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Conceptual framework for systemic capacity strengthening for health policy and systems research

Tolib Mirzoev ,[1,2] Stephanie M Topp ,[2,3] Rima A Afifi,[2,4] Racha Fadlallah,[2,5] Felix Abrahams Obi,[2,6,7] Lucy Gilson[1,2,8]

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For numbered affiliations see end of article.

Correspondence to
Professor Tolib Mirzoev;
Tolib.Mirzoev@lshtm.ac.uk

ABSTRACT

Health policy and systems research (HPSR) is critical in developing health systems to better meet the health needs of their populations. The highly contextualised nature of health systems point to the value of local knowledge and the need for context-embedded HPSR. Despite such need, relatively few individuals, groups or organisations carry out HPSR, particularly in low-income and middle-income countries. Greater effort is required to strengthen capacity for, and build the field of, HPSR by capturing the multilevel and nuanced representation of HPSR across contexts. No comprehensive frameworks were found that inform systemic HPSR capacity strengthening. Existing literature on capacity strengthening for health research and development tends to focus on individual-level capacity with less attention to collective, organisational and network levels. This paper proposes a comprehensive framework for systemic capacity strengthening for HPSR, uniquely drawing attention to the blurred boundaries and amplification potential for synergistic capacity strengthening efforts across the individual, organisational and network levels. Further, it identifies guiding values and principles that consciously acknowledge and manage the power dynamics inherent to capacity strengthening work. The framework was developed drawing on available literature and was peer-reviewed by the Board and Thematic Working Groups of Health Systems Global. While the framework focuses on HPSR, it may provide a useful heuristic for systemic approaches to capacity strengthening more generally; facilitate its mainstreaming within organisations and networks and help maintain a focused approach to, and structure repositories of resources on, capacity strengthening.

SUMMARY BOX

- ⇒ There is a recognised need for health policy and systems research (HPSR) in support of health systems development.
- ⇒ Substantial theoretical and empirical published knowledge covers capacity strengthening for health research and development generally, but no frameworks exist for conceptualising capacity strengthening specific to HPSR.
- ⇒ A conceptual framework is proposed of systemic capacity strengthening for HPSR, drawing on and extending the current understanding from health and non-health literature.
- ⇒ The framework underscores the importance of strengthening HPSR capacity at the organisational and network levels.
- ⇒ In addition to requiring a clear goal, and a focus on an intended audience, capacity strengthening for HPSR requires prior assessments of capacity assets and needs within and across the individual, organisational and network levels recognising the blurred boundaries and amplification potential that exists for capacity strengthening efforts at a systems level.
- ⇒ The proposed framework provides a heuristic for systemic approaches essential for unleashing capacity for both HPSR and broader health systems development.

INTRODUCTION

Health policy and systems research (HPSR) is critical in developing health systems to better meet the health needs of their populations,[1] from outbreaks of infectious diseases through to wider societal challenges such as the health impacts of climate change and urbanisation. The highly contextualised nature of health systems and services reinforces the central value of local knowledge and point to the need for context-embedded HPSR in support of health systems development. However, there still remains limited numbers of individuals, groups or organisations carrying out HPSR, particularly in low-income and middle-income countries (LMICs).[2 3] There is an evident need to invest in strengthening capacity for HPSR.[4]

A field is commonly defined as a community of individuals and organisations working together to address a common societal issue, develop shared knowledge or advance practices.[5 6] Similarly, the field of HPSR aims to understand and improve how societies organise themselves in pursuit of collective health goals.[2] However, distinctive features of the HPSR include its diverse participants

(comprising researchers, advocates, policymakers, practitioners, educators and funders); its applied nature (spanning and bridging the worlds of research, practice and advocacy); its recognition and engagement with structural change (to comprehensively address social, economic, political, commercial determinants of health); an orientation towards the principles of social justice and its multidisciplinary perspective (drawing on diverse methodological and epistemological backgrounds). As such, strengthening, or field building, of HPSR entails a strong emphasis on enhancing collective links among individuals and organisations to ensure connectedness and boundary spanning between different communities of practice and consolidating and extending shared ideas and experiences.

There is substantial published knowledge on capacity strengthening for health-related research and development, covering four overlapping areas. First, there is published work that conceptualises different elements of 'capacity' including those that focus on individual (eg, knowledge and skills), organisational (eg, organisational governance arrangements, resource environments and management approaches) and network (eg, interorganisational relationships and network-level communication and engagements) levels.[7–9] Second, there is literature expounding underlying principles of, and effective strategies for, health-related research capacity strengthening, for instance, through promoting equitable ownership and collaboration, ensuring robust research governance structures and embedding strong support and mentorship.[10–12] Third, there is literature providing guidance on capacity assessments, with some highlighting the importance of comprehensive evaluation of available capacity 'assets' alongside capacity needs.[13–15] And a fourth area of work focuses on good practice considerations for adequate planning, monitoring and evaluation of health-related capacity strengthening, such as selection of appropriate measures for outputs and outcomes at individual, organisational or national/regional research systems levels.[16–20] Although the body of work on capacity strengthening for health-related research is growing, the predominant focus remains capacity strengthening at the individual level, for example, via training and mentorship programmes. Guidance for capacity strengthening at the collective (ie, organisation and network) levels (for example, improving organisational processes for research governance and teaching quality assurance or building network-level relationships) is more limited.[4 21] There also remains limited consideration of capacity strengthening across the individual-collective levels or discussion of how capacity strengthening at one level may impact other levels.

The HPSR literature highlights the need for capacity strengthening for HPSR[4 22 23] but tends to address selected aspects such as evidence-informed policymaking[21] or organisational strategies to build HPSR capacity.[3] Recent literature has also highlighted core competencies for training in HPSR[24] with numerous empirical experiences of capacity assessments and strengthening.[25–45] Yet, there are still no comprehensive frameworks to inform thinking about, and provide guidance on, capacity strengthening for HPSR with its distinctive 'system-wide' focus and the potential of systemic capacity strengthening that is, leveraging synergies from working across the individual-organisational-network levels to contribute to impact at large scale.

Meanwhile, capacity strengthening in global health has often been understood as a responsibility of those based in high-income countries (HICs) as part of their partnership arrangements with those based in LMICs. For example, encouraged by funders, principal investigators of international projects who are based in HICs may assume responsibility for capacity strengthening of LMIC-based collaborators, with both sides under-recognising assets in LMICs and overestimating assets in HICs. While this trend is gradually changing, such an approach highlights the need for a new approach to capacity strengthening for HPSR among all partners irrespective of their location.

In this paper, we aim to build on and extend previous conceptualisations of capacity strengthening relevant to HPSR by describing an overarching conceptual framework of capacity strengthening for HPSR. The HPSR field comprises multiple and diverse actors such as researchers, educators, advocates, practitioners, funders and policymakers.[4] We, therefore, hope that this paper will be of interest and relevance to all these groups, with multiple lessons also potentially being transferable to building other fields.

We (this article is authored by the members of the Capacity Strengthening Working Group of the Board of Directors of Health Systems Global (HSG)) conducted a rapid scan of the literature on capacity strengthening as well as conceptualisations of capacity strengthening for field building from the areas of Development Studies and Business and Administration. Key groupings of literature—for example, sources exploring underlying principles, level of conceptualisation, guidance on capacity assessment, capacity strengthening strategies and monitoring and evaluation—were applied, followed by a more targeted search for multilevel frameworks of capacity strengthening for health-related research which produced no results. We then developed an initial framework iteratively, drawing on relevant literature, the results of a capacity assessment survey conducted with HSG members[46] and the authors' individual and collective experiences of leading and contributing to, multiple capacity strengthening initiatives and programmes. The framework was subsequently peer-reviewed by the members of the HSG Board and by leaders of HSG's Thematic Working Groups.

CONCEPTUAL FRAMEWORK FOR CAPACITY STRENGTHENING FOR HPSR

In contrast to some of the health-related literature on capacity strengthening, there is a general consensus in the wider literature that the notion of capacity comprises

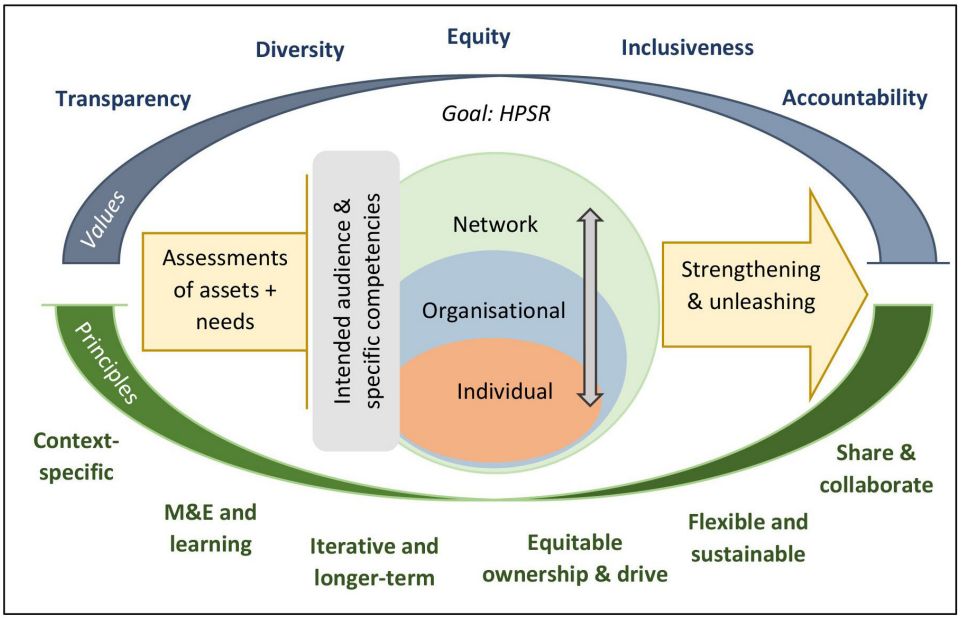

Figure 1 Conceptual framework for systemic capacity strengthening for HPSR. HPSR, health policy and systems research.

both individual and collective aspects. Collectives can comprise families and communities,[47 48] organisations and networks. From the perspective of social development, capacity strengthening for families and communities relates to strengthening their social capacity,[49] which requires deeper understanding of their often diverging identities and similar values.[47] Organisational development scholars have emphasised the importance of organisational-level capacity strengthening, while also highlighting the importance of intangible and invisible elements of organisational capacity (such as values and culture).[50]

The proposed conceptual framework of capacity strengthening for HPSR (figure 1) synthesises these characteristics with insights from the health-related literature on capacity strengthening.[7 8 26] We define capacity for HPSR as the collective ability of individuals, groups and networks, to successfully consolidate, synthesise, harness and apply opportunities in the pursuit of shared goal of advancing, promoting and integrating HPSR for health systems development. Given the distinctive applied, cross-disciplinary and multiactor nature of HPSR, central aspects of capacity strengthening for HPSR involve bridging the worlds of research, practice and advocacy with strong emphasis on strengthening collective links among individuals and organisations.

Our framework echoes the current distinction between individual, organisational and network capacity levels.

1. *Individual* capacity comprises individual expertise (knowledge and skills) to undertake defined tasks. Examples of such expertise include thematic and methodological expertise of researchers, educators' expertise in appropriate teaching methods, policymakers and advocates' knowledge and ability to act in or influence policy processes, and effective leadership of all these actors.
2. *Organisational* capacity requires both the individual expertise of its members, together with organisational-level attributes (eg, systems, processes) that can enable, or constrain, application of capacity at scale through harnessing the potential of collectives within organisations. Examples of such organisational-level attributes include a supportive culture and appropriate communication of development opportunities which can promote equitable staff development, and robust governance arrangements to ensure quality assurance (eg, for teaching, research, policymaking and advocacy).
3. *Network* capacity requires combinations of individual and organisational expertise of members of the network, with further network-level attributes. Examples of network-level attributes include the existence of shared goals, decision structures and processes, access to resources and communication arrangements.

These three capacity levels are central to our framework, but four additional points are important to note for HPSR, especially given its diverse, cross-disciplinary and multifaceted membership. First, while all three capacity levels have distinct attributes, they are interrelated. For example, individual educational skills can support educational programmes run by organisations or, conversely, large networks might use their convening power to contribute to improvements in organisational and individual-level expertise. Second, the boundaries between the three levels can be blurred and are context-specific. For example, autonomous departments within a large decentralised organisation (university, non-governmental organisation or government) could be regarded as separate organisations within a wider 'network', rather than simply units of a more centralised organisation. Third, the role of power,[51] operating within and between levels, both prior to and during capacity

strengthening endeavours, must be recognised. The significance of understanding and consciously engaging with such power dynamics raises the need to clarify and/or establish *values* and *principles* to shape capacity strengthening work, as discussed further below. Last, while capacity strengthening work does not always have to target all three levels concurrently, the framework implies that HPSR field building would be well served by deepening work across all three levels over time. A key contribution of this framework is thus to highlight a systemic approach to capacity strengthening, which recognises and leverages synergies across the three levels to achieve effects at large scale.

The understanding of capacity strengthening for HPSR described above draws on, and is aligned with, recent conceptualisation of Learning Health Systems,[52 53] a term used to describe infrastructure, processes and activity that drive systematic translation of research evidence and other forms of knowledge into health practice and policy. Sheikh and Abimbola[53] conceptualise such systems as operating across three dimensions, all of which inform our framework. The first dimension—individual, group, organisation and cross-organisation levels of learning—align with our framework's proposition of the need for capacity strengthening throughout all these levels. Our frameworks' emphasis on the blurred boundaries and amplification potential that exists for capacity strengthening efforts across levels also aligns with Sheikh and Abimbola's second and third dimensions for Learning Health Systems that view different means of learning (information-deliberation-action) and 'learning loops' as being fundamental to progressively more meaningful and sustained shifts in policy or practice.[53]

Capacity strengthening work needs to have a clear goal, though it may differ between the fields and disciplines. The overall capacity strengthening goal in the framework presented in this article is to contribute to advancing HPSR (which in addition to research also includes education, advocacy and policy influence) through actions that enhance individual skills and expertise, improve organisational systems and processes and promote network relationships. The goal of capacity strengthening and its operationalisation into specific contributions to HPSR will reflect the members' location in the field and their organisational base. Within a civil society organisation, a goal for capacity strengthening for HPSR might comprise efforts to inform effective advocacy and lobbying.[47 48 50 54] Within a government organisation, it might entail strengthening capacity to integrate, and conduct, research to support successful development and implementation of a health programme, or enabling evidence-informed policymaking.[27 35] Within a university, the goal for HPSR may focus on ensuring effective undergraduate and postgraduate teaching[24 30 55] for successful conduct of research or around particular methods such as evidence syntheses.[56–59] However, a common goal for HPSR includes promoting close engagements and synergies across all these actor groups.

Identifying and articulating the underlying values and principles is an important part of any capacity strengthening activities, since these frame and structure approaches and strategies chosen. For example, values of equity and inclusiveness combined with principles of equitable ownership and collaboration can usefully frame capacity strengthening around the available in-house assets and thus ensure longer-term sustainability of capacity gains. Such values and principles also flag the importance of critical reflexivity in any capacity strengthening endeavour, including acknowledgement of the way power (eg, along epistemic or material dimensions) is distributed among and between collaborators, and consideration of what capacity strengthening strategies mitigate rather than exacerbate any power differentials.[51 60] Some of these values and principles may naturally reflect the organisational or network-level missions, but there may also be implicit or explicit capacity-specific values and principles. For example, the capacity strengthening work conducted by Health Systems Global (HSG) is informed by five core values (further details are on p.12 of the HSG Strategic Plan https://healthsystemsglobal.org/wp-content/uploads/2020/05/HSG_StratReport_2016_2020-2.pdf) that reflect the society's ethos. HSG's principles, meanwhile, are drawn from the seven ESSENCE principles for strengthening research capacity: networking and sharing, context-specificity, local ownership, continuous monitoring and evaluation, robust governance and effective leadership, effective support and mentorship, and thinking long-term.[10] In the proposed framework, the values and principles have been adapted with consideration for the diverse backgrounds and professional roles of individuals involved in HPSR, and central focus on context-specificity and equitable ownership at all levels.

It is important for all capacity strengthening work to specify its intended 'audiences' with clearly identified capacity competencies.[14 17 24 26] An intended audience does not necessarily need to be narrow, however. The intended audience for capacity strengthening for HPSR is a diverse membership, comprising researchers, educators, advocates, practitioners and policymakers – all nested within their academic, government and civil society organisations and embedded within further respective networks. Each audience requires competencies across the individual-organisational-network spectrum. While many competencies can be common across actor groups (such as effective leadership and organisational governance), some actors also have distinct capacity competence needs. For example, HPSR educators require individual teaching expertise applied within robust organisational teaching quality assurance processes and access to resources (eg, thematic expertise and external examiners) within their networks.[24 30] Policymakers within ministries of health, on the other hand, may require specific expertise for evidence-informed policymaking,[27] for example, through commissioning, interpretation and utilisation of research evidence to inform their decision-making.[35 61]

Table 1 Key components and their relevance to the HPSR

Element	Description	Sample activities: linked to HSG activities	Application example: HSG/AHPSR women's mentorship for publication
Goal	Ultimate ambition being aimed for	Strengthening of health policy and systems research	Support earlier career women in their track record of publications
Individual capacity	Individual skills and expertise	Methodological skills, evidence-informed decision-making, advocacy, networking	Publication skills development
Organisational capacity	Organisational systems and processes	Quality assurance for educational programmes, advocacy of member organisations	This is limited, with a clear potential to embed within organisational context (eg, within workplans and workloads, and staff support and line management) in the future
Network capacity	Collective network capacity	Collective capacity of thematic working groups, regional expansion	Establishing community of practice involving mentors and mentees
Values	Core beliefs which shape behaviour and subsequent practices	Transparency, diversity, equity, inclusiveness and accountability	Diversity, inclusion, transparency, equity, accountability
Principles	Key approaches and strategies which inform implementation	Context-specificity, equitable ownership and drive, flexibility and sustainability	Context-specificity, equitable ownership, flexibility
Intended audiences	Main beneficiaries from capacity strengthening	Researchers, policymakers, advocates, educators	Earlier career female researchers
Key competencies	Specific capacity attributes across individual, organisational and network levels	Conducting rigorous research, effective communication, agenda-setting, robust governance, equitable partnerships	Planning and writing manuscript for publication in a peer-reviewed academic journal
Assessments of assets and needs	Evaluation of available capacity strengths and needs	Capacity survey and on-going consultations	Mentees: availability of research material, willingness and commitment to participate Mentors: availability and competence, matched research interests and In addition to individual level, future assessments can usefully capture organisational level indicators
Strengthening and unleashing	Process of synergistic capacity strengthening across three levels, which includes recognition and leveraging of available assets	Webinars, skills-building and networking across audiences at global symposia and TWGs, resource repositories, developing shared understandings	Initial induction, followed by regular virtual meetings and reviews of drafts and a face-to-face event involving at Global Symposium for Health Systems Research

AHPSR, Alliance for Health Policy and Systems Research ; HPSR, health policy and systems research; TWG, Thematic Working Group.

Last but not least, the process of capacity strengthening should start with comprehensive assessments of capacity assets (ie, strengths) and needs (ie, gaps), which should inform planning of capacity strengthening.[14 15 17 26] This is because capacity assets may exist but can be constrained by unfavourable environments or simply not be recognised and used at all. For example, in organisations, individual strategic thinking expertise may be constrained by a high volume of routine tasks, limited resources to operationalise strategies or inappropriate distribution of responsibilities. At an organisational level, capacity strengthening may therefore entail unleashing an otherwise constrained capacity,[8 62] such as through managing workloads and job profiles to enable more effective use of individual and collective expertise.

The key elements of the proposed conceptual framework, together with sample activities and an illustration of how the framework can be applied in practice, are summarised in table 1. These ideas draw from HSG's own capacity strengthening initiatives, including women's mentorship for publication programme organised jointly with the Alliance for Health Policy and Systems Research.

As any other framework, our conceptualisation of capacity strengthening simplifies complex realities. Although our framework is presented here as a 'point in time' assessment, in fact, in any setting, capacity strengthening embraces multiple activities implemented over time. In an ideal scenario, new activities are preceded and built on those that came before and influence those that come after. However, capacity strengthening activities often do not function this way. Instead, other similar, and often fragmented, initiatives cover same individuals and organisations. Our conceptual framework encourages building on previous capacity strengthening activities through revealing capacity assets alongside the capacity needs. Recognising and harmonising the multitude of efforts is needed to avoid duplication, support efficient use of resources for capacity strengthening within and across settings and advance the field of HPSR.

CONCLUSION

The primary purpose of the conceptual framework is to articulate a systemic, that is, more holistic and synergistic, approach to capacity strengthening for HPSR. The

proposed framework can be used and tested in different settings and circumstances, to contribute to its further refinement and operationalisation. The framework can also shape wider debates about comprehensive capacity strengthening and contribute to strengthening of other health-related research fields. The conceptualisation of capacity strengthening as comprising three levels and being informed by well-thought-out assessments of capacity assets and needs, can provide an overall heuristic for designing systemic approaches to capacity strengthening with a potential beyond HPSR. A clear articulation of values and principles for capacity strengthening can facilitate mainstreaming capacity strengthening within the organisations and networks, through aligning capacity strengthening within overall organisational missions and visions and contribute to harmonising multitude of relevant efforts. Specific emphasis on identification of intended audiences and their core competencies can help maintain a focused approach to capacity strengthening across individual, organisational and network levels.

At a practical level, we anticipate that the proposed framework will inform crowdsourcing and sharing of substantial capacity assets from LMICs and facilitating mutual exchange and learning through harnessing synergies for enhancing HSG members' individual and organisational capacities. This can contribute to 'flipping the narrative' that capacity strengthening in LMICs should be driven by the HICs and promote capacity strengthening approaches which include recognition and addressing capacity assets and needs of all partners.

Finally, different components of the framework can help structure repositories of guidance, tools and other resources on capacity strengthening, for example, Collaboration for Health Policy and Systems Analysis in Africa (https://www.hpsa-africa.org/), HSG repository of courses on HPSR (https://courses.healthsystemsglobal.org/), UK Collaborative on Development Research (https://www.ukcdr.org.uk/guidance/research-capacity-strengthening-resources-tools-and-guides/) or the Liverpool School of Tropical Medicine's Centre for Capacity Research (https://www.lstmed.ac.uk/research/centres-and-units/centre-for-capacity-research).

Author affiliations
[1]Department of Global Health and Development, London School of Hygiene & Tropical Medicine, London, UK
[2]Capacity Strengthening Working Group, Health Systems Global, Ottawa, Ontario, Canada
[3]College of Public Health, Medical and Veterinary Sciences, James Cook University, Townsville, Queensland, Australia
[4]Department of Community and Behavioral Health, University of Iowa, Iowa City, Iowa, USA
[5]Department of Health Management and Policy, Faculty of Health Sciences, American University of Beirut, Beirut, Lebanon
[6]Nigeria Country Office, Results for Development Institute, Abuja, Nigeria
[7]Health Policy Research Group, University of Nigeria—Enugu Campus, Enugu, Nigeria
[8]School of Public Health and Family Medicine, University of Cape Town, Cape Town, South Africa

Twitter Tolib Mirzoev @tmirzoev, Stephanie M Topp @globalstopp, Felix Abrahams Obi @MallamPelliks and Lucy Gilson @Lucy_Gilson

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ORCID iDs
Tolib Mirzoev http://orcid.org/0000-0003-2959-9187
Stephanie M Topp http://orcid.org/0000-0002-3448-7983

REFERENCES

1 Gilson L, ed. *Health policy and systems research. A methodology reader*. Geneva, Switzerland: Alliance for Health Policy and Systems Research, World Health Organization, 2012.
2 Alliance for Health Policy and Systems Research. *Partners' health policy and systems research report. Licence: CC BY-NC-SA 3.0 IGO*. Geneva: World Health Organization, 2021.
3 WHO. *Changing mindsets - strategy on health policy and systems research*. Geneva: World Health Organization, 2012.
4 Bennett S, Agyepong IA, Sheikh K, *et al*. Building the field of health policy and systems research: an agenda for action. *PLoS Med* 2011;8:e1001081.
5 Farnham L, Nothmann E, Tamaki Z. *Field building for population-level change. How funders and practitioners can increase the odds of success*. Boston-Johannesburg-Mumbai-New York-San Francisco: The Bridgespan Group, 2020.
6 ORS Impact. Measuring progress in fields: reflections & opportunities, 2021. Available: https://www.orsimpact.com/DirectoryAttachments/10122021_63438_402_Field_Building_Measurement_Think_Tank_Product_Designed_Draft_10-07-21.pdf [Accessed 8 Apr 2022].
7 Potter C, Brough R. Systemic capacity building: a hierarchy of needs. *Health Policy Plan* 2004;19:336–45.
8 UNDP. Capacity development practice note: United Nations development programme, 2006. Available: http://www.undp.org/cpr/iasc/content/docs/UNDP_Capacity_Development.pdf [Accessed 4 May 2008].
9 Nuyens Y. 10 best resources for… health research capacity strengthening. *Health Policy Plan* 2007;22:274–6.
10 ESSENCE. *Seven principles for strengthening research capacity in low- and middle-income countries: simple ideas in a complex world. ESSENCE good practice document series*. Geneva, Switzerland: ESSENCE on Health Research, 2014.
11 Franzen SRP, Chandler C, Lang T. Health research capacity development in low and middle income countries: reality or rhetoric? A systematic meta-narrative review of the qualitative literature. *BMJ Open* 2017;7:e012332.
12 Franzen SRP, Chandler C, Siribaddana S, *et al*. Strategies for developing sustainable health research capacity in low and middle-income countries: a prospective, qualitative study investigating the barriers and enablers to locally led clinical trial conduct in Ethiopia, Cameroon and Sri Lanka. *BMJ Open* 2017;7:e017246.
13 Lê G, Mirzoev T, Erasmus E. *How to do capacity assessments for health policy and systems research in University settings: a Handbook*. Leeds, UK: Consortium for Health Policy and Systems Analysis in Africa, 2014. http://www.hpsa-africa.org/images/Chepsaa%20Handbook%20Complete%20Jan%2015th.pdf

14 Le G, Mirzoev T, Orgill M, *et al*. A new methodology for assessing health policy and systems research and analysis capacity in African universities. *Health Res Policy Syst* 2014;12:59.
15 UNDP. *Capacity assessment practice note*. New York, USA: United Nations Development Programme, 2008.
16 ESSENCE. *Planning, monitoring and evaluation. framework for research capacity strengthening*. Geneva, Switzerland: ESSENCE on Health Research, 2016.
17 Pulford J, Crossman S, Abomo P, *et al*. Guidance and conceptual tools to inform the design, selection and evaluation of research capacity strengthening interventions. *BMJ Glob Health* 2021;6:e005153.
18 Boyd A, Cole DC, Cho D-B, *et al*. Frameworks for evaluating health research capacity strengthening: a qualitative study. *Health Res Policy Syst* 2013;11:46.
19 Brown L, LaFond A, Macintyre K. *Measuring capacity building*. Chapel Hill, NC: Measure Evaluation, 2001.
20 Cole D, Kakuma R, Fonn S. Evaluations of health research capacity development: a review of the evidence. *Am J Trop Med Hyg* 2012;87.
21 Green A, Bennett S, eds. *Sound choices: enhancing capacity for evidence-informed health policy. AHPSR biennual review*. Geneva: WHO, Alliance for Health Policy and Systems Research, 2007.
22 Sheikh K, Gilson L, Agyepong IA, *et al*. Building the field of health policy and systems research: framing the questions. *PLoS Med* 2011;8:e1001073.
23 Gilson L, Hanson K, Sheikh K, *et al*. Building the field of health policy and systems research: social science matters. *PLoS Med* 2011;8:e1001079.
24 Schleiff MJ, Rangnekar A, Oviedo Gomez F, *et al*. Towards core competencies for health policy and systems research (HPSR) training: results from a global mapping and Consensus-Building process. *Int J Health Policy Manag* 2020:258. doi:10.34172/ijhpm.2020.258
25 Agyepong I, Aikins M, Esena R. *Assessment of capacity development needs for health policy and systems analysis (HPSA) research and teaching in Ghana*. Accra, Ghana: University of Ghana, 2012.
26 Mirzoev T, Lê G, Green A, *et al*. Assessment of capacity for health policy and systems research and analysis in seven African universities: results from the CHEPSAA project. *Health Policy Plan* 2014;29:831–41.
27 Mirzoev TN, Green A, Van Kalliecharan R. Framework for assessing the capacity of a health ministry to conduct health policy processes--a case study from Tajikistan. *Int J Health Plann Manage* 2015;30:173–85.
28 Nangami MN, Rugema L, Tebeje B, *et al*. Institutional capacity for health systems research in East and Central Africa schools of public health: enhancing capacity to design and implement teaching programs. *Health Res Policy Syst* 2014;12:22.
29 Nchinda TC. Research capacity strengthening in the South. *Soc Sci Med* 2002;54:1699–711.
30 Omar M, Tarin E, Ashjaei K, *et al*. In-country capacity development of a training Institute: an Iranian experience. *J Health Organ Manag* 2007;21:519–32.
31 Onwujekwe O, Mbachu C, Etiaba E, *et al*. Impact of capacity building interventions on individual and organizational competency for HPSR in endemic disease control in Nigeria: a qualitative study. *Implement Sci* 2020;15:22.
32 Pappaioanou M, Malison M, Wilkins K, *et al*. Strengthening capacity in developing countries for evidence-based public health: the data for decision-making project. *Soc Sci Med* 2003;57:1925–37.
33 Prashanth NS, Marchal B, Hoeree T, *et al*. How does capacity building of health managers work? A realist evaluation study protocol. *BMJ Open* 2012;2:e000882.
34 Rao Seshadri S, Kothai K. Decentralization in India's health sector: insights from a capacity building intervention in Karnataka. *Health Policy Plan* 2019;34:595–604.
35 Rodríguez DC, Hoe C, Dale EM, *et al*. Assessing the capacity of ministries of health to use research in decision-making: conceptual framework and tool. *Health Res Policy Syst* 2017;15:65.
36 Gilson L, Agyepong IA. Strengthening health system leadership for better governance: what does it take? *Health Policy Plan* 2018;33:ii1–4.
37 Gilson L, Barasa E, Nxumalo N, *et al*. Everyday resilience in district health systems: emerging insights from the front lines in Kenya and South Africa. *BMJ Glob Health* 2017;2:e000224.
38 Kwamie A. The tree under which you sit: realist approaches to district-level management and leadership in maternal and newborn health policy implementation in the Greater Accra Region, Ghana. PhD Thesis. Wageningen, The Netherlands: Wageningen University 2016.
39 Newell JN, Pande SB, Baral SC. Leadership, management and technical lessons learnt from a successful public-private partnership for TB control in Nepal. *Int J Tuberc Lung Dis* 2005;9:1013–7.
40 Schneider H, Nxumalo N. Leadership and governance of community health worker programmes at scale: a cross case analysis of provincial implementation in South Africa. *Int J Equity Health* 2017;16:72.
41 WHO. Building leadership and management capacity in health. Geneva: World Health Organization, 2017. Available: www.who.int/management/FrameworkBrochure.pdf [Accessed 15 Mar 2017].
42 El-Jardali F, Lavis JN, Ataya N, *et al*. Use of health systems and policy research evidence in the health policymaking in eastern Mediterranean countries: views and practices of researchers. *Implement Sci* 2012;7:2.
43 EVIPNet Americas Secretariat, Corkum S, Cuervo LG, *et al*. EVIPNet Americas: informing policies with evidence. *Lancet* 2008;372:1130–1.
44 Hawkes S, K Aulakh B, Jadeja N, *et al*. Strengthening capacity to apply health research evidence in policy making: experience from four countries. *Health Policy Plan* 2016;31:161–70.
45 Lavis JN, Oxman AD, Lewin S, *et al*. SUPPORT Tools for evidence-informed health Policymaking (STP). *Health Res Policy Syst* 2009;7:I1.
46 HSG. *HPS research, education and decision-making capacity needs, assets and opportunities – HSG member survey findings*. Global: Health Systems Global, 2020.
47 Shirlow P, Murtagh B. Capacity-building, representation and intracommunity conflict. *Urban Stud* 2004;41:57–70.
48 Craig G. Community capacity-building: something old, something new…? *Crit Soc Policy* 2007;27:335–59.
49 Merino SS, Carmenado IdelosR, IdlR C. Capacity building in development projects. *Procedia Soc Behav Sci* 2012;46:960–7.
50 Kaplan A. Capacity building: shifting the paradigms of practice. *Dev Pract* 2000;10:517–26.
51 Topp SM, Schaaf M, Sriram V, *et al*. Power analysis in health policy and systems research: a guide to research conceptualisation. *BMJ Glob Health* 2021;6:e007268.
52 Sheikh K, Agyepong I, Jhalani M, *et al*. Learning health systems: an empowering agenda for low-income and middle-income countries. *Lancet* 2020;395:476–7.
53 Sheikh K, Abimbola S, eds. *Learning health systems: pathways to progress*. Geneva: Alliance for Health Policy and Systems Research, World Health Organisation, 2021.
54 Dunst CJ, Trivette CM. Capacity-Building Family-Systems intervention practices. *J Fam Soc Work* 2009;12:119–43.
55 Erasmus E, Lehmann U, Agyepong IA, *et al*. Strengthening post-graduate educational capacity for health policy and systems research and analysis: the strategy of the Consortium for health policy and systems analysis in Africa. *Health Res Policy Syst* 2016;14:1–12.
56 Oliver S, Bangpan M, Stansfield C, *et al*. Capacity for conducting systematic reviews in low- and middle-income countries: a rapid appraisal. *Health Res Policy Syst* 2015;13:23.
57 Adegnika AA, Amuasi JH, Basinga P, *et al*. Embed capacity development within all global health research. *BMJ Glob Health* 2021;6:e004692.
58 Bates I, Akoto AYO, Ansong D, *et al*. Evaluating health research capacity building: an evidence-based tool. *PLoS Med* 2006;3:e299.
59 Bennett S, Paina L, Kim C. What must be done to enhance capacity for health systems research?: background paper for the global Symposium on health systems research. 16-19 November 2010 Montreux, Switzerland 2010.
60 Sriram V, Topp SM, Schaaf M, *et al*. 10 best resources on power in health policy and systems in low- and middle-income countries. *Health Policy Plan* 2018;33:611–21.
61 Brennan SE, McKenzie JE, Turner T, *et al*. Development and validation of SEER (seeking, engaging with and evaluating research): a measure of policymakers' capacity to engage with and use research. *Health Res Policy Syst* 2017;15.
62 Development Assistance Committee. *The challenge of capacity development: working towards good practice*. Paris: Organisation for Economic Co-operation and Development, 2006.