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PERSPECTIVE

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Health system strengthening—Reflections on its meaning, assessment, and our state of knowledge

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Summary

Comprehensive reviews of health system strengthening (HSS) interventions are rare, partly because of lack of clarity on definitions of the term but also the potentially huge scale of the evidence. We reflect on the process of undertaking such an evidence review recently, drawing out suggestions on definitions of HSS and approaches to assessment, as well as summarising some key conclusions from the current evidence base. The key elements of a clear definition include, in our view, consideration of scope (with effects cutting across building blocks in practice, even if not in intervention design, and also tackling more than one disease), scale (having national reach and cutting across levels of the system), sustainability (effects being sustained over time and addressing systemic blockages), and effects (impacting on health outcomes, equity, financial risk protection, and responsiveness). We also argue that agreeing a framework for design and evaluation of HSS is urgent. Most HSS interventions have theories of change relating to specific system blocks, but more work is needed on capturing their spillover effects and their contribution to meeting overarching health system process goals. We make some initial suggestions about such goals, to reflect the features that characterise a "strong health system." We highlight that current findings on "what works" are just indicative, given the limitations

and biases in what has been studied and how, and argue that there is need to rethink evaluation methods for HSS beyond finite interventions and narrow outcomes. Clearer concepts, frameworks, and methods can support more coherent HSS investment.

KEYWORDS
health system strengthening, low- and middle-income countries

1 | INTRODUCTION

What works for health system strengthening (HSS), where and when? A review was commissioned by the UK's Department for International Development (DFID) to provide answers to this question, based on existing evidence, in order to inform strategic planning for the implementation of health systems strengthening interventions in low- and middle-income countries (LMICs).[1] Reflecting on the review process, we highlight the challenges that we faced and make recommendations on the core meaning of the term and how it is assessed. We also provide an overview of the state of the evidence. Our aim is to support broader and richer research in this area in future.

2 | HSS—WHAT DOES IT MEAN?

Despite a wealth of research on health system objectives and their functional and organizational arrangements, there is a lack of consensus on what constitutes HSS.[2] This relates partly to its history, as the term "HSS" first came from a recognition of the need to address the distorting effects of increasing expenditure on vertical programmes targeted to address specific diseases and interventions (eg, HIV/AIDS, polio) in the absence of support to broader systems, while recognising that without strengthening of basic health systems, vertical programmes would be unlikely to deliver as expected.[3] The concept was therefore reactive and was never clearly defined. Over time, a range of interpretations developed, including varying (often pragmatic) interpretations by donors. Therefore the term came with specific organisational and political baggage and a number of studies have shown that programmes labelled as HSS are in fact selective, disease-specific interventions.[4]

WHO defined HSS as "any array of initiatives that improves one or more of the functions of the health systems and that leads to better health through improvements in access, coverage, quality or efficiency".[5] This is a broad definition, which can potentially include most programmatic interventions, and therefore lacks specificity.

Chee et al[6] seek to draw a distinction between *health systems strengthening* and *health systems support* interventions. They define health systems strengthening as "about permanently making the systems function better, not just filling gaps or supporting the systems to produce better short term outcomes" (p87). Chee et al[6] state that "an intervention to strengthen the system goes beyond providing inputs (depth) and applies to more than one building block (breadth)" (p89). (The blocks here referring to the six core components of health systems identified by WHO: (a) service delivery, (b) health workforce, (c) health information systems, (d) access to essential medicines, (e) financing, and (f) leadership/governance.[7]) They suggest the following criteria to assess what is and what is not HSS: (a) The interventions have cross-cutting benefits beyond a single disease; (b) they address identified policy and organisational constraints or strengthen relationships between the building blocks; (c) they produce long-term systemic impact beyond the life of the activity; and (d) they are tailored to country specific constraints and opportunities with clearly defined roles for country institutions.

Adam and De Savigny[8] further highlight that, to be considered HSS, an intervention needs to have system-level effects as opposed to effects at the organisational level (system here being the whole ecosystem of health and health care actors and their interaction, while organisations are specific subunits within that, such as facilities or purchasing agencies). DFID uses a similar approach but adds elements relating to equity, continuous learning, intersectoral collaboration, and financial protection.[1]

We also highlight the importance of the role of the community, which is underrepresented in WHO's original health system building blocks, but which clearly plays a critical role in system effectiveness through its engagement (or lack of it) with the processes of maintaining health. Indeed, one recent review of health and fragility identifies poor connections between formal systems and communities as being the crux of a fragile health system.[9] In this sense, HSS must also focus on reinforcing that connection, going back to the principles of Alma Ata.

Emerging from our review, we tried to draw on the most useful elements of all these definitions to construct a workable set of inclusion criteria for what constituted an HSS intervention. Key elements within a clear definition need, in our view, to include (a) consideration of scope (with effects cutting across building blocks in practice, even if not in intervention design, and also tackling more than one disease), (b) scale (having national reach and cutting across more than one level of the system), (c) sustainability (effects being sustained over time and addressing systemic blockages), and (d) effects (impacting on outcomes, equity [including gender equity], financial risk protection, and responsiveness, even though these impacts may occur after a time lag).

3 | STATE OF THE EVIDENCE

The lack of consensus on definitions, along with the potentially huge size of the HSS literature (depending on definition), is likely to have contributed to the lack of recent comprehensive reviews of this literature. Some strands of work have focused on considering the impact of health interventions on the broader health system—largely triggered by the debate around vertical programmes—and refining thinking around health systems,[6,8] while others try to assess the impact of health systems interventions on health status and access to health services.[10] There are, however, surprisingly few recent reviews that examined evidence by different types of HSS intervention, starting from a clear typology and looking for impacts on the system as a whole.

After refining our definition, we undertook a search of English language studies published from 2000 to 2018 on HSS interventions in LMICs. As gaps were identified, this was then augmented by identification of relevant studies (published and grey), using an expert-generated typology of potential HSS interventions. The key intermediate outcomes of interest were service access, service coverage, and service quality and safety. Longer range outcomes of interest were improved health (morbidity and mortality); equity of outcomes/distributional effects; cost-effectiveness; responsiveness (such as patient-centredness); and social and financial risk protection. Studies had to report changes in at least one of these categories to be included.

A total of 193 studies were identified as meeting our criteria. Most studies were reviews, including both systematic and nonsystematic/literature reviews (n = 64), quantitative (n = 47), and mixed methods studies (n = 21). A majority of studies were from low-income contexts. The largest number of studies addressed service delivery (n = 82), followed by health workforce (n = 76) and then health financing (n = 74). Just over half of included studies addressed long-range health outcomes.

Using the rough categories that we generated for HSS interventions, we highlight some of our overall findings here, with the full findings presented in the report.[1]

3.1 | Leadership and governance

Interventions in this category can be considered by definition as potentially enabling HSS given its cross-cutting nature. They included (a) governance and leadership-centred interventions (with an intended and unintended)

strengthening spillover effect on the overall health system and population health outcomes, (b) "governance plus" (interventions paired with ones addressing another health system function, and (c) governance policies and reforms embedded within broad programmes aiming at whole-system transformation.

- Seven studies (eg, the Good Health at Low Cost study)[11,12] addressing comprehensive HSS approaches identify good governance as the most important factor in these reform processes for improved health and access to services—but here, governance reform was embedded within complex, system-wide reform programmes, so precise interpretation is difficult. One of the key mechanisms for improving outcomes was seen to be collaborative working approaches involving different stakeholders working in synergy to achieve long-term strategic reform goals across all levels of the health system from facility to national and within the public sphere.[13]
- There is evidence that governance-specific interventions, including civil participation and engaging community members with health service structures and processes, can lead to tangible improvements in health (focusing usually on maternal and child health outcomes) as well as better service uptake and quality of care.[14,15]
- Leadership capacity development and mentoring are central for effective governance. There is evidence that complex leadership programmes blending skills development, mentoring, and promotion of teamwork bring about improvements in service quality, management competence, and motivation.[14]
- There is mixed evidence on the effect of decentralisation on health outcomes and access to services.[16,17] At the mesolevel, some evidence suggests that it may facilitate intersectoral partnerships and promote improvements in health, equity, and efficient use of resources. However, the effect of decentralisation is likely to be dependent on the quality of management and wider political processes, which can promote or constrain performance improvements. Decentralisation is often itself part of a broader political process that impacts on the health system, and changing political pressures influence how decentralisation within the health system evolves.

3.2 | Workforce

As health workers are such a key element of any health system, most literature on interventions related to health workforce was deemed to potentially support health system strengthening. Here, we highlight literature addressing some interventions on workforce supply, distribution, and performance.

- Most evidence on "workforce plus" interventions (addressing workforce and at least one other building block) is focused on bundled retention packages for health staff in underserved areas—where outcomes assessed are usually staff attrition rates.[18,19] These interventions usually combine educational, regulatory (governance), and financial incentive design changes as well as good information systems. Evidence of effects on retention is mixed—short-range evaluation of the Zambian Health Worker Retention Scheme showed positive effects, [20] but a longer-range piece across workforce cadres did not support these findings.[21]
- Skills mix (task shifting) approaches have been successfully used to address shortages of more highly skilled but scarcer professional groups supporting particular areas of service delivery.[22,23] Nonformal cadres of health workers such as community health workers can help address staff shortages, as long as the tasks are not too complex.[23,24]
- Workforce performance can be improved by well-designed performance management systems that at a minimum may reduce absenteeism but have also been shown to improve service delivery.[25] Individual performance contracts can reduce absenteeism.[26] Supervision can lead to improvements in quality and productivity.[27,28] Workforce performance is more likely to improve when a coherent combination of strategies is used.[29] There are examples of effectively developing an organisational culture of performance, which impacts on individual performance of health workers.[30]

3.3 | Financing

As with health workforce, most interventions within health financing that sought to increase the level of financing available or the extent to which this was pooled were deemed to enable HSS. In addition, measures to increase the efficiency with which resources were spent on a significant scale (not pilot projects) were defined as HSS. Interventions in this category span (a) revenue raising/pooling, (b) purchasing, (c) benefit package design and service provision, and (D) cross-cutting issues such as governance and public financial management. However, interventions rarely fit cleanly into one functional area.

- There is good evidence to steer approaches to financing for health in aggregate. Public spending on health is associated with improvements in life expectancy and child and infant mortality across a number of studies,[29,31] as well as more equitable distributions of health outcomes at population level when compared with private spending. These effects are more pronounced in low income countries (LICs).
- Provision of external aid is associated with improved outcomes (especially infant mortality rates) and health equity—but this effect depends on the aid delivery approach (harmonisation with domestic systems and priorities is key).[32,33] However, evidence on positive health outcome and equity effects from aid coordination mechanisms (sector-wide approaches (SWAPs), joint assessments, and budget support—as "financing plus" interventions that combine financing and governance changes) is limited.[34]
- Health outcome and equity effects arising from a range of other "financing plus" interventions (performance-based financing (PBF), purchasing reforms, contracting in/out, reforms to the mix of public and private providers operating in the health sector, and others, most of which combine financing and governance reform) are mixed.[35]

3.4 | Health information

There is limited evidence on the impact of investment in health information systems on long-range health outcomes or intermediate health indicators. Although some of what we know is indicative of the importance of this area, these reforms were most likely to be bundled within broader system strengthening packages, so effects were difficult to tease out.

3.5 | Pharmaceutical supply chain strengthening

Evidence formally linking investment in supply chains for medicines and supplies to improved access to health care or better outcomes is scarce and mostly grey literature based. This is in general an underexplored area of research—perhaps because it is perceived as more "operational" in focus than some of the other intervention areas.

3.6 | Service delivery

This is the most broad-based category, incorporating the design and implementation of packages of services, service redesign, organisational strengthening, and other reforms that combine activities across workforce, financing, governance, and other building blocks at macrolevel and mesolevel. Inclusion of demand generation components tends to increase effectiveness of intervention.

- Basic or essential packages of health services have been examined primarily in fragile and conflict-affected settings, as a means for focusing limited resources on core services and aligning donors, often in combination with contracting out services to NGOs (eg, in postconflict settings). Empirical evidence on impact is limited, and it is not possible at this stage to provide an informed judgement of impact on health outcomes or their distribution across populations. The research literature is focused on package design, less so on impact.[36]

- Strengthening primary care services (including integrated community case management of childhood illness) and the implementation of effective strategies to reach underserved populations are seen as central to system strengthening, and there is good evidence of positive effects on health outcomes, but primary health care (PHC) systems in LMICs often suffer from fragmented service delivery, and HSS support to these systems has historically been piecemeal. Existing evidence is suggestive of positive effects on service access and coverage, and health outcomes (focusing principally on infant and child mortality and morbidity, and maternal health).[10,37] Successful programmes tend to blend community health worker (CHWs)-based models with strong referral systems and provision of first-level care to improve access.[38,39]
- Service integration interventions usually span multiple building blocks, but primarily at mesolevel or microlevel. Effects vary according to service domain.[40] Mother and child health integration interventions are supported by fairly good evidence of positive impacts on health outcomes (perinatal mortality and child mortality principally) and intermediate outcomes[41]; evidence for HIV is mixed depending on the service area with which HIV services are integrated.[42]
- Effects on neonatal and child mortality, as well as a cluster of other health outcomes (including nutritional markers) arising from Integrated Management of Childhood Illness (IMCI) are conflicting, depending on study location and the fidelity of implementation, which has differed in marked ways between contexts.[43,44] There is a clearer consensus that service quality improves where IMCI has been implemented.[45]

4 | ASSESSING HSS

Alongside the lack of consensus on definition is a lack of evaluation frameworks for HSS interventions. Existing evaluations typically report on impacts on targeted elements (often within one system block), without considering the impact on the wider system and its interactions.[8] In focusing on one building block, they may inadvertently

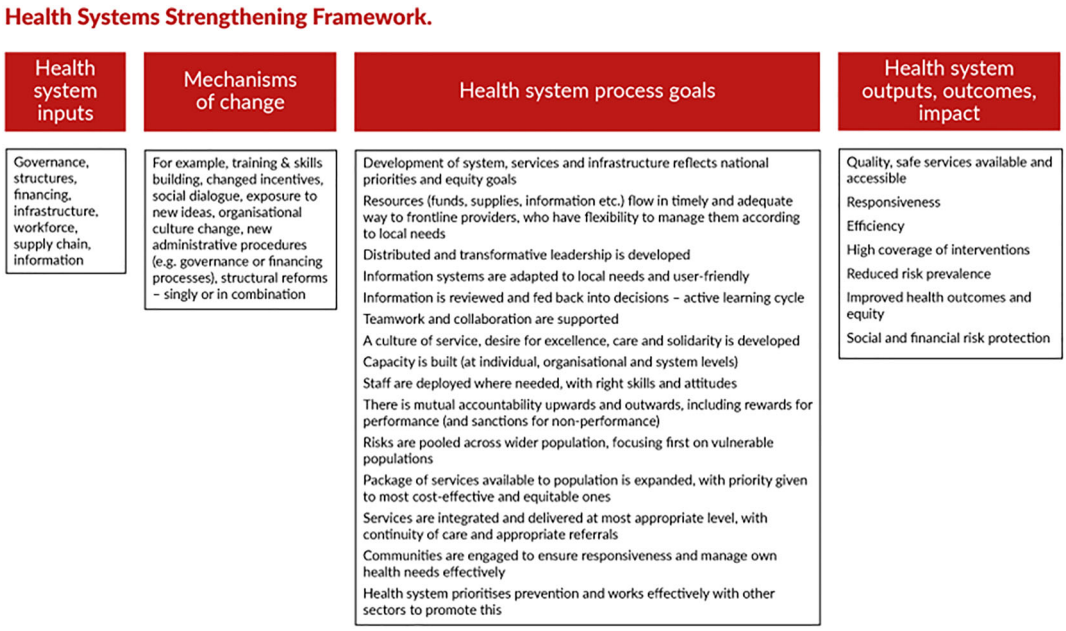

FIGURE 1 Health system strengthening (HSS) framework and process goals.
Source: authors

"verticalise" what is in fact an HSS intervention (perhaps reflecting the greater ease of publishing on more specific topics).

It is also important to connect HSS, often conceptualised as a (donor funded) external intervention in a health system, to the wider literature on resilience and learning health systems, which identifies desirable general features for strong health systems such as adaptability, good collaborative mechanisms, and intelligence gathering.[46,47] Such features can be fostered by, for example, staff commitment, community cohesion, and organizational flexibility.[48] HSS that is driven by national and subnational authorities as part of their continuing efforts to improve health systems is likely to be more enduring, although it is less studied within LMICs.

We argue that agreeing a framework for evaluation of HSS is urgent. Most interventions have theories of change relating to specific system blocks, but more work is needed on a set of overarching health system process goals (see, for example, Figure 1). If projects, programmes, or reforms contribute to these, it is reasonable to assume, other things being equal, that they will improve the overall health system and its outcomes. Given the cost of randomised designs, complexity of interventions, fluidity of contexts, and methodological challenges (including time lags and generalizability), it may make sense to prioritise investments in interventions that have demonstrated good progress in relation to HSS process.

5 | CONCLUSIONS AND WAYS FORWARD

Our review highlights the need to build consensus about what HSS means and how it is assessed, as well as the limited nature of the literature examining systemic effects of investments, and makes suggestions to strengthen these areas. This is important as governments and donors are moving away from vertical programmes and seeking to invest in HSS, so having an agreement on concepts and indicators of success will support programme design and targeting of resources. Without these, there is a danger that efforts towards HSS will be diluted and will include multiple interventions without coherence. Some types of health system investment have a plausible evidence base, while others look highly promising but are less well studied—these include many of the initiatives within supply chain strengthening, for example, and information systems. The extent to which any of these interventions are implemented or studied as part of a broader health systems strengthening approach is highly variable, making our review more indicative than comprehensive.

Limitations in the current evidence base mean that lack of robust evidence is no indication of lack of effect. They also point to important areas for future focus. For example,

- The overall literature is highly skewed towards better funded areas, with more external support and interest, which means that local level innovations and smaller projects are neglected.
- We also highlight the tendency to evaluate what are seen as "new" initiatives, while many important areas of potential reform are overlooked if seen as "more of the same," such as strengthening public health functions or directing more resources to primary care.[49]
- It also appears that more operational topics such as supply chain management and health information systems do not receive the same research and evaluative attention.
- More complex packages of measures, even if potentially more powerful, are harder to evaluate and also to publish on, leading to a bias towards studies of discrete investments.
- Much of what is identified in the review is project based. Large-scale evaluation of national reform implementation and impact may provide more useful insights, covering more complex interventions and organic HSS efforts, as well as longer time periods.

Factors highlighted across the studies that are likely to increase HSS success include political commitment to a process, shared societal values, taking advantage of windows of opportunity, sustained commitment, coherent reform

programmes, quality of implementation, and iterative learning and adaptation. The role of community engagement in the design and implementation of the interventions also came out as an ingredient of higher effectiveness of interventions reviewed, as did individual and organisational capacity development and mentoring. This suggests that the implementation process might be as important as the specifics of intervention design in HSS. System strengthening entails concern for how a specific intervention is adapted to and institutionalised within the existing system, not only to ensure its long-term sustainability but also to support, rather than undermine, system resilience. Paying attention to system software—such as trust in relationships, or leadership processes and values—is critical in this regard.[50,51] There is also a need to rethink evaluation methods for HSS beyond finite interventions and narrow outcomes.

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