

ORIGINAL ARTICLES

Implementation of the National Criteria for commune health stations in Can Tho City during 2023–2024 and perspectives for 2025 onward

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ABSTRACT

Objectives: This study aimed to assess the implementation of the National Criteria for Commune Health Stations (CHSs) in Can Tho City during 2023–2024, and to analyze advantages, disadvantages, opportunities and challenges for the implementation from 2025 onward.

Methods: A mixed-method study was conducted from March to November 2025. Quantitative data on the 47 indicators stipulated in Decision No. 1300/QD-BYT were obtained first from official reports of 80 CHSs in the former Can Tho City. After that, nine in-depth interviews (IDI) were conducted with leaders of the Department of Health, professional divisions, commune-level People's Committees, and heads of CHSs to collect data for the second objective.

Results: All CHSs met 7/10 of the National Criteria, regarding accessibility, water and sanitation, and waste management. Doctor coverage was high (96.3%); however, only 62.5–63.8% of CHSs met staffing quantity and professional structure. Infrastructure standards were largely achieved, with 93.8% of CHSs meeting land area and construction criteria. Information technology application was limited, with 61.3–68.8% of CHSs fully applying health management software. Persistent challenges related to human resource shortages and imbalances, post-COVID-19 equipment degradation, complex procurement procedures, fragmented information systems, and limited digital capacity. The two-tier local government model presents opportunities and challenges for improved coordination and system integration.

Conclusion: CHSs in Can Tho City generally meet the National Criteria. However, human resource optimization, workforce structure reform, digital transformation, and information system integration should be prioritized to achieve the national criteria of CHS quality.

Keywords: Challenges, opportunities, advantages and disadvantages, implementation of National Criteria for Commune Health Stations.

INTRODUCTION

In response to Directive No. 25-CT/TW of the Secretariat of the Communist Party of Viet Nam on continuing to consolidate, improve, and enhance the quality of grassroots health care activities in the new context, Viet Nam's primary health care system has achieved notable progress. The grassroots health network now provides nationwide coverage and has

been strengthened in terms of infrastructure, medical equipment, and human resources. Nevertheless, significant limitations persist. Policies and legal frameworks governing grassroots health care remain incomplete; organizational models lack stability; disease prevention, early detection, and service quality have yet to fully meet population needs; and resources—including facilities, equipment, medicines, and medical supplies—remain



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insufficient. Moreover, the system continues to face substantial challenges in attracting and retaining highly qualified health professionals on a long-term basis (1).

Since 2002, the Ministry of Health has promulgated national standards for CHS, initially covering the period 2001–2010 (2). In 2014, these standards were revised and reissued as the National Criteria for CHS up to 2020, comprising 46 indicators across 10 criteria. This framework was aligned with the functions, responsibilities, and technical standards of CHSs and supported the national strategy for people's health care and protection during 2011–2020 (3). In 2023, the Ministry of Health further updated the framework through Decision No. 1300/QĐ-BYT, issuing the CHS National Criteria up to 2030. The revised framework consists of 47 indicators across 10 criteria and aims to establish more comprehensive and responsive standards to better address population health care needs (4).

Previous studies assessing the implementation of the National Criteria have generally reported favorable outcomes. Nguyen Huu Long (2023) documented evaluation scores ranging from 88.9 to 90.7 points (5), while Dong Duc Hung (2021) reported scores between 82 and 90 points in Sa Pa District (6). Despite these positive findings, persistent challenges have been identified. Ho Duy Tan highlighted the significant influence of infrastructure and medical equipment on both operational performance and evaluation results of CHSs (7). Similarly, a study conducted in Dong Thap Province in 2023 revealed that only 6.3% of CHSs met staffing requirements under the National Criteria (8).

Within the broader context of comprehensive political system reforms (9), administrative reorganization at all levels, and the implementation of a two-tier local government

model (10), the health sector is undergoing substantial restructuring to adapt to new governance and management arrangements. These systemic changes introduce additional complexities and challenges for the effective implementation of the National Criteria, particularly at the grassroots level.

The Can Tho City Department of Health serves as the advisory agency to the City People's Committee in state management of healthcare. Following administrative consolidation and the transition to a two-tier governance model, the city's health system underwent substantial expansion—from 5,982 personnel across 33 units serving 80 communes and wards to 13,162 personnel across 63 units covering 103 communes and wards. This rapid restructuring has significantly altered organizational arrangements, workforce distribution, infrastructure demands, and management mechanisms at the grassroots level.

In this evolving context, a systematic assessment of the implementation of the CHS National Criteria is essential to determine the extent to which standards have been achieved and sustained, as well as to identify gaps arising from administrative transition. Therefore, this study was conducted to 1) evaluate implementation outcomes during 2023–2024 and to 2) analyze the advantages, disadvantages, opportunities, and challenges for implementation from 2025 onward.

METHODS

Study Design

A sequential explanatory mixed-methods design was employed, in which the quantitative component preceded the qualitative inquiry. Quantitative data on the 47 indicators specified in Decision No. 1300/QĐ-BYT were extracted from official reports of 80 CHSs in the former Can Tho City to address

Objective 1. Subsequently, qualitative analysis was conducted to explore the advantages, disadvantages, opportunities, and challenges related to implementation from 2025 onward, thereby addressing Objective 2 and providing contextual explanations for the quantitative findings under Objective 1.

Study Setting and Period

The study was conducted between March and November 2025 at CHSs located within the former Can Tho City.

Study Participants and materials

Quantitative data were derived from secondary sources, specifically official reports documenting the implementation results of the CHS National Criteria at 80 CHSs in Can Tho City during 2023 and 2024. Reports were included if they were officially issued or endorsed by competent health authorities, covered the full set of 47 indicators stipulated in Decision No. 1300/QD-BYT (4), and contained complete and verifiable data for the study period.

Participants in the qualitative component were purposively selected based on their leadership and managerial roles related to the implementation of the CHS National Criteria. Eligible participants included leaders of the Department of Health, heads of professional divisions under the Department of Health, leaders of commune-level People's Committees, and heads of CHSs who had direct involvement in the implementation, supervision, or evaluation of the National Criteria during 2023–2024. Individuals who were not directly engaged in decision-making or implementation activities, had less than one year of experience in their current role, were unavailable during the study period, or declined to participate were excluded from the study.

Variables and themes

Quantitative variables: The 47 indicators across 10 criteria specified in the CHS National Criteria issued by the Ministry of Health.

Qualitative themes: The qualitative component was conducted to identify the advantages, disadvantages, opportunities, and challenges associated with implementing the CHS National Criteria. The inquiry focused on four thematic domains: (1) management and governance; (2) human resources; (3) local socioeconomic context; and (4) information systems and the application of information technology.

Evaluation Criteria

Assessment was conducted in accordance with the guidelines of the CHS National Criteria issued by the Ministry of Health (4). A CHS was officially recognized as meeting the National Criteria when it satisfied all of the following conditions: (1) achieving at least 80% of the total possible score; (2) receiving no zero score ("critical failure") in any indicator; and (3) attaining at least 50% of the maximum score for each individual criterion.

Data Collection

For the quantitative component, a structured checklist was developed to retrospectively review secondary data extracted from official evaluation reports on the implementation of the CHS National Criteria in 2023 and 2024 in the former Can Tho City area. The CHS checklist was constructed based on the 47 indicators stipulated in Decision No. 1300/QD-BYT (4) and was used to systematically extract, verify, and synthesize information across all 80 CHSs. It included items on indicator achievement status, staffing structure, infrastructure standards, equipment, and information technology application to ensure consistency and comparability of data across facilities and reporting years. To enhance data reliability and avoid simple compilation of administrative reports, a data validation

process was implemented. First, extracted data were cross-checked across different sections of the reports to ensure internal consistency. Second, discrepancies or missing information were verified through consultation with district health office records and relevant supporting documents when available. Finally, the completed checklists were independently reviewed by two members of the research team to ensure accuracy and completeness before being entered into the analysis dataset.

For the qualitative component, primary data were collected through IDIs using semi-structured interview guides developed in alignment with the study objectives and the predefined thematic topics. The guides included open-ended questions and probing prompts to facilitate comprehensive exploration of implementation experiences. Prior to data collection, the researcher introduced the study objectives and procedures and obtained voluntary informed consent from participants. Interviews were scheduled at times convenient to participants and conducted in settings that ensured privacy and confidentiality. Audio-recording devices and note-taking materials were prepared in advance to ensure accurate data capture.

Sample Size

Quantitative component:

All 80 CHSs in Can Tho City (former administrative boundaries) were included.

Qualitative component:

A purposive sampling strategy was employed to select participants for nine IDIs. At the provincial level, five participants were selected from the Department of Health, including: one leader responsible for overseeing the National Criteria; one leader from the Office of the Department of Health (Organization and Personnel Division) with responsibilities related to the Criteria;

one leader from the Medical Service Division; one leader from the Pharmaceutical Division; and one leader from the Planning and Finance Division. At the commune level, two leaders of commune-level People's Committees were selected. Additionally, two leaders of CHSs were included to provide frontline managerial perspectives.

Data Analysis

Quantitative data analysis

Quantitative data were derived from consolidated official reports on the implementation of the CHS National Criteria across Can Tho City. The researcher reviewed and cleaned the dataset to ensure completeness and consistency, retrospectively supplementing missing information where necessary through verification with relevant reporting units. The finalized data were entered and managed using Microsoft Excel.

Descriptive statistical analysis was conducted, including calculation of frequencies and proportions, to summarize the level of achievement across the 47 indicators and to describe staffing, infrastructure, and information technology implementation status among the 80 CHSs.

Qualitative data analysis

Qualitative data obtained from IDIs were audio-recorded, transcribed verbatim, and compiled into Word documents for analysis. The transcripts were systematically coded and analyzed using thematic analysis based on the predefined research domains. Data were summarized in matrix tables to facilitate comparison across participants and stakeholder groups. Emerging themes and subthemes were identified, organized, and synthesized according to the study objectives. Representative quotations were selected to illustrate key findings and provide contextual depth to the analysis.

Ethical Considerations

The study protocol was reviewed and approved by the Ethics Committee of Hanoi University of Public Health (Approval No. 175/2025/YTCC-HDD3, dated May 6, 2025).

RESULTS

The implementation of CHS National Criteria at the former Can Tho city

The results indicate that three out of the ten CHS National Criteria were achieved

at relatively low levels, specifically those related to healthcare workforce, infrastructure, and information technology application. The majority of CHSs successfully met the requirements of the remaining seven criteria, particularly those concerning accessibility, water and sanitation, waste management, and other essential service standards, indicating overall substantial progress in implementing the National Criteria. Therefore, the following section focused on three criteria on healthcare workforce, infrastructure, and information technology application.

Healthcare workforce

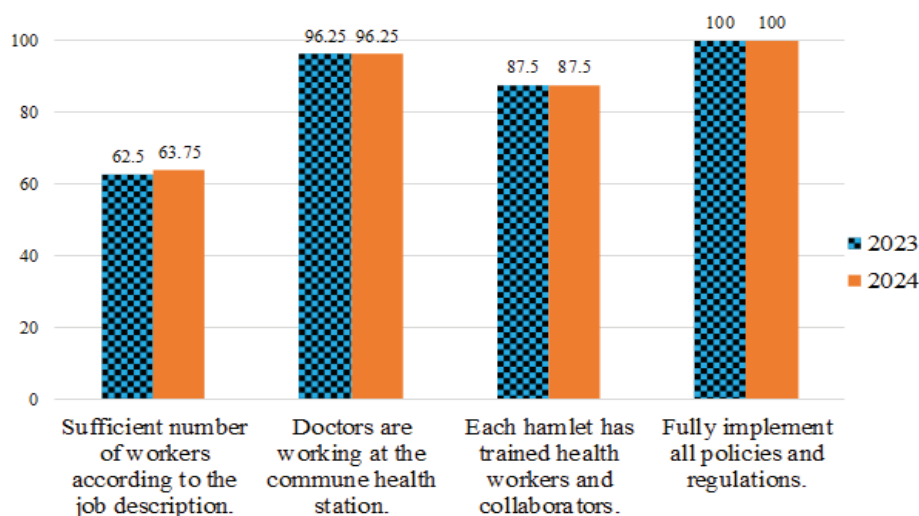


Figure 1. Results of healthcare workforce (n = 80)

Compliance with staffing norms and professional structure requirements remained modest, at 62.5% (50/80) in 2023 and 63.8% (51/80) in 2024, with several CHSs failing to meet approved workforce standards and exhibiting limited staff qualifications. Although doctor coverage was high (96.3%), a few CHSs lacked assigned physicians. Approximately 87.5% of CHSs achieved full scores for deploying health workers and population collaborators at the hamlet level. However, some facilities,

particularly under Cai Rang, Thoi Lai, and Vinh Thanh District Health Centers, continued to face personnel shortages for population and medical service activities.

“Some CHSs have not been allocated enough staff, and population collaborators have not been adequately trained, although most CHSs do have doctors working at the station” (IDI4).

Infrastructure

Table 1. Number of CHS meet the criteria of health infrastructure (n = 80)

Criteria	2023		2024	
	Number of CHS	%	Number of CHS	%
The CHS is located near the main road or in the central area of the commune for easy access by the people	80/80	100	80/80	100
The land area and construction area of the CHS ensure that it meets the healthcare needs of the people	75/80	93.8	75/80	93.8
The CHS is built according to the CHS design standards and standards of health sector	75/80	93.8	75/80	93.8
The main building is classified as level III or higher	75/80	93.8	75/80	93.8
The CHS has clean water and sanitary toilets; medical waste collection and treatment	80/80	100	80/80	100
It has sufficient technical infrastructure and auxiliary facilities	75/80	93.8	75/80	93.8

Table 1 presents the infrastructure status of CHSs in Can Tho City during 2023–2024. All CHSs met standards for accessibility, clean water supply, sanitation, and medical waste management (100%). A total of 75 out of 80 CHSs (93.8%) achieved full scores for land area, construction design, and technical infrastructure in both years. The remaining facilities—mainly in Ninh Kieu, Co Do,

Thoi Lai, and Phong Dien districts—did not meet minimum land area requirements and exhibited infrastructure deterioration. Similarly, 93.8% of CHSs had level III or higher buildings and met standards for supporting technical infrastructure and auxiliary facilities

Information technology application

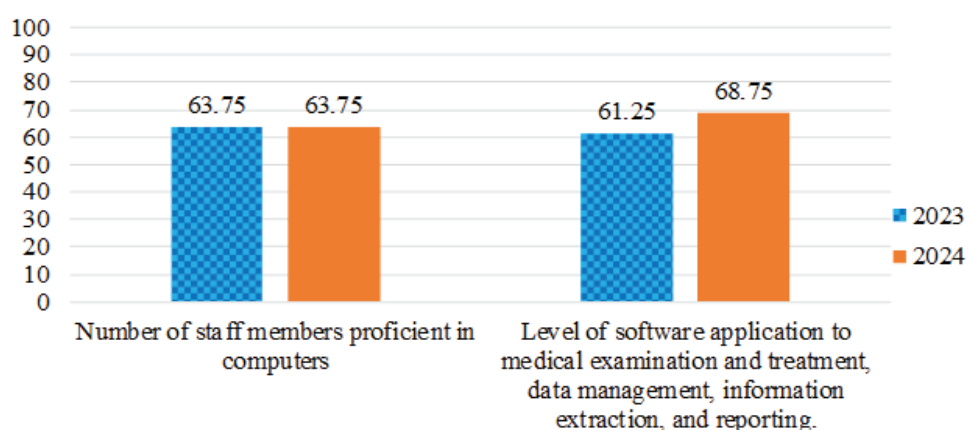


Figure 2. Information technology applications (n=80)

During 2023–2024, 63.8% (51/80) of CHSs met the standards for information technology application, with staff demonstrating adequate basic computer proficiency. However, the proportion of CHSs achieving full scores for the use of health management software—including medical examination and treatment, data management, information extraction, and reporting—remained modest, rising from 61.3% in 2023 to 68.8% in 2024.

Advantages, disadvantages, opportunities and challenges in implementing the CHS National Criteria in Can Tho City

Although Can Tho City largely met the CHS National Criteria during 2023-2024, sustainability remains limited, particularly in the context of administrative mergers and changes in grassroots health system organization. The transition to a two-tier local government model creates both opportunities and challenges, especially in relation to healthcare personnel, infrastructure, and information technology application.

Healthcare personnel

CHSs in Can Tho City continue to face substantial human resource constraints. Staffing shortages, imbalanced professional composition, and uneven qualifications restrict the provision of technical services, particularly in chronic disease management and rehabilitation. Several CHSs lack doctors and pharmacists while experiencing surpluses of nurses or shortages of midwives, and existing policies have not been sufficiently effective in attracting and retaining highly qualified personnel.

“The human resource structure is not rational; many places lack doctors and pharmacists, but have an excess of nurses and a shortage of midwives; the professional titles in the medical field are not yet regulated for Grade III and II (for the specialties:

nursing, midwifery, medical technology, and pharmacy), therefore, it has not attracted those with university degrees or higher to work at the Health Stations” (IDI 4).

Recruitment and retention—especially of young doctors—remain difficult due to low income, limited professional development opportunities, and inadequate housing and support policies in rural areas.

“The station currently has 5 or more staff members, including only 1 general practitioner, the rest being nurses, midwives, and medical assistants. The difficulty lies in the inability to recruit people, especially young doctors who are unwilling to work in rural areas due to low income and limited living conditions” (IDI 8).

The two-tier local government model creates opportunities to strengthen primary healthcare human resources through streamlined governance and clearer management authority. It allows more flexible personnel allocation and rotation across CHSs, while centralized oversight supports coordinated training and technical assistance.

“After implementing the two-tiered model, the province can be more proactive in coordinating personnel between health stations. Previously, the transfer of doctors from one station to another had to go through many levels of management, which took a lot of time” (IDI 4).

However, the restructuring process may also lead to job reassignments and increased workloads during the transition. Existing shortages of doctors, pharmacists, and specialized nurses—especially in remote communes—could worsen without timely recruitment reforms. Moreover, growing demands for digital transformation and health data management exceed the current capacity of many grassroots health workers.

“Challenges include rigid recruitment mechanisms, uncompetitive salaries, and a lack of housing and living support policies. The commune People’s Committee hopes for a policy of ‘adding points for remote areas’ and support for socialized healthcare workers” (IDI 3).

Medical Infrastructure and Equipment

In recent years, Can Tho City has increased investment in grassroots healthcare infrastructure, with many CHSs upgraded or renovated. Nevertheless, several facilities remain deteriorated, lack standardized functional rooms, and do not fully meet national criteria. Limitations in electricity, water supply, and environmental sanitation continue to compromise service quality.

“About 80% of Health Stations have been upgraded. However, many Health Stations have small areas and lack clearly defined disease screening areas” (IDI 1).

Medical equipment frequently falls short of national standards, with a substantial proportion outdated or damaged, particularly in the aftermath of the COVID-19 pandemic. Repair and maintenance have been challenging due to expired warranties and supplier-related constraints.

“After the Covid-19 pandemic, most of the medical equipment at the Health Stations was damaged, and warranty and repair work is currently very difficult... and some equipment cannot be repaired due to severe damage” (IDI 9).

Additionally, the supply of medicines and medical consumables remains unstable, affecting both emergency and routine services. Complex procurement and bidding procedures have further limited timely replacement and replenishment, thereby constraining service delivery.

“Some Health Stations do not have enough medicines for treatment, anti-shock drugs, and common emergency medicines... the procurement and bidding procedures... have greatly affected the Health Stations” (IDI 7).

The two-tier governance model enables more effective allocation and coordination of public investment in primary healthcare infrastructure by reducing administrative layers and clarifying provincial responsibility. This facilitates synchronized planning for construction and renovation and supports the reorganization of health services into inter-communal or regional clusters, allowing shared use of high-value equipment and minimizing fragmented investment.

“The shift to a two-tier model allows the province to be more proactive in allocating investment capital for grassroots healthcare... the Department of Health can develop a synchronized investment plan, based on residential clusters or inter-communal groups, thus ensuring a more rational allocation of infrastructure and equipment” (IDI 6).

Reorganization into inter-communal or regional service models may temporarily overload some CHSs, particularly those with degraded facilities, limited functional rooms, inadequate wastewater treatment systems, or outdated equipment. Budget constraints at CHSs, along with limited socialized funding, further complicate timely infrastructure investment.

“Given the limited budgets of communes and wards and insufficient socialized funding sources, this is a significant challenge for health stations when investing in infrastructure to meet prescribed standards” (IDI 5).

In addition, lingering impacts of the COVID-19 pandemic have left much equipment damaged or unrepaired, while

procurement and bidding procedures remain complex.

“In general, medical equipment at health stations largely does not meet the assigned tasks; there is insufficient supply of medicines for treatment, anti-shock drugs, and common emergency medications... especially after the Covid-19 pandemic, [maintenance and procurement] have been very difficult” (IDI 7).

Application of Information Technology

Although digital transformation initiatives have improved initial IT access at the grassroots level, implementation challenges persist. Many CHSs lack adequate equipment, face unstable internet connectivity, and have limited staff proficiency due to insufficient formal training. Fragmented and non-interoperable software systems require repeated data entry, increasing workload and error risk.

“the application of IT is limited, some medical reporting software is not interconnected, and staff have to enter data multiple times... The health station lacks computers, has unstable internet connections, and does not have staff in charge of IT expertise” (IDI 8).

As the lowest tier of the health system, CHSs must ensure timely disease surveillance and reporting; however, “reporting information

through multiple levels is time-consuming and prone to errors” (IDI 2).

The new governance model facilitates unified investment in IT infrastructure and standardized software systems across levels. Centralized data platforms can reduce duplicate data entry, improve accuracy, and lessen administrative burden, enabling health workers to focus more on professional tasks. Post-COVID-19 momentum also supports the expansion of telemedicine, chronic disease digital management, and electronic health records.

“Reorganizing into a two-tier model has helped us build a unified IT system from the province down to the commune/ward level... This reduces the workload for health station staff and helps ensure that data across the province is continuously updated and more accurate” (IDI 5).

However, uniform digitization of health records—particularly in disease prevention and control—remains challenging due to limited IT infrastructure and human resource capacity at the grassroots level.

“With the current resources, it will be difficult for health stations to digitize records according to regulations in the near future; comprehensive support from competent authorities is needed” (IDI 8).

Table 2: Summary of advantages, disadvantages, opportunities and challenges

Domain	Strengths	Weaknesses	Opportunities	Challenges
Healthcare personnel	Existing CHS workforce maintains basic primary care services.	Shortages and imbalanced staffing (lack of doctors/pharmacists, shortage of midwives) limit service capacity.	Two-tier governance allows more flexible personnel allocation and coordinated training.	Difficulty recruiting and retaining qualified staff due to low income, limited incentives, and rural working conditions.

Domain	Strengths	Weaknesses	Opportunities	Challenges
Infrastructure & equipment	Many CHSs have been upgraded in recent years.	Some facilities remain inadequate; equipment is outdated or damaged after COVID-19.	Governance reform may enable more coordinated investment and shared equipment across facilities.	Budget constraints and complex procurement procedures delay upgrades and equipment replacement.
Information technology	Initial progress in digital health and reporting systems at CHSs.	Limited IT infrastructure, unstable internet, and fragmented software increase workload.	Unified digital platforms may improve data integration and support telemedicine and chronic disease management.	Limited technical capacity and infrastructure hinder full digitalization of health records.

These findings provide important insights into the structural factors influencing the implementation and sustainability of the CHS National Criteria in Can Tho City. They also highlight key areas that require policy attention and system-level interventions to strengthen primary healthcare performance in the context of ongoing administrative reform.

DISCUSSION

Implementation of CHS National criteria in the former Can Tho city

Human Resources

The high proportion of CHSs with doctors (96.3%) indicates sustained local efforts to meet the Human Resources criterion and ensure the quality of primary medical services. However, this achievement remains fragile, as several health stations depend on rotational support from higher levels, and some maintain insufficient numbers of doctors to meet service demand. These findings are consistent with previous studies, which similarly reported high doctor coverage alongside persistent challenges in staffing

stability and service capacity at the grassroots level (6,12).

Infrastructure

Implementation of infrastructure criteria during 2023–2024 demonstrated relative stability, reflecting long-term investments in upgrading grassroots health facilities in Can Tho City. Nevertheless, health stations in disadvantaged areas continue to face constraints related to limited space, deteriorating facilities, and delayed repairs. These findings align with evidence from Hon Quan District, Binh Phuoc Province, where uneven infrastructure investment remained a major challenge (5). Qualitative results further indicate that despite renovations, several health stations still lack wastewater treatment systems and auxiliary facilities, underscoring the need for comprehensive and planned investments to ensure full compliance with Ministry standards.

Information Technology Application

Information technology capacity remains a key bottleneck in implementing the National Criteria. The proportion of staff proficient in computer use stagnated at 63.8%, while

software application for medical services and reporting increased modestly but remained below optimal levels. Similar limitations were reported in earlier studies, highlighting persistent gaps in IT human resources at the commune level (5). Insufficient digital skills and fragmented, non-interoperable software systems continue to impede the digitalization and modernization of grassroots health services. Strengthening IT training for health workers and promoting standardized, interoperable management platforms are therefore critical to improving service delivery and management efficiency in the context of ongoing digital transformation.

Advantages, disadvantages, opportunities and challenges in implementing the CHS National Criteria in Can Tho City

Medical Personnel

Human resources remain the most critical constraint affecting the sustainability of the National Criteria at the grassroots level. Although many commune health stations (CHSs) meet several infrastructure and service indicators, shortages of qualified personnel—particularly doctors and pharmacists—limit the actual capacity to deliver comprehensive primary care. Thus, achieving multiple criteria does not necessarily guarantee sustainable service quality if the human resources component remains unstable.

Interview findings reveal persistent workforce imbalances, including shortages of doctors, pharmacists, and midwives alongside relative surpluses of nurses. Recruitment and retention, especially of young doctors, remain difficult due to low income, limited career development opportunities, and inadequate housing and living support. Similar workforce shortages have been reported in Cang Long District, Tra Vinh Province, where insufficient numbers of treating doctors reduced service delivery and equipment utilization (11).

In Can Tho City, doctor coverage at CHSs is only 75–80%, with greater shortages in suburban and newly merged areas. While the two-tier governance model may enable more flexible personnel coordination, the transition has also created temporary workforce imbalances. National policy targets requiring at least two doctors per CHS by 2027 demonstrate strong commitment to strengthening primary care but also highlight the significant implementation challenge amid ongoing workforce shortages (12). Overall, addressing structural human resource constraints remains essential to ensuring the long-term sustainability of the National Criteria.

Medical Infrastructure and Equipment

Infrastructure development shows both progress and limitations. Approximately 80% of CHSs have been upgraded, and 93.8% meet land and construction standards. However, some facilities remain space-constrained and lack essential functional rooms such as screening or rehabilitation areas. Equipment availability (81.3–87.5%) also varies, with many devices outdated or damaged following the COVID-19 pandemic. Similar challenges have been reported in Tra Vinh Province (11).

From a sustainability perspective, infrastructure improvements alone do not guarantee improved service quality if maintenance capacity, equipment replacement mechanisms, and operational funding remain limited. The shift toward partial financial autonomy creates both opportunities and challenges. On one hand, it allows greater managerial flexibility and local initiative in mobilizing resources. On the other hand, limited local budgets and weak social mobilization capacity restrict investment in infrastructure and equipment that meet national standards.

Qualitative findings suggest that requiring

CHSs to independently procure medicines and equipment without sufficient technical and financial guidance may lead to prolonged shortages and increased legal risks related to bidding and procurement procedures. As service demand increases under the two-tier governance model, constrained infrastructure investment and limited maintenance capacity—including waste treatment systems—may continue to pose risks to service quality and biosafety.

Information Reporting and Information Technology Application

Digital transformation is a key component of the National Criteria but remains uneven across CHSs. During 2023–2024, implementation was constrained by limited IT infrastructure, non-interoperable software systems, and high investment costs. These limitations often resulted in duplicated data entry, delayed reporting, and potential data security risks. Many stations—particularly in remote areas—lack sufficient computers, stable internet connectivity, and dedicated IT personnel. Limited digital proficiency among some staff further reduces effective system use, a challenge also observed in Sa Pa District (6).

National policies promoting interoperable databases and electronic health records create opportunities for improved data integration and reduced administrative burden (12). However, without sustained financial investment, technical guidance, and capacity building, CHSs may struggle to fully implement digital health initiatives. Consequently, infrastructure and human resource constraints remain key barriers to the sustainable digital transformation of primary healthcare.

This study has several limitations that should be considered when interpreting the findings. First, the quantitative analysis relied

on secondary data from official reports on the implementation of the CHS National Criteria. Although standardized and formally validated, these reports may be subject to reporting bias, variability in assessment practices across localities, and limited reflection of routine operational realities at the facility level. Second, the qualitative component included a small number of IDIs with managerial and leadership stakeholders. While this approach provided important system- and policy-level insights, it did not capture the perspectives of frontline health workers or service users, thereby limiting a more comprehensive understanding of implementation challenges in daily practice. Finally, the study was conducted exclusively in Can Tho City during a period of administrative restructuring and policy transition. The findings may therefore have limited generalizability to other provinces with different socioeconomic contexts, health system capacities, or governance structures. Future research should incorporate primary facility-level observations, expand qualitative sampling to include frontline staff and community members, and undertake comparative analyses across diverse settings to strengthen the evidence base.

CONCLUSION AND RECOMMENDATION

During 2023–2024, most CHSs in Can Tho City met seven of the ten National Criteria, particularly those related to accessibility and sanitation. However, healthcare workforce, infrastructure, and information technology application remain key constraints. Persistent staffing imbalances, facility limitations, outdated equipment, and fragmented digital systems threaten the sustainability of implementation, especially amid administrative restructuring under the two-tier governance model.

To strengthen primary healthcare, priority should be given to improving workforce recruitment and retention, particularly for doctors and specialized staff; synchronizing provincial-level investment to upgrade infrastructure and replace equipment; and accelerating digital transformation through interoperable systems and enhanced IT capacity at the grassroots level.

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