Preparing for the Alternative Futures of Health

Why Navigating the Disruptive Forces Shaping Health Care Requires Transformative Leadership

April 29, 2019

A white paper prepared by the Health Leadership Academy

Michael G. DeGroote

HEALTH LEADERSHIP ACADEMY

McMaster University
DeGroote School of Business
"Successfully transforming the delivery of healthcare will require evidence-based policies that address access and outcomes, while recognizing the importance of innovation - and the right incentives. A nimble approach is needed, in order to meet current challenges, and those that the future will certainly bring" (World Economic Forum, 2019).

Modern healthcare systems are complex. They continuously evolve under shifting and interacting external forces in difficult-to-predict ways. How do we understand what the healthcare system of the future will look like, and how do we prepare our future healthcare leaders to manage it?

Scenario analysis and future thinking is an approach commonly used to examine uncertainty and develop plausible alternative future environments. In partnership with the McMaster Health Forum, the Michael G. DeGroote Health Leadership Academy (HLA) executed a collaborative multi-phase study to identify the underlying forces driving the health system of the future. Through an extensive literature review and a stakeholder dialogue that engaged international health system experts, this white paper articulates the future skills, knowledge and experiences required of health system leaders. It also highlights the institutional and cultural conditions required to attract, select, develop and support emerging leaders to meet the challenges ahead.

**Project Methodology**

**Phase 1: Identification of External Drivers of Change**

The research began with a synthesis of white and grey literature published between 2015 and 2018 describing healthcare system external drivers of change and anticipated needs for health system leadership. The narrow date range for the literature was motivated to capture the most recent publications but included literature reviews covering earlier publications. The research team identified and reviewed over 200 documents for emergent themes. Using a methodology adapted from the World Economic Forum, the team organized the themes into the SEEPT framework\(^1\) categories of Social, Environmental, Economic, Political, and Technological forces (Table 1).

**Table 1: SEEPT Framework**

<table>
<thead>
<tr>
<th>Technological</th>
<th>Economic</th>
<th>Environmental</th>
<th>Political</th>
<th>Social</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Health innovation system</strong>&lt;br&gt;Finance, regulation, and drivers of health innovation</td>
<td><strong>State of the economy</strong>&lt;br&gt;GDP growth per annum, national and global, as well as the drivers of growth</td>
<td><strong>Climate change</strong>&lt;br&gt;Local exposure to extreme weather and changing local resource availability, and weather-related mortality</td>
<td><strong>Influence over lifestyles</strong>&lt;br&gt;Ability and willingness of political and organizational bodies to directly influence the lives of the population</td>
<td><strong>Social attitudes</strong>&lt;br&gt;Attitudes toward intergenerational, ethnic, regional, and socioeconomic inclusion</td>
</tr>
<tr>
<td>Technological</td>
<td>Economic</td>
<td>Environmental</td>
<td>Political</td>
<td>Social</td>
</tr>
<tr>
<td>--------------</td>
<td>----------</td>
<td>---------------</td>
<td>-----------</td>
<td>--------</td>
</tr>
<tr>
<td><strong>Access to information</strong>&lt;br&gt;Availability and use of digital data within the population, attitudes towards privacy and sharing of these data</td>
<td><strong>Resource availability</strong>&lt;br&gt;Availability of resources, including natural resources (water, food, energy, land, minerals), human resources (displacement of workforce due to technological advances, scarcity of specialists), health technologies (medicines, equipment), and infrastructure.</td>
<td><strong>Pollution and toxicity</strong>&lt;br&gt;Exposure to chemical, biological and/or radiation agents—occupational and residential</td>
<td><strong>Conflict</strong>&lt;br&gt;Mortality and serious injury due to violence or conflict</td>
<td><strong>Population structure</strong>&lt;br&gt;Distribution of various age/gender gaps in a population and trends towards aging populations</td>
</tr>
<tr>
<td><strong>Income equality</strong>&lt;br&gt;Income distribution (including social transfers), percentage of population under poverty line</td>
<td><strong>Incidence of infectious disease</strong>&lt;br&gt;Population mortality and work days lost to communicable disease, as well as antibiotic resistance</td>
<td><strong>Origin of governance</strong>&lt;br&gt;At which level policy for society is set (i.e., supranational, national, or local)</td>
<td><strong>Health culture</strong>&lt;br&gt;Social attitudes, practices and habits towards desirability of healthy living and active lifestyles</td>
<td><strong>Incidence of chronic diseases, including mental health conditions</strong>&lt;br&gt;Population mortality and work days lost to non-communicable diseases</td>
</tr>
<tr>
<td><strong>Population sanitation</strong>&lt;br&gt;Access to sanitary tools, preventing exposure to waste, and ensuring water and food quality</td>
<td><strong>Public funding allocation</strong>&lt;br&gt;Availability of public funding and its allocation among the sectors</td>
<td><strong>Patterns of migration</strong>&lt;br&gt;Changing population composition, due to immigration and emigration, including urban/rural</td>
<td><strong>Attitude towards ageing</strong>&lt;br&gt;Effective retirement age and rates of activity, and participation of older population within the economy</td>
<td><strong>Community involvement</strong>&lt;br&gt;Dynamism of civil society and involvement of local communities in health provision</td>
</tr>
</tbody>
</table>

Adapted from the World Economic Forum, 2013.

The SEEPT framework is an efficient way to obtain a wide-ranging view of the many drivers of system change. It was used to organize and prioritize system trends for the second phase of the project: future thinking and the development of alternative scenarios.
Phase 2: Development of Alternative Future Scenarios

The research team applied the results from the SEEPT analysis to develop alternative healthcare system scenarios, using the “aspirational futures” approach developed by the Institute for Alternative Futures (IAF). IAF’s “aspirational futures” framework helps people understand how current system forces shape our system, what challenges we face, and how healthcare systems might evolve. This approach envisions future scenarios in three distinct “zones” (see Figure 1 below):

- A “zone of conventional expectation” where known trends are extrapolated to envision an expectable future;
- A “zone of growing desperation” where a challenging future is imagined, and problems are not easily solved;
- A “zone of high aspiration” categorized by visionary strategies, transformation, and surprising success.

The research team considered each of the external drivers identified and explored future-thinking questions including: How do these forces interact? What is the apparent direction of these forces today? What are the current trends in these forces and why? What is the magnitude of the impact of these forces on the future course for the health system? How much, in what ways, and how fast might these trends change in the future?

Scenario plots in each of the three “zones” were adapted for the Canadian context from the IAF approach, with each scenario demonstrating dominant influence of one or more forces, and all other forces simultaneously at play.

Figure 1: Institute for Alternative Futures Aspirational Futures Approach


---

1 The time frame for developing alternative futures typically ranges from 10 years to 50 years depending on the organization(s) being assessed and the speed of change in the organization’s environment, its core work, and its products and services.
Preliminary Findings

Healthcare System Forces of Change

Technological Forces: Innovation and diffusion of technological infrastructure

Technological innovation is a key driver of change in healthcare and will represent part of future solutions to meet the needs of diverse populations. Strategic development and adoption of technological advances can help to address health system sustainability and meet the health needs for a complex and aging population.

**Precision Medicine:** Medicine will be personalized and precise, using sophisticated genomics to predict, prevent and treat health conditions. The application of genomics will also enable a more nuanced and comprehensive understanding of the nature of disease and allow for developing targeted therapies customized for specific conditions and individual patients.

**Big Data, Artificial Intelligence (AI) and Machine Learning:** The healthcare industry produces large amounts of data, and effective strategies are required to leverage this valuable resource. The insights and knowledge gained through using AI to harness big data can inform decision making at the individual, community, and system levels. At the individual level, machine-assisted decision-making has many potential applications in disease detection and diagnosis, from using voice patterns to predict cognitive impairment, to analyzing skin lesions for cancer. Properly harnessed, new information can empower individuals to make their own health and lifestyle choices, manage their risk factors and/or manage chronic conditions should they be affected. At the system level, AI can be used to predict population needs and inform health system planning. Overall, improved data and information can profoundly change the way that healthcare systems operate. Transparency of provider outcomes allows healthcare providers to benchmark their performances against one another’s to drive improvement. It also allows governments and funders of healthcare to reward outcomes rather than output, and it empowers individuals to make informed choices for themselves and their families (person-directed healthcare).

**Internet of Things (IoT):** Wearable devices and personal biomonitoring technologies are capable of collecting and analyzing information without the need for human involvement. Some common applications of wearables and IoT involve blood and vital sign monitoring where sensors can relay information directly into patient charts, analyze trends, and provide recommendations for management.

**Remote Care:** Healthcare of the future will be remote, whenever possible. Videoconference and other communications technology will be integrated with the IoT to collect and send biometric and diagnostic data, and to interact with providers. All of this will support improved access to care. The technology enabling remote care will enable remote-presence robots to provide care in rural and remote communities and leverage 3D printing technology for custom and on-demand production of medical devices and supplies.

Economic Forces: Macro- and micro-economic conditions

Shifts in economic conditions at the local, national, and global levels will influence policies of healthcare financing, funding, and resource allocation. Economic growth trends, patterns of trade, and levels of unemployment will all have an impact on taxation policy and investment in healthcare in our Canadian single-payer system. Federalism and a shift toward regionalization within provinces has led to local resource allocation decision making, including regional implementation of innovative care delivery and reimbursement models that are suitable for acceleration of scale and spread.
Integrated Funding: Integrated healthcare reimbursement models, including capitation and bundled funding, will serve to integrate care and drive cost-effectiveness. Bundled payment models take fragmented systems and create prospective integrated payment “bundles” for all services within an episode of care. They incentivize the integration of healthcare teams and services across organizations and sectors, and focus service delivery on creating value through better outcomes rather than treating volumes of patients under fee-for-service schemes. Bundled payment models have been developed for pockets of specific conditions (hip and knee joint replacements in Ontario are one example). Although initial successes indicate the potential for system improvement in expanded patient populations and diagnostic conditions, the limitations of implementing bundled funding have not been fully explored. Integrated funding approaches do not need to be limited to healthcare and in fact could be key to developing cross-ministerial and whole-of-government approaches to improving the health of populations.

Public-Private Partnerships (P3): These partnerships in healthcare are long-term contracts between governments and private entities to provide public services. P3 agreements are characterized by shared investment between public and private entities and a transfer of risk from the public to the private sector. They have been a successful mechanism of health system financing for infrastructure projects in our publicly administrated single-payer system, including capital investments to build new facilities and the acquisition of costly diagnostic and treatment technologies. Given these successes, health system leaders might consider how P3 mechanisms could finance other aspects of healthcare and realize further system benefit.

Social Enterprise: Entrepreneurialism and social enterprise are private sector business models that actively promote the health of communities. In this approach, private businesses incorporate social objectives into their growth strategy and reinvest earned revenue into projects that aim to improve overall health and well-being of people. Social enterprise projects take an assets-based approach with communities. They build upon the community strengths, rather than focusing on their deficiencies, and co-produce health and social solutions to increase community capacity. Involved communities experience improved health outcomes through direct health and wellness services, and indirectly through empowerment and improved social and economic opportunities. These private sector business models are seen as a partial solution to unite health and social objectives and to address broader social determinants of health.

Environmental Forces: Changes to the natural environment and natural resources

Changing environmental conditions will also influence population health status and create pressures on the health system of the future. Climate change is defined as long-term shifts in weather conditions, such as changes in air temperature, precipitation, winds, and snow and ice cover, primarily because of human activity. The shift can include changes in average conditions and in the variability of conditions, such as extreme weather events. Canada’s climate is changing, and continues to change, resulting in increasing effects on its natural environment, economy, and the health of its residents. Climate change can create pressures on the health system through changes in ecosystem composition and function, vector-borne infectious diseases, and agricultural productivity.

The expected health-related impacts of climate change include changes in population health resulting from decreased air quality; food and water quality and security; increased spread of infectious diseases; increased exposure to natural hazards as a result of extreme weather events; and increased exposure to ultraviolet radiation. Of particular concern for Canada are extreme weather events, as some types are expected to increase in frequency and/or intensity with a warming climate. Emergency and disaster relief services may experience increasing and unique demands in response to extreme weather and natural disasters. Climate change will also create health system pressures through changing patterns of urbanization and migration as a population-level adaptation. Communities and infrastructure may require temporary and/or permanent relocation in response to flooding, extreme weather, and food insecurity.
**Political: International, national, and local policies and legislation**

Political systems within and outside of Canada influence our healthcare system. Issues of governance (i.e., the structures and practices of decision-making, leadership and financing for health) shape the rules and institutions of our health system as well as the span of control of the health system actors. Regulation, fiscal policy, incentives, and public education campaigns can nudge or influence the behaviour of both individuals and organizations within the system to achieve desired goals.

At present, federalism and the Canada Health Act ensure a publicly-administered single payer system with delegation of funding and resource allocation to provinces. Recently trends toward regionalization within provinces could continue to evolve where increasing power is transferred to regional organizations, megacities or networks of individuals. Alternatively, governance for health could undergo constitutional transformation and shift to centralization at the federal level, or even the supranational level. Trends towards supranational cooperation and globalization can open opportunities for firms to participate in the healthcare and future health systems of other countries. On the other hand, recent trends toward nationalism and protectionist policies may significantly shape the governance of future health systems and prevent economic cooperation and reciprocity.

**Social: Demographic patterns, social structures, and equity issues**

The Canadian population has been steadily increasing year upon year, due to increased life expectancy, reduced infant mortality, and increased immigration. As Canadian society grows older and more ethnoculturally diverse, healthcare needs will change, challenging the health system of the future. Longevity and health status will have a significant impact on programs and services required to meet the needs of older populations burdened by chronic disease.

*Demographics, Disease and Equity:* Over the last 45 years, life expectancy for Canadians has steadily risen to approximately 82 years, sitting slightly above the average for all OECD countries. Despite improved life expectancy, population health issues are shifting to conditions of disease and disability. Canadians are experiencing increased burden of chronic conditions including diabetes, congestive heart failure, chronic obstructive pulmonary disease, and mental illness. Signs exist of a healthcare system not able to meet the mental health and wellness needs of the population, as highlighted by recent research findings that deaths attributed to mental health conditions and substance use disorders have increased by 11 per cent over the last decade. Moreover, these “deaths of despair” were highly correlated with populations of lower socio-economic status. The influence of socio-economic status on population health and issues of health equity will be an important factor in future health system planning. Researchers have noted a growing divide between the wealthiest and poorest individuals in Canada, as measured by the Gini coefficient (0 represents equal distribution of wealth and 1 represents one individual with all wealth). Over the last 30 years, the Gini coefficient in Canada has increased from 0.290 to 0.319, signalling increases in economic disparity that could drive further health disparities.

*Cultural Diversity:* The influence of increasing cultural diversity of populations is an important consideration in designing and administrating the health system of the future. The number of foreign-born individuals who arrived as immigrants represent 20.6% of the total Canadian population. This is the highest proportion of foreign-born population in the G8, representing close to 200 countries as a place of birth. Furthermore, nearly 1 in 5 Canadian residents identify as a member of a visible minority population. Canada’s linguistic diversity is also increasing. 73% of the immigrant population has reported a mother tongue other than English or French, from more than 200 languages. Additionally, attention must be focused on the unique healthcare and social needs of Indigenous populations as part of our collective responsibility towards Truth and
Reconciliation. Together, cultural diversity and the importance of person-centred care has created the need for availability of culturally appropriate services to meet current and future population needs.

Globalization: Globalization and human migration between countries will have an impact on the supply and demand for healthcare in the future through several ways. As noted above, increased cultural diversity will be a key driver of providing culturally appropriate care. Additionally, global patterns of human migration (resulting from political, economic, or environmental pressures) can influence supply of human health resources (HHR), creating shortages in some regions while other regions benefit from welcoming trained healthcare professionals.\(^3\)\(^1\) Globalization can exert pressure on health systems through medical tourism and create issues of queue jumping, equity, safety, and resource drain for both the home and host countries.\(^3\)\(^2\) Finally, international migration has been identified as one driver of increased infectious disease transmission rates and the re-emergence of diseases previously thought eradicated; both of which will put strain on our current healthcare system and may require new policies and infrastructure.\(^3\)\(^3\)

## Alternative Futures: Three Scenarios

How health systems adapt to and/or embrace the forces of change, or alternatively, how they fail to do so, will result in alternative scenarios, or futures, of health systems and population health. These could be very different from the current state of health systems. Below we present three of any number of potential future scenarios that could result from various combinations and/or dominance (either positively or negatively) of the conditions, or impacts, within each category. The scenarios presented below have been adopted from scenarios generated through two comprehensive future-looking exercises conducted by the Institute for Alternative Futures (2012) and the World Economic Forum (2013)\(^2\), and then modified slightly to match a Canadian context.

Utilizing scenarios for future planning is not meant to present what is predicted or preferred, but what is plausible. These scenarios have been generated to foster thoughtful discussion about what health system leaders may have to expect, and to improve planning today to prepare for the future. One core element within all three scenarios is that it will be necessary to improve efficiencies for current health systems to become more sustainable, but given the forces of change we are experiencing, efficiency gains will be insufficient to make that shift to sustainability alone.

---
\(^2\)Please see the references for the reports’ full citations and the web links from where they can be accessed.
Scenario 1: Slow, incremental reform and better health

Zone of conventional expectation: The extrapolation of known trends; the expectable future

The growing population, the aging cohort of the Baby Boomers, and the increasing cost of medical devices and pharmaceuticals combined drive up total medical costs. The provinces and territories move to capitation or bundled payment schemes in integrated systems with some additional incentive payments for service providers who meet the relevant quality standards. These systems may help constrain the growing costs for medical care and improve overall quality. However, health and effectiveness of health care varies among provinces.

Population health improvement is initially slow. Health care’s proportion of the GDP continues to grow, and population health measures show that Canada is beginning to lag behind other OECD countries. Health, not health care, becomes the main political issue as candidates debate how reform of health care has failed to adequately improve the country’s health and to slow the growth of health costs.

Over time, comparative effectiveness studies using years’ worth of data from electronic health records show that enhanced health system performance and attention to the social determinants of health offers new and better ways to address quality, cost, and population health. And so a new wave of health care reform is ushered in, including greater emphasis on the non-medical elements of health, prevention and population health, as well as a shift in focus from federal and provincial initiatives to local efforts that exemplify health-in-all-policies approaches, emphasizing the health impacts of public policies across all sectors and levels of government, such as those that focus on social health and equity and that address factors like housing, employment, and community resilience. Self-care and health knowledge reduce demand for medical care and are enhanced through risk behaviour management, social networks, digital technologies, pre-disease identification, data, and new cures and therapies.

This focus on prevention as a strategy combined with fiscal pressures leads to the creation of a high-growth market for innovative products and services to improve health and avoid disease, such as those that use personalized health data, gamification, and digital agents. New treatments for expensive diseases, like Alzheimer’s disease and cancer, are developed, and emerging science using genomics, proteomics, and
metabolomics to identify disease pathways at the cellular and organ levels lead to some disease cures and other therapies to slow disease progress, thus greatly reducing the anticipated burden of an ageing society. This is enhanced by the use of digital technologies (e.g., virtual models and simulations, social networks where patients share health data and advocate for new treatments, surveillance systems that continuously monitor treatment safety and efficacy), which also accelerates the dissemination of disruptive innovations, including outside of the health system (e.g., affordable genome mapping, smart biomonitoring devices), enabling consumers to make the best use of medical knowledge to improve their quality of life.

Most integrated systems are willing to pay for the value these technologies offer, but those consumers not in integrated systems pay out-of-pocket for these services, which are seen as quality-of-life enhancements. Although companies offering extended health insurance continue to pool risk, the growing personalized understanding of health raises public debates about personal responsibility and fairness as people do not think they should have to pay more for insurance because of another’s poor health behaviour choices, or because of their own genetic predispositions for diseases. These arguments put new social pressure on people to take care of themselves.

Subpopulations that once took the lion’s share of public health spending (i.e., individuals with complex needs, most often older adults, and/or those with multiple chronic diseases and/or mental illness) 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.

**Scenario 2: Health if you can get it / Health Incorporated**

**Zone of growing desperation:** Plausible challenges that an organization or a society may face; a challenging future.
own pockets for health services. The primary care physician shortage hurts community primary care centres, which struggle to treat many new patients who otherwise visit walk-in clinics.

The boundaries of the health industry are redefined as governments, to reduce tensions amongst the public, permit the private sector to enter the market. To increase economic growth and spur innovation, governments liberalize their markets and enter into various supranational trade agreements. Corporations provide new products and services and are able to access the markets of other countries. New and diversified business players emerge in the health industry, including large private sector firms, who participate across the spectrum of the health industry: from an upstream focus on prevention and well-being, such as buying or establishing joint ventures with agricultural companies to grow a wider range of “healthy” crops, to operating most of the health facilities.

Innovation becomes predominantly motivated by business-to-business (B2B) demands. Organizations compete and collaborate to establish the new rules of the game — standards that accelerate the adoption of technologies and business models to improve health outcomes (including accessing, storing and disseminating data). Governments, meanwhile, focus on regulating large integrated health providers in a complex expanding global marketplace.

Health schemes and insurance markets thrive as people seek to cover their health costs. However, a new sense of conditional solidarity emerges; individuals are willing to share risks only with others who have similar or better risk profiles. People stratify into pools of varying risk exposures, some of which include benefits (such as lower premiums) for healthy lifestyles and data sharing. These health-financing schemes direct people to live in a certain way based on assessments of their risks, locking them into contracts that guarantee they adhere to these guidelines. However, not all people opt into a system that owns their personal data and intrudes into their lifestyle choices; others find the offerings too expensive. Society is fragmented into demographic, ethnic and economic factions, each of which is looking out for its own interests at the expense of others. An ever-growing gulf between the “haves” and “have-nots is expanding each year as unemployment rises to historically high levels.

Medical tourism increases with many affluent consumers seeking care overseas when they need major medical procedures. Global climate disruption leads to new diseases and bacteria, some of them antibiotic resistant, being introduced into the environment, leading to infectious disease epidemics.

The public becomes highly fractured and disillusioned with the ineffectiveness of governance. Faith and community-based organizations increasingly shoulder the burden of basic treatment and care for those who cannot access limited primary care services and/or afford the increasing out-of-pocket costs without extended health benefits. However, spiritual health erodes as hope turns to despair, and a pronounced pessimism over the prevailing political and economic system, especially among the poor and middle class. The psychosocial burden of illness leads to apathy, further economic downturns, and worsening psychological health. People lose their jobs, homes, and hopes and then start turning to junk foods, alcohol and drugs for relief. Incidnet rates for chronic diseases (heart disease, cancers, diabetes) and psychological crises increase in the youth and older adults.

On the other hand, remarkable advances in science offer new treatments, target drugs, and thus, disease control. The revolution in molecular biology combined with an information infrastructure that supports increasingly personalized treatments using genomics, proteomics, and microfluidic diagnostics to identify
disease long before patients feel a symptom. Yet the high cost of these technologies keeps markets small and only allow those with the means to receive their benefits.

The aggregate health of the nation declines, and the difference in health status between the rich and the poor continues to grow. However, there are some progressive communities who lead initiatives to focus on the social determinants of health, particularly community agriculture and home food production, lower-cost and sustainable energy and housing, and better but low-cost education, and who have thrived in areas beyond health as well, becoming hubs of innovation and economic dynamism.

**Scenario 3: Big data, big health gains**

**Zone of high aspiration:** Visionary strategies are pursued, and surprising success is achieved; an aspirational future

While mainstream politics and media focus public attention on the many divides within society (e.g., political, ideological, legal, and societal), below the surface, a profound culture shift reshapes society by lifting a broader concept of health up to become the primary concern of the country and uniting Canadians in the face of major challenges.

New media, including social networking, YouTube and TED Talks, help turn public attention from bad news to good news. Initiatives in communities around the country regarding health innovation, health equity, the social determinants of health and health in all policies (e.g., reducing food deserts by promoting access to affordable healthy food), are demonstrably improving health and health care, and are reducing health care expenditures. A growing number of communities use open-source tools such as CreativeCommons.org to map social problems and identify effective solutions. As a result, people, especially those living in poverty, in many neighbourhoods, communities, and cities are eating better and getting healthier. The sharing of success stories, and the rising popularity of alternative conferences for the policy community, has prompted the government to focus on improving quality of life.
The vitality found in online communities stands in stark contrast to the solutions put forth by elected leaders. In subsequent elections, the public demands cooperation, sustainability, transparency, and anticipatory democracy; a democracy where citizens and decision-makers are active, future-conscious partners who collectively shape the future of their community, province or territory, and country.

Innovative technologies, big data, and knowledge transform manufacturing, the economy and health, reshaping whole industries around new value propositions and business models, and yielding cures for Alzheimer’s disease, effective management of cancers, and widespread implementation of personalized medicine and health avatars. Massive databases with sophisticated software analytics demonstrate that communities that implemented these changes are far healthier than others, prompting a reorientation of entertainment and other services toward improving health. With the opportunity that big data provides comes also the risk associated with the consolidation of large amounts of data (privacy loss, data breaches). Education systems, which had been designed largely to create a productive workforce, now have an additional mandate: to improve health from conception to death.

“Social networking with a purpose” booms, opening a new period of creativity and accelerating a societal mind change within just a few years, to a commitment to achieving a healthy, equitable society. Collecting and using personal health data becomes cool and fun. People join health-centric social networks to search for new benchmarks and to swap information on the latest tests, treatments and lifestyle fads. Websites and games enable people to assemble around topics of personal health and well-being. As a result, people become less concerned about privacy and traditional medical taboos. Healthy living becomes a hallmark of success and an aspiration, especially as people become aware of the problems of not managing their ageing and psychological health well.

Government agencies use online technologies to engage the public and enhance governance, including identifying the priorities of the new Prime Minister. Health arises as the top priority, particularly the role of health as an input to fiscal stability, national security and economic vitality. At the individual level, big data facilitates health improvement through inexpensive microfluidic devices that continuously contribute to rich data clouds for each person to interface with personal simulations to predict future well-being. Collecting a person’s genetic code, postal code and everything in between, then applying systems biology and massive computational utilities enables individual predictions of major disease and death, levels of health status achievable, and action plans for achieving good health. These individual data clouds are also aggregated at the community level into health status reports with indices to compare individuals and communities across the country. Growing evidence of the health gains and cost savings achieved by individuals using gadgets, apps and diagnostic equipment to monitor their health, sparks an explosion of demand in these technologies. Shifts in culture, public policy and business models are triggered as individuals become more empowered to manage their own health.

A focus on the social determinants of health, lead to a reduced reliance on heroic medical procedures. Simulation opportunity expands to clinical testing, which markedly reduces the time and cost for developing new drugs and therapies. The rapid diffusion of knowledge to an engaged population means that patients play an assertive role in inspiring the development and use of these innovations. Governments recognize that expenditures in other policy areas has led to more health gains than expenditures on health care. Healthier communities, more effective personal health care, and more sophisticated self-care decrease the demand for physician services and hospital care, and ultimately, results in a reduction in health care spending.
Leadership Capabilities and Alternative Futures

The external forces of change described previously will determine the future state of health systems. How each driver will evolve, how they will interact with each other, and at what pace is unknowable. However, a range of technological, economic, environmental, political, and social forces are at work, changing the way we think about health and healthcare.

The complex challenges before us, and those anticipated as the need to improve value for investments in health care, requires an accompanying shift in health system leadership. There is no single structural, funding, or technological solution that will drive system adaption and/or transformation within this complex and dynamic environment. Rather, it is the “human element” — the people who shape, work within, and depend upon the health system, and the relationships between them — that will drive, or thwart, any strategic intention, and this culture is cultivated first and foremost by leadership.

Health system leaders must explore and understand the forces of change, become comfortable working with and within uncertainty, and build and nurture a culture that drives systems change to take a proactive approach to creating a more sustainable health system. This transformative leadership — also termed distributed, swarm, and collective leadership by different sources — catalyzes and cultivates a dynamic community of many leaders, both formal and informal, including patients and families. Foundational to transformative leadership is a shared commitment and collaboration amongst all the partners of the system, requiring comfort in shifting the balance of power to this collective community. Leadership and accountability are shared amongst all partners, both within and outside the boundaries of the traditional health system, allowing a communal wisdom to emerge.

In Canada, the dominant health leadership capability framework adopted by health organizations and national accrediting bodies (Accreditation Canada, Canadian College of Health Leaders) is LEADS in a Caring Environment. When applied by healthcare leaders, LEADS guides decision-making, policy development, and implementation at multiple levels of the system, from patient care to system transformation. LEADS is also applied across many different healthcare sectors, from public health to hospitals, to emergency management.

The LEADS framework features five domains: Lead Self, Engage Others, Achieve Results, Develop Coalitions, and Systems Transformation (Table 2). The five domains reflect “being” (who the leader is), “doing” (what the leader accomplishes), and “caring” (the why of doing). Each domain entails four leadership capabilities, and although the domains can be observed separately as discrete sets of capabilities, they also interact with one another:

1) **Leads Self:** Leading in complex systems begins with an understanding of one’s own values, strengths, and abilities; the demonstration of exemplary character; a commitment to self-responsibility; and an active orientation towards learning.

2) **Engages Others:** Leadership is the capacity to influence others to work together to achieve a common, constructive purpose. Healthcare leaders are required to collaborate and motivate stakeholders to achieve outcomes.

3) **Achieves Results:** Leaders are accountable for managing the resources of the organization to achieve results. This capability includes creating a strategy, implementing a plan, and evaluating outcomes that are aligned with organizational and system values.
4) **Develops Coalitions**: Leaders must be able to build effective relationships with a wide variety of internal and external stakeholders, including individual patients and families, to communities, private sector partners, public sector governments, and non-profit organizations.

5) **Systems Transformation**: Systems thinking, future orientation, and change management are required to address the opportunities and challenges that a dynamic and complex health system faces in the future.

### Table 2: LEADS Leadership Capability Framework

<table>
<thead>
<tr>
<th>Lead Self</th>
<th>Engage Others</th>
<th>Achieve Results</th>
<th>Develop Coalitions</th>
<th>System Transformation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self aware</td>
<td>Foster development of others</td>
<td>Set direction</td>
<td>Purposefully build partnerships and networks</td>
<td>Demonstrate systems/critical thinking</td>
</tr>
<tr>
<td>Develop themselves</td>
<td>Communicate effectively</td>
<td>Strategically align decisions with vision, values and evidence</td>
<td>Mobilize knowledge</td>
<td>Orient strategically to the future</td>
</tr>
<tr>
<td>Manage themselves</td>
<td>Contribute to the creation of healthy organizations</td>
<td>Take action to implement decisions</td>
<td>Demonstrate a commitment to customers and service</td>
<td>Encourage and support innovation</td>
</tr>
<tr>
<td>Demonstrate character</td>
<td>Build teams</td>
<td>Assess and evaluate</td>
<td>Navigate socio-political environments</td>
<td>Champion and orchestrate change</td>
</tr>
</tbody>
</table>

*Adapted from Leads Canada, 2016.*

At first glance, it may appear that the LEADS Framework does not explicitly align with the tenets of transformative leadership. There is an opportunity to consider how specific aspects of transformative leadership (and other leadership capacities or models) may directly or indirectly correspond with elements within the LEADS Framework. For example, consider how one might shift from:

- An apparent focus on individual leadership, to the fostering and harnessing of the **collective** leadership of a community, comprised of formal and informal leaders from both within and outside of the traditional health care sector, and from all levels of organization and society;
- Being a champion for change, or the one enacting change, to **creating the conditions** within which any leader, formal or informal, can be an agent for change;
- Encouraging the participation of other stakeholders in strategic initiatives, to developing others into leaders and practicing **distributed leadership**, and
- Understanding or incorporating the voice of the customer/consumer and other stakeholders, to **co-design or produce solutions**, requiring a shared power.

Thus, the questions we need to explore are:

- Are existing frameworks of health leadership capabilities such as LEADS sufficiently comprehensive and flexible to drive the leadership capabilities required to meet the challenges of the future?
- Further, are there leadership capabilities that have yet to be articulated that would be necessary to address the needs of future health systems?
Phase Two: Sparking a Dialogue and Next Steps

To explore how we can best equip future leaders to navigate the forces outlined in this report, the next phase of this research project was launched on March 7, 2019 in partnership with the McMaster Health Forum, bringing together over 20 health system experts and future thinkers who drew upon the breadth and depth of their experiences within healthcare and health systems, to contemplate the capability requirements of future leaders in the healthcare sector. The participants considered the research evidence, our plausible alternative scenarios, as well as their own views, experiences and tacit knowledge; the preliminary outcomes of their dialogue are outlined below.

Preliminary Dialogue Outcomes

The dialogue participants acknowledged and confirmed the many challenges with respect to developing healthcare leader capacity for the present and the future presented to them in this white paper and the evidence brief provided by the McMaster Health Forum prior to the dialogue. Those challenges included:

- Institutional leadership cultures are not conducive to preparing health leaders for alternative futures
- There are few evidence-based and well-funded mechanisms for attracting, selecting, developing and incentivizing needed health leadership competencies
- There has been insufficient progress in building diversity among health leaders
- There is little understanding of leadership capacity to lead effectively amidst plausible alternative futures

Dialogue participants established several priorities to guide the development of a strategy to address healthcare leadership needs of the future:

- Establish a collective vision for the leadership competencies most likely to be effective across alternative plausible futures
- Identify and develop the evidence-based recruitment, assessment, selection and developmental programs required to acquire and develop these competencies
- Identify and develop the complementary system initiatives to support emerging leaders in practice.

These priorities involve adding additional competencies and personal characteristics to those currently conceptualized in existing leadership frameworks and adjusting the focus of current programs to emphasize these competencies. Moreover, the participants felt that a strategy to address healthcare leadership needs should involve the development of a culture supportive of distributive and diverse leadership and embedding leadership development within a rapid-learning health systems framework.

Finally, the dialogue participants identified a number of next steps to be considered as the Health Leadership Academy moves forward:

- Working to cultivate a culture that is conducive to developing the types of leaders needed in the future (e.g., individuals accepting of failure associated with risk-taking), and incentivizing emerging leaders to develop the competencies required to lead
- Integrating leadership development within existing and emerging system-transformation initiatives’
- Ensuring that emerging health-system leaders have exposure to a broad range of sectors and industries that can provide novel insights about various approaches to leadership (e.g., the start-up community)
• Establishing state-of-the-art, evidence-based mentorship from senior leaders in the health system
• Engaging emerging leaders more regularly, and strengthening approaches to succession planning to ensure they are set up for success
• Exploring opportunities to create a central ‘home’ for health-leadership development and professionalization in Canada.

Drawing on these insights, the evidence brief and dialogue summary that accompany this white paper will support the Health Leadership Academy and other leading health organizations in their efforts to develop programs that position future leaders to succeed.


