Distilling implementation and policy strategies for sustainable healthcare innovation using policy labs: A Hospital at Home case study

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Background and Introduction

The Hospital at Home (HaH) program revolutionizes acute inpatient care by bringing hospital-grade services directly to the patient's home. Established by Leff and Burton in 1996 as a groundbreaking alternative to traditional hospitalization[1], HaH harnesses clinically relevant remote monitoring and telecommunication to deliver a wide range of inpatient services such as doctor consultations, medication administration, nursing, therapeutic interventions, and comprehensive clinical diagnostics, within the patient's home.

In Singapore, rising healthcare costs, a scarcity of hospital beds, and a shortage of healthcare professionals[2] to cope with an aging population, have prompted the Ministry of Health to pivot towards community-focused care. HaH stands out as a viable, scalable solution to mitigate healthcare expenditures nationally, alleviating healthcare provider shortages and decrease reliance on hospital admissions.

While HaH programs and studies have shown promise in improving patient outcomes and reducing healthcare costs, these programs typically operate on a small scale. To address this, further research is needed to pinpoint essential factors that improve readiness, implementation, and policy strategies[3], facilitating the effective broadening of HaH and making it accessible to more patients who could benefit from this innovative care model.

Building on a set of qualitative insights generated in Singapore, this study explores these dimensions further through the Policy Lab method[4]. This method aims to bring together regulators, enabling units, and clinicians to collaboratively address complex implementation and policy issues, advancing the effective expansion of HaH care.

Method

The study was conducted in Singapore, utilizing data from seven implementation sites across three healthcare clusters and relevant government bodies, including the Ministry of Health. This strategy ensured that the findings reflected a comprehensive understanding of the factors influencing the implementation readiness and scalability of HaH.

This study employed the Policy Lab method, an innovative and participatory approach described by Hinrichs-Krapels[4], bringing together regulators, enabling units, and clinicians to collaboratively navigate complex implementation and policy challenges. This method promotes the co-creation and co-design of policies, leading to more effective, efficient, and scalable outcomes. Moreover, this approach encourages stakeholder engagement and ownership, which are critical for successful policy implementation, thus amplifying the overall policy impact. It also allows policymakers to experiment with policy options, fostering a more informed, evidence-based decision-making process.

Three Policy Lab sessions were conducted with randomly selected study participants from the three stakeholder categories. This Policy Lab built upon known insights from previous qualitative research conducted in Singapore and provided a platform for in-depth discussions surrounding policy issues, solution formulation and prioritization.

Before the Policy Lab, participants received a "briefing pack" in advance to review available evidence and data on HaH. This ensured all stakeholders had the same information for discussion based on common knowledge basis. This "briefing pack" contained the latest evidence on HaH conducted in Singapore, including quantitative and qualitative findings, and preliminary findings from an implementation study through qualitative interviews.

During the Policy Lab, participants engaged in a set of collaborative and interactive activities and discussions, drawing upon the insights gained from the earlier phases of data collection (Table 1). These discussions focused on exploring policy challenges, contemplating potential strategies for policy formulation and implementation, and discussing methods for evaluating policy effectiveness in HaH. By integrating diverse perspectives and expertise, this Policy Lab sought to bridge the gap between research and policy. The research findings were used to develop practical implementation and policy strategy recommendations, at both local and national levels.

Table 1: Policy Lab Activities

	Activities	Descriptions
1	Review of local evidence generated to date	Open discussion for group members to bring up key points that were not identified or shortlisted.
2	Identifying strategies (implementation and policy)	This activity focused on determining effective multi-level strategies for scaling up the HaH model.
3	Strategy prioritisation	This activity involves ranking identified strategies based on their potential impact, feasibility, and alignment with overarching goals to determine which to implement first.
4	Solution co-creation dialogue	Engages various stakeholders in a collaborative process to develop practical solutions and corresponding timelines that incorporate diverse perspectives and expertise, enhancing the strategies previously identified.

Results

The policy lab is designed to influence, for example, the clinicians, and the policy makers – recognize their differences in perspectives. Therefore, the study participants recruited were clinicians and leaders in the three distinct stakeholder categories to ensure a thorough understanding of the diverse viewpoints on HaH implementation. A total of 32 participants took part in this study (Table 2). Key findings were summarised in Figure 1.

Table 2: Demographic of policy lab participants

Key informant category	Policy lab participants (n = 32)
Clinicians	
Doctor	10 (31%)
Nurse	3 (9%)
Pharmacist	3 (9%)
Enabling Units	
Healthcare Administrator	6 (19%)
C-suites	4 (13%)
External Healthcare Advisor	1 (3%)
Regulators	
MOH Stakeholders	5 (16%)

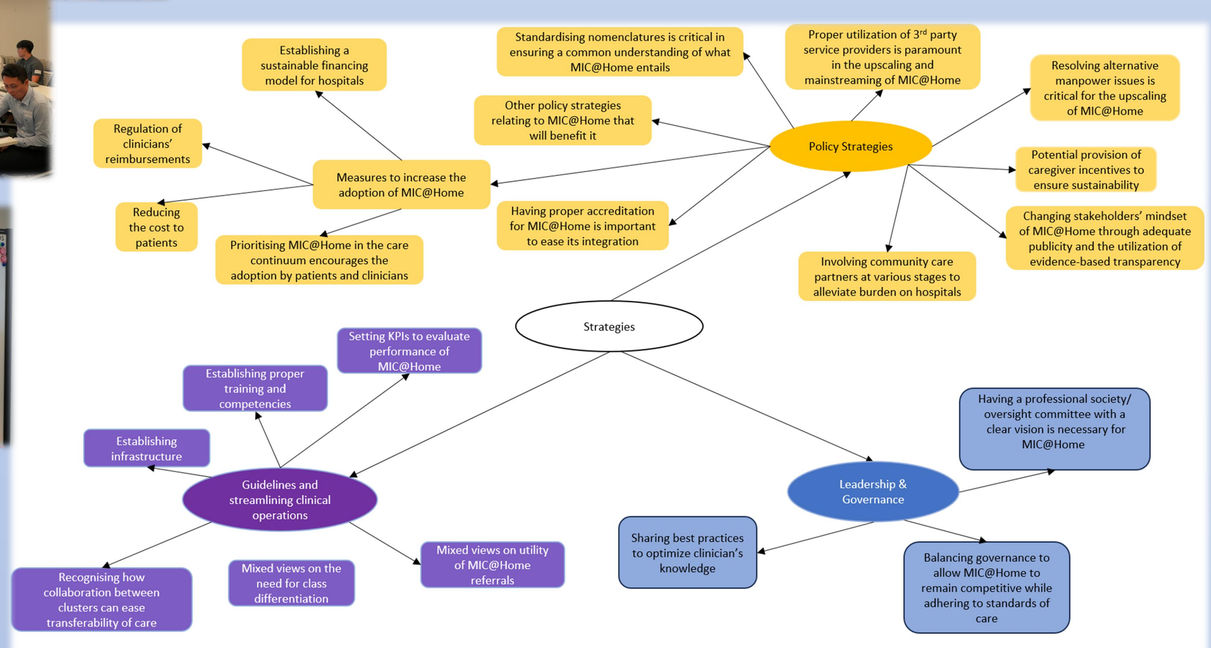

Figure 1: Overview of the major themes emerged through interviews

Discussions

The findings suggested a rich and complex set of discussions that could significantly inform the strategic planning for HaH. Through the policy lab sessions, key policies and implementation strategies have been identified. However, due to the sheer number of inputs given by stakeholders in each session, only points that were mentioned across 2 or more groups were considered to prioritize strategies of greater importance that should be swiftly enacted. These findings were then classified into 3 main groups – "Policy Redesign", "Guidelines and streamlining clinical operations", and "Leadership & Governance", cross-referenced with existing literature to inform our recommendations.

Strategy Group 1: Policy Redesign
Policy redesign emphasizes the critical role of manpower in scaling HaH, with a common consensus reached amongst all 3 sessions, underlining its importance. It suggests exploring licensing and regulation for alternative manpower, seeing HaH as a potential career path in healthcare. It stresses the value of training healthcare professionals specifically for HaH, forming dedicated teams to the program. Proper training and competencies were shown to not only facilitate more effective patient care by healthcare professionals but also better quality of care.

Strategy Group 2: Guidelines and streamlining clinical operations
The adoption and upscaling of HaH pivot critically on the sequential integration of IT capabilities. Having a strong IT backbone is important in HaH due to the multitude of monitoring that occurs within the patient's home. Currently, these include remote vital signs monitoring, movement and fall detection, and imaging, etc. which would be impossible without a robust IT infrastructure20. However, as HaH continues to upscale to encompass a greater patient demographic, the demand for a rigorous IT infrastructure will only be expected to increase. Possible future telehealth technology in HaH can involve remote or paramedic-facilitated point-of-care testing, assessing whether a patient requires hospital admission.

Strategy Group 3: Leadership and governance
Leadership and governance underline the importance of establishing a professional society/oversight committee with a clear vision for HaH. Additionally, there is a need to have a consensus on the goals that the program seeks to achieve, since having a clear mandate from HaH's higher management was a common point established by all 3 sessions. This includes holding focused discussions dictating the direction for current and future iterations of the program, including workflow operations, frequency of visits, professional conduct and key performance indicators specific for HaH.

Conclusion

This study offers valuable insights into the barriers and facilitators affecting the HaH model's scalability, highlighting critical areas for policy and operational improvements. By addressing the identified challenges through targeted strategies, Singapore can advance the HaH model as a viable and sustainable alternative to traditional inpatient care, especially in the face of an aging population and the ongoing pressures on healthcare systems. Future efforts should aim at fostering a conducive environment for HaH models, encouraging stakeholder engagement, and leveraging technological advancements to ensure high-quality, patient-centered care at home.

Declarations and Acknowledgements

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