Editorial

Building Resilient Health Systems: Lessons Learned from the COVID-19 Pandemic

Marco Liverani, PhD

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COVID-19 has posed unprecedented challenges to health systems worldwide, overwhelming health facilities and placing enormous pressure on the health workforce. In the third round of the World Health Organization's 'global pulse' survey on continuity of essential health services during the pandemic, 92% of 129 participating countries reported critical bottlenecks to scaling up access to COVID-19 diagnostics, therapeutics, vaccines and equipment[1]. In addition, widespread disruptions to emergency services and primary care have been documented in many areas, including maternal and child health, care for the elderly and global health issues such as HIV and tuberculosis[2,3]. These disruptions could reverse years of progress in fragile and low-income contexts as scarce staff are diverted from routine services and funds are re-allocated to support COVID-19 activities[4].

The huge impact of COVID-19 on national health sectors has drawn attention to the importance of health system resilience, defined as 'the health system's ability to prepare for, manage (absorb, adapt, and transform) and learn from a sudden and extreme disturbance'[5]. The concept of resilience has its origins in physics and materials science, where it refers to the ability of a strained body to recover its size and shape after deformation caused by compressive stress. It is also used in clinical psychology to indicate 'the process of adapting well in the face of adversity, trauma, tragedy, threats, or significant sources of stress - such as family and relationship problems, serious health problems, or workplace and financial stressors'[6]. In the public health literature, an interest in resilience emerged in the aftermath of the Ebola outbreak in West Africa in 2014-2016[7] and, more recently, the COVID-19 pandemic, which has tested in multiple and complex ways the ability of national health systems to respond and adapt to shocks, as discussed in the sections below.

Health Sector Financing

Since the start of the pandemic, health systems worldwide have shouldered a heavy financial burden. In addition to the high cost of COVID-19 prevention and control, countries with financing arrangements that rely on taxes to sustain social health insurance schemes have been negatively affected due to increasing unemployment and reduced wages. On the other hand, health providers that depend on user fees for their operation have also endured financial hardships due to forced shutdowns and a steep decline in demand for non-COVID-19 services. In the USA, for example, medical practices reported a 60% reduction in visits during the first months of the crisis, and hospitals were estimated to have lost $323 billion in 2021 alone[8]. Similarly,

international hospitals in Thailand have suffered heavy financial losses as the market for medical tourism plunged after the closure of international borders. Faced with these challenges, hospitals have cut costs where possible, established mobile units for testing and treatment, and played a central role in vaccination programs. Yet COVID-19 has threatened the financial viability of many health facilities, particularly those that operate as businesses in a fee-for-service marketplace.

Critical Supply Shortages

During its most acute phases, the pandemic often outstripped the 'surge capacity' of national health sectors to respond to the sudden increase in demands of COVID-19 patients for care and hospital beds. As the number of COVID-19 cases continued to grow, shortages of essential equipment such as ventilators and personal protective equipment were reported globally. In 2021, Thailand had almost depleted its critical care resources, especially beds and ventilators in intensive care units. This prompted the development of principles and criteria to guide the allocation of scarce resources[9].

Most countries also experienced shortages of personal protective equipment (PPE), which were in high demand, such as gloves, masks, face shields and gowns. This problem has been more acute in countries that are highly dependent on imports to secure these supplies. Notably, many African countries found themselves at the back of the queue as global suppliers prioritised buyers with stronger purchasing power and countries that were willing to pay higher rates. In response, governments and the private sector in Africa have repurposed factories to meet national demand for these essential items, and, at the same time, keep the local economy afloat[10]. Plans to develop low-cost ventilators in collaboration with industrial partners have also been made[11].

The Health Workforce

The health workforce comprises all people engaged in actions whose primary intent is to enhance health, including doctors and nurses working in the public and private sectors. The health workforce is critical to a health system's response to shocks, although frontline health care workers are often amongst the most vulnerable categories during a public health crisis. Indeed, the World Health Organization estimated that between 80,000 and 180,000 health and care workers died from COVID-19 in the period between January 2020 to May 2021[12]. In addition, high levels of stress, burnout, and depressive symptoms have been observed among health professionals working in COVID-19 wards[13].

To address these issues, many countries have repurposed and mobilised the existing health workforce, while others have increased capacity by drafting previously retired or inactive health professionals and medical students[14]. In some countries, community health workers and other health volunteers have also been trained to support the response to the pandemic in various capacities, including delivery of

health education and prevention messages, monitoring quarantined patients, distribution of PPE, case detection and referral[15].

Access to Vaccines

The development of COVID-19 vaccines in record time and the large-scale administration of billions of doses worldwide is one of the most remarkable public health achievements of our times. However, the global distribution of vaccines has been marred by profound inequities. According to the Global Dashboard for Vaccine Equity (established by United Nations Development Program, World Health Organization and Oxford University), as of March 2022 only one in seven people in low-income countries have been vaccinated with at least one dose, compared to two in three people in high-income countries[16]. For this reason, the World Health Organization criticized the distribution of boosters to healthy adults in high-income countries, calling on governments to reallocate their surplus doses to immunize high-risk adults in poorer nations. As the World Health Organization Director General Dr. Tedros Adhanom Ghebreyesus remarked, 'Every day, there are six times more boosters administered globally than primary doses in low-income countries - this is a scandal that must stop now'[17].

Conclusion

In this brief overview, we have seen that the effects of a major shock such as the COVID-19 pandemic on the health sector are complex and multidimensional, affecting different health system sectors and functions. Thus, the experience with COVID-19 should be a prominent reminder that enhancing resilience to future emergencies requires a comprehensive health system thinking that considers all aspects involved in pandemic response, from access to services, equipment and medicines to the enabling financing and governance arrangements. In the process, careful attention should be paid to the core values shaping policy and planning. As the case of vaccine distribution illustrates, health system resilience is not only about the availability and deployment of resources - it also involves difficult choices about their fair distribution at national and global levels. These choices are in turn informed by priorities and, ultimately, underlying values and norms such as whether priority should be given to global solidarity or national self-interest. As Hanefeld and colleagues[7] pointed out, values are not often considered in pandemic planning and yet they are even more important in crisis situations, where they critically shape the nature and outcomes of the response.

Marco Liverani, PhD

International Editorial Board Member, Thai Journal of Public Health, Faculty of Public Health, Mahidol University; Assoc. Prof. of Health Policy and Systems, London School of Hygiene and Tropical Medicine, London, U.K., and School of Tropical Medicine and Global Health, Nagasaki University, Japan; and Adjunct Assoc. Prof., Faculty of Public Health, Mahidol University, Thailand. E-mail: marco.liverani@lshtm.ac.uk

References

1. World Health Organization. Third round of the global pulse survey on continuity of essential health services during the COVID-19 pandemic, November–December 2021. Geneva: World Health Organization. Available from: https://apps.who.int/iris/handle/10665/351527, accessed 16 March 2022.
2. Adepoju P. Tuberculosis and HIV responses threatened by COVID-19. Lancet HIV 2020; 7(5): e319-20.
3. World Health Organization. Maintaining the provision and use of services for maternal, newborn, child and adolescent health and older people during the COVID-19 pandemic: Lessons learned from 19 countries. Available from: https://apps.who.int/iris/handle/10665/351108, accessed 16 March 2022.
4. Ahmed T, Rahman AE, Amole TG, Galadanci H, Matjila M, Soma-Pillay P, et al. The effect of COVID-19 on maternal newborn and child health (MNCH) services in Bangladesh, Nigeria and South Africa: Call for a contextualised pandemic response in LMICs. Int J Equity Health 2021; 20: 77.
5. Thomas S, Sagan A, Larkin J, Cylus J, Figueras J, Karanikolos M. Strengthening health systems resilience: Key concepts and strategies. Copenhagen: WHO Regional office for Europe; 2020.
6. Newman R. APA's resilience initiative. Prof Psychol: Res Pr 2005; 36(3): 227–9.
7. Hanefeld J, Mayhew S, Legido-Quigley H, Martineau F, Karanikolos M, Blanchet K, et al. Towards an understanding of resilience: Responding to health systems shocks. Health Policy Plan 2018; 33(3): 355–67.
8. Blumenthal D, Fowler EJ, Abrams M, Collins SR. Covid-19 - Implications for the health care system. N Engl J Med 2020; 383(15): 1483-8.
9. Marshall AI, Archer R, Witthayapipopsakul W, Sirisin K, Chotchoungchatchai S, Sriakkpokin P, et al. Developing a Thai national critical care allocation guideline during the COVID-19 pandemic: A rapid review and stakeholder consultation. Health Res Policy Sys 2021; 19(1): 47.
10. Mamo LT. Insights from Africa's Covid-19 response: Repurposing manufacturing. Available from: https://institute.global/sites/default/files/articles/Insights-From-Africa-s-Covid-19-Response-Repurposing-Manufacturing.pdf, accessed 16 March 2022.
11. Adong H. Unveiling progress of the low-cost medical ventilator (Bulamu ventilator). Available from: https://sph.mak.ac.ug/news/unveiling-progress-low-cost-medical-ventilator-bulamu-ventilator, accessed 16 March 2022.
12. World Health Organization. Health and care worker deaths during COVID-19. Available from: https://www.who.int/news/item/20-10-2021-health-and-care-worker-deaths-during-covid-19, accessed 16 March 2021.
13. Trumello C, Bramanti SM, Ballarotto G, Candelori C, Cerniglia L, Cimino S, et al. Psychological adjustment of healthcare workers in Italy during the COVID-19

Pandemic: Differences in stress, anxiety, depression, burnout, secondary trauma, and compassion satisfaction between frontline and non-frontline professionals. Int J Environ Res Public Health 2020; 17(22): 8358.

14. Winkelmann J, Webb E, Williams GA, Hernández-Quevedo C, Maier CB, Panteli D. European countries' responses in ensuring sufficient physical infrastructure and workforce capacity during the first COVID-19 wave. Health Policy 2021; S0168-8510(21)00172-X. doi: 10.1016/j.healthpol.2021.06.015
15. Bhaumik S, Moola S, Tyagi J, Nambiar D, Kakoti M. Community health workers for pandemic response: A rapid evidence synthesis. BMJ Glob Health 2020; 5(6): e002769.
16. United Nations Development Program. Global dashboard for vaccine equity. Available from: https://data.undp.org/vaccine-equity/, accessed 16 March 2022.
17. World Health Organization. WHO Director-General's opening remarks at the media briefing on COVID-19. Available from: https://www.who.int/director-general/speeches/detail/who-director-general-s-opening-remarks-at-the-media-briefing-on-covid-19---12-November-2021, accessed 16 March 2022.