Catalyst

Designing the Health Care Workforce of the Future

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In association with the Future of Health, LLC, a global organization that grew from an initiative established by Sheba Medical Center in Israel in 2018, the authors developed semi-structured, open-ended discussion tools to drive group discussions on key topics and used a Delphi method to determine consensus and priorities. In this paper, the authors describe their research into the health care workforce. They convened a multinational panel of 14 executive-level stakeholders to explore insights related to current challenges, future needs, and recommendations to develop and execute change. With a particular focus on health care technology and care delivery teams, through these discussions and a subsequent analysis of the transcripts, the authors identified five clear imperatives: (1) the need to embrace change, (2) to understand and address workforce dissatisfiers, (3) to ensure vertical commitment within the organization, (4) to establish clear and committed leadership, and (5) to educate the workforce of the future to thrive with the tools and care delivery models of the future.

Hospitals and health systems have been facing persistent staffing shortages, with job vacancies of specialized nursing personnel increasing by as much as 30% between 2019 and 2020. With a growing and aging population across industrialized countries,[1] its corresponding increase in disease burden,[2,3] and a parallel aging physician workforce nearing the traditional retirement age[4,5] it is projected there will be a shortage of up to 124,000 physicians in the United States by 2034[6] and a shortage of almost 4.3 million health care professionals worldwide.[7] Further exacerbating these shortages, the Covid-19 pandemic has placed such a strain on frontline health care teams that nearly 30% reported considering leaving their profession.[8] Additionally, insufficient resources for

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training, poor work-life balance, and inefficiencies in the use of physician workforce contribute to physician burnout.[9-11]

Technology has the ability to profoundly influence work processes — mitigating, for example, the burdens associated with endless paperwork, voluminous regulations, and increasingly apparent role ambiguity and its implications[12] — and, subsequently, to improve daily work life for all who choose careers in the health care disciplines.[13] In addition, the increased efficiencies enabled by technology have the potential to enhance throughput and reduce cost. There will likely be improvements in skill/task alignment (working at the top of one's license); teamwork will be prioritized, and data analytics and data-driven decision-making and workflow optimizations will become increasingly the norm. Still, a comprehensive approach to the integration of technology solutions must recognize and address identified risks or concerns that technology will further depersonalize the nature of work at a time where team members report feeling increasingly isolated and left alone.

Approach

The Future of Health (FOH), established in 2018 as an initiative by Sheba Medical Center in Israel and incorporated in 2022, with headquarters in Washington, District of Columbia, in the United States, is an international community of more than 50 members, including hospital executives, policy makers, academics, payers, and senior-level health sector leaders driving health care technology development, venture funding, insurance, and risk management from across the world. Every year, the FOH executive committee selects three topics to explore. Each topic is led by two chairs, members of FOH, who provide direction and moderate the discussions. FOH leadership designs and implements the research methodology. Due to limitations imposed by the need to meet virtually, in 2021, the community relied on videotelephony and was separated into three groups for the discussions.

The topic *workforce of the future* was undertaken by a subset of the FOH members, who came together to discuss the potential effect of innovation and technology on the health care workforce of the future. As a self-selected group, the participants represent a mix of stakeholder types and nationalities consisting of 14 executive-level members from six Organisation for Economic Co-operation and Development (OECD) countries, which includes nine from provider organizations (United States, France, Denmark, Canada, Switzerland, Sweden), one from academia (United States), one payer (France), and two from the health care industry, including a global health technology company and a health technology venture fund (United States).

The work began in February 2021, with the executive committee selecting three topics of current and global importance in health policy and health care delivery: the future of health system adoption of digital technologies and innovation, the future of comprehensive accountability and social determinants of health, and the future of the workforce. Over 5 months, the authors conducted literature reviews and developed semi-structured, open-ended discussion tools to drive group discussions for each topic. The development of these interview guides attempted to account for culturally diverse backgrounds by providing definitions of terms used. Nuances in understanding of these terms emerged during the discussion, and level-setting was required. The

discussions among the group of 14 took place during two virtual sessions lasting 2 hours each (June 24, 2021, and July 29, 2021). These discussions were recorded and transcribed. One of the authors and one research support staff aimed to achieve theoretical saturation by exploring emergent themes until no new information could be extracted.

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A modified grounded theory (GT) approach was used following well-established coding procedures[14] and assisted by the data analysis tool NVivo, release 1.6, to extract key themes, objectives, challenges, and priorities from the transcribed responses. GT is a qualitative research method, commonly used in health research,[15] that enables researchers to systematically capture and understand participant experiences and attitudes and to bring structure and rigor to the analysis of qualitative data.[16] Initial codes were descriptive and focused coding led to a sorting of more substantive categories. One of the authors and one research support staff carried out the coding with an iterative process of analysis. The extracted themes were used to develop questions to determine priorities and establish consensus as well as areas of agreement or disagreement.

The Future of Health, LLC, convened in a yearly summit in October of 2021 and, using a modified Delphi methodology[17] to better understand agreement and difference among the experts, identified the top factors that affect building the workforce of the future. Relevance of results was confirmed through member-checking with individual representatives. Using the approach described, we focused on the implications of technology, and were thus able to identify areas of consensus as well as areas of disagreement and those in need for further investigation as we move forward in the coming years.

To understand how to build the workforce of the future, we asked the 14 members of the group the following questions:

- What are some of the upstream causes leading to clinician burnout and health care workforce shortages?

- What are additional forces that will shape the future of the health care workforce?

- What kinds of professions and competencies will be needed to care for the world's population?

- In what ways will technology and innovation affect staffing needs?

- What are the characteristics and critical skills necessary for the workforce of the future?

- How do we reorganize workforce planning to address these changes?

- What are the educational needs of the future health care workforce?

Findings

Regarding the themes that emerged from the two discussion sessions in the summer, at the October summit, there were areas of agreement and disagreement among leaders. The themes around which there was consensus related to the impact of technology on the health care workforce include changes to the roles of the workforce, changes to the role and characteristics of health care organizations, and opportunities to create efficiencies for the workforce. The areas of disagreement centered around the implications of technology for medical education, its role in fostering teamwork, its influence on the culture of adaptation for health care organizations to embrace new roles, and the effect private industry and innovation may be having on the workforce.

Five major themes emerged from the discussions.

Creating Efficiencies

Discussion revealed strong consensus that technology will create efficiencies for the future workforce. Specifically, there was consensus that machine learning and artificial intelligence (AI) will be effective in supporting clinical and management processes such as optimizing scheduling, will reduce drivers of burnout (such as reducing repetitive and administrative tasks), and will allow staff to better focus on areas where human tasks and interaction are essential. Discussion also suggested and widely supported the idea that technology will help us optimize often waste-filled processes related to payment for services.

> " *Innovations can detract from provider-patient interaction."*

Changing Roles

Discussion was clear that technology is likely to enhance the work of low- and mid-level roles as we work to ensure optimal *skill/task* alignment. There will be an increased focus on teamwork and smooth functioning teams. Technology will influence the role of clinicians as team members and will change training and expectations. There were numerous areas where there was disagreement on the influence of technology, including implications for those pursuing a career in medicine, generational rifts within clinical and related fields, and the need for soft skills to combat depersonalizing technology.

Tensions and Challenges

Robust discussion identified key areas of tension, conflict, and unintended consequences that technology may have on the workforce. Key highlights included the nature of being early in a

transition to both new skills and focus, the burden of outdated regulations, provider resistance and reluctance to change with some generational factors, and the feared loss of empathy in patient care.

What Needs to Change

It was agreed that care delivery organizations must overcome reticence to embrace technology and instead focus on adopting workflows that involve tracking data, evolving new staffing models that embrace change both within and far beyond the traditional hospital setting.

Changes will be necessary to ensure a competent workforce for the future and must include teamwork and resilience training as well as further grounding in evidence-based medicine and social determinants of health.

Integrating Technology-driven Changes

Discussion also revealed that there remain multiple points of view and concerns as to whether technology will be *layered on* existing systems or new approaches will be required. Data scientists are involved at unprecedented levels in health care, and the role of IT departments is evolving and will never be more essential. Attracting and retaining the best talent will be essential to thriving with technology in the future.

Looking Forward

As an industry, we have an opportunity and an obligation to embrace and lean in to the future. This will require leadership, collaboration, and a clear vision. We will need to attract and retain the very best workforce to serve our patients and communities. This paper identifies key forces that will influence the workforce of today and, most important, of the future. The pandemic-related staffing shortages unmasked a key vulnerability in our health and health care ecosystem and resulted in severe access waits, delays, and forgone care. The burden of illness in our communities has increased dramatically, screening and preventive care has been delayed, and the resulting backlog will have to be addressed as we retool for the future.

> *The value proposition for being in health care has never been more essential as we realize that today we are competing with other industries for talent."*

Our engagement with the 14 participants on the impact of innovation and the adoption of new technologies in health care leads us to identify the top five challenges facing the health care workforce of the future:

1. We are at a transitional stage where workforce is lagging in tech savviness to leverage technology of today.

2. Current regulations may be outdated with emerging technology and need to be reevaluated.

3. Innovations can detract from provider-patient interaction.

4. Technology creates differences between clinicians of different generations (high skills from experience versus tech skills from younger generations).

5. A big barrier is provider resistance to change and getting them to accept suggestions via technology tools such as clinical decision support.

Through our discussions, we identified clear imperatives that must be prioritized: (1) the need to embrace change, (2) to understand and address workforce dissatisfiers, (3) to ensure vertical commitment within the organization, (4) to establish clear and committed leadership, and (5) to educate the workforce of the future to thrive with the tools and care delivery models of the future. Examples of participant comments are excerpted in Table 1.

Embrace Change

It is apparent that legacy health care organizations will have to embrace the adoption and integration of technology and its associated impacts. While this is seen by many as an important step forward, there is also resistance to change. Hospitals, the traditional "margin generator" and central driver of health care delivery, will need to evolve and accept their role as a key component of the full continuum of care while recognizing that systemic disruption and cost pressure mandates that much more care will be delivered in the home and ambulatory settings.

Change in the health care industry has long been very challenging. The articulation of a new vision that will resonate for diverse stakeholders will be an important early step. Being able to explain the *why* behind new strategic and tactical approaches will help coalesce the forces and team members necessary to successfully move forward.

Understand and Address Workforce Dissatisfiers

Conventional assumptions are being challenged and a new way of envisioning our future workforce is needed. This comes at a time of unprecedented stress on our systems, profound workforce shortages, and high levels of dissatisfaction. This is not an easy journey, especially for legacy hospital-centric health systems. The value proposition for being in health care has never been more essential as we realize that today we are competing with other industries for talent; in this hyper-competitive environment, organizational competitive advantage is very much sought after to attract the best talent. The cause is certainly just and the so-called *helping professions* continue to have an allure for those who want to make a difference for individuals and communities. But will this continue to pull in enough people given the complexity of care delivery, wage compression, burnout, and competitive pressures?

Table 1. Selected Quotes from Key Participants

Topic/Quotes	Type	Country
Creating Efficiencies with Technology for the Workforce of the Future		
On the technology front . . . we've digitalized everything, [but] we really aren't getting very many advantages so far.	Academic	USA
The interesting thing is the opportunity that evolves is not really about how you're staffed, it's [about] what the model [is] that's going forward, and what staff you need to provide that model.	Provider	Canada
We're seeing a lot of signals where diagnostics is going to be disrupted first, where most of those will be done at home.	Industry	USA
The Role of Technology on Workforce		
Data is . . . going to be exquisitely helpful to make the less-skilled folks that are participating in the care provide better and higher-acuity care.	Industry	USA
What we've got to do is create the technology that makes the provider's experience with the patient seamless.	Provider	USA
Reasons for Workforce Shortages		
It's interesting: Technology increases access, which is wonderful, but technology increases access that does not do anything but increase costs and put more pressure on your clinicians as they're trying to deal with the increasing expectations of a patient population that wants immediate and constant access to their clinicians.	Provider	USA
The exceptional burnout that the last year has created for our nursing staff and just the workload; the emotional toil of having to deal with this pandemic.	Provider	USA
We went to 15 [$/h] as minimum wage for all our workers, and McDonald's went to 17 [$/h], you know, so I'm losing people to McDonald's!	Provider	USA
It's physicians who are the last backstop, and when you can't figure out somebody else to do it [a care delivery task], the physicians take that. And that production load is wearing.	Provider	USA
The Changing Roles of Delivery Organizations		
Data scientists will become a very, very critical [role], and that's something that should be invested in today. It's going to be more and more, not just value-based care, but data-driven care.	Industry	USA
All the professional organizations largely appear to be protecting their turf and trying to make sure that nobody with less qualifications can do certain things.	Academic	USA
New Roles		
At the end of the day, some of the changes will be that we'll have fewer people at the top, so I would predict fewer physicians, fewer nurses, more role for patients; we'll be giving them lots of information and helping them manage things, but also many more roles for lower-skilled people.	Academic	USA
We do need individuals that will help and assist in navigating the technology, so that we don't have our core providers doing that.	Provider	USA
We are an incredibly territorial group and so . . . the anesthesiologist will scream at the top of their lungs that they need more help, but yet fight against the affiliated providers.	Provider	USA
Education and Curriculum		
Every medical student . . . should take economics and statistics and be able to evaluate the cords of information that's out there . . . how to critically look at an article and realize that most of those don't apply to the people that we're seeing. So there needs to be more of an enrichment, not just a fact-based medical school that all of us went to when we trained. I think the nurses are actually doing better at their education than we are at medical school.	Industry	USA
In terms of . . . education, soft skills, and the ability to work together with the other [members] of the team . . . may be a crucial point.	Payer	France
One of the biggest challenges that we have is to get people to be able to — and willing to — accept change. I mean, our ability to be adaptable, flexible, collaborate, all of those skill sets don't come inherently sometimes to our workforce.	Provider	USA
Given all these evolving forces to technology, robotics, what about the human side? Some people would say that the role of the clinician, in addition to utilizing appropriately all of the technological resources we have, is to also preserve the heart of medicine or the caring aspects, because without a focus on those, they might move backwards.	Industry	USA
If we really believe that care is going to be team-based, the role of the physician is going to change, hopefully to work at the top of one's license and skill sets; likewise for nurses, pharmacists, social workers. I don't think we have a lot of team-based training right now.	Academic	USA
Redistribution Due to Technology		
I met with this incredible student . . . and literally he just wanted his first year of his surgery residency . . . primarily to set the stage for going into a tech career. . . . he's only going to do 1 year [of surgery] and move on.	Provider	USA
Regulatory Considerations		
You do have a workforce both being driven by [quality-of-life concerns, new-child bonding leave, etc.] that has less full-time equivalents (FTEs) on the same number of med students training. . . . So, you have these baseline . . . demographic issues and a lack of recognition in the United States government that they need additional training spots for those.	Provider	USA

Topic/Quotes	Type	Country
We try to get telemedicine legislation through the federal government and fail to be able to do cross-state telemedicine. So, I don't think we can underpredict the forces that will delay these changes.	Provider	USA

Source: The authors

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Embracing technology and leveraging the innovative and disruptive influencers will be essential. AI and associated digital solutions will improve efficiency and accelerate badly needed workflow enhancement. This will promote profound changes in *how* we work and have significant implications for the existing and future workforce. Targeted efforts to use these opportunities to mitigate and eliminate workforce dissatisfiers will be important.

Vertical Commitment

Organizational commitment to address these necessary changes will be driven by the mission-critical imperative to attract and retain the staff needed to serve our communities and deliver positive clinical outcomes. This will require the attention of leaders and staff at all levels of the organization, resulting in alignment from the board room to the front line of care delivery. This is easier said than done, of course, but clarity of communication regarding the rationale for change and the necessary action steps will be essential.

Given the increasingly diverse workforce with multiple generations and a variety of traditional and newer talents, this communication effort will require reinforcement with multiple approaches given the varied ways team members access information and stay informed. Understanding the influential leaders at all levels and encouraging them to embrace change will help develop the necessary guiding coalition to moving forward. Change management principles — including establishing a clear and shared vision, creating and leveraging a *guiding coalition*, and achieving short-term wins — will all be necessary to successfully create the momentum and passion necessary to implement changes both large and small.

Establishing Leadership

The critical role of leadership should be recognized and promoted as we go forward. This leadership starts at the very top of organizations and should include both the board and C-suite, but leadership must be expected and demonstrated at all levels. In addition, while their primary focus will be internal, leaders must articulate the vision and rationale for change to the community, potential new team member hires, and patients and their families.

Numerous concerns and anxieties will undoubtedly surface, which is why visionary leaders who are skilled at change management will be essential. Many within the health care industry — in all roles and at all levels — are hesitant and, at times, overtly resistant to substantive change. While embracing technology will represent so-called *technical change*, the introduction of new ways of working will entail considerable*adaptive change*, which may result in a sense of loss and considerable anxiety. Understanding the impact of these changes and developing deliberate and

thoughtful planning to address the multitude of inevitable concerns will be needed to ensure success.

As we anticipate the evolving workforce, it will be important to focus on building organizational depth of leadership. This should include focused talent and leadership development and active succession planning. Given the critical role leadership will play in a successful future, this work needs to be considered a priority and will help ensure a culture where all team members are valued and have a development plan that is regularly updated. This will help attract and, importantly, retain the very best leaders and staff.

> " *The curriculum of the future will also need to include skill building in digital medicine and data-driven decisions, empathy and caring, resilience and teamwork, economics and statistics, and social determinants of health and value-based care."*

Educating the Workforce of the Future

Thus, as the workforce evolves — embracing both innovative technological tools and redesigned care teams — so, too, must the education and associated training. Multidisciplinary training must become the norm and not the exception; with increasing complexity, care delivery and the promotion of health must be a team endeavor, where physicians, nurses, pharmacists, social workers, and care technicians of all types learn together. The curriculum of the future will also need to include skill building in digital medicine and data-driven decisions, empathy and caring, resilience and teamwork, economics and statistics, and social determinants of health and value-based care.

Today's complex environment and rapid pace of change will require significant upstream modification of curriculum and approaches to education. This should start early in professional education and include practical application of new technology, team training, and robust simulation experiences. These are not typical historical approaches to education. Once new team members begin working in our future organizations, we should no longer just assume that all skills are present, accompanied with the necessary understanding to execute effectively. Active on-the-job training and simulation experiences will be very helpful to ensure our patients are optimally served.

Will technology lead to further depersonalization and lack of empathy? Will internal work relationships be strengthened or become more fractured? Can we reduce rather than continuously increase the burden of work? Can we fully engage and empower our own team members in leading work redesign from a knowledge-based perspective, being closest to the work? These are some of the many questions we will need to answer as we envision, develop, and operationalize the workforce of the future. For many in our industry, the future is now. Our patients, families, and communities are counting on us to be successful.

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Acknowledgments

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