

UDOM SUNDAY DANIEL,
WISDOM MATTHEW AKPAN,
ENO NNAMDIE EKPO

MOBILE CLINIC STRATEGIES AND HEALTHCARE DELIVERY FOR CHILDREN UNDER-5 IN RURAL COMMUNITIES OF AKWA IBOM STATE, NIGERIA

UDOM SUNDAY DANIEL

Department of Sociology & Anthropology
Akwa Ibom State University, Obio Akpa Campus
udomdaniel@aksu.edu.ng
08038750959

WISDOM MATTHEW AKPAN

Department of Sociology & Anthropology
Akwa Ibom State University, Obio Akpa Campus
wisdomakpan@aksu.edu.ng
08069799587

ENO NNAMDIE EKPO

Akwa Ibom State Universal Basic Education
enonnamidie76@gmail.com
07065330494

ABSTRACT

The demand, cost and implications of healthcare services in rural communities of Nigeria have ignited the preference of mobile clinic options as a strategy to close the health services gap and make available medical services to the reach of every rural dweller. Mobile clinics are intervention strategies as well as a viable option design to help the poor and children of under-5 population in rural areas access healthcare services. This study examined the effects of mobile clinic strategies on healthcare delivery for under-5 children in rural communities of Akwa Ibom State; identified the different areas of interventions of mobile clinics and challenges experienced by mobile clinic workers in service delivery, and also examined whether the interventions have bridged the gap of healthcare services in rural communities. The study concentrated in six rural communities of Ibiono, Ini and Okobo Local Government Areas, where 120 participants were purposively selected. The study employed a qualitative technique of data collection with the Focus Group Discussion and the key informant Interview as the main sources of data collection and the structural functionalism theory as the theoretical guide. The findings revealed that Mobile Clinic strategies are the appropriate healthcare intervention options based on its ability to integrate the rural communities to the state healthcare system and fill the gap experienced by the vulnerable rural poor. The study recommended a continued collaboration among the different tiers of governments, non-governmental agencies, healthcare organisations, religions and community leaders in the delivery of healthcare services to the under-5 in rural communities.

Keywords: *Mobile Clinic, Strategies, Interventions, Healthcare Delivery, Under-*

INTRODUCTION

Access to quality healthcare services is a fundamental right to all (Ben & Daniel, 2023; Offiong *et al.*, 2023; Ben *et al.*, 2018). According to the United Nations Documents on

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Sustainable Development Goals (SDGs), every individual is entitled to adequate and efficient medical services to ensure a healthy well-being for all irrespective of the age. Mobile Clinic advocates for universal health coverage with principal targets on the provision of access to safe and affordable medicine and vaccines for all as well as strengthening of the healthcare system. This target however stipulates that a mechanism should be put in place as an intervention to reduce the global burden of health challenge and to meet the SDGs targets come 2030. For instance, the reduction of infant and maternal mortality ratio to less than 70 per 100,000 live births and to prevent suffering from preventable diseases and premature deaths with less financial implications on the beneficiaries (United Nations General Assembly, 2015). Achieving this target implies strengthening the health care system with interventions such as the mobile clinics approach to help achieve the vision.

Mobile clinics emerged as an intervention strategy to help bridge the distant gap, cost challenge, deficit in literacy and personnel-patients relationships in the process of delivering health care services to the people particularly to the vulnerable population. In this study, medical services provision for children under-5 years in rural communities who are vulnerable to preventable diseases like malaria, cholera, polio, malnutrition, and inadequate health education for their caregivers and many others are of grave concern to attract and provoke the need for the implementation of mobile clinic intervention in Nigeria.

This research explored the utilisation of mobile clinics strategies in six (6) selected rural communities within Akwa Ibom State, with focus on healthcare services for children under-5, examining the effectiveness of mobile healthcare initiatives, highlighting their roles in healthcare coverage such as house to house immunisation of children, maternal healthcare services and distribution of insecticide treated nets for malaria prevention, provision of nutritional support for under-5, health education for mothers and infant health caregivers. WHO (2018) identifies key challenges faced in the process of implementing mobile clinic option to include poor funding, staffing, mobile accommodation, cultural resistance, language barrier, feedback time on service delivery and community support. Overcoming this challenges, WHO (2018) notes will bring healthcare services to the remote people as well as reduce the health burden experiences of the vulnerable, infant and maternal mortality and other forms of mortality, especially in the unreached (rural) communities.

Ultimately, mobile clinics are known to be instrumental in bridging healthcare gaps, supporting healthcare initiatives of the governments, promoting long term community health development plan in the rural areas, and enhancing social stability. Noteworthy is the fact that mobile clinics increases access to healthcare, mitigates hospital and equipment shortages, encourages periodical visits to remote rural communities by mobile health workers through the mobile clinic intervention options and reduces the burdens of poor health care delivery in healthcare drought communities.

STATEMENT OF THE PROBLEM

The health and well-being of children under five in rural communities of Akwa Ibom State, Nigeria, are compromised by a complex interplay of factors that hinder access to and utilisation of essential healthcare services. While mobile clinics have been proposed as a potential solution, their effectiveness and optimal implementation strategies remain critical areas of concern. Many rural communities in Akwa Ibom State are characterised by difficult terrain, poor road infrastructure, and long distances to the nearest healthcare

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facilities, factors that limit physical access to healthcare services, particularly for vulnerable populations like children under five who rely on their caregivers for transportation (Ben *et al.*, 2018).

Poverty is widespread, limiting families' ability to afford healthcare services, including transportation costs, consultation fees, and medications, and this economic barrier disproportionately affects children, as their health needs may be deprioritised in resource-constrained households. Rural areas often suffer from a lack of well-equipped and adequately staffed healthcare facilities, resulting in poor quality of care, long waiting times, and a limited range of available services for children under five.

Traditional beliefs, cultural practices, and low levels of health literacy can influence healthcare-seeking behavior, with many caregivers lacking awareness of the importance of preventive care, vaccinations, and early treatment for childhood illnesses. Children under five in Akwa Ibom State are disproportionately affected by preventable and treatable diseases such as malaria, pneumonia, diarrhea, and malnutrition, conditions that contribute significantly to child morbidity and mortality rates, particularly in rural areas with limited access to healthcare.

Systemic challenges within the healthcare system, including inadequate funding, poor supply chain management for essential medicines, and insufficient monitoring and evaluation mechanisms, hinder effective healthcare delivery. Furthermore, while mobile clinics can bridge the gap in healthcare access, their effectiveness is often limited by inadequate planning and coordination, lack of community involvement and ownership, insufficient resources and equipment, a shortage of trained healthcare personnel, irregular service delivery schedules, and limited integration with the existing health system. The consequences of this problem include increased morbidity and mortality rates among children under five, a higher prevalence of malnutrition and developmental delays, reduced school enrollment and educational attainment, the perpetuation of poverty and socioeconomic disparities, and a strain on the overall healthcare system. Therefore, this study examined mobile clinics strategies and healthcare delivery for children under-5 in rural communities of Akwa Ibom State.

OBJECTIVES OF THE STUDY

Principally, this study examined mobile clinics strategies and healthcare delivery for children under-5 in rural communities of Akwa Ibom State. The specific objectives were to identify:

- (i) The different areas of interventions of mobile clinics;
- (ii) Whether the interventions have bridged the gap of healthcare services in the rural communities,
- (iii) The challenges of achieving the objectives of mobile clinic strategies and objectives in rural communities and stating ways of curbing the excesses.

LITERATURE REVIEW

The introduction of mobile clinics as an intervention for prompt health care delivery strategy was introduced among other interventions especially to the unreachable, remote and conflicts victims, in a mobile or temporary unit setting that alleviates the cost and other burdens of utilising medical services at established hospitals and health centres. Mobile clinics involved a portable mobile unit equipped with medical equipment and staffed with

healthcare professionals (Centers for Disease Control and Prevention, 2022) who attains to the medical needs of a community within a specified period of time. According to WHO (2018), Mobile Clinic strategy is a self-contained, portable health care facility that brings medical services directly to patients in their communities and reduces the barriers to access healthcare services as well as increases equity in the healthcare sector.

Kumar and Singh (2019), posits that mobile clinics offers a variety of healthcare services, including immunisation of the under-5 children against measles and polio, maternal immunisation, healthcare education on safe sex, family planning, distribution of insecticide treated nets against malaria transmission and nutritional support for the vulnerable as the principal targets and beneficiaries. The authors further noted that under-5 children in rural communities are the most provided for in mobile clinic services with the targets of reducing infant mortality ratio to less than 70 per 100,000 before 2030.

Mobile clinics have become significant within healthcare and child development context. The initiative involves taking healthcare services to the remote communities where access to healthcare facilities is limited by social distances, cultural perception, economic setbacks and other social barriers (Daniel & Udousoro, 2024; Willie *et al.*, 2024). Mobile clinics are initiated by government health ministries, Non-governmental Organisations (NGOs), religious organisations, educational bodies, private health bodies, National Youth Service Corps (NYSC), who through their different approaches absorbed heightened vulnerability to health risks and developmental delays (United Nations Children's Fund, 2022), that had hindered the beneficiaries' physical, cognitive and emotional health and growth. Mobile clinics are a flexible and viable option for providing health services to children in rural communities and other vulnerable populations. The concept of mobile clinic is a healthcare intervention programme aimed at improving health outcomes for the infants as well as a primary source of healthcare services for people who are isolated or displaced.

According to Daniel and Udousoro (2024) and Udom and Victor (2024), access to quality healthcare services is of utmost importance thus the need to avail options to reach the poor and therefore reduce the burden of health hazards. Many regions according to the authors are faced with diverse challenges affecting adequate medical services due to socio-religious and geographical constraints and health limited facilities. Eze *et al.* (2022), mobile clinics have emerged as an option to bring healthcare directly to communities in need. However, the versatile units provide a multitude of different uses across the healthcare sector. Opondo and Muli (2019) have identified increase in use for areas such as mobile outreach clinics, ambulance, handover stations, and mobile operating theatres. Opondo and Muli (2019) opine that mobile clinic vehicles excel as out-reach extending health care services to marginalised communities, underserved populations, and areas with limited healthcare facilities.

MOBILE CLINIC AND UNDER-5 HEALTHCARE SERVICES

Mobile clinics play essential health care services that manifest in the improvement of health outcomes of under-5 children. Its emergence has addressed different challenges

among women of child bearing age in their decision on family planning (Daniel & Udousoro, 2024) and in attending to the health challenges of their children especially in rural communities limited by socio-economic and cultural factors. This intervention has been particularly helpful in enhancing the health outcomes of under-5 children especially in communities that do not have direct and regular healthcare facilities that attend to their healthcare demands.

According to Ibekwe *et al.* (2022), mobile clinic is particularly important for children living in rural or remote areas, where getting to a clinic or hospital can be difficult. It enhances accessibility, improves delivery, and promotes community engagements, all of which contribute to better health outcomes for under-5 children and other health beneficiaries. Studies by Ben and Daniel (2023) noted that reducing the burden and challenges of malaria transmission among children in the rural areas demands intervention units to help reach the unreached in their destinations. These services also include distribution of insecticide treated malaria net to the under-5 children, pregnant women, vaccination and immunisation of children against polio, measles and other preventable diseases that may cause infant mortality. These gaps, according to Okwor *et al.* (2020), are filled by mobile clinics.

As earlier stated, mobile clinic is an intervention project that is targeted at addressing the effects of inadequate personnel in established hospitals occasioned by social-relations and distance, where the patient(s) cannot have access to quality healthcare services as a result of cost and other barriers like destinations and distance. It is important to note that mobile clinic is best utilised in rural communities, satellite towns and refugee camps among others, where the family status affects the quality of healthcare services accessed by pregnant women, the elderly and the infants (Willie *et al.*, 2024) as well as other health beneficiaries. It should be noted further that interventions by mobile clinics have reduced the rate of infant mortality, polio and cataracts.

Experience in the rural areas of Nigeria as regards healthcare demands indicates that the United Nations targets of achieving good health for all especially the under-5 children in the year 2030 may remain frail as the achievement of this goal is been affected by imbalance social treatment manifested in inequality as observed in the income index, education, challenges of cultural perception and health care delivery (Daniel & Ben, 2024). These authors revealed that mobile clinic utilisation can address the factors that hinders health outcome of rural dwellers in Nigeria. WHO (2022) notes that breaking the health barriers to achieve the Sustainable Development Goals target on health requires government, religious organisations and NGOs as well as corporate investment in mobile health services to reach the unreached and improve health services delivery so as to promotes prompt community-based participation for a better health outcome for under-5 children.

TYPES OF MOBILE CLINIC

There are many types of mobile clinics including primary care clinics, mobile medical trailers/ambulance, mobile disaster emergency clinics, mobile health unit which may be situated in religious organisations, palaces and personal buildings.

- i. **Mobile Medical Trailer:** A mobile clinic trailer is a platform that can be based on a truck or trailer that is used in providing a variety of medical services to the people. It is best used in remote areas and emergency camps to quickly offer screening and examination services, to promote healthcare and outreach programmes. Also, government healthcare departments use mobile medical trailers to help people in areas with few healthcare options to access healthcare services. Mobile Medical trailer could also be used for health check-ups and immunisation and as a health post for the treatment of under-5 children.
- ii. **Mobile Disaster Clinic:** A mobile disaster clinic is a kind of mobile clinic that can provide medical services to areas affected by disaster or accidents. It is a fully-equipped medical facility which provides emergency healthcare services to people in remote areas or during time of crises. They are often used in humanitarian settings to reach people who are isolated or have no other access to healthcare services and special healthcare services to children in disaster areas to optimise their health outcomes.
- iii. **Mobile Health Unit:** This is a health unit that provides medical services similar to a brick-and-mortar clinic. They are often used to provide healthcare services to the underserved areas. Mobile healthcare unit makes it easier for the under-5 children, maternal women and others to access medical care especially in the rural areas. The mobile health unit could have their meeting point in religious centres, village halls, palaces of the village heads and homes of other community leaders to give health care services to community members and neighbourhood. However, they provide free and subsidised medical services. They could stay in a particular community for a period of two weeks to one month before moving to another community.
- iv. **House-to-House Mobile Clinic Strategy:** This is a mobile clinic strategy that moves from people houses to provide medical services in the form of immunisation, and malaria treatment for infants under-5, maternal health services, distribution of insecticide treated nets and other health services to the unreached. World Health Organisation and its many partners regularly deploy this option to reach people cut off from access to health services.

SOME BENEFITS OF MOBILE CLINICS

- i. **Mobile Clinic improves access to healthcare delivery:** By reaching communities in remote or disadvantaged areas, mobile clinics help to reduce if not completely

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remove geographical boundaries and bring essential healthcare services to remote areas. Their regular visits enhance continuous care and monitoring, resulting in improved health outcomes especially for the under-5 children.

ii. **Mobile Clinics also provide preventive care and health education for the people.**

They are valuable in delivering preventive care like insecticide treated nets to prevent malaria transmission, vaccinations against polio, measles, cholera and maternal and other health education programmes to unserved population. However, by focusing on health education and the prevention of disease promotion intervention, mobileclinics contribute to reducing the burden of preventable diseases as well as improving community health status.

iii. **Mobile Clinics provide culturally sensitive care to the people.**

It is important to note that mobile clinics foster culturally sensitive care by tailoring their services to the specific needs and preferences of the community. The care providers immerse themselves in the community, gaining insights into their unique health setbacks and burdens providing professional care to the people.

iv. **Mobile Clinics provide an enhanced community integration**

by creating a visible presence and accessible point of contact for healthcare services. The intervention enhances the trust between healthcare providers and the community leading to improved health-seeking behaviour and outcomes for the beneficiaries and as well as provides social welfare services like nutritional interventions for the people (Udo *et al.*, 2021).

v. **Mobile Clinics provide cost effective medical care to the people since they do not charge building and operational expenses.**

Mobile clinics also ensure that all the people have increased access to medical care by going to the patient's community for the unreached, homeless, elderly, under-5 children and disable populations as well as offering health education through seminar, workshops and information on disease prevention/control and healthy lifestyle for people with limited access to healthcare facilities.

THEORETICAL FRAMEWORK

The structural functionalism theory is adopted as the theoretical base of this study. The structural functionalism theory views the society as a system of interrelated or interconnected parts that works together to maintain social cohesion, functionality and stability. Talcott Parsons (1951), in applying this theory noted that structural functionalism theory could best be used to explain the effectiveness of broader social institutions including the health institutions and care offered to beneficiaries.

The structural functionalism theory is apt in this study since mobile clinics are vital social medical units that play an important role in maintaining the overall well-being

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of the population and in this context the population has to do with the under-5 children in rural communities. The structural functionalism views mobile clinic as a means through which the community is integrated for better health outcomes. To this end, mobile clinic ensures that even underserved communities benefit from health programmes and this gesture contributes to their social stability by reducing child mortality and improving health standards and outcome for the under-5 children.

Structural functionalism theory explains that the utilisation of mobile clinics enhances access to medical care especially for children of under-5 in remote communities which naturally may not have been reached because of geographical, economic and cultural barriers experienced in most rural areas but with mobile clinics, these challenges were overcome. Mobile clinic is an interrelated unit in the health sector that makes healthcare services available to the poor and unreached communities thus reducing inequality in health care services, improving child health, leading to a more stable families as well as communities which are crucial components of a stable society. The theory further explains that mobile clinics utilisation especially when focused on under-5 health care helps to sustain the family structure, enhances a stable demographic transition process as healthy children are central to the continued functioning of families and the communities at large. By providing immunisations, nutritional support, and treatment of children, mobile clinics protect the future generations by ensuring healthy life for the children which are vital for the long-term stability and functioning of the communities.

MATERIALS AND METHODS

The study employed a qualitative technique in the collection of data on Mobile Clinics Strategies and Healthcare Delivery for under 5 children in Rural Communities of Akwa Ibom State, Nigeria. The study was conducted in rural communities of three Local Government Areas each selected from the Akwa Ibom Northeast, Akwa Ibom Northwest and Akwa Ibom South. The three Local Government Areas purposively selected were: Ibiono Ibom (40), Ini (40) and Okobo (40). The six (6) rural communities were: Ikot Adaidem (20) and Ikot Usen (20) (Ibiono Ibom LGA), Usuk Ukwok (20) and Odorikpe (20) (Ini LGA), and Otieke Offi and Nung Udim Odobo (Okobo LGA).

Key informant interviews (KIIs) were selected through the Primary Health Development Centre (PHDC) and the study population were community leaders, caregivers and mobile clinical service providers in the three LGAs. Interviews were focused on the objectives of the study. First, it measures the effects of mobile clinics strategies on health outcome and whether actually the mobile clinics strategy has bridged the gap of health needs of the under-5 children, and identified the challenges of Mobile Clinics Strategies as well as how to enhance satisfaction through health care quality services.

Data on service coverage were drawn from the Primary Healthcare Centres located in the community, routine data records regarding mobile clinic services, and a household information on mobile clinics and service utilisation in the communities studied. Key informant interviews were completed with 18 health workers were drawn from 6 selected communities across the three local government areas. Forty-Two (42) Key

informant interviews (KIIs) (14 in each of the six communities) were held with community leaders (including women and religious leaders). The interview language used with the community leaders, caregivers, women and religious leaders was Ibibio while English Language was used with the health workers.

RESULTS AND DISCUSSION OF FINDINGS

(a) Community Leaders' views on Mobile Clinics

The findings indicate a positive perception of mobile clinic services in the area. In the interview and Focus Group Discussions conducted, findings from the respondents revealed that mobile clinics are important and needed in their communities because it makes it easier for people to access medical services, especially in areas with difficult terrain. According to the respondents, mobile health workers travel to remote areas and neighbourhoods where there are no hospitals, and communities affected by emergencies to provide healthcare. The respondents responded thus:

'We have a positive perception of mobile clinic services. The healthcare workers are committed to reaching communities with effective healthcare delivery. Their services have improved the health outcomes of our children and families'.

Another focus group responded thus: *'Mobile Clinic workers are committed to our children and women. They always attend to us and all other children and women from our neighbouring communities at no cost these relieve us of the burden of medical care'*. Still, another respondent said:

"Mobile clinic services help reduce the rate of infant and maternal mortality in our communities. They health workers distribute insecticide treated nets that help reduce malaria transmission, vaccines that reduce polio and measles and other preventive diseases among children in our communities. This is quite good and it reduces the cost of the services in health centres".

(b) On the different areas of interventions and types of Mobile Clinics:

The respondents responded thus;

"We know of the house-to-house strategies where the health workers visit our houses and provide medical services to us. There is also another one where they have a mobile post at religious organisations, palaces and village halls". This approach brings medical services to us, we are able to access it and are happy about it. They take time to give care to the health needs of our children and maternal needs of our women".

The findings also revealed that mobile clinic reduces inequality in healthcare distribution as every member of the community has the opportunity to access health services. Mobile Clinic also breaches the health services gap in the rural areas. Mobile clinic helps rural people to be able to access health facilities which would not have been possible for cost of distance and other cost of delivery. Mobile clinics provide free medical services especially for infants and women thus enhancing social equality in the medical sector, stability and stable demographic transition. This finding is supported by Ben and Daniel (2023) who noted that reducing the burden and challenges of malaria transmission

among children in the rural areas demands intervention units to help reach the unreached in their destinations

(c) On the challenges of mobile clinic strategies in Nigeria

The respondents responded thus; ‘Our main challenge of mobile clinic is the frequency of service provision, which is typically once in a quarter and in most cases come once in 6 months. This is seen as inadequate. Another respondent responded thus “*Mobile clinic is saving our women and children from diseases and equally reduces the rate of mortality, but we only have access to it once in 3 to 6 months. This is quite unfortunate; we want them to be coming more often*”.

The interview also revealed the problem of funding and resources, staff, logistics, data management and policy support and awareness. The health workers and community leaders noted that securing consistent funding for mobile clinical services can be very difficult leading to potential gaps in service delivery. The findings indicated that limited financial resources may restrict the availability of necessary medical supplies, staff, and equipment. The result is supported by Ben *et al.* (2018) who argued that the provision of healthcare for children under 5 in violent drift communities was affected by lack of resources and unavailability of mobile clinics. Maintaining accurate and comprehensive health records is another challenge of mobile clinics services, particularly in rural areas as effective data management is essential for follow-up and efficient healthcare services provisions and outcomes. Relating functionalism theory to these findings to underscore its relevance to the study implies that healthcare for children under 5 are necessary for the maintenance of the social structure.

CONCLUSION

Mobile clinics are flexible and viable option for providing healthcare services to children under-5 and for other vulnerable populations in rural areas. It is an intervention strategy of healthcare delivery for people who are isolated, displaced and unreached. The study revealed that mobile clinic strategies an appropriate healthcare intervention approach for healthcare delivery in rural communities of Akwa Ibom State, Nigeria. In the six studied rural communities, the findings revealed that mobile clinic is a vital healthcare strategy in enhancing healthcare services for children under-5. The study highlights the significant effects of mobile clinics in improving access to essential healthcare services including, distribution of insecticide treated nets, immunisation, maternal healthcare and family planning health education, nutritional support and early disease detection, and by reaching the underserved and remote population, mobile clinics addresses critical health inequalities and ensure that the vulnerable population receive care.

The study also demonstrated the effectiveness of the intervention in bridging the healthcare gap caused by geographical barriers, finances, or funding constraints, logistical issues, cultural perceptions, manpower and the need for community participation. The study adopted the structural functionalism theory which noted that mobile clinic will enhance prompt healthcare delivery to the people, integrate the mobile clinic strategy to the

main health sector and thus become beneficial for the long-term sustainability of the society.

RECOMMENDATIONS

- i. The study recommended a continued collaboration among governments, non-governmental agencies, healthcare organisations and local communities for continued successes and service delivery. This is essential to ensuring the adaptation of mobile clinics in meeting the health needs of under-5 children and others especially in remote communities. Having identified the importance of mobile clinics as a complementary health approach, the study recommends that for improved health outcomes for children, religious and communities, leaders should partner in sponsoring and ensuring a conducive environment for healthcare services to thrive. These efforts will help to strengthen the healthcare mobile initiative, breach the existing gap in the health sector, expanding service delivery network and sustained a stable demographic transition.
- ii. The study further recommended that mobile healthcare clinic should be integrated into the main healthcare system to complement the formal healthcare system rather than operate in isolation. This should include establishing formal unit at the mainstream of the ministry of health to supervise the activities of mobile clinics, have an in-training education unit to update mobile clinic staff, as well as a formal referral pathway through the Primary Healthcare Centres and other health facilities. Finally, the study also recommends a formal data collection system and documentation to monitor the health outcomes associated with mobile clinic services. This data will guide governments and other partners on policy decisions and improved programme implementation.

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