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Editorial

Innovative approaches to strengthening health systems in low- and middle-income countries: Current models, developments, and challenges

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Improvement in quality and access to healthcare is a global challenge, driven particularly by the extended lifespans of the population and an increase in chronic diseases. Health crises such as the COVID-19 pandemic – that has resulted in more than three million deaths globally [1], and led to increased maternal morbidity [2], risk of chronic diseases [3] and mental health problems [4], and increased risks to children [5] – further underscore challenges in healthcare provisioning. The pandemic has highlighted the disproportionate impact of healthcare on different sections of the population [6] and the uneven access to health services – only one per cent of COVID-19 vaccines have been administered within low-income countries [1]. Pre-pandemic, inequalities to healthcare access and delivery within low-income countries have been attributed to many factors, including poor physical and technological infrastructure, social disparities, ineffective policies, and regulations, lack of awareness, geographical location and a shortage of relevant capacities and capabilities to support the sustainability of implemented health system interventions [7–10]. Additionally, concerns such as healthcare staff distribution within rural or urban and remote areas, have also contributed to perceived inequities [10]. Therefore, strengthening global health systems remains a crucial and ongoing objective.

The World Health Organisation (WHO) describes a well-functioning, robust health system, as characterised by the following six fundamental building blocks: (a) good health service delivery; (b) well-performing health workforce; (c) well-functioning health information system; (d) facilitates access to essential medicines and other supplies; (e) utilises a sound health financing system; and (f) demonstrates effective leadership/governance [11]. However, for many low-income countries, achievement of these goals may seem an insurmountable challenge. Yet, in circumventing the inherent challenges encountered within a low resource setting, low- and middle-income countries (LMICs) have enhanced their technological (and non-technological) innovative capacities in the provision of healthcare solutions. Countries such as

Bangladesh have achieved significant health advances, building capacities through "a pluralistic health system that has many stakeholders pursuing women-centred, gender-equity-oriented, highly focused health programmes in family planning, immunisation, oral rehydration therapy, maternal and child health, tuberculosis, vitamin A supplementation, and other activities, through the work of widely deployed community health workers reaching all households" [12 p1734]. Nepal's Safe Motherhood programme addresses the entire continuum of care - reduction in maternal and neonatal morbidity and mortality alongside improvements in maternal and neonatal health [13] - "while incorporating new approaches, such as adopting an all-level affordable focus on quality, especially for preventive and curative services" [14 p1]. These solutions are relevant not only within LMICs, but also to similar low-resourced communities in high-income countries [15].

While innovations are deemed necessary in responding to the inequities in healthcare, there have been systemic barriers such as suboptimal communication, high workload coupled with workers resistance due to lack of understanding of benefits, and personalities that mitigate innovations [16]. Therefore, as seen in Bangladesh and Nepal, health innovations must be coupled with increased stakeholder education on the system level needs and the benefits to be derived from innovation [10]. This suggests that stakeholder engagement is necessary for promoting equity in health care and participating in the co-creation (or co-design) processes of health innovations that are accessible and affordable to the most at-need populations.

These healthcare solutions typically include the innovative use of technologies to provide health services, promote accurate health information, and deliver medicines to marginalised communities [17]. Technology-based solutions have been used in many LMICs to improve health systems and service delivery, including behaviour change communication for maternal, newborn and child health services [18, 19], vaccination [20], diabetes care [21], reduction of cardiovascular

risks [22], telepsychiatry [23] and integrated health service delivery [24]. Further, emerging literature shows that *mobile* technologies enable efficacy in the delivery of services since data is easily accessible [25]. Increasingly, research points to social media as an effective tool for disseminating healthcare information, epidemic surveillance, and healthcare monitoring [26–28]. However, challenges such as limited access to devices, cost-prohibitive service provision, low literacy levels, and poor internet connectivity affect use of mobile technologies in many LMICs. Additionally, the pervasiveness of health misinformation using social media platforms emphasises that promoting a technology on its own as a solution is not enough. Therefore, for a globally vulnerable population with an appetite for social media, health information must be monitored for quality and reliability [28]. For example, evidence suggests that social media has negatively affected response to the COVID-19 pandemic in many countries including contributing to vaccine hesitancy [29,30].

What is equally apparent however, is that success of any implemented solution is not only dependent on stakeholder acceptance and trust in what are typically government-initiated solutions, but also on engagement of stakeholders to ensure misalignment between the implemented solution and stakeholder expectations is diminished. Core to stakeholder engagement is the notion of social capital [31], a concept that may be perceived as necessary to facilitate acceptance of (typically) government implemented healthcare solutions, and to build trusted information networks between healthcare suppliers and end beneficiaries. This social capital – defined as the "ability of individuals in a group to form relationships of trust, cooperation and common purpose" [32 p103] – is inherent in many communities within LMICs and may be based on shared attributes or values such as religion or cultural values. Social capital has contributed to healthier behaviours especially in communities with weakened health infrastructure [33]. Thus, formulating approaches to harness social capital as a valuable resource for engaging stakeholders in the design of co-created healthcare solutions, or developing trusted health information and knowledge networks may be necessary for developing strong and effective health systems in LMICs.

Therefore, understanding innovative approaches to strengthening health systems in LMICs necessitates a multi-dimensional exploration of the following themes:

1. Utilisation of technologies in health service delivery – this includes the application of mobile technologies in service provisioning;
2. Design of health information systems – an examination of platforms used for health information exchange;
3. Planning of health systems – this includes a discussion of any adopted co-creation strategies during planning processes, and include issues of financing and human resources; and
4. Stakeholder engagement in health systems design – to include approaches for stakeholder identification and engagement during design processes.

What is incontrovertible, however, is the severe and long-term impact COVID-19 pandemic has had on existing health systems within LMICs. In many cases, the pandemic has slowed down or reversed any substantial gains that have been made in the improvement of healthcare delivery. However, the lessons learnt during this pandemic may prove effective in future planning and design processes for health systems in LMICs.

This journal therefore welcomes papers on innovative approaches that have been adopted in LMICs to strengthen health systems that are related to any of the four key themes mentioned previously. The journal also invites papers that investigates implemented solutions undertaken during the COVID-19 pandemic, and the implications of these solutions on healthcare management and service delivery within the respective country. Though the long-term impact and effectiveness of recently adopted innovative approaches may not yet be fully understood, their

timely dissemination will help support health providers and policy-makers in evaluating the applicability of these approaches within the local context.

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