

Improving maternal health in Ghana: resource availability for safe delivery in Akatsi and Keta Districts of Volta Region

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The thrust of the present study was to examine resources available for safe delivery in Akatsi and Keta Districts of Volta Region of Ghana with a view to highlighting the importance of improving maternal health in these districts in particular, and by extension in Ghana as a whole. 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. Only 39.2% of the women from Akatsi and 53.9% of their counterparts from Keta delivered in a hospital within 8 km from their places of residence, implying that a substantial proportion of the women from both districts traveled long distances to deliver their babies. Furthermore, delivery by traditional birth attendants (TBAs) and assisted delivery at home by relatives and friends were still common, while the road network in both districts was poor. About 25% of the women from both districts spent more than 1 hr to walk to a health facility, while those who patronized vehicular means of transport had to pass through rough roads (61.2% in Akatsi and 52.2% in Keta). The findings also suggest that 36.4% and 29.1% from Akatsi and Keta districts respectively needed extra care from their attendants or experienced some degree of delay at the health facility level. The Government of Ghana should therefore aim at increasing girls' participation at all levels of the education system in the country, and rehabilitate roads or construct new ones to help the people transport emergency complications to the health facility on time to prevent deaths. Every pregnant woman should be assisted by a skilled birth attendant because maternal deaths from pregnancies and birth complications are avoidable if the women are attended to by skilled professionals in well-equipped health facilities.

Key words: Childbirth, Ghana, health, maternal, mortality, pregnancy.

INTRODUCTION

Maternal death or maternal mortality (It is also called "obstetrical death", and according to the World Health Organization, "A maternal death is defined as the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes") is the death of a

woman during or shortly after a pregnancy. In the developing world as a whole, a woman has a 1 in 76 lifetime risk of maternal death, compared with a probability of just 1 in 8,000 for women in industrialized countries (World Health Organization et al, 2007). The evidence further suggests that a woman in sub-Saharan Africa has a 4.5% chance of dying from causes related to pregnancy in her life. However, most of these deaths have been medically preventable for decades, because treatments to avoid such deaths have been well known since the 1950s (Nour, 2008; Rosenfield et al, 2007; Costello et al, 2006).

As stated in the 2005 World Health Organization report "Make Every Mother and Child Count", the major causes

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of maternal death are: severe bleeding/hemorrhage (25%), infections (13%), unsafe abortions (13%), eclampsia (12%), obstructed labour (8%), other direct causes (8%), and indirect (Indirect causes include malaria, anaemia, HIV/AIDS and cardiovascular disease, complicate pregnancy or are aggravated by it) causes (20%). Current evidence suggests that over 90% of maternal deaths occur in developing countries. Maternal Mortality Ratio (MMR), which is the ratio of the number of maternal deaths per 100,000 live births, is used as a measure of the quality of a health care system. Sierra Leone has the highest maternal death rate at 2,000, and Afghanistan has the second highest maternal death rate at 1900 maternal deaths per 100,000 live births. In fact, African countries are the worst hit as, for example, the following countries all in sub-Saharan Africa have MMR at or in excess of 1,000: Malawi (1,800), Angola (1,700), Niger (1,600), Tanzania (1,500), Rwanda (1,400), Mali (1,200), Somalia, Zimbabwe, Chad, Central African Republic, Guinea Bissau (1,100 each), Mozambique, Burkina Faso, Burundi, and Mauritania (1,000 each). Ghana currently has maternal mortality estimated at 451 deaths per 100,000 live births (Ghana Statistical Service et al, 2009a), while lowest rates of MMR can be found generally in countries of the West (such as Iceland at 0 per 100,000 and Austria at 4 per 100,000).

Since the launch of the Safe Motherhood Initiative in 1987, the goal of reducing maternal mortality has been reiterated at many global conferences. At the Millennium Summit in 2000, for example, the United Nations Member States issued the Millennium Development Goals (MDGs) that call for a three-fourths reduction in maternal mortality rates by the year 2015. Similarly, two major international conferences, the 1994 Cairo International Conference on Population and Development (ICPD) and the 1995 Beijing Fourth World Conference on Women echoed the concerns of the Nairobi Conference in 1987 on safe motherhood initiatives which urged immediate global action.

According to a newly released national study, one in five deaths among Ghanaian women aged 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 2003, 2004, 2005 and 2006 years. These reports indicate further that by 2006 Akatsi District recorded no maternal deaths (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 6.00 pm

every day, while the other government health facilities in the district provided limited health services. Since for some women, labour generally begins in the night, a substantial proportion of them preferred to patronize either private health facilities in the district (which rarely provided 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, while Keta District had 177 maternal deaths per 100,000 live births.

For a framework for safe motherhood promotion, the present study attempts to identify the contributing factors responsible for high maternal mortality in Akatsi and Keta Districts of the Volta region of Ghana on the basis of available data.

Without baseline information, the region will not be able to effectively plan, implement and evaluate programmes concerning maternal health. If the Safe Motherhood Initiative is to succeed in the Volta Region, some empirical information on the specific delayed factors contributing to maternal mortality should be known and since no specific study has been done in this direction, the present study is appropriate and timely.

Current programmes devoted much of their efforts to emergency preparedness and to the provision of emergency obstetric care (EmOC). An increasing number of such programmes are based on the three delayed models, which are a framework that explain the social factors responsible for maternal death (UNFPA, 2002). In most instances women who die in childbirth experienced at least one of the following three delays: (i) delay in deciding to seek care for an obstetric complication (This may be due to several reasons, including late recognition that there is a problem, fear of the hospital or of the cost that will be incurred there, or the lack of an available decision maker); (ii) delay in reaching the health facility (This is usually caused by transport difficulties as many villages have poor road network and very limited transportation options); and (iii) delay in obtaining care at the health facility (This delay is occasioned by waiting so many hours at the referral centre because of poor staffing, prepayment policies, or difficulties in obtaining blood supplies, equipment or going to an operating theatre).

Any of these delays can lead to the death of the expectant woman. The death of a woman in childbirth is a tragedy, an unnecessary and wasteful event that carries with it a huge burden of grief and pain. Pregnancy is not a disease and pregnancy related morbidity and mortality are preventable (Begum et al, 2003). As noted previously, reducing the maternal mortality by three quarters between 1990 and 2015 is a specific part of Goal 5 -Improving Maternal Health - of the eight Millennium Development Goals.

In the light of the foregoing, the study aims to examine the women's accessibility to health institutions, and iden-

tify the resources available to health facilities for safe delivery in Keta and Akatsi Districts of Volta Region of Ghana.

STUDY AREAS AND METHODOLOGY

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 boundary with Ho District in the North and South; Tongu in the west; the Gulf of Guinea in the South and Ketu District in the East.

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. Majority of the people engaged in crop farming (such as maize, cassava, cowpea and potatoes), fishing, livestock keeping and other related activities.

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. 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. 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.

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.

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 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, Kaklokope; 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 of 15 and 49 from both Keta and Akatsi Districts. Data were 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 to 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; availability of skilled attendant 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.

With respect to ethical issues, approval was obtained from the International Research Board (IRB) of National Health Research Unit of the Ghana Health Service and the Directors of Health of the two districts involved. Permission was sought from the district assembly men and women who organized some educated young men and women to help undertake the study. Consent was sought from the respondents while confidentiality of the information given was assured.

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. This was followed by 15.4 and 19.5% in the age groups of 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. Majority of the women had ever been married (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

Table 1. Distribution of respondents by demographic characteristics.

Variable	Akatsi		Keta	
	NO.	%	NO.	%
Age				
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
Co-habiting	192	6.1	134	4.9
Widow	335	10.7	120	4.4
Religion				
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
Ethnicity				
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
Occupation				
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

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 women were generally traders, farmers, or fishmongers. This is not unexpected as most of these women did not have higher education that could earn them white collar employment.

The Ghana Health Service (GHS) stipulates that to increase geographical and financial access to basic health services the distance to a health facility should be within 8 km radius from where the person resides and it should be made within an hour at a minimal cost (Ghana Health Service, 2001). In line with this requirement, Table 2 presents the distribution of place of delivery of the women, nature of road, and their means of transportation according to the distance covered for both Akatsi and Keta Districts. Only 39.2% of the women from Akatsi and 53.9% of their counterparts from Keta delivered in a hospital within 8 km from their places of residence. A substantial proportion of the women from both districts traveled long distances to deliver their babies. As well, delivery by traditional birth attendants (TBAs) and assisted delivery at home by relatives and friends were still common. This finding is consistent with results of the latest nationally representative sample survey which showed that more than one in four births in Volta Region was delivered by an untrained TBA (Ghana Statistical Service et al., 2009). The danger of this practice is obvious because the TBAs and friends and relatives of the expectant mothers are not professionals and may not be able to detect symptoms of complications early enough for urgent action in order to save the life of both mother and child.

Furthermore, a significant proportion of those women who traveled within 8 km to deliver had to go through footpath or bad (tattered/untarred) road in both districts (93.8% in Akatsi and 59.4% in Keta). Since most of these women generally walked or used taxis, they would most likely encounter delays in reaching the health facilities due to the poor condition of the roads which is exacerbated during rainy seasons. This fear is somewhat confirmed in Table 3 by the fact that about 25% of the women from both districts spent more than 1 h to walk to a health facility, while those who patronized taxis or *trotro* ('Trotro' are buses used commercially to transport commuters from one location to another) had to pass through rough roads (61.2% in Akatsi and 52.2% in Keta).

The table further reveals that close to 55% of the respondents from Akatsi and Keta had two birth attendants taking care of them. Other statistics from the two districts showed medical personnel (one doctor and skilled nurse) to patient ratio of 1: 4,631 for Akatsi District and 1:7,593 for Keta District (Ghana Health Service, 2006).

It is expected that within an hour all cases in the outpatient department (OPD) are given the necessary attention and sent to the relevant section of the health facility for treatment or addressed immediately if the case is an emergency. So if obstetric emergencies are kept at the OPD to follow the usual bureaucratic procedures then the worse could happen as a result of the delay. Waiting time at the OPDs showed that 6.1% of the women from

Table 2. Distribution of distance to health facility by place of delivery, nature of road and means of transport.

Facility	Akatsi				Keta			
	Within 8 km		Above 8 km		Within 8 km		Above 8 km	
Place of birth	825	(%)	179	(%)	436	(%)	153	(%)
Hospital	323	(39.2)	56	(32.3)	235	(53.9)	62	(40.5)
Clinic	125	(15.2)	24	(13.4)	104	(23.9)	40	(26.1)
Maternity home	185	(22.4)	53	(29.6)	21	(4.8)	13	(8.5)
TBA	110	(13.3)	12	(6.7)	17	(3.9)	11	(7.2)
Relatives/Friends/home	82	(9.9)	34	(18.0)	59	(13.5)	27	(17.7)
Nature of road	825	(%)	179	(%)	436	(%)	153	(%)
Footpath	190	(23.0)	8	(4.5)	62	(14.2)	41	(26.8)
Tattered	119	(14.4)	10	(5.5)	28	(6.4)	4	(2.6)
Untarred	465	(56.4)	153	(85.5)	169	(38.8)	40	(26.1)
Tarred	51	(6.2)	8	(4.5)	177	(40.6)	68	(44.5)
Means of transporting patients	825	(%)	179	(%)	436	(%)	153	(%)
Walked	241	(29.2)	14	(7.9)	112	(25.7)	26	(17.0)
Improvised stretchers	15	(1.8)	0	(0.0)	7	(1.6)	4	(2.6)
Taxi	515	(62.4)	135	(75.8)	180	(41.3)	77	(50.3)
Trotro	43	(5.2)	26	(14.6)	125	(28.7)	36	(23.5)
Ambulance/private cars	11	(1.4)	4	(1.7)	12	(2.7)	10	(6.6)

Table 3. Distribution of travel time to service delivery by nature of road and means of transport.

Facility	Akatsi				Keta			
	Within 1 hr		Above 1 hr		Within 1 hr		Above 1 hr	
Nature of road	825	(%)	179	(%)	436	(%)	153	(%)
Footpath	154	(18.7)	35	(19.6)	60	(13.8)	34	(22.1)
Tattered	113	(13.7)	30	(16.8)	22	(5.0)	33	(21.6)
Untarred	511	(61.9)	81	(45.3)	164	(37.6)	49	(32.0)
Tarred	47	(5.7)	33	(18.3)	190	(43.6)	37	(24.3)
Means of transporting patients	825	(%)	179	(%)	436	(%)	153	(%)
Walked	190	(25.3)	42	(23.5)	91	(20.8)	40	(26.1)
Improvised stretchers	25	(0.3)	25	(14.1)	5	(1.2)	0	(0.0)
Taxi	552	(66.9)	80	(44.7)	202	(46.5)	53	(34.8)
Trotro	50	(6.0)	30	(16.5)	126	(28.8)	27	(17.4)
Ambulance/private cars	8	(1.5)	2	(1.2)	12	(2.7)	33	(21.7)

Akatsi and 5.4% of those from Keta waited more than one hour before being sent to their appropriate units for medical attention (Table 3).

In the labour ward generally, the cervical orifice is to dilate at a rate of 1.00 to 1.50 cm per hour using the partogram. If all women in travail came to the health facility labour should last within 8 to 15 hr (This is however different for the primigravida and the elderly primip, that is age 35 and above. Ideally, therefore, 0-15 h is the normal range of time a woman is expected to stay at the health facility postpartum). So any labour that exceeds 15 hr is expected to be terminated by other means such as forceps delivery, vacuum extraction or caesarean section. Table 3 further shows that close to 20% of the women from Akatsi and 10% of their counterparts from Keta laboured for more than the fifteen hours. Generally, when a woman stayed for more than 24 hr, it was because she needed more attention

or that the baby(ies) needed extra care. The findings suggest that 36.4 and 29.1% from Akatsi and Keta Districts respectively needed extra care from their attendants or were respondents who experienced some degree of delay at the health facility level.

DISCUSSION AND POLICY ISSUES

Maternal death is already a tragedy in itself, yet the inexcusable extent to which it is under-reported worsens the situation even further. Without an accurate account of the actual numbers of women who die from pregnancy and childbirth complications, the issue does not seem to get the attention it deserves. Similarly, with each maternal death that is not reported, valuable information to help understand what went wrong will be lost and as a consequence, effectiveness of program-

mes aimed at averting maternal deaths suffer. The Akatsi District did not record any maternal deaths because of poorly equipped and resourced health facilities which resulted in very low patronage. It is critical that the health facilities in this district be more equipped and resourced in order to provide 24-hr service to the public. This way, patronage will rise significantly and health statistics will improve.

Very few women from the two districts had tertiary education, explaining why majority of them were petty traders, farmers and fishmongers. Studies have shown that education contributes to better health (Arkes, 2003; 2000; Berger and Leigh, 1989), and the benefits of education for personal improvement and enhancement of socio-economic status are evident. An educated woman is more economically and socially empowered than her uneducated counterparts and is more likely to make better reproductive health decisions for her safety and her children. More efforts should therefore be made to send girls to school beyond the secondary level in these districts for their own and overall societal good.

Every pregnant woman should be assisted by a skilled birth attendant; the evidence shows it saves lives. A skilled attendant at delivery in a supportive environment is able to actively manage labour and carry out basic EmOC functions for the mother, as well as neonatal resuscitation and the prevention of hypothermia in the newborn. Skilled attendants also bring EmOC services closer to home, and when linked to a functioning referral system and a higher EmOC facility, play a crucial role in reducing the deaths of mothers and newborns (UNICEF, 2004).

The study found that the number of health workers in relation to patients at both districts was minuscule, which is consistent with evidence from other sources (Ghana Statistical Service et al., 2009;). The districts lack adequate staffing and facilities to diagnose, manage, and treat common and severe pregnancy-related problems. The need to increase the number of skilled health workers for provision of care at deliveries and treatment of obstetric emergencies is urgent. The Government of Ghana should therefore intensify efforts at training all TBAs and other health workers for more efficient service delivery to save lives. First, more health professionals should be trained and posted to the districts who should be able to detect and manage obstetric complications in order to reduce maternal morbidity and mortality. Second, given the dearth of human resources at the health facilities, including midwives, who are trained to handle emergency cases, and because the training of specialists takes time, more recognition and encouragement should be given to non-specialist health personnel in conducting life saving procedures, to aid them receive competency-based training to carry out emergency obstetric task. It is the contention of this study that with a good and proper road network, one is expected to pay fewer amounts for

transportation and more importantly arrive at her 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.

Women's health, especially maternal mortality, figures prominently in the Millennium Development Goals, spurring all stakeholders to accelerate actions toward the drastic reduction of maternal death by 2015. The reality of the Ghanaian experience poses a host of challenges to making progress towards international set goals - the largest of these is how to increase the momentum of reducing maternal mortality and keep moving forward with the laudable goal of saving women's lives.

Maternal death from pregnancy and birth complications is avoidable, yet it is allowed to happen time after time. Scientific researchers have established that approximately 15% of all pregnancies will result in obstetric complications, and when untreated, they are certain to lead to a woman's death (Maine and Rosenfield, 1999). Investment in emergency obstetric care services thus makes good economic sense because the cost of facilities and personnel is minuscule when weighed against losses of huge numbers of innocent lives. A woman dying unjustly during one of the most natural processes, despite the advent of technologies, is not an outcome of poverty but the absence of priority. Furthermore, maternal death and disability is not an issue that occurs in isolation; its consequences whether directly or indirectly, affect us all. Consequently, the time to act is now.

REFERENCES

- Arkes J (2003). Does Schooling Improve Adult Health?. RAND Working Paper. DRU-3051.
- Arkes J (2000). Using State Unemployment Rates as a Teenager as an Instrumental Variable to Estimate the Monetary Returns to Schooling. RAND Working Paper. pp. 251
- Begum B, Aziz-un-Nisa J, Begum I (2003). Analysis of Maternal Mortality in A Tertiary Care Hospital to Determine Causes and Preventable Factors. J. Ayub Med. Coll. Pp. 45-52
- Berger M, Leigh JP (1989). Schooling, Self-Selection, and Health. J. Human Resour. 24(3), pp. 431-455.
- Costello A, Azad K, Barnett, S (2006). An alternative study to reduce maternal mortality. The Lancet 368: 1477-1479.
- Ghana Health Service (2006). Regional Health Report, Regional Health Directorate. Ho, Ghana
- Ghana Health Service (2001). Reduce Maternal and Newborn Deaths in Ghana. Reproductive and Child Health Units GHS/AED/USAID.
- Ghana Statistical Service ,Ghana Health Service , Macro International (2009a).
- Ghana Statistical Service , Ghana Health Service ,ICF Macro (2009b).
- Maine D ,Rosenfield A (1999). The Safe Motherhood Initiative: Why has it stalled? Am. J. Public Health. 89(4).pp. 62-69.

Nour NM (2008). An Introduction to Maternal Mortality. Rev. Ob. Gyn. 1: 77–81.

Rosenfield A, Min CJ, Freedman LP 2007. Making motherhood safe in developing countries. Engl.J. Med. 356: 1395.

United Nations Children's Education Fund (2004). State of the World's Children Report 2004. New York: UNICEF.

UNFPA (2002). Maternal Mortality Update: A Focus on Emergency Obstetric Care. New York: UNFPA.
http://www.unfpa.org/upload/lib_pub_file/201_filename_mmupdate-2002.pdf

World Health Organization, United Nations Children's Fund, United Nations Population Fund and the World Bank (2007). Maternal Mortality in 2005: Estimates developed by WHO, UNICEF, UNFPA and the World Bank, WHO, Geneva.

Reference: <http://www.unicef.org/sowc09/docs/SOWC09-FullReport-EN.pdf>

World Health Organization (2005). West African Renewal Report: The WHO, Geneva.WHO bull.

World Health Organization (1999). A strategy for reducing maternal mortality: The WHO, Geneva.WHO bulletin