

Supply and Demand Constraints Generating Health Policy and Systems Research in Cambodia: A Qualitative Institutional Analysis

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Abstract

Background

The complexity of health systems demands a research approach that considers the interplay of the institutions, organisations, networks, and disciplines involved. Health Policy and Systems Research (HPSR) integrates these elements, examining how local context, organisational structures, and actors shape policies and their performance to ensure that the theory and lessons are situationally relevant and actionable. This paper examines the challenges of generating HPSR evidence in Cambodia amid limited demand for data-driven health policies, the influence of external donors on the local evidence ecosystem, and the implications of these constraints for the health system's capacity to learn and self-sustain.

Methods

To review these constraints, we conducted 15 in-depth interviews with key stakeholders positioned around a national research institution, using it as an analytical entry point into the wider ecosystem, who were either suppliers or potential end-users of HPSR products.

Results

While the analysis centres on the barriers to developing evidence-informed HPSR, it also acknowledges the positive developments of the past decade that any reform effort can build on. Numerous deficiencies surfaced at multiple levels, including limited capacity to generate research, low demand for evidence, and notable gaps in knowledge translation and dissemination. Key obstacles in advancing and applying HPSR in the country include inadequate resources, insufficient local expertise, fragmented infrastructure, and a lack of prioritisation for data-driven policymaking. The dominance and control exerted by external donors further disconnected the research being conducted from national health priorities.

Conclusion

Our findings underscore the urgent need to strengthen local capacity, enhance coordination, and increase resource allocation to overcome the numerous obstacles that hinder the mainstream application of evidence. Building local ownership of HPSR and better aligning research outputs with national health policy priorities through domestic formulation and implementation is essential for advancing evidence-informed policymaking in the country. Strengthening these foundations would support the autonomous and sustainable generation of HPSR in Cambodia, and with it the health system's capacity to learn.

Background

Health Policy and Systems Research (HPSR) seeks to generate evidence to inform the development and implementation of evidence-driven health policies and interventions (1, 2). The increasing recognition that health systems are complex, evolving entities that develop in response to their surrounding environments and political climates emphasises the need for a complementary and comprehensive systems science to address their dynamic nature (3, 4). The capacity to generate, share, and apply evidence is increasingly recognised as the foundation of a learning health system, in which knowledge is continuously produced, exchanged among actors, and translated into improved policy and practice (3, 5, 6). The environment that enables such learning depends not only on the technical capacity to produce research, but also on governance, data infrastructure, coordination, and demand-side incentives that determine whether evidence circulates and is acted upon. Viewed through this lens, isolated capacity gaps become features of a system's overall ability, or inability, to learn. Following the COVID-19 pandemic, global efforts to integrate and translate evidence into policymaking intensified, driven by the need for actionable data and relevant research (7, 8). Transforming this renewed appreciation into tangible progress necessitates a more substantial investment in identifying countries' health priorities and tailoring international research support to achieve effective, country- and context-specific HPSR (9–11).

National Health Policy and Systems Research Institutions (HPSRIs) play central roles in facilitating integrated knowledge translation and embedding evidence at organisational and institutional levels. HPSRIs can make pertinent research more accessible, context-specific, actionable and comprehensible for decision-makers to inform policies (12–16). However, many HPSRIs in Asia remain underutilised and disconnected from policymakers, as numerous low- and middle-income countries (LMICs) in the region continue to struggle to generate, translate, and apply these essential capacities locally due to limited resources or a lack of prioritisation for data-driven policymaking using knowledge-brokering institutions (5, 17–19). This limiting capacity to translate and apply evidence, coupled with tenuous connections between research and policymaking, presents notable barriers to achieving evidence-based policies (20). Proficiency in the production and application of interdisciplinary research and evidence is a crucial step in strengthening modern health systems to tackle increasingly complex health challenges (21). Consequently, there is a growing need for HPSRIs in Asia to be equipped with resources and purpose-specific training to enhance data generation and knowledge translation, advocate for their integration, and facilitate better evidence-informed policymaking to address local needs guided by international precedents (22–25).

Cambodia exemplifies the challenges many LMICs in Asia face in developing self-sustaining HPSR. Despite substantial investments in research initiatives and numerous international partnerships, major gaps persist in evidence generation and translation, as the development of an independent, internally driven HPSR ecosystem remains elusive (26–29). Previous studies found that HPSR in Cambodia has been hindered by restricted funding and limited research capabilities, stemming from insufficient training, inadequate resources, and a lack of clearly delineated research responsibilities (27, 29, 30).

Overcoming these barriers is integral to advancing the country's health system and involves expanding local capabilities and capacities to foster essential domestic research that yields sustainable, situationally appropriate evidence. Within this system, the National Institute of Public Health (NIPH), a semi-autonomous academic institution under the Ministry of Health (MoH), provides human resources training and capacity development through its School of Public Health and conducts research through the Centre for Health Research and Policy Support (CHER), which serves as the institute's research arm and as a technical adviser to the MoH (31). This HPSRI is among the few bodies positioned to anchor domestic HPSR, though it operates within the same donor-dependent, resource-constrained environment as the wider sector.

Liverani et al. (2018) provided an in-depth analysis of the organisation, structures, and processes that influence evidence-based health policy in the country (26). While they mapped the landscape and identified core challenges through in-depth interviews in 2014, there remains a need to examine how Cambodian HPSR has progressed over the past decade, particularly in developing domestic leadership and decreasing reliance on external donors. This reliance is a significant concern, as external partners have historically funded large segments of the research budget and agenda. The recent withdrawal of major donors like USAID, along with others scaling back support, presents a serious challenge to the sustainability of the country's research progress and highlights the need for self-sufficiency. Strachan et al. (2022) outlined the historical foundation, progress, and ongoing challenges of HPSR in Cambodia, emphasising the need for formal institutionalisation and consistent policy links to advance research-informed policy practices (14). They note that although HPSR capacity in the country has grown, albeit organically and informally, it still relies heavily on external funding, donor-driven priorities, and ad hoc relationships rather than being anchored in local structures and skills. Consequently, the recent retreat of international donors poses pressing questions about the future of HPSR in Cambodia and the country's ability to develop domestic resources and institutional resilience for sustainable research. In 2021, external aid for health per capita in Cambodia was 14.16%, decreasing to 12.91% in 2023 (32). Without a clear transition strategy and significant investment in local capacity, donor withdrawal could create even more gaps in evidence generation and policy support. This might reverse recent progress and further hinder the country's ability to address its modern and evolving health challenges, such as rising rates of non-communicable diseases (NCDs) and known barriers to translating research into practice.

Building on previous research, this study conducted in-depth interviews with key stakeholders positioned around a national research institution in Cambodia to provide contemporary insights into the bottlenecks constraining HPSR production, translation and capacity to learn. Whereas prior studies have focused on listing isolated deficiencies, this paper extends understanding of these challenges by using a novel, supply-and-demand-driven analytical framework to identify obstacles as experienced by those who generate HPSR and those who utilise it. This shift in perspective allows us to move beyond describing known barriers to analysing the dynamic relationship and misalignment between the research in Cambodia and the evidence its policy environment demands, thereby highlighting where intervention is most needed. Specifically, this study asked what supply- and demand-side factors currently constrain HPSR capacity in and around Cambodia's national research organisation, how those factors interact

across structural and institutional levels, and what conditions need to be overcome to create a sustainable domestic research capacity. In doing so, this study offers an update on the structural shifts required to empower local institutions, reduce reliance on foreign donors, and foster a resilient, nationally owned HPSR ecosystem, as well as an enabling environment for health-system learning and evidence-informed policymaking.

Methods

Interviews and Data Collection

This study, conducted in collaboration with the NIPH, was part of a broader needs assessment aimed at strengthening HPSR capabilities in the institution and country to support more evidence-informed health policies. The work aimed to capture the perspectives of two key groups central to the production and use of HPSR in Cambodia: end users of HPSR, primarily senior officials responsible for planning and implementing health policies and programmes, and suppliers of HPSR, including staff within local HPSRIs engaged in research, development, and knowledge translation. By engaging these participants, we sought to capture a holistic view, explore the dynamics between those who generate HPSR and those who utilise it, and identify the main obstacles to transferring evidence into policy and practice. The research team comprised external consultants to conduct and analyse the interviews, as well as members of the NIPH's CHER, which serves as the institute's research arm and a technical advisor to the MoH, to provide an introduction, context and review the findings.

Participants were identified through purposive sampling, with assistance from the NIPH in Phnom Penh, which facilitated interviews given its established relationships across the health sector and its status as a known institution. Subsequent participants were sought through snowball sampling, but suggestions usually pertained to individuals who had already been interviewed or were scheduled to be interviewed. Eligible informants were senior individuals with direct responsibility for either commissioning and using health policy evidence (users) or producing it (suppliers). Inclusion criteria therefore prioritised departmental leadership within the MoH and its national centres, as well as researchers and managers engaged in HPSR production at the NIPH. In total, sixteen individuals were invited to participate, of whom fifteen consented, and in-depth interviews were conducted with these key informants in Phnom Penh over a period of two weeks in August 2024. This included ten departmental heads, one with an international NGO, and four with HPSR researchers ($n = 15$). The sixteenth could not be interviewed as they were unavailable during the fieldwork window. Although the sample was modest in size, its adequacy was considered with respect to information power, given the specificity of participants' expertise, their direct positioning within Cambodia's HPSR system, and the focused scope of the research questions (33). Later interviews also began to yield diminishing novelty in the themes identified, and consistent patterns were identified across the accounts provided.

The interview questions were developed based on targeted literature and synthesised key themes and pertinent questions identified in the institutionalisation of HPSR, knowledge translation, and the

embedding of evidence-informed policymaking in LMICs, with a particular focus on Cambodia. The interview guides were further informed by previous work in assessing research capacity and health system strengthening, including initiatives supported by the Alliance for Health Policy and Systems Research (34–36). Interviewees were asked to respond based on their personal and professional experiences, departmental objectives, and current needs for HPSR. While the interview guides were anchored in an assessment of NIPH's institutional capacity, participants were selected from across the HPSR ecosystem, including MoH departmental heads, international NGO representatives, and NIPH researchers themselves, as these constraints reflect the wider institutional and policy environment in which they operate.

The user group mainly consisted of directors and deputy directors from various Government Departments of the MoH and National Centres of the MoH ($n = 11$) (Table 1). The participants represented a diverse range of individuals across the health sector, including those involved in infectious disease control, maternal and child health, immunisation, and hospital services. The interview questions for this group were designed to clarify the needs, applications, gaps, and challenges faced by different users regarding HPSR use, as well as to identify any increasing demands for local HPSR to support future objectives (*Appendix 1*). Members of a local HPSRI were also interviewed to evaluate current production and user demand for such HPSR ($n = 4$). This series of questions aimed to understand the operations and capacity of local HPSRIs for evidence generation and dissemination, identify any constraints or obstacles to applying HPSR skills, knowledge, and communication, and reveal barriers to accessing relevant data for developing research products (*Appendix 2*). We also inquired about current mechanisms and shortcomings in data collection, research, and the allocation of scarce resources, as these are critical sources of evidence for HPSR products. Additionally, we focused on what would be necessary to enhance national research capacities and knowledge translation, given their significance in addressing the country's unique health priorities and needs, as well as in encouraging decision-makers' uptake.

NIPH's role as a facilitating institution provided access to senior stakeholders that would have been difficult to reach independently, but may also have influenced participants' openness, particularly when informants discussed NIPH itself or their relationships with it. However, the involvement of CHER members provided essential contextual and institutional insight, though their proximity to NIPH as the subject of the assessment could also influence how findings were framed. The team's consultant, who conducted and analysed the interviews, was external and non-Cambodian, which may have encouraged franker responses on sensitive matters during interviews and provided a more unbiased analysis of the interview content. To further mitigate these dynamics, the design deliberately separated roles: data collection and primary analysis were conducted by the external consultant, while CHER members contributed contextual grounding and reviewed results rather than coding the data directly. Lastly, bias was reduced by assuring participants of confidentiality, framing questions around institutional and systemic rather than personal performance, and comparing accounts across supplier and user groups.

Ethical approval

for interviews was obtained from the National Ethics Committee for Health Research (NECHR) (XXXXX) in Cambodia and international representatives where the study was organised. All interviews took place in person between 12th and 21st August 2024, in Phnom Penh. Informed consent was obtained from each participant. Interviews typically lasted between 45 minutes and one hour and were generally conducted in English. Some interviews were challenging to complete entirely in English and required translation between Khmer and English by an intermediary. All interviews were recorded and transcribed using OtterAi. The transcripts were then reviewed and edited individually to correct any errors in AI transcription. During the interviews, notes were taken, and familiar narratives and unique characteristics were identified for later deductive coding.

Table 1

Interview participants by organisation/department and their role as an HPSR supplier or user.

Interview	Organisation/Department	Supplier/User
U1	Department of Hospital Services (DHS)	User
U2	Department of Planning and Health Information (DPHI)	User
U3	National Center for HIV/AIDS, Dermatology and STD (NCHADS)	User
S4	HPSRI – Researcher	Supplier
U5	National Center for Parasitology, Entomology and Malaria Control (CNM)	User
U6	Department of Planning and Health Information (DPHI)	User
S7	HPSRI – Management	Supplier
S8	HPSRI – Management	Supplier
U9	Department of Human Resource Development (DHRD)	User
U10	Department of Personnel (DoP)	User
U11	International NGO	User / Technical support
U12	National Centre for Tuberculosis and Leprosy Control (CENAT)	User
S13	HPSRI – Researcher	Supplier
U14	National Immunization Program (NIP) of the National Maternal and Child Health Center	User
U15	Director General for Health (DGH)	User

Data Analysis

The analytical framework employed in this study was developed iteratively internally by the researchers, drawing on conceptual foundations from prior work and refined through engagement with the collected data. Shroff et al. (2017) proposed examining HPSR institutional capacity through the lens of supply and

demand, while Liwanag et al. (2024) and others have explored organisational and systemic capacity using structural and competency-based frameworks (22, 25, 37, 38). Although previous studies have examined capacity issues and the production of HPSR in LMICs using tentative structural frameworks, these frameworks have not yet been formalised in the context of Cambodia.

A hybrid deductive-inductive approach to thematic analysis was adopted, with initial coding informed by interview notes, preliminary analysis, and a review of relevant literature on HPSR in LMICs to elucidate prominent themes, barriers, and the use of HPSR in Cambodia, providing a basis for the conceptual framework (39, 40). Thematic analysis commenced with deductive coding of interview transcripts, adopting the overarching supply-demand logic and categorising data into three primary domains: supply (capacity to generate research, data, and skills), demand (needs and utilisation by HPSR end-users), and intersections (issues such as knowledge translation and institutional barriers). Subsequently, inductive coding was employed to identify sub-themes within each primary category. Coding was performed using NVivo 15, with line-by-line coding of transcripts to ensure close engagement with the data and to identify meaningful patterns across participants' accounts. Codes were then reviewed and grouped into candidate themes, which were refined iteratively through comparison across supplier and user accounts and discussion among the research team, before being interpreted in relation to the supply-demand logic. The resulting framework (Fig. 1) represents a synthesis of foundational concepts from existing literature with context-driven themes that were developed during analysis of interviews, allowing us to map the precise intersections and bottlenecks unique to Cambodia's HPSR ecosystem. It is not a direct application of any single prior framework but rather an original structuring of the challenges, informed by both existing theory and data collected in this study. This approach aimed to identify how research could be better tailored to meet demand and how demand could be more clearly articulated to guide future priorities in Cambodia.

Results

Interviews with stakeholders identified several gaps in the production (*supply*) and utilisation (*demand*) of HPSR, as well as deficiencies arising from their intersection. Although these challenges have been recognised to varying extents in previous work within LMICs, such as in Shroff et al (2017), Lavis et al (2023), Liwanag (2024), and others, their prominence and nuances in our interviews prompted the development of the novel conceptual framework outlined in Fig. 1 (4, 18, 25, 37, 38, 41–43). This moves beyond a siloed analysis of capability and knowledge gaps and offers a more systemic overview of the issues to guide future capacity-building efforts in Cambodia.

Supply

Resources & Human Capacity

'We have conducted training.... We have done many things. But all these are just not taking; (not) effective, when you (don't) have the background, because sometimes training, I think maybe ten people join, five don't (have) the background to absorb that.' (S7)

♣ Insufficient human and financial resources

Directors and supervisors across multiple departments of the MoH in Cambodia identified a shortage of human resources, particularly a lack of trained and experienced researchers and public health practitioners. Reasons cited for this gap varied; some suggested that the country's low prioritisation and undervaluation of research and proactive public health practices were contributing factors. Others highlighted the lack of essential skills and capabilities necessary for effective HPSR in policy development, such as health economics, digital health literacy, statistics, epidemiology, policy analysis, and monitoring and evaluation, noting that these are absent in the country's workforce. One senior respondent described this as a *"gap of knowledge"* regarding evidence generation in the country (U14). There was also unanimous agreement regarding lacking funds to address these many deficiencies with either training, commissioning research, or hiring.

♣ Limited engagement with international literature and best practices

Workers' ability to apply theory and international best practices was constrained by language skills, limited access to global research, and challenges in applying external evidence and approaches to local needs and contexts. Public health professionals and researchers encountered difficulties in accessing or comprehending information from international English-language journals, with minimal support and professional development to contextualise and adapt global evidence for Cambodia, further reducing engagement with international research.

♣ Rare and poorly applied capacity-building initiatives

Issues were exacerbated by insufficient core funding for capacity building, staff recruitment, and HPSR education. Interviewees noted that such efforts were typically absent across departments, but when training did occur, it was described as ineffective; staff members were either unwilling or unable to participate due to time constraints, lack of motivation, or perceived irrelevance. Those who attended also struggled to apply the training to their work, either because demand was limited or because they lacked a full understanding of how to implement the lessons. The gap between educational sessions and practical application led to low uptake and poor implementation of the training. Nevertheless, participants acknowledged that training programmes and capacity-building efforts had at least been attempted, and that institutional awareness of the need for such investment was growing, even where implementation remained uneven.

Data & Research Infrastructure

“Some donor, they also have their own perception, or their own, you know, objective... even though sometime(s) the objective is beyond our program or some objective is not really important for our program, but we still let them do because it can be used, that information can be used for, you know, further development” (U14).

♣ Heavy dependence on external donors

Informants highlighted the country's heavy dependence on donors to address internal research deficiencies, despite external research priorities and outputs often failing to align with local needs. Foreign interests mainly concentrated on communicable diseases such as tuberculosis, malaria, or HIV, amid rising local concerns about antimicrobial resistance or NCDs like diabetes, cardiovascular disease, and other chronic illnesses. Donor-led initiatives were typically isolated and short-term, with different objectives, emphasising publications that rarely contributed to local capacity or supported sustainable implementation, leaving domestic institutions without the capabilities or infrastructure to conduct HPSR independently. Despite these tensions, participants described pragmatic strategies for managing donor relationships. One programme director explained, *‘we have to find the solution in the middle... because we need the budget; otherwise, we cannot get something new,’* indicating adaptive negotiation skills to extract value from externally driven research where possible. However, this ongoing reliance on external efforts creates a persistent disconnect between research produced and national needs.

♣ Lack of reliable, high-quality, and/or routine data

Consistent, routine data is infrequent and often incomplete due to limited domestic budgets and inadequate data-collection infrastructure. This results in reliance on one-off datasets, hampering understanding of complex issues, monitoring and evaluation efforts, and planning. For instance, workforce data is incomplete due to unregistered health professionals, limited information from the private sector, and lacking central data acquisition. Health expenditure and costing data is scarce and often requires assumptions that undermine subsequent policy design. Epidemiological and service utilisation data are typically drawn from infrequent, large-scale surveys, such as the Cambodia Demographic and Health Survey, rather than from reliable, routine health information systems. Consequently, both researchers and policymakers struggle to access high-quality data required for HPSR and evidence-informed decision-making.

♣ Inadequate budget or infrastructure for research and data generation

The absence of formal systems, budget allocation, and organised processes for initiating research further hinders the production of evidence locally. Research responsibilities within government departments are poorly defined, and most officials report having no formal mandate to conduct research. This disorganisation weakens accountability and results in fragmented evidence generation for policymaking. Despite their potential, domestic HPSRs remain underutilised for data production, and cross-departmental partnerships are rare, limiting local HPSR.

Demand

Priority Setting & Resource Allocation

♣ Challenges in setting research priorities and agendas

Priority setting in research, which involves identifying and aligning research with needs to address knowledge gaps for policy or practice and supporting the most effective use of resources, was not practised on the demand side. Most departments lacked formal mechanisms for allocating research resources focusing on care and treatment; as a result, priority-setting in the country is neither optimised nor effectively embedded. An international NGO observed that although Cambodia's research landscape lacks explicit prioritisation, priorities are generally set implicitly rather than through a clear, systematic process (U11). Although explicit research priority-setting processes were largely absent, some senior officials articulated clear visions for how evidence could redirect resource allocation, particularly regarding the balance between preventive and curative care (U10, U15), indicating latent demand for HPSR that has yet to be formalised into institutional processes.

'Because the government only provide care or treatment, prevention is very important (too). I think if we can provide prevention (it) is better than treatment or care. You know, I think we spend a little money compared to treatment.' U10

♣ Insufficient resources allocated for research generation and implementation

Health funding in Cambodia has historically prioritised clinical care and physical infrastructure over research. Although the COVID-19 pandemic renewed interest in preventive medicine and underscored the importance of HPSR, demand remains insufficient to overcome ongoing systemic barriers. Public health officials and researchers still encounter difficulties in securing sustainable funding, skilled personnel, and technical support for research. As one respondent noted, *"they also consider money by the visible intervention, like facility developments rather than social development... for prevention, you know, you don't see the improvements"* (U14). Consequently, policy-relevant research is seldom prioritised, evidence generation remains inadequate, and resources are scarce for advancing research.

♣ Difficulty determining and evaluating research on policy and impact

Few indicators are used to monitor and assess the implementation of data-driven policies and initiatives, and this lack of integration diminishes the demand for further research, as subsequent investment requires positive reinforcement. This issue is prevalent in LMICs, where the absence of robust indicators and monitoring and evaluation mechanisms during programme development remains a persistent problem (17, 28). Without established performance tracking and review plans, programmes in Cambodia

are rarely monitored to evaluate their outcomes or effectiveness, resulting in persistently low demand for research.

Governance & Leadership

'The policy evidence demands; it's there, but not much, and not very explicit. It's (about) kind of getting answers quickly when they need to answer. That's it. It's not about planning, commissioned research.' (S7)

♣ Low demand for and use of HPSR among decision-makers

Informants reported that decision-makers rarely solicited HPSR products; when they did, requests were often informal or arose through personal networks rather than established procedures, resulting in inadequate financial support. The low prioritisation of formal research requests was driven by budget constraints, a low perceived need for research, unclear procedures for initiating such requests, weak follow-through, and a lack of formal delegation. When research findings were presented to decision-makers, but without strong demand or clear mechanisms for uptake, many remained unimplemented. For instance, a policy brief on nurse shift work was accepted by senior officials but not implemented across the system. As one researcher interviewed noted, *"if we try to work hard on making an evidence-based policy without demand, we will not get support"* (S8).

♣ Limited authority for department heads to drive change

Many department heads reported lacking the authority to implement substantial changes, emphasising that their role did not include directing research or strategic change and was limited to facilitation and administration. Policy decisions were suggested to be made at higher levels, leaving them responsible only for implementation or routine updates. Hierarchical working structures such as these complicate efforts to involve end users in the research process, hindering the development of need-driven research (12). Ultimately, limited authority and narrowly defined roles restrict department heads' ability to use research for policy innovation.

♣ Discretionary policymaking without formal systems

Without structured systems for integrating research and evidence, policymaking can become discretionary, influenced by personal opinions and other elements rather than data (44–47). Without a systematic approach to incorporating evidence, policies in Cambodia were reported to rely on decision-makers' judgments, diminishing the emphasis on robust, data-driven policymaking. Policymakers were also hesitant to utilise HPSR due to time constraints, limited access, or difficulty in comprehending technical material. Without strong leadership and governance to champion data-driven policies, there is little incentive for organised HPSR. Consequently, decisions are often based on routines, immediate needs, or even *"gut feelings"* rather than solid scientific evidence (S8).

Intersection of Supply and Demand

Knowledge Translation & Utilisation

'The decision-makers sometimes (do) not really understand well, or not really accept what our (NCHADS) findings are... (So) it means that (there is) no way to improve... Because when you talk about research with people (who do) not really understand research (it) might be difficult. In the current system, I say that the different levels of understanding, some people have high positions, but they are not skilled scientists (or researchers).'' (U3)

♣ Weak knowledge translation methods and support structures

In Cambodia, inadequate and limited knowledge-translation intermediaries exacerbate the absence of formal organisation, further impeding the promotion of evidence-based policy. Complex or technical research outputs often restrict uptake by policymakers, particularly in LMICs, where end-users may lack the expertise to interpret and utilise such evidence, emphasising the importance of HPSRIs for knowledge translation (25). This challenge exists on both the supply and demand sides, as HPSRIs struggle to produce accessible, actionable outputs, while policymakers lack awareness of the significance of evidence and the technical skills to use it effectively. As such, research is “kept in the library” unused (U14). Several department heads expressed interest in research tailored to their needs but lacked mechanisms to commission such studies, as engagement with HPSR remains limited without intervention. Consequently, research seldom advances to the policymaking phase, and the integration of evidence remains sporadic and dependent on resource availability or decision-makers' discretion.

♣ Disconnect between the research produced, its use, and policy needs

There is a notable gap between the research being conducted in Cambodia and the practical policy recommendation/health policies needed. Research is often motivated and driven by the interests and funding of external partners rather than local priorities, resulting in topics and outputs that may be academically interesting but not directly useful for policy or practical purposes. As a result, the research produced is not applied, as it is not designed to address urgent domestic issues, nor is it presented in ways that support decision-makers' comprehension or for policy development. One interviewee noted that costing studies in Cambodia tend to focus on publishable outcomes rather than providing actionable data for reimbursement or service planning (U11), and another acknowledged agreeing to participate in non-priority research topics in the hope that such studies might yield beneficial insights or resources (U14). Foreign-led agendas limited local ownership, passive dissemination, and weak translation mechanisms, all widening the gap between the HPSR evidence being generated and Cambodia's health policy needs.

Sector & Institutional Coordination

'One institute of one organisation, they collect data for their own purposes, it's not for the sector. So, we (are) fragmented I think (DPHI).... Because COVID-19 or other communicable diseases, (it) is not only (one ministry that) can respond alone, we need other ministries to coordinate to address this issue together.' (U2)

♣ Limited collaboration and coordination between sectors

Collaboration between government ministries, departments, and the public and private health sectors is limited. Multiple informants highlighted that work and data are siloed, restricting the ability to address complex, intersectoral issues. Departments of MoH retain information and activities internally, making it difficult to share information or evidence for cross-departmental policy development. Consequently, overlapping mandates arise from the lack of mechanisms to integrate the MoH with other ministries, resulting in inefficiencies, duplication, and information gaps. For example, without a centralised sharing mechanism, both the MoH and the Ministry of Civil Service collect the same health workforce data independently. Moreover, despite the private sector's significant role, there is no shareable data for research or policy purposes. Issues such as dual practice, workforce shortages, and health financing are complex to resolve due to a fragmented, incomplete data landscape. Departments responsible for workforce planning often struggle to accurately include private practitioners, undermining the quality and relevance of HPSR for policymaking.

♣ Institutional gaps in supporting HPSR and capacity-building efforts

'We want to work very hard to get evidence to show that this evidence will have this policy (impact), but we don't have the support. That's why we are running around to different stakeholders to get support, to build our capacity to help us do something small, so we can show the government that okay, we could do this.' (S8)

Institutional deficiencies in capacity-building for HPSR in Cambodia hinder progress towards locally driven, sustainable research development. Efforts to advance HPSR often concentrate on developing individual skills and competencies through infrequent training programmes, rather than addressing broader institutional challenges and systemic issues. Thus, local capabilities are often associated with specific staff or leaders and receive minimal ongoing reinforcement or formalisation, making progress vulnerable to personnel changes. Most capacity building relies on external support and donor-funded training rather than on strengthening long-term institutional resilience for independent research. However, an emerging institutional strategy centres on proving capacity through small-scale outputs to leverage future support. NIPH staff described active efforts to incrementally demonstrate the value of HPSR, seeking support from multiple stakeholders to build a case for greater investment. However, there are still no officially established systems for capturing lessons learned, preserving research outputs, or building on prior efforts.

Discussion

This study highlights the complex barriers hindering HPSR in Cambodia, stemming from insufficient supply and limited demand. These challenges are marked by gaps in research capabilities, resource distribution, institutional focus, and a lack of supporting infrastructure and systems, reflecting broader challenges in other LMICs in Asia (25, 28, 37, 48, 49). Supply-side challenges for sustainable HPSR include shortages of trained researchers and technically experienced staff, limited capacity-building, and language barriers that further impede the adaptation of global precedents to local contexts, prevalent across other LMICs (12, 17–19, 23, 43). Contributing to the lack of demand for HPSR is the country's low prioritisation of evidence-based decision-making, as resources have traditionally been allocated to clinical work and infrastructure. This reflects a typical pattern in LMICs, where decision-makers prioritise visible investments and where political and resource pressures often take precedence over long-term systems strengthening (6, 24). This dynamic creates role ambiguity among stakeholders, as centralised policy processes are shaped by senior leaders' largely discretionary decisions or by political influences and external donors, thereby limiting the incorporation of pertinent evidence. As such, interviewees' tone was one of compliant concession, having witnessed prior progress deteriorate following leadership changes or shifts in donor priorities, with successful reforms seldom institutionalised. Consequently, advocacy for demand-driven research remains unrealised, as officials and researchers lack incentives or mandates to prioritise it, and it is rarely considered urgent.

Findings of this study both confirm and extend the work of Liverani et al. (2018) and Strachan et al. (2022). While both studies identified core constraints to HPSR in Cambodia, our study offers an analytically distinct contribution by applying a supply-and-demand framework that foregrounds how production-side limitations and demand-side disengagement mutually reinforce one another, a relational dynamic rather than a catalogue of isolated deficiencies. Moreover, our data capture a materially changed context: the COVID-19 pandemic's brief but ultimately unsustained boost to evidence demand, the withdrawal of major donors, including USAID, and the growing NCD burden, against a research infrastructure still oriented towards infectious disease. Together, these contributions provide an updated account of Cambodia's HPSR environment at a moment of particular vulnerability.

Donor reliance is a key contributor to perpetuating these issues in Cambodia, as external funding heavily influences research priorities, giving primacy to certain issues and often conflicting with national health needs, such as the growing burden of NCDs in Cambodia relative to donor funding priorities (25, 27, 50). This dominance creates a misalignment between research and the country's health priorities, as research is shaped by external agendas and minimal collaboration among local agencies and projects funded by diverse entities fail to foster autonomous, unified health research ecosystems (14, 26). This undermines sustainability by prioritising short-term data collection over investments in local capacity building, leaving Cambodia susceptible to funding fluctuations, as is often the case in other LMICs in Asia (28, 51). Due to continued reliance on foreign funding and technical assistance, donor-supported agendas are likely to remain divergent from the country's health priorities without deliberate intervention.

Systemic fragmentation compounds these problems, hindered by poor collaboration and insufficient coordination, resulting in gaps in governance, inadequate knowledge translation, and weak data

infrastructure. The absence of a centralised organisation for HPSR and a formal system for integrating evidence has led to high variability in the use of evidence and poor multi-sectoral participation, echoing previous studies' findings of weak priority-setting and transparency in comparable settings (14, 26–30, 48, 52, 53). Deeply rooted hierarchical structures and power imbalances constrain the incorporation of data and the communication of policy-relevant insights, further complicating multi-sectoral coordination (26, 29, 54). Knowledge translation impediments, including underutilised intermediaries, such as national HPSRIs, and infrequent researcher-policymaker interactions, continue to perpetuate the disconnect between research produced and its ability to inform policy. As such, research dissemination remains passive, as interactions between policymakers and researchers are infrequent and unstructured, offering few opportunities for policymakers to commission research, a known significant barrier to the utilisation of evidence (48). Fragmented data systems, notably siloed, inconsistent data collection and the absence of interoperability, hinder comprehensive evidence synthesis, particularly for complex issues such as dual practice, workforce shortages, and health financing. As a result, overlapping roles among ministries, inadequate information sharing, and ambiguous data stewardship have led to operational inefficiencies and data duplication within an already resource-constrained environment.

While the interviews predominantly reflected systemic challenges, participants also described real institutional agency: securing stakeholder buy-in through incremental outputs (S8), extracting locally relevant evidence from within donor-driven projects (U5), and articulating clear visions for evidence-informed resource reallocation (U10, U15). The establishment of the NIPH itself signals formal commitment to domestic HPSR capacity. These efforts indicate that Cambodia's HPSR system, though constrained, is not static. However, the progress described was concentrated at the level of individual initiative rather than institutional mandate, dependent on particular people in specific roles, and therefore vulnerable to the leadership turnover and priority shifts that participants repeatedly described. This distinction matters for recommendations, and future work should focus not on generating more individual motivation, which already exists, but on building the institutional architecture to sustain it. These efforts at least represent a budding learning behaviour, with localised individual attempts to generate, share, and act on evidence in a system that still lacks the institutional scaffolding to become self-reinforcing.

The supply-and-demand dynamics map directly onto the functions of a learning health system and the enabling environment that sustains it, which depends on the interplay of generating, sharing, and applying knowledge to policy and practice (3, 5, 6). Supply-side constraints limit the system's ability to generate knowledge; weak translation intermediaries and pervasive fragmentation impede its ability to share knowledge; and low demand, discretionary decision-making, and the near-absence of monitoring and evaluation restrict its ability to apply lessons and learn from implementation. Beyond capabilities and structural conditions, these patterns, despite individual efforts, point to the absence of an embedded learning culture and system that values and rewards the use of evidence. Discretionary, hierarchical decision-making, reliance on 'gut feelings' over evidence (S8), and the concession with which participants described watching prior gains erode all signal an environment in which learning is neither expected nor institutionally reinforced. Crucially, these functions fail relationally rather than

independently. When systems lack response mechanisms to apply experience, this not only weakens the application of evidence but also removes feedback that would otherwise generate demand for research to justify continued investment in capacity, perpetuating a broken learning loop in which the system cannot detect what is lacking. Because such learning remains sporadic and tied to individuals rather than embedded in institutions and systems, strengthening the enabling environment for learning depends less on producing more research than on building the governance, coordination, and knowledge-translation architecture through which a system continuously generates, shares, and applies lessons.

Our findings have notable implications for advancing sustainable HPSR in Cambodia, moving beyond ad hoc interventions toward systemic strengthening to ensure sustained efficacy. To effectively manage the relationship between supply and demand, establishing institutionalised HPSR through dedicated knowledge translation mechanisms is crucial to addressing the communication gap identified in our findings and developing local institutions to act as knowledge brokers. Investing in local HPSRIs in Cambodia to develop evidence-informed solutions for policy and practice, and to disseminate research findings, would directly strengthen the health system and ensure that research is timely and demand-driven in addressing contemporary challenges (12, 14, 38, 43, 55). In Cambodia, the NIPH, with its existing research and ties to the MoH, is well placed to fulfil this intermediary role, though doing so effectively would require dedicated resources beyond its current capacity. Moreover, promoting local ownership not only increases relevance and uptake but also improves longevity and resilience, safeguarding research from political and funding fluctuations (49, 54). Consequently, Cambodia should expand and reinforce the few disjointed HPSRIs to bridge the systematic disconnect between the data generated and the data needed for relevant policies (18, 24, 27).

Building robust domestic research capacity to address Cambodia's current challenges requires strengthening both technical skills and demand for high-quality, relevant research (14, 37, 38, 52, 56). This entails investing in upskilling programmes tailored to overcome language and contextual barriers, fortifying institutions, expanding human resource capacity, and improving research-policy platforms to connect knowledge and embed research within the local system. Upskilling and training HPSRIs and local researchers are vital for developing a capable cadre and institutional practices to lead Cambodia's next stage of HPSR.

Reorienting external partnerships and international collaborators towards building local self-sufficiency is essential to address misalignment and fragmentation, strengthening national research capacity rather than replacing it. Collaborative efforts should invest in capacity-building, such as training, international HPSRIs' internship-mentorship programmes, and the fostering of supportive and collaborative research environments. This can improve coordination and cultivate ongoing, productive relationships that extend beyond individual donations and isolated studies, ultimately investing in national capacity-building and drawing on successful models from other LMICs (12, 22, 37, 38, 57–59). This shift requires dedicated intervention to enable institutions to generate locally led agendas and high-quality, interpretable data

within an environment that supports their translation and use by policymakers, ensuring that research addresses priority health issues and thereby strengthens HPSR for the future.

This raises the practical question of who should take responsibility for driving these changes. Others have addressed this directly, identifying the Department of Health as a national agency with primary accountability for domestic HPSR, on the grounds that without a designated institutional lead, efforts remain scattered and unsustainable (37). In Cambodia, the NIPH and similar institutions are the most plausible candidates for such a role, as they already operate under the MoH. Yet our interviews made clear that the NIPH faces many of the same constraints described throughout this paper, including thin staffing, donor dependence, and limited core funding. Assigning formal responsibility without accompanying investment would not achieve the systematic changes required. Nor has the alternative, allowing the function to grow informally through personal networks and opportunistic collaborations, proved adequate. What is required is deliberate direction at the level of the MoH to formally designate an institutional home for HPSR, whether the NIPH or a new coordinating unit, with a protected mandate, dedicated funding, and clear accountability to both the research community and policymakers. With this absent, the recommendations offered in this paper, and in prior studies, are likely to remain only aspirational.

Limitations

This study encountered several limitations. As noted above, the study's reliance on NIPH-facilitated recruitment and the team's positioning had implications for the range of stakeholders reached and for the trust and rapport necessary to discuss sensitive topics openly. Some information may not have been disclosed due to confidentiality concerns. Language barriers in multiple interviews also restricted the depth of understanding, and some information was translated from Khmer to English by intermediaries. Practical constraints meant not everyone could be interviewed, suggesting that full thematic saturation may not have been reached. Additionally, a policy document review was not conducted, which might have contextualised participants' accounts against the formal policy architecture. This study prioritised capturing stakeholder experience as an initial step in mapping Cambodia's HPSR environment, but future work should complement these findings with documentary analysis. Finally, although some broad structural issues were identified, further research is needed to explore these in greater depth.

Conclusion

Cambodia mirrors many of the broader challenges faced in HPSR by other LMICs across Asia in developing data-driven policies. A key finding of this study is that, despite years of international aid, persistent underinvestment in local capacity and ownership continues to perpetuate reliance on donor-controlled research agendas. Both domestic and international stakeholders have yet to prioritise establishing sustainable, country-led research systems, which limits the country's ability to generate and utilise evidence. This paper contributes to the existing body of work by moving beyond a siloed analysis of capacity gaps. Instead, it employs a novel supply-and-demand framework to explain how

misalignment between research and domestic policy needs has led to a stagnant HPSR climate. This approach offers a new explanation for why, despite years of investment, the independent HPSR remains elusive in Cambodia.

Strengthening HPSR in Cambodia is ultimately about cultivating an enabling environment for health-system learning, shifting from individual projects and interventions towards a system that can sustain and apply this learning for ongoing improvement, effectively institutionalising HPSR. This involves creating formal, permanent structures, such as sustainable domestic funding, dedicated HPSR within the MoH, and processes for integrating evidence into policymaking. Without targeted investments in human resources and research infrastructure, the system will remain unable to learn systematically from experience, and the production of high-quality evidence for health policy will remain dependent on individual initiative rather than on institutional design, leaving the system vulnerable to inefficiencies and shifting priorities. Ultimately, this analysis provides a foundation for future systemic capacity-building efforts in the country. While Cambodia's challenges are complex and context-specific, the country's experience offers valuable lessons for other LMICs striving to transition from donor dependence to independent HPSR.

Abbreviations

- CHER
Centre for Health Research and Policy Support
- HPSR
Health Policy and Systems Research
- HPSRI
Health Policy and Systems Research Institution
- LMIC
Low—and Middle—Income Country
- MoH
Ministry of Health
- NCD
Non—Communicable Disease
- NECHR
National Ethics Committee for Health Research
- NGO
Non—Governmental Organisation
- NIPH
National Institute of Public Health

Declarations

Ethics approval and consent to participate:

Ethical approval for interviews was obtained from the Human Research Ethics Committee (HREC) at the University of Hong Kong (HREC's Reference Number: EA240346) and the National Ethics Committee for Health Research (NECHR) of the Ministry of Health, Cambodia (No. 202 NECHR). Informed consent to participate was obtained from all participants prior to their interviews.

Consent for publication

Not applicable. The manuscript does not contain data from any individual in identifiable form; all personal identifiers have been removed. Participants were informed and agreed during the informed consent process that their responses would be published only in de-identified form.

Availability of data and materials:

The datasets generated and analysed in this study are not publicly available to protect the confidentiality and anonymity of participants, who are senior stakeholders in a small professional community and could be identifiable from their responses. Redacted or de-identified excerpts from the interview transcripts may be available from the corresponding author on reasonable request, subject to conditions that safeguard participant confidentiality.

Competing interests:

SC, HV, CC are employees of the National Institute of Public Health, a Cambodian Health Policy and Health Systems Research Institute that is a key player in the HPSR research landscape in Cambodia. The remaining authors declare that they have no competing interests.

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Authors' contributions:

LT conducted the interviews, analysed and interpreted the data, and was the lead author of the manuscript. SC facilitated the interviews and critically reviewed the manuscript, providing analytical insights. HV assisted during the interviews and contributed contextual interpretation throughout the study. CC oversaw and organised major components of the study in their capacity as head of the National Institute of Public Health. ZD contributed to the analysis and interpretation of the interview data for the manuscript. KG supervised the study, led the editing process, and was a major contributor in producing the final manuscript. All authors read and approved the final manuscript.

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Figures

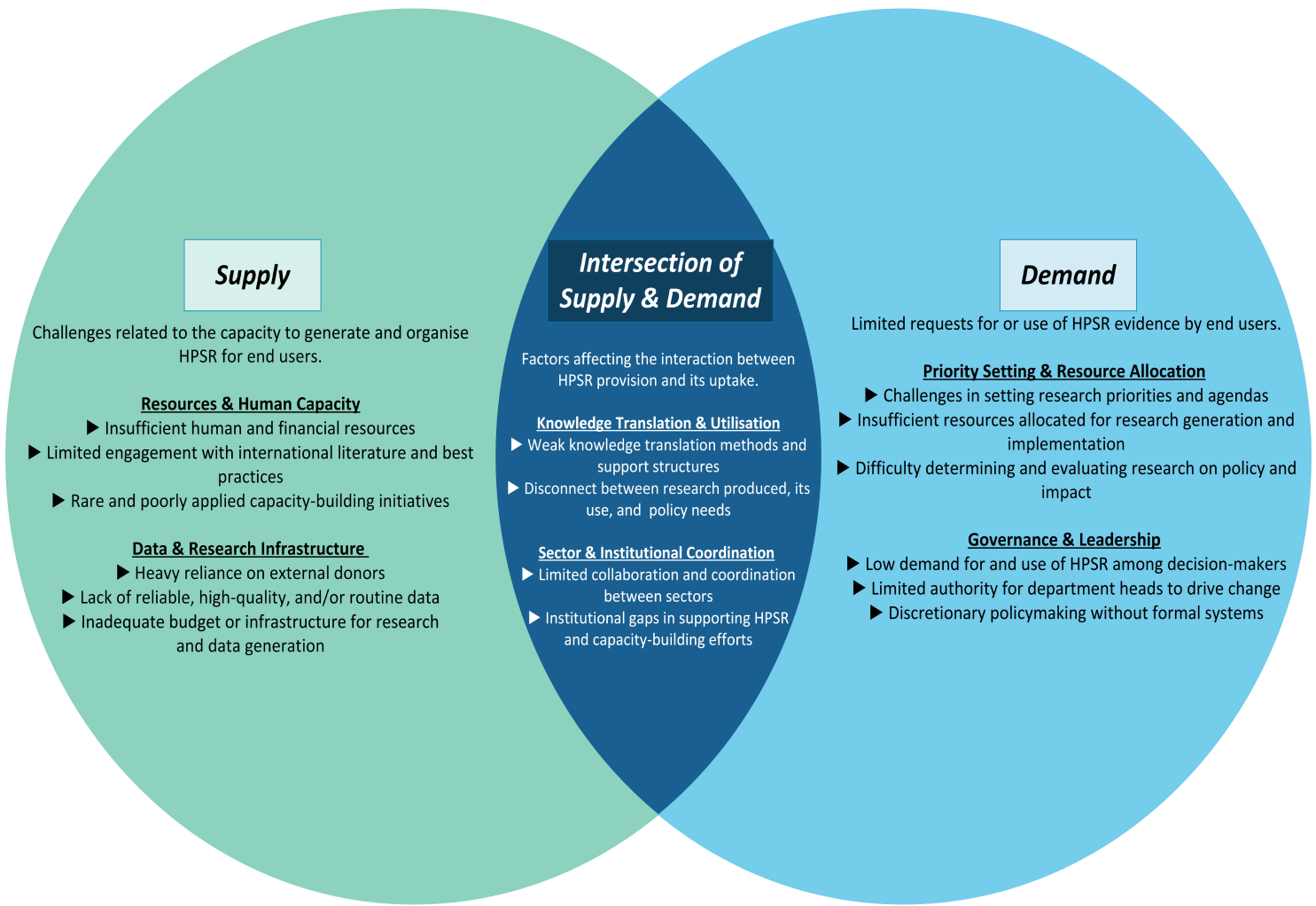


Figure 1

Key supply and demand barriers in generating and utilising HPSR in Cambodia and their intersection.

Supplementary Files

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