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# An Empirical Study ofCall Centerand Uptake of Maternal Health Servicesof Gombe State, Northeast, Nigeria

**Author: Otunomeruke James Allen[1](Demographer and Consultant),Husseini Saraki[2](SFH ETS Program Officer), Larrydeel Maina[2](SFH M&E Officer) and Peter Longtoe[2](SFH MIS Officer)**

**Email Address: divineallen2000@yahoo.com**

**Abstract**

Call center has potentials to increase utilizationof health facility servicesand thereby improve maternal health outcomes.According to Nigeria Demographic and Health Survey 2013 puts the proportion of women with antenatal care from a skilled provider at 58.2 percent and facility delivery at 27.6 percent. Society for Family Health in an effort to improve utilization of facility services established call center to enhancethe uptake of facility services in Gombe State. However,little is known about impact of the call center on utilization of facility services. A continuous population household-based multi-stage clustersurvey was instituted in Gombe State from January 2013 –December 2014. The survey was designed to estimate coverage of contacts between residents of sampled households and the different innovations being implemented in maternal life saving interventions.The sample size drawn with replacement per quarter was sufficient to determine the indicators' performance with high precision. The data were disaggregated by place of residence among women who had a live birth in the 12 months prior survey.In rural areas, proportion of women who had heard about the call center increased from 12%(95% CI, 9-17) in Q1 (January-March 2013) to 26% (95%CI, 19-35) in Q7 (July-September 2014); anddelivered at facilities increased from 15% in Q1to 33% in Q7. In urban areas, women who had heard about call center increased from 15% (95% CI, 11-20) in Q1, 2013 to 41% (95% CI, 31-47) in Q7, 2014; and proportion of women that delivered in facilities increased from 19% in Q1 to 45% in Q7. This performance wassubstantiated by the qualitative study findings, which claimedvirtually all mothers that had contacts with call center utilized facility services. However, concept of "stranger", poor connectivity, delayed picking, attitude, and confidentiality were challengesnegatively impacted uptake of call center.

**Keywords**: Antenatal care, Barriers, Call Center, Health Facility Delivery, Newborn

## Introduction

The maternal health care (MNH) call centerknown as Cibiyar Inganta Rayuwar Iyali in Hausa is situated inside Gombe State Specialist Hospital in the capital city of the state. The call center is designed to recieve calls on health matters and provides information to the caller based on the callers' need. The call center operates a 24 hours a day, 7days a week and is toll- free. The call center sometimes received calls from other regions outside Gombe State especially northeast zone.Key functions of call centre include:receiving calls from pregnant women and their relatives, mothers/relatives of neonates, FLWs, general public, provide maternal health related information, counsel, offer temporary help during obstetric emergency cases using the standard response from the maternal and neonatal health care database and referral to health facility for higher services.

The Call Centre Association (1999) defines a call center as ‘‘a physical or virtual operation within an organization in which a managed group of people spend most of their time doing business by telephone, usually working in a computer-automated environment’’.

Call centers, or contact centers, are the preferred and prevalent way for many organizations to communicate with their customers or their potential clients both to promote products or services and generate revenue in return. On this premise, Society for Family have established call center to assist in maternal and newborn emergency cases, through provision of adequate health information, linkmaternal obstetric emergency with emergency transport volunteer drivers and make referrals. The call center technology has been on for five years but no adequate data to ascertain the effectiveness of call center to increasing uptake of maternal health services in the state. Hence, the study is of necessity to assess achievements, challenges, and suggested solutions that will further enhance the call center performance.

**Research Objectives**

The main objective is to assess the achievement, challenges and suggest solutions that will further enhance effective performance of call center in achieving its mandates of providing adequate health information and referrals.
Specific objectives were:

- To assess the impact (positive or negative) of call center inuptake of facility services
- To identify challenges that could have affected the use of call centrefrom achieving its mandates
- Identify ways that could enhance positiveuse of call centerfor survival of mother and child at community level

**Literatures Review**

Call center is an innovative strategyintroduced in Gombe State to promote access to- and utilization of health facility services through provision of first hand health information, counseling and referral. This innovation has reduced the barriers such as healthcare provider shortage, reliance on untrained or informal providers, cost of services and lack of sources of reliable information.

Taylor and Bain (1999) defined the concept of call centers with three essential elements. First, the call center is a dedicated operation with employees focused entirely on the customer service function. Second, those employees are using telephones and computers simultaneously and, third; the calls are processed and controlled by an automatic distribution system. This definition can be applied to a call center where relatively low skilled and low paid service workers are responding to customer requests within a tightly controlled, heavily monitored and time-restricted system. In contrast, the definition can also apply to a call center where highly skilled, highly paid knowledge workers respond to calls from business customers about online service arrangements. According to Waite (2002), the call center is the point of entry for most customer or client communication. It is a place where a customer or client can make an inquiry or contact and expect a meaningful response. The call center is well equipped with processes, technology and people with the skills, training and motivation to enhance performance of the center. Through the telephone it can be either by a response via a toll-free number (a call not charged to the callers) or an outbound telephone solicitation (where the call center agent calls a client as feedback to ascertain the uptake of services as referred).

According to Judith B. Strother (2006) the success of a call center depend on effective two-way communication. She reiterated that communication is used for everything from instilling the corporate vision in all employees to discussing specific tactics of service delivery by the organization. She posited, “Managerial communication must be open, supportive, motivating, and empowering. Every employee-customer encounter must be considered to be an invaluable opportunity to improve customer

service and engender customer loyalty".Another research findings revealed that application of call center operations can play a key role in accessing more customers, and in providing better quality services especially where additional or extended services become available (Walker and Craig-Lees, 1998).

Another study finding on perceived service quality of call center contact (Driver and Johnston, 1998),said that quality services could be achieved with training, motivation and prompt response to calls. According to another study on customer satisfaction levels with face-to-face services, it was found that customer satisfaction was significantly higher in face-to-face than with call center services in the human services arena (Bennington and Cummane, 1998a).Walker and Craig-Lees (1998) in their submission characterised the services in which technologically assisted transactions may be open to negativity. They came up with some lists of assumptions which include, where there is high importance placed on personal contact, where a high degree of personal attention is required, where risk is perceived to be reduced by direct personal contact, where customers feel unable to use the technology, and where the technology is not seen to add value.It was noted that cultural background of peoplemight likely affect the way of doing things; such people may want personal interaction rather than telephone system. Research has shown that up to 60 percent of customers prefer to deal in-person rather than via telephone (Centerlink, 1998). Prompt response of calls is very important in running a call center. Sarel and Marmorstein (1998) stressed that the real challenges is in consistently providing responsive services due some operation difficulties. Nevertheless, no customer or client want to experience delays in picking their calls, hence, service quality will be greatly affected when delay occurs (Green et al., 1996).

According to Bennington, Cummane and Conn (2000), the usage of new technologies facilitates greater effectiveness and efficiency, where more customers can be serviced at any one point in time.

Call centers are important for developing and maintaining healthy relationships with customers. In maternal healthcare call center, the impact of proper operations is reflected not only in long-term relationships with customers, but directly affecting uptake of maternal and newborn health facility services. It has been observed that adequate staffing; right attitude, proper scheduling and motivation are key factors for providing an acceptable service level to customers.

According to Ovum (2001), the rate of call center growth in Central and Eastern Europe, along with South and Central America (including the Carribean), accelerated so rapidly that each of these regions' share of global call center capacity increased from 2% of worldwide call center seats in 2001 to 7% in 2006 (a combined increase to 14% from 4%). Call centers allow a company to build, maintain, and manage customer relationships by solving problems and resolving complaints quickly, having information, answering questions, and being available usually 24 hours a day, seven days a week, 365 days of the year, but to keep a long-term relationship with customers having a call center is just the beginning.

According to Oliver Heaton (2013), he suggested five ways in which call center services could be improved and achieve optimal results. These are:employ extroverts, that is, people that are sociable, enthusiastic, and ambitious; use good cold call openers; call tracking staff competition; make sure employees can be heard and lastly,call center agents need to be confident in talking to whoever is on the other end of the phone and be able to quickly build a rapport with them.

According to health care professionals, maternal mortality is a key indicator for maternal health and it reveals inequalities being experienced between and within local government and states with reference to the cultural and socio-economic status

of the states or regions. Skilled attendance at birth and emergency referrals are required to reduce both maternal complications and resulting deaths among women of reproductive ages 15-49 years. Maternal health call center is one of client's interaction channels created by Society for Family Health in Gombe State funded by Bills and Melinda Gates Foundation to improve health seeking behavior and increase uptake of health facility services by the community members especially the rural communities in Gombe in particular and northeast in general.

**Methods**

A continuous population household-based multi-stage cluster sample survey was instituted in Gombe State from January 2013 –July 2014. The survey was designed to estimate coverage of contacts between residents of sampled households and the different innovations being implemented; call center inclusive in maternal life saving interventions. The sample size with replacement per quarter was sufficient to determine the indicators' performance level with high precision. The data were disaggregated by place of residence among women who had a live birth in the 12 months prior survey. The call center data were obtained from 2,099 women who had a live birth in the last 12 months prior survey. Respondents were asked whether they had been exposed to the use of call center and what actions they had taken in response. Nine teams conducted the fieldwork; each consisted of a supervisor and four interviewers, all fieldworkers had no prior connection to the maternal health project. A list of enumeration areas were randomly generated from National Population Commission (NPC) Master Enumeration Areas list used in the conduct of 2006 Census in the state. In each quarter of the continuous survey, 120 EAs, that is, 60 E.As rural and 60 E.As urban were randomly selected for the survey. The random enumeration areas sample selection was with replacement every quarter. Complete listing of enumeration areas were carried out where buildings and households were serially numbered. In each household woman or women (in case of polygamous household) who had a live birth in the last 12 months prior survey date was identified for inclusion into the sample. Woman with a child above 12 months was not included in the study. Prior the conduct of an interview, the fieldworker explained the reason for the research, described the content of the questionnaire and asked for the verbal consent of the potential respondent. Descriptive statistics and multi-variate analysis were conducted among the sampled interviewed respondents in the state.

**Findings**

**Characteristics of Respondents**

**Age of Respondents**

Over half of the sample was aged between 20 -29 years, about one-third were aged 30-39 years, about one-tenth were aged 15-19 years and less than three percent were aged 40-49 years. In the age distribution, the teenage mothers (15-19) had 9%, age cohort 20-24 years (29%), the mothers' whose age lies between 25-29 years recorded 30%, women aged 30-34 had 22%, 35-39 years (8%) and 40-49 years had 2%.

**Mothers' Education**

Majority (52%) of respondents had secondary/tertiary as highest level of education in quarter 2, 2013 and quarter 6 and 7 in urban areas in 2014. While in rural areas, quarter 7 recorded 49% of those respondents who had secondary/tertiary education and those without education and primary recorded 14%. Respondents who had Qu'ranic education in quarter 1 were 6% in urban and 11% in rural areas of Gombe State.

Table 2: Highest level of education of household head aged 15-49 who had a live birth in the 12 months before survey and who reported that they had heard of the MNH call-center

| Indicator | Q1 | Q2 | Q3 | Q4 | Q5 | Q6 | Q7 |
|---|---|---|---|---|---|---|---|

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Urban | | | | | | | |
| Highest level of education of household head | N=373 | N=70 | N=143 | N=202 | N=188 | N=225 | N=230 |
| None/Primary n/N<br>% (95% CI) | 6/85<br>7 (3-15) | 8/22<br>36 (16-63 | 9/23<br>39 (23-58) | 17/74<br>23 (14-36) | 13/50<br>26 (14-43) | 16/73<br>22 (12-37) | 16/62<br>26 (17-37) |
| Secondary/Tertiary n/N<br>% (95% CI) | 49/191<br>26 (17-36) | 20/38<br>52 (36-69) | 38/99<br>38 (27-52) | 33/84<br>39 (28.52) | 34/99<br>34 (26-44) | 64/122<br>52 (43-62) | 65/126<br>52 (41-62) |
| Qu'ranic n/N<br>% (95% CI) | 6/97<br>6 (3-13) | 1/10<br>10 (1-46) | 3/21<br>14 (4-37) | 7/44<br>16 (8-30) | 15/39<br>38 (23-56) | 10/30<br>33 (22-47) | 8/42<br>19 (9-35) |
| Rural | | | | | | | |
| Highest level of education of household head | N=367 | N=94 | N=201 | N=247 | N=177 | N=202 | N=233 |
| None/Primary n/N<br>% (95% CI) | 11/79<br>14 (7-25) | 7/40<br>18 (7-38) | 18/81<br>22 (13-34) | 23/109<br>21 (13-33) | 31/111<br>28 (18-40) | 28/104<br>27 (16-41) | 25/114<br>22 (15-31) |
| Secondary/Tertiary n/N<br>% (95% CI) | 29/158<br>18 (10-31) | 7/23<br>30 (13-57) | 16/43<br>37 (22-56) | 30/67<br>45 (30-61) | 14/45<br>31 (18-48) | 29/61<br>48 (30-66) | 20/41<br>49 (30-67) |
| Qu'ranic n/N<br>% (95% CI) | 14/130<br>11 (15-20) | 4/31<br>13 (4-34) | 19/77<br>25 (14-39) | 12/71<br>17 (8-33) | 5/21<br>24 (9-48) | 13/37<br>35 (20-54) | 12/78<br>15 (7-31) |

**Source: Maternal Health Continuous Survey of 2013-2014**

**Knowledge of the Call Center**

Proportion of women who had knowledge about maternal health call center level in Q1 (January-March 2013) were similar in urban and rural areas, but a significant higher increase of (26%) was witnessed by Q7 (July-September 2014) in relative comparison to 14% point increase in rural areas within the same period. In urban areas, the point estimate of women who had heard about the call centre increased from 15% (95% CI 11-20) in Q1 (January-March 2013) to 41% (95% CI 31-47) in Q7 (July-September 2014). The proportion of women who had knowledge about call center and still delivered at home between Q1 and Q7 were 11% and 37% and women whose household head had no more than primary level education was 7% in Q1 and 26% in Q7; while those that had assisted skilled delivery at health facility 19% against 45% in urban areas and whose household health had secondary or tertiary education was 26% in Q1 against Q7 in 52% more than doubled. In rural areas, knowledge levels rose significantly from 12%(95% CI 9-17) in Q1 (January-March 2013) to 26% (95% CI, 19-35) in Q7 (July-September 2014). Within this period, knowledge among rural women who gave birth at home was 10% in Q1 2013 and 23% in Q7 in 2014 respectively. The magnitude of the proportion of women who had assisted skilled delivery at health facility was more than double, that is, the changes moved from 15% in Q1 2013 to 33% in Q7 2014. This performance was substantiated by the qualitative study that claimed virtually all mothers that had used call center reported of having had antenatal care visits; facility delivery and postnatal check-up and the action has led to reduction in morbidity and maternal mortality.

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Table 3. Knowledge of the MNH call center in Gombe by place of residence amongwomen aged 15-49 who had a live birth in the 12 months before survey and who reported that they had heard of the MNH call-center

| Indicator | Q1 | Q2 | Q3 | Q4 | Q5 | Q6 | Q7 |
|---|---|---|---|---|---|---|---|
| Urban | | | | | | | |
| All Women | N=663 | N=111 | N=237 | N=266 | N=231 | N=281 | N=310 |
| All women who reported that they had heard of the call center n/N % (95% CI) | 93/615 15 (11-20) | 40/108 37 (28-47) | 86/237 36 (29-45) | 79/266 30 (23-37) | 72/230 31 (25-38) | 108/281 38 (31-47) | 128/310 41 (31-47) |
| Place of Birth | N= 603 | N=108 | N=237 | N=266 | N=229 | N=281 | N=309 |
| Home n/N %(95% CI) | 35/308 11 (6-19) | 24/64 38 (26-51) | 34/102 33 (24-44) | 35/152 23 (11-33) | 23/108 30 (20-42) | 30/100 30 (20-42) | 50/134 37 (29-47) |
| Facility n/N % (95% CI) | 56/295 19 (13-27) | 16/44 36 (22-53) | 52/135 38 (29-50) | 44/114 38 (31-47) | 48/121 40 (32-48) | 78/181 43 (34-52) | 78/175 45 (36-53) |
| Rural | | | | | | | |
| All Women | N=833 | N163 | N=311 | N=351 | N=244 | N=268 | N=303 |
| All women who reported they had heard of the call center n/N % (95% CI) | 101/830 12 (9-17) | 34/162 21 (12-34) | 83/311 27 (20-34) | 94/349 27 (21-34) | 69/241 29 (21-38) | 86/265 32 (24-43) | 78/303 26 (19-35) |
| Place of residence | N=817 | N=162 | N=310 | N=349 | N=241 | N=264 | N=302 |
| Home n/N %(95% CI) | 58/579 10 (6-15) | 24/117 21 (11-36) | 51/225 23 (16-31) | 51/235 22 (16-29) | 43/183 24 (16-33) | 53/169 31 (21-43) | 54/230 23 (16-34) |
| Facility n/N % (95% CI) | 37/238 15 (19-26) | 10/45 22 (11-39) | 31/85 36 (24-50) | 43/114 38 (26-51) | 26/58 45 (29-61) | 33/95 35 (24-43) | 24/72 33 (20-50) |

**Source: Maternal Health Continuous Survey of 2013-2014**

**Utilization of the Call Centre**

Research findings had shown that the proportion of women within reproductive aged 15-49 who had used call centerservices was low in the state. Generally, call center knowledge remains high but this did not translate to high increase in the utilization of call center services across the place of residences in Gombe State. In comparison areas, knowledge levels rose significantly for fewer users,increasing to three per cent of women ever used the call centerservices by July-September 2014. Sixteen (16) of the 25 women in urban areas, and 6 in13 women in rural areaswho reported to have ever used the call center between quarter one (Q1) and quarter seven (Q7) surveys did so to ask about pregnancy care or obstetric complications.The respondents that reported use of the call center were 10% between January 2013 and September 2014.

With stunting findings from continuous survey prompted the researcher to explore further through qualitative study the reasons for low uptake of maternal health call center. The outcome of the focus group discussions revealed the following challenges that have negatively impacted the usage of call center to include: low awareness, call center staff being tagged as “stranger”, poor connectivity, delayed picking of calls, attitude, and confidentiality issues.

**Brief Outcome of Qualitative Study**

The focus group discussions involved 270 participants drawnfrom women of reproductive aged 15-49, men and frontline workers. About 53 percent werehousewife/peasant farmers and 47 percent of males participated in the study.All male participants were employed; 13 percent were in paid employment and 34 percent were self-employed. Ninety-five frontline workers (FLWs) participated in the focus group discussion (FGDs), emergency transport scheme volunteer drivers (71), community women (48), and community men (56). In all one hundred and forty-four (144) participants were from urban- and one hundred and twenty-six (126) were from rural communities

respectively. To avoid religious sentiment participants were not asked about their religion.

**Awareness of Maternal and Neonatal Call Center**

When the participants were asked whether they have heard about maternal and neonatal healthcare call center; majority of the participants in the focus group discussions (FGDs) reported having heard about the maternal healthcare call center in Gombe State.The knowledge level of MNH call center cut across the participants in rural and urban areas. However, knowledge level tends to be more pronounced in urban communities FGDs than rural participants in whom half of the rural community members claimed not to have heard about the center. Majority of theparticipants (673) were able to relate activities of the call center to improving maternal and newborn healthcare (MNHC). Participants of the FGDs said call centre is a place where health professionals are based to provide maternal and neonatal health services through mobile phones to callers who are in need of knowledge about health related issues, emergency obstetric cases, first aid services and quick access to health facilities services. It was observed also a little variation in the participants perceptions based on place of residence and contact with the center.

**Ever use of the Call Centre**

The coverage of ever use of the call center was generally low among the participants in both urban and rural settings.When asked about the utilization of the center, about one third of the participants claimed to have had interaction with the call center agents at least once in the past one year. According to the participants some of them called the center to obtain information onpregnant health related issues, some called when their children were sick during the night while some wanted to get phone number of emergency volunteer drivers to take them to hospital in the night. However, it was observed that more rural participants claimed to have ever used the call center services as results of home visits conducted by the trained traditional birth attendants whose phones they used for the calling the call center. Some of the participants received information about call center at antenatal clinic; some through FLWs and while werethrough radio jingles.

"I was able to discuss with the call center agent with the help of trained traditional birth attendant that visited me during my pregnancy period. She persuaded me to talk to the call center agent after she had finished her counseling. In fact, I was reluctant initially but with much persuasion I agreed to talk to the agent that I felt she was a stranger but I am happy I did because she further educated me on how to care for myself and unborn baby", said by mother Shongom LGA

The FGDs revealed that more participants in rural communities who were visited by trained TBAs had more contacts with the call center than those who were not visited.

Many of the participants of the FGDs said they refused to use the center because they have never met the agents in their lives (stranger), hence, they cannot disclose their private health issues to strangers. Some of the participants that claimed to have heard about the call center said they were unable to contact the center because they do not have access to phone nor own a mobile phone to use for calling the center. Analysis of call center usage, revealed that face-to-face interaction with frontline workers especially trained TBAs during home visits gave many women courage to call and talk to the center agent; and majority of the users were from rural communities.

**Chalenges to a Successful Call Center Operation**

About half of the participants talked about lack of community awareness of the call center and its numbers to dial as a challenge. Most of the participants said if the communuty members are not aware of the presence of the call center and how to make calls to it, this will affect uptake of its services. They said the call center is there to respond to calls and if calls are not made, the reason for the establishment will be defeated. Another challenge that has influenced low

patronage of call center was attributed to her staff been tagged as "stranger". Participants felt that talking to a "stranger" about personal health challenges will not be a wise decision. Hence, they prefer dealing with the frontline workers especially trained traditional birth attendants face-to-face during home visits than calling someone they do not know. They reiterated that discussing personal health issues with a complete stranger put them at risk of everybody knowing their personal health challenges, and could lead to ridicule.

"The first time the call center was introduced it was not popular particularly in Akko because it was strange to ask women to call someone you don't know and start speaking to the person, just like that", FGD women beneficiaries Yamaltu Deba.

Delayin picking of calls by call center agent, attitudeand poor connectivitywere also mentioned by majority of the participants.Theywere of the opinion that the call center staff should promptly respond to calls since the caller may likely have an emergency issue on hand. Due to detay in picking calls, participants perceived that the center is not adequately staffed, hence, there is always delay in answering calls. Inadequate staffing could also mar ornegatively impact use of the call centre.In rural areas, language barrier and billing of calls by the network providers were also part of the challenges mentioned. Language barrier led to frustrationsof some of the callers who did not understand Hausa language; participants observed that only one person can speak Fulfulde at the call center, hence, if the agent is attending to a caller it then means you have to wait for her. This increase the waiting time and they were not comfortable with such situation.The Fulani participants particularlynoted that call center agents were not able to communicate with them in Fulfulde language during calls, hence, they felt bad and isolated; they were of the opinion that their health needs were not considered important by the implementer of maternal healthcare project that was the singular reason for having just one staffwho can speak Fulfulde in the center.

"The call center can have setbacks if the language of communication is only in English or Hausa. Language barrier is a great challenge to the call center. I think the call center should have people who can speak fulfulde, tangale, waja, terah, and other dialect in our state," said by ETS volunteers in Filiya, Shongom LGA.

**Impact of the Call Center on Community**

For those that had utilized call center service claimed to be satisfied with the services and concluded that their interaction experience was cordial and fruitful. According to them; the advice given to them during the interaction with the call center agentswere very useful and had saved many lives. Few claimed that the call center agents conducted follow-up to see how they were faring.According to these participnts, such interaction with the participants left positive feelings and changed their perception about the staff of the center;thereby motivated them for repeat calls to the call center and this had led to increase uptake of health facility services. One striking impact mentioned by majority of the participants was the increasing number of people who sought after the call center number in times of emergencies in order to access and utilize health facility services. They did this because of the information gotten by word of mouth from other community memebers who had in the past made use of the call center services and were impressed or satisfied with the outcome. It was noted during the FGDs that over half of the participants shared their experiences with their fellow community women, hence, there is positive attitude toward the use of health facility services in their communities.

**Discussion**

**Knowledge and Usage of Call Center**

In the empirical study of call center and uptake of maternal health services, the researcher found that the knowledge level is relatively high, however, this did not translate to high uptake in facility services.In urban areas, the point estimate of women who had heard about the call center increased from 15% in Q1 (January-March 2013) to 41% in Q7 (July-September 2014). The proportion of women who had knowledge about

call center and delivered at home between Q1 and Q7 was 11% and 37% and whose household head had no more than primary level education was 7% in Q1 and 26% in Q7. Those that had assisted skilled delivery at health facility was 19% in Q1 against 45% in Q7 in urban areas and whose household health had secondary or tertiary education were 26% in Q1 against 52% in Q7. In rural areas, knowledge levels rose significantly from 12% to 26%. Within this period, knowledge among rural women who gave birth at home was 6%. The magnitude of the proportion of women who had assisted skilled delivery at health facility was more than double, that is, the changes moved from 15% in Q1 2013 to 33% in Q7 2014.The qualitative also confirmed the knowledge gained during this period.

In terms of utilization of call center, it was noted that proportion of women who claimed to have used the center was 10 percent from January 2013 to September 2014. Majority of those that have used the services claimed to be satisfied with the counseling and referrals system. They attributed satisfaction level to strict adherence to accessing health facility services as recommended.Qualitative study revealed that the usage of call center was more pronounced among the rural participants than in urban area. One reason for this was the effectiveness of trained TBAs in mobilizing and encouragingpregnant women and mothers of newborn to speak with the call center agents during home visits; by so doing they were more enlightened on maternal health issues and benefits of utilization of health facility services.

Call center has the potentials of increasing uptake of maternal health facility serviceshence; public enlightenment campaign to generate demand is very essential and necessary for the health promotion. The participants embraced the call center services as result of the pressure put up by the frontline workers especially trained TBAs during the conduct of home visits, this reflected in the discussions of the participants throughout in both rural and urban areas.Participants believe the work of trained TBAs, trust, respect and obey them; hence, they heeded their advice when the women were asked to speak with the center agents. Majority of the rural participants said one major impact of the call center is the reduction in the practice and use of traditional herbal remedies for pregnancy complications in the communities.

The study revealed that the call center has potentials to reach wide audience in disseminating, educating, counseling, offers temporary relief during emergency and make referrals.A well-tailored media messages jingles, 24/7 effective services, and use of local languages such as Hausa and Fulfulde willhave great effect on the community members in accessing and utilizing health facility services.

Challenges that have negatively impacted the uptake of call center include: reluctant to call and talk to a stranger, low awareness, poor connectivity, delay in answering calls by the call agents, concerns about the confidentiality of callers, difficulties to answering multiple calls at the same time and rude attitude of one the center agent.

The women were reluctant to make calls tothe call center because they believe the center agents are “strangers” and they should not talk to them on personal health challenges. They considered the call center technology of maternal health promotion as alien; hence, such services should not be accessed. The participants prefer to discusstheir health challenges with the frontline workers especially traditional birth attendants who they have over the yearrecognized, trusted, and respected for their active roles of assistance being offered to women during home delivery. The women were of the opinion that TBAs can keep secret and will not share information revealed to them with another person. This assertion agreed with what Walker and Craig-Lees (1998) observed in their study that technologically assisted transactions may be open to negativity if there is high importance placed on personal contact, where a high degree of personal attention is

required, where risk is perceived to be reduced by direct personal contact, where customers feel unable to use the technology, and where the technology is not seen to add value.

The study revealed that call center could increase uptake of maternal health services by changing the orientation of the community health seeking behavior thereby improving their health and increase survival of mother and child. According to another study on customer satisfaction levels with face-to-face services, it was found that customer satisfaction was significantly higher in face-to-face than with call center services in the human services arena (Bennington and Cummane, 1998a). Therefore, it was not surprising for the community women to prefer dealing with trained TBAs than put a call to the center and discuss their health problem with a stranger they never met in their lives.

Poor connectivity was another challenge recorded by the callers. The community women that require information or help sometimes experiencedpoor network connectivity.Many women do not have access to mobile telephones or own mobile phone but whenever they were opportune to have access to phone and make call to the center, poor network connectivity marred their effort.

Low literacy level is another factor that reduces the frequent use of the call center. Some of community women who own mobile phone could not save call center numbers given to them due to illiteracy.And once the sticker with the call center got lost that will be the end and such person cannot have access to center services except she sees someone who has the number and help her to dial the center before she could contact and enjoy the services. Another challenge mentioned was issue of concerns about the confidentiality of callers. This is misperception on the part of the community women because the call center agents are trained nurses and midwives who have already taken the oat of secrecy during the graduation ceremony. They know the importance of keeping health information of a client secret and confidential; hence, awareness creation could resolve this misconception.

Delay picking of calls is another challenges experienced by the community women and this require attention of the implementer. Not many people will have the patience of waiting when put on hold, hence, call center agents to improve on the response rate to avoid people switching to another readily available means of getting information. This issue was noted in another study that access of service quality would be greatly affected when delays in picking calls occur (Green et al., 1996).According to Bennington, Cummane and Conn (2000), the usage of new technologies facilitates greater effectiveness and efficiency, where more customers can be serviced at any one point in time. They further reiterated that the call center agent who takes the call might be hundreds of miles away, perhaps even in another country or continent. Hence, call center should connect to high-capacity phone lines that will enhance easy connectivity. Call center management to work with telecommunication companies to ensure high-capacity phone lines are provided.

The call center management should have great concerns on the delay issue raised in the focus group discussion so that the patronage will not nose dive. There could be possibility of shortage of call center manpower, hence, conceited effort should be made to recruit more competent staff with sound training on client-agent relationship to promote access to service quality. During the training emphasis should be on what Judith Strother (2006) posited that every employee-customer encounter must be considered to be an invaluable opportunity to improve customer service and engender customer loyalty". Proper application of call center operations can play a key role in accessing more customers, and in providing better quality services especially where additional or extended services become available (Walker and Craig-Lees, 1998).

**Conclusion**

Call center has potentials to improve the access to- and utilization of health facility services. The interaction with the call center agents couldsave lives during obstetric emergency cases; knowledge can be transferred and acquired. Although, call center was considered as alien, still about 10 percent of the people made use of the services and they were glad they did. Proper implementation of maternal health call center could be another means of providing relief to community members who may be living in difficult terrain areas and had no access to nearby primary health care services. Public enlightenment is very important to sell the innovative ideas of call center to the people. Concept of "stranger" can be addressed in well-tailored health messages to forestall any negative impression about the call center services. Adequate staffing, training, motivation and supportive supervision, provision of state-of-art equipment, and installation of caller's identification number will improve quality of services and enhance high patronage. Two digit codes of call center number will be helpful since majority of the target audience are low literate and will not be able to memorize ten digits mobile phone numbers. This two-digit code should be linked to all the network providers' lines at the center to ensure effectiveness of toll-free strategy. Face-to-face interaction as observed yielded more impactful results in uptake of any kind of services; hence, there is a need to recruit enough frontline workers especially trained traditional birth attendants as demand creation agents for the promotionof call center and health facility services. This will have more impact than sole reliance on print and mass media alone.

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