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Life support: A people prescription for resilient health systems

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Executive summary

Many health systems were unprepared for the COVID-19 pandemic, struggled to respond and recover, and face further shocks and stresses that are fast coming over the horizon. Healthcare providers are suffering many pressing problems with funding, infrastructure, technology, and supply chains but, most of all, staff. Grueling experiences during the pandemic aggravated longstanding grievances and led three in ten US healthcare workers to consider leaving for other professions, while in the UK more than one in ten posts remain unfilled.

Stakeholders across the health ecosystem must better manage and meet demand for health services during crises as well as adapt more readily to major shifts in the broader context for care. To shore up resilience, health systems must begin by addressing a **massive workforce challenge.** People risks stem from three interlocking issues: Capacity (baseline and surge), connectivity (across the healthcare ecosystem), and culture (of resilience). The interplay of these factors is crucial as each can drive, amplify, or undermine the others.

The first workforce issue is a chronic capacity challenge, with high levels of burnout and attrition, health and safety risks, and skills gaps. To create **flexible surge capacity** for future crises, health systems can build on efforts deployed during the pandemic to pool and coordinate resources — including the rapid upskilling of healthcare professionals, leveraging medical reserve corps, and adaptive care goals and standards. Many health systems also need to **boost baseline capacity**, beginning with fostering a mindset of **investment in healthcare workers**: Better pay and benefits (including mental health support) as well as ensuring safety for staff will be the bedrock of improved retention. **Redesigning work** by giving workers more flexibility and rethinking "jobs" as skills-based roles will unlock trapped capacity without necessarily adding more people, as will task-shifting and task-sharing facilitated by technology.

The second issue is poor **connectivity** across the healthcare ecosystem: Fragmentation, few formal collaboration mechanisms, and misaligned incentives stand in the way. Creating connectivity is an endeavor that health systems, governments, and other funders must undertake together. Opportunities to better share information, mobilize limited resources, and mitigate systemic vulnerabilities will come from **unlocking data and technology,** including investments in data collection and analysis to identify vulnerable populations or predict hotspots of need. In the longer run, **more joined-up policies, services, and tools** will help manage demand growth — from care models and networks that can cater to increasingly complex needs to improved disease prevention and management across public health, primary care, acute care, and social care.

Third, a **culture of resilience** is lacking at health system and societal levels. **Trust and transparency** deficits constrain engagement and learning within many healthcare institutions. To restore staff trust and prepare them for future shifts, health system leaders must establish psychologically safe team cultures and reciprocal influence between leadership and healthcare professionals. More broadly, growing inequalities, mistrust, and polarization are compromising a culture of resilience at individual and community levels, setting disease burden and costs on unsustainable trajectories. There is an urgent need to control healthcare demand, ensure the sustainable delivery of health services and mitigate pressures on health system staff in humane ways. This means providing timely and credible advice to **counter misinformation**; shifting to **care models that align with patient priorities** of outcomes, access, affordability, and convenience; and improving **population well-being and health equity** to reduce societal vulnerabilities to a range of shocks and stresses.

Introduction

Many health systems were already strained going into the COVID-19 pandemic, are even more strained coming out of it, and now face the prospect of more shocks and stresses on the horizon. Acute-, primary-, and secondary-care providers endure many pressing problems including funding, infrastructure, technology, and supply chains but, most of all, staff. To shore up resilience, health systems must begin by addressing a massive people challenge.

COVID-19 revealed and aggravated long-neglected resilience challenges for health systems. Many health systems were unprepared for the crisis, struggled to respond, and are struggling to recover (see Exhibit 1). Frail health systems have cascading impacts as the health of a population underpins economic prosperity and societal stability: At a macro level, world GDP fell by 3.4% during the pandemic[1]; at the industry level, long-term sickness is driving increasing numbers of working-age adults to drop out of the workforce.[2]

Resilience becomes ever more crucial in an increasingly complex risk landscape as multiple hazards converge. Besides ensuring the survival and sustainability of the health system, investments in resilience can also improve the day-to-day functioning of a health system ("the resilience dividend") and help mitigate the impacts of crises on communities, control the overall burden of disease, and reduce the pressure on health-system funders as they brace for slowing global economic growth or recession that may further limit funding.

Exhibit 1: Health systems varied widely in terms of pandemic preparedness and response to COVID-19, and continue to vary in terms of recovery

PREPAREDNESS

34

ICU beds per 100,000 people Germany's number of intensive care unit (ICU) beds compared to an OECD average of 12. ICU capacity looked overly generous before the pandemic, but prescient in hindsight[3]

1%

Of face masks deemed necessary that were available in the US Strategic National Stockpile at the start of the COVID-19 pandemic[4]

5%

Cap on Italy's national healthcare budget allocated for preparedness activities between 2001 and 2019, part of two decades of cuts to the Italian Servizio Sanitario Nazionale to secure financial stability[5]

RESPONSE

20,000

Number of new healthcare hires made via extraordinary measures in public legislation in Italy, including temporary contracts[5]

70%

Reimbursement provided for teleconsultation services in France, going all the way up to 100% for chronic conditions[6]

65,000

Number of retired doctors and nurses in England and Wales invited to return to the NHS to boost frontline services[7]

RECOVERY

6.84 million

Number of people on National Health Service (NHS) waiting lists for treatment in the UK as of July 2022, up from 4.24 million at the start of the pandemic[8]

77x

In the UK more than 28,000 people waited over 12 hours from decision to admission to emergency care in August 2022 — or a 77-fold increase on 2019 numbers[9]

1 out of 50

Number of US states that will have sufficient clinical laboratory technologists and technicians by 2026[10]

Staffing costs are central to financial pressures on health systems, and other problems contribute to workforce issues in turn: Outdated technology precludes productivity gains enjoyed by other industries, and payment structures (such as in the US) drive down rewards of some types of workers such as nurses. Workforce shortages were a well-known health system challenge further aggravated by the pandemic; many countries are failing to train sufficient future workers, an imperative made more complex by aging populations and economic conditions making it difficult to source clinicians and support workers in many regions.

The following four chapters set out the resilience imperative for health systems in a changing world, and three crucial factors that drive or mitigate workforce risks: Capacity, connectivity, and culture. Each chapter also puts forth ideas for the way forward.

Given the capacity crunch and related pressures they face, many health organizations are currently in survival mode and may find it difficult to contemplate actions beyond immediate band-aids. However, it remains important that they understand and address the underlying fragility drivers and fracture points, even when it is challenging to develop solutions or secure resources to implement them.

The suggestions in this report include some measures that health systems can implement, some that they can influence, and some that become feasible in partnership with other stakeholders, including other health sector participants, government in regulatory and funder roles, and businesses. Healthcare institutions and other stakeholders can work with their trusted advisors to determine the solutions best suited to their specific context and challenges.

In this paper, the term “resilience” denotes preparedness for shocks and stresses and the ability to mount an effective response. Equally, it encompasses the ability to learn and grow from the experience to become more prepared and better performing. The term “health systems” refers to organizations that provide healthcare services across various settings — including acute/hospital care, primary care/clinics, and secondary/rehabilitative care. These organizations may be large or small, publicly or privately run, for-profit or not-for-profit.

People risks: The pressing problem for health systems

In an increasingly complex risk landscape with interdependent drivers and spill-over effects[11], the health sector, governments, businesses, and communities have an urgent imperative to invest in health system resilience. Underlying causes such as workforce challenges can gradually erode the system's ability to cope with and adapt to changes.

A web of trends and threats over which health systems' players have limited influence is re-shaping the backdrop against which they deliver care. Five key trends are changing healthcare demand, costs, and supply:

Ageing populations and growing inequalities are worsening and changing the disease burden.

The number of people aged 65 and above will double by 2050, and an older world will need more long-term care and more complex healthcare for multiple chronic conditions. Disease burden and healthcare costs will soar everywhere, including in developing countries: by 2050, 68% of the world's over-80s will be living in Asia, Latin America, and the Caribbean.

Adding to the demographic headwinds, socioeconomic inequalities result in more mental ill health and conditions of despair, which already cost the US health system about $320 billion and are forecast to rise to more than $1 trillion by 2040. Deprivation and disparities are contributing factors to the growing burden of mental ill health, which will become the leading cause of disease burden and disability globally by 2030.

Slow-burn stresses such as climate change and antimicrobial resistance (AMR) can disrupt care delivery and worsen quality.

Climate change is one of the biggest health threats of the 21st century, with extreme weather, elevated temperatures, and rising sea levels expected to increase malnutrition, injuries, infectious and chronic disease, and mental ill health. Climate hazards can simultaneously cause spikes in need and disruptions to urgent care, by damaging healthcare facilities, fracturing supply chains, and displacing healthcare workers.

Meanwhile, overuse and misuse of antimicrobial drugs (such as antibiotics) are driving the evolution of pathogens that are resistant to the drugs. Drug-resistant infections around the world could increase healthcare costs by up to $1 trillion per year by 2050 and reverse public health gains of the past century as well as the economic development underpinned by them; ongoing economic damage may be on a par with the 2008 global financial crisis.

Technological innovation can trigger harms at vast scale, as well as enabling high-impact opportunities.

Digital health, AI and machine learning, genomics and personalized medicine all have the potential to significantly improve healthcare access, outcomes, and costs. Digital tools for mental health, for example, can complement traditional services to provide patient education, early detection, and evidence-based interventions to vastly more people in a cost-effective manner. However, innovative technologies also exacerbate existing clinical, operational, financial, and reputational risks and introduce new ones. Machine-learning algorithms trained on historical data can perpetuate biases and result in adverse outcomes at scale. Data privacy and security risks are also a serious concern, as sensitive health data are governed inconsistently and remain lucrative targets for cyber criminals.

Enduring supply chain vulnerabilities increase risks and costs.

Extreme weather, trade tensions, and geopolitical conflicts are making health systems' access to vital drugs, medical devices, and supplies increasingly uncertain. Take extreme weather: Hurricane Maria in Puerto Rico in 2017 damaged intravenous-fluid manufacturing plants, resulting in months-long critical shortages across the US. The pharmaceutical supply chain remains heavily concentrated and reliant on a few key countries. Around half of active pharmaceutical ingredients (APIs) imported into the US are from just two countries: India and China. Increasing reserves or redundancy will raise costs in a context of already strained budgets and growing pressure to rein in spending.

Misinformation and mistrust risk becoming entrenched.

While health systems enjoy greater public trust than institutions such as governments or media, polarization on health topics and resulting mistrust increased during the COVID-19 pandemic. The politicization of attitudes towards science is correlated with a 76% higher excess death rate for Republicans than Democrats in the US after vaccines became widely available. People's confidence in their doctor or hospital affects their willingness to seek and follow medical advice and their satisfaction with

the health system overall. If trust in health systems continues to erode, healthcare workers may face even more hostility from patients and their families. Moreover, health outcomes and disparities may worsen as people — particularly minority groups with historical reasons for distrusting institutions — eschew disease control guidelines, defer or forgo evidence-based care, or turn to less effective and riskier alternative interventions.

Health system resilience spans crisis preparedness, effective response, learning and growth

Resilience covers the ability to withstand, absorb, and recover from disruptive scenarios (shocks) as well as more gradual changes (stresses).[12] Resilient systems prepare for crises, mitigate their negative effects by maintaining essential service delivery, recover quickly, and apply lessons learned to perform better.[13] Resilience also involves proactive adaptation to changes coming over the horizon to accommodate shifting demand for healthcare services and inputs.

Resilience is hence both a result as well as a dynamic and continual process of preparedness, response, recovery, back to preparedness (see Exhibit 2). Systems may perform well in one or more phases of this lifecycle but worse in others — a health system may power through a crisis but be weakened by it. Poor performance in any one stage may have a compounding effect: A poorly prepared health system may struggle to mount an effective response at the peak of a crisis and take longer to recover than well-prepared peers.

Besides ensuring survival and sustainability of the health system, investments in resilience can also improve the day-to-day functioning of a health system ("the resilience dividend") and help mitigate the impacts of crises on communities, control the overall burden of disease, and reduce the burden on funders for health systems.

When we think about [economic, scientific, or social risk] we need to put in place things that, whether that risk happened or not, would bring us value and utility all the time. That is the way to make [resilience] sustainable.

Jeremy Farrar, Director, Wellcome Trust[14]

Exhibit 2: Resilience is a dynamic and continual process of preparedness, response, and recovery from shocks and stresses

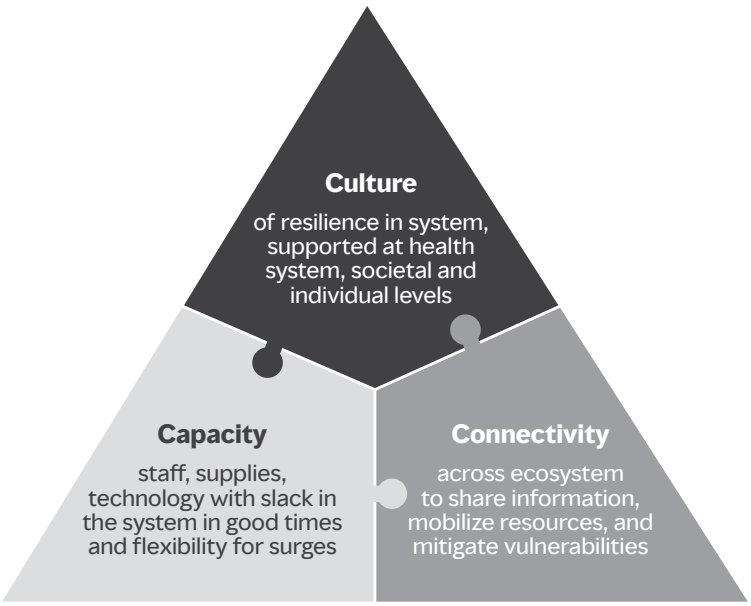
Source: Marsh McLennan Advantage

Capacity, connectivity, and culture impact workforce risks and opportunities

As with other complex systems, health systems can grow more resilient or more fragile over time. Underlying causes such as workforce challenges can gradually erode the system's ability to cope with and adapt to changes, until a proximate trigger initiates a sudden fracture or step change into a new state.

Workforce challenges comprise three interlocking issues: Capacity, connectivity, and culture (see Exhibit 3). The interplay of issues is crucial as each can drive, amplify, or undermine the others to affect the supply of health services and/or demand for them. Capacity, connectivity, and culture each have their own fragility drivers and fracture points, as explored in the following chapters.

Exhibit 3: Three interlocking workforce issues affect health system resilience



Source: Marsh McLennan Advantage

Capacity

In everyday and crunch situations, health systems need enough staff with relevant expertise in appropriate roles (clinical, operational, technological, and other), who are deployed using effective staffing models and incentivized and supported adequately. The right baseline is difficult to quantify, and stakeholders may get used to a system performing at capacity and not notice declining resilience. Experts observe that resilient health systems maintain sufficient capacity to meet typical demand for health services (including predictable spikes such as from seasonal influenza), plus some slack in the system as a source of just-in-case capacity during crises.

Given that health systems cannot afford to sustain crisis-level capacity all the time, they need flexible capacity to meet demand surges during crises. Skilled labor is, however, difficult to flex. Healthcare professionals such as nurses and doctors take years to train both off and on the job, and are more difficult to scale up in the short term than infrastructure (such as hospital beds) or supplies (such as medicines). Resilient health systems augment essential services[15] by rapidly expanding their workforce (perhaps deploying recently retired or soon-to-graduate clinicians) and/or moving staff to where they are most needed (including different clinical specialties, healthcare settings, or hotspot locations).

Exhibit 4: A lack of capacity in nursing homes increases acute-care lengths of stay

Several US hospitals have reported steadily increasing lengths of stay compared to prior years due to difficulties in discharging patients, which contributes to deteriorating operational income. Higher in-patient acuity coupled with longer lengths of stay impacts the productivity and financial sustainability of healthcare providers.[16]

Healthcare provider	2021	2022	Increase
Mass General Brigham	5.6	6.0	**7.1%**
Intermountain Health Care	4.3	4.5	**4.7%**
Sutter Health	4.7	4.8	**2.1%**

Source: Municipal Securities Rulemaking Board

Connectivity

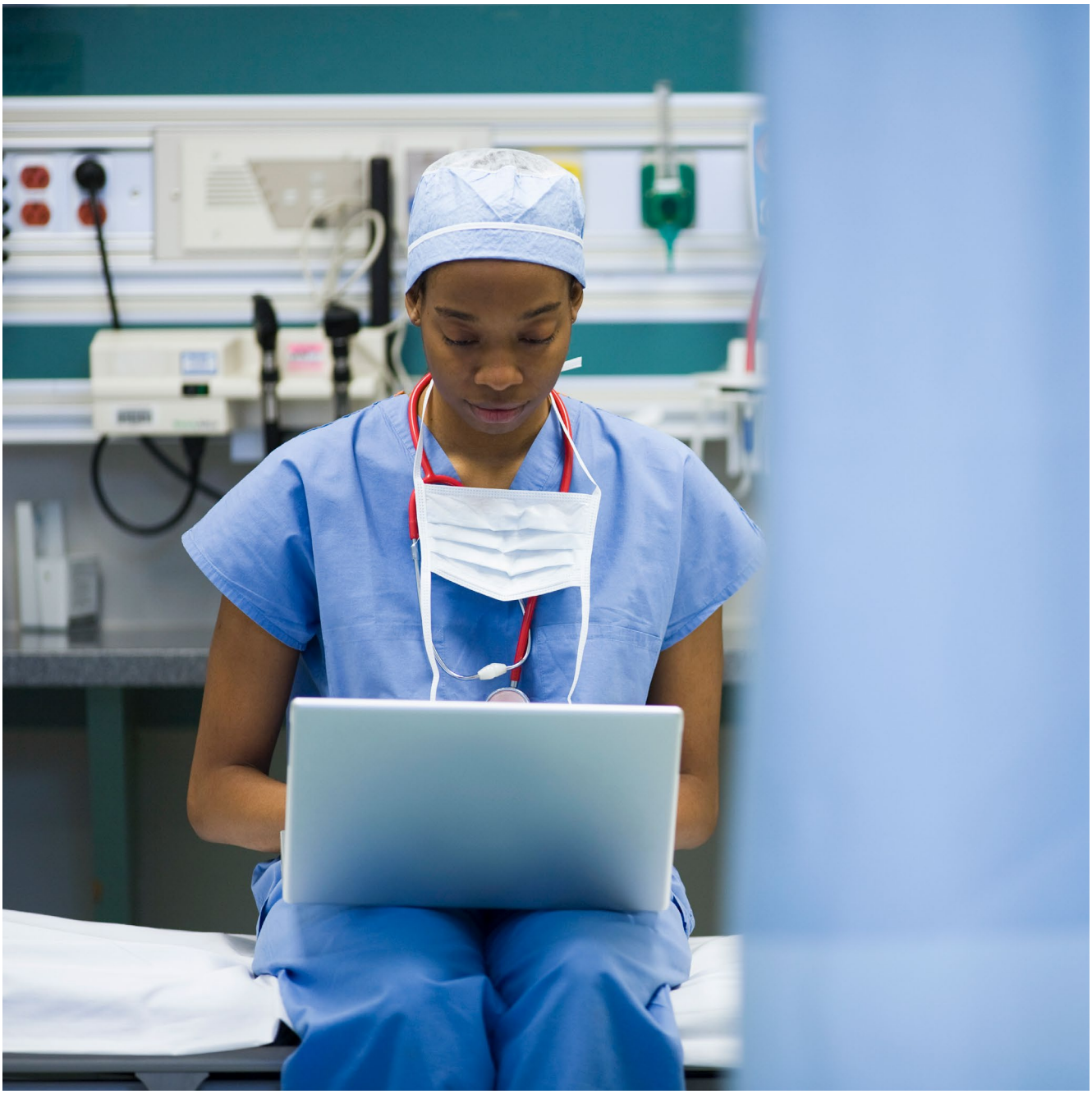
Interactions between different parts of the health system shape how well they share information, mobilize and share resources, and mitigate systemic vulnerabilities. Connectivity suffers when service providers are fragmented or adversarial; vulnerabilities in one part of the health system can spill over into risk exposures for other parts. For example, access challenges to primary care and elderly care are driving utilization of urgent care and occupancy of hospital beds in the UK[17] and the US (see Exhibit 4).

Health systems are also dependent on a range of other stakeholders[18] — such as regulators and policymakers, funders of healthcare (government, employers, health insurance), public health or disease control authorities, and adjacent industries such as life sciences (including pharmaceutical, biotech, and medical device companies) — whose decisions can affect the demand that health systems are expected to meet and the resources available to them.

Culture

Intangible factors such as norms, values, standards, and practices underpin resilience at the health system, societal, and individual levels. Within health systems, a culture of openness and psychological safety, staff well-being as well as patient care, and empowerment of individuals, teams, and institutions can enable the system to exploit capacity and connectivity to their full potential. A health sector-wide culture of resilience can encourage connectivity and collaboration across stakeholders, which can mitigate demand surges during a crisis and speed up recovery to return to a business-as-usual state.

Community resilience also matters. A whole-of-society culture of resilience requires governments and employers to commit to better living and working conditions — which shape population health outcomes and behavior — and to affordable healthcare that minimizes access disparities, particularly for vulnerable groups. Better population health is the only way to control demand in a humane way and ensure sustainable delivery of health services in the long term. Mitigating vulnerability at individual and societal levels can also reduce demand surges during crises, alleviating the pressure placed on health systems.



Boosting capacity: Workforce strength, skills, and safety

The COVID-19 pandemic aggravated workforce capacity and productivity problems for health systems, which are struggling to reduce care backlogs while meeting current demand. Opportunities exist in the near, mid, and long term to address people risks and build resilience.

Health systems have a chronic capacity challenge, driven by workforce shortages, high attrition, skills gaps, and poor health and safety (see Exhibit 5). The World Health Organization predicts a global shortfall of 15 million health workers by 2030[19], a conservative forecast that does not consider COVID-19 impacts.

Grueling experiences during the pandemic have led 3 in 10 healthcare workers to consider leaving for other professions.[20] In the UK, more than 130,000 posts (1 in 10) remain unfilled, with the greatest proportion of vacancies in nursing.[21] As turnover rises due to burnout, long-term sickness, and early retirement, the loss of experienced staff is eroding productivity.

Exhibit 5: US healthcare providers face workforce shortages and high turnover

By 2025, the US will likely face a shortage of:[22]

446,300

home health aides

98,700

medical and lab technicians

95,000

nursing assistants

US healthcare workers say they quit medicine because:[23]

50%

wanted more money or better benefits

50%

found a better opportunity

49%

burned out or overworked

Source: Mercer, Morning Consult

Workforce shortages — driven by poor attraction and retention of talent — compromise the volume, range, and quality of care that health systems can deliver. Public perception of healthcare workers as heroes does not compensate for several factors that impact the attractiveness of healthcare as a profession:

- Unsustainable workloads and inadequate support are stretching staff perilously thin, contributing to high levels of burnout. In 2020, during the first year of the COVID-19 pandemic, nearly half of healthcare workers surveyed in the US reported burnout, and two in five reported experiencing anxiety or depression.[24] The situation has worsened towards the end of the pandemic, with 82% of healthcare workers in a global 2022 survey saying they feel at risk of burnout.[25]
- The risk of workplace violence compounds the threat to staff safety and well-being. Health and care workers are five times more likely to experience abusive and unacceptable behavior than workers in other industries.[26] Healthcare professionals in many countries have faced increasing hostility and aggression from patients and their families during the COVID-19 pandemic.[27]

- Poor pay and benefits are a key driver of turnover. One issue of contention is internal-to-external pay equity (between full-time and travel nurses, for instance), which undermines morale. Further, rising inflation is resulting in real-time wage cuts for staff who already feel undervalued by their employers. One in three healthcare workers say their rewards are not commensurate with the amount of effort they put in.[28]
- Outdated work models and limited career opportunities contribute to a disengaged and demoralized workforce. Little flexibility in the scheduling of shifts as well as limited opportunities for nurses to specialize or expand responsibilities to different parts of the patient experience are prompting some to consider quitting[29] or to move frequently between employers. A perceived lack of support and psychological safety for voicing concerns adds to job dissatisfaction, which creates resistance to transformative changes such as shifts to new care models.

Skills gaps compound shortfalls in absolute numbers of healthcare staff and undermine capacity as staff become overwhelmed by challenges for which they are not adequately equipped or supported to solve. Receiving a high number of electronic messages was associated with a 40% higher probability of burnout among clinicians and a 38% higher probability of reduced clinical work time.[30] Increasingly widespread use of electronic health data and platforms are changing the skills required of healthcare professionals, such that clinicians predict that over the next 10 years, technology literacy will become their most valuable capability, ranking higher than clinical knowledge.[31] However, a poor track record of technology implementation or user experience — such as with electronic health records in the US, widely perceived as adding to clinicians' workload — undermines clinical users' perceptions of digital innovation and their willingness to learn and adopt new technologies and applications.

WAYS FORWARD

Ideas for stakeholders to boost health system capacity

In the near term, health systems can build on efforts during the COVID-19 pandemic to pool and coordinate information and resources.

- Develop processes to knit together staff and skills across care settings and locations so decision makers can rapidly scale up capacity during a shock. This may involve having a plan and processes in place to support workers to adapt their skills or upskill rapidly alongside limited pre-crisis training — for instance, deploying elective-care professionals on urgent tasks outside their specialties during a pandemic[32] or training generalists rapidly in emergency procedures such as intubating patients.[33]
- Share and scale best practices for boosting productivity and patient outcomes. In the US, the BMC2 Cardiovascular Consortium encouraged 50 hospitals in Michigan to share extensive clinical details on cardiovascular disease — from how each hospital was treating the disease to the technology deployed. Sharing data enabled the hospitals to identify hidden performance gaps, change practices, and improve outcomes including hospital readmissions.[34]

In the near to mid term, health systems must foster a mindset of investment in healthcare workers.

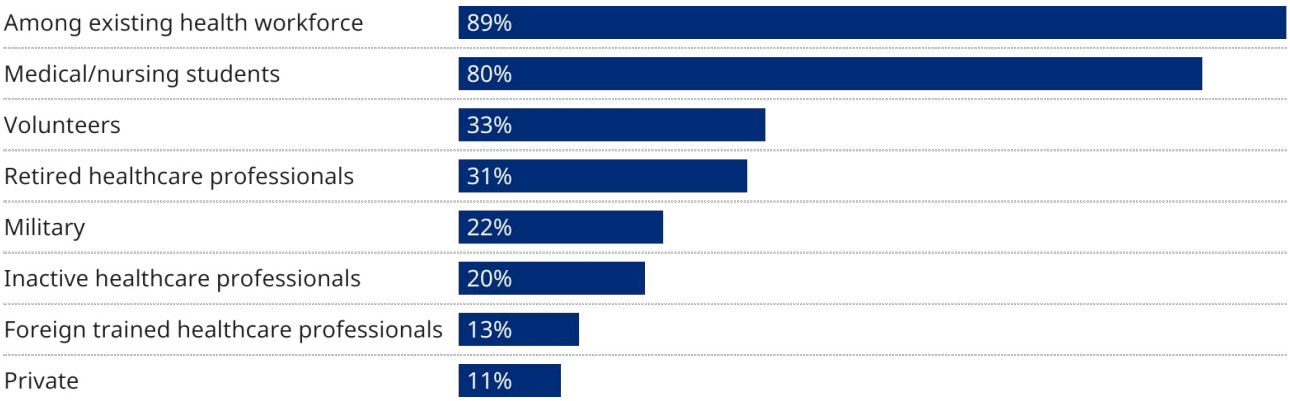
- Noting a darkening economic outlook that limits room for maneuver, improve staff retention through better compensation (including mental health support) as well as by adequate levels of staffing of those with the appropriate skills and experience. Ensuring sufficient baseline capacity and surge capacity depends on addressing people risks by first and foremost fostering a mindset of investment in health professionals so that health systems both compete more effectively within the existing labor pool and work together to increase the size of the available talent pool. Indeed, some health systems are collaborating to start their own staffing agencies.[35] Equally critical will be redesigning work to give healthcare professionals a greater voice (such as flexibility over schedules) as well as rethinking who does what and where to create more capacity without necessarily adding numbers — redefining "jobs" as skills-based roles can unlock trapped capacity and enable more fungibility of the existing workforce.[36] Employer and government support for skilling/reskilling and career development initiatives is vital.
- Ensure healthcare workers' physical safety through regulation and employer support to empower frontline staff to stop unacceptable behavior. Employers can take action with robust threat assessment and management procedures,

workplace violence mitigation plans, security operational and facility hardening and terrorism/ crown flow and blast monitoring. Just as critically, mental health support and Employee Assistance Programs will help those who have been targets of violence.

In the mid to long term, health systems can create adaptive capacity for conventional, contingency, and crisis situations.

- Engage in long-term planning for required investments in workforce and in digital technology and its integration, including revisiting the training, licensing and compensation of healthcare professionals to match supply and demand of different clinical specialties. Health systems — with government involvement in the case of publicly owned and run systems — will need to develop strategic plans, which will also benefit from stress tests under various mega-trend and mega-threat scenarios, and periodic reviews.
- Shift and share tasks across healthcare roles and settings with appropriate training, support, safeguards, and evaluation to mitigate risks and realize resilience benefits. Exploring ways to advance task shifting and sharing will help enable adaptive capacity across a health system, as will unlocking technology and data opportunities to augment capacity and fill skills gaps during a shock — selective automation, triage, remote monitoring, and real-time mentoring can support clinical decision-making by providing alerts and actionable information.[37] Use technology to empower patients and caregivers to perform routine monitoring and disease management tasks.
- Create and maintain medical reserve corps with relevant experience. During the pandemic, 36 out of 45 European countries scaled up capacity by drawing on medical or nursing students (see Exhibit 6).[38] France mobilized its medical care reserve of experienced volunteers such as retired nurses and physicians.[39] Planning and training on how to use reserve resources based on their current skills and knowledge will be vital — including training for the existing workforce on integrating and leading such teams. However, this "call-up" strategy should be deployed with caution as it can have long-term repercussions — using medical students to scale up short-term capacity can interrupt training, increase the potential for patient safety events, and make post-crisis recovery harder as workers play catch-up with skills development.
- Adapt goals and care standards as appropriate to the scenario. During a disaster, this may mean regulators and healthcare providers shifting from the day-to-day operational focus on optimizing outcomes for the individual patient to optimizing those for the overall population.[40]

Exhibit 6: During the pandemic, European countries relied on a range of strategies to flex clinical capacity



Source: World Health Organisation

Creating connectivity: Ecosystem coordination

Connectivity, when it exists at all, falls down in the face of health ecosystem fragmentation, a shortage of formal communication mechanisms, and limited incentives to cooperate — resulting in resource wastage, unused spare capacity, increased costs and risks from care delays, and unnecessarily large spikes in demand.

Health systems in many countries feature weak connections between constituent parts. Absent protocols to establish roles and responsibilities, health systems cannot disperse demand spikes during crises across various care settings and providers. For instance, during the 2012 floods in Vietnam, healthcare staff were unsure which flood-related health problems to address, because the health emergency plan did not clearly define the role that primary care should play and had no clear protocol to formalize coordination.[41]

Such confusion runs the risk of overwhelming acute care as people flock to hospitals, which they perceive to be the paramount care providers during a crisis, rather than as a node in a network. In China, weak primary care and its poor integration with acute care resulted in patients bypassing primary care facilities and overloading hospitals during the COVID-19 pandemic.[42] Overloading some parts of the system while leaving spare capacity unused in others can increase care delays, errors, and costs.[43]

Gaps in authority or misaligned incentives can hinder joined-up thinking and trigger unmanageable demand surges if decision-makers do not consult and coordinate with all relevant stakeholders. The UK offers salient examples of interlinked capacity and connectivity failures: Delayed transfers of fit-for-discharge hospital patients to capacity-constrained community and home care ("bed blocking") cost the NHS £587 million between 2017-2019[44]; conversely, to free up hospital beds during COVID-19, many elderly patients were discharged without testing into care homes, which could not control the spread of infection.[45]

1 in 7

patients in the UK who no longer need the hospital bed they are occupying but cannot be discharged due to lack of step-down care capacity.[46]

Connectivity is also vital during preparedness and recovery. Coordination across the continuum of care can increase system capacity by reducing resource use (such as for redundant tests), boost learning through shared insights and best practices, and improve population health by diagnosing and treating patients sooner than in a disconnected system.

Few formal communications mechanisms limit ecosystem response

In many cases, few formal coordination frameworks exist, leaving personal relationships between individual healthcare professionals or institutions to fill the void. The chair of the Nashville Coronavirus Task Force in the US — a senior clinician — happened to have good relationships with the CEOs of all the major hospitals in the city and was able to draw on existing connections to coordinate a rapid response.[47] Doctors set up WhatsApp groups between the hospitals and care homes at one NHS trust in the UK to prevent overloading facilities. Such relationships and coordination are rare, difficult to establish during a crisis, and easily disrupted by key personnel changes.

To achieve a high level of cooperation, formal communication mechanisms need to remain open through permanent or periodic forums and taskforces. Such connectivity can be reactivated in the event of different shocks. Singapore established a ministerial committee comprising heads of the various ministries during the 2003 SARS crisis. When COVID-19 emerged, the committee was quickly reconvened as the multi-ministry task force, which led and coordinated response efforts between clinical and non-clinical stakeholders.[48]

Effective interactions between different stakeholders also require incentives to cooperate. The handling of the 2015 MERS crisis in South Korea for instance demonstrated how a lack of incentives for information sharing led to an incoherent response. National, regional, and local public health agencies experienced challenges in cooperating for resource exchange, with each public agency only concerned with preventing further transmission within their own jurisdiction.[49] Lessons from this experience helped South Korea align incentives and facilitate a more coordinated and successful response when faced with COVID-19 in 2020.

WAYS FORWARD

Ideas for improved health system connectivity

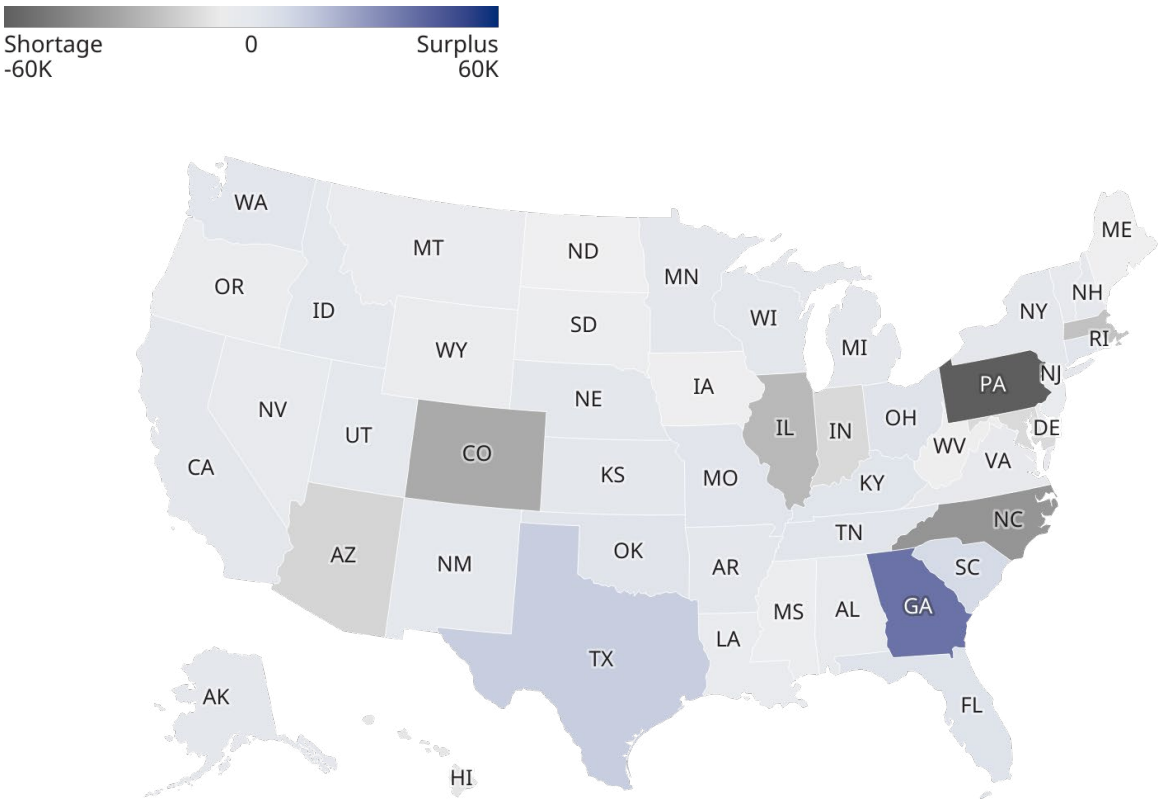
In the near term, healthcare providers, public health bodies, and government can collaborate and coordinate to pool information and resources.

- Build on ad-hoc partnerships, communication channels, and coordination mechanisms cobbled together during the pandemic to pool information and resources for crisis response or shared initiatives. Health systems characterized by fragmentation and competitive dynamics have an opportunity to facilitate and incentivize greater collaboration and coordination before, during, and after crises. Stakeholder mapping throughout the value chain (such as in delivery, finance, and data) will help uncover motives and practices that unintentionally undermine connectivity.

Better connectivity can help address and manage demand surges in everyday and crisis situations. The partnership set up to coordinate testing and vaccinating against COVID-19 in Nashville, Tennessee, now supports the city's Women, Infants, and Children program that encourages childhood immunizations. Governments can also play a key coordination role, mandate data and resource-sharing in certain crisis contexts, and facilitate and nurture interactions between public and private sectors to utilize the full capacity within the health system, for example by flexibly matching demand with resources where available (see Exhibit 7).

Exhibit 7: US nursing labor market analysis indicates location-specific shortages

Analysis of projected healthcare workforce supply and demand by 2026 across the United States shows wide variations between states of registered nurses. While Texas (+22,313) and Florida (+5,430) experience surpluses, Pennsylvania (-20,345) and North Carolina (-13,112) suffer from significant shortfalls. Uneven distribution means there will be pockets of surplus even as other areas face significant shortages.[50]



Source: Mercer, EMSI

In the mid to long term, governments, healthcare providers, and funders (employers and insurers) must unlock opportunities from data and technology.

- Invest more in basic collection and structuring of data, as well as connecting data, research, and analytics capabilities for rapid response — this can help identify vulnerable populations, test effectiveness of repurposing existing drugs, and share knowledge. Technology and data can be used to monitor capacity and predict need: during the pandemic, the NHS in the UK worked with the private sector to analyze patient occupancy levels and lengths of stay to help direct resources to emerging hotspots.[51] Data will need to be combined with ground-level knowledge to ensure usefulness.

In the long term, governments, healthcare providers, public health bodies, and funders should join up policies, services, and tools. Action now will ultimately help manage demand growth in the long run.

- Make health systems better-connected networks. Care models need to shift to align with increasingly complex care needs and meet patient preferences for receiving care at home or as close to home as possible. A study looking into hospital-at-home programs (in which healthcare professionals deliver hospital-level care in patients' homes for a limited period of time) found similar or improved clinical outcomes compared with inpatient treatment.[52] As primary care and home care absorb more chronic disease management, better interactions are required among home-care, primary-care, and acute-care providers.
- Shift from reactive sick care to promoting population well-being. Ill health and its determinants make already-disadvantaged groups more vulnerable to a range of health crises: Obesity (more common among poorer people in rich countries) exacerbated higher Covid-19 mortality[53] and high-density housing in concrete jungles (again more likely in poorer neighborhoods) increases mortality risk during heatwaves.[54] While emphasizing prevention and early detection to reduce a population's disease burden and care costs is a long-standing ambition for health systems, the endeavor seldom receives the whole-of-society effort (from policymakers to individuals) required. One successful initiative in Japan uses designated care managers and district support centers to integrate long-term care and preventive public health services.[55] In Finland, one goal of reforms is to integrate health and social services at the same organizational level administratively and under the same budget. Meanwhile recent legislative efforts in the UK[56], Sweden, and Finland[57] aim to address a population's broader health by promoting integration across public health, primary care, and social care. And the €5.3 billion EU4Health program aims, among other initiatives, to fund health promotion and disease prevention to reinforce crisis preparedness in the EU.[58] Thanks to an initiative to empower individuals to take more responsibility for their health, all Danish residents have access to a patient portal that allows patients to access their own health data, look up their complete patient history, and make appointments with doctors.[59]

Care models need to shift to align with increasingly complex care needs and meet patient preferences for receiving care at home or as close to home as possible.

Improving culture: Health systems and societies

Within health systems, transparency and trust deficits constrain engagement and learning that can strengthen resilience. More broadly, a culture of resilience at the societal level is necessary to manage care demand — in a crisis and over the longer term — for the sustainable delivery of health services.

Within and among healthcare institutions, a lack of transparency undermines resilience by eroding internal and external stakeholders' trust in the intent, character, or competence of the institutions involved. Information silos and poor communication can weaken staff morale and productivity, worsening the capacity challenge. Conversely, high levels of transparency can allow employees on the ground the autonomy and confidence to respond to crises in a flexible manner even as they play out differently at the local levels depending on contextual variables.

Lack of leadership commitment to a culture of openness compromises the effectiveness of health institutions during shocks. A study on the Dutch home-care industry found that, although empowering employees makes organizations more resilient against critical incidents, this effect is only seen when management consistently and explicitly supports psychological safety — in other words, the ability to speak up with ideas, questions, concerns, or mistakes without risk of damaging one's reputation or standing.[60]

Health systems often fail to implement innovations that might prepare them for future shifts. For example, access to leadership and shared decision-making around budgets, staffing, and scheduling are rare, robbing organizations of ideas for improvement from the frontline. Lack of diversity and inclusion in decision-making can work against resilience by promoting groupthink, inertia, and inflexibility. A perceived culture of fear and blame among NHS doctors in the UK, in which a demotivating system of financial rewards and sanctions ignore workers' experiences, contributes to a lack of organizational and systemic reflection and a reluctance to learn from mistakes.[61]

Societal and individual resilience and well-being reduce pressure on health systems

Rising poverty and inequality levels are increasingly fraying the societal conditions, resources, and incentives that are supportive of good health. At the societal level, conducive living and working conditions as well as the right resources, incentives, and information are vital elements that enable and encourage people to make decisions that enhance well-being and resilience at the individual and community levels. As for knowledge on health issues, misinformation is rife and likely to worsen along with polarization and distrust. Engagement-driven algorithms on social media are creating information silos that undermine evidence-based public health messaging and breed mistrust in health systems: 57% of respondents in a global survey said they rarely read opinions that conflict with their own when viewing news online, and 83% considered fake news to be a problem.[62] Widening gaps in trust and quality information weaken health system responses to acute crises and blunt public health efforts to reduce disease burden and strengthen well-being and community resilience. Meanwhile, eroding trust in health institutions adds to the capacity crunch: Growing violence against healthcare workers as well as the diminished prestige of healthcare roles exacerbate workforce attraction and retention challenges.

Short-termism is undermining health system resilience

An emphasis on short-term problems and solutions adds to pressure on already struggling health systems by diverting attention away from systemic issues. Some quick wins — such as weeding out inefficiencies that absorb resources unnecessarily — are vital. But a focus on quick wins that only put a premium on efficiency gains undermines resilience in the longer run. Quick fixes (such as recruitment bonuses) draw attention, money, and effort away from more painstaking solutions to underlying problems, such as poor retention of healthcare staff, lack of workforce strategy, and chronic underinvestment in preventive care (see Exhibit 8). Eroding resilience escalates exposures and vulnerability to hazards, fueling further dedication to immediate solutions.

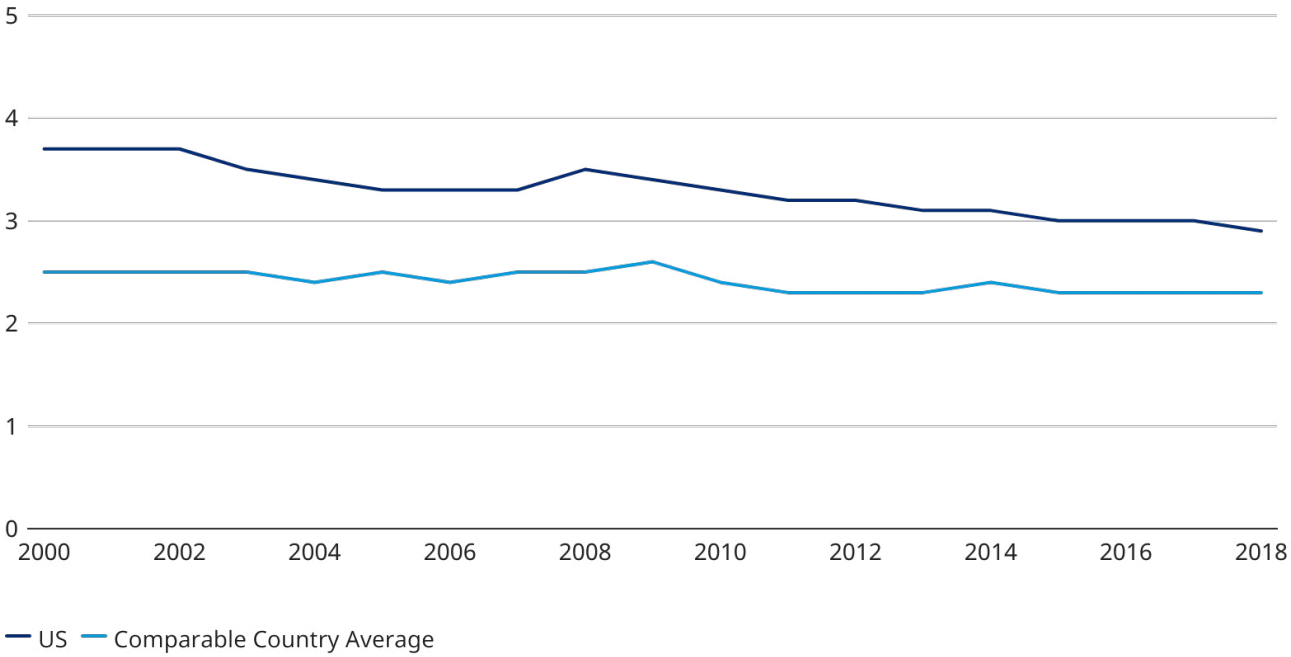
2.3%

Average share of total health expenditure spent on preventive care in 2018 in 12 OECD countries, a proportion that has flatlined since 2000.[63]

100,000

Number of lives that could be saved with more preventive that could be saved with more preventive care services each year in the US.[64]

Exhibit 8: The share of health spending on preventive care has not budged in the last two decades



Source: Peterson KFF Health System Tracker

WAYS FORWARD

Ideas for a culture of resilience in health systems

In the near and long term, governments, public health bodies, and healthcare providers must take measures to restore and maintain trust in healthcare.

- Create psychologically safe workplaces where staff feel valued and respected and are able to speak up and take intelligent risks without fear of punishment or blame. To repair and restore trusted relationships, health system leaders will need to establish reciprocal influence between leadership and healthcare professionals so staff are more included in decision-making[65] (such as experimenting with new structures like shadow boards[66]). When staff feel challenged by the work but not under threat in the workplace, individuals and teams become more motivated and engaged, curious and open to learning, creative, and resilient.[67] Alongside physical security, healthcare institutions must also advocate for employees confronted by poor treatment or behavior by patients and families.
- Provide timely, credible, consistent advice to counter misinformation among staff, patients, and the public, with a focus on "pre-bunking" and communicating the degree of scientific consensus on issues. The level of trust in healthcare professionals and institutions is critical to the effectiveness of health systems. When asked about COVID-19 measures, 58% of people globally who trust their health system agreed that personal freedom arguments do not apply when they put public health at risk, compared to only 42% of those who had low trust in their healthcare system.[68]
- Align health system stakeholder interests with patient priorities — for example, through value-based care models that incentivize better patient outcomes instead of more procedures, and by increasing access, affordability, and convenience of care through hybrid clinic-digital and/or home-based models. Indeed, payment structures had a significant impact on a healthcare provider's financial stability in the US; those using value-based care models were better able to flex to new circumstances during the pandemic than those operating fee-for-service models.[69] Some countries and healthcare providers are trialing ways to take healthcare out of traditional institutional settings: South Korea has introduced a Community Care Service program, where senior citizens receive care from their local communities at home or in group homes instead of having to rely on hospitals or nursing homes.[70]
- Take action to avoid unwittingly creating a two-tier health system, in which privileged funders strengthen preferred providers that limit access to less profitable subsets of the population. Governments will need to play a crucial role, such as with adaptive legislation or by relaxing restrictions to eliminate health access barriers in a crisis. The US Families First Coronavirus Response Act required group health (insurance) plans to cover testing at no cost to participants during the COVID-19 public health emergency[71], and the US also temporarily allowed patients to access addiction medication via telemedicine.[72]

In the long term, governments have an opportunity and obligation to manage demand growth by improving population health.

- Improve social determinants of health as well as health behavior to bolster the resilience of individuals, societies, and health systems. Given the many health threats on the horizon and their disproportionate impact on disadvantaged groups, governments have an opportunity and an obligation to improve health equity by reducing deprivation and socioeconomic and health disparities. Disease prevention requires a shift in focus to changing environments (not people) and an application of joined-up policies and interventions including clean air and water, secure housing, easy access to healthy food, good work and living wages, social inclusion and protection, and access to green spaces. Noting variations in local political ideologies and levels of cultural acceptance of interventionism, the state also has a role in signaling, facilitating, and nudging healthier choices, via mechanisms such as tobacco and sugar taxes, food labeling, active transport, and other green investments. When combined, measures to improve social determinants of health as well as health behavior demonstrably bolster the resilience of individuals, societies, and health systems, by reducing disease burden and thus overall healthcare needs and spikes during crises.

All together: Realizing the resilience dividend

The COVID-19 pandemic revealed differing strengths, adaptability, and vulnerabilities of health systems across the world. Although the pandemic was global in its reach, local population profiles, health and economic status, and health system characteristics and dependencies resulted in vastly different levels of preparedness, response, and recovery. While some health systems weathered the pandemic better than others, concurrent disasters — such as extreme weather events — and a changing backdrop of interconnected risks underscore the importance of avoiding complacency and the urgency of addressing every health system's blind spots and drivers of fragility.

Societies have an opportunity to rigorously test their health system's exposures and vulnerabilities to acute shocks and chronic stresses, as a foundation to developing strategies for future resilience. As health system players develop strategies, they can examine other sectors' experience of rebuilding after crises and adopt applicable lessons — such as boosting workforce health and engagement, ring-fencing certain services or capabilities, or defining intolerable-harm thresholds. While cost constraints are a serious impediment as recession looms, there is scope to examine ways forward that may have a big impact without a big price tag, including shifting expenditure toward investments in resilience that can reduce overall costs. Finally, it is important to consider the significant investments in change management required to overcome long-standing fragmentation and inertia in health systems. Shared decision-making will be crucial to making transformations stick, something that requires leadership commitment while acknowledging exhausted workers' ability to absorb change.

Building resilience will require ambitious interventions from a broad group of stakeholders within and beyond the health system. Success will yield advances in population well-being, productivity, and prosperity, and strengthen health systems' ability to prepare for, respond to, and recover from future crises. Investing in resilience is a matter of sustainability for health systems, and of a duty of care to the populations whose lives and livelihoods depend on them.

Acknowledgements

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