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Mobile Health Clinics across Africa: A Scoping Review Protocol

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ADMINISTRATIVE INFORMATION

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Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 26 February 2026 and was last updated on 26 February 2026.

INTRODUCTION

Review question / Objective This scoping review aims to systematically map and synthesize evidence on mobile clinic models delivering health care services to vulnerable populations across African countries, particularly in rural and remote settings. The review will examine key conceptual domains, including model characteristics, long-term sustainability, funding structures, governance arrangements, and scope of services. It will also synthesize reported outcomes and impacts, and identify barriers, facilitators, and implementation lessons documented in the literature.

Background Mobile clinics have been effectively deployed across numerous African countries to deliver essential health services, spanning emergency care, primary health care, and a range of specialized interventions(1). The African context presents distinct challenges for service delivery, including vast geographic distances; rural, remote, and off-road communities; difficult terrain; a high burden of communicable diseases such as HIV/AIDS; shortages of trained health personnel; and, in some regions, civil unrest and widespread poverty(2–6). Collectively, these factors highlight the need for a flexible and responsive service delivery model that is culturally attuned and capable of overcoming geo-economic and infrastructural barriers.

Mobile clinics, as a highly adaptable modality, represent a promising solution that has demonstrated feasibility, cost-effectiveness, and operational efficiency. For example, in crisis-affected areas such as Sudan, UNICEF has partnered with governmental bodies to deploy mobile clinics that provide maternal and child health services, including life-saving immunizations, malnutrition screening and treatment, and other women's health interventions(7). Comparable initiatives in Mozambique have similarly expanded access to primary and preventive services, as well as gender-based violence (GBV) interventions, thereby

helping to reduce disparities in health outcomes between urban and rural populations(8).
In Niger, a country where health care access remains a significant challenge, only 49% of residents live within 5 km of a health facility(9). These access barriers are further exacerbated by recurrent civil unrest and seasonal flooding(9). In response, researchers deployed three mobile clinics across five districts and observed high utilization of antenatal care services, demonstrating the potential of mobile units to address critical gaps in maternal health access(9).

The scope of services offered by mobile clinics varies according to the needs and priorities of local communities; however, service availability may also be constrained by limited resources. For example, in South Africa, mobile clinics have been used to deliver primary care services to rural populations, yet service users reported that the care provided was limited in scope(10). Additional concerns included insufficient privacy during consultations, restricted availability of essential medications, and challenges related to the management and continuity of health records(10).
Mobile health services have also been utilized to expand access to women's health care across multiple African contexts. In Somalia, mobile clinics have delivered intrapartum, postnatal, and women's primary health services, including community education and advocacy on sensitive issues such as female genital mutilation (FGM)(11). In other countries where governments have adopted proactive approaches to family planning, such as Egypt, mobile clinics have been deployed to rural, remote, and underserved communities to enhance access to essential women's health services and routine preventive care(12). These initiatives are often integrated with ultrasound screening, gynecological assessments, and antenatal care to ensure a comprehensive package of women's health services(12,13).
Another example of Mobile clinics being used a wide spectrum of women's health services comes from Namibia. For example, the BeFree Care clinics have supported access to women's health services such as antenatal care, cervical cancer screening, mental health support, and psychosocial care, particularly for women facing geographic or economic barriers(14). Other mobile initiatives, such as the Mister Sister mobile clinic, focus on access to medications and cancer prevention through cervical cancer screening (Pap smears)(15).
Across these examples, mobile clinic interventions were implemented either by government agencies in partnership with non-governmental organizations (NGOs) or directly by NGOs. This pattern reflects a deliberate emphasis on improving access to essential health services while mitigating financial and geographic barriers for marginalized populations.

Rationale Mobile clinics have been widely used across African countries to deliver essential health services in contexts characterized by vast geographic distances, rural and remote populations, shortages of trained health personnel, high burdens of communicable diseases, and, in some regions, civil unrest and poverty. These structural and geo-economic barriers necessitate flexible and culturally responsive service delivery models. Mobile clinics have demonstrated feasibility and operational adaptability in diverse settings, including crisis-affected regions where partnerships with organizations such as UNICEF have supported the delivery of maternal, newborn, and child health services. Similar initiatives across countries such as Mozambique, Niger, Somalia, Egypt, South Africa, and Namibia illustrate the capacity of mobile platforms to expand access to primary care, reproductive health, family planning, gender-based violence interventions, and cancer screening services, particularly for underserved and geographically isolated populations.
Despite their promise, substantial differences exist in the scope of services, governance arrangements, funding models, sustainability planning, and reported outcomes of mobile clinic initiatives. Challenges related to privacy, medication availability, continuity of care, and long-term operational viability have also been documented. Given this heterogeneity, a systematic mapping of the evidence is needed to develop a more comprehensive understanding of how mobile clinic models are designed, implemented, and sustained across African contexts, and to inform contextually appropriate adaptation in similar rural and remote settings.

METHODS

Strategy of data synthesis Databases: PubMed/MEDLINE, Scopus, Web of Science, African Journals Online (AJOL), Google Scholar, and grey literature sources (MoHSS, WHO, UNICEF, UNFPA, and non-governmental organization repositories.
Search terms: The search strategy will combine controlled vocabulary terms (such as MeSH in MEDLINE, where applicable) and free-text keywords related to mobile service delivery models, outreach care, and mobile health units, in combination with terms related to primary health care and women's, maternal, newborn, and child health. These will be paired with geographic terms representing Africa and African regions and

countries. Core concept blocks will include terms such as “mobile clinic,” “mobile health unit,” “outreach clinic,” “outreach services,” and “mobile health services,” combined using Boolean operators with terms such as “primary health care,” “maternal health,” “women’s health,” “newborn,” “child health,” “reproductive health,” “antenatal care,” “postnatal care,” “immunization,” and “chronic disease screening.” Geographic terms will include “Africa,” “North Africa,” “East Africa,” “West Africa,” “Southern Africa,” “Central Africa,” as well as the names of individual African countries, such as “Namibia.”

An example MEDLINE search strategy will include combinations of the following terms: (“mobile clinic*” OR “mobile health unit*” OR “outreach clinic*” OR “mobile service*” OR “outreach service*”) AND (“primary health care” OR “maternal health” OR “women’s health” OR “reproductive health” OR “newborn” OR “child health” OR “antenatal” OR “postnatal” OR “immunization” OR “chronic disease”) AND (“Africa” OR “African” OR the names of individual African countries). This strategy will be adapted iteratively for each database according to its indexing and search functionalities.

A draft search strategy will be piloted and refined before execution. The final search strategy will be reported in an appendix.

Eligibility criteria

Inclusion criteria: Publications and reports describing mobile or outreach models delivering integrated women, maternal, and child health care (e.g., antenatal and postnatal care, screening, health education, referral support, chronic disease detection) across Africa.

Exclusion criteria: studies focused solely on facility-based care without a community or outreach component.

Source of evidence screening and selection All identified records will be imported into Covidence (Veritas Health Innovation) for de-duplication and screening. Study selection will occur in two stages:

1. Title and abstract screening
2. Full-text review

At each stage, screening will be conducted independently by two reviewers using pre-defined eligibility criteria. Prior to formal screening, reviewers will complete a calibration exercise on a sample of studies to ensure consistent application of inclusion and exclusion criteria.

Discrepancies between reviewers will be resolved through discussion. If consensus cannot be reached, a third reviewer will adjudicate. Reasons for exclusion at the full-text stage will be documented and reported in the PRISMA-ScR flow diagram.

Data management Data from included sources will be extracted using a standardized, pilot-tested data charting form developed by the study team. Data charting will be performed independently by two reviewers, with discrepancies resolved by a third reviewer when consensus could not be reached.

The data charting form will capture the following variables:

- Citation details: author(s), year of publication, country/region
- Study characteristics: study design, methodology, objectives
- Population characteristics: e.g., population served, age group(s), residency status (if reported), and any other reported population characteristics.
- Contextual characteristics: which include geographic setting, environmental conditions, and health system context
- Mobile clinic characteristics: which may include type of mobile unit (e.g., van, boat, aircraft); service discipline (e.g., primary health, women’s health); services provided; scope of services (e.g., diagnostic, therapeutic); staffing model; frequency and duration of deployment; and Integration of telehealth or digital technologies
- Implementation factors: These may include facilitators, barriers, and community engagement approaches.
- Outcomes reported: We will gather data on all reported outcomes, including those related to Access to care, health or clinical outcomes, patient, provider, or community experiences, equity or cultural safety considerations, and health system or cost-related outcomes
- Key findings, author-reported recommendations, and any other data that may directly or indirectly answer the research questions and inform future research.

The data charting form may be refined iteratively as familiarity with the literature increases, consistent with scoping review methodology.

Reporting results / Analysis of the evidence Extracted data will be synthesized using descriptive numerical summaries and narrative synthesis. Quantitative data will be summarized using frequencies and counts to describe the distribution of study characteristics, geographic locations, populations served, and types of mobile clinic interventions.

Qualitative findings will be analyzed using a thematic synthesis approach, focusing on

implementation models, facilitators and barriers, and cultural safety considerations.

Results will be presented using tables summarizing study characteristics and mobile clinic models, geographic or contextual mapping of interventions, and narrative summaries organized by key thematic domains.

No formal assessment of methodological quality or risk of bias will be conducted, as this is not a requirement for scoping reviews(35).

Presentation of the results Results will be presented using tables summarizing study characteristics and mobile clinic models, geographic or contextual mapping of interventions, and narrative summaries organized by key thematic domains.
No formal assessment of methodological quality or risk of bias will be conducted, as this is not a requirement for scoping reviews(35). Findings from the scoping review will be disseminated through peer-reviewed academic publications and conference presentations to contribute to the broader scientific literature on mobile clinics and community-based service delivery models in low-resource and fragile settings.

Language restriction Language restrictions will not be imposed.

Country(ies) involved Canada.

Keywords Mobile clinics; Primary health care; Vulnerable populations; Rural and remote health; Africa.

Dissemination plans Findings from the scoping review and situational analysis will be disseminated through peer-reviewed academic publications and conference presentations to contribute to the broader scientific literature on mobile clinics and community-based service delivery models in low-resource and fragile settings.

Contributions of each author

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