ISSN: 3116-3475
International Journal
of Education, Research, and Innovation Perspectives
Volume 2 Issue 5 (May 2026)

Patients' Accessibility and Availability of Healthcare Services in a Level 1 Government District Hospital in Cabagan, Isabela: Basis for Quality Improvement Plan

Aiza A. Baccay[1*] and Erwin M. Faller[1]
[1]*St. Bernadette of Lourdes College*
[*]*aizabaccay08@gmail.com*

Date Submitted:
March 21, 2026

Date Accepted:
April 19, 2026

Date Published:
May 22, 2026

DOI:
10.5281/zenodo.20338607

ABSTRACT

This study examined patients' accessibility to and availability of healthcare services at Milagros Albano District Hospital, a Level 1 government district hospital in Cabagan, Isabela, as basis for a quality improvement plan. Anchored on Andersen's Behavioral Model of Health Service Utilization and Donabedian's Healthcare Quality Framework, the study assessed geographic accessibility, transportation, affordability, service availability, service delays, and patient satisfaction. A quantitative descriptive-correlational design was used. Data were gathered from 200 patients and selected healthcare providers through a structured questionnaire and were analyzed using frequency, percentage, chi-square test, and correlation-based interpretation. Findings revealed that most respondents came from low-income households, with 76% earning below ₱10,000 per month. A considerable proportion experienced access barriers: 41% traveled for more than one hour to reach the hospital, 75.5% relied on public transportation, and 61.5% reported difficulty accessing healthcare services. Transportation problems, bad weather or flooding, and damaged or under-construction bridges were the most common access barriers. In terms of service availability, 62% experienced delays in receiving medical attention, mainly due to long waiting time (59.7%), lack of doctors or nurses (27.4%), and limited medical supplies or equipment (12.9%). Despite these constraints, patient satisfaction was generally positive, with most respondents rating services as satisfactory or very satisfactory. The chi-square result showed a significant relationship between accessibility and availability ($\chi^2 = 10.11$, $df = 2$, $p = 0.006$), indicating that patient-level access barriers were closely connected with system-level service constraints. Based on the findings, a quality improvement plan was proposed focusing on transportation support, improved patient flow and triage, workforce strengthening, resource upgrading, telemedicine, and stronger government support. The study contributes evidence for improving rural hospital service delivery through integrated, patient-centered, and multi-sectoral strategies.

Keywords: *healthcare accessibility, service availability, rural healthcare, district hospital, quality improvement plan, patient satisfaction*

INTRODUCTION

Access to healthcare remains a continuing challenge in rural areas of the Philippines, particularly in geographically dispersed provinces where distance, transportation, poverty, and limited facility capacity affect service utilization. Milagros Albano District Hospital (MADH), formerly the Northern Isabela

ISSN: 3116-3475
International Journal
of Education, Research, and Innovation Perspectives
Volume 2 Issue 5 (May 2026)

Emergency Hospital, is a Level 1 government district hospital in Cabagan, Isabela. Since its establishment in 1961, the hospital has served as a key health facility for rural communities and low-income patients in the province.

Healthcare access is shaped by several dimensions, including availability, accessibility, affordability, acceptability, and accommodation. When one or more of these dimensions is limited, healthcare utilization may be delayed or reduced. Previous studies in Philippine rural settings similarly noted that distance, cost, transportation, and perceived quality of care influence the use of public health services (Castro-Palaganas et al., 2020; Martinez et al., 2024). In rural hospitals, such barriers are often compounded by shortages in health workers, diagnostic resources, medicines, and hospital infrastructure (Department of Health [DOH], 2023; Garcia & Reyes, 2023).

The need to strengthen healthcare services in Cabagan, Isabela has been recognized through policy discussions and legislative measures, including Senate Bill No. 2274, which proposed the upgrading of MADH into a General and Specialty Hospital with expanded bed capacity (Senate of the Philippines, 2023). However, planning for hospital improvement requires local evidence on patients' actual experiences of access and service availability. Without such evidence, improvement efforts may not fully address the concrete barriers faced by patients and healthcare providers.

This study therefore assessed patients' accessibility to and availability of healthcare services at Milagros Albano District Hospital as basis for a quality improvement plan. Specifically, it described the demographic profile of patients; examined accessibility in terms of travel time, transportation, and access difficulty; assessed service availability in terms of delays, causes of delay, and patient satisfaction; tested the relationship between accessibility and availability; and developed a quality improvement plan responsive to the findings.

Literature Review

Healthcare Accessibility in Rural Communities

Healthcare accessibility refers to the ease with which patients can reach and utilize healthcare services. In rural communities, geographic isolation, long travel time, limited transportation options, and poor road conditions often delay care-seeking and reduce timely utilization of hospital services. Penchansky and Thomas (2020) conceptualized access through dimensions such as availability, accessibility, accommodation, affordability, and acceptability, emphasizing that limitations in any dimension weaken service utilization.

In the Philippine context, spatial disparities remain a major concern. Martinez et al. (2024) found that municipalities with lower socioeconomic status and higher proportions of older adults often experience poorer spatial access to healthcare facilities. Similarly, rural patients may face indirect costs such as transportation expenses and loss of income, which are especially burdensome for low-income households (Philippine Statistics Authority [PSA], 2022). These conditions make rural district hospitals crucial service points for underserved populations.

Availability of Healthcare Services and System Constraints

Healthcare availability refers to the presence of sufficient health resources, including doctors, nurses, medicines, diagnostic services, hospital beds, and equipment. Rural hospitals commonly face constraints in staffing, infrastructure, and supplies. The DOH (2023) reported continuing limitations in medical equipment, hospital beds, and essential medicines in district hospitals and rural health facilities. These system-level limitations affect patient flow, waiting time, emergency response, and continuity of care.

Health workforce shortages are particularly critical. The World Health Organization (2022) and the Health Human Resources for Development Bureau (2023) noted uneven distribution of health professionals between urban and rural areas. Filipino health workers often migrate to urban centers or overseas because

ISSN: 3116-3475
International Journal
of Education, Research, and Innovation Perspectives
Volume 2 Issue 5 (May 2026)

of better compensation and work conditions (Lorenzo et al., 2020). Although programs such as Doctors to the Barrios and other rural deployment initiatives aim to address these gaps, retention remains difficult when facility resources and professional support are limited.

Quality Improvement in Rural Healthcare

Quality improvement in rural healthcare requires integrated strategies that address both patient-level barriers and health system constraints. Donabedian's (1988) framework emphasizes that healthcare quality may be examined through structure, process, and outcome. Structure includes facilities, workforce, supplies, and equipment; process includes patient flow, waiting time, and service procedures; and outcomes include patient satisfaction, health improvement, and service utilization. This framework is useful for district hospitals because service quality depends not only on clinical care but also on access, efficiency, and resource readiness.

Several strategies have been proposed to improve rural healthcare delivery. The Health Facilities Enhancement Program supports infrastructure and equipment upgrading in underserved areas (DOH, 2023). Telemedicine and digital health may reduce distance-related barriers by enabling remote consultation and follow-up (Tan et al., 2021; World Health Organization, 2022). Community health worker programs and public-private partnerships may also strengthen referral pathways, outreach services, and supply support (PBSP, 2023; USAID, 2023). These approaches suggest that improving healthcare access and availability requires coordination among hospitals, local governments, national agencies, and community partners.

Theoretical and Conceptual Anchors

The study was anchored on Andersen's Behavioral Model of Health Service Utilization and Donabedian's Healthcare Quality Framework. Andersen's model explains how predisposing, enabling, and need-related factors influence health service use. In this study, demographic profile, socioeconomic status, residence, transportation, and perceived difficulty were viewed as factors affecting access to hospital services.

Donabedian's framework guided the assessment of service quality through structure, process, and outcome. Structure was represented by workforce, supplies, diagnostic services, and hospital capacity; process was represented by travel experience, waiting time, and service delay; and outcome was represented by satisfaction and service utilization. Together, these frameworks supported the development of a quality improvement plan that addressed both access barriers and system-level availability gaps.

METHODS

Research Design

The study used a quantitative descriptive-correlational research design. The descriptive component assessed the profile of respondents, accessibility indicators, service availability indicators, and patient satisfaction. The correlational component determined whether accessibility was significantly related to availability of healthcare services.

Research Locale

The study was conducted at Milagros Albano District Hospital, a Level 1 government district hospital in Cabagan, Isabela. The hospital serves rural communities and provides essential services including emergency care, inpatient care, maternal and child health services, and other basic hospital services for surrounding municipalities.

Participants and Sampling Technique

The respondents consisted of 200 patients who had sought healthcare services at the hospital, together with selected healthcare providers who were directly involved in service delivery. Stratified random sampling was used to obtain representative patient responses across demographic characteristics.

ISSN: 3116-3475
International Journal
of Education, Research, and Innovation Perspectives
Volume 2 Issue 5 (May 2026)

Patients were included if they had received services at the hospital within the relevant period, were 18 years old or above, resided within Isabela or nearby service areas, and voluntarily provided informed consent.

Research Instrument

The study used a structured survey questionnaire designed to assess demographic characteristics, travel time, transportation, difficulty accessing healthcare, service delays, causes of delay, and satisfaction with hospital services. The instrument included categorical items and a satisfaction rating scale. It was reviewed by experts in healthcare administration, public health, and hospital service delivery to ensure content validity.

Validation of Instrument

The research instrument underwent expert validation to ensure relevance, clarity, and alignment with the study objectives. A pilot test was also conducted with patients and healthcare providers to assess the clarity and consistency of questionnaire items. Revisions were made based on expert comments and pilot results to improve readability and reduce potential response bias.

Data Gathering Procedure

The researcher secured formal permission from the Chief of Hospital before data gathering. Consent forms and questionnaires were distributed to qualified respondents. Respondents were given sufficient time to complete the questionnaire, and the researcher provided clarification when necessary. Completed questionnaires were retrieved, checked for completeness, organized, and encoded for analysis.

Data Analysis

Frequency and percentage were used to summarize demographic profile, accessibility indicators, availability indicators, and patient satisfaction. The chi-square test of independence was used to determine the relationship between accessibility and availability of healthcare services. The level of significance was set at 0.05.

Ethical Consideration

The study observed informed consent, voluntary participation, confidentiality, and data privacy. Participants were informed about the purpose, procedures, risks, and benefits of the study. Personal identifiers were removed from responses, and data were used only for academic purposes. Participants were allowed to withdraw at any time without consequences. Ethical clearance and hospital authorization were secured before data collection.

RESULTS AND DISCUSSION

Demographic Profile of Respondents

Tables 1 to 4 present the demographic characteristics of the 200 patient-respondents. The largest age group was 31-40 years old (23.0%), followed by 51-60 years old (20.0%) and 18-30 years old (19.0%). Female respondents comprised the majority (59.0%). In terms of residence, the largest proportion came from San Pablo (33.5%), followed by Sto. Tomas (17.5%) and Cabagan (17.0%). Most respondents (76.0%) reported a monthly household income below ₱10,000, indicating that the hospital primarily serves low-income patients.

Table 1. *Age Distribution of Respondents*

Age Group	Frequency	Percentage
18-30	38	19.0%
31-40	46	23.0%
41-50	31	15.5%
51-60	40	20.0%
61-70	32	16.0%
71-80	13	6.5%

ISSN: 3116-3475
International Journal
of Education, Research, and Innovation Perspectives
Volume 2 Issue 5 (May 2026)

Total	200	100%

Table 2. *Sex Distribution of Respondents*

Sex	Frequency	Percentage
Male	79	39.5%
Female	118	59.0%
Prefer not to say	3	1.5%
Total	200	100%

Table 3. *Municipality of Residence*

Municipality	Frequency	Percentage
San Pablo	67	33.5%
Sto. Tomas	35	17.5%
Cabagan	34	17.0%
Sta. Maria	26	13.0%
Tumauini	23	11.5%
Delfin Albano	12	6.0%
Maconacon	2	1.0%
Dinapigue	1	0.5%
Total	200	100%

Table 4. *Monthly Household Income*

Income Level	Frequency	Percentage
Below ₱10,000	152	76%
₱10,000-₱30,000	38	19%
₱30,000-₱50,000	8	4%
Above ₱50,000	2	1%
Total	200	100%

The profile shows that MADH functions as an important healthcare facility for economically disadvantaged and geographically dispersed populations. This supports the claim that poverty and rural residence remain important determinants of healthcare access in the Philippines (PSA, 2022; Martinez et al., 2024). The higher proportion of female patients is also consistent with reports that women generally demonstrate greater health-seeking behavior and often serve as caregivers in households (World Health Organization, 2022).

Accessibility of Healthcare Services

Tables 5 to 8 summarize the accessibility of healthcare services. The largest proportion of respondents (41.0%) traveled more than one hour to reach the hospital, while 34.5% traveled for 30 minutes to one hour. Most respondents (75.5%) relied on public transportation. A majority (61.5%) reported difficulty accessing healthcare services. The most common causes of difficulty were transportation problems, bad weather or flooding, and broken or under-construction bridges.

Table 5. *Travel Time to the Hospital*

Travel Time	Frequency	Percentage
Less than 30 minutes	49	24.5%
30 minutes-1 hour	69	34.5%
More than 1 hour	82	41.0%
Total	200	100%

ISSN: 3116-3475
International Journal
of Education, Research, and Innovation Perspectives
Volume 2 Issue 5 (May 2026)

Table 6. *Mode of Transportation*

Mode	Frequency	Percentage
Public transportation	151	75.5%
Private vehicle	46	23.0%
Walking	3	1.5%
Total	200	100%

Table 7. *Difficulty Accessing Healthcare*

Response	Frequency	Percentage
Yes	123	61.5%
No	77	38.5%
Total	200	100%

Table 8. *Causes of Accessibility Difficulty*

Cause	Frequency
Transportation problems	36
Bad weather/flooding	25
Broken/under-construction bridges	16

These findings indicate that physical access remains a major barrier for rural patients. Long travel times and dependence on public transportation increase indirect costs and may delay care-seeking. The results are consistent with Herrin (2021) and Martinez et al. (2024), who emphasized that distance, transportation, and road infrastructure influence healthcare utilization in rural communities.

Availability of Healthcare Services

Tables 9 to 11 present the availability-related findings. Most respondents (62.0%) reported delays in receiving medical attention. Among those who experienced delays, the most common reason was long waiting time (59.7%), followed by lack of doctors or nurses (27.4%) and lack of medical supplies or equipment (12.9%). Despite these difficulties, patient satisfaction remained generally positive, with 51.0% rating services as satisfactory and 15.0% as very satisfactory.

Table 9. *Delay in Receiving Medical Attention*

Response	Frequency	Percentage
Yes	124	62%
No	76	38%
Total	200	100%

Table 10. *Causes of Delay*

Cause	Frequency	Percentage
Long waiting time	74	59.7%
Lack of doctors or nurses	34	27.4%
Lack of medical supplies or equipment	16	12.9%

Table 11. *Patient Satisfaction*

Rating	Frequency	Percentage
2	2	1%
3	66	33%
4	102	51%
5	30	15%
Total	200	100%

Legend/Note: Higher ratings indicate higher satisfaction.

ISSN: 3116-3475
International Journal
of Education, Research, and Innovation Perspectives
Volume 2 Issue 5 (May 2026)

The findings show that service availability is affected by patient flow, staffing, and resource constraints. Long waiting time may reflect high patient volume, limited personnel, and workflow inefficiencies. However, the generally positive satisfaction ratings suggest that patients still perceived the care provided by healthcare workers favorably, possibly due to professionalism, communication, and the importance of the hospital as an accessible public facility in the area.

Relationship Between Accessibility and Availability

Table 12 presents the chi-square test result examining the relationship between accessibility and availability. The result shows a significant relationship between the two variables, $\chi^2 = 10.11$, df = 2, p = 0.006. Since the p-value was below 0.05, the null hypothesis was rejected.

Table 12. *Relationship Between Accessibility and Availability Using Chi-square Test*

Variables	χ^2	df	p-value	Decision	Interpretation
Accessibility vs. Availability	10.11	2	0.006	Reject H_0	Significant relationship

Legend/Note: Level of significance = 0.05.

The significant relationship indicates that access barriers such as transportation difficulty, long travel time, and environmental constraints are linked with service availability issues such as delays and limited system capacity. This means that rural healthcare improvement cannot focus only on hospital-based resources or only on transportation. Instead, interventions must address both patient-level access barriers and facility-level service constraints.

Proposed Quality Improvement Plan

Based on the findings, the quality improvement plan focuses on integrated actions that address geographic access, service delays, workforce limitations, resource gaps, distance-related follow-up issues, and system support.

Table 13. *Proposed Quality Improvement Plan to Enhance Accessibility and Availability of Healthcare Services*

Problem Area	Key Findings	Proposed Intervention	Expected Outcome
Accessibility: geographic and transport barriers	61.5% experienced difficulty; 41% traveled more than one hour; transport issues common	Strengthen LGU transport support, improve ambulance services, and develop community transport programs	Reduced travel time and improved access to care
Availability: service delays	62% experienced delays; long waiting time was the most common cause	Streamline patient flow, implement triage systems, and improve service efficiency	Reduced waiting time and faster service delivery
Workforce limitations	27.4% cited lack of healthcare personnel	Recruit additional staff and implement rural incentive programs	Improved service capacity and reduced patient load
Resource constraints	12.9% reported lack of supplies or equipment	Upgrade facilities and ensure adequate medicines, supplies, and equipment	Enhanced quality and completeness of care
Distance and follow-up issues	Patients from distant municipalities face travel barriers	Implement telemedicine and digital health services	Increased access and continuity of care
System support	Rural hospital serves a low-income population	Strengthen UHC programs and government funding through HFEP and related initiatives	Sustainable healthcare improvements

ISSN: 3116-3475
International Journal
of Education, Research, and Innovation Perspectives
Volume 2 Issue 5 (May 2026)

The proposed plan emphasizes that improving rural hospital performance requires collaboration between the hospital, local government units, the Department of Health, and community stakeholders. Transportation support and telemedicine may reduce access barriers, while staffing, workflow, and equipment improvements may strengthen availability and reduce delays.

CONCLUSION

The study concluded that Milagros Albano District Hospital serves a predominantly low-income and geographically dispersed patient population. Accessibility remains a major concern, as many patients travel for more than one hour, rely on public transportation, and experience barriers such as transportation difficulty, bad weather, flooding, and damaged bridges. Service availability is also constrained by delays, long waiting times, workforce shortages, and limited supplies or equipment. Despite these challenges, patient satisfaction remained generally positive, reflecting the continued importance of the hospital and the dedication of healthcare providers.

The significant relationship between accessibility and availability indicates that patient-level access barriers and hospital-level service constraints are interconnected. Therefore, quality improvement efforts must be comprehensive, addressing transportation, workforce, patient flow, resource availability, telemedicine, and policy support. The study provides evidence-based guidance for strengthening rural healthcare delivery and promoting equitable access to timely and efficient services in underserved communities.

Recommendations

Hospital administrators, in collaboration with the Department of Health and local government units, may prioritize workforce strengthening by recruiting additional physicians, nurses, and allied health professionals and by exploring incentive mechanisms for rural service.

Milagros Albano District Hospital may improve internal workflow by strengthening triage systems, streamlining patient flow, and reviewing waiting-time processes to reduce service delays.

Local government units may improve transportation access for patients from distant barangays and municipalities through community transport support, strengthened ambulance services, and road or bridge improvement coordination.

The hospital may upgrade diagnostic facilities, essential equipment, supplies, medicines, outpatient areas, and bed capacity to improve service availability and readiness.

Telemedicine and digital follow-up services may be explored to reduce unnecessary travel and support continuity of care for patients in geographically isolated communities.

National agencies may continue strengthening rural healthcare facilities through Universal Health Care implementation, the Health Facilities Enhancement Program, and related funding mechanisms that address infrastructure and workforce gaps.

Future researchers may conduct similar studies across multiple rural hospitals in Isabela or other provinces to generate broader evidence for healthcare access policy, rural hospital planning, and quality improvement programming.

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