



Improving Antenatal Care Services Utilization in Ethiopia: An Evidence–Based Policy Brief

Yosef Gebreyohannes^{*}, Desalegn Ararso, Fasil Mengistu, Serebe Abay, Mamuye Hadis

Technology Transfer and Research Translation Directorate, Ethiopian Public Health Institute, Addis Ababa, Ethiopia

Email address:

yosephgy@gmail.com (Y. Gebreyohannes)

^{*}Corresponding author

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Abstract: The World Health Organization recommends a minimum of four antenatal care visits. However, global estimates indicate that only about half of all pregnant women receive this recommended amount of care. The objective of this evidence brief is to summarize the best available evidence describing the low levels of antenatal care service utilization in Ethiopia and to outline potential solutions to address the problem. The policy brief brings together global research evidence from systematic reviews and local evidence to inform deliberations about improving antenatal care service utilization in Ethiopia. Only 32% of Ethiopian women with live birth received at least four visits during the length of their pregnancy, which is below the global average (54%). The predominant underlying factors for the low coverage of antenatal care services include: socio-cultural and economic barriers, poor access to health services, and poor quality of antenatal care services. Potential policy options to address the need for improving antenatal care coverage and service utilization in Ethiopia include the following: (i) Behavioral Change Communication (BCC) might increase utilization of health services by pregnant mothers (ii) mobile health (mHealth) interventions probably increases the attendance of health care appointments (iii) Conditional Cash Transfer (CCT) programmes may increase antenatal care attendance since it increases health care seeking behavior.

Keywords: Antenatal Care, mHealth, Behavioral Change Communication, Conditional Cash Transfer, Ethiopia

1. Background

Antenatal care (ANC) provides a measure of access to the health system and improve the health outcomes for the mother and newborn [1]. The World Health Organization (WHO) recommends a minimum of four ANC visits. However, global estimates indicate that only about half of all pregnant women receive this recommended amount of care [2].

ANC often presents the first contact opportunity for a woman to connect with a formal health services. It is an entry point for integrated care, promoting healthy home practices, influencing health seeking behaviors such as breastfeeding, early postnatal care, and planning for optimal pregnancy spacing, and linking women with pregnancy complications to a referral system [3]. ANC is also an opportunity to promote the use of skilled attendance at birth. Women are more likely to give birth with a skilled attendant if they have had at least

one ANC visit [4].

ANC visits can also be used for treatment of hypertension to prevent eclampsia, micronutrient supplementation, HIV testing and medications to prevent mother-to-child transmission of HIV in cases of HIV-positive pregnant women, and immunization against tetanus. In areas where malaria is endemic, health personnel can also provide pregnant women with medications and insecticide-treated mosquito nets to help prevent this debilitating, sometimes deadly disease [2]. Thus, improving ANC coverage and uptake of services is essential for maternal and child health outcomes [3].

The Federal Ministry of Health of Ethiopia has implemented a set of interventions, including ANC, skilled birth attendance and postnatal care services with the aim of improving maternal, neonatal and child health outcomes [5].

However, ANC coverage in Ethiopia is below the global average which is 54% [2, 6]. Therefore, the objective of this evidence brief is to summarize the best available evidence describing the low levels of antenatal care service utilization in Ethiopia and to outline potential solutions to address the problem.

2. Methods

The policy brief brings together global research evidence from systematic reviews and local evidence to inform deliberations about improving ANC service utilization in Ethiopia. We searched for relevance evidences describing the problem, the impacts of options for addressing the problem, barriers to implement those options, and implementation strategies to address these barriers.

The methods used to prepare this policy brief are described in detail under WHO Supporting the Use of Research Evidence (SURE) guides for preparing and using policy briefs [7].

The problem that the policy brief addresses was clarified iteratively through discussion among the authors, review of relevant documents and research. Research describing the size and causes of the problem was identified by reviewing government documents, routinely collected data, searching PubMed and Google Scholar, through contact with key informants, and by reviewing the reference lists of relevant documents that were retrieved.

Strategies used to identify potential policy options to address the problem included considering interventions described in systematic reviews and other relevant documents, consulting key informants, brainstorming, and considering ways in which other jurisdictions have addressed the problem.

We searched electronic databases of systematic reviews, including: the Cochrane Library (CENTRAL, Cochrane Database of Systematic Reviews), Support Summaries, PDQ Evidence, Health Systems Evidence and supplemented these searches by checking the reference lists of relevant policy documents and with focused searches using PubMed, Google Scholar, and personal contacts to identify systematic reviews for specific topics. The final selection of reviews for inclusion was based on a consensus of the authors.

Potential barriers to implement the policy options were identified by brainstorming using a detailed checklist of potential barriers (SURE guide for identifying and addressing barriers) to implementing health policies [7]. Implementation strategies that address identified barriers were identified by brainstorming and reviewing relevant documents.

A policy dialogue (structured discussion) focused on this evidence based policy brief was conducted with relevant expertise and perspectives including policy makers, civil societies, the mass media, researchers and other stakeholders [8]. The aim of the dialogue was to enrich the policy brief and to have well-informed health policy decisions but not to reach a consensus or make decisions.

3. Results

3.1. The Problem

The level of ANC service utilization by pregnant mothers in Ethiopia is the lowest in the world [2]. Little attention has been given to demand-side barriers of healthcare (socio-cultural, geographical and economical) by policy makers or researchers, even though such barriers are particularly important to poor communities. Finding ways to overcome demand-side barriers could help to address the problem.

3.2. Size of the Problem

In Ethiopia, only 32% of women aged 15-49 with a live birth received the WHO recommendation at least four visits during the length of their pregnancy [9]. This level is amongst the lowest in the world, and even in least developed countries approximately 44% of all mothers received the recommended amount of visits [2]. Evidence showed that unequal access to quality care starts before birth and continues into the critical early years [10]. Inadequate antenatal care is related to poor pregnancy outcome such as preterm delivery, having an infant small for his/her gestational age, and infant death [11]. Women who seek antenatal care late with few visits are less likely to be assisted during delivery by a skilled attendant [12].

3.3. Causes of the Problem

Different studies have indicated the underlying factors that could describe the low level of ANC services in developing countries. In Ethiopia, the predominant underlying factors can be classified in to four categories namely: 1) Economic barriers, 2) Socio-cultural barriers and Educational status, 3) Poor access to health services, and 4) Poor quality of ANC services.

3.3.1. Economic Barriers

An important barrier is the inability to pay for ANC or the treatment prescribed in ANC, where user fees are in place and safety nets for the poor do not exist [13]. Even when ANC was offered free of charge, the cost of transport (sometimes across difficult or dangerous terrain), the loss of women's labor to the family, and the possibility of having to pay for additional medicines and diagnostic services rendered attendance impossible [14].

In Ethiopia, public health facilities are supposed to provide free maternity services by policy since 2005; but in reality, mothers paid an average of 126 Ethiopian Birr to get ANC services from public health facilities excluding health posts [15]. According to other study done by Ethiopian Health and Nutrition Research Institute (EHNRI) in 2012, among the mothers attending ANC services 29% mothers claimed that the cost of transportation is expensive [16]. As a result, pregnant mothers may not seek care due to associated costs.

3.3.2. Socio-Cultural Barriers

Pregnancy is considered as a physiologically healthy and also perceived as a natural process of life, therefore women, families and communities may underestimate the importance

and utilization of ANC [13, 14]. Studies in Ethiopia have also supported this evidence, poor understanding of the importance of ANC and low awareness about the availability of the services continued to act as barriers to utilization of ANC services [17, 18].

A study on cultural barriers to seeking maternal health care in Ethiopia, found that many women were not aware of the risks of pregnancy, danger signs or when to begin ANC [19]. In addition, the mini demographic health survey of Ethiopia indicated that among the women who did not deliver at a health facility 46% of mothers believed that it was not necessary, which could be the other cause for low utilization of ANC [9].

3.3.3. Poor Access to Health Services

A national study done by EHNRI in 2012 showed that distance from home to health facility and transportation difficulties are among causes for not attending ANC services. Regarding the clients' perception of distance from home to facility, about 41% of the participants perceived it as far/too far and difficult to get transportation [16]. This made it difficult for women to go for regular ANC, particularly in the later stages of pregnancy and delivery.

3.3.4. Poor Quality of ANC Services

Pocket studies done in central and northern part of Ethiopia revealed that the perceived quality of ANC services is very poor [20, 21]. This perception on the quality of ANC services by pregnant mothers could be a barrier for not utilizing the service.

To provide quality of care, ANC services need guidelines, appropriately trained providers, and certain supplies and equipment. The Ethiopian Service Provision Assessment Plus 2014 identified the gaps in the quality of ANC services. Overall, 87% of all health facilities in Ethiopia have ANC services. However, only 54% of ANC providers had received structured in-service training or have a qualified and trained staff for ANC services. ANC guidelines or protocols that include details on how to manage common problems during pregnancy are available in only 33% of facilities offering ANC services. Availability of functional equipment and instruments that should be available at all times for routine ANC service areas to support quality of ANC services such as: blood pressure apparatus, stethoscope, adult weighting scale, fetal stethoscope, measuring tape and examination bed/couch were available in less than 75% of facilities offering ANC services [15]. These gaps in the quality of ANC services in the country might be also a barrier for not utilizing the service.

3.4. Policy Options

Options to increase ANC coverage and service utilization in Ethiopia include: Behavioral change communication (BCC), Mobile health (mHealth), and the use of conditional cash transfers (CCT). These three options and their potential impacts on ANC service utilization are described below.

3.4.1. Policy Option 1- Behavioral Change Communication (BCC)

Behavioral Change Communication (BCC) is defined as “a

research-based consultative process of addressing knowledge, attitudes and practices through identifying, analyzing and segmenting audiences and participants in programmes by providing them with relevant information and motivation through well-defined strategies, using an audience-appropriate mix of interpersonal, group and mass-media channels, including participatory methods” [22]. BCC is a process that motivates people to adopt and sustain healthy behaviors and lifestyles (23). BCC interventions are increasingly seen as the key interventions for addressing behavioral and socio-cultural factors [24].

Impacts of BCC: There are no systematic reviews on the effectiveness of BCC interventions for improving ANC service coverage and utilization. The effect of BCC interventions in improving ANC service coverage and uptake is uncertain, hence there is a need for further research. However, there are established experiences of BCC interventions for the additional utilization of ANC services by pregnant women from low and middle income countries like Cambodia [25].

Cambodia has the practice of BCC campaign for ANC with in the first month of missing a period in 2009. After the campaign, ANC visits increased from 69% to 89%, delivery by skilled birth attendants from 44% to 71% and delivery in health facilities from 22% to 53%. The proportion of pregnant women completing all four recommended ANC visits almost doubled, while the proportion of pregnant women receiving 90 iron folate tablets also increased significantly. Given the positive results of the campaign in improving ANC coverage in Cambodia, the approach is being used to implement a communication campaign for appropriate care-seeking for pneumonia and improving complementary feeding practices in the country [25].

3.4.2. Policy Option 2- Mobile Health (mHealth)

WHO defines mHealth or mobile health as an area of electronic Health (eHealth) involved in provision of health services and information via mobile technologies, such as mobile phones, patient monitoring devices, personal digital assistances (PDAs), and other wireless devices [26].

Mobile health technologies have the potential to reduce professional isolation especially in rural areas and to provide ongoing support to health care workers as well as citizens. It might also increase the access to health care and health related information, particularly for hard to reach populations [27].

Impacts of mHealth: We could not find a systematic review dealing with ANC attendance as a direct outcome of mHealth intervention. However, a systematic review by Gurol-Urganci et al [28] on the impact of mobile messaging reminders for attendance of health care appointments has shown a positive effect on uptake of health care appointments. They found that mHealth interventions probably increase attendance of health care health care appointments.

3.4.3. Policy Option 3 - Conditional Cash Transfer (CCT)

Conditional Cash transfers (CCTs) are programs that transfer cash, generally to poor households, on the condition that those households make pre-specified investments in the human capital

such as up-to-date vaccinations or regular visits to a health facility by pregnant women [29]. Conditional cash transfer programmes are increasingly being adopted and scaled in developing countries, particularly programmes that target specific outcomes relating to maternal health, sexual behaviors, and/or vaccination practices [30].

The CCT programmes are particularly gaining popularity in sub-Saharan Africa where 18 countries are implementing conditional cash transfer programmes, of which 3 have maternal and neonatal health (MNH) related requirements (Eritrea, Mozambique, and Senegal). CCTs have increased the uptake of MNH services, especially skilled attendance at delivery and antenatal monitoring where consistent results are reported in a variety of settings. These effects are seen in both 'broad' and 'narrow' CCT programmes, and considering the timeframe of these programmes, the time-to-effects can be considered rapid [30].

Impact of conditional cash transfer: We could not find a systematic review dealing with improving ANC service utilization as direct outcome of Conditional Cash Transfer intervention. However, a systematic review on impact of conditional cash transfer on health outcomes and use of health services has shown a favorable result that CCT programmes appear to be an effective approach to encourage some preventive behaviors and to increase the uptake of preventive services which were already free [31]. Conditional cash transfer programmes could provide incentives for pregnant women to go for antenatal care visits. Conditional cash transfer programmes may increase ANC attendance

since it increases care seeking behavior.

3.5. Implementation Considerations

Behavioral change communication, mHealth and conditional cash transfer are three potential solutions to improve ANC coverage and service utilization in Ethiopia. Implementing these options requires other changes, including policy changes. Strategies for implementing the options should take advantage of factors that enable their implementation as well as addressing barriers.

Enablers to improve ANC attendance in Ethiopia include:

- More than 38 thousand health extension workers working at the grass root level, who can be used for all options
- Strong political commitment from national and local authorities for maternal and child health in general and ANC service attendance in particular
- Improvements in public health infrastructure in both rural and urban areas
- A number of global and local partners and civil society organizations working on maternal health
- Major funding opportunities and strong public-private partnership at national and global level
- An increasing number of skilled health workers in Ethiopia

Barriers to the three options and implementation strategies to address those barriers are summarized in Tables 1-4.

Table 1. Barriers and implementation strategies for all options.

Barriers	Descriptions	Implementation strategies
Manuals or guidelines	There are no manuals or guidelines in place to implement the options	Develop manuals for the three options
Financial resources	There may be insufficient financial resources to implement all the options	Pilot study to evaluate costs and cost-effectiveness before full scale implementation Resource mobilization through coordination of governmental and non-governmental organizations Establish a consortium of stakeholders for maternal health to pool resources and use them for achieving the common goal of increasing level of ANC utilization
Poor quality of care	Poor quality of care could discourage mothers from seeking ANC attendance	Improve the quality of care
Sustainability	Implementation of options may halted when a decision maker is replaced	Integrating the options into the institutional structure
Weak monitoring and evaluation (M & E)	Since all options are new and not institutionalized they may require strong M & E	Integrating the options in to the institutional structure and develop strong M&E activities with validated indicators for each option

Table 2. Barriers and Implementation strategies for Option 1: Behavioral Change Communication (BCC).

Barriers	Descriptions	Implementation strategies
Limited capacity	Limited capacity and availability of trained, in-country resource people, including advertising agencies and media outlets, can hamper the effective implementation of BCC programs	Capacities for BCC should be built [32] There should be a structured system at national and regional levels Universities should train experts in behavioural communications Developing BCC tools which are appropriate to various settings
Political and physical environments	Geography and population diversity can complicate the development of BCC programs, especially in case where vast distances must be covered, or multiple languages and cultural traditions included, in a single country program.	Addressing the language, culture and other social values Building and maintaining linkages and coordination among different stakeholders to reach the diversified population and expanding comprehensive BCC strategies
Sustainability	To be effective, BCC strategies and components must evolve constantly to meet the changing needs of target populations	Continuous input of human and financial resources. Continuous improvement of BCC tools to accommodate changes in the communities and in technologies Revise the cost of airtime in broadcasting BCC

Table 3. Barriers and implementation strategies for option 2: mHealth.

Barriers	Descriptions	Implementation strategies
Cost of the intervention, both at the macro systems level as well as at the level of the individual citizen and healthcare provider	A key aspect for any of these technology systems to work is that they must be affordable at point of use	A billing structure must be implemented that allows for a “reverse cost” approach, so the Ministry of Health or other responsible party pay for it. Otherwise it is not feasible or sustainable [27]
Literacy	mHealth intervention using mobile phones might not be feasible for those who are illiterate	Design various applications that have different capabilities to address the illiterate mothers such as voice message, phone call, etc. which can be further expanded as technology evolves
Capacity	At national level capacity building for mHealth should be established	There should be focus on local ownership of mHealth technology by building a cadre of tech savvy health administrators and mHealth specialists.
Lack of operational compatibility and standards	Lack of operational compatibility and standards within existing mobile communication systems	Introduction of 3G/4G wireless technology may help overcome aspects of this particular challenge by enabling the unification of existing standards under one umbrella

Table 4. Barriers and implementation strategies for Option 3: Conditional Cash Transfer (CCT).

Barriers	Descriptions	Implementation strategies
Sustainability	Sustainability could be a challenge [33]	Carefully designed exit strategies consistent with CCT program objectives [33]
Motivation to change	Participation of mothers could be low due to socio-cultural barriers	Adjusting the design of CCT programs to the heterogeneous socio-cultural factors prevailing in the country Increased recognition of these cultural norms and the importance of delivering incentive funds directly to women
Implementation capacities	Capacities for managing cash transfer schemes are weak in low-income countries. The health system may not be able to meet the additional administrative demands related to conditionality [34]	Preparing CCT implementation guidelines, organizational change and capacity building on CCT of the relevant bodies within the civil service [33], and link cash transfers to existing and complementary programs
Feasibility	CCT may be difficult to implement	Pilot study to assess the feasibility of CCT
Over reporting	Abuse of money allotted for would be mothers is a possibility by over reporting skilled ANC attendance	Put an appropriate auditing mechanism in place
Cumbersome bureaucracy	Burdensome paperwork to provide cash to mothers may discourage mothers not to come to a health facility again	Minimizing paper work

4. Discussion

This policy brief was discussed by policy makers, researchers, civil societies, professional organizations, academics and development partners at a policy dialogue meeting in Adama, Ethiopia, 15th May 2016 [8]. The following points were the major issues raised during the dialogue.

The coverage for at least one ANC visit is high compared to WHO recommendation at least four ANC visits in Ethiopia. One of the reasons could be the problem in tracking mothers after their first antenatal care visit as there is no system established. The ministry of health should trace mothers as it does to indicators for maternal and neonatal health outcomes was mentioned as an option to improve ANC coverage in the country. Problems with early initiation of ANC was also mentioned as a major problem for low coverage of the WHO recommended at least four ANC visits.

Though health posts are now many and are near to the communities, health centers and hospitals with equipped laboratories where focused ANC starts, may not be accessible for various reasons.

On the other hand, though the government builds health facilities based on population ratio; topography, distribution

of the community and poor infrastructure may render health facilities inaccessible. Therefore, when building health facilities the government should consider topography and infrastructure in addition to population ratio.

The quality of care during the first ANC visit seems to be poor in quality and mothers may not come for the subsequent visits; therefore, efforts should be in place to improve quality of care. Besides the ANC services are not focused and are almost using traditional approaches of antenatal care services. The skill, knowledge and motivation of the health professionals currently is questionable (only 50% of the undergraduate students got the pass mark in exit exam); interventions to improve the quality of pre-service trainings should be considered.

It was pointed out that none of the options in the policy brief addressed the problem of poor quality of care. However, this policy brief mainly focuses in finding ways to overcome demand-side barriers that could help to address the problem. It was suggested that Continuous Professional Development (CPD) could be one option to have compassionate and caring health professionals and improve quality of care. In-service training, revising the pre-service education curriculum could also be some of the interventions to improve quality of care in the country.

5. Conclusion

There are evidences indicating the potential benefit of behavioral change communication, mHealth, and Conditional cash transfer for improving the ANC service utilization in low income countries like Ethiopia.

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