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Strengthening upper gastrointestinal endoscopy service in primary healthcare settings in low- and middle-income countries: Proposals from an implementation study in Vietnam

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Abstract: Vietnam has established favorable policies for upper gastrointestinal endoscopy, providing an opportunity to expand this technology to primary healthcare (PHC) settings. However, the policy dilemma between insurance coverage/supportive regulations and self-financing policy, and the one between intended and unintended outcomes of healthcare decentralization and administrative reform, posed constraints on expanding this technology at the PHC level. In response to these policy dilemmas, we conducted an implementation research study to identify subsequent policy bottlenecks and facilitating and hindering factors affecting the proper and sustainable implementation of this technology. The study was carried out in district hospitals (renamed regional general hospitals after 2025 administrative reform) in two southern provinces, using a qualitative research design based on interviews with hospital staff involved in upper gastrointestinal endoscopy. Data were analyzed deductively using the Consolidated Framework for Implementation Research (CFIR). Based on the identified policy dilemmas, bottlenecks and hindering factors, we propose five policy recommendations: *i*) mobilizing and redistributing financial resources for PHC-level hospitals; *ii*) facilitating participation in upper gastrointestinal endoscopy training; *iii*) establishing accessible professional networks; *iv*) raising awareness of upper gastrointestinal endoscopy services; and *v*) promoting adherence to national guidelines. After analyzing their potential constraints and trade-offs, we consider them to be relatively feasible to implement.

***Keywords*:** digestive endoscopy services, community-based healthcare, health system strengthening, Consolidated Framework for Implementation Research (CFIR), Southeast Asia

1. Introduction

Vietnam is classified as a lower-middle-income country, with a gross domestic product of USD 4,717.3 per capita in 2024 (*1*), and a disease burden dominated by noncommunicable diseases (NCDs) (*2*). Among NCDs, gastrointestinal diseases represent a significant burden, including gastric cancer (*3,4*) and other gastrointestinal diseases related to *Helicobacter pylori* infection, such as peptic ulcers or active gastritis (*5*).

Vietnam has a healthcare system that is accessible and affordable for most of the population by expanding universal health insurance coverage and establishing an administrative structure with three levels: primary (district and commune health facilities), secondary (provincial hospitals), and tertiary (national hospitals under the direct auspices of the central government) (*6,7*). Health services using upper gastrointestinal endoscopy technology have been incorporated into these policies. One is the social health insurance, listing basic endoscopy tests and interventions in the health insurance package (*8*). Another policy lists this technology on a national list of approved technologies, published in a Ministry of Health circular, to be provided at primary healthcare (PHC) settings for examination and treatment (*9*).

Despite these major enabling policies, two policy dilemmas influence the implementation of upper gastrointestinal endoscopy at the PHC level: *i*) the dilemma between insurance coverage/supportive

regulations and the self-financing policy; and *ii*) the dilemma between intended and unintended outcomes of healthcare decentralization and administrative reform. Regarding the first policy dilemma, although insurance coverage for upper gastrointestinal endoscopy facilitates its implementation, the concurrent self-financing policy applied to all public hospitals—including those at the PHC level—primarily through the introduction of user fees for patients outside the insurance scheme, undermines the financial sustainability of these hospitals (*10-12*). This is because most patients cannot afford such fees. Concerning the second policy dilemma, the Vietnamese government intended to streamline coordination across administrative levels (*13*) and clarify its respective roles through healthcare system decentralization and the 2025 administrative reform, which reorganized the three-tier provincial administration into a two-tier system (*14,15*). Despite these efforts by the Vietnamese government, the actual outcomes revealed coordination breakdowns and regulatory gaps across levels, primarily due to confusion among stakeholders.

To address these policy dilemmas hindering implementation of upper gastrointestinal endoscopy in PHC-level hospitals in Vietnam, we conducted an implementation research study to identify subsequent policy bottlenecks and facilitating and hindering factors affecting proper and sustainable implementation of this technology. The study was carried out in district hospitals (renamed regional general hospitals after the 2025 administrative reform) in two southern provinces, using a qualitative research design based on interviews with hospital staff involved in upper gastrointestinal endoscopy. Data were analyzed deductively using the Consolidated Framework for Implementation Research (CFIR) (*16*). Detailed data are shown in Supplementary Figure S1 and Tables S1–S2 (*https://www.globalhealthmedicine.com/site/supplementaldata.html?ID=118*).

2. Policy recommendations

We developed the following five policy recommendations to facilitate implementation of upper gastrointestinal endoscopy at district hospitals in Vietnam, drawing on the two identified policy dilemmas, four policy bottlenecks, and eight hindering factors (Table 1): *i*) mobilizing and redistributing financial resources for PHC-level hospitals; *ii*) facilitating participation in upper gastrointestinal endoscopy training; *iii*) establishing accessible professional networks; *iv*) raising awareness of upper gastrointestinal endoscopy services; and *v*) promoting adherence to national guidelines. Under each policy recommendation, we describe relationships among existing policy dilemmas, resulting policy bottlenecks, and hindering factors for upper gastrointestinal endoscopy derived from those bottlenecks.

Table 1. Policy recommendations to facilitate upper gastrointestinal endoscopy and underlying policy dilemmas, policy bottlenecks, and hindering factors

Policy recommendations	Policy dilemmas	Policy bottlenecks	Hindering factors of upper gastrointestinal endoscopy implementation
i) Mobilizing and redistributing financial resources for PHC-level hospitals	Dilemma between insurance coverage/ supportive regulations and self-financing policy	Inappropriate health financing policy	Constrained budgets Limited physical infrastructure
ii) Facilitating participation in upper gastrointestinal endoscopy training		Workforce allocation failures	Limited service delivery capacity Limited human resources in terms of number, skills, and training Non-standardized endoscope reprocessing
iii) Establishing accessible professional networks	Dilemma between the intended and unintended outcomes of healthcare decentralization and administrative reform	Coordination breakdowns	Lack of professional networks for seeking technical advice
iv) Raising awareness of upper gastrointestinal endoscopy services			Low awareness of upper gastrointestinal endoscopy services among local communities and clinicians
v) Promoting adherence to national guidelines		Regulatory gaps	Non-standardized endoscope reprocessing Low awareness of alignment between national guidelines and in-house guidelines among staff

Abbreviation: PHC, primary healthcare.

2.1. Mobilizing and redistributing financial resources for PHC-level hospitals

The first policy dilemma—between insurance coverage/supportive regulations and the self-financing policy—manifested as a policy bottleneck in the form of an inappropriate financing policy. This gave rise to the two hindering factors: *i*) budget constraints and *ii*) limited infrastructure, including insufficient service space within hospital buildings and an inadequate number of endoscopy units. We therefore recommend mobilizing and redistributing financial resources to PHC-level hospitals, rather than imposing unrealistic requirements for financial self-sufficiency.

Our study revealed that the district hospitals remain heavily dependent on provincial budgets, including the purchase and installation of new devices. In district hospitals with a low upper gastrointestinal endoscopy case volume, the responsible departments were operating at a financial deficit. Existing literature also suggests that insufficient equipment, inadequate maintenance, and weak device management frequently contribute to inefficiencies in healthcare systems, including endoscopy services in resource-limited settings (*17,18*).

2.2. Facilitating participation in upper gastrointestinal endoscopy training

The first policy dilemma between insurance coverage/supportive regulations and the self-financing policy also created a bottleneck in workforce allocation, as district hospitals cannot afford to hire additional staff despite management decentralization. This resulted in two hindering factors: *i*) limited service delivery capacity and *ii*) insufficient human resources in terms of number, skills, and training. We therefore recommend facilitating the participation of staff responsible for endoscopy in upper gastrointestinal endoscopy training programs for the purpose of improving service delivery capacity. At the same time, in order to increase the number of qualified professionals, hospitals could encourage non-qualified staff in hospitals to take training to obtain endoscopy certification. These newly trained staff members could then serve as substitutes during absence of regular personnel. This approach is considered more feasible than hiring additional staff, which is financially challenging under current financing policy.

Our study indicated that clinical preparedness remained suboptimal due to insufficient staff capacity. Furthermore, from a service delivery perspective, limited access to training opportunities—particularly for endoscopy nurses—resulted in non-standardized endoscope reprocessing practices across targeted hospitals, potentially increasing risk of compromised infection control. Ongoing training opportunities are essential not only to strengthen clinical capacity but also to enhance staff motivation. These findings underscore the urgency of developing staff capacity through expanded access to training opportunities.

2.3. Establishing accessible professional networks

The second policy dilemma—between intended and unintended outcomes of healthcare decentralization and administrative reform—manifested as a policy bottleneck characterized by coordination breakdowns across administrative levels. This resulted in a lack of professional networks that would allow district hospital staff to access upper-level hospital staff for seeking technical advice. We therefore recommend establishing accessible professional networks that can address the needs of endoscopists at district hospitals.

Our study revealed absence of professional networks through which PHC-level hospital staff could seek external technical advice in relation to endoscopy services. As confirmed in the study, PHC-level hospitals are staffed by only one or a limited number of professionals, who are required to manage multiple roles and responsibilities. District hospital staff were unsure of whom to approach when they needed to seek technical guidance outside their own facilities, due to insufficient internal resources. Given that one of Vietnam's strengths lies in the presence of experts at high-level hospitals and in domestic professional associations such as the Vietnamese Federation for Digestive Endoscopy (VFDE), multiple resources should be available beyond regional higher-level hospitals that lower-level staff can access.

2.4. Raising awareness of upper gastrointestinal endoscopy services

The second policy dilemma between intended and unintended outcomes of healthcare decentralization and administrative reform, again reflecting a bottleneck characterized by coordination breakdowns across administrative levels, contributed to a hindering factor of low awareness of upper gastrointestinal endoscopy services among local communities and clinicians. Frequent changes in mandates and role demarcations between hospitals at different levels (*7,14,15,19*) made it difficult for local communities and clinicians not directly involved in endoscopy services to recognize availability of these services at the district level (*13,20*).

We therefore recommend raising awareness of upper gastrointestinal endoscopy services at district hospitals among local communities and non-endoscopy clinicians through a targeted information, education, and communication (IEC) strategy.

Our study revealed that low utilization rates of upper gastrointestinal endoscopy in two of the four district hospitals studied were attributable to limited awareness among local residents about availability of these services. With regard to clinicians—who serve as the primary entry point for patient care in each hospital—limited

recognition of the effectiveness of upper gastrointestinal endoscopy contributed to a low volume of endoscopic examinations ordered.

2.5. Promoting adherence to national guidelines

The second policy dilemma between intended and unintended outcomes of healthcare decentralization and administrative reform manifested as another policy bottleneck characterized by regulatory gaps. This, in turn, resulted in two hindering factors: *i*) non-standardized endoscope reprocessing and *ii*) limited awareness among staff about alignment between national and in-house guidelines. The former primarily reflects a lack of supervision and monitoring of adherence to standard protocols, leading to varying levels of compliance across district hospitals. The latter reflects deficiencies in regulatory coherence and coordination across administrative levels. We therefore recommend promoting adherence to national guidelines within diagnostic imaging departments at PHC settings.

Our study revealed that although VFDE has established guidelines, including reprocessing procedures, in addition to the national policy ensuring access to basic examination and treatment using upper gastrointestinal endoscopy at the PHC level, these guidelines were not fully recognized by local staff nor applied in the form of in-house guidelines and protocols at PHC settings.

3. Responsible governance levels, policy instruments, and key implementation constraints of policy recommendations

For each of the five policy recommendations described above, we will elaborate on relevant governance levels, policy instruments or mechanisms required, and anticipated key implementation constraints or trade-offs (Table 2).

The first policy recommendation—to mobilize and redistribute financial resources for PHC-level hospitals—assumes governance responsibility at national and provincial levels for its implementation. The required policy instruments and mechanisms include health systems research focused on hospital financing to determine actual financial status of district hospitals. The establishment of a provincial committee under the Provincial Health Department to critically review and transform financial resource allocation and investment across hospitals at different administrative levels is also needed. Implementation of this policy recommendation may face constraints, as the principle of self-financing is firmly entrenched as a strategy to reduce national health expenditures, making it difficult to reform. In addition, reallocating financial resources to lower-level hospitals may encounter opposition from higher-level hospitals. However, mobilization and reallocation of funds at the provincial level may be feasible, provided that the provincial authority is the primary financier of capital investments in district hospitals.

The second policy recommendation—to facilitate participation in upper gastrointestinal endoscopy training—assumes governance responsibility at the national, provincial, and hospital levels for its implementation. The required policy instruments and mechanisms include establishment of a provincial committee under the Provincial Health Department to promote: *i*) on-site training opportunities in district hospitals, enabling staff to participate without leaving their workplaces; *ii*) a hospital-wide staff backup system to facilitate participation in external training; and *iii*) a Continuous Professional Development (CPD) system for endoscopists and endoscopy nurses. Implementation of this policy recommendation may compromise service continuity in the absence of adequate backup staff. In addition, expanding training opportunities will require mobilizing financial resources, which may pose further constraints.

The third policy recommendation—to establish accessible professional networks—assumes governance responsibility at the provincial and hospital levels for its implementation. The required policy instruments and mechanisms include formation of a task group comprising provincial health officers and hospital managers to establish: *i*) formal consultation networks with external experts and *ii*) systems to facilitate networking among hospitals at all levels within the region. Implementing this policy recommendation may require additional time and effort from the Provincial Health Department and hospital management.

The fourth policy recommendation—to raise awareness of upper gastrointestinal endoscopy services—assumes governance responsibility at the national, provincial, and hospital levels for its implementation. Required policy instruments and mechanisms include establishment of a task group comprising provincial health officers and district hospital staff responsible for community outreach to develop: *i*) IEC materials on upper gastrointestinal endoscopy for dissemination within local communities; *ii*) community-based health education modules to promote participation in upper gastrointestinal endoscopy screening; and *iii*) an educational module for district hospital clinicians on effectiveness of upper gastrointestinal endoscopy. Implementation of this policy recommendation may require additional financial resources, as well as increased time and effort from the Provincial Health Department and district hospital staff responsible for community outreach.

The fifth and the last policy recommendation—to promote adherence to national guidelines—assumes governance responsibility at the national and hospital levels for its implementation. Required policy instruments and mechanisms include developing in-house guidelines for district hospitals that align with

Table 2. Responsible level of governance, policy instruments or mechanisms required, and key implementation constraints or trade-offs of policy recommendations

Policy recommendations	Responsible level of governance	Policy instrument or mechanism required	Key implementation constraints or trade-offs
i) Mobilizing and redistributing financial resources for PHC-level hospitals	National and provincial levels	• Health systems research focusing on hospital financing to inform the actual financial status of district hospitals. • Provincial committee under the Provincial Health Department to consider financial resource allocation and investments across hospitals at different administrative levels.	• Self-financing discipline is firmly established in motivation to reduce national health expenditure, thus difficult to change. • Reallocation of financial resources to lower-level hospitals may face opposition from upper-level hospitals.
ii) Facilitating participation in upper gastrointestinal endoscopy training	National, provincial, and hospital levels	• Provincial committee under Provincial Health Department to promote: *i*) on-site training opportunities in district hospitals to enable staff to participate without leaving their workplaces; *ii*) a hospital-wide staff backup system to allow participation in external training; and *iii*) a CPD system for endoscopists and endoscopy nurses.	• Training participation may trade off with service continuity if there is no backup staff. • Additional training opportunities require financial resource mobilization, which may pose constraints.
iii) Establishing accessible professional networks	Provincial and hospital levels	• A task group comprised of provincial health officers and hospital managers, establishing: *i*) official consultation networks with external experts; and *ii*) systems to facilitate networking across hospitals at all levels within the region.	• Building networks and developing systems requires additional effort and time on the part of the Provincial Health Department and hospital management.
iv) Raising awareness of upper gastrointestinal endoscopy services	National, provincial, and hospital levels	• A task group comprised of provincial health officers and district hospital staff in charge of community outreach, developing: *i*) IEC materials on upper gastrointestinal endoscopy to be disseminated among local communities; *ii*) community-based health education modules to facilitate upper gastrointestinal endoscopy screening; and *iii*) an educational module for district hospital clinicians on the effectiveness of upper gastrointestinal endoscopy.	• Developing the IEC materials requires additional financial resources. • They also require additional effort and time on the part of the Provincial Health Department and district hospital staff in charge of community outreach.
v) Promoting adherence to national guidelines	National and hospital levels	• In-house guidelines for district hospitals that align with the national guidelines. • A national task group to publish a manual and conduct training to develop in-house guidelines in alignment with the national guidelines.	• Publication of the manual and conducting training require additional financial resources. • Limited motivation among district hospital staff to develop guidelines in alignment with the national ones may pose constraints.

Abbreviation: CPD, Continuous Professional Development; IEC, Information, Education and Communication; PHC, primary healthcare.

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national guidelines, and establishing a national task group to publish a manual and provide training to support development of in-house guidelines consistent with national standards. Implementation of this policy recommendation may require additional financial resources. In addition, limited motivation among district hospital staff to develop guidelines aligned with national standards may pose a constraint.

Despite the above mentioned anticipated constraints and/or trade-offs, our five policy recommendations are considered relatively feasible to implement compared with other policy alternatives, such as allocating additional staff specifically to endoscopic services at district hospitals or integrating an upper gastrointestinal endoscopy module into undergraduate medical education. The former may trigger debates over prioritization and justification - whether upper gastrointestinal endoscopy warrants a dedicated staff increase amid broader shortages of human resources and financing at the PHC level. The latter would likely require a joint agreement between Ministry of Health and Ministry of Education, necessitating interministerial coordination and negotiation, which may be time-consuming.

4. Conclusion

Vietnam has established favorable policies for upper gastrointestinal endoscopy, providing an opportunity to expand this technology to the grassroots level. However, the dilemma between insurance coverage/supportive regulations and self-financing policy as well as the one between intended and unintended outcomes of healthcare decentralization and administrative reform, together with the resulting four policy bottlenecks and eight hindering factors, have impeded implementation of upper gastrointestinal endoscopy services at district hospitals. We therefore propose five policy recommendations: *i*) mobilizing and redistributing financial resources for PHC-level hospitals; *ii*) facilitating participation in upper gastrointestinal endoscopy training; *iii*) establishing accessible professional networks; *iv*) raising awareness of upper gastrointestinal endoscopy services; and *v*) promoting adherence to national guidelines. In this article, we demonstrate that these recommendations are closely aligned with policy dilemmas, bottlenecks, and hindering factors identified. Furthermore, after analyzing their potential constraints and trade-offs, we consider them to be relatively feasible to implement.

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References

1. World Bank Group. Data for Viet Nam, Lower middle income. 2024. *https://data.worldbank.org/?locations=VN-XN* (accessed December 17, 2025).
2. World Health Organization. Viet Nam. *https://data.who.int/countries/704* (accessed December 17, 2025).
3. Shin WS, Xie F, Chen B, Yu P, Yu J, To KF, Kang W. Updated epidemiology of gastric cancer in Asia: Decreased incidence but still a big challenge. Cancers (Basel). 2023; 15:2639.
4. Nguyen TP, Luu HN, Nguyen MVT, Tran MT, Tuong TTV, Tran CTD, Boffetta P. Attributable causes of cancer in Vietnam. JCO Glob Oncol. 2020; 6:195-204.
5. Nguyen TL, Uchida T, Tsukamoto Y, *et al*. Helicobacter pylori infection and gastroduodenal diseases in Vietnam: A cross-sectional, hospital-based study. BMC Gastroenterol. 2010; 10:114.
6. Quan NK, Taylor-Robinson AW. Vietnam's evolving healthcare system: Notable successes and significant challenges. Cureus. 2023; 15:e40414.
7. World Health Organization. Health systems governance in Viet Nam. *https://www.who.int/vietnam/health-topics/health-systems-governance* (accessed December 17, 2025).
8. Vietnam Ministry of Health. Circular No. 22/2023/TT-BYT on regulations unifying the prices of medical examination and treatment services covered by health insurance among hospitals of the same category nationwide and providing guidance on the application of prices and payment of medical examination and treatment costs in certain cases. *https://chinhphu.vn/?pageid=27160&docid=209133&classid=1* (accessed March 1, 2026).
9. Vietnam Ministry of Health. Circular No. 23/2024/TT-BYT on issuing the list of techniques in medical examination and treatment. *https://vanban.chinhphu.vn/?pageid=27160&docid=211508* (accessed March 1, 2026).
10. Nguyễn Trọng cơ, Ngô Thanh Hoàng, Hy Thị Hải Yến. Financial autonomy in vietnamese public health service units. Int Bus Res. 2021; 14:32-45.
11. London JD. The promises and perils of hospital autonomy: Reform by decree in Viet Nam. Soc Sci Med. 2013; 96:232-240.
12. Hoang TTT, Pham TTH, Tran TH. Financial autonomy mechanism at public hospitals under the Ministry of Health in Vietnam. Int J Adv Multidiscip Res Stud. 2023; 3:287-293.
13. Thai KD, Mai BT, Nguyen TL, Ho DDQ. Current status of therapeutic endoscopy in Vietnam. Clin Endosc. 2025; 58:826-830.
14. Government of Vietnam. Decree No. 147/2025/ND-CP on regulations on the delineation of authority of two levels of local government in the field of state management under the Ministry of Health. *https://vanban.chinhphu.vn/?pageid=27160&docid=213925* (accessed March 1, 2026).
15. Government of Vietnam. Decree No. 148/2025/ND-CP on regulations on decentralization and delegation of authority in the health sector. *https://vanban.chinhphu.vn/?pageid=27160&docid=213932* (accessed March 1, 2026).
16. Damschroder LJ, Reardon CM, Widerquist MAO, Lowery J. The updated consolidated framework for implementation

research based on user feedback. Implement Sci. 2022; 17:75.
17. Inagaki D, Nakahara S, Chung UI, Shimaoka M, Shoji K. Need for improvements in medical device management in Low- and Middle-Income countries: Applying learnings from Japan's experience. JMA J. 2023; 6:188-191.
18. Thomson S, Hair C, Oyeleke GK. Outside the training paradigm: Challenges and solutions for endoscopy provision in Resource-Limited settings. Tech Innov Gastrointest Endosc. 2024; 26:270-282.
19. Ministry of Health - Ministry of Home Affairs. Joint circular No 51/2015/TTLT-BYT-BNV on guiding the functions, tasks, powers and organizational structure of the Department of Health under the People's committee of provinces and centrally-administered cities, and the Health Department of the People's committee of districts, towns and cities under provinces, Hanoi, 2015. *https://vanban.chinhphu.vn/default.aspx?pageid=27160&docid=183092* (accessed March 1, 2026).
20. Lee HY, Oh J, Hoang VM, Moon JR, Subramanian SV. Use of high-level health facilities and catastrophic expenditure in Vietnam: Can health insurance moderate this relationship? BMC Health Serv Res. 2019; 19:318.

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