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## **Upscaling Community-Arranged Preparedness for Preventing Maternal Mortality in Ghana: A Case Study of Keta and Akatsi Districts of Volta Region**

By Chuks J. Mba<sup>1</sup> and Irene K. Aboh

### **Abstract**

The main objective of the study is to assess maternal health in Ghana using empirical evidence from Akatsi and Keta districts of the Volta Region. Interviews were conducted from a sample size of 6,250 respondents within the reproductive age group of 15-49 years drawn from both districts in 2007. The results show that most of the women had only basic education and were generally petty traders, farmers and fishmongers. Overwhelming majority of the women stated that there was no community-arranged preparedness to aid them in times of emergency obstetric care. A significant proportion of the women (about 30%) relied on relatives/friends/home or traditional birth attendants (TBAs) to deliver their babies, while the road network in both districts was poor.

The Government of Ghana should therefore rehabilitate roads or construct new ones that could help the people transport emergency complications to the health facility on time to prevent deaths. These TBAs should be trained to recognize complications and not to manage complications professionally and they should be motivated to make referrals to mainstream health facilities. The Government of Ghana should aim at increasing girls' participation at all levels of the education system in the country since education is the key to ending poverty.

*Keywords:* Akatsi, Keta, Ghana, Women's Health, Maternal mortality.

### **Introduction**

Maternal deaths prominently occur in developing countries and among women in the most deprived sections of a given population. Childbirth, a real cause for rejoicing among more fortunate, economically affluent women, becomes for the poor an event filled with tension, which may, and all too often does, leave behind motherless children and bereaved families. A comprehensive understanding of the root causes of the present unacceptable toll of maternal mortality in developing countries deserves a serious attention (Hefez, 2000).

Although maternal mortality accounts for the greatest proportion of deaths among women of reproductive age in most of the developing world, its importance is not always evident from official statistics. In areas where the problem is most severe, the majority of maternal deaths simply go unrecorded, or the cause of death is not specified. Hence there is a tendency to underestimate the gravity of the situation. Statistics has it that for every

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death among women, there are 10 more that are left with morbidities of various kinds that may have life-long crippling effects which the women endure in silence.

According to a newly released national study, one in five deaths among Ghanaian women age 15 to 29 is due to complications of pregnancy and childbirth (Ghana Statistical Service et al. 2009a). Nationwide, Ghana's maternal mortality ratio is estimated at 451 deaths per 100,000 live births in the seven years preceding the survey, about 40 times the maternal mortality ratio in the United States. From the annual reports of the Volta Region, MMR was 256/100,000, 262/100,000, 256/100,000 and 200/100,000 respectively for years 2003, 2004, 2005 and 2006. These reports indicate further that by 2006 Akatsi district recorded no maternal deaths<sup>2</sup>, while Keta district had 177 maternal deaths per 100,000 live births. Maternal mortality is the vital health indicator with the greatest disparity between developed and developing countries.

The challenging nature of measuring maternal mortality has made it necessary to perform an action-oriented means of gathering information on where, how and why deaths are occurring; what kinds of action are needed and have been taken with a view to stemming the tide of maternal mortality.

Generally, Ghanaian mothers are the backbone of their families and communities because of the important role they have rearing children, taking care of the home and handling their other roles at church, work or other places they are involved in.. Thus, the death of a mother has serious consequences on the welfare and survival of her children. This death is not only a tragic loss to her family, but also to her community and her country. In fact, maternal death is a humanitarian concern beyond the contributions that women make to their communities.

Against the backdrop of the foregoing the study seeks to examine community-arranged preparedness for preventing maternal mortality, and identify factors that affect the prompt usage of the health facilities in Keta and Akatsi districts of Volta Region of Ghana. In particular, very little is known in the Volta Region concerning maternal mortality. On the basis of available empirical evidence, it is necessary to furnish decision makers and other stakeholders with vital information regarding the high maternal mortality cases in the region for possible policy and programme interventions. Additionally, this study will contribute to knowledge on the factors contributing to maternal mortality with a view to, among other things, stimulate further research.

## **Study Areas**

The Akatsi and Keta districts are in the Volta Region of Ghana. They occupy the coastal strands and the mangrove swamps in the southern part of the region. They also lie on a longitudinal layout extending from latitude 5 degrees 45 north to 8 degrees 45 north, and occupy an area of about 906.4 and 1086 square km respectively. They share

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<sup>2</sup> That Akatsi district recorded no deaths does not in any way imply that there were no maternal deaths in the district. The district as at the time of this study had only one health centre that was being considered for a district hospital (unlike Keta district that had two hospitals). This facility was closed to public after 6.00pm every day, while the other government health facilities in the district provided limited health services. Since labour generally begins in the night, overwhelming majority of women preferred to patronize either private health facilities in the district (which rarely provide information on maternal mortality) or hospitals located in the other districts that were very close to Akatsi district. This fact is buttressed by the fact that in the present study respondents in Akatsi district reported maternal deaths in their communities.

boundary with Ho district in the north, North and South Tongu in the west, the gulf of Guinea in the south and Ketu district in the east.

A third of the Keta district is covered with water bodies (362 km<sup>2</sup>). Among the water bodies, the Keta lagoon is the largest and it is about 1.2 km wide and 32 km long. The Keta lagoon is the most important water body in the district and is a designated wetland area or Ramsar site which is a source of commercial fish production and wealth creation for communities lying along it. The main river that passes through Akatsi district is river Tordzi whose tributaries has created numerous individual dams for agricultural purposes.

Keta district is divided into six sub-districts namely: Keta, Tegbi, Anloga, Anyanui, Anyako and Shime sub districts while Akatsi district is also divided into five sub-districts namely, Ave-Dakpa, Wute, Gefia, Akatsi and Avenorpeme. Akatsi district population is 21% urban and 79% rural, while that of Keta is 54% urban and 46% rural. The two districts have a population density of 115 and 259/km<sup>2</sup> respectively.

Current estimated total population of the two districts is 104,652 for Akatsi and 149,640 for Keta, with an estimated annual growth rate of about 1.9% and 1.8% respectively (Ghana Health Service 2006). Women within the reproductive age group (15-49 years) are 24,070 (representing about 23.0% of the female population) and 35,014 (representing about 24.0% of the female population) for Akatsi and Keta respectively.

The people in the Keta district are mainly Ewes who form about 98.8% of the total population, the remaining ethnic minorities being Gas and Akans (Ghana Statistical Service et al. 2003). The people in the Akatsi district are also made up of Avenos, Aves and Anlos with a few Gas and Akans. The predominant religion of the people is Christianity, followed by traditional religion. Agriculture is the main economic activity in both districts. A majority of the people engaged in crop farming (such as maize, cassava, cowpea and potatoes), fishing, livestock keeping and other related activities. These demographic details are important as they provide a basis for explaining subsequent analytical results.

Keta district has a number of health facilities which provide various levels of services. Ownership of these health facilities is both public and private with public facilities dominating. There are 22 health facilities in the Keta district, consisting of two hospitals, ten health centers, five privately owned clinics, four maternity homes and one community-based health planning and services (CHPS) zone.

In the Akatsi district, there are 18 health facilities in the district. Out of this number, 13 are government owned, five are privately owned and eight are CHPS zones. There are no mission (church) health facilities. Currently Akatsi Health Centre is now earmarked to be the District Hospital but serious cases are referred to the privately owned clinics in the District, (Ghana Health Service 2006). The health centers provide curative, preventive and maternity services while reproductive and child health (RCH) clinics provide only preventive services. Also, the community health officers (CHOs) in the CHPS zones provide both curative and preventive services. These services are provided at a fee. The costs of the services are not prohibitive but because of pervasive poverty many of the women find it difficult to access them.

## **Methodology**

The Volta Region consists of 15 administrative districts which belong to three ecological zones, namely the northern savannah, middle rainforest and southern coastal zones. The southern coastal zone was randomly selected. At the second stage, two districts were selected from the five districts that make up the ecological southern coastal zone of Volta Region on the bases of the highest and lowest maternal mortality profiles. These are the Akatsi and Keta districts. This ecological information is important for organizing the methodology.

The Government of Ghana has partitioned Keta and Akatsi districts, like other districts of the country, into six and five sub-districts respectively for purposes of administrative convenience. In this study, three sub-districts each were selected from the districts namely; Anloga, Tegbi and Keta from the Keta district and Ave-Dakpa, Gefia and Akatsi sub-districts from the Akatsi district.

The sub-districts were further broken down into clusters using the already existing health demarcations (Ghana Health Service 2006; Ghana Statistical Service 2002), and then four clusters each were randomly selected from each sub-district for the study. In the Akatsi district, the clusters selected from the sub-districts were: (i) Ave Dakpa: Afiadenyigba, Avevi, Agbledomi and Junction; (ii) Gefia: Asafoatse, Kpota, Gefia, Lume; and (iii) Akatsi: Anyidzime, Agbaflome, Akatsi and Kpotame. Similarly, in Keta district, the clusters selected were (i) Keta: Kedzi, Keta, Dzelukope and Vui; (ii) Teghi: Hekpa, Azumagbor, Ashiata, Kakloko; and (iii) Anloga: Woe, Anloga, Whuti and Srogboe. Interviews were conducted among women resident in these 24 clusters in Akatsi and Keta districts of Volta Region of Ghana during the period of data collection.

Consequently, the study was a cross-sectional study in the southern ecological zone among women of the southern ecological zone in the Volta Region organized at four levels to obtain information on maternal health issues. It used women in the child welfare clinics (CWCs) and the communities who were between the ages 15 and 49 and the heads of institutions of both Keta and Akatsi districts. Data was collected from January 20th to April 21st 2007. Out of 6,250 questionnaires used by the field workers, 6,221 were returned over the four months duration and 6,065 were found to contain exhaustive responses, yielding a response rate of 97%.

The questionnaire was used obtain data on women's characteristics, inter alia, such as: age; marital status; education; literacy; place of residence; employment status; religion; children ever born; safe environment; place of delivery; socio-cultural belief (ethnic orientation); availability of skilled attendants per patient and basic maternity equipment; average time spent with skilled or unskilled attendants before delivery; nature of access roads to delivery site average distance between facility and community; time spent on the way before getting to the delivery site; cost of transportation from home to delivery site; and the type of community assistance available.

## **Results**

Table 1 shows the distribution of respondents by their socio-demographic characteristics in the Akatsi and Keta districts of the Volta Region of Ghana. The table indicates that the highest proportion of respondents (17.5%) from Akatsi were in the 15-19 age group while in Keta, the corresponding proportion (23.1%) was in the 20-24 year age group; followed by 15.4% and 19.5% in the age groups 25-29 and 20-24 from Akatsi

and Keta district respectively; yielding the median age group of 30-34 years for Akatsi and 25-29 years for Keta.

More than 70% of respondents from both districts had basic and secondary education, while less than 10% had tertiary education. However, Akatsi women are more likely to acquire higher education than their counterparts from Keta.. A Majority of the women had ever been married<sup>3</sup> (75.7% in Akatsi and 82.6% in Keta) indicating universality of marriage similar to what other surveys report (see, for example, Ghana Statistical Service et al. 2009b). Women from Keta are more likely to get married than their counterparts from Akatsi partly because those from the latter district spend more time in school and might postpone until completion of their educational pursuit. Fifty-six percent of respondents from Akatsi and 71.7% from Keta were Christians. Those who practice traditional religion are 26.1% from Akatsi and 19.7% from Keta. About 84.5% of the respondents from Akatsi and 97.0% from Keta were from the Ewe tribe, while the Akan tribe constituted 7.5% and 1.4% of the population from Akatsi and Keta respectively. The people of the Ewe tribe are predominantly found in the southeastern part of Ghana, in the Volta Region, as well as in the southern parts of neighboring Togo and Benin. The Ewes are primarily subsistence farmers and keepers of small amounts of livestock. Fishing is an important aspect of the livelihood of the Ewe people because of their close proximity to Lake Volta. The results showed that the women were generally traders, farmers, or fishmongers. This is not unexpected in part due to their tribal affiliation and in part because these women did not have higher education that could earn them white collar employment.

Table 1: Distribution of respondents by demographic characteristics

Variable	Akatsi		Keta	
AGE	NO.	%	NO.	%
15-19	553	17.5	492	17.2
20-24	455	14.4	660	23.1
25-29	485	15.4	559	19.5
30-34	453	14.4	416	14.5
35-39	340	10.8	317	11.1
40-44	431	13.7	227	7.9
45-49	439	13.9	189	6.6
Median age group	30-34		25-29	
EDUCATION				
No Education	502	16.0	531	18.6
Basic	1583	50.5	1768	61.9
Secondary	745	23.8	392	13.7
Tertiary	245	8.2	138	4.8
Others	48	1.5	26	0.9
MARITAL STATUS				
Never married	763	24.3	479	17.4
Married	1549	49.4	1919	70.0
Divorce	296	9.4	93	3.4

<sup>3</sup> 'Ever married comprises currently married, divorced, separated, and widowed.

Co-habiting	192	6.1	134	4.9
Widow	335	10.7	120	4.4
<b>RELIGION</b>				
Christian	1726	56.2	2032	71.7
Moslem	262	8.5	36	1.3
Traditional religion	801	26.1	558	19.7
No religion	282	9.2	210	7.4
<b>ETHNICITY</b>				
Ewe	2648	84.5	2726	97.0
Akan	235	7.5	41	1.4
Ga/Dangme	38	1.2	22	0.8
Hausa	205	6.5	16	0.6
Non Ghanaian	6	0.2	7	0.2
<b>OCCUPATION</b>				
Farmer	580	19.2	208	7.7
Fishmonger	244	8.1	302	11.2
Trader	904	29.9	864	32.0
Artisan	98	3.2	358	13.3
Housewife	209	6.9	289	10.7
Civil servant	330	10.9	179	6.6
Others	658	21.8	498	18.5

Table 2 indicates the distribution of measures put in place to combat any emergency situation in the community not necessary for safe motherhood. From discussions with respondents and assemblymen and women, there is no such arrangement rather individual households are responsible for the welfare of their members. Likewise, majority 83.2% from Akatsi and 54.3% from Keta said there were no such preparedness and the usual transport services available in the community to take care of members was the Ghana private road transport union of TUC (GPRTU). Ambulance services were least with 1.4% for Akatsi and 0.6% for Keta. Although the cost of services is subject to change, it was relatively high for some respondents. Five percent for Akatsi and 12.0% for Keta of respondents paid more than GH¢10 before such services were rendered to them.

Community-arranged preparedness relates to measures put in place by community members to assist expectant or nursing mothers in emergency situations. Unfortunately, the communities in both districts had virtually no arrangement of that kind but arrangement was at the individual household level to take care of their household members as the need arose. For example, about 44% of the women from Keta district made individual arrangements with taxi drivers or drivers from the Ghana Private and Road Transport Union (GPRTU) and subsequently paid for such services. Those who paid money paid less than GH¢104, while those who paid more than GH¢10 had special services such as client transfer from one health facility to the other.

<sup>4</sup> As at October 2009, US\$ = GH¢1.43907 (Source: <http://www.exchange-rates.org/converter/USD/GHS/1/Y>).

Table 2: Distribution of Measures of Community Preparedness

Self-reported Measures by Respondents	Akatsi		Keta	
Mobility	n (2,974)	100%	n (2,551)	100%
Improvised stretcher	21	0.7	26	1.0
Personal Taxi	444	14.9	1,122	44.0
Community ambulance	36	1.2	17	0.7
None	2,473	83.2	1,386	54.3
Service Provider	n (2,967)	100%	n (2,463)	100%
Community Youth	33	1.1	43	1.7
GPRTU	116	3.9	1,076	43.7
Ambulance Services	41	1.4	15	0.6
None	2,777	93.6	1,329	54.0
Cost of Services	n (2,909)	100%	n (2,382)	100%
Less than GH¢10	195	6.7	923	38.7
GH¢10-20	45	1.5	167	7.0
GH¢20-40	6	0.2	51	2.1
More than GH¢40	94	3.2	69	2.9
None	2,569	88.3	1,172	49.2

Table 3 presents data relating to women aged 15 - 49 who had at least one sister aged 15 and above dying due to maternal causes cross-tabulated by their community level characteristics. This is expected to furnish insights into the risk of dying of maternal causes by some community factors with particular reference to access to service delivery. Factors considered were estimated distance to service delivery, average travel time to service delivery, place of delivery, average time at the labour ward, nature of roads and means of transportation. The Ghana Health Service (GHS) definition of distance to a health facility is 'within 8km' and it should be made within an hour at a minimal cost (Ghana Health Service 2001).

From the table those who traveled within the 8km and within an hour were at more risk of dying than those who traveled beyond 8km. In the Akatsi district, majority of the women (86.5%) were at risk of dying of maternal causes among people who lived within 8km to a health service delivery, while the corresponding figure for Keta district was 74.7%. Also, close to 95% of these women from both districts traveled an average time of 1hour to health facility. The place of birth sheds some light as to why most of the women were at an elevated risk of dying who traveled within 8km and 1hour to deliver. A significant proportion of the women (about 30%) relied on relatives/friends/home or traditional birth attendants (TBAs) to deliver their babies. The consequences of this approach when complications arise during delivery are obvious especially since the districts do not have any contingency measures to assist women in such emergencies. Furthermore, even though the women traveled within the 8km and within 1hour to the place of delivery, there might not have been proper and adequate road network in the two districts. This is evidenced by the fact that the table reveals that the use of tattered or untarred road to the place of delivery increases the risk of dying in both districts but is



more pronounced in Akatsi district. Concerning means of transporting expectant mothers to the place of delivery, it is remarkable that fewer deaths were recorded in cases where ambulance services were used for both districts. This is because these ambulances usually send the patients to well-equipped health facilities, such as hospitals, for delivery and attention. The women might have used taxis or 'trotro'<sup>5</sup> to relatives/friends or TBAs who lacked the professional skills to treat the patients thereby aggravating their risk of dying during childbirth.

Table 3: Distribution of Maternal Death by Community Level Characteristics

Community Characteristics	Women aged 15 - 49 who had at least one sister aged 15 and above dying due to maternal causes			
	Akatsi District		Keta District	
	Number	Percent	Number	Percent
Estimated distance from home to facility	289	100.0	162	100.0
Within 8km	250	86.5	121	74.7
Above 8km	39	13.5	41	25.3
Average travel time to facility	287	100.0	142	100.0
Within 1 hour	268	93.4	133	93.7
Above 1 hour	19	6.6	9	6.3
Place of Birth	276	100.0	175	100.0
Hospital	76	27.5	70	40.0
Clinic	43	15.6	45	25.7
Maternity Home	74	26.8	15	8.6
TBA	29	10.5	13	7.4
Relatives/Friends/home	54	19.6	32	18.3
Nature of road	297	100.0	179	100.0
Footpath	77	25.9	43	24.0
Tattered	55	18.5	16	8.9
Untarred	150	50.5	45	25.1
Tarred	15	5.1	75	42.0
Means of transporting patients	296	100.0	166	100.0
Walked	85	28.7	56	33.7
Improvised stretchers	7	2.4	4	2.4
Taxi	180	60.8	60	36.1

<sup>5</sup> 'Trotro' are buses used commercially to transport commuters from one location to another.

Trotro	19	6.4	37	22.3
Ambulance/private cars	5	1.7	9	5.5

### Discussion and Conclusion

The Ministry of Health developed and published a Medium Term Health Strategy (MTHS) and a five year programme of work that is to guide health development in Ghana (Ghana Health Service 2001). One of the objectives of the programme is to increase geographical and financial access to basic services in which every citizen in Ghana would be beneficiary of health to the extent that they would stay within a distance of 8km or 5miles from a health facility and this distance should be covered within 1hour at a minimum cost as possible. The road network in both districts is poor. It is common to find roads in a condition of disrepair with many and big potholes and sometimes the roads become inaccessible especially during the rainy season. In such cases using footpath becomes inevitable. Due to the nature of roads, it generally takes drivers a rather long time to convey patients or passengers to their places of destination, thus increasing their time of transportation to the health facility, which clearly carries dire consequences. Many of the taxis and trotros that ply those routes do not depart from the terminals except the vehicles are full to capacity or someone volunteers to pay for the balance of vacant seats. On the other hand, it is possible to walk to the road side and wait for a vehicle that may be headed in a direction of interest. One may then join the vehicle depending on the time it arrives and if there is a vacant seat.

It is the contention of this study that with a good and proper road network one is expected to pay lesser amounts for transportation and more importantly arrive at one's destination in good enough time for medical attention. A World Health Organization's (1999) study conducted in Malaysia concluded that remoteness or inaccessibility was a factor in 7.2% of maternal deaths, 4% had no transport at all and 2% transport was not immediately available. The Government of Ghana should therefore rehabilitate roads or construct new ones that could help the people transport emergency complications to the health facility on time to prevent deaths.

The health facilities in both districts need up scaling as they are under-staffed inadequately equipped and lack adequate supplies. Also, traditional birth attendants (TBAs) are still patronized in both districts. These TBAs should be trained to recognize complications and not to manage complications professionally and they should be motivated to make referrals to mainstream health facilities.

Respondents' degree of autonomy is measured by the ability to make very important and critical decision about their health. To be able to make such decision depends on one's educational level and economic status. The present study found that the educational level of respondents was chiefly basic i.e. primary school level, middle school level or JSS level in both Akatsi and Keta districts. In line with the United Nations Millennium Development Goals, the Government of Ghana should aim at increasing girls' participation at all levels of the education system in the country since education is the key to ending poverty. This is because when the woman is sufficiently educated and intellectually empowered she is most likely to get employment in the formal sector of the economy leading to her financial empowerment. Clearly, investment in girls' education fulfils and protects the core human rights principle that education is a right for all and is the right of girls in particular; it enhances individual freedom and furthers the

empowerment of girls and women, and contributes towards improving maternal health in substantial ways.

The main contribution of this study is to further raise awareness regarding the plight of Ghanaian women in fulfilling their reproductive roles using a collection of maternal health data from Akatsi and Keta districts of the Volta Region.

Future research should use a more regionally representative sample size to investigate maternal health in Volta Region. Furthermore, it is important to empirically study why a significant proportion of women choose to deliver at home after receiving prenatal services from health facilities.

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