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Integrating Disability Audits into Health Systems: Evidence on Barriers to Accessible Health Services lymphatic filariasis care in Ghana

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Abstract

Introduction: Health systems in low- and middle-income countries (LMICs) are often unable to adequately address the needs of persons with disabilities (PWDs). One key challenge is the limited accessibility of healthcare facilities for persons with disabilities seeking care including those affected by lymphatic filariasis. As part of efforts to improve access to healthcare services for persons affected with lymphatic filariasis in Ghana, an accessibility audit checklist was piloted in selected health facilities across the country.

Methods: A cross-sectional accessibility audit was conducted across 15 health facilities (HFs) in Ghana, using an eight-domain questionnaire disability audit checklist developed by Sightsavers. Data collection was done through on-site visits to the health facilities and face- to -face interviews with the management of the facilities visited. The data were examined using descriptive statistics.

Results: The Sightsavers Accessibility Audit Checklist consists of 171 items. Out of 15 health facilities, Seven (46.7%) had moderate (score = 51–75%) and 8 (53.3%) had low accessibility (score = 26–50%). Most HFs (80.0%) were easy to find, many HFs (42.9%) had accessible circulation pathway ramps and doors, however, only two (13.3%) had accessible toilets, one (6.7%) had an accessible shower, and none had lifts or wheelchair platform stairlifts or accessible parking bays.

Conclusion: Disability-inclusive accessibility standards remain largely unmet across primary healthcare facilities assessed in Ghana. Achieving universal health coverage (UHC) requires the institutionalization of disability-inclusive facility standards, supported by robust audit-driven accountability mechanisms. These considerations should be integrated into the planning, design, and renovation of health facilities in LMICs to ensure equitable access to healthcare for persons with disabilities.

Introduction

Globally, approximately 1.3 billion people, or 16% of the population, live with some form of disability (WHO, 2023). People with disabilities often have greater health needs but experience persistent inequities in accessing care (Pinto et al., 2021., WHO, 2022). These inequities emerge from interactions with multiple environmental and systemic barriers, including inaccessible health facilities, poor communication and discriminatory community attitudes Ahmad Zawawi, et al., 2024; CDC, 2025). In low- and middle-income countries (LMICs), these accessibility barriers are exacerbated by significant weaknesses of the general health systems, including scarce financial resources, lack of infrastructure and assistive devices (Hashemi et al, 2020; Tesfaye et al, 2021; Azizatunnisa, Kuper & Bank 2024). A growing body of evidence highlights that physical, communication and attitudinal inaccessibility within health facilities constitutes a critical yet underestimated determinant of inequitable care, which requires urgent attention (Al Shami and Nashwan, 2025; Chimienti et al, 2026).

Lymphatic filariasis (LF), also known as elephantiasis, is a neglected tropical disease caused by parasitic worms transmitted by mosquitoes (WHO, 2024). It is the second leading cause of permanent disability in

the world (Zeldenryk et al., 2011). The disease can be asymptomatic for many years and over time, damage kidneys and lymphatic system leading to extreme swelling of the arms, legs, or breasts (lymphoedema), hardened, cobblestone-like skin (elephantiasis), and swelling of the scrotal sac in men (hydrocele) (WHO, 2024). The affected areas become highly susceptible to bacterial skin infections, causing periodic, painful inflammatory episodes (Goldin & Juergens, 2025). Currently 39 countries in South-East Asia, Africa, the Western Pacific, and parts of the Americas are endemic for LF with over 36 million people suffering from its chronic manifestations (WHO, 2024; Jabir &Rahi 2025). The World Health Organization (WHO)'s LF elimination strategy has two components: preventive chemotherapy to stop the spread of the infection; and morbidity management and disability prevention (MMDP) to alleviate suffering of those affected by the disease. At advanced stages, LF can cause substantial functional limitations and long-term disability among affected individuals; therefore, the WHO recommends that MMDP services be integrated into routine health services and primary health-care systems to ensure that affected persons in endemic communities have access to appropriate care and support. (WHO, 2013; WHO, 2021).

Ghana, a middle-income country in West Africa, has made a significant progress towards LF elimination and the disease is still endemic in some areas of the country (Minetti et al; 2019; Ahorlu et al, 2023). Recognizing the intersection between LF and disability, LF programmes in these endemic communities have increasingly committed to integration of disability inclusion in morbidity management strategies. However, limited evidence exists regarding the extent to which health facilities providing these services are accessible and disability inclusive.

This paper reports results of disability accessibility assessments conducted in primary and secondary facilities of Ghana as part of the LF MMDP programme implemented by Ghana Health Service in collaboration with international non-governmental organisation (iNGO) Sightsavers and the University of Health and Allied Sciences (UHAS), Ghana, with the funding from UK Foreign, Commonwealth and Development Office (FCDO). Disability accessibility audits were conducted with the aim to identify facility-level barriers in accessibility and develop strategies for ensuring that health services are patient-centred, equitable and responsive (United Nations, 2006). The findings are expected to provide evidence for improvements in facility infrastructure, reorientation of clinical and management guidelines. The evidence also contributes to the growing body of regional and global knowledge of disability inclusive health systems and strategies for more inclusive and equitable healthcare services.

Methodology

Study Design

A cross-sectional accessibility audit was conducted in fifteen primary healthcare facilities across eight regions of Ghana. Data were collected using Sightsavers Accessibility Standards and Audit toolkit which includes a list of questions on different aspects of facility infrastructure based on observations and a survey or interviews with the facility personnel (Sightsavers, 2021 and Appendix 1). In this study, the

disability accessibility audit was embedded within lymphatic filariasis morbidity management assessments aimed at assessing capacity of local services to provide LF care and manage patients with lymphedema and hydrocele.

Settings and sampling

The LF assessment was targeted in 26 districts across eight LF-endemic regions of Ghana, where 38 health facilities were first selected for lymphoedema assessments by a combination of purposive (for secondary/tertiary facilities) and random (for primary facilities) sampling. Out of these,15 health facilities were selected for disability accessibility audits and the decision was guided by the resources available to the study. Data was collected by facility observations and short structured surveys with health facility managers/ health workers.

Disability Accessibility Assessment toolkit

Disability Accessibility Standards and Audit Pack is a toolkit developed by Sightsavers and applied previously in multiple settings (Sightsavers, 2021 and appendix 1). The toolkit includes a checklist comprising 171 questions about physical accessibility covering eight domains and 22 sub-domains (Table 1). The questions are based on the minimum accessibility standards outlined in the accompanying guidelines and the response to each question is binary, yes or no with additional space to provide narrative comments and observations. The team doing the assessment usually includes persons with different types of impairments often recruited through a local organisation of persons with disabilities (OPD). In the final report for each domain, the team provides a list of recommendations for accessibility improvements. The team also agrees on the overall score for the facility corresponding to four accessibility levels (Table 2).

Table 1
Domains of the accessibility audit checklist

Domains	**Questions**
Access to the health facility	8 items
Entrance, reception, and waiting area	28 items
Rooms and hall accessibility	13 items
Circulation paths and internal wayfinding	16 items
General toilets	18 items
Accessible toilets	34 items
Accessible showers	31 items
Lifts and wheelchair platform stairlifts	23 items

Data collection

To conduct the accessibility assessment, a team comprising seven members was engaged. In this study the team included both researchers and persons with physical and sensory disabilities, recruited through local OPDs. Data were collected through on-site visits of all 15 health facilities using the questions on the Accessibility audit checklist and following procedures outlined in the Accessibility toolkit Protocol (Sightsavers, 2021) (see Appendix 1).

Before the assessments, both researchers and persons with disabilities received a comprehensive training conducted over four days, which included practical sessions. At the start of each accessibility assessment, the team met with the relevant facility managers, provided a summary of the assessment process, and obtained authorisation to proceed. Facility representatives were invited to accompany the assessment team, guide them around the facility, and provide relevant information where necessary. The assessment team also sought consent and permission from the relevant facility manager or authority to photograph any elements that did not meet accessibility standards. Data collection was conducted using mobile devices with the accessibility checklist programmed using CommCare mobile application (Sightsavers 2021) and the duration for which data were collected was October and November 2025.

Data Analysis

All data was downloaded from Commcare into Microsoft Excel and analysed using Excel and Stata version 19.5 (www.stata.com). Descriptive statistics (mean, median and range) were used to examine the characteristics of all health facilities assessed. Accessibility scores were calculated, initially at the domain level, as the total number of positive responses to applicable questions in a given domain. The percentage of positive responses for each domain was also calculated. For the rooms and halls and the general toilets domains, accessibility scores were calculated for each individual room and toilet and then averaged to generate a score for each health facility. The domain scores were then totalled across all domains to generate an overall score, and then categorised into minimal, low, moderate, and good accessibility levels as described in the accessibility audit checklist (Table 2, Sightsavers, 2021). Differences in accessibility scores by geographical area, location, and type of facility were examined using Mann–Whitney U and Kruskal–Wallis tests.

Table 2
Accessibility assessment scores and ratings

Scores	Accessibility level	Infrastructural needs
76–100	Good accessibility	low need for adjustments
51–75	Moderate accessibility	moderate need for adjustments
26–50	Low accessibility	strong need for adjustments
0–25	Minimal accessibility	high need for adjustment

Results

Distribution of health facilities assessed

Disability audits were conducted in fifteen (15) health facilities, ten were in the northern Ghana: five health facilities were in Northern region, three in Bono and two in the Savanna region, while a further five facilities were in the southern area of the country, in the Greater Accra region. Many health facilities (n = 11, 73.3%) were in urban locations, six facilities were primary and included three community-based health planning services (CHPSs), which are small-scale, community-based units focused on primary prevention and basic care. Three health centres which are larger sub-district facilities ge of clinical, diagnostic, and maternity services. Eight facilities were secondary district level hospitals, and one facility was tertiary regional hospital.

Health facility accessibility levels

Table 3 shows the distribution of the scores by the location and type of facility. The overall mean accessibility score of the assessed facilities was 47.0 (median = 48.2; range = 30.2–62.2). Mean scores were slightly higher in the south of Ghana compared to the north (mean = 53.4 vs 43.8) and in urban compared to rural locations (mean = 48.9 vs 41.7). The mean scores were similar between primary and secondary HFs (46.1 vs 49.1 respectively). Scores were also similar between health centres and district hospitals (54.0 vs 49.1 respectively) but were slightly lower in CHPS and regional hospitals (38.2 vs 35.8 respectively). However, none of these differences attained statistical significance.

Table 3
Accessibility scores by health facility characteristics

HF characteristic		Accessibility score (%)			
		N	Mean	Median	Range
Overall		15	47.0	48.2	30.2–62.2
Area	North	10	43.8	41.7	30.2–62.2
	South	5	53.4	57.5	39.0–61.6
Location	Urban	11	48.9	52.9	30.2–62.2
	Rural	4	41.7	41.8	31.0–52.1
Level	Primary	6	46.1	46.4	31.0–61.6
	Secondary	8	49.1	55.2	30.2–62.2
	Tertiary	1	35.8	35.8	35.8–35.8
Type	CHPS	3	38.2	39.0	31.0–44.6
	Health center	3	54.0	52.1	48.2–61.6
	District hospital	8	49.1	55.2	30.2–62.2
	Regional hospital	1	35.8	35.8	35.8–35.8

There were no HFs with an overall accessibility score over 75% and so none could be classified as having good accessibility. Seven HFs (46.7%) scored between 51% and 75% and could be classified as having moderate accessibility. Eight HFs (53.3%) were rated as having low accessibility (accessibility score 26–50%). No HFs were classified as having minimal accessibility (score 0–25%) (Table 4 and Fig. 1).

Table 4
Overall rating of Accessibility level of health facilities sampled

Scores	Accessibility level	Number of health facilities
76–100	Good accessibility	0
51–75	Moderate accessibility	7
26–50	Low accessibility	8
0–25	Minimal accessibility	0

Domains of structural/physical accessibility

The proportion of health facilities that met specific accessibility domains are shown in Table 5. Rooms and halls had the highest levels of accessibility (mean score = 61.9%), followed by circulation path accessibility, entrance, reception & waiting area accessibility, general toilet accessibility, and access to the HF (mean score = 52.9%, 48.2%, 43.0% & 41.9% respectively). Only two HFs had an accessible toilet, only one HF had an accessible shower, and none had lifts or wheelchair platform stairlifts.

Table 5
Individual domain accessibility scores

Individual domains	**Accessibility score (%)**			
	N	**Mean**	**Median**	**Range**
Access to the HF	15	41.9	28.6	0–85.7
Entrance, reception, and waiting area	15	48.2	45.5	32.1–64.0
Room and hall accessibility	15	61.9	61.5	48.1–87.7
Circulation paths and internal wayfinding	14[a]	52.9	56.9	0–80.0
General toilets	15	43.0	41.7	25.0–61.1
Accessible toilets	15[b]	6.9	0	0–55.9
Accessible showers	15[c]	3.7	0	0–54.8
Lifts and wheelchair platform stairlifts	11[d]	0	0	0

[a]Only fourteen HFs had circulation paths.

[b]Only two HFs had accessible toilets.

[c]Only one HF had an accessible shower.

[d]Of the 15 HFs, four were single storey buildings. Of the remaining 11 HFs, none had lifts and/or wheelchair platform stairlifts.

Facilities that met important key individual criteria are shown in Table 6. Most facilities (80.0%) were found to be easy to identify, while less than half (42.9%) had directional signs internally, and of those, around half met the standards. Just under half (46.2%) had ramps that met the standards, while just over one third (35.7%) had paths that were clear of obstacles. Around half of health facilities had internal doors that met the standards.No health facilities had parking bays that met the standards.

Table 6
Proportion of HFs with key individual accessibility criteria

Individual accessibility criteria	n / N (%)
Wayfinding: identify HF easily	12 / 15 (80.0)
Parking bays meet standards	0 / 15 (0.0)
Circulation path directional signs	6 / 14 (42.9)*
Circulation path signage meets standards	3 / 6 (50.0)*
Circulation path ramps meet standards	6 / 13 (46.2)*
Circulation path clear of obstacles	5 / 14 (35.7)*
Circulation path doors meet standards	6 / 12 (50.0)*

Discussion

The findings of this accessibility audit highlight the value of health facility assessments in identifying environmental gaps that may limit access to healthcare for persons with disabilities.

Our study found that 7 of the 15 facilities included in the audit were rated as having moderate levels of accessibility, indicating substantial gaps in disability inclusion and quality of care (Gréaux et al., 2023). This suggests that many persons with disabilities may face significant challenges, when accessing essential health services leading to increased health risks and decreased quality of life (Oliver, 1986; Oliver & Barnes 2010; Gréaux et al., 2023; Garg et al., 2024). Accessibility barriers have been documented in other countries and have been associated with inequitable access to healthcare, (WHO & World Bank, 2011; WHO, 2022). Some studies have shown that inaccessible health facilities may reduce service utilization and worsen health outcomes (Bright & Kuper, 2018; Krahn et al., 2015), although direct comparison of utilisation of healthcare by people with and without disabilities is difficult due to increased needs of care associated with certain impairments and older age (Bright& Kuper, 2018).

Although most of the health facilities assessed in our study were in urban areas, this did not translate into better accessibility scores showing little difference between urban and rural facilities. This finding contrasts with the report by Atnafu et al. (2026) from Ethiopia, who found that while the overall accessibility of primary healthcare facilities was low, urban facilities were significantly more accessible across all core dimensions than rural facilities. The discrepancy between the two studies may reflect contextual differences in health system organisation or variations in the assessment criteria used.

The number of studies reporting accessibility of healthcare facilities remains limited. In a systematic review published by Bright and Kuper in 2018, only three included studies explored aspects of quality of services, including accessibility (Bright & Kuper 2018). In more recent years a few more accessibility assessments and toolkits were published (Nischith et al., 2018; Pinto et al., 2021; Torsha et al., 2022; Campillay-Campillay et al., 2022) or reported in the grey literature (Hanass-Hancock et al., 2023). The

direct comparison between the results produced by these assessments is difficult due to the differences in the number of questions and domains assessed, sample sizes and contexts. In addition, in contrast to the tool used in our study, which focuses primarily on universal design and physical accessibility, other tools included additional domains, including information and communication, attitudes and pathways for referral. Despite these methodological variations, some shared learnings can be drawn. Most studies show overall low levels of accessibility with higher scores around facility entrances, waiting rooms or obstacles in corridors. Toilet accessibility has been rated consistently low in some settings (Nischith et al., 2018, Pinto et al., 2021; Torsha et al., 2022 Mactaggart et al; Atnafu et al., 2026, highlighting a significant structural neglect in sanitation design. Parking facilities were rated higher in the audit in India (Nischith et al., 2018) compared to our study, but this may reflect differences in the Asia and Africa contexts.

Furthermore, while the number of audits identifying barriers to accessing healthcare services is increasing, reports on how this information is being used, how facility management makes decisions about which environmental adjustments should be prioritised, and the impact of such interventions on either uptake of or satisfaction with services, are almost non-existent. This is a significant gap that limits advocacy for further assessments. In this study, we used a tool with 171 indicators. Healthcare facilities in a low- or lower-middle-income country such as Ghana, with annual healthcare expenditure per capita of US$70 in nominal terms and $234 after accounting for purchasing power parity, cannot address all barriers or gaps at once. An important feature of disability accessibility audits in most countries is that they are conducted by persons with direct lived experience of disability. It would be extremely useful if future research focused on systematic analysis of post-audit interactions between facility managers and assessors or their representative OPDs. The involvement of persons with disabilities in prioritising interventions will be critical, and a better understanding of how these priorities are made and negotiated will be of critical importance to both researchers and decision-makers. This is particularly important in contexts with scarce financial resources and limited healthcare infrastructure, where many barriers for persons with disabilities lie outside health facility spaces and include user fees, inaccessible transport and high medicine costs. Decisions about investment priorities are always difficult in such contexts, and it is important that these decisions are made with those directly affected by the policy choices (Thomas et al., 1990). Furthermore, retrofitting structural adjustments can be very costly; it is therefore important that universal design is embedded in the planning of new healthcare facilities and services from the start (Steinfeld and Maisel, 2012).

Finally, regarding the tool itself, the accessibility checklist used in this study proved to be feasible, acceptable and inclusive, whether used as a standalone tool or alongside other tools, such as lymphoedema or hydrocele facility assessments. However, there are some limitations which need to be considered when interpreting the results. The present study included only 15 health facilities, and the results may therefore not be representative of all facilities in Ghana. In addition to the tool's universal design and physical accessibility domains, it needs to include other aspects of care that may create barriers for persons with disabilities, such as communication, social attitudes and referral uptake pathways (Mactaggart et al., 2024). To do this, the tool may require reconsideration of the number of

questions used to assess physical accessibility. The current version, with nearly 200 questions, may be too long, particularly if additional domains are added or if the accessibility assessment is integrated with other clinical assessments. The work by Mactaggart et al. (2024) may offer a useful compromise. Their tool, piloted in Uganda, was developed based on previously available tools and includes 71 indicators across 12 sub-domains, including reasonable accommodation, communication practices, staff capacity and linkages to rehabilitation services. Furthermore, this audit did not interview patients with disabilities, and hence did not capture the perspective of the service user. It is also important that disability researchers and practitioners conducting accessibility audits use the same or comparable tools, so that learning can be drawn from multiple contexts and inform the broader disability movement.

Conclusion

Disability-inclusive health systems cannot be achieved without transforming the environments in which care is delivered. This study demonstrates that disability audits offer a practical and scalable mechanism for identifying and addressing facility-level barriers. To advance health equity and quality of care, policymakers must prioritize accessibility as a core component of health system design, rather than an optional add-on.

Declarations

Ethical considerations

Ethical approval was obtained from the Ghana Health Service - Ethics and Review Committee (GHS-ERC) (reference number GHS-ERC: 029105/25). A research ethics approval was also obtained from the University of Health and Allied Sciences, Ghana (reference number UHAS-REC A.8 [9] 24-25). Authorisation to carry out research activities within health facilities was obtained from the regional and district health services. Prior to data collection, written informed consent was obtained from all participants following explanation of the study's purpose, procedures, voluntary nature, confidentiality provisions, and their right to decline any question or withdraw without consequence. This study does not involve humans/human data/the use of human samples.

Availability of data and materials

Available from the corresponding author on reasonable request.

Competing interests

The authors declare no competing interests. The funder had no role in designing the study and conducting the analysis.

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Author Contribution

RS, ES, AKM, ASO and OO conceptualized the study. The study framework was designed collaboratively by RS, ES ASO, OO, AKM, MI and SAK. GA, DA, AKM, MI, PED, SAK, OCT, and VUG organized data collection. AKM, OO, MI, VUG and PED supervised the data collection process. OO, VUG, PED, SRP, ASO, AC framed the data analysis template, while SRP carried out the analyses, OO and ARP prepared the tables and AC prepared the map. OO, ASO, ES, PED, SRP, and AKM wrote the initial manuscript draft, which RS, SAK, OCT, VUG, MI, GA and DA subsequently reviewed. All authors have read and approved the final version of the manuscript.

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Data Availability

Available from the corresponding author on reasonable request. Raw data from the research is unavailable with this submission because the data is currently being used for further analysis and will be publicly available when all the analyses and papers are published.

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Figures

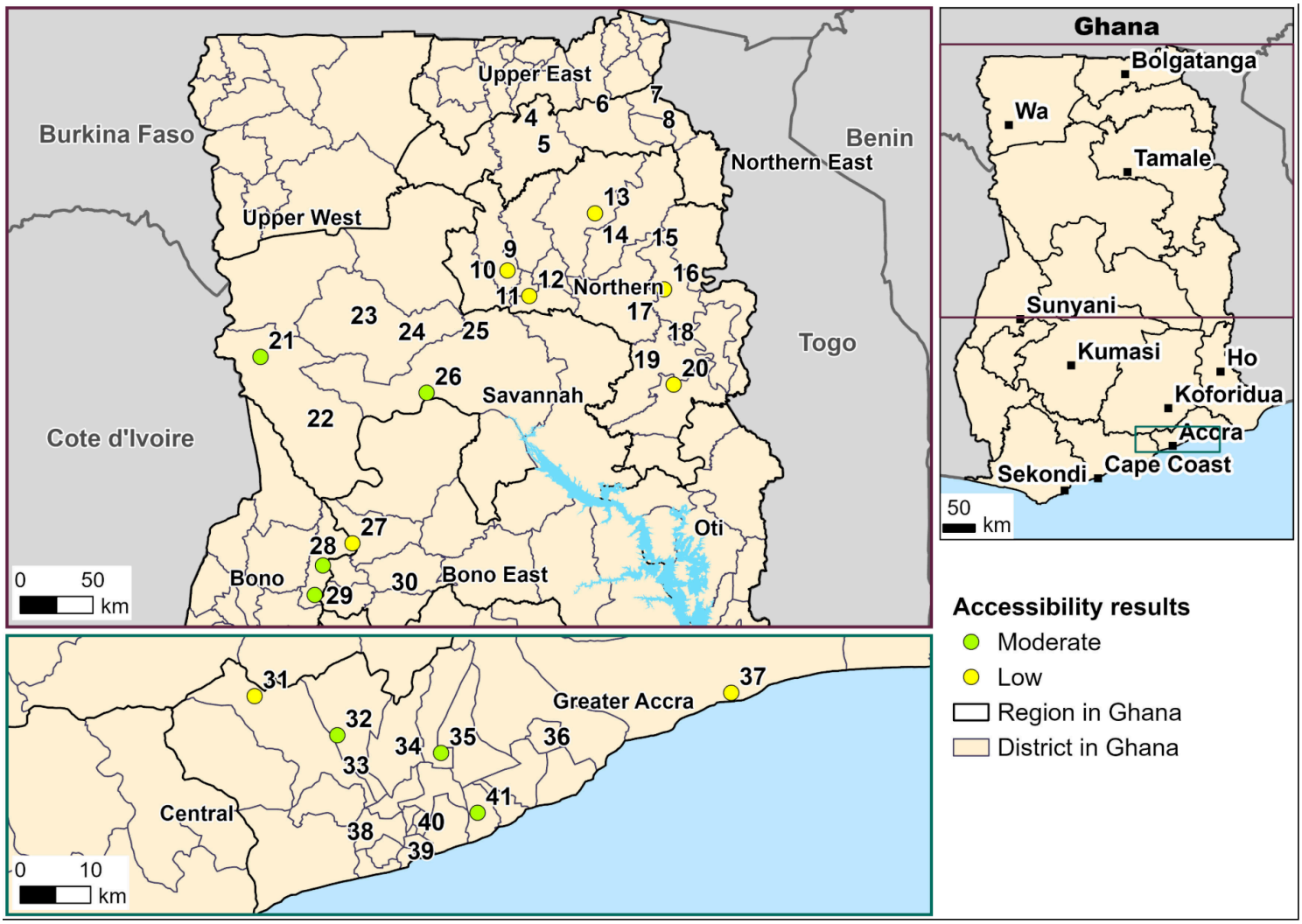


Figure 1

Map of health facilities by accessibility assessment level.

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