



# Health system resilience: a critical review and reconceptualisation

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This Viewpoint brings together insights from health system experts working in a range of settings. Our focus is on examining the state of the resilience field, including current thinking on definitions, conceptualisation, critiques, measurement, and capabilities. We highlight the analytical value of resilience, but also its risks, which include neglect of equity and of who is bearing the costs of resilience strategies. Resilience depends crucially on relationships between system actors and components, and—as amply shown during the COVID-19 pandemic—relationships with wider systems (eg, economic, political, and global governance structures). Resilience is therefore connected to power imbalances, which need to be addressed to enact the transformative strategies that are important in dealing with more persistent shocks and stressors, such as climate change. We discourage the framing of resilience as an outcome that can be measured; instead, we see it emerge from systemic resources and interactions, which have effects that can be measured. We propose a more complex categorisation of shocks than the common binary one of acute versus chronic, and outline some of the implications of this for resilience strategies. We encourage a shift in thinking from capacities towards capabilities—what actors could do in future with the necessary transformative strategies, which will need to encompass global, national, and local change. Finally, we highlight lessons emerging in relation to preparing for the next crisis, particularly in clarifying roles and avoiding fragmented governance.

## Introduction

This Viewpoint by academics and operational staff working in the field of resilience in health systems aims to provide critical reflections on the concept and application of resilience in health system thinking, including a review of the main debates and priorities as the world emerges slowly from the COVID-19 pandemic and faces new shocks and crises.

Conceptualisation of and reflections on resilience have gained momentum in the past decade as applied to health system thinking.<sup>1</sup> However, the concept of health system resilience has been critiqued by researchers for its lack of clear definition, the challenges in measuring it, and the absence of clear strategies to support resilience capacities. More profoundly, the concept has faced critique for being an argument for shifting responsibility for coping with shocks and crises onto relatively powerless agents in the health system (eg, families and communities); for potentially normalising non-evidence-based, suboptimal, or maladaptive coping strategies; and for overlooking important power dynamics and historical precedents that underpin patterns of behaviour in health systems.<sup>2,3</sup>

However, the use of resilience as a concept continues as it indicates an important quality for complex adaptive systems facing shocks and chronic stressors. During the COVID-19 pandemic, its relevance increased just as metrics for assessing it were questioned more than ever.<sup>4</sup> Bringing together the latest thinking on how resilience should be framed and applied to strengthen health systems across different regions is crucial before the world is hit by the next shock (or shocks).

## Conceptualisation and definitions—consensus and critique

Interest in the issue of the resilience of health systems was accelerated by the effect of Ebola virus in west Africa

in 2013, which clearly highlighted health systems' fragility.<sup>5</sup> Around the same time, the concept of health system resilience was also gaining traction in high-income countries because of the financial and economic crisis.<sup>6</sup> As use of the term grew, its disparate uses and implicit assumptions started to be identified.<sup>7</sup>

Although a shared definition of resilience has proved hard to establish, a growing consensus exists on features that form the concept of analytical value. First, there is an understanding of the conditions under which resilience might need to be shown. These conditions could either be sudden shocks—circumstances that make substantial, acute demands of the health system—or stressors, which require everyday resilience.<sup>8</sup> Second, there is a specification of a feature that would be seen to show resilience.<sup>5</sup> This specification generally acknowledges the health system's ability to maintain core functions and minimise the negative consequences of such disruptions; however, some definitions also posit net positive effects, such as learning lessons from the experience to improve performance and become more prepared, and health improvements.<sup>9</sup> Third, some—but not all—definitions specify the mechanisms by which resilience is assumed to be attained, such as the health system's capacity to absorb, adapt, and transform.<sup>10</sup>

Additionally, and reflected throughout this Viewpoint, is the understanding that resilience needs to be understood in systems terms. Although components and capacities of a health system exist that will (or will not) support its functioning in the face of adverse events, it is the connectivity of these elements that is crucial to resilience.<sup>11</sup> Analyses of health systems can be made in structural terms, but systemic analysis is required to capture the dynamics that establish the system's functioning as a whole. As a result, conceptualisation of the health system as a complex, adaptive system and methods focused on

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identifying system dynamics have come to the fore in the analysis of resilience in real-world settings.<sup>12,13</sup>

We have concluded that resilience is not simply synonymous with strong health systems, as they can be strong in stable conditions but susceptible to shocks, or, conversely, can be resilient but underperforming in stable conditions. Resilience is therefore necessary for the functioning of a health system but not sufficient.

The growing replacement of the capacities terminology with that of capabilities reflects the broader critique put forward by Martha Nussbaum and Amartya Sen, who argue that what matters is not what people have or are, but rather what they can have or be.<sup>14</sup> Capabilities are options to achieve valuable functioning. In the realm of health system resilience, this focus on capabilities can be translated into a greater appreciation of the need to situate existing resources and capacities within current relationships, and competing interests across different levels of the system.<sup>15</sup>

The close correlation between excess deaths during the COVID-19 pandemic and income inequalities,<sup>16</sup> the hoarding of COVID-19 vaccines by high-income countries, and devastating natural disasters worsened by climate change—which are largely caused by wealthier countries—are all reminders of the limitations of an approach that does not address the capability gaps at a more collective, global level. These gaps are driven by deeper power and structural determinants of resilience that require more fundamental responses.<sup>3</sup>

### Challenges and resilience strategies across diverse types of shocks

Health systems face acute shocks and chronic stressors. Acute shocks are often unpredictable and sudden in nature and include disease outbreaks, flooding, and earthquakes. Chronic stressors are persistent challenges faced by health systems and include chronic underfunding of health systems, persistent health worker strikes, and governance challenges. Shocks and stressors are interlinked in the sense that acute shocks (eg, a pandemic) can evolve into a chronic stressor (endemic disease), and chronic stressors can precipitate and aggravate an acute crisis. Shocks and stressors often also vary by intensity (from small-scale to large-scale effects), frequency (chronic, cyclical, or rare) and duration (short term to long term).

The concept of health system resilience has much work to do to provide insight and useful strategies across this spectrum of shocks and stressors. A good starting point is to move towards a classification of these crises and beyond a simplistic binary picture of unforeseen shocks versus predictable and worsening health system stressors.

Appropriate categorisation of crises can build understanding, which helps us anticipate the effects of crises, the burden on different population groups, and the strain on resources. This understanding in turn helps target the health system's response to manage the

shock and its effects, and to develop strategies for preparedness. Although other authors have focused on differentiating the origin and type of shock (eg, economic *vs* natural disaster *vs* pandemic) to explore the different ways that crises affect health systems, we think additional benefit exists for those managing health systems in categorising crises according to their duration and predictability. The length of a crisis impacts its effects on people, systems, and optimal strategies. The predictability of a crisis also affects the system's ability to be prepared and will influence the nature of the response.

From the categories of duration and predictability, five different shock groupings emerge that require different resilience strategies. These five groups are: (1) short shocks, such as a train crash or cyberattack; (2) long shocks, such as a pandemic; (3) short repeated shocks, such as seasonal weather events (eg, hurricanes); (4) chronic health system stressors and contextual challenges, such as climate change and demographic change; and (5) chronic system dysfunction in unstable, resource-poor settings, which typically combine chronic stressors with acute shocks. Many countries have concomitantly experienced a combination of these shocks, such as Lebanon recently accommodating refugees as a result of war in Syria alongside COVID-19, and political and financial crises.

For short shocks, speed is of the essence, but good preparedness is also essential. The effort involved in responding will be short-lived, which might help with maintaining workforce morale, and the resilience strategies might focus mainly on absorption of the shock. Plenty of opportunities for reflection and learning will be available to help with future preparedness.<sup>17</sup> For longer, more intense shocks, the drain on resources is much larger, not only in terms of surge capacity and finances, but also morale and disruption to usual care.<sup>18</sup> Although the onset of a crisis can temporarily energise health workers, the longer it goes on, the more fragile the wellbeing of human resources will be, and the more multifaceted the effects of the crisis will be. These effects could range from poor mental health of health workers to economic and affordability issues. Absorption and adaptation are essential; however, these coping strategies are often exhausted and transformation of the health system then becomes necessary.

Short-term, cyclical shocks are generally more predictable and therefore require resources to be focused on learning and investing for future preparedness. For chronic problems, particularly multimorbidity, absorption and adaptation are ineffective. Large-scale transformations to care services are needed, which will require investment, political will, and technical innovation. The same can be said for fragile, dysfunctional settings, in which sufficient stability (both regionally and nationally) and health system transformation (or creation) is needed, which might require global support.

The origin of the shock and whether it was seen as external or resulting from health system weaknesses is also an important element affecting responses, not least because endogenous shocks are more likely to prompt blame and resistance to change compared with exogenous ones, in which the health system might be seen as not at fault.

### Preparing for the next crisis

Given the wide range of possible shocks that can affect a health system, policy makers and managers face difficulty in their ability to be prepared for and anticipate future crises. Assuming that the next shock will be the last is potentially risky and most likely wrong. COVID-19 represented a mega shock, unusually affecting the whole world and entire societies all at once. Epidemics do not normally cause such wide-scale disruption, being typically regional or restricted to subgroups within the population. Sinking resources into being prepared for specific pandemics leaves the health system at risk of being underprepared for other shocks.

Policy makers therefore face several issues. Do they risk maintaining long-term preparedness for a specific shock that might not happen immediately, because the nature of some shocks is so profound that they warrant continual investments, or not invest and risk being underprepared? Preparedness is not a one-off investment—personal protective equipment decays, and medicines expire. During the COVID-19 pandemic, countries that had higher public health service capabilities did not control the pandemic more effectively.<sup>19</sup> Indeed, preparedness might even breed complacency. A less risky strategy might be to establish what general preparedness could look like for a range of shocks. This strategy will have more to do with governance protocols around roles and responsibilities, scenario planning and rehearsing, and investing in information systems. Such preparedness will potentially allow an agile response to a new shock without diverting resources too much from other priorities, such as maintaining basic services.

The initially unknown and then dynamic nature of COVID-19 presented profound challenges for decision making. There is good evidence that a well functioning health system provides some resilience in terms of sufficient resources, good morale, and reasonable capacity.<sup>20</sup> However, more research needs to be done on what a general preparedness capacity looks like.

### Measurement and metrics

The earlier outbreaks of SARS-CoV in China and Ebola virus sparked several initiatives to articulate a set of essential capacities necessary for a resilient health system, including the country assessment frameworks developed under the Global Health Security Agenda and the WHO-led Joint External Evaluation process. As of April, 2021, some 98 countries had completed a Joint External Evaluation.<sup>21</sup>

The relative failure of these indices of capacities to predict the resilience of health systems in response to COVID-19 has elicited a wide range of reflections regarding the utility of such measurements. Our view is that the establishment of indices is unlikely to be effective, not least because the domains that matter will vary over time even within one system, and more so across them. However, we can study resilience by looking at changing outputs before, during, and after shocks, and by looking at the relationship between response patterns, context features, and system features. Important contextual factors supporting resilient behaviours are likely to include having greater fiscal space, as well as stronger social contracts and trust in public authorities. Health system features that promote resilience have included having greater population health coverage and reduced socioeconomic disparities, as well as greater investment in public health functions and health promotion.<sup>22</sup>

These features reflect a broader shift in focus from technical capacities towards system capabilities. Whereas the former focus articulates the inputs necessary to conduct specific activities, capabilities shift attention to the competence required to leverage available resources to perform more effectively. Examples include areas such as foresight, intelligence gathering, preparedness, and agility, but we highlight leadership and space for decision making as key areas, especially between sectors and in the social and political realm.<sup>23</sup> These factors build upon the observations regarding the fragmented governance capabilities for health at the national level, which have remained a decisive factor that constrain outcomes in crises.<sup>24</sup> A health system's ability to mobilise resources, often through networked approaches, also emerged as a key factor of resilience from numerous case studies.<sup>25</sup>

Underlying these capabilities are long-term investments in technical skills, but also in building relationships and trust in communities, developing skills to navigate power dynamics at different levels, creating the space for local managers to make decisions and respond rapidly to threats,<sup>26</sup> and supporting learning across local areas within systems.<sup>27</sup> To build trust in communities—which is key to system resilience—clear messaging is needed to show what and who a health system is for, and these messages need to be reflected in its structures and processes.

### Integrating power and equity

The concept of resilience originated in the field of natural sciences and referred to ecosystems, not human social systems. As a result, its application to health systems has been challenged by people who argue that the concept remains blind to the way power shapes all health systems, including by establishing how, why, when, and for whom resilience capabilities are developed and supported.<sup>28</sup> A key feature of this blindness is a tendency for resilience to be framed as a normative

outcome (ie, we want to build a resilient health system) and to be measured by indicators of system function as a proxy. However, such measures (eg, service coverage or availability of essential medicines) only tell us whether the system is performing, not how that function is achieved or, more pertinently, who is shouldering the burden of ensuring its delivery.<sup>29</sup>

For example, evaluating whether essential medicines are available at the point of care does not tell us whether that availability is grounded in a robust supply chain, with built-in redundancy to help manage variations over time and mitigate shocks at different levels. That availability could instead be on the basis of front-line health workers or district managers who must negotiate with their neighbours for essential commodities, or elicit informal payments to source private supplies for patients. Few would argue that the latter scenario represents a resilient supply chain, given the reliance on the relatively less powerful and less well resourced actors involved. Yet when interventions for, or evaluations of, health system resilience accept or promote dependence on these less powerful actors to manage shocks, they are implying that shifting the burden of coping onto those at the base of the system is acceptable. The counter argument to this implication is that shocks might (in some contexts) liberate front-line workers or local communities to be more innovative and empowered, and not be controlled by top-down orders, which are frequently ill informed, slow, and constraining.

Use of the concept of resilience in relation to health systems should routinely integrate analysis of who wields power within that system, and to what end. However, this analysis has not been done frequently. Using a power-blind concept to frame projects or interventions can be convenient to international actors and others whose priorities are often time-bound and linked to political agendas. Ground-level interventions, versus whole-of-system reforms, are easier to negotiate and outcomes are substantially easier to measure. In this sense, resilience-focused interventions and projects are a continuation of a long-term trend among global health and development actors to target service-level processes and stakeholders, rather than engaging the system-level structures and institutions that are highly determinative of downstream performance.

Power-sensitive analyses can be integrated in several ways.<sup>30</sup> These include active examination of the influence of actor relationships and networks on adaptive capacity at different levels of the health system, identification of institutional and sociocultural expressions of power found in adaptive strategies, and mapping of individual and institutional sources of power influencing resource allocation and priority setting in different shock-affected contexts. As a starting point, however, simply asking who carries the load when it comes to shock-responsive adaptation is important for integrating power into explorations of health system resilience.

## Essential linkages with wider systems

More than 3 years after the emergence of the COVID-19 pandemic, countries have learned that national health systems cannot respond to shocks in isolation. Health systems are embedded in a wider administrative, political, and social ecosystem that is constantly changing. The pandemic exposed how institutional silos in governments reduced the capacity of countries to rapidly adapt to sudden changing environments. One cross-country study concluded that social pressure, religious beliefs, governance structures, level of administrative decentralisation, and global economic sanctions had major roles in how countries' health systems could respond to the pandemic.<sup>31</sup> We need to broaden our focus when considering health system resilience to be able to capitalise on positive emerging behaviours from health and wider systems.

## Conclusion

The concept of resilience is becoming increasingly popular in the post-COVID-19 recovery debate and is often used as a one-size-fits-all solution for better preparedness in health crises. In this Viewpoint, we provide a critical review, highlighting its analytical value if used specifically (rather than as a synonym for strong health systems) and recognising its embeddedness in power relationships, which influence resilience. We develop a typology of five common shock types, which necessitate different responses, and argue for a focus on investing in system capabilities while also learning from and with connected social systems.

### Contributors

SW led the drafting of the paper. All authors contributed to drafting, and have read and approved the final version of the manuscript. All authors had final responsibility for the decision to submit for publication.

### Declaration of interests

We declare no competing interests.

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