

## Impact of Training traditional birth attendants on maternal mortality and morbidity in Sub-Saharan African countries

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**Abstract:** This paper presents discussion on impact of training traditional birth attendants (TBAs) on overall improvement of reproductive health care with focus on reducing the high rate of maternal and new-born mortality in rural settings in sub-Saharan Africa. The importance of TBAs for years has been denied by professional western trained health practitioners and other scientists until during the late 1980s, when World Health Organization through Safe motherhood 1987 found TBAs have a significant role in reducing maternal and new-born mortality. Trained TBAs in sub-Sahara Africa can have positive impact on reducing maternal and new-born mortality if the programme is well implemented with systematic follow-up after training. This could be done through joint meeting between health workers and TBAs as feed and learning experience from problem encountered in process of providing child delivery services. TBAs can help to break socio-cultural barriers on intervention on reproductive health programmes. However projects targeting TBAs should not be of hit and run; but gradually familiarize with the target group, build trust, transparency, and tolerance, willing to learn and creating a better relationship with them. In this paper, some case studies are described on how trained TBAs can be fully utilized in reducing maternal and new-born mortality rate in rural areas. What is needed is to identify TBAs, map their distribution and train them on basic primary healthcare related to child deliveries and complications which need to be referred to conventional health facilities immediately.

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**Keywords:** traditional birth attendants, training, maternal and child health, Sub-Saharan Africa

### Introduction

Child's birth is an important socio-demographic and cultural event in family and community and a time of great joy and hope. In the past child delivery was assisted by mother-in-law, mother, and aunt or sister in-law before the coming of conventional medicine (Kayombo, 1997). However, where there was complication traditional birth attendants (TBAs) were invited to help (Kayombo, 1997, 1999). A TBA is defined as a person who assists the mother during childbirth and initially acquired her skills by delivering babies herself or through apprenticeship to other TBAs (WHO, 2004). TBAs are integral members of their communities and provide an important window to local customs, traditions, and perceptions regarding childbirth and new-born care (Kamal, 1998; Leedam, 1985). The presences of relatives at birth were to witness child delivery and make proper decision when problem arises (Kayombo, 1997, 1999). Deaths of mothers or infants were translated as bad omen or God wishes or transgressing cultural norms (Kayombo, 1999; Swantz, 1966).

With the coming of conventional medicine during the colonial period conventional health services were gradually introduced in both in rural and urban and more so after independence (Kimambo & Temu, 1969). In Tanzania for example by early 1980s about three quarters of the total population was living within 5km walking distance (ILO, 1982). With the wide-spread of health facilities both in rural and urban areas, it was expected that many of the child bearing women would be using health facilities for child deliveries and other reproductive health services. However, in sub Saharan African countries many child bearing women are still being attended by TBAs and relatives at deliveries (Bergström & Goodburn, 2001; Jamison et al., 2006; Dzadeyson, 2007; Crowe et al., 2012). But studies reviewed show that births without skilled personnel and without access to life-saving drugs are the commonest practice for millions of mothers in the poorest countries where mortality rates and morbidity of the mothers are highest (Crowe et al., 2012; WHO, 2012). Recent statistics indicate that across the world

287,000 women die in pregnancy and childbirth every year (WHO, 2012). This is translated as one mother dying every 2 minutes, 800 each day. Not only that but also 7-10 million women and girls suffer severe or long lasting illnesses caused by complications in pregnancy and childbirth (WHO, 2012). The use of unskilled personnel (including TBAs) is likely to be among the reasons for the high maternal and infant mortality rate in sub Saharan Africa. Despite the expansion of interventions, including construction of more health facilities close to the community, increased use of antenatal clinic, and increased coverage of immunisation (MoH, 2003) the problem has persisted.

There are several factors that need to be addressed to build an effective intervention framework of reducing maternal and infant mortality rate. The questions include: (i) What has been the major role of TBAs in reproductive health that attracts many women to prefer to use them for delivery and other health problems?; (ii) Are there any efforts to train TBAs as intervention and what approaches are used in order to improve health care outcomes?; and (iii) If yes what is the impact of training TBAs on reducing maternal and infant mortality rate? The aim of this paper was to answer these questions with ultimate goal of describing the impact of training TBAs on reducing maternal mortality in Sub-Saharan Africa.

### The role of TBAs on reproductive health

The number of TBAs in developing countries is not known. Conservative estimates suggest that there will be between 180 million non-skilled birth attendants in sub-Saharan Africa by 2015 (Crowe et al., 2012). In Tanzania according to Safe (1989), there were about 4,457 TBAs in the late 1980s. The Institute of Traditional Medicine (ITM, 2005) in Tanzania, on the other hand, has reported a total number of 80,000 traditional health practitioners including TBA in 2005. Since more than 60% of child delivery in African countries south of the Sahara occur at home; it is thus very likely that there are many TBAs and there is a need to identify and train them in order to fill the gap of skilled birth attendants. This in turn will help African countries south of the Sahara to be closer to meet the 4<sup>th</sup> and 5<sup>th</sup> Millennium Development Goals.

Traditionally, the role of TBAs on reproductive health starts immediately after a woman becomes pregnant. These TBAs are consulted for any health problems occurring among pregnant women until during the first to second week after delivery (Swantz, 1966; Cosminsky, 1983; Kayombo, 1997). TBAs have rich knowledge of herbal plants which are used for managing pregnancy and child delivery (Swantz, 1966; Cosminsky, 1983; Kayombo, 1997). Further, TBAs educate pregnant women on appropriate diet to take, pregnancy-related taboos and on how to take care of infants after birth (Swantz, 1966; Cosminsky, 1983; Kayombo, 1997). Most TBAs are known to have some knowledge of risk signs during pregnancy (Swantz, 1966; Cosminsky, 1983; Kayombo, 1997). Some of the taboos in the past may be today interpreted as negative aspects on health of mother. For instance, in some communities of Tanzania, pregnant women were not allowed to eat nutritious food like eggs for fear that the foetus would be too big and become a problem at child delivery (Eresund & Tesha, 1979). In addition, performing sexual intercourse when breastfeeding is believed to cause unexplained fevers to the child and the mother would become pregnant when child is still breastfeeding (Kayombo, 1997). It was a shame for woman to become pregnant when child was still breastfeeding (Kayombo, 1997, 1999). This also acted as family planning mechanism coined in cultural value regarding child delivery taboos and reproductive health in general. Besides counselling pregnant women, TBAs either act as consultant to child delivery where relatives are involved or actively involved in assisting child delivery (Swantz, 1966; Cosminsky, 1983; Kayombo, 1997).

In the management of pregnancy and child delivery, TBAs frequently examine the vagina often using bare hands and apply herbal medicines to the vulva or vagina to ensure health of the growing foetus and safe delivery. However, some of these practices might cause genital infections including

pelvic sepsis (Fauven, 1993) which is one of the major causes of infertility, menstrual disorders and ectopic pregnancies (Fauven, 1993). Moreover, TBA are also responsible for management of family planning, getting opposite sex for a woman who was giving births of one sex, managing some temporally impotence and infertility using traditional remedies (Cosminsky, 1983; Kayombo, 1997).

Some of TBAs are also involved in girls' initiation to adulthood in some ethnic groups (Swantz, 1966; Kayombo 1992). It is here where girls are taught on how to behave as women/ married women; and their expected roles in their respective family and community. In some ethnic groups initiation might involve female circumcision or infibulations and scarification as part of social-cultural practices to be regarded as woman in that community (Kayombo, 1992). Above all TBAs are involved either actively or as consultants in child deliveries. The number of deliveries assisted by TBAs varies per country and per TBA (Mbiydzenyuy, 2012). In Tanzania, for example, TDHS (2010) has shown that among 50% of home deliveries, 29.1% were assisted by relatives of whom some might be TBAs, 14.7% attended by TBAs, and 3.4% delivered without assistance and 2.8% by others. More or less similar findings have been shown by studies done by Cosminsky (1983) and Mbiydzenyuy (2012). In West Africa Studies show that relatives and TBAs assist 60-80% child deliveries (This Dayn Nigeria, 2007; Mbiydzenyuy, 2012). In Asia on the other hand studies show a variation between 40-80% of child deliveries assisted by TBAs and relatives.

After the introduction of conventional medicine in African countries south of the Sahara, gradually health facilities were distributed both in urban and rural for improving healthcare and for maternal health targeted to reduce maternal and infants' mortality as well as morbidity of the mothers that followed after births (Good, 1991; Illife, 1998; GTZ and National Museum of Tanzania, 2001). Health workers both in rural and urban areas advised child bearing women to attend antenatal care and deliver at health facilities with the help of skilled personnel (Good, 1991; Illife, 1998; Waite, 2000; GTZ and National Museum of Tanzania, 2001). The focus for discussion and action to reduce maternal and infants' mortality rates is restricted to the fields of medicine and public health. However, it must be realised that child delivery is a socio-cultural event, and thus in order to bring effective intervention TBAs who have been involved in child deliveries for years are taken on board and be partners on reproductive health. It has to be remembered that TBAs have essential components on reproductive health knowledge and skills including local customs, traditions, and perceptions regarding childbirth and new-born care (WHO, 1987; Islam, 2007). TBAs are therefore, key actors in reducing maternal and infants mortality as well as morbidity of the mothers. Again, the meagre financial resource located to health sector in developing countries cannot meet the growing demand on reproductive health services both in rural and urban areas (Grieco & Turner, 2005). The most disadvantaged women are those living in rural areas (Grieco & Turner, 2005). It is not surprising therefore, that to date there are still some child bearing women do not attend antenatal clinic and many women are still delivering at home (Grieco & Turner, 2005) For instance the proportion of deliveries attended by skilled health personnel in developing countries was 65% in 2009 and in some countries was lower than the stated (WHO, 2012). For example in Sub Saharan Africa, recent literature available show between 40-60% of child delivery were attended by skilled personnel (Grieco & Turner, 2005; WHO, 2012); and in Tanzania (TDHS, 2010) show about 50% were attended by skilled personnel. The rest of the deliveries were attended by unskilled persons like mother-in-law, mother, aunt or sister in law and TBAs (TDHS, 2010). The underlying reasons for most deliveries occurring at home with assistance and TBAs were poverty, distance to health facilities, lack of information, inadequate services and medical supplies, lack of competent personnel in reproductive health at the health facilities and above all the cultural practices related to birthing (Cosminsky, 1983; Grieco & Turner, 2005; WHO, 2012). All these factors are likely to contribute to women preferences to go to TBAs for child delivery than to formal health facilities.

Literature review shows most (99%) of maternal deaths reported are caused by TBAs and other unskilled personnel when assisting child delivery (Grieco & Turner, 2005; Kippenberg et al., 2005). Most

of these women and infants are from developed countries (Grieco & Turner, 2005; Mbidzenyuy, 2012). In sub-Saharan Africa countries for instance, maternal mortality varies widely, but is ranging from 800 to 2500 per 100,000 live births (Grieco & Turner, 2005; WHO, 2012). Infant mortality ranges from 100 to 150 per 1000 (Grieco & Turner, 2005; WHO, 2012). These women and infants do not need to suffer and die; most lives could be saved using relatively easy and cheap methods (Grieco & Turner, 2005; WHO, 2012) partly by training TBAs who take on board the social cultural practices related to child birth and caring the infants and are always omnipresent in villages (Grieco & Turner, 2005; Mbidzenyuy, 2012).

Various efforts by governments in developing countries are being taken to reduce maternal deaths, stillbirths and neonatal deaths related to intrapartum events in unattended births (WHO, 2012). These include use of anti-natal clinic, immunization and insistence to deliver in health facilities (MoH, 2003; Dzadecyson, 2007; Jamison et al., 2006, WHO, 2012). If TBAs could be taken on board after training could avert some of these health problems especially maternal and new-born mortality. Interventions to reduce adverse outcomes in births attended by an TBAs and other unskilled birth attendants may include, provision of oral uterotonics (Sutherland et al, 2010; Prata et al., 2011) and/or clean delivery kits (Winani et al., 2007) to mothers or postnatal home visits (Bang et al., 2005) to identify problems.

### The need of training traditional birth attendants

Experts on reproductive health have pointed a grim picture of maternal and child health in sub-Saharan Africa and warned that the situation could be worsen in the next decade if no immediate remedial actions are taken (Grieco & Turner, 2005). For example, in 2005, WHO estimated that if nothing was done by 2015 there would be 2.5 million maternal deaths, 2.5 million child deaths and 49 million maternal disabilities in the sub-Saharan region in (Grieco & Turner, 2005). No study has attempted to follow up this claim in the sub-Saharan region whether or not something has been done to avert the problem. In Tanzania on the other hand maternal mortality is 454 per 100,000 (TDHS, 2010). The reported highest maternal and infant mortality rates in Africa call for collective efforts that should take cultural value on reproductive health and child delivery components on board in order to meet the 4<sup>th</sup> and 5<sup>th</sup> Millennium Development Goals. Thus training TBAs now is a necessity and can make a difference on infant and maternal deaths as well as morbidity of the mother after delivery in sub-Saharan Africa and other developing countries if well implemented and systematically followed as monitoring process after training (Mbidzenyuy, 2012).

Despite the significant role played by TBAs in assisting child delivery they have been neglected since the introduction of conventional medicine in sub-Saharan and other developing countries (Grieco & Turner, 2005; Busia & Kasilo, 2010). Partly may be due to the impact of western education which sees everything in developing countries is fetish or paganism (Grieco & Turner, 2005; Busia & Kasilo, 2010). But there are several cases in which conventional medicine has been ineffective. Notwithstanding in 1980s governments of developing countries began paying attention to TBAs as an impact of the Safe Motherhood Programme introduced in response to the increasing maternal and new-born mortality (WHO, 1987).

Safe motherhood programme found out most of developing countries had limited medical personnel and health facilities for provision of healthcare in rural areas. The only option was to use the existing resources and one of these resources was TBAs. Attempt was made to identify TBAs and was given basic training on child delivery and caring infants. Most of TBAs were generally illiterate women aged 40 years and above. Some TBAs practice traditional medicine in addition to midwifery, but tended to derive their income from other occupations such as farming or petty businesses (Cosmnisky 1983; Swantz, 1996; Kayombo, 1997). Shortage of medical personnel, medicines, equipment and other medical supplies is still a major problem (Naicker et al., 2010; Kayombo et al., 2007, 2012). In Tanzania

for example, medicines are available for only two weeks in the health facilities (Kayombo et al., 2007, 2012, Kahabuka et al. 2012). Some of the rural health facilities are manned by auxiliary nurses who are ill-trained on provision of health services (Kayombo et al., 2007, 2012). Thus there is no way at present to arrest the current situation of maternal health without taking on board the TBAs who are available in every village and are within reach (Mbiydzenyuy, 2012). These TBAs should be trained on safe delivery methods and refer the patients at risk immediately to health facility.

TBAs are experts on their own rights and being valued and accepted by community (Cosmnisky, 1983; Swantz, 1996; Kayombo, 1997). Further, most TBAs had traditional beliefs as to the cause of neonatal sickness, and training would lead them to change their beliefs in favour of infection. To come up with meaningful outcome from training TBAs the programme should be built on the basis of transactional model which emphasize dialogue, trustworthiness, respect, transparency, willing to learn and sharing knowledge through problem solving techniques. One of the barriers on reducing maternal and new-born mortality rates is the cultural elements in the community and therefore would be easily solved.

### Experience of Training Programmes to TBAs

Many developing countries have attempted training TBAs as a response to safe motherhood program with different approaches (MacArthur, 2009). In this section the process and the expected impact of few studies will be briefly described. Experts on reproductive health argue that for TBAs to help reduce infant and maternal mortality in countries south of the Sahara and other developing countries, there is need to equip skilled personnel with supplies to support carrying out basic preventive measures in obstetric care, anticipate and identify obstetric complications, administer nevirapine prophylaxis, and make appropriate and timely referrals backed up with efficient referral mechanisms (Msaky et al., 2004). This requires appropriate interventions that address barriers between rural mothers and formal health care system, including community educations which take into account the cultural values regarding reproductive health on all aspects of essential obstetric care and sensitizations of service providers to situation of rural mothers (Brenna, 1988; Safe, 1989; Kayombo, 1997). This needs a systematic follow up with some incentive during training and when monitoring the practices after training (Mbiydzenyuy, 2012). This may need a monthly meeting with TBAs and reproductive health personnel to discuss issues encountered in the practice and together find a solution (Mbiydzenyuy, 2012).

In the Safe Motherhood program the major focuses on TBA training were: (i) Increased safety in TBAs practice, such as cleanliness, especially washing of hands and use of clean or sterile cord-cutting materials; (ii) Non-interference during labour; (iii) Care of mothers before, during and after delivery; (iv) Identification and referrals of mother at risk; and (v) Doing away with traditional harmful practices and leaving alone or supporting those that contribute to psychosocial support.

In Tanzania, a good number of TBAs have been identified and some of them trained on primary health care and safe child delivery process, including hygiene and management of child diarrhoea. In a study by Kayombo (1992), it was reported that TBA at Mvumi Hospital were identified by community. They were trained on safe delivery with focus on hygiene and family planning; also in taking care of babies particularly at onset of diarrhoea such as use of home based fluids and supply of oral dehydration therapy in theory through use diagrams, charts at chosen site. On the other hand, in Kilombero District, Msaky et al. (2004), TBAs have been mobilized and trained on following roles: provision of HIV/AIDS education to clients, mobilization of women for VCT, directly observed treatment support for HIV+ mothers who had received nevirapine and delivered at home, and referral of mothers to health workers for postnatal examination. TBAs were given basic equipment (torches, gloves, aprons, clean gauzes etc.) and were told to report back to health workers on number of women they

assisted in delivery and problems encountered. The outcome from these exercises was initiation of collaboration with conventional healthcare providers/scientists and TBAs on improving healthcare to child bearing mothers who were HIV positive.

In South Africa, TBAs have been involved in HIV/sexually transmitted infection management such as risk assessment, risk reduction counselling, and distribution of condoms, community education and home-based care (Brennan, 1988). After training significantly more TBAs conducted prenatal check-ups, assessed baby's position in uterus and took mother's and baby's pulse, and fewer TBAs conducted abnormal or complicated deliveries. Whereas Brennan (1988) has shown there was a training program of TBAs in Local Government Area from June 1983. Each course lasted 3 months with focus on hygiene, simple antenatal care, labour and its complications, and care of mother and child. The beneficial aspects of TBA training include observing principles of hygiene, early referral of patients to hospital, encouraging village children to come for vaccinations etc.

Training TBAs has been reported from other developing countries outside Africa. For example in Bangladesh TBAs was trained by local nongovernmental organizations on hygiene delivery, comprising three cleans (hand washing with soap, clean cord, clean surface) (Peltzer & Henda, 2006). The key outcome measure was maternal postpartum genital tract infection diagnosed by a symptom complex of any two out of three symptoms: foul discharge, fever, lower abdominal pain. During the evaluation it was found that trained TBAs were significantly more likely to practice hygienic delivery than untrained TBAs and hence possibility of avoiding infections which are common to deliveries assisted by non-skilled birth attendants (Begum et al., 1990; Sibley, 1997; Garcés et al.2012).

### Impact of training of TBAs

The ultimate goal of safe motherhood programme that focused on training TBAs were to reduce maternal and neonatal mortality (WHO, 1987). Evaluating the impact of training TBAs in literature reviewed show a mixed feeling. Some of the studies that attempted to assess the impact at reducing maternal and new-born mortality argue that there was either minimal or no effect. For example Matendo et al. (2011) in their study in Democratic Republic of Congo argue that training TBAs may have had a positive effect on the rate, detection, and referral of postpartum complications. However, the evidence was less convincing for overall increases in the detection of complications, in referral to the formal health care system, and in the utilization of essential obstetric services among women attended by TBAs. Again, Matendo et al. (2011) showed that there was no apparent decline in perinatal mortality when the outcome of all deliveries prior to training was compared to those after training. However, there was a gradual but significant decline in perinatal mortality during the year following training which was independently associated with time following training. The decline was attributable to a decline in early neonatal mortality. The training had no demonstrable effect on early neonatal mortality. Matendo et al. (2011) conclude that a period of utilization and re-enforcement of training might be necessary before a decline in mortality occurs.

The above argument is underscored by Goodburn et al. (2001); by pointing out hygienic delivery practices did not prevent postpartum infection in community. Training TBAs to wash their hands was not an effective strategy to prevent maternal postpartum infection. More rigorous evaluation was needed, not only of TBA training programmes as a whole, but also of the effectiveness of the individual components of the training. Weaknesses of TBAs' training programmes on reducing maternal and new-born have been observed by other studies (Smith et al., 2000; Sibley & Sipe, 2006; Gloyd et al., 2010). However some other scholars went as far as prohibiting TBAs from conducting any form of delivery, even when there was no skilled midwife around (Titaley et al., 2010). For instance, recently, Mathur et al. (2011) reported that the Malawi government banned TBAs from practicing child delivery.

Other studies on the other hand that dealt on evaluating TBAs' training impact on reducing maternal and new born mortality have come up with positive results. For instance Brennan (1988) has reported reduction of maternal mortality and increase of referral to formal health services as impact of training TBAs. Again, Mathur et al. (2011) even though they did not mention the figure have reported that training TBAs to manage common perinatal conditions significantly reduced neonatal mortality in a rural African setting. This approach has high potential to be applied to similar settings with dispersed rural populations. This report has also been underscored by Wilson et al. (2011) who have shown perinatal and neonatal deaths were significantly reduced with strategies incorporating training and support of TBAs. They further argued health education strategies were required to increase community awareness about the importance of health services along with the existing financing mechanisms for the poor communities. Public health strategies involving TBAs would be beneficial particularly in remote areas where their services were highly utilized.

Moreover Itina (1997) in Nigeria has argued that educational programmes for TBAs and better integration into the health care system are essential for lowering maternal mortality and morbidity rates in areas where most mothers are not open to nor have access to professional care in childbirth. Further Satishchandra et al. (2009) argued that programme for TBAs with regular reinforcements in the resource poor setting would not only improve the quality of new-born care but also reduces perinatal deaths. Other studies elsewhere have shown positive results on the impact of training TBAs on maternal and new born mortality (Begum et al., 1990; Sibley, 1997; Garcés et al., 2012).

In Tanzania, studies have shown behavioural change in practice of TBAs after training programs. In Mvumi Hospital for example, TBAs training programme had led the two partners in health care to cooperate with each other and initiation of referral though one directional from TBAs to hospital (Kayombo, 1992). In Kilombero district results showed a threefold increase in acceptance of HIV test and a similar increase in women receiving Nevirapine (Msaky et al., 2004).

On socio-cultural practices that could lead to child and maternal mortality could be easily solved by involving TBAs (Kayombo, 1992; This Daym Nigeria, 2007). TBAs are the custodians of socio-cultural practices some of which might be harmful (Kayombo, 1992, This Daym Nigeria, 2007). The power of training TBAs on changing harmful cultural practices are underscored by another study done in Nigeria (This Daym Nigeria, 2007), where a TBA who was involved in carrying out traditional female genital mutilations was turned into an advocate for eradication of the practice.

The argument presented above on the impact of training TBAs on reducing maternal and new-born mortality from literature review suggests improvement on training TBAs in order to bring meaningful impact. The studies that showed negative impact on training TBAs on reducing maternal and new-born mortality can be explained partly by poor approach on training and unwillingness of health workers to train TBAs (Grieco & Turner, 2005). TBAs are adult and have knowledge and experience on child delivery; and that is why they are being recognized and valued by the community (Cosminsky, 1983; Swantz, 1966; Kayombo, 1997). To have positive impact, health workers should not shun away from working with TBAs on reproductive health problems nor should it be hit and run as most scientists do when working with local people as being busy (Busia & Kasilo, 2010; World Report 2007; Kayombo et al., 2007; Mbiydzenyuy, 2012). There is a lot to learn from the TBAs. There are some cases which were supposed to be done by caesarean, but can be done without it (Kayombo, 1997).

## Conclusion

The role of traditional birth attendants in provision of health care in resource poor countries is still important because of the current inadequacy of human resource for health (Begum et al., 1990; Sibley, 1997). In developing countries for years to come, TBAs will remain the main providers of child deliveries in rural areas. The reduction of maternal and new-born mortality in developing countries requires

rigorous efforts that involve governments and nongovernmental organizations in identifying TBAs who are known by the community to be experts. Recruitment and training of TBA using adult learning techniques is important. The programs should focus on basic PHC program especially on symptoms of risky cases that need to be referred to formal health services and hygiene to prevent mother and child from infections. As argued earlier TBAs are experts on their own right and thus they deserve respect in aspect of reproductive health issues to women. Creation of dialogue, trustworthiness, patient, tolerance, willingness to collaborate, transparent and familiarity during training are keys when working with TBAs as partners in health care and share experiences. TBAs are product of cultural system in community, and one of their roles is to protect culture from being invaded by other cultures (Cosmisky, 1983; Kayombo, 1997). Training should be followed up by frequent meetings to share feedback and problems TBAs experience.

## References

- Bang, A.T., Reddy, H.M., Deshmukh, M.D., Baitule, S.B. & Bang, R.A. (2005) Neonatal and infant mortality in the ten years (1993 to 2003) of the Gadchiroli field trial: effect of home-based neonatal care. *Journal of Perinatology* 25 (S1), S92-107.
- Bergström, S. & Goodburn, E. (2001) The role of traditional birth attendants in the reduction of maternal mortality. *Studies in Health Service organization and Policy* 17, 85-89.
- Begum, J.A., Kabir, I.A. & Mollah, A.Y. (1990) The impact of training traditional birth attendants in improving MCH care in rural Bangladesh. *Asia Pacific Journal of Public Health* 4, 142-144.
- Brennan, M. (1988) Training (1988) TBAs reduces maternal mortality and morbidity. *Tropical Journal of Obstetrics and Gynaecology* 1, 44-47.
- Busia, K. & Kasilo, O.M.J. (2010) Collaboration between traditional health practitioners and conventional health practitioners: Some country experiences, *The African Health Monitor Special Issue* 13.
- Cosminsky, S. (1983) Traditional Midwifery and Contraception. In : R. H. Bannerman, John Burton and Che'n Wen -Chieh (eds.) *Traditional Medicine and Health Care coverage*. World Health Organization, Geneva.
- Crowe, S., Utlely, M., Costello, A. & Pagel, C. (2012) How many births in sub-Saharan Africa and South Asia will not be attended by a skilled birth attendant between 2011 and 2015? *BMC Pregnancy and Childbirth* 12:4.
- Dzadeyson, E. (2007) Study on maternal mortality and neonatal morbidity in Africa Publisher: Rural Integrated Relief Service-Ghana, 2007.
- Eresund, N. & Tesha, N. (1979) The Situation of Children in Tanzania. SIDA Report Dar-es-Salaam.
- Garcés, A., McClure, E.M., Hambidge, M., Krebs, N.F., Mazariegos, M., Wright, L.L, Moore J. & Carlo, W.A. (2012) Training traditional birth attendants on the WHO Essential Newborn Care reduces perinatal mortality. *Acta Obstetrica et Gynecologica Scandinavica* 91, 593-597.
- Gloyd, S., Floriano, F., Seunda, M., Chadreque, M.A, Nyangezi, J.M. & Platas, A. (2001) Impact of traditional birth attendant training in Mozambique: a controlled study. *Journal of Midwifery and Women's Health* 46, 210-216.
- Good, C. M. (1991) Pioneer Medical Missions in Colonial Africa. *Social Science and Medicine* 32, 1-10.
- Goodburn, E.A., Chowdhury, M., Gazi, R., Marshall, T. & Graham, W. (2001) Training traditional birth attendants in clean delivery does not prevent postpartum infection. In: Vincent De Brrouwere and Wim Van Leberghe (editors) *Save Mother Strategies: A Review of Evidence*, Studies in Health Services organization and Policy 17.
- Grieco, M. & Turner, J. (2005) Maternal Mortality: Africa's Burden; Toolkit on gender, Transport and maternal mortality. [www4.worldbank.org/afr/ssatp/Resources/HTML/Gender](http://www4.worldbank.org/afr/ssatp/Resources/HTML/Gender).



- GTZ and National Museum (1998) *The History of Healthcare in Tanzania: Exhibition on the development of health sector in more than 100 years*. 2001, Organized Agency for Technical Cooperation GTZ and National Museum of Tanzania, 2001. Iliffe, J. *East African Doctors*, Cambridge University press, 1998
- ILO (1982) *Basic Needs in Danger: A Basic Needs Oriented Development Strategy for Tanzania*. Jobs and Skills Programme for Africa. Addis Ababa. International Labour Office
- Islam, M. (2007) The safe motherhood initiative and beyond. *Bulletin of the World Health Organization* 85, 10.
- Itina, S.M. (1997) Characteristics of traditional birth attendants and their beliefs and practices in the Offot Clan, Nigeria. *Bulletin of the World Health Organization* 75, 563–567.
- ITM (2005) *Institute of Traditional Medicine Profile*. Muhimbili University College of Health and Allied Sciences, Dar es Salaam, Tanzania.
- Jawad, A.R. (1999) Obstetric complications and role of TBAs in developing countries, *Journal of College of Physicians and Surgeons Pakistan* 9, 55-5.
- Kahabuka, C., Karen M., Kvåle, G. & Hinderaker, S. G. (2012) Unfulfilled expectations to services offered at primary health care facilities: Experiences of caretakers of underfive children in rural Tanzania. *BMC Health Services Research* 12:158.
- Kamal, I.T. (1998) The traditional birth attendant: a reality and a challenge. *International Journal of Gynaecology and Obstetrics* 63 (Suppl 1), S43–52.
- Kayombo, E.J. (1992) *Distribution of TBAs and Herbalists in Dodoma and Singida*. A Consultant Report Submitted to the National Family Planning of Ministry of Health and African Medical Research Foundation.
- Kayombo, E.J. (1997) *Traditional Birth Attendants (TBAs) and Maternal Health Care in Tanzania*. In *Issues and Perspectives on Health Care in Contemporary Sub-Saharan Africa* by Studies in Africa Health and Medicine Volume 8. Ezekiel Kalipen and Philip Thiuri (eds.) The Edwin Mellen Press Lewiston, Queenston: Lampeter, 288-305.
- Kayombo, E.J. (1999) *Socio-Cultural Practices Related to Child's Birth in Rural Areas: An Experience in Mbeya Rural District, Tanzania*. [http://www.skk.uit.no/WW99/papers/Kayombo\\_Edmund\\_J.pdf](http://www.skk.uit.no/WW99/papers/Kayombo_Edmund_J.pdf).
- Kayombo, E.J., Uiso, F.C. & Mahunnah, R.L.A. (2012) Experience on healthcare utilization in seven administrative Regions of Tanzania, *Journal of Ethnobiology and Ethnomedicine* 8:5
- Kayombo, E.J., Uiso, F.C., Mbwambo, Z., Mahunnah, R., Moshi, M.J. & Mgonda, Y.H. (2007) Experience in initiating collaboration of traditional healers in managing HIV/AIDS in Tanzania. *Journal of Ethnobiology and Ethnomedicine* 3:6.
- Kimambo, I.N. & Temu, A.J. (1968) *History of Tanzania*. East African Publishing House, Nairobi, Kenya.
- Kippenberg, R., Lawn, J., Darmstadt, G., Begkoyian, G., Fogstad, H, Walelign, N, & Paul, V. (2005) Neonatal survival 3: Systematic scaling up of neonatal care in countries. *The Lancet* 365, 1087-1098.
- Leedam, E. (1985) Traditional birth attendants. *International Journal of Gynaecology & Obstetrics* 23, 249–274.
- MacArthur, C. (2009) *Traditional birth attendant training for improving health behaviours and pregnancy outcomes: RHL commentary*. The WHO Reproductive Health Library, Geneva
- Matendo, R., Engmann, C., Ditekemena, J., Gado, J., Tshetu, A., Kinoshita, R., McClure, E.M., Moore, J, Wallace, D., Carlo, W.A., Wright, L.L. & Bose, C. (2011) Reduced perinatal mortality following enhanced training of birth attendants in the Democratic Republic of Congo: a time-dependent effect. *BMC Medicine* 9:93.
- Mathur, H.N., Damodar, P.N. Sharma, & Jain, T.P. (2011) The impact of training traditional birth attendants on the utilisation of maternal health services. *Journal of Epidemiology and Community Health* 33, 142-144.

- Mbiydzennyuy, N.E. (2012) Traditional Birth attendants: Filling the Blank Space in Rural Cameroon Midwife. International Training the next generation of midwives. <http://midwifeinternational.org/how-to-become-midwife/traditional-birth-attendants-in-cameroon/>
- MoH (2003) National Immunization Program Financial Sustainability Plan revised. Ministry of Health, Dar es Salaam, Tanzania.
- Msaky, H., Kironde, S., Shuma, J., Nzima, M., Mlay, V. & Reeler, A. (2004) Scaling the frontier: TBAS involvement in PMTCT service delivery in Hai and Kilombero districts of Tanzania. International Conference on AIDS, Bangkok, Thailand pp 11-16.
- Naicker, S., Eastwood, J.B., Plange-Rhule, J. & Tutt, R.C. (2010) Shortage of healthcare workers in sub-Saharan Africa: a nephrological perspective, *Clinical Nephrology* 74 (Suppl 1), S129-133.
- Peltzer, K. & Henda, N. (2006) TBAs, HIV / AIDS and safe delivery in the Eastern Cape, South Africa -- evaluation of a training programme *South African Journal of Obstetrics and Gynaecology* 12, 140-145.
- Prata, N., Passano, P., Rowen, T., Bell, S., Walsh, J. & Potts, M. (2011) Where there are (few) skilled birth attendants. *Journal of Health Population and Nutrition* 29(2):81-91.
- Safe, J. A. (1989) Ripoti Fupi Inayohusu Wakunga wa Jadi kwa Wizara ya Afya. Tanzania 1989.
- Satishchandra, D.M., Naik, V.A., Wantamutte, A.S. & Mallapur, M.D. (2009) Impact of training of traditional birth attendants on the newborn care. *Indian Journal of Pediatrics* 76, 33-36.
- Sibley, L. (1997) Obstetric First Aid in the community—partners in safe motherhood. *Journal of Nursing and Midwifery* 42, 117–121.
- Sibley, L.M. & Sipe, T.A. (2006) Transition to Skilled Birth Attendance: Is There a Future Role for Trained Traditional Birth Attendants? *Journal of Health Population Nutrition* 24, 472–478
- Smith, J.B., Coleman, N.A., Fortney, J.A., Johnson, J.D., Blumhagen, D.W. & Grey, T.W. (2000) The impact of traditional birth attendant training on delivery complications in Ghana. *Health Policy and Planning* 15, 326-331.
- Sutherland, T., Meyer, C., Bishai, D.M., Geller, S. & Miller, S. (2010) Community-based distribution of misoprostol for treatment or prevention of postpartum hemorrhage: cost-effectiveness, mortality, and morbidity reduction analysis. *International Journal of Gynaecology and Obstetrics* 108, 289-294.
- Swantz, L.M. (1966) Religious and Magical Rites of Bantu Women in Tanzania. M. Phil. Thesis University of Dar-es-Salaam, Tanzania.
- TDHS (2010) Tanzania Demographic and Health Survey. National Bureau of Statistics and Macro International Inc.
- This Daym Nigeria (2007) TBAs Advocate Ending Harmful Practices, All Africa Com: <http://allafrica.com/stories/200710240460.html>
- Titaley, C.R., Hunter, C.L., Dibley, M.J. & Heywood, P. (2010) Why do some women still prefer traditional birth attendants and home delivery?: a qualitative study on delivery care services in West Java Province, Indonesia. *BMC Pregnancy Childbirth* 10:43.
- Waite, G. (2000) Traditional medicine and the Quest for National identity in Zimbabwe, Zambia, 2000, xxxvii (ii)
- WHO (1987) Safe Motherhood A Review The Safe Motherhood Initiative 1987–2005, WHO, Geneva.
- WHO (2004) Making Pregnancy Safer: The Critical Role Of The Skilled Attendant: A Joint Statement by WHO, ICM and FIGO. Geneva, Switzerland.
- WHO (2012) Maternal Mortality. Fact Sheet Number 348, Geneva
- Wilson, A., Gallos, I.D., Plana, N., Lissauer, D., Khan, K.S., Zamora, J., MacArthur, C. & Coomarasamy, A. (2011) Effectiveness of strategies incorporating training and support of traditional birth attendants on perinatal and maternal mortality: meta-analysis. *BMJ* 343, 7102.

Winani, S., Wood S, Coffey, P., Chirwa, T., Moshia, F. & Chagalucha, J (2007) Use of a clean delivery kit and factors associated with cord infection and puerperal sepsis in Mwanza, Tanzania. *Journal of Midwifery and Women's Health* 52, 37-43.

World Report, Training Traditional birth attendants in Guatemala, World report 2007,  
[http://transition.usaid.gov/gt/docs/birth\\_attendants%20.pdf](http://transition.usaid.gov/gt/docs/birth_attendants%20.pdf)