute the emergence of this “health culture” in large part to the existential crisis of a huge Baby Boomer generation facing retirement and death, a crisis that began in earnest in 2012. This seemingly personal crisis played out in society, politics and culture. For example, when a reality TV program launched in 2015 following patients through hospice care, it captivated old and young viewers alike and prompted a public conversation about what a “good death” looks like. This conversation was furthered by news accounts of public figures refusing heroic care at the end of life and by the public reflections of celebrities dealing with terminal illness.

As they contemplated the legacy they would leave behind, many elders shifted their attention to the nation's youth. It was becoming increasingly obvious that young people faced significant challenges in education, employment and health. Economic stagnation was depriving many young people of both the economic and psychological



Mural depicting key themes of Scenario 4

adolescents – especially with regard to violence (from parents or peers), suicide, and sexuality – into topics of public discourse. Further, a steady drumbeat of stories about teens too obese to join the military, over-medicated children underperforming in school and children living in poverty confirmed many Americans’ view that the country was failing its youth. The consequences were increasingly evident on the streets, as in a 2013 student debt protest in Los Angeles that left three college students dead.

This focus on youth helped many Americans overcome the denial that had characterized the major policy debates of the last two decades. In the budget debate, transparent measures of health clearly demonstrated that Medicare and Medicaid expenditures near the end of life came at the expense of investments made to ensure that children, adolescents and young families could flourish throughout life. People connected the dots between projections for a bankrupt Medicare Trust Fund and the growing number of bankrupt families. Health care had become too expensive. A Medicare reform enacted in 2017 capped annual spending, used local councils to set limits on health care spending and led to a nationwide squeeze on any health care services that could not show a high rate of health return on dollars spent. This resulted in a sharp decline in treatments other than palliative care near the end of life, and in 2032 most elders choose to die in their homes.

The demand for invasive and complex medical interventions declined for younger people as well because many Americans came to see their bodies as resilient and strong. People wanted to let their bodies heal themselves whenever possible, without invasive medical or pharmaceutical interventions. Healing became a popular topic in books, blogs and talk shows. Throughout the 2020s, many more people came to prefer complementary and

alternative medicine (CAM) practices that viewed the human body in this way. For many conditions, CAM practices were shown to achieve better health outcomes than conventional Western medicine, particularly when the patient's experience was taken into account. This approach to the human body, which was consistent with traditional medicine in Asia, gained more momentum given the growing number of U.S. health care providers who had been raised in Asian cultures.

Comparative effectiveness studies from the 2010s demonstrated the high health returns of prevention and primary care. Many patients used a low-cost Primary Care Direct network where patients paid a relatively low monthly fee (e.g., \$50) for all the primary care they needed. These patients often relied on catastrophic coverage for more serious conditions. Many old routines were abandoned. For example, in-office physicals became less frequent as research showed that they were less effective in promoting healthy behaviors and often wasted money on tests, procedures and fees. Further, the growing use of health avatars or digital health coaches obviated the need for a physician visit to deal with minor ailments that patients could treat on their own.

Because the world's medical knowledge was readily available with the computational power to collect, measure, analyze and simulate personal biological and social information, health and wellness became transparent. Most people knew their health status and prospects as well as those of their close friends and family, and people talk about health issues in a way that would have been unimaginable in earlier times. When facing an illness that needed specialized care, people could go to the regional "centers of excellence," but fewer took that option than once had because it had become culturally more acceptable to avoid invasive procedures and to use the softer approaches that had been popularized through different spiritual traditions. The drive for wealth in society was supplanted by a drive for health. In most communities, consumers demanded that health care providers focus less on treatment and more on health education.

While these changes in the health care system were important, community leaders recognized that health care was a relatively small part of the health equation. They also knew that they needed to leverage the positive emotions of joy, love, faith and awe across all the domains of health in order to create the conditions in which the young are loved and the old are cherished. These leaders worked to shape the public conversation around key issues of health, wellness and quality of life. To improve the emotional wellbeing of children, national leaders brought to scale several initiatives that had been demonstrated at the community level, including parenting classes for young parents in poor communities, arts programs for at-risk children and the introduction of meditation into classrooms. Grandparenting clubs provided community services like "walking school buses," mentorship programs for young parents and early learning programs for preschoolers. These efforts were bolstered by the Head Start Redesign and Renewal Act of 2019, which significantly increased the resources allocated to early child development. Extensive use of video in the early life of children helped document the importance of attachment for infants and the destructive effects of violence. Public support for improved parenting led both to a 2022 legislative ban on corporal punishment and to the expansion of programs that matched adult volunteers with infants and children in need of parental supports.

New curricula and teaching methods also brought integrated knowledge technologies into the learning experience of all generations, leveraging the remarkable findings from neuroscience on how learning and healing occur in the brain. The biological revolution that began in 2000 with the mapping of the human genome reached a new peak in 2025 with the articulation of the Unified Biological Systems Theory, which explained how biological systems develop and evolve toward higher levels of consciousness. The theory tied together many of the scientific advances that help identify and forecast health status for individuals, communities and the species. Evolutionary processes once understood in relation to genes and species were recognized as operating at all scales from the ecosystem of molecular life forms to the dynamics of human cultures.

The new theories fueled significant advances in understanding the changing domain of social health. Many Americans began using social networking tools that allowed them to “crowd-source” their own health care by sharing health data with trusted friends who could alert them of issues that might warrant more attention. The website “100goodyears.org” enabled people to create and share personalized behavioral strategies to optimize their own health and longevity. Innovative public health initiatives placed “health mavens” within social networks in order to provide other members with mentorship on healthy behaviors. The widespread use of video and face-reading technologies allowed emotional wellbeing to be measured at any moment and over time. The use of these technologies in social media sparked public awareness that the wealthy can only be healthy when they care about the poor.

The Negative Income Tax passed in 2025 to assure that a level of security was available to all Americans. In many communities, new methods of social and economic interaction also emerged to improve social health. As a result, community resilience and self-sufficiency are far stronger than in past times. For example, time-banks offer neighbors a platform for bartering their time and services, collaborative consumption schemes allow people access to the assets they need without having to buy their own and peer-to-peer renting helps people earn income from the assets they already own. Micro-cash payments provide monetary compensation for minor contributions to a larger effort. These new platforms for interaction fostered communities in which all residents were accorded respect and meaning for the contribution they made.

These communities raised the standard for behavioral health, since residents no longer tolerated the promotion of unhealthy behaviors that create economic and health burdens for everyone. Policies in the early 2020s severely curtailed violence, smoking and alcohol abuse. These problems were effectively treated with a variety of innovative approaches that leveraged new learning in neuroscience and behavioral psychology. More significantly, new learning in behavioral health offered opportunities to promote behavior change by altering the conditions in which choice occurs. For example, so-called “food deserts” were eradicated and agricultural subsidies for sugar and other less healthy foods were replaced with a healthy food policy that encouraged the production of foods shown to promote health. Over time, these initiatives created environments where the easy choice is the healthy choice. One indicator of these changes is obesity. After two decades of steady increase ending up with one-third of Americans being obese in 2010, the rate fell through the 2010s and 2020s, and by 2032 fewer than 5 percent of Americans are obese. Diabetes rates also declined, and for those who have diabetes it is much better controlled.

Environmental health also improved through the reduction of major toxins and pollutants. Inexpensive environmental monitoring devices were installed throughout many communities, and built into many mobile technologies. These devices can be set to provide continuous “geo-tagged” health and environmental data to social networks and online mapping platforms that use new analytics to identify local factors impeding health and to point public health officials toward innovative solutions. Much of this data is automatically transferred to patients’ electronic health records, with the resulting data cloud serving as an interactive space for patients, health care providers, public health officials and health avatar designers. Over time, the crowd-sourcing of environmental monitoring created greater transparency around industry practices, leading many corporations to accelerate their adoption of sustainable technologies.

Improvements across all the domains of health have reduced health care spending (as traditionally defined) to 14 percent of GDP. As actuarially-based health insurance plans folded in the mid-2020s, governments created individual global lifetime health spending accounts that are sensitive to genomic variation and to the social determinants of health, and that incentivize consumers to try to “beat the odds.” People can get professional care from a variety of integrated delivery systems, including highly effective community health centers. However, the most important care is self-care supported by families, neighborhoods and networked health avatars that make health knowledge available to all.

Scenario Matrix

This matrix allows for side-by-side comparison of the scenarios across multiple dimensions, as well as exploration of each scenario by reviewing one column at a time.

Health and Health Care in 2032

	Scenario 1: Slow Reform, Better Health	Scenario 2: Health If You Can Get It	Scenario 3: Big Data, Big Health Gains	Scenario 4: A Culture of Health
<i>Key Aspects of the Scenario</i>				
Health	<ul style="list-style-type: none"> ▪ Slow shift in focus from health care to health as prevention takes hold 	<ul style="list-style-type: none"> ▪ Health defined as the absence of debilitating illness 	<ul style="list-style-type: none"> ▪ Focus on prevention and the social determinants yields dramatic health improvements 	<ul style="list-style-type: none"> ▪ A “health culture” reconceptualizes the human being as a resilient organism with an inherent drive for healthy growth
Health Care	<ul style="list-style-type: none"> ▪ More integrated delivery with capitated payments ▪ New treatments for Alzheimer’s, cancers and other diseases ▪ Great state-by-state variation in approaches and outcomes 	<ul style="list-style-type: none"> ▪ Sophisticated innovations for the affluent and well-insured; retail clinics, online advice, and “back alley” medicine for the rest ▪ Late 2020s public outcry for basic fairness leads to creation of single-payer system 	<ul style="list-style-type: none"> ▪ Personalized preventive health care supported by data clouds for individuals and communities ▪ Prevention, cost-effective medical interventions reduce disease and demand for medical procedures 	<ul style="list-style-type: none"> ▪ Expanded use of social networks to “crowd-source” one’s own health ▪ Medical treatments and preventive care informed by a Unified Biological Systems Theory

Macro Environment in 2032

Scenario 1: Slow Reform, Better Health	Scenario 2: Health If You Can Get It	Scenario 3: Big Data, Big Health Gains	Scenario 4: A Culture of Health
<i>U.S. Economy</i>			
<ul style="list-style-type: none"> ■ Slow growth with two “normal” recessions between 2012 and 2032 ■ Unemployment averages 8% ■ Growing divide between wealthiest and poorest 	<ul style="list-style-type: none"> ■ “Lost decade” of 2010s followed by major recession in 2022 ■ Unemployment averages 10% ■ Stark divide between “haves” and “have-nots” 	<ul style="list-style-type: none"> ■ Decentralized manufacturing and a growing “buy local” movement reshape community economics ■ High formal unemployment offset by new means of informal economic interaction ■ Entertainment and education reoriented toward improving health 	<ul style="list-style-type: none"> ■ Support for business models that promote healthy development ■ Gross National Happiness measure supplements GNP ■ Formal unemployment averages 10%, but new economic models improve social health, community resilience and self-sufficiency
<ul style="list-style-type: none"> ■ More integrated delivery with capitated payments ■ New treatments for Alzheimer’s, cancers and other diseases ■ Great state-by-state variation in approaches and outcomes 	<ul style="list-style-type: none"> ■ Sophisticated innovations for the affluent and well-insured; retail clinics, online advice, and “back alley” medicine for the rest ■ Late 2020s public outcry for basic fairness leads to creation of single-payer system 	<ul style="list-style-type: none"> ■ Personalized preventive health care supported by data clouds for individuals and communities ■ Prevention, cost-effective medical interventions reduce disease and demand for medical procedures 	<ul style="list-style-type: none"> ■ Expanded use of social networks to “crowd-source” one’s own health ■ Medical treatments and preventive care informed by a Unified Biological Systems Theory

Macro Environment in 2032 (continued)

Scenario 1: Slow Reform, Better Health	Scenario 2: Health If You Can Get It	Scenario 3: Big Data, Big Health Gains	Scenario 4: A Culture of Health
<i>Society and Culture</i>			
<ul style="list-style-type: none"> ▪ Society grows older and more diverse ▪ Younger generations drive increase in civic engagement ▪ Growth in social networking and online entertainment; increase in social memes that “go viral” 	<ul style="list-style-type: none"> ▪ Society fragments into demographic, ethnic and economic groups ▪ Business ethic of profitability trumps other forms of ethics ▪ Some local successes in strengthening community bonds and promoting social equity 	<ul style="list-style-type: none"> ▪ Attention shifts from national divisiveness to community-level successes ▪ Social determinants of health widely recognized as key to health and fairness ▪ “Social networking with a purpose” fosters creativity and societal mind change 	<ul style="list-style-type: none"> ▪ Leaders create environments to unleash human potential for health and flourishing ▪ Healthy individuals and communities become cultural icons ▪ Baby Boomers confront mortality by improving conditions for youth ▪ Crowd-sourced monitoring of social and environmental conditions
<i>Government</i>			
<ul style="list-style-type: none"> ▪ State and local governments are slightly more effective ▪ Politics less divisive in 2020s ▪ Deficits paid down slowly, but fiscal pressures continue to require higher taxes and periodic budget cuts, particularly at state and local levels 	<ul style="list-style-type: none"> ▪ Americans increasingly disillusioned by ineffectiveness of government at all levels ▪ Corporate interests drive policy ▪ Major policy decisions increasingly made by Supreme Court ▪ Public outcry in late 2020s prompts concerted government action to improve fairness ▪ Interest payments on national debt slow growth in good times 	<ul style="list-style-type: none"> ▪ An engaged public increasingly demands bipartisanship, transparency and anticipatory democracy ▪ Online “governance games” involve public in priority-setting ▪ “Health in all policies” adopted at all levels of government ▪ National debt reduced by increased revenue for economically dynamic communities 	<ul style="list-style-type: none"> ▪ Wise leaders engage citizens and volunteers in creating health-supporting environments ▪ Local councils take on responsibility for setting limits on health spending ▪ Deficits reduced as funding shifts from entitlements for seniors to investments in national health and prosperity

Health in 2032

Scenario 1: Slow Reform, Better Health	Scenario 2: Health If You Can Get It	Scenario 3: Big Data, Big Health Gains	Scenario 4: A Culture of Health
Definition of Health			
<ul style="list-style-type: none"> Health refers to the absence of physical and mental illness 	<ul style="list-style-type: none"> Health refers to the absence of debilitating disease 	<ul style="list-style-type: none"> Health refers to the shared responsibility for physical, psychological, emotional and social wellbeing 	<ul style="list-style-type: none"> Health refers to the flourishing of the human being as a resilient organism in an ecosystem of love, joy, faith and awe
Health Threats			
<ul style="list-style-type: none"> Increasing incidence of chronic disease due to aging demographics and a high rate of obesity, and persistent poverty Social inequities generate more morbidity and greater health disparities 	<ul style="list-style-type: none"> Increase in depression, substance abuse, chronic disease and morbidity Major outbreaks of infectious disease, often antibiotic-resistant Growing psychosocial burden of ill health 	<ul style="list-style-type: none"> Healthy aging slows morbidity Focus on the social determinants of health leads to reductions in obesity, chronic disease and violence 	<ul style="list-style-type: none"> Chronic disease rates fall as the obesity rate declines to 5% by 2032 Improved social health promotes individual and community resilience and supports natural healing processes
Medical Advances			
<ul style="list-style-type: none"> Ability to detect pre-disease Increasingly personalized treatments Treatments to slow many cancers, heart disease and Alzheimer's 	<ul style="list-style-type: none"> Targeted drugs for Alzheimer's and many cancers Sophisticated personalized health management using genomics, proteomics and microfluidic diagnostics Medical advances only available to the wealthy 	<ul style="list-style-type: none"> Effective preemption or management of chronic diseases, cancers, and developmental and neurodegenerative disorders Ability to predict when people are likely to get sick and die, and how to optimize health along the way Ability to transplant from stem cells 	<ul style="list-style-type: none"> Advances in genomics, nanotechnology and biomonitoring improve cost-effectiveness Better understanding of a "healthy death" Improved self-care through social networking and sophisticated knowledge technologies

Health Care in 2032

Scenario 1: Slow Reform, Better Health	Scenario 2: Health If You Can Get It	Scenario 3: Big Data, Big Health Gains	Scenario 4: A Culture of Health
Health Care Delivery			
<ul style="list-style-type: none"> ▪ A mix of small group and some solo providers, community health centers, retail clinics, and integrated systems ▪ 50% of providers are linked to health data clouds around their patients ▪ Greater provider emphasis on social determinants of health ▪ Widespread use of digital health coaches 	<ul style="list-style-type: none"> ▪ Advanced medical care for the affluent ▪ Some integrated systems for the well-insured ▪ Widespread provider shortages following cuts in reimbursement ▪ Most rely on community health centers, retail clinics, online services and “back alley” medicine with variable quality ▪ Medical tourism increases 	<ul style="list-style-type: none"> ▪ Nearly all care provided through integrated health systems that leverage the data cloud around each individual ▪ Community-Centered Health Homes actively address the social determinants of health in their communities ▪ Widespread use of digital health coaches and biomonitoring 	<ul style="list-style-type: none"> ▪ Greater reliance on natural healing processes, supported by a wide range of health care modalities ▪ Extensive self-care supported by families, neighborhoods, and networked health avatars ▪ Integrated systems, often community-directed, leverage virtual technologies to improve health at reduced cost ▪ Specialized care available at regional “centers of excellence”
Health Insurance Coverage (50.7 Million were uninsured in 2011)			
<ul style="list-style-type: none"> ▪ 32 million uninsured people gain health insurance coverage by 2020 ▪ Tax exemption for health care coverage eliminated ▪ Personalized lifetime care budgets replace actuarially-based insurance 	<ul style="list-style-type: none"> ▪ Medicare converted to vouchers in 2014 for those turning 65 in 2020 or later; payment cuts for those already 65 ▪ In 2028, 75 million Americans are uninsured and most of the rest are underinsured ▪ Single-payer system created in 2028 	<ul style="list-style-type: none"> ▪ Nearly all Americans are covered ▪ 10 million voluntarily uninsured ▪ 2018 tax on all medical care expenditures used to support public health efforts 	<ul style="list-style-type: none"> ▪ All covered through community-directed health funds or through Primary Care Direct networks with catastrophic care insurance ▪ Incentives for individuals, families and communities to “beat the odds” for their expected health and longevity

Health Care in 2032 (continued)

Scenario 1: Slow Reform, Better Health	Scenario 2: Health If You Can Get It	Scenario 3: Big Data, Big Health Gains	Scenario 4: A Culture of Health
Health Information Technology			
<ul style="list-style-type: none"> ■ Biomonitoring devices linked to ubiquitous, interoperable electronic health records ■ Personalized digital health coaches, health games, models and simulations ■ Periodic privacy violations and service disruptions ■ Social networks where patients share health data and advocate for new treatments 	<ul style="list-style-type: none"> ■ Sophisticated, personalized health knowledge technologies for the affluent ■ For the rest, a patchwork of computer-based medical records with recurring privacy and security problems ■ Advertisement-supported digital health coaches with varied quality and scientific basis 	<ul style="list-style-type: none"> ■ “Big data” applications drawing on national, community and individual data ■ Health records provide collaborative space for patients, health care providers, public health officials and avatar designers ■ Widespread use of personal biomonitoring, social networking, and video to monitor health in all domains ■ Highly effective personal health avatars 	<ul style="list-style-type: none"> ■ Health avatars support behavior change and promote natural healing processes ■ Sophisticated models to predict disease onset and death ■ “Crowd-sourcing” of health through social networks with geo-tagged health and environmental data
National Health Care Spending in 2032 as Percentage of GDP 2011: 18.2% of GDP, or \$2.72 trillion			
<ul style="list-style-type: none"> ■ 20% 	<ul style="list-style-type: none"> ■ 17% 	<ul style="list-style-type: none"> ■ 15% 	<ul style="list-style-type: none"> ■ 14% (using traditional definition of health care spending)

Section II:

Areas of Opportunity and Recommendations to the Nation

RWJF Symposium on the Future of Health and Health Care

As noted earlier, the scenarios in *Section I* were used at a national symposium of thought leaders in health care delivery, government, academia and industry. Participants worked through a series of small-group and full-group exercises to explore the scenarios' implications, to identify other events that would be consistent with the scenarios and to identify areas of opportunity to create a visionary future for health and health care in the U.S. This section presents their discussions and outputs.

Scenario Discussion

Scenario 1: Slow Reform, Better Health

With this scenario, participants were asked to explore the “zone of conventional expectation.” Thus, it is perhaps not surprising that participants anticipated a mix of potential future events – some positive, some negative. On the one hand, they foresaw prevention incentives in virtually all workplaces, a 100% subsidy of medical education², an expansion of primary care using online and mobile tools and an expanded lay health workforce (no longer referred to as “non-traditional”) working to affect the social determinants of health in underserved communities. On the other, they foresaw new privacy laws that would restrict the use of personal health data, a health care system that consumed 20% of GDP, a large number of uninsured having to seek care in other countries and persistent disparities in the social determinants of health in many communities.

While Scenario 1 describes incremental change, participants wondered if we might actually be approaching a “tipping point” that will move the country on to a new trajectory. For example, participants noted that if the government does not start providing good governance, there is a genuine possibility of riots and social unrest. A sudden event such as an energy crisis with significantly higher fuel prices or a pandemic could also cause a tipping point. Participants could identify technologies that would likely become even more important after a tipping point, such as information platforms that empower consumers and incentivize healthy behavior. Participants agreed with the forecasts in this scenario that the inability of the Affordable Care Act to drive down health care costs would lead to a second round of health care reform with a focus on preventing disease in the first place.

Even with a tipping point, many participants did not see in this scenario the significant value shift around health that was visible in some of the other scenarios. For this reason, participants agreed that it would be important for advocates of better health to frame their arguments in terms of how the health-promoting strategies under consideration will make other stakeholder groups better off. For example, in the public transportation community, “ridership” is typically the key metric of the transit system; the health benefits and equity implications of an affordable, effective and efficient public transit system receive less attention. Other relevant stakeholder groups will have their own priorities in terms of which efforts to improve health should be framed.

² Participants anticipated that this subsidy would reduce the incentive for young doctors to go into more highly remunerated specialties in order to repay their medical school debts.

Participants noted that even in this scenario, some of the issues that became most salient in the other scenarios were already evident. For example, in Scenario 1 there is a need to introduce new skill sets within the health care provider community. As new data sets come online, new roles will be required to manage these data sets, to interpret personal data in terms of opportunities for health impact and to mobilize a community to effect culture change. Similarly, participants noted the importance of state legislation that would allow all health care providers to work at the full scope of their training. In this scenario, the expansion of traditional and non-traditional provider services would represent a commitment to enhancing care delivery to those who need it and to encouraging healthy behaviors for all, a prescription for keeping costs under control.

Box 1. Scenario Likelihood and Preferability

After presenting the scenarios at the symposium, IAF asked participants to rate each scenario, on a scale from 1-100%, in terms of its likelihood (the probability that it will actually occur) and preferability (the extent to which they would like it to occur). The results of this survey are shown in **Table 1** below.

Table 1. Participants' ratings of the likelihood and preferability of the four scenarios

	Likelihood (%)	Preferability (%)
Scenario 1: Slow Reform, Better Health	63	43
Scenario 2: Health If You Can Get It	43	12
Scenario 3: Big Data, Big Health Gains	44	67
Scenario 4: A Culture of Health	29	84

Scenario 1 was viewed as the most likely, which makes sense given that it was intended to be within the “zone of conventional expectation.” Scenarios 2 and 3 were viewed as relatively less likely, with Scenario 4 considered the least likely. When participants rated the scenarios on preferability, however, the tables turned. Scenario 1 was not viewed as particularly preferable. Nor was Scenario 2, although it is interesting to note that participants did attribute some preferability to this scenario, even though it described a grim and dire future within the “zone of growing desperation.” The attribution of some preferability to desperate futures is a consistent finding in IAF’s scenario work, and indicates a recognition many people have (and express, when asked) that a society often needs to hit “rock bottom” before it can begin in earnest to build a better future. The highest preferability ratings went to Scenario 3 and – even more so – Scenario 4, as would be expected since these scenarios are in the “zone of high aspiration.” The mismatch between the participants’ ratings of likelihood and preferability suggests that there is much work to be done to create a preferred future for health and health care in the U.S.

Scenario 2: Health If You Can Get It

Participants saw this scenario as particularly challenging, and anticipated that it would be characterized by increased fear and skepticism. Potential events they identified for this scenario included the 2021 bankruptcy of the Medicare Trust Fund, widespread dropping of employer-based insurance and the drying up of scientific commitment to research and development. Participants also foresaw outbreaks of diseases like measles and infectious diseases previously common only in the developing world, as well as the 2017 repeal of the Emergency Medical Treatment and Active Labor Act, the law that requires emergency rooms to admit patients whether or not they have insurance. For society in general, they saw a “new normal” of unemployment above 10%, record crime rates in 2020 and fragmentation into “tribes” defined by common social circumstances, most of which face a difficult struggle to survive.

But participants did not view Scenario 2 as all bad, noting that the cascading crises it contains may provide fertile ground for positive change. Thus, the scenario allowed participants to come up with wonderful opportunities, which are important to consider since many felt this scenario was more “expectable” than one would like to believe. Within the health care delivery system, participants foresaw state laws liberalizing the licensing of health care providers, particularly with respect to the increased adoption of telemedicine. They also saw Americans turning to one another, to overseas health care providers, and to an expanding direct primary care network as alternatives to large, expensive hospital systems, of which there are only three or four in the U.S. by 2020. Throughout society, they foresaw younger generations rejecting the divisive party politics that had exacerbated many of the crises, and they anticipated a trend of communities redefining themselves, realizing that they can be much more resilient than they had thought.

This inclination to look at one another as resources led to a major realignment in the crises’ aftermath. In particular, participants anticipated a “pay it forward” movement in which Boomers commit themselves to the health of future generations as their generational gift, as well as an expanding definition of health that suggested new opportunities to create it. The crises of this scenario were in many ways resolved by a real culture change, coupled with disruptive innovation that – while present in Scenario 1 – would be even more significant in the later years of Scenario 2.

Participants acknowledged that the type of societal meltdown included in Scenario 2 does not always have positive results, or if it does, the positive results may follow much more negative immediate consequences. But participants working on this scenario assumed that people would remain human in the best sense of the word, and that they would want to be part of something positive. But participants recognized that this attitude would not be unanimous and that some may respond to the health challenges in profoundly negative ways, such as by blaming new disease outbreaks on the populations that serve as vectors for those diseases, including immigrants and the poor. Participants acknowledged that there is plenty to fear in Scenario 2, but that with a focus on the opportunities, they were able to find some light among the darkness.

Scenario 3: Big Data, Big Health Gains

Participants found much to like in Scenario 3, which is in the “zone of high aspiration.” In addition to the events described in the original scenario, they foresaw widespread acceptance of the WHO’s Health For All vision, a 2016 HIPAA redefinition in support of a major national data aggregation project, the 2017 deregulation of mathematical algorithms as medical devices and a 2018 law requiring interoperability of electronic medical records. Participants also anticipated greater consumer involvement in health care decisions, particularly since they will be spending more out-of-pocket. Looking further out, participants foresaw several companies using robotics to make more effective

health coaches. People have always anthropomorphized things, and the science of bonding to a robot is already quite advanced. Thus, there is the potential that your health robot could be as close to you as a close friend or a member of the family.

While they saw the events in this scenario as positive, participants were concerned that the scenario may not have enough of a crisis to drive many of the positive changes that took place. They noted that while Scenario 2 was in essence a “burning platform” that would motivate fundamental change, in Scenario 3 the motivation would have to come from somewhere else. That said, participants allowed for the possibility that Americans may move toward this scenario on the force of aspiration alone. In that case, participants identified two key issues where significant progress will be required to make this scenario a reality.

First, participants articulated the need for a new social contract on the use of health data. Health information technology is capturing a plethora of data, observations and associations. However, the issue of privacy has not yet been fully addressed. In order to harness the value of health data, we need to rethink many of the policies that affect the use of data today. We must take into account the privacy concerns that many have while at the same time communicating – in the language of different “tribes,” or narrowly defined communities of people with common perspectives – the value that each individual can gain from allowing his or her data to be aggregated and studied. Participants also noted that this value is less likely to be monetary than it is to be health-promoting.

Second, there are significant workforce issues related not to the analysis of data, but to the interpretation of that analysis for individuals. Making this scenario a reality would require legions of trusted advisors who can help individual people figure out what the data means for them. These advisors will need to be able to draw on knowledge technologies that will help them navigate their way through the onslaught of health data. No individual, even the most highly trained genomicist, can translate all of the available data into useful information for people. This scenario will have a high level of automation of that analysis and interpretation, and in many cases that automation will have the face of an avatar. But there will need to be a human face as well, and that human must understand people and their values. This role will likely become an important part of the economy and of the health care system.

Scenario 4: A Culture of Health

In Scenario 4, in the “zone of high aspiration,” participants saw the opportunity for health to be truly holistic, with physical, mental, spiritual and social health integrated into our lives and communities. In addition to the events already noted in the original scenario, they foresaw a period of economic growth fueled by social innovation, avatars’ taking over 60% of primary care and an expanded definition of “communicable diseases” to include health-destroying patterns of thought that are spread by airwaves, computers and culture.

In this scenario, participants anticipated significant changes in how society approaches elderhood. First, they foresaw a mandatory Medicare welcome visit where a new beneficiary is told his or her expected life duration, health prospects, the associated health costs and what possibility exists to do better. Looking further along the life course, participants also envisioned a “death by completion” movement – led in part by AARP – that helped elders to thank, forgive and reconcile with others and with themselves as they prepared for a “good death.”

Noting the spiritual and emotional aspects of the scenario, participants articulated a need to apply greater rigor to the study of these dimensions of human life. As one participant said, we need to “make the hard stuff soft and the soft stuff hard” – that is, to infuse science with an appreciation of what it means to be a human, and to apply scientific rigor to the intangible dimensions of that human experience. In particular, participants saw value in creating a “human flourishing index” that would serve as a comprehensive metric of initiatives to improve health. Looking

out to the 2020s, participants noted the potential to have a total salutogenic³ monitor that can be embedded within a person to measure health, stress and coping along all dimensions.

Leadership was unquestionably a key success factor in the creation of this scenario. Participants anticipated that by 2018 there will be a profound transformation of organizational leaders into “healthy leaders” in government, business, the non-profit sector and health care provider communities. These leaders will build high performance organizations that attract the best people and outperform their peers by a wide margin. Even more significantly, this leadership will infuse the community level, providing the foundation for cross-disciplinary health initiatives at the local level. Health will be an important consideration in all policies. America will have achieved a culture of well-being, vitality and flourishing.

Areas of Opportunity

Following the scenario explorations, participants were asked to identify “opportunity areas” for improving health and raising the quality of health care. Participants identified many areas of opportunity in which to formulate recommendations to the nation. However, the time constraints of the workshop only allowed recommendations to be formulated in the following four areas. The outputs of this process are presented under *Recommendations* below.

1. Develop new health roles beyond just traditional medical care professionals and public health providers.
2. Focus the health technology sector on community health metrics.
3. Cultivate new leadership for a healthy society.
4. Remove barriers to health for all Americans.

A list of the other areas of opportunity identified by participants is included at the end of this section.

Recommendations

Area of Opportunity

Develop new health roles beyond just traditional medical care professionals and public health providers.

Recommendation

Develop new health roles for both workers and volunteers who focus on health as a value in and of itself.

We can expand the version of the lay community health worker at the local level and create a new community systems worker to ensure that areas such as education, urban planning, transportation and the private sector all support health.

The definitions of both health and community are expanding. We will need to train current workers in the new understanding of health as having many dimensions, such as social and spiritual health along with the common associations with physical health. The understanding of community will need to be broad enough to incorporate online communities of interest along with geographically and culturally based communities.

We also need health strategists and integrators within the health care system to address issues in the community.

³ Salutogenesis is a term coined by medical sociologist Aaron Antonovsky to describe the factors that support human health and well-being. It combines the Latin words for health (salus) and origin (genesis).

Finally, we need to develop career paths for underrepresented communities.

The new roles will bring skills and competencies needed to organize a community and to approach health problems by leveraging statistics and rapid learning. The skills include:

- Awareness of local community resources.
- Awareness of digital assistance resources.
- Communication skills.
- Sensitivity to health literacy, including cultural, generational, community, family and spiritual content.
- Needs assessment skills.
- Creative financial skills to show how communities can find monies for the new role.
- Behavioral and motivational skills for a person-centered approach.

Area of Opportunity

Focus the health technology sector on community health metrics.

Recommendation

Create market incentives for improving community health outcomes through innovation that uses “big data” drawn from living environments that are increasingly sensitive and responsive to the presence and needs of people.

Today we have a need but not a market for improved community health. We are blind without the health data in a unified source that is communicable to all as metrics for improvement. Therefore we need to remove restrictions on putting data in the hands of entrepreneurs and organizations ready to improve the health of communities

Right now large data stores from government health agencies (Department of Veterans Affairs, Medicare, Department of Defense, etc.) are unavailable to innovators in Silicon Valley and around the nation. More data stores will be created as living environments become embedded with “ambient intelligence” – that is, computing technologies that are responsive to the presence of people. We need to liberate this data while creating business incentives for improving population health. This data can flow back to living environments in order to promote smarter individual and community health choices.

The following actions must be taken in order to tap the potential of the technology sector to improve community health:

- Define shared (community) health metrics and align payment systems for health outcomes.
- Develop the business models that offer incentives for prevention and pre-disease diagnosis so that caregivers and scientists can work with communities to convert personal data clouds into actionable information for improving community health.
- Use regional partnerships between major clinical institutions, systems biology institutes and communities with consumers and patients learning to improve population and individual health.
- Build community storage systems for multi-source integrated health data, including genomics, proteomics, sensors, lab data, pharmaceutical prescriptions, environmental data, social media data and non-obvious health data that will emerge as we learn to improve community health.

- Shape policies providing individual ownership of personal data while offering individuals and communities the ability to opt in for release of their data to technology vendors and entrepreneurs.
- Establish sites for rapidly testing innovations in community health, and then distribute the evidence so that successes can be replicated in multiple communities.
- Revamp regulation (e.g., FDA when regulating mobile apps, HIPAA) to make it conducive to the health technology sector's efforts to improve community health.

Area of Opportunity

Cultivate new leadership for a healthy society.

Recommendation

Encourage community leadership in a movement for health that increases wellbeing and vitality and enables progress toward a flourishing society at all levels and in all sectors and communities.

Great leadership has a sense of purpose that generates commitments and motivates followership. Community leadership education and development processes can use an ecological whole person model. This form of leadership is both individual and collaborative, and includes working in concert with others who can mobilize people to rally around taking responsibility for health at both the individual and community levels.

People need to learn how to self-lead as well as how to lead others in team-based learning that begins with a vision of a healthier society. Learning communities create connections that foster the capacity to listen to the perspectives of both older and younger people and to cross boundaries between fields and organizations so that health permeates all sectors.

The following actions will foster leadership for health so that the nation can flourish through community engagement:

- Convene local leadership sessions supported by people from the military, the Peace Corps, business and recognized non-profit organizations.
- Create a cultural change leadership group dedicated to stimulating movement toward a vision of healthy people in healthy places.
- Communicate the key concepts of health, wellness, salutogenesis and holism using words such as flourishing and wellbeing to which people can easily relate.
- Offer leadership teachings to various audiences, including youths and elders, who can diffuse lessons through schools and community projects.
- Create a National Health Corps that includes chapters and programs for people at various stages of their careers and connects virtual as well as geographic communities.
- Use a case-based learning process that incorporates complexity theory and change management knowledge applied through teams that support community health.
- Teach communities to organize around goals and metrics, and then create the conditions for the “first followers” to emerge at the local level while dismantling the old leadership paradigm and structural constraints that inhibit young leaders.

Area of Opportunity

Remove barriers to health for all Americans.

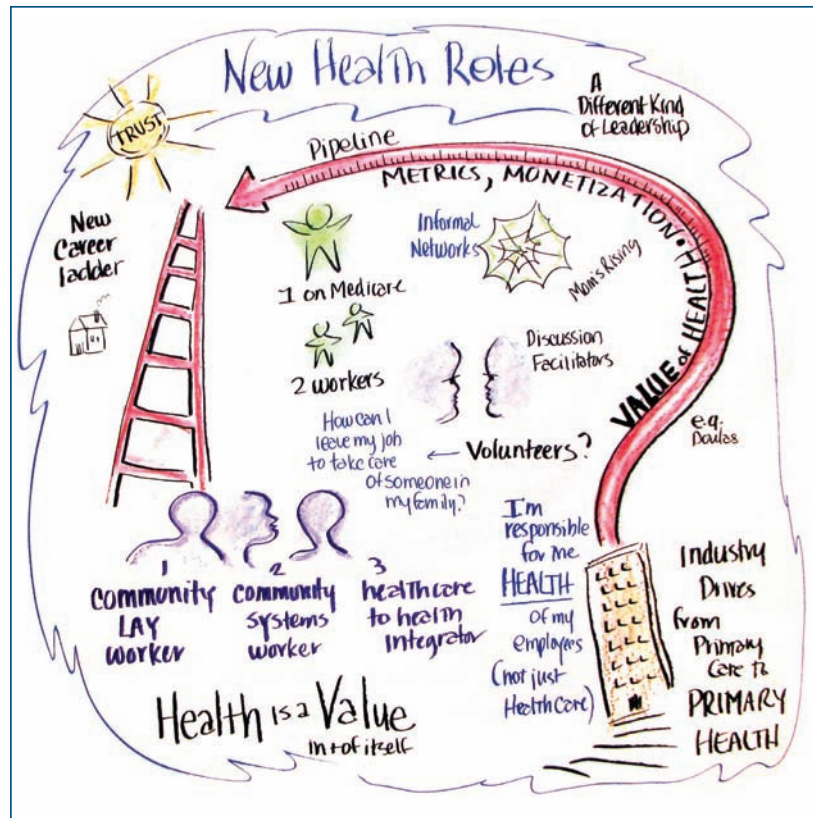
Recommendation

Refresh the American Dream by addressing social and economic barriers that prevent many Americans from realizing the “pursuit of happiness” proclaimed in the nation’s founding document.

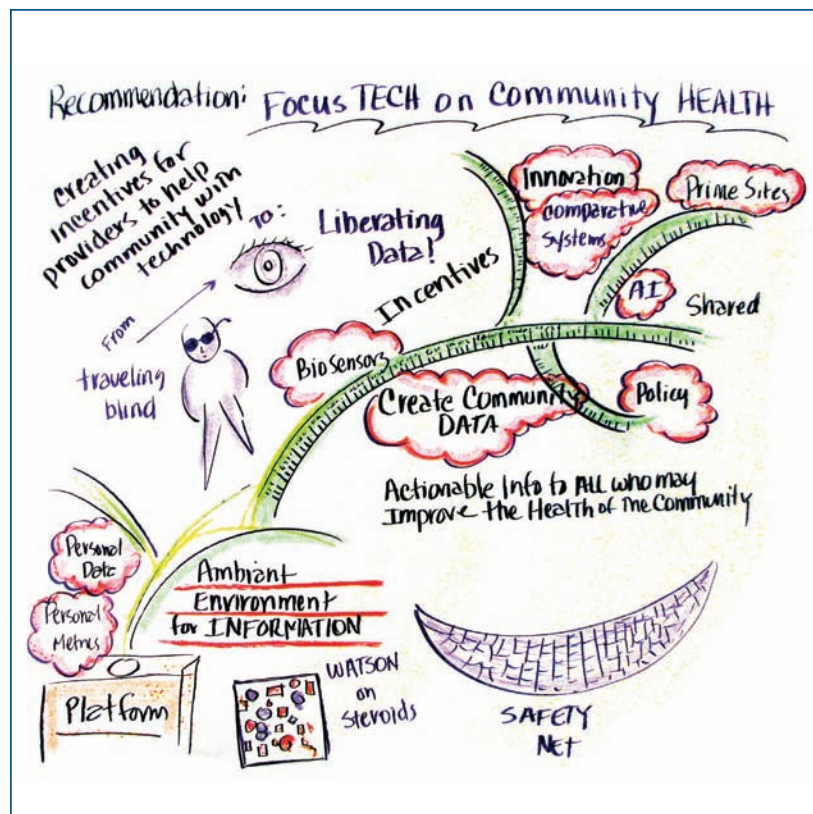
The American Dream has always assumed an equality that enables subsequent generations to rise above the conditions in which their parents lived. Poor health tied to disparities in housing, education, economic opportunity, race and ethnicity, public safety, and other socioeconomic factors has for many become an impediment to this dream. The recognition that health is essential to the realization of the American Dream has focused attention on these social determinants of health and on the obstacles that they create for many. Given our founding declaration that all people are endowed with an inalienable right to the pursuit of happiness, it is incumbent upon all Americans – particularly those with power and resources – to recommit to this American Dream. Without health, there is no happiness.

The effort to remove barriers to health can begin by building on existing accomplishments and initiatives while working to:

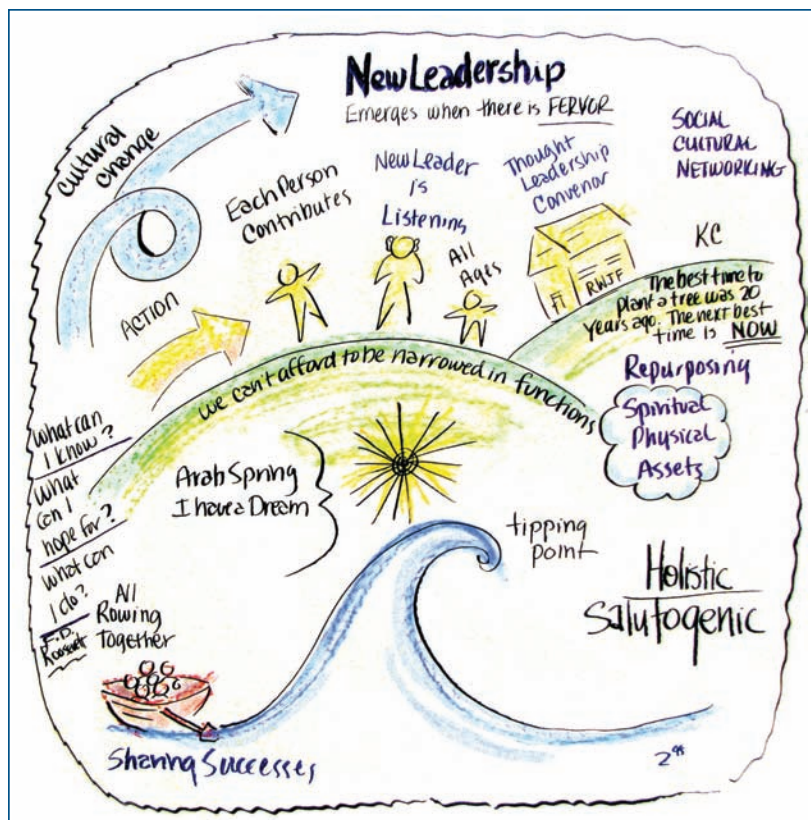
- Create health enterprise zones in vulnerable areas to leverage and synthesize existing data for mapping disparities while mobilizing community wellness initiatives directed by a common aim to address the health and wellbeing of all.
- Establish a public-private sector collaborative movement to build health in all policies; include business, unions, education, agriculture, transportation, housing, non-profits, philanthropy, elected officials, civil service, faith communities and the Federal Reserve, among others.
- Establish Interagency Health Councils at federal, state and local levels and periodically invite movement leaders to meet with the Councils to define a common agenda that includes shared goals for removing barriers to health.
- Provide values-based education across the lifespan that addresses psychological, social, spiritual, environmental and intellectual engagement while honoring different faith and cultural traditions with the use of reflection and meditation techniques.
- Shape a personal development model that incorporates biological, psychological, social and spiritual learning which places altruism, joy, love and faith in the context of the original pursuit of happiness as the American Dream.
- Offer incentives to promote a health-oriented national culture using budget and contract levers that encourage individuals to balance work, play and social engagements and that help people achieve their highest potential.
- Place an economic value on health with health credits and credit swapping to help change the culture through recognition of the value of health.



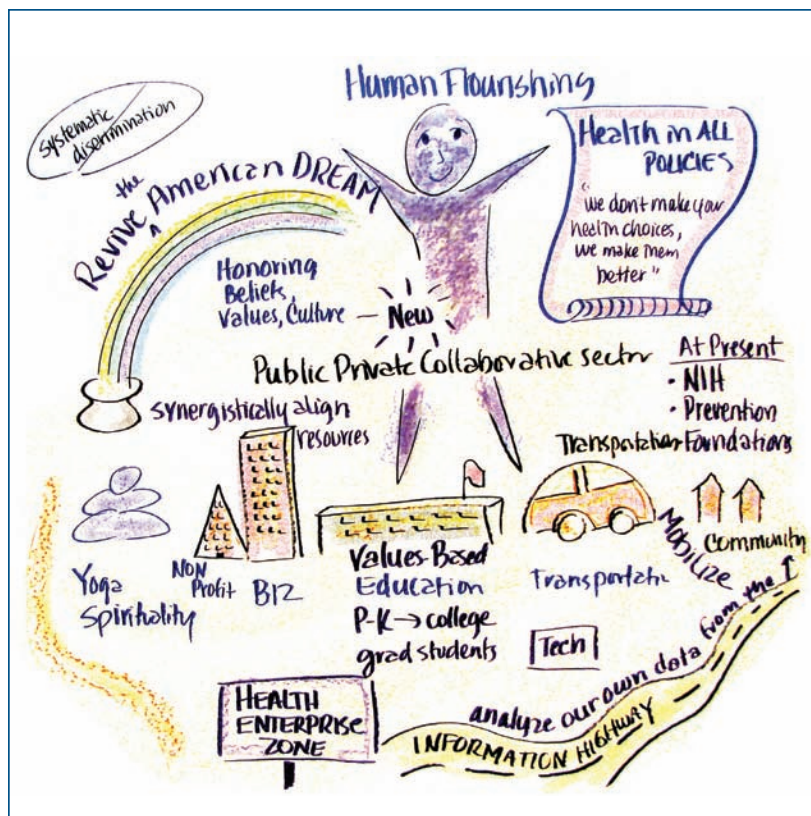
Mural of Recommendation 1: Develop New Health Roles



Mural of Recommendation 2: Focus on Community Health Metrics



Mural of Recommendation 3: Cultivate New Leadership



Mural of Recommendation 4: Remove Barriers to Health

Other Areas of Opportunity

The other areas of opportunity that were identified by participants but in which recommendations were not formulated are:

- Develop the “digital health coach” right – There is an ethical need to assure that this emerging technological capability serves the whole population. We should make sure the digital health coach connects personal and population health by giving 24/7 access to health-related information based on personal biomonitoring, epigenetics, genomics and community conditions and that it is focused on primary prevention along with the social determinants of health. We should enable the digital health coaches to communicate their analyses to community players – e.g., the public health department, city council, employers and community health advocates.
- Organize and inspire by promoting optimism for the success of the American spirit – This opportunity begins when we understand and support the ethical movement for Baby Boomers to “Pay it Forward” so that future generations will have better health thanks to elders’ consciously avoiding wasteful, ineffective and inefficient procedures and processes. The American spirit promotes optimism and ingenuity and that is precisely what the health care system will need if it is to improve the health of our citizens.
- Overcome the challenges of “tribal” languages within health care – The many different “tribes” of doctors, nurses, pharmacists and others develop their own languages that can both shape understanding within their cultures and exclude others by creating a barrier to learning. If we can learn to span the different tribes with a broader definition of health, the different dialects and values can be more effectively integrated.
- Create a national interactive resource library – An organized resource for evidence-based best practice models could help communities undertake initiatives for improving health by addressing specific deficiencies, many of which may have been effectively addressed by other communities. The interactive resource library can become a learning exchange for the whole nation.

Conclusion

These scenarios of health and health care in the U.S. in the year 2032 describe a range of plausible futures worthy of consideration as relevant organizations conduct their own planning. These scenarios highlight both challenges that might otherwise surprise and opportunities that might otherwise be missed. If you are part of an organization whose work is related to health or health care, considering your own work in the context of these scenarios can help you challenge your own assumptions about the future, identify emerging risks and opportunities and formulate more robust strategies with a greater potential to advance your mission over the decades to come.

The scenarios presented in this report remind us that the future is ours to create. By applying both an objective lens that defines the probability space in which the future will unfold, and a subjective lens that articulates our shared hopes and fears, we as a nation can prepare for risks and challenges while at the same time moving toward the future we would prefer. We can improve health and health care in this country. We can leverage the great promise of emerging technologies, new treatments and innovative policy options. We can harness the energy of important social movements around health equity and food justice. We can apply what we have learned from these scenarios to more effectively address the great health challenges of our time and to foster the high level of health that this great country deserves.

Appendix

Interviewed Experts

Donald Berwick, MD

Founder, Institute for Healthcare Improvement
Former Administrator, Centers for Medicare and Medicaid Services

Sandra Bloom, MD

Associate Professor, Department of Health Management and Policy, Drexel University

Troyen Brennan, MD

Executive Vice President and Chief Medical Officer, CVS Caremark Corporation

Joe Kvedar, MD

Founder and Director, Center for Connected Health

Debra Ness

President, National Partnership for Women and Families

Armin Weinberg, Ph.D.

Professor of Medicine, Baylor College of Medicine
CEO, Life Beyond Cancer Foundation

National Symposium Participants

Invited Participants

Amy Abernethy, MD

Associate Professor, Division of Medical Oncology at Duke University School of Medicine and School of Nursing

David Altman, Ph.D.

Executive Vice President, Research, Innovation, and Product Development, Center for Creative Leadership

Calvin Bland

Director, New Jersey Health Initiatives

Andrew Blau

President, Global Business Network

Ahmed Calvo, MD, MPH

Senior Medical Officer, HRSA Office of Health IT and Quality, U.S. Department of Health and Human Services

Larry Cohen, MSW

Founder and Executive Director, Prevention Institute

Don Derosby, MA, MBA

Senior Consultant, Global Business Network

Michael Donovan, Ph.D.

Director, Young Health Professionals Society
Director, Fitness and Wellness Programs, National Institutes of Health

Joyce Essien, MD, MBA

Director, Center for Public Health Practice, Rollins School of Public Health, Emory University

Mauricio Flores, Esq.

Director, P4 Medicine Institute

Catherine Georges, RN, Ed.D. FAAN

Professor and Chair, Department of Nursing, Lehman College and the Graduate Center of the City University of New York

Jennie Chin Hansen, RN, MS, FAAN

CEO, American Geriatrics Society

Wayne Jonas, MD

President, Samueli Institute

Lovell Jones, Ph.D

Director, Center for Health Equity and Evaluation Research, University of Texas MD Anderson Cancer Center

Mohit Kaushal, MD

Executive VP of Business Development & Chief Strategy Officer, West Wireless Health Institute

Donald Kemper, MPH

Founder, Healthwise

Jini Kim

Founder, NunaHealth

JoEllen Koerner, PhD, RN, FAAN

Principal Partner, Nurse MetriX

Denise Koo, MD, MPH

Director, Scientific Education and Professional Development Program Office, Centers for Disease Control and Prevention

Barbara Krimgold, Ph.D.

Director, Kellogg Health Scholars Program, Center for Advancing Health

Michelle Lyn, MBA, MHA

Assistant Professor and Chief, Division of Community Health, Duke University Medical Center

John Mattison, MD

Chief Medical Information Officer, Kaiser Permanente

Joe McCannon

Senior Advisor to the Administrator, Centers for Medicare and Medicaid Services

Michael Parkinson, MD

Former Chief Medical Officer, Lumenos

Yolanda Partida, MSW, DPA

Director, Hablamos Juntos

Christina Puchalski, MD

Executive Director, George Washington Institute of Spirituality and Health

Ellen Raboin, MBA, MSOD, Ph.D.

Associate, TAOS Institute

Susan Reinhard, RN, PhD, FAAN

Senior Vice President and Director, AARP Public Policy Institute Chief Strategist, Center to Champion Nursing in America

Kyu Rhee, MD, Ph.D.

Chief Health Director, IBM

Steve Roling

President and CEO, Health Care Foundation of Kansas City

Bob Rosen, Ph.D.

Chairman and CEO, Healthy Companies International

Stephen Thomas, Ph.D.

Professor of Health Services Administration, School of Public Health, University of Maryland

Cristie Travis

CEO, Memphis Business Group on Health

LCDR Pattama Ulrich, MPH, BSN, RN

International Health Security Program Management Officer, U.S. Public Health Service

George Vaillant, MD

Co-Director, The Study of Adult Development
Professor of Psychiatry, Harvard Medical School

Andrew Webber

CEO, National Business Coalition on Health

Armin Weinberg, Ph.D.

Professor of Medicine, Baylor College of Medicine
CEO, Life Beyond Cancer Foundation

Stephen Williams, MD, Ph. D.

Chief Medical Officer, SomaLogic

Heather Young, Ph.D., RN, FAAN

Associate Vice Chancellor for Nursing and Dean, Betty Irene Moore School of Nursing, University of California – Davis

Cole Zanetti, DO

Combined Family Medicine/Leadership Preventive Medicine Resident, NH Dartmouth/Dartmouth Hitchcock Medical Center

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