Embedded Health Policy and Systems Research

Within the System, for the System, Used by the System

… embedding of research in real world policy, practice and implementation is needed to strengthen health systems worldwide

Ghaffar et al. 2017

This brief is intended as a practical aid for people involved in the growing discussions about ‘embedded health policy and systems research’ (e-HPSR), especially in low- and middle-income country contexts (LMICs). e-HPSR is not a new topic or activity – but it has gained international interest as a result of the focus on health systems strengthening, and the acknowledged need to strengthen local learning systems, to improve knowledge translation, and to strengthen capacity within local health systems for evidence-based decision making. The Sustainable Development Goals (SDGs) highlight the importance of increasing support for local health research – and strengthening research that has direct local relevance, as well as research that can itself support health system strengthening and UHC.

There are varied interpretations and applications of e-HPSR, but the literature overwhelmingly agrees that the benefits of undertaking HPSR in an embedded way (within the system, for the system, by the system), far outweighs the possible costs and challenges.

This brief summarises the publication


This scoping review was conducted in 2017 to understand better the current body of literature on embedded research and comparable approaches to identify areas of consensus and gaps for further research, as well as to inform those engaged in an embedded approach within HPSR.

The review included systematised searches of databases, institutional repositories, and key HPSR journals as well as a web-based crowd-sourcing survey. Further materials such as abstract books from the 2010–2016 Health Systems Global Symposia were also analysed. Searched grey and peer-reviewed literature was in English, with a focus on publications from the last twenty years and LMICs.

The length of this brief means that the complexities in relation to embedded HPSR are not fully unpacked here – neither is the full range of resources available to the embedded researcher. References are provided for interested readers who want to explore the subject in more depth.
Main messages

- e-HPSR has great potential and value in and to LMIC health systems.
- e-HPSR can (and should) have a health system strengthening effect.
- e-HPSR should be a core, routine function of every well-functioning health system – supporting the development of a ‘learning system’.
- There are varied interpretations of e-HPSR (e.g., between e-HPSR as an institutional macro-level arrangement, and as a research approach). As the field and practice is still emerging, a single confining definition should not yet be applied.
- Existing empirical examples of e-HPSR in LMICs demonstrate that a learning system develops over time through the establishment of multiple interlinked e-HPSR activities (this is preferable to stand-alone, short-term e-HPSR projects).
- LMICs have limited capacity for e-HPSR – but global partnerships bring particular challenges to e-HPSR that need to be managed.
- Best-practice examples show that funders’ attitudes toward e-HPSR (and toward research and implementation generally) play a key role in its success. Funders can create an enabling environment by making e-HPSR a grant condition and by understanding the demands and intent of e-HPSR.
- Building local capacity for e-HPSR, and normalisation of e-HPSR within LMIC health systems requires resource development, allocation and advocacy – preferably over longer planning cycles.
- e-HPSR effects need to be measured against appropriate indicators.
- The benefits of e-HPSR far outweigh the inherent challenges.

The context for e-HPSR

This brief is intended as a practical aid for people involved in discussions about ‘embedded health policy and systems research’, especially in LMICs. The brief aims to demonstrate the importance of clarity about e-HPSR as it relates to LMICs, and demonstrate how e-HPSR is of growing importance to practitioners, policy-makers, funders and researchers alike.

There has been a rapid growth of enthusiasm about the benefits of e-HPSR over the last decade. For example, there has been a major growth in publications mentioning it; more discussion about it at the biannual Health System Global Symposia; and more HPSR funding calls that require e-HPSR. Key institutions have called for more and better e-HPSR in LMICs, for example:

- The WHO’s Changing mindsets report called for the prioritisation for embedding research into health systems. It argues that when embedding happens, researchers and decision-makers are linked, and the need for evidence-informed policy is understood by decision-makers.
• The WHO’s 2013 World Health Report (Research for universal health coverage) concurred that a priority for research is the translation of research into policy and practice, for which their primary recommendation is to embed research within policy-making processes in order to facilitate the dialogue between science and practice.²

• The Alliance for Health Policy and Systems Research (AHPSR) has led a program of work prioritising embedded HPSR since around 2012 – for example, supporting the development of a portfolio of over 50 implementation-focused e-HPSR projects in LMICs.³⁴

• Health system intervention- and research-funding institutions have encouraged e-HPSR by imposing requirements on grants (e.g., requiring local implementation partners be Principle Investigators); including UNICEF, PAHO, USAID, the World Bank, GAVI, the Rockefeller Foundation, and the Doris Dukes Charitable Foundation.⁴⁶

However, there is not yet a robust community of e-HPSR practice:

• Interpretations of e-HPSR are varied and theoretical frameworks are not yet fully developed.

• There is existing work on e-HPSR in high-income countries that is not being translated into LMIC settings.⁷⁸

• There is a vast relevant literature in other fields that is not being drawn into e-HPSR: (e.g., multiple resources in anthropology, ethnography, environmental sciences, development studies, education and professional development, political studies, psychology, sociology, action research, evaluation, and implementation science).⁹

• Key issues such as ‘knowledge translation’ cut across all these fields, but have not been synthesized into an e-HPSR framing.

**Primary reasons for embedding HPSR in LMICs**

There are multiple benefits to e-HPSR, and urgency for developing e-HPSR capacity in LMICs. Benefits shown in the literature are:⁴⁶.⁸.¹⁰⁻²⁷

• e-HPSR leads to the identification of ‘substantively relevant’ real-world health systems research questions, addressing relevant HS issues. e-HPSR is contextually and socially relevant research – relevant to the health system, ‘worth doing’, and more likely to lead to actionable results.

• e-HPSR closes the research/evidence to practice/action/policy gap by increasing ownership, legitimacy, and improved research translation – thereby promoting the systematic uptake of research findings and evidence-based strategies into routine systems functioning (implementation and policy).

• e-HPSR supports the development of a learning system by building cultures of evidence, and sustainable practices of evidence utilisation and feedback within the system, including evidence-based decision-making.
Top 20 On Embedded HPSR

1. Blanchet K, James P. 2012. How to do (or not to do)... a social network analysis in health systems research
3. Ghaffar A et al. 2017. Strengthening health systems through embedded research
7. Koon AD et al. 2013. Embedding health policy and systems research into decision-making processes in low-and middle-income countries
8. Langlois EV et al. 2017. Embedding research in health policy and systems in the Americas
10. MacGregor H, Bloom G. 2016. Health systems research in a complex and rapidly changing context: ethical implications of major health systems change at scale
12. Nambiar D. 2013. Ethnography and HPSR: critical reflections on fieldwork and policymaking in India
13. Olivier J et al. 2017. Embedded systems approaches to health policy and systems research
16. Tran N et al. 2017. Embedding research to improve program implementation in Latin America and the Caribbean
18. Vindrola-Padros C et al. 2017. The role of embedded research in quality improvement: a narrative review
20. Wolfenden L et al. 2017. Embedding researchers in health service organizations improves research translation and health service performance

(alphabetical listing – see reference list for more)
- e-HPSR can support improved HS responsiveness: this is linked to other principles, but e-HPSR can support the health system in its quest to become more responsive to community needs (so not only focused on decision-maker needs and perspectives, but this requires ‘speaking truth to power’).

- e-HPSR can be considered a more ‘trustworthy’ form of HPS research: as a research approach, when done well, e-HPSR should result in more rigorous research (e.g., providing better access to more in-depth, insider/tacit knowledge, better access to information, fewer barriers, and closer observation of routine HS functioning).

**e-HPSR framings: shaped by ‘where’ it is embedded in the system**

**Multiple definitions and related models and concepts of embedded research exist, such as the coproduction and integration of knowledge, which hinder the understanding and diffusion of this approach.**

AHPSR 2017

The review showed that while many felt it was important, e-HPSR remains poorly developed – with varied conceptualisations from different sectors/groups. The primary difference between these interpretations is the focus and location of the e-HPSR in the system.

**e-HPSR as a process for ensuring uptake of research/evidence into decision-making to close the research/evidence to policy/practice gap (with a focus on national macro-level decision-makers)**

This is a dominant framing of e-HPSR, which foregrounds health systems decision-makers as the primary focus, enactors, and recipients of e-HPSR research activities and outputs (usually macro-level national decision-makers). In this framing, e-HPSR seeks to close the gaps and cultural differences between researchers and practitioners, policy-makers, and decision-makers – gaps that are barriers to the proper utilization of HPS research. The strategy here is that HPS research can be more influential/impactful if it is positioned better within practice/policy settings (closer to decision-makers). A primary solution in this framing is the embedding of research organisations or ‘evidence-advisory institutions’ closer to decision-makers (e.g., usually improving physical proximity of research organisations to national-level Ministries of Health), arguing that more embedded institutions are more trusted,
have greater access to information flows and resources, and are more influential to effect change. 5,14,29,30

Another focus is the localisation and country-ownership of research (geopolitical embeddedness), 31 which usually means ensuring that decision-makers from MOH are co-investigators in research projects and improved alignment of research with national research agendas. A common confounding factor is that in the LMIC countries where local ownership would be most effective, the capacity for research and research-evidence engagement is the most limited, 19,32 resulting in calls for initiatives to build local LMIC HPSR capacity, and North/South-South capacity development networks. Many argue that, pragmatically, HIC researchers and institutions will continue to be the ones being ‘embedded’ in LMIC health systems for some time (especially in fragile states), and that different ‘rules of engagement’ are necessary for such e-HPSR, especially given the continued challenges in foreign research partnership power dynamics – which can be inhibitive of e-HPSR. 19,31-34

e-HPSR as primarily informing implementation (of health system strengthening interventions) at a meso level

Linked to the above, a specific interpretation of e-HPSR focuses on embedding HPSR into implementation – either routine implementation, or the implementation of health system strengthening interventions (some are calling this ‘embedded implementation research’ 6,17). The focus of this framing of e-HPSR is on closing the research-evidence to implementation gap which, it is argued, requires an intimate understanding of the health system, intervention and context – and therefore requires main input from local/insider implementers (ideally is conducted by locals/insiders). Research, evidence, and evaluation need to be embedded in routine/continuous implementation cycles, so that they can inform practice/policy. This has design implications. Embedded implementation research should be structured to accompany HSS interventions from early in the intervention. 11,35-37 Embedded evaluative HPSR is a particularly important area for further development, especially how embedded evaluation interacts with routine (information) systems and functioning. There is also increased interest in integration, uptake, diffusion and normalisation of innovation and health systems change – focusing on the embedding of good implementation practice (such as evidence-based decision-making) into routine systems functioning. 27,30,38,39

Embedded research aims to shine a light on implementation barriers and associated health systems failures, by engaging actors working within health care systems to conduct rigorous scientific inquiry. Tran et al 2017

e-HPSR promoted as an important approach for the development of a ‘learning system’

Work on learning organisations 40-43 has been transferred to health systems – with e-HPSR being seen as an approach to support the development of ‘learning system’. The focus of this interpretation is on capacity-building within local LMIC systems, for HPS research, and for research utilisation (e.g., evidence-
based decision-making). For example, a study of Turkish hospitals describe a model of continuous learning activities – an ‘embedded system of collective efforts’.

Other examples describe networks of HPSR capacity-development that have been established in LMICs – not linked to a specific project, but rather as an intervention in and of itself. This interpretation posits that e-HPSR is likely to be an HSS intervention in its own right – however, this is still poorly developed or assessed. Further HPSR is required, in particular evaluative research, which more seriously assesses the ‘impact’ of e-HPSR on a health system.

**Embedding health systems research as a core function of health systems.**

Hoffman et al 2012

**Embedded HPS Researchers are researchers characterized by their ‘situatedness’ within a health system, the influence of their interpretation of the system around them… and the potential change they can effect (even just by asking questions)… an embedded approach is one in which researchers negotiate and conduct research from within the health system that is the object of their study (positioned as insiders), usually with the intention that their research will lead to positive health systems change.**

Olivier et al 2017

**e-HPSR framed as a research method/approach – a practice of individuals embedded in the health system**

There is varied literature on ‘embedded individuals’ – and it is framed within the understanding that health systems are socially constructed and socially embedded. From this perspective, e-HPSR is primarily focused on the micro level (on individuals within the system) and empirical examples describe an array of embedded ‘researchers’ including local leaders, intermediaries, knowledge brokers, and change agents. In this framing, ‘research’ is rarely formal academic research – and embedded researchers are mainly characterised by their positionality – as ‘insiders’ to the health system. The types of individual researchers depicted in this framing can differ radically from those described in the earlier macro-institutionally focused framing. Here, embedded researchers are not likely to be in that position as a result of the positioning of a research

**A ‘learning site’ is an embedded approach to HPSR, where researchers and health managers in a given setting, over a long-term relationship of continuous interactions and reflections develop specific health system governance questions, and work towards answering them together.**

Tsoka et al 2017
There is great interest in co-production/creation between researchers and practitioners/policy/decision-makers (when researchers work together with health system actors from the start of the research process to jointly create research that reflects real-world contexts and ensure that the knowledge generated has relevance for those involved). It is a strategy for the democratization of research process and requires the building of trust between those involved in the research.1,2,4,6-50

### Core methodological benefits and challenges for e-HPSR

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<thead>
<tr>
<th>Methodological benefits of e-HPSR</th>
<th>Methodological challenges of e-HPSR</th>
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<tr>
<td>- Social relevance and responsiveness</td>
<td>- Sometimes slow speed of e-HPSR can create challenges</td>
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<td>- More effective uptake of evidence into action/practice/policy</td>
<td>- Insider-researchers struggle to maintain objectivity</td>
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<td>- More in-depth (insider) knowledge of the system and context</td>
<td>- Researchers might feel compelled to report more positively</td>
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<td>- Greater likelihood of identifying substantively relevant problems/questions</td>
<td>- Researchers can get caught in power dynamics and local politics</td>
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<td>- Better access to people and information</td>
<td>- It can be difficult to evaluate one’s own intervention/program</td>
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<td>- Less likelihood of being blocked by gate-keepers</td>
<td>- There are tensions in utilising observation and experiential knowledge</td>
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<td>- Greater chance to observe routine functioning</td>
<td>- Insiders can be blind to norms</td>
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<td>- Greater likelihood of seeing tacit knowledge</td>
<td>- It can be hard to remain detached when an insider-research sees something ‘wrong’</td>
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<td>- More opportunities to engage with difficult findings in safe spaces in the health system</td>
<td>- Specific ethical challenges – and embedded researchers cannot always turn to standard ethical committees for support</td>
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<td>- Greater opportunities to feed research findings more rapidly back into the system</td>
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<tr>
<td>- In a better position to make the changes within the system</td>
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e-HPSR is framed as a research approach or methodology for rigorous and relevant HPSR

Much of the literature frames e-HPSR as a methodological issue (an approach to ensure socially responsive and substantively relevant HPSR). It is argued that while there is a great amount of enthusiasm for encouraging and supporting e-HPSR, there is very little guidance on what best practice for e-HPSR looks like on a methodological level. It is argued that while e-HPSR contains elements of action research and ethnography, it is not fully explained by either. There are many examples of robust action research and ethnography in HPSR – but the embedded nature of the research is usually implied rather than made explicit. An equal number of methodological rewards and challenges are raised (see below). An important strategy is the application of the ‘learning site’ approach: sites of on-going action learning between researchers and health system actors (e.g., the learning sites in South Africa and Kenya linked to the RESYST consortium).

e-HPSR also raises particular ethical implications and considerations. For example, as researchers get more embedded in health systems, the blurring of positonality raises ethical challenges, as the researcher inevitably becomes an actor in the system. Very often, ethical issues emerge after research has started, and are related to complex relationships and interactions. Standard health/human ethical review boards are not currently equipped to review e-HPSR. In e-HPSR, additional ethical considerations are needed, in particular how the research might negatively affect the health system. A key approach to counter such concerns is ‘ethical mindfulness’ in e-HPSR – and how to develop this capacity within researchers.

A significant aspect of e-HPSR is trust – building and maintaining trusting relationships, and producing trust-worthy results despite challenges. Measuring trust (as an indicator of e-HPSR success) could be important.

Embeddedness for this study has had positive implications for learning about how health systems function over time … However there are also challenges with this embeddedness, including the need to be careful in who one is (seen to be) aligned with in inevitably politically charged and socially unequal contexts … consent processes, these are complicated … by the deliberate blurring between research and practice activities…

Molyneux et al 2016

More generic and descriptive uses of ‘embedded’ in HPSR

The term ‘embedded’ is also used descriptively (without a particular HPSR-relevant meaning), e.g., a nested research method such as an embedded case study (a case study within a case study); or a system embedded within a system. It is also used to describe how health systems are embedded in social/cultural/political/economic systems and contexts, which in turn means that values/cultures/attitudes are embedded in a health system.
Key principles for e-HPSR (for individuals and institutions)

A set of ‘principles’ for e-HPSR emerge (requiring further development).

**e-HPSR principles**

- e-HPSR prioritizes health system actors and decision-makers during all stages – and is driven by relevant research questions shaped by these actors and decision-makers
- e-HPSR foregrounds genuine research partnerships – involves continuous negotiation, co-creation, collaboration and trust-building between stakeholders, and is highly relational
- e-HPSR is socially and contextually relevant research – is aligned with local research priorities, agendas and policies
- e-HPSR is locally-driven, should have local-ownership and legitimization
- e-HPSR seeks to routinize the utilization of evidence/research in health system decision-making
- e-HPSR is positioned as insider-research inside the health system, conducted by ‘researchers’ looking at ‘their’ system
- e-HPSR foregrounds the importance of trust and relationships
- e-HPSR focuses on inequalities and flattening of power hierarchies
- e-HPSR should have a health system strengthening effect and should be supportive of the development of a local learning system (and should be assessed for this)

In addition to these highlighted above, the literature also suggests that it is likely that e-HPSR will be changeable, flexible and adapting; interdisciplinary and intersectional; will raise particular ethical challenges; will likely take more time; and possibly be more expensive than other rapid approaches. Such considerations suggest that e-HPSR will require quite specific capacities/competencies from those involved.

Multiple types of embedded researcher/institutions

There are many different types of embedded researchers (individuals and institutions). The diagram below presents a basic typology of commonly mentioned types (insider individuals and embedded institutions). Embedded HPS researchers often wear multiple hats (as researchers, health workers, decision-makers, and patients), and complex staff movement, secondment and joint appointment arrangements blur institutional affiliations. Embedded institutions change in character (especially in LMICs in response to funding opportunities). This stresses the importance of taking the complexity of local health systems contexts into account when developing e-HPSR plans, communities and capacity-development programs.
<table>
<thead>
<tr>
<th>Type of embeddedness</th>
<th>Description &amp; some examples</th>
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<tbody>
<tr>
<td>Insider-researchers</td>
<td>Practitioners (health workers) working in the system, conducting health systems research</td>
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<tr>
<td>Jointly appointed / affiliated staff</td>
<td>Jointly appointed staff working in the health system and in academia, as part of an institutional arrangement (or secondment)</td>
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<tr>
<td>Insider student research</td>
<td>Health system workers also registered for study with an academic institution - usually conducting research on issues related to their work</td>
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<tr>
<td>HPSR project researchers immersed in the system</td>
<td>Longer-term HPSR projects where researchers from outside institutions immerse themselves within the system for a finite period of time</td>
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<tr>
<td>NGO/donor agency-funded research staff placed inside the system</td>
<td>Researchers or managers seconded to or embedded within a system for purpose or programme of work</td>
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<tr>
<td>Research partnerships and joint programmes of work</td>
<td>Longer-term partnerships and arrangements either set up around a specific programme of work, or a series of different smaller projects</td>
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<tr>
<td>Government organisations</td>
<td>Research units or groups initiated and supported by government, such as research units within Ministry of Health</td>
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<tr>
<td>Advisory bodies</td>
<td>Working groups, panels, and technical committees advising on specific issues (often for a limited period of time)</td>
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<tr>
<td>Research institutions</td>
<td>Research institutions, can be for-profit or non-profit - some have dual affiliation with government, some are independent</td>
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<tr>
<td>NGOs</td>
<td>NGOs with a research or implementation focus</td>
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<tr>
<td>Committees</td>
<td>Council on Health Research for Development (COHRED) in Tanzania</td>
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<tr>
<td>Think tanks</td>
<td>Development Research Centre of the State Council (China)</td>
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<tr>
<td>Technical agencies</td>
<td>Alliance for Health Policy and Systems Research (AHPSR)</td>
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<tr>
<td>Academic institutions</td>
<td>LMIC-based institutions, and HIC institutions with longer-term engagement in LMICs</td>
</tr>
<tr>
<td>Consortia &amp; networks</td>
<td>RESYST, REBUILD, EQUINET, RINGS, COPASAH, CHEPSAA, WANEL, CHESAI, COMPCHASS</td>
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<tr>
<td>Bi/multi-laterals &amp; funders</td>
<td>UNICEF, DDCF, GAVI, AHPSR, WHO</td>
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Core competencies for the embedded HPS researcher

The review identifies a set of core competencies (capabilities) that embedded HPS researchers need — and would also be relevant for other stakeholders engaging in e-HPSR processes. These competencies have particular implications for HPSR training, and for capacity-development interventions. (Further work is needed to assess organisational competencies and capacities required for e-HPSR, especially in LMIC health systems).

Embedded HPSR is not an easy option, nor is it a tool that can be broken into clear steps. Rather, it is a complex approach requiring competencies and sensitivities for negotiation, collaboration, translation, trust-building, and reflexivity (as awareness of the context and awareness of self). Embedded research is critically important in HPSR, and we need to develop robust HPS researchers who are able to negotiate this complex world and wield this approach with confidence.

Olivier et al. (2017)

Core competencies

- Systems thinking
- Reflexivity (including being able to understand one’s own positionality and power)
- A critical perspective
- Knows how to ‘behave as an insider-researcher’ within ‘their’ health system
- Has high levels of communicative capacity
- Can translate between groups, and knows how to be a ‘knowledge broker’
- Knows how to network and connect across groups and institutions
- Can speak ‘truth to power’
- Has ethical mindfulness
- Can apply standard good practice for rigorous methods being applied in the embedded approach
- Can negotiate complexity, change and uncertainty
- Conflict management
- Reputation management
- Facilitation
Suggested strategies for successful e-HPSR practice

The few e-HPSR examples from LMIC health systems suggest a set of key strategies for successful e-HPSR implementation. These need to be developed further, but provide a foundation for e-HPSR strategy.*

• Continuously negotiation, co-creation, collaboration and trust-building between stakeholders
• Negotiation requires the proper identification of research partners
• Ensure representative partnerships and convene a deliberative process
• Early negotiation of purpose/objectives between partners, early negotiation in problem identification and framing
• Negotiation in setting up the parameters of the partnership
• Negotiation consistently and flexibly re-iterated, focused on longer-term partnerships (negotiate time-frame together)
• Requires the careful analysis and negotiation of power
• Negotiation of info ownership and terms of co-production
• Intentionally sharing the ‘wins’, and create opportunities for HS actors
• Regular mapping processes to develop/enhance awareness of (individual/organisational) positionality within the health system
• Ensure alignment with local research agendas and priorities (recheck on a regular basis)
• Identify and leverage key champions
• Assessment – of what counts for embedded HPSR (e.g., quality of relationships, trust)
• Define the kind of evidence necessary to inform decision-making
• Consider non-traditional outputs
• The creation of ‘safe spaces’ for engagement
• Processes for ‘joint reflective practice’
• Deliberate connection of projects and conversations into webs of embedded joint-learning

We suggest that the concept of reflexivity and the ability to think carefully about one’s positionality is important for health system researchers who need to consider how to retain autonomy in research, whilst contributing evidence for health system change. A research process informed by the notion of reflexive practice and iterative learning...

MacGregor and Bloom (2015)
• Establish space and process for addressing uncertainty
• Grant-funders can ensure local ownership by imposing requirements
• Support deliberate institution-building
• Support Southern capacity-building, and support South-South network development and communication

**Embeddedness for this study has had positive implications for learning about how health systems function over time ... However there are also challenges with this embeddedness, including the need to be careful in who one is (seen to be) aligned with in inevitably politically charged and socially unequal contexts ... consent processes, these are complicated ... by the deliberate blurring between research and practice activities ...**

Molyneux et al 2016

**Conclusions**

There has been a global surge of enthusiasm for the benefits of embedded health policy and systems research over the last decade. This Brief provides a practical aid for people involved in discussions about e-HPSR, especially as it might relate to LMIC health systems.

It is strongly recommended that e-HPSR efforts are more formally evaluated - and utilising appropriate measures that match what e-HPSR is seeking to do (e.g., it might well be important to evaluate levels of trust throughout an e-HPSR
process). There is still very little published evidence of the ways that e-HPSR can strengthen a health system – although it is generally agreed that it has the potential to do so.

The literature showed that e-HPSR has the potential to generate original thinking about embedded research that extends beyond the scope of existing theory and practice. This is because of the unique nature of the field of HPSR and the particular questions being asked here (e.g., the focus on research ethics of embedded HPSR; or of webs of interlinked embedded programs and relationships; or of hybrid insider-researchers; or of what embedded approaches look like when embedded in complex adaptive systems). All of these suggest that e-HPSR has the potential to inform broader fields – on what it means to embed research in a system.

However, e-HPSR needs time and space to grow – and the facilitated spaces and supportive and supported environments to do that.

Although we are not suggesting that all HPSR questions will be best answered through e-HPSR approaches, this brief does demonstrate that e-HPSR has huge potential. However, there continues to be limited capacities for and resourcing of e-HPSR, especially in LMICs. There is especially limited resourcing of that type that allows for e-HPSR that develops over time, building nested systems of robust and relevant evidence and trusting relationships – that then develop into routinized learning systems that are retained within the system – and ultimately strengthen LMIC health systems in the process.

<table>
<thead>
<tr>
<th>Principle</th>
<th>Suggested strategies for decision-makers</th>
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| Embedded HPSR prioritizes health system decision-makers during all stages | • Identify and leverage key champions—and maintain their involvement (assessing and matching needs)  
• Define the kind of evidence necessary to inform decision-making in that context  
• Strategize to mitigate tokenistic partnerships/engagement, and the damaging effects of staff turn-over |

| Substantively relevant research questions shaped by in-context health system actors and decision-makers | • Establish deliberative processes for joint development of issues/questions (before calls)  
• Early negotiation in problem identification and framing, and of properly representative partners  
• Ensure that the timing and structure of research grant applications are not preventing substantive engagement (in other words, allow enough time for authentic agreement between partners)  
• Develop processes to engage with in-context HS decision-makers – noting they might be unfamiliar with the research requirements for HPSR/e-HPSR, might have limited time or an anti-research culture |
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| Foregrounds authentic research partnerships – involves continuous negotiation, co-creation, collaboration and trust-building between stakeholders | • Establish processes for early and continuously iterated negotiation in: setting up the parameters of the partnership, establishing the purpose/objectives between partners, negotiating longer-term time-frames together, and negotiation of information ownership and terms of co-production  
• Establish processes to transparently analyze and negotiate power; intentionally share the HPSR achievements  
• Deliberately create opportunities for HS actors and decision-makers in the research project process  
• Deliberately create opportunities and processes for joint reflective practice  
• Conduct regular ‘mapping’ to enhance awareness of (individual/institutional) positionality within the HS  
• Grant-funders to emphasize continued involvement of all named investigators and collaborators |
| Is aligned with local research priorities, agendas and policies           | • Insert contextual and policy mapping processes (early and routinely) to ensure alignment with changing local research agendas/priorities  
• Develop processes to transparently address competing interests and agendas (local and international)                                                                                                                                                                                                                                                                               |
| Is locally-driven, should have local-ownership and legitimization         | • Build processes for ensuring legitimization (for example, grant conditions and agreements)  
• Research grants structured to also support deliberate institution-building, LMIC/southern capacity-building and south-south network development                                                                                                                                                                                                                                                   |
| Should seek to routinize the utilization of evidence/research in health system decision-making | • Should seek opportunities to build institutional and individual capacity for HPSR/e-HPSR; building out and connecting to routine information systems; adapting routine evaluation and decision-making cycles  
• Decision-makers capacitated to assess relevance, quality and appropriateness of evidence  
• Engagements designed to support recognition of different forms of ‘evidence’ and counter anti-evidence cultures  
• Should prioritize efforts to normalize learning system interventions |
| Socially and contextually relevant research                               | • Ensure HS actor and decision-maker involvement in all stages of HPSR  
• Ensure that HPSR draws on existing in-context assets/resources  
• Plan for changes in context (and personnel), and complexity of overlapping systems and causal factors |
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<th>Principle</th>
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| Positioned as insider-research – inside the health system, conducted by ‘researchers’ looking at ‘their’ system | • Establish processes for enhancing awareness of (individual/institutional) positionality within the HS  
• Develop researcher competencies for reflexivity (for example, to understand own positionality and power)  
• Carefully consider and negotiate ownership of e-HPSR at all stages and levels  
• Ensure appropriate assessment of what counts for e-HPSR (like, quality of relationships, trust)  
• Consider non-traditional outputs, and some non-public forms  
• Create ‘safe space’ for engagement – such as for addressing uncertainty and positionality, for addressing challenges of maintaining objectivity, and tensions utilising observational and experiential data |
| Foregrounds the importance of trust and relationships                      | • Develop and support webs of interlinked activities and relationships (individual and institutional)  
• Ensure HPS researchers have the right capacities/competencies for e-HPSR: (for example, a critical perspective; knows how to ‘behave as an insider-researcher’ within ‘their’ health system; communicative capacity; translation; knowledge brokerage; networking; can speak truth to power; ethical mindfulness; standard good research practice; can negotiate complexity, change and uncertainty; conflict management; reputation management; facilitation)  
• Ensure that research findings are fed rapidly back into the health system  
• Establish ‘safe spaces’ and non-public fora to engage with difficult findings  
• Develop processes for co-creation and co-production (e.g. jointly authored articles) |
| Takes a systems perspective                                              | • Develop researcher and HS decision-maker capacity for systems thinking  
• Develop researcher/practitioner/funder capacity to explain the characteristics of e-HPSR  
• Develop trans/interdisciplinary teams and intersectional engagement |
| As HPSR, focuses on inequalities, and flattening of power hierarchies     | • Strategize for flattening practitioner-researcher power dynamics  
• Utilise e-HPSR engagement as opportunity to address inequalities and power differences more broadly  
• Engage transparently on power imbalanced of global research arrangements |
### References


44. Ugurluoglu O, Ugurluoglu Aldogan E, Dilmac E. The impact of managers’ perceptions of learning organizations on innovation in healthcare: a study of Turkey. The international journal of health planning and management 2013; 28(2).


Embedding research into policy-making processes and creating a culture of learning within health systems is not something that happened overnight. It has taken decades of effort in Ghana to get to where they are today. But it has been hugely beneficial. Dr Anthony Nsiah-Asare, Director General of the Ghana Health Service between 2017 and 2019 is unequivocal: “if any country wants to improve on their health systems, to strengthen the way that they are working, embedded research is how they should go.”

Related links. The bumpy road to better health. Technical brief - Embedded health policy and systems Article Processing Charges (APCs). To claim the discount, please contact the Secretariat at info@healthsystemsglobal.org to obtain the BMC journals’ discount code. Articles. Recent. The utilisation of health research in policy-making: concepts, examples and methods of assessment. Authors: Stephen R Hanney, Miguel A Gonzalez-Block, Martin J Buxton and Maurice Kogan. Content type: Review. 13 January 2003. The role of NGOs in global health research for development. Authors: Hélène Delisle, Janet Hatcher Roberts, Michelle Munro, Lori Jones and Theresa W Gyorkos. Content type: Review. 21 February 2005. Policy briefs that package research evidence so as to inform deliberations among policymakers and stakeholders (Article 13) [13]. Policy dialogues that allow research evidence to be. Values are another domain where tools to support their systematic and explicit consideration in health policymaking could be useful for policymakers and those who support them. By focusing on how to support the use of research evidence in health policymaking, the SUPPORT tools are meant to aid the use of the best research evidence available at the time that it is needed and in the time available to compile such evidence. Kjetil Olsen assisted with technical editing, the management of the peer review process and preparation of the manuscripts for submission.