Review Article *Open Access*

Journal of Innovative Clinical Trials and Case Reports

ISSN: 3068 - 1936

DOI: *doi.org/10.63721/25JCTC0123*

Does Universal Health Coverage Improve Access to Health Care? Insights from Rwanda's National Health System

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Citation: Musinga Abdulswamad (2025) Does Universal Health Coverage Improve Access to Health Care? Insights from Rwanda's National Health System. . J. of Inn Clin Trail Case Reports 1(3), 1-8. WMJ/JCTC-123

Abstract

Background: *Universal Health Coverage (UHC) ensures that all individuals receive the health services they need without financial hardship. Rwanda has made significant progress toward achieving UHC through community -based health insurance, health financing reforms, and expanded service delivery. This study assesses how UHC has influenced healthcare utilization in Rwanda, with a focus on equity and access across different population groups. Few studies have combined long - term quantitative trends with qualitative insights to comprehensively assess UHC impact. This study evaluates healthcare utilization patterns in Rwanda between 2015 and 2025, examining both achievements and persistent barriers.*

Methods: *A secondary data analysis was conducted using the Rwanda Demographic and Health Survey (DHS) data, the national Ministry of Health reports, and the World Health Organization UHC service coverage indices. Descriptive and comparative methods were applied to examine healthcare utilization trends across income quintiles, rural vs. urban areas, and key demographic groups. Key indicators included skilled birth attendance, outpatient visit rates, and access to basic health services.*

Results: *Mean outpatient visits per capita increased from 1.5 in 2015 to 2.3 in 2023, and skilled birth attendance rose to 94%, reflecting substantial service coverage gains. However, disparities persisted: utilization was higher in higher Ubudehe categories (Category 3: 91% vs Category 1: 74%, $p < 0.01$). Primary survey respondents reported barriers including medicine stock -outs, long wait times, co -payment burdens, and transport limitations. Qualitative findings highlighted supply -chain issues, workforce constraints, and limited awareness of entitlements.*

The analysis revealed notable improvements in healthcare utilization over the last decade, particularly among rural populations and low -income households. Utilization of skilled maternal care and essential health services increased nationally. However, disparities persist, especially among the poorest quintile and informal sector workers, with some populations continuing to face barriers due to indirect costs and service availability. Financial protection remains uneven, despite high insurance coverage levels.

Conclusions: *To a certain point, Rwanda's UHC strategy has reduced utilization inequality and improved access to healthcare services. But there are still gaps in financial protection and equity. To improve cross -subsidization mechanisms, boost service delivery, and guarantee that no one is left behind on the journey to UHC, more poli cy interventions are needed.*
Clinical trial number: not applicable.

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Submitted: 04.11.2025 **Accepted:** 11.11.2025 **Published:** 24.11.2025

Keywords: Universal Health Coverage, Healthcare Utilization, Rwanda, Equity, Access to Care, Public Health Policy, DHS, Health Insurance

Introduction

Declared in Sustainable Development Goal 3.8, universal health coverage (UHC) has been recognized as an essential component of health justice and sustainable development. It seeks to guarantee that no community or individual faces financial hardship while receiving the required health services. Strong governance, fair financing, and reliable delivery systems —of which are frequently challenged in low - and middle -income countries (LMICs) —are necessary to achieve UHC. Disparities in healthcare access and service utilization exist despite global improvements, especially in Sub -Saharan Africa [1-3].

Community -based health insurance (CBHI) models have been popular in LMICs as adaptable ways to reach rural and informal populations. Many health financing methods have been tried in nations including Ghana, Ethiopia, and Kenya; nonetheless, fairness and access are still being challenged by ongoing problems like poor treatment quality, a lack of outreach, and excessive out-of-pocket expenses. Rwanda offers a distinctive and instructive experience in this regard [4].

Strong governmental commitment, thoughtful integration of CBHI (known locally as Mutuelle de Santé), and nearly universal enrollment have all been highlights of Rwanda's UHC journey. Rwanda used the Ubudehe socioeconomic classification to establish a tiered premium system under the Vision 2020 and Vision 2050 development frameworks. More than 90% of people were enrolled in CBHI by 2023. Despite these successes, concerns about the efficacy and equity of service use across demographic groups still exist [5].

Research indicates that Rwandans are using healthcare services more frequently, especially for maternal and pediatric care. Disparities still exist, though. There are still systemic, financial, and geographic impediments to ca re for lower -income households, rural inhabitants, and some

Ubudehe groups. Qualitative findings show indicate that even among covered people, there are inequalities in affordability, service satisfaction, and awareness [6-8].

Aspects of Rwanda's UHC implementation have been studied in the past, but comprehensive, long-term evaluations that incorporate both quantitative and qualitative viewpoints are scarce. By assessing healthcare use trends under UHC from 2015 to 2025 using a mixed -methods approach that incorporates both secondary data and original fieldwork, this study fills that gap.

Study Objectives

- To explore the level of understanding and awareness of CBHI among the Rwandan population
- To explore healthcare utilization patterns among CBHI members
- To identify barriers and challenges in accessing

health services

- To offer policy recommendations for enhancing equity under Rwanda's UHC framework

Methods

A cross -sectional mixed -methods approach was used in this study to determine how Universal Health C overage (UHC) impacted Rwandan healthcare usage between 2015 and 2023. The design combined qualitative feedback from users of the health system with quantitative analysis of national health data.

The WHO UHC service coverage index, Ministry of Health annual reports, the Rwanda Demographic and Health Surveys (DHS) for 2015 and 2020, and a primary survey conducted out in 2025 were among the several sources from which quantitative data were gathered. Eight hundred CBHI -enrolled adults from ten health site s spread around Rwanda participated in the study. To guarantee representation across socioeconomic classes and urban -rural environments, a stratified random selection technique was employed. Adults who were 18 years of age or older, registered in CBHI at the time, and willing to give informed consent were among the requirements for inclusion [9].

The primary survey instrument was a structured questionnaire capturing demographics, CBHI awareness, frequency of healthcare visits, out -of-pocket expenses, and satisfaction with services. Data were analyzed using SPSS version 25. Descriptive statistics were used to assess healthcare utilization patterns, while chi -square tests were applied to evaluate associations between variables such as gender, income level, and service use.

The qualitative component involved semi -structured interviews with 12 purposefully selected participants to explore their experiences with CBHI, barriers to access, and perceptions of service quality. The interviews were conducted in Kinyarwanda, transcribed, and translated into English. Thematic analysis was applied manually to identify recurring themes and patterns.

Results

Quantitative Findings

A total of 800 respondents were surveyed, with a mean age of 38 years (SD ±11). Women constituted 57% of the sample, and 68% lived in rural areas. Most participants (72%) were enrolled in CBHI under categories 1 or 2 of the Ubudehe socio -economic classification. Table 3.1 presents the sociodemographic characteristics of the study participants.

Variable	Frequency (n)	Percentage (%)
Male	428	53.5
Female	372	46.5
Age 18–29	210	26.3
Age 30–44	310	38.8
Age 45–59	180	22.5
Age 60+	100	12.5
Urban Residents	320	40.0
Rural Residents	480	60.0
Primary Education	390	48.8

Service Utilization Trends

Healthcare utilization in Rwanda has shown a steady upward trend over the past decade, illustrating the impact of Universal Health Coverage (UHC) reforms and the Community -Based Health Insurance (CBHI) program. Analysis of Ministry of Health annual reports and Demographic and Health Surveys (DHS) indicates that outpatient visits per capita increased from 1.5 visits in 2015 to 2.3 visits in 2023 , representing a 53% increase

over eight years (Table 3.2; Figure 3.1). This growth suggests significant progress in ensuring that health services are increasingly accessed by the population, especially among rural and low -income households who were previously underserved.

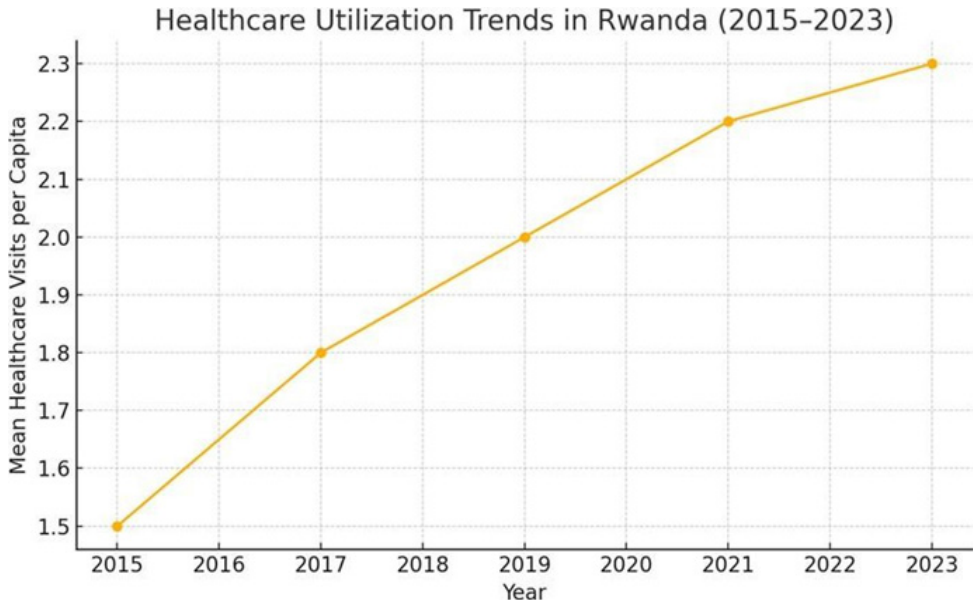
Skilled birth attendance also improved, rising from 91% in 2015 to 94% in 2020 . Immunization cove rage remained consistently high at above 90% , showing that Rwanda's primary healthcare system is successfully maintaining essential service delivery despite resource limitations. These improvements reflect the effectiveness of national health policies, increased financing for health centers, and Rwanda's strong emphasis on maternal and child health services.

Survey findings from 2025 further complement national data. Among 800 CBHI -enrolled respondents, 82% reported visiting a health facility at least once in the preceding six months , demonstrating a high utilization rate for insured populations. However, disparities persist: utilization was highest among households in Ubudehe Category 3, where 91% reported recent visits, compared to 74% among Category 1 households ($p < 0.01$). This pattern illustrates the continued influence of socio -economic status on health -seeking behavior, even under a near-universal insurance scheme.

The upward trend in outpatient visits (Table 3.2) highlights Rwanda's strong primary car e system and community -level outreach, yet this trend also raises important considerations. The increase in visits places additional strain on health facilities, many of which face staffing shortages and medicine stock -outs. Without concurrent investments in supply chains and workforce capacity, the observed growth in utilization may compromise service quality and patient satisfaction, as identified in both survey and qualitative findings.

Figure 3.1: Trends in Healthcare Utilization in Rwanda (2015 -2023)

Year	Mean Visits per Capita
2015	1.5
2017	1.8
2019	2.0
2021	2.2
2023	2.3



This combined analysis of national data, DHS surveys, and primary survey findings
underscores that Rwanda's UHC strategy has expanded insurance coverage and translated into tangible increases in service use. Nevertheless, inequities in utilization highlight the need for targeted interventions —particularly subsidies for vulnerable households, investments in rural infrastructure, and strategies to reduce indirect costs of care.

Barriers to Utilization

Key barriers to utilization were reported by respondents, highlighting persistent access gaps despite near-universal CBHI coverage.

Medicine Stock-Outs (63%): The most frequently cited challenge, stock -outs forced patients to purchase prescribed medications from private pharmacies at higher costs, undermining the financial protection intended by UHC. Such shortages were more common in rural facilities, potentially reflecting supply chain inefficiencies and unequal distribution of essential medicines.

Long Wait Times (48%): Respondents expressed frustration with extended waiting periods before receiving care, sometimes lasting several hours. This was attributed to staff shortages, high patient volumes, and inefficient appointment management, which discouraged timely healthcare seeking particularly for those with daily wage -dependent livelihoods.

Inability to Pay the 10% Co-Payment (37%): Even a relatively small co -payment was prohibitive for some low -income households, especially when combined with other indirect costs such as transportation and lost income. This barrier disproportionately affected Ubudehe Category 1 households, contradicting the goal of equitable access.

Limited Transport to Health Centers (29%): Geographic and infrastructural challenges reduced access for rural populations, with some respondents reporting travel distances of over 5 km to the nearest facility. Poor road conditions and high transport fares further compounded the problem, particularly during the rainy season.

Rural respondents were more likely to cite transport issues ($p < 0.05$), while urban respondents highlighted service dissatisfaction and provider attitudes.

Awareness and Satisfaction

Although CBHI enrollment was universal across the sample, only 62% of participants demonstrated full awareness of their benefit entitlements. Overall satisfaction with CBHI services stood at 68%, but this varied significantly by region and facility.

Qualitative Findings

Twelve in -depth interviews revealed some key themes:

Theme 1: Medicine Stock -Outs Undermine Trust in UHC

Despite having comprehensive insurance, participants frequently complained about the regular shortages of necessary medications in medical institutions. Because patients were frequently compelled to buy drugs privately at greater costs, this experience dam aged faith in UHC's pledge of fair access and financial protection:

"I often leave the clinic without medication, even with my insurance card. At a drugstore, I still have to spend extra. "

This is consistent with earlier research that demonstrates how stock-outs affect the achievement of UHC goals by disproportionately affecting low -income and rural areas [7,8]. Chronic shortages of medications point to larger issues with the health system, such as inefficiencies in the supply chain, and emphasize the necessity of better procurement procedures in order to fully reap the benefits of UHC.

Theme 2: Long Wait Tim es and Staff Shortages Discourage Care Seeking

Frequently noting staffing shortages and high patient loads, participants reported waiting for services for several hours: "You can wait the whole day at the health center." You just give up
and head home some times.

In addition to causing patients inconvenience, these delays may postpone diagnosis, treatment, and follow -up, which over time may discourage people from seeking medical attention. Similar obstacles have been reported in Zambia and Tanzania, where overworked primary healthcare institutions drastically cut back on

service use even when people have insurance (BMC Public Health, 2022). Investments in personnel, better appointment scheduling, and digital patient management technologies are needed to address this.

Theme 3: Financial Barriers Persist Despite Insurance Coverage
10% co -payments and indirect expenses like transportation and opportunity costs continue to be a major barrier to using services, according to the study: "Insurance helps, but when I don't have money for the co -payment or transport, I stay at home."

This emphasizes how important it is to distinguish between coverage and real access. According to research on CBHI reforms in Ghana, Kenya, and Rwanda, financial protection under UHC should go beyond enrollment to lessen out -of-pocket expenses (Lu et al., 2012). These disparities might be filled by increasing transit vouchers and scaling subsidies for the lowest -income Ubudehe categories.

Theme 4: Knowledge Gaps and Health Literacy Challenges
Confusion and underutilization resulted from some participants' limited knowledge of their CBHI rights: "I am not sure which services are free or what I should pay for, so sometimes I avoid going to the clinic."

This result demonstrates how important health awareness and community involvement are to UHC success. Clear communication regarding insurance benefits increases uptake and satisfaction, according to research conducted in different LMICs (DFS Study, BMC Health Serv Res, 2023). This gap could be closed by enlisting local leaders and bolstering community -based education initiatives.

Discussion

This study evaluated the impact of Rwanda's Universal Health Coverage (UHC) implementation on healthcare utilization from 2015 to 2025, mainly through the Community Based Health Insurance (CBHI) program. The results, which combine qualitative information from service users with quantitative national statistics, show both significant advancements and enduring difficulties.

Significant improvements in ser vice utilization, such as more outpatient visits, more skilled birth attendance, and longer -term vaccine coverage, are validated by the analysis. These enhancements imply that, especially for low -income households, Rwanda's UHC policy has been successful in lowering certain administrative and financial barriers to care. These successes have been made possible by the government's pro -poor subsidies, primary care emphasis, and incorporation of CBHI into the national health financing system [5,8] .

However, the results also highlight persistent structural and equity -related barriers that limit the full realization of UHC objectives. These include medicine stock -outs, long wait times, co -payment burdens, and transport difficulties —factors that disproportionately affect rural residents and those in the lowest Ubudehe categories. Furthermore, limited awareness of CBHI entitlements, as identified in both survey and interview data, indicates that health literacy remains a critical gap in maximizing the benefits of insurance coverage.

Improved Utilization Under UHC

Quantitative data showed a consistent upward trend in outpatient visits and skilled birth attendance. These findings align with prior studies suggesting that Rwanda’s CBHI program has been instrumental in expanding access to basic healthcare services. The in tegration of pro -poor targeting and government subsidies has played a critical role in facilitating enrollment and uptake [10].

However, despite high national coverage levels, disparities remain in the frequency of service use across income categories and between rural and urban populations. This supports existing literature indicating that insurance coverage alone does not guarantee equitable utilization [11].

Persistent Barriers to Equitable Access

Survey and interview data converge around three ke y access barriers: medicine stock -outs, out - of-pocket co -payments, and poor transport infrastructure. These challenges disproportionately affect rural and lower -income respondents, undermining the financial protection intent of UHC. Similar access barriers have been reported in Ghana and Kenya, where users of

public insurance schemes still face hidden costs or delayed treatment [12,13]. Rwanda's co -payment system, while designed to control costs, may inadvertently discourage service use among the most vul nerable.

Limited Health Literacy and Awareness

One of the most significant and underappreciated barriers emerging from this study is limited awareness of CBHI benefits. While enrollment is nearly universal, only two -thirds of surveyed respondents could accurately describe their entitlements. This disconnect contributes to underutilization, mistrust, and patient dissatisfaction.

Health literacy plays a critical role in maximizing the effectiveness of health insurance schemes. Without robust community -based education and transparent benefit communication, even the best-designed UHC programs risk underperformance [14].

Value of a Mixed -Methods Approach

The combination of quantitative and qualitative data strengthened this study by providing a comprehensive picture of both trends and lived experiences. While national indicators suggest success, the interviews revealed frustration, gaps in service quality, and bureaucratic complexity that numbers alone could not explain.

This mixed -methods approach is particularly valuable in evaluating health systems in low - income settings, where formal metrics may obscure everyday user realities.

Limitations

This study is subject to several limitations. First, the survey relied on self -reported data, which may be affected by recall bias. Second, the qualitative sample size was small and may not reflect the full diversity of experiences. Lastly, while DHS and MoH data provided national context, direct longitudinal tracking of individuals was not possible.

Conclusion

According to this report, between 2015 and 2025, Rwanda's Universal Health Coverage strategy — which is based on the Community -Based Health Insurance (CBHI) program —has resulted in noticeable increases in healthcare consumption. Increased outpatient visits, improved maternal care indicators, and widespread enrollment reflect the program's reach and operational success.

But there are still ongoing injustices. Barriers such as co -payments, pharmaceutical shortages, and access barriers still affect low -income and rural people. Furthermore, a lack of knowledge of CBHI benefits lowers satisfaction and trust, which may discourage people from seeking medical attention.

These results highlight the necessity of a renewed emphasis on infrastructure investments, health literacy, and equity in the health system. In order to address service quality, accessibility, and citizen participation, policymakers must go beyond coverage measures. Lessons can be learned from Rwanda's UHC experience to help other low - and middle -income nations move toward fully inclusive health systems as well as to maintain domestic gains.

Declarations

Ethical Approval and Consent to Participate: The study protocol was approved. All methods were performed in accordance with relevant guidelines and regulations, including the Declaration of Helsinki. Written informed consent was obtained from all participants prior to data collection.

Consent for Publication: Participants provided written informed consent for anonymized quotes and aggregated data to be used in publications.

Funding: This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors. The study was conducted as part of the author's Master's program and was self-funded.

Availability of Data and Materials: The datasets generated and/or analyzed during the current study are not publicly available due to participant confidentiality constraints but are available from the corresponding author on reasonable request.

Competing Interests: The author declares no competing interests.

Authors' Contributions: M.A. (Musinga Abdulswamad) conceived the study, designed the methodology, collected and analyzed the data, and drafted the manuscript. The author acknowledges mentorship and supervision from Dr. Anahita Ali. The author read and approved the final manuscript.

Acknowledgements: The author thanks Dr. Anahita Ali for mentorship, the James Lind Institute for academic support, the participating health facilities, the enumerators who collected data, and all participants who generously shared their time and experiences.

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