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## Re-examining authoritative knowledge in the design and content of a TBA training in India

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### ABSTRACT

Since the 1990s, the TBA training strategy in developing countries has been increasingly seen as ineffective and hence its funding was subsequently reallocated to providing skilled attendants during delivery. The ineffectiveness of training programmes is blamed on TBAs lower literacy, their inability to adapt knowledge from training and certain practices that may cause maternal and infant health problems. However most training impact assessments evaluate post-training TBA practices and do not assess the training strategy. There are serious deficiencies noted in information on TBA training strategy in developing countries. The design and content of the training is vital to the effectiveness of TBA training programmes.

We draw on Jordan's concept of 'authoritative knowledge' to assess the extent to which there is a synthesis of both biomedical and locally practiced knowledge in the content and community involvement in the design of TBA a training programme in India.

**Findings:** The implementation of the TBA training programme at the local level overlooks the significance of and need for a baseline study and needs assessment at the local community level from which to build a training programme that is apposite to the local mother's needs and that fits within their 'comfort zone' during an act that, for most, requires a forum in which issues of modesty can be addressed. There was also little scope for the training to be a two way process of learning between the health professionals and the TBAs with hands-on experience and knowledge. The evidence from this study shows that there is an overall 'authority' of biomedical over traditional knowledge in the planning and implementation process of the TBA training programme. Certain vital information was not covered in the training content including advice to delay bathing babies for at least six hours after birth, to refrain from applying oil on the infant, and to wash hands again before directly handling mother or infant. Information on complication management and hypothermia was not adequately covered in the local TBA training programme.

**Key conclusions:** The suggested improvements include the need to include a baseline study, appropriate selection criteria, improve information in the training manual to increase clarity of meaning, and to encourage beneficial traditional practices through training.

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### Introduction

Traditional birth attendants (TBA) and/or family members assist 47 per cent of births in the developing world (WHO, 1997a). TBA training has been an important component of public health interventions since the 1970s to improve maternal and child health in developing countries (WHO, 1978). In India, many women of comparatively lower educational and lower economic

background<sup>1</sup> especially living in rural areas with lesser resources continue to depend more on TBAs for assistance during childbirth (IIPS, 2007). According to the National Family Health Survey (NFHS-3) data, 61 per cent of births take place at home and 37 per cent are assisted by TBAs (IIPS, 2007). As public health resources in developing countries are limited, decisions on TBA training need to be corroborated with knowledge about TBA training outcomes including content and design (Hitesh, 1996; Piper, 1997; Lettenmaier et al., 1988; Foster et al., 2004).

WHO advocated for 'three cleans' (hand washing with soap, clean cord care and clean surface), promoted awareness on the importance of breast feeding and weighing babies, and addressed some of the potentially unhygienic and harmful practices in communities through TBA training (WHO, 1993). Over a period of time TBA training content changed and included various other aspects of reproductive health including family planning, HIV/AIDS, oral rehydration, identification of risk and referral. However, since the 1990s, the TBA training strategy has been increasingly seen as irrelevant, ineffective or, on the whole, a failure due to evidence that the maternal mortality rate (MMR) in developing countries had not reduced. Donor agencies providing funding for TBA training in developing countries subsequently withdrew their funds and reallocated it to providing a skilled attendant during delivery (Walraven and Weeks, 1999; Kruske and Barclay, 2004). TBAs have been blamed for causing maternal and infant deaths with their unhygienic and harmful practices (Guha, 1998; WHO, 1998a, b; GOI, 2000). They have also been blamed for not having the capacity in terms of knowledge, training skills and literacy to take advantage of the TBA training (WHO, 1999; GOI, 2000; Bulterys et al., 2002; UNICEF, 2004) and for deterring and delaying referrals (WHO, 2005):

In many countries, TBAs have received training in order to promote safer birth practices, including clean delivery and avoidance of harmful practices. However, to fulfill all the requirements for management of normal pregnancies and births and for identification and management or referral of complications, the education, training, and skills of TBAs are insufficient. Their background may also mean that their practices are conditioned by strong cultural and traditional norms, which may also impede the effectiveness of their training (WHO, 1999: 31).

There are several studies that have demonstrated post-training positive health outcomes among mothers and infants such as; reduction in perinatal mortality (Bang et al., 2005; Jokhio et al., 2005; Sibley and Ann Sipe, 2006) reduction in common perinatal conditions (Gill et al., 2011) improvement in newborn care (Satishchandra et al., 2009), protection against postpartum fever and retained placenta (Smith et al., 2002) and positive change during the postpartum period, especially in cases of haemorrhage or infection (Bailey et al., 2002). This suggests that TBAs have the capacity to grasp information conveyed in training programmes and to apply newly acquired practices in their work in their communities.

However apart the ability of the TBAs, the other significant component, generally overlooked is the design and content of the training programme. Researchers have noted serious deficiencies

in information on TBA training content and design and its linkage with birthing practices. A meta-analysis of studies on TBA training effectiveness in developing countries noted that, except for reporting on the curriculum content, most studies on TBA training failed to describe the content and design of TBA training programmes (Sibley et al., 2004):

The WHO encouraged health planners in 1990 to promote the provision of trained birth attendants for all women. Unfortunately, there was, at least in some countries, little quality control in the design or content of these programs. (Kruske and Barclay, 2004: 307)

Kruske and Barclay (2004) observe that the training courses in developing countries were in most cases simplified versions of the 'professional midwives' training or direct translation of WHO guidelines, ignoring their local appropriateness. TBA training strategy and content has not appreciated the immense cultural gap between biomedical methods of care and community birthing practices (WHO, 2005). Smith (2006) observed that government training programmes in India do not present the TBAs with any modern practical ways of birthing that are meshed with tradition. Furthermore, it has been observed that certain useful traditional practices have changed with training; the squatting and sitting positions encouraged by TBAs during labour also now well accepted in the medical community worldwide as advantageous to positive birth outcomes (Bhardwaj et al., 1995; Bajpai, 1996a; Odent, 2001; Mathews et al., 2005) but, with training, TBAs are changing to use of the supine position. Mathews et al. (2005) argue this is because the trainers in the TBA training programmes are generally medically trained professionals and advocate the use of the supine position.

This paper aimed to assess the approach used in disseminating birthing knowledge to local TBAs drawing evidence from the content and design of a TBA training programme conducted in the Ahmednagar District in India. The assumption tested is whether medical knowledge is construed as 'authoritative knowledge' that is privileged over local women's 'traditional' wisdom and practices. We draw on Jordan's concept of authoritative knowledge to assess the extent to which there is a synthesis of both biomedical and locally practiced knowledge in the content and community involvement in the design of TBA a training programme in India. This paper is a segment of a larger PhD project assessing post-training TBA practices of a training conducted in Ahmednagar district, the findings of which are published earlier (Saravanan et al., 2011). As the training programme had been conducted before the study, the content and design of the local training programme was assessed by documents and data collected during the field visit.

The Indian TBA training programme strategy has been reviewed in more detail in this paper as international policy paradigm has been reviewed in detail earlier (Kruske and Barclay, 2004). Information was drawn from significant policy documents published by the Government of India (GOI), Ministry of Health and Family Welfare (GOI, 2000a, b, 2002, 2007) as well as Millennium Development Goals Report (GOI, 2005). Search strategy within these documents and thematic analysis was completed by firstly reading and rereading to gain an understanding of the fabric of the content. These were then clustered into themes. (Green and Thorogood, 2004; Fraser et al., 2007). A search strategy was conducted of electronic databases for TBA training design and content and internationally acclaimed safe motherhood practices. Information was sourced from CINAHL, Cochrane Database of Systematic Reviews, Medline, PubMed, JSTOR EBCOhost, Science Direct and several other Nursing and Public Health databases. Keywords included, traditional birth

<sup>1</sup> 53 per cent of the people in the lowest wealth index were assisted by TBAs during delivery compared to 9 per cent of the people in the highest wealth index (IIPS, 2007). 50 per cent of the mothers with no education were assisted by TBAs compared to only 6 per cent of mothers with 12 years or more of education. 42 per cent of the rural deliveries were assisted by TBAs compared to 20 per cent in urban areas (IIPS, 2007). An interesting point is that higher the birth-order, greater is the likelihood of home births with the assistance of TBAs (IIPS, 2007).

attendant, skilled attendants, maternal mortality, safe motherhood, TBA training, hypothermia, colostrum, postpartum bleeding, safe delivery kit and birth weight. The literature reviewed included health reports, policy documents and international research articles. The research builds on and extends the concept of authoritative knowledge in the context of TBA training programmes in India by arguing for recognition of the social, cultural and public health importance of trained and untrained birth attendants.

### Rationale and objectives of the TBA training programme in India

The Reproductive and Child Health programme (RCH<sup>2</sup>) document published by the GoI in 2002 describes India as being in a transitional phase from home-based deliveries to institutional deliveries, and from unskilled birth attendants to skilled birth attendants. The document states that unsafe deliveries conducted at home by relatives and TBAs are an important cause of maternal mortality and in order to ensure the health of the mother and child and to reduce infant and maternal mortality it is necessary to encourage institutional deliveries. Simultaneously the GoI also recognises that '*presently the health-care system in India is not in a position to provide all pregnant women services of a trained health functionary at the time of delivery*' (GoI, 2000a: 3) and that there are many states in India where deliveries by TBAs would continue to take place in the next few decades and therefore it proposes to continue with TBA training programmes (GoI, 2002). The TBA training objectives include; enabling TBAs to provide antenatal check-ups, identify high risk pregnancies, give counselling on nutrition and safe delivery, conduct safe normal deliveries, identify danger signals and give advice for appropriate referral (GoI, 2000a). The objectives reflect the obstetric viewpoint that progress in maternal and child health can be achieved merely by institutionalisation of all births. The recognition of TBAs is essentially because they continue to conduct several home deliveries. Their experience and knowledge is considered of little worth in providing any positive contribution or participation in this perceived progress. The theoretical concept of 'authoritative knowledge' has been applied to understand the ways in which the knowledge of rural women in India acquired through their lived experience is marginalised and how the western system of biomedical frameworks of knowledge can act to discount health-care practices that are deemed 'alternative'.

### Authoritative knowledge

Jordan (1993) states that authoritative knowledge results when one kind of knowledge gains ascendancy and legitimacy, and consequently other kinds of knowledge are devalued or dismissed. The concept of authoritative knowledge has been further developed by Davis-Floyd and Carolyn (1997) who devised an analytical framework to describe the different motivations that guide decisions associated with birth. Davis-Floyd states that the consequence of legitimating one kind of knowing as authoritative is the devaluation of other kinds of knowing; a process in which alternative knowledge systems then tend to be seen as backward, ignorant, and naive, and their practitioners

sometimes as troublemakers. Advocates of the biomedical approach regard traditional practices as harmful, based on ignorance and superstition, and dismiss the importance of cultural values such as privacy or the gender of the service provider (Kruske and Barclay, 2004). Jordan (1993) notes that the TBA training programme utilise the western model of didactic training whereas TBAs use their experiential learning to understand the process of birth. She suggests that meaningful learning can only take place if there is mutual accommodation of knowledge with a two-way teaching and learning approach that makes use of local knowledge, equipment and expertise.

The attitudes of biomedical staff such as doctors, midwives and nurses have been a barrier to the effective implementation of a TBA training and referral network (Rana, 1999; Kruske and Barclay, 2004). Studies have found that women in developing countries generally give birth in the comfort zone of their home assisted by family friends and TBAs and go to hospitals only when faced with emergency situations (Kausar et al., 1999; Mathews et al., 2001). The biomedical style of care includes certain practices that cause discomfort among birthing mothers such as supine birthing position, male attendants, routine episiotomies, and lack of privacy (Bajpai, 1996a; Mathews et al., 2005).

### Traditional birth attendants training design in developing countries

Every element of the programme design has an impact on the outcome and effectiveness of the training. The importance of needs assessment is to understand the diversity of the existing problem and to incorporate the local context into the training, and the importance of a baseline study is to assess knowledge, attitudes and existing practices (Röst et al., 2004). It also helps in understanding the knowledge of TBAs, the local needs and available resources before developing the training programme.

#### Needs assessment and baseline studies

As it is known that the social roles, characteristics, knowledge and practices of TBAs vary depending on local cultural characteristics, it is important that a baseline study is conducted to provide a context to the training. An evaluation of a TBA training programme in seven developing countries observed that there was a lack of baseline data (UNFPA, 1996). A recent literature review on TBA policies observes that consultations with the TBAs and the community before the training programme were rarely conducted (Kruske and Barclay, 2004). As a result the training was frequently out of context as local knowledge was not effectively included or addressed.

#### Selection criteria

A study reviewing TBA training documents in some countries observed that generally age, sex, marital status, years of practice in delivering mothers and the caseload were basic considerations for selecting TBAs (Kamal, 1998). The joint statement by WHO, UNICEF and UNFPA mentions that, regardless of the criteria, the decision of selecting TBAs should be made by or with the community (WHO, 1992). The possible criteria mentioned in the joint statement include; motivation of TBAs, their caseload, respect in the community, age, literacy or other factors that may suit the local situations and the communities' needs (WHO, 1992). However, a recent meta-analytical review of TBA training evaluations in developing countries observed that the documentation of selection criteria used in training programs was insufficient (Sibley et al., 2004).

<sup>2</sup> Reproductive and Child Health (RCH) programme: In order to effectively improve the health status of women and children and fulfil the unmet need for Family Welfare services in the country, especially the poor and underserved by reducing infant child and maternal mortality and morbidity, the Ministry of Health and Family Welfare, Government of India during 1997–1998 launched the RCH programme funded by the World Bank (GoI, 2000a).



## Evaluation

Monitoring and evaluation are integral to programme implementation and should include feedback from supervisors, clients and care providers so as to make necessary adjustments in future training programmes (USAID, 2003). Studies in developing countries have found that follow-up evaluation received inadequate attention and was not effectively documented (UNFPA, 1996; Bhutta et al., 2003). A review of evaluation documents in developing countries noted that evaluation merely consisted of verbal assessment and pieces of information gathered from TBAs during the training period (Kamal, 1998). A recent meta-analysis noted that there is an urgent need to improve capacity for evaluation (Sibley et al., 2004).

## Monitoring and supervision

The essential elements of maternal care required together with effective TBA training include supervision and availability of emergency care. UNFPA, in an evaluation report, observes that TBA training programmes should necessarily include arrangements for post-training supervision (UNFPA, 1996). Public health researchers emphasise the need for supervisory back-up and claim that TBA training programme ineffectiveness partly lies in inadequate supervision and support (Lartson et al., 1987). With poor supervision, TBAs are more likely to slip back into the methods they had used before their training (Kamal, 1998). The joint WHO, UNICEF and UNFPA statement contends that supportive supervision should be provided by the formal health-care personnel and implemented at regular intervals at the site of TBA practice, focusing on problem-solving and improvement of practice and also to ensure timely and appropriate referral of complicated cases (WHO, 1992). A meta-analysis on TBA programmes however, found that only some studies specify some form of follow-up supervision by health staff or TBA trainers (Sibley et al., 2004). Another literature review observes that the supervision post TBA training was weak and focused primarily on checking supplies, records and discussing general issues (Kamal, 1998).

## Remuneration and expectations from TBAs

The joint statement mentions that 'decisions to pay TBAs a wage may be based on how such an innovation will influence the interactions of the TBAs with their clientele as well as financial ability to sustain such a system' (WHO, 1992: 11). In India, the TBAs are generally left to function as private practitioners after training and yet they are expected to make certain voluntary contributions (Singh, 1994) such as; conduct deliveries as taught in the training, and seek help in case of complications (Syamala, 2004). TBAs are also expected to undertake several additional health-care functions apart from maternal health (UNFPA, 1996; Kamal, 1998). Some programmes expect TBAs to attend monthly meetings and report their activities although a review of research has shown that TBAs are not reimbursed for their travel costs (Kamal, 1998).

## Training methods

TBAs learn their skills through an apprenticeship that involves both observation and imitation, in contrast to the instructive style of education of professional midwives typical of western systems (Kruske and Barclay, 2004). Therefore, specific training materials and methods are required to train non-literate adult learners (Kamal, 1998). Lectures, demonstrations, role plays, practical experience in ante and postnatal care and explanations of safe delivery techniques are the range of methods used for training TBAs (Kamal, 1998). In some training programmes films on various

aspects of the maternity cycle were shown to TBAs (Shangase et al., 2004), in others record keeping and referrals were taught with the help of pictorial cards (Neumann et al., 1974), and in yet other situations the TBAs gained hands-on experience in biomedical care by spending a specified period in a hospital's maternity unit (Koblinsky et al., 1999). Some training programmes have mentioned the use of picture cards containing advice about various aspects of antenatal, delivery and postpartum care (Jokhio et al., 2005). However, a meta-analysis of TBA training evaluations noted that only one author had reported that the training involved a combination of theory and practice (Sibley et al., 2004).

## Training duration

Literature reviews of TBA training have observed that the training duration varied widely between four days to three months (Kamal, 1998; Rodgers et al., 2004; Sibley et al., 2004; Jokhio et al., 2005). TBA training outcomes generally do not mention the training duration (Smith et al., 2002; Sibley et al., 2004). In some training programmes, there is a mention that the duration of courses is determined by the content to be covered, the background of the trainers, and the availability of the visiting instructors (Sibley et al., 2004).

## Study findings: training design of a TBA training programme conducted in India

The implementation of the Government of India (GoI) TBA training programme is undertaken through Non-Governmental Organisations (NGOs). In this case, the training was conducted on behalf of the GoI by Pravara Medical Trust (PMT), a medical institute in collaboration with a local NGO, the Community Rural Health Project (CRHP). The training was conducted in Ahmednagar district in the year 2002 and most of the implementation work was assigned to CRHP. The trainers were mainly from a medical or health background such as medical officers<sup>3</sup> (MO), paediatricians, gynaecologists and trained midwives. This section reviews the GoI policy documents and the implementation of the local TBA training programme design.

## Baseline study and needs assessment

A baseline study has been given emphasis in the GoI guidelines for TBA training (GoI, 2000a). The GoI RCH-II document does not mention the requirement of conducting a needs assessment before implementing the training (GoI, 2002). At the local level, PMT, the medical institute responsible for conducting the TBA training in Ahmednagar district, claimed to have conducted a baseline study in the implementation villages assessing knowledge on clean delivery practices, breast feeding and postnatal care. According to the programme co-ordinator and other personnel at PMT, 100 TBAs and 100 mothers with babies less than one year of age were interviewed. However, during discussions with the Comprehensive Rural Health Project (CRHP) personnel responsible for programme implementation, contradictory information emerged. CRHP personnel asserted that the PMT did not conduct any baseline study in the villages. Hence there is inconsistency in the information on baseline study in the TBA training programme. The PMT report claimed that the baseline study and community needs assessment were combined, and therefore the ambiguity that characterised the baseline study is also evident in the needs assessment.

<sup>3</sup> Medical Officers in India are formal health care personnel appointed at the Primary Health Centre (PHC).

### Selection criteria

The GoI training document leaves the choice of selection criteria open to the state, giving emphasis to providing at least one trained TBA per village, which is also one of the objectives of the programme (GoI, 2000a). It makes mention of preference to be given to TBAs who have attended a larger number of deliveries and those from remote villages with poorer access to Primary Health Sub-centres (PHSC) (GoI, 2000a). According to the RCH-II document, a list of practising TBAs must be prepared by every PHSC and the persons responsible for making the list include; Medical Officer (MO), Block District Officer (BDO), Community Development Programme Officer (CDPO), Panchayati Raj Institution (PRI) representative, Auxiliary Nurse Midwife (ANM), Anganwadi Worker (AWW) and Mahila Mandal (MM) representatives (GoI, 2002). Discussion with these personnel revealed that none had any such list on the practicing TBAs in the villages.

In order to conduct the training of TBAs in the study area, PMT and CRHP were required to make this list. According to their final report submitted to the GoI, the list of TBAs were prepared with the help of Gram Panchayat members, Primary Health Centre (PHC) staff, Integrated Child Development Services (ICDS) functionaries and Mahila Mandals in the villages. Yet again, there was inconsistency in the information provided by the two organisations. According to the CRHP personnel who conducted the selection process, they visited the villages and enquired about women who would be interested in training as TBAs. Some of the women who showed interest were VHWS<sup>4</sup> who were already working in the ongoing health and hygiene programme conducted in the area by CRHP. Casual interactions during field visits in the villages with trained and untrained TBAs in the study area revealed that some of the women who assisted a larger number of births per year were not included in the TBA training programme, whereas others with lesser workload and experience and some women who had never practiced as TBAs before had been recruited. While conducting the structured interviews, TBAs from the community approached me with their dissatisfaction about the training selection process.

The selection criteria also resulted in conflicts between the trained and untrained TBAs. In one village the untrained TBA was more accepted in the community based on her goodwill and positive delivery outcome. The woman trained as a TBA in this village was not accepted in the community and hence had to accompany and learn skills from the experienced but untrained TBA to gain the trust and acceptance within her community. In other villages, women who had never practiced earlier as TBAs gave up despite training due to lack of acceptance. PMT and CRHP personnel revealed that during the practical sessions some women were unable to watch the delivery and had fainted. This is possibly because some of the TBAs were younger and had no previous experience in assisting deliveries.

### Evaluation

The GoI document on TBA training mentions a simple verbal assessment of the trainees at the end of the six day course to identify weaknesses and provide support to TBAs. PMT conducted an evaluation immediately post training. The TBA training document published by GoI states that *'training will be conducted in a phased manner to ensure a better understanding of issues by the Dais'* (GoI, 2000a). The GoI document indicates that the training

needs to be conducted for 10 days and in two phases. The first phase would be for six days followed by a second phase of four days. The second phase of four days will be between two and four weeks apart. The rationale of the second phase of the training was to evaluate and provide support for TBAs in their work. As stated in the GoI document *'it will also address some of the problems faced by the Dais (TBAs) between the first and second phase and will therefore be able to identify their needs and requirements during their work'* (GoI, 2000a: 4). However the GoI document includes a statement that the final decision on two phased programme is left open to the States. At the local level the PMT training programme conducted only the first phase for six days and the second phase was excluded.

### Supervision

The GoI document on TBA training states a refresher course at one month's interval based on practical field problems faced by TBAs. However, according to the information given by TBAs and ANMs in the study area, this refresher course was not conducted. Further, according to the GoI document ANMs are expected to follow up supervision with TBAs. Although certain responsibilities of ANMs are linked with the TBA functions, there is no scope for providing supervision and direct assistance for TBAs in their day to day tasks as they are already overburdened with work. The only duties of ANMs that are similar in some way with TBAs work are as follows: ANMs are expected to conduct a sample survey on early registration of pregnant women, conduct antenatal check-ups, list home and hospital deliveries, list referral of 'at risk' cases to FRU (First Referral Unit), increase awareness on exclusive breast feeding, and check the birth weight of new born.

### Remuneration and expectations

The RCH-II mentions that monetary incentive (Indian Rupees 100 per case) will be provided for TBAs, AWWs and ANMs for accompanying women to formal health institutions for delivery (GoI, 2002). The document also mentioned that TBAs will be given suitable incentive for facilitating 100 per cent birth registration. In the villages of study, TBAs were not aware of any such remuneration and had not heard of any TBA receiving it. In contrast, when the Medical Officer (MO) at the PHC was asked about remuneration for TBAs, he mentioned that TBAs have been promptly paid remuneration for conducting safe deliveries.

The primary expectation from TBAs is to mobilise families to delivery in formal health institutions (GoI, 2002). The expectations of TBAs mentioned in the RCH-II document include; to ensure safe and clean home deliveries in places wherever institutional deliveries are not feasible, to mobilise women for antenatal care, to provide simple resuscitation, clean delivery care and warmth, to promote exclusive breast feeding, to identify sick neonates who need referral, and to provide lactation and feeding counselling techniques (GoI, 2002). The report also indicates that TBAs could provide an important link between the formal health-care system and neonates. The RCH-II report mentions that TBAs will be provided with education to care for the new born, eliminate tetanus and promote clean deliveries, exclusive breast feeding and birth spacing in states with high neonatal mortality rate (NMR), of over 50 per 1000 births (GoI, 2002).

### Training methodology

The GoI guidelines mention a need for hands-on training for TBAs along with lecture sessions. In the local TBA training programme conducted by PMT, both theoretical and practical training was used. The theoretical training included lectures,

<sup>4</sup> VHWS: In the health and hygiene project conducted by CRHP in the study area, a Village Health Worker, generally women from within the village was trained and appointed to overlook health issues in the community.

flip charts, paper cut dummies to explain the physiology and reproductive organs, cloth posters and books. There was a dummy demonstration of normal labour. The practical training also included visits to and postings at the maternity and paediatric wards. The TBAs were given theoretical training for three days at the government rural hospital at Rajur and the other three days they were given practical training at PMT also a medical institute in Loni. During the practical training the TBAs were divided into batches of three and each group was posted at night in the maternity wards. Video films on safe delivery, antenatal care, neonatal tetanus, HIV/AIDS, breast feeding and newborn care was shown to TBAs. The training in the study area was conducted in the local language. (The duration of local TBA training programme is included in the section 'Evaluation'). There is no mention throughout the TBA training report conducted by PMT of incorporating local knowledge or a two-way process where both the trainers and trainees learn from each other's experience in assisting births. The implication of the training design was evident on the content covered in the TBA training (section 'Study findings: content covered in the TBA training programme in Ahmednagar district').

### **Content of traditional birth attendants training programmes in developing countries**

TBAs are generally taught biomedical ways to conduct a clean delivery such as use of the disposable delivery kit; timely referral of women for emergency obstetrical care, and care of the newborn (Jokhio et al., 2005). TBAs are taught methods of conducting hygienic delivery comprising the 'three cleans' that is; hand washing with soap, clean cord care and clean surface (Chongsuvivatwong et al., 1991; Goodburn et al., 2002; PATH, 2002; Fatmi et al., 2005; Sibley and Ann Sipe, 2006) and to manage hypothermia by keeping the infant warm after birth (Daga et al., 1997).

TBAs are supplied with a delivery kit after training to conduct clean deliveries (Bulterys et al., 2002; Jokhio et al., 2005). The material in this kit includes a piece of soap for washing hands, a plastic sheet about 1 m<sup>2</sup> for use as a clean delivery surface, a clean string for tying the umbilical cord, a clean razor blade for cutting the cord and a pair of sterilised disposable gloves (PATH, 2002). TBAs are also taught methods to weigh babies soon after birth or refer them to be weighed at the health centres and encourage immediate breast feeding (Mahbubur et al., 1999; Fatmi et al., 2005; Sibley et al., 2007). The TBAs are asked to visit each woman at least three times during the pregnancy (at three, six, and nine months) to check for dangerous signs such as bleeding or eclampsia, and to encourage women with such signs to seek emergency obstetrical care (Jokhio et al., 2005).

### **Birthing practices used by traditional birth attendants in developing countries with emphasis on South Asia**

A study of perinatal mortality in developing countries observes that the causes of adverse maternal and infant outcomes are inadequately treated maternal complications, inadequate neonatal care, and harmful home care practices, such as the discarding of colostrum, the application of unclean substances to the umbilical-cord stump, and the failure to keep babies warm (Zupan, 2005). South Asia and India in particular, is an example of the complex and unique ways in which modernity is shaping local birthing practices and contexts. In turn, there are certain traditional beliefs and childbirth behaviours unique to this region that shapes the characteristics and social roles of TBAs.

### *Birthing position*

The main recognised benefits of traditional home births are the community support and the effective birthing positions used during birth. The use of upright positions during delivery has been observed as more advantageous than the supine position (Bhardwaj et al., 1995; Michel et al., 2002; Mathews et al., 2005; Roberts and Hanson, 2007). With evidence from other studies that TBAs have tended to give up traditional positions in order to use the supine position, it is important that attempts are made to turn around this trend and retain some of the beneficial traditional practices (Bajpai, 1996b; Mathews et al., 2005). Although traditional childbirth is based on a natural and holistic approach its disadvantages are certain practices that can be potentially harmful and unhygienic to mothers and babies.

### *Hygiene during delivery*

Sepsis caused by infection is one of the leading causes of maternal and infant deaths in the world. According to recent estimates, the leading cause of maternal death in India is post-partum haemorrhage (38 per cent), followed by sepsis (11 per cent) and abortion (8 per cent) (Hota and Sikri, 2006). Apart from maternal personal hygiene, sepsis can also be caused by vaginal examination with unclean hands (Rana, 1999) and the use of unhygienic material to cut, tie and apply on the cord. Earlier studies have produced mixed evidence about TBAs washing their hands during delivery. A study in nine states in India showed that TBAs generally washed their hands and feet before entering the house of labour (Bajpai, 1996a). In contrast, a study in Uttar Pradesh and another in Bangladesh found that TBAs generally washed their hands only after finishing the task of delivery, due to local beliefs that the act of giving birth was polluting (Jeffrey et al., 1989; Rozario, 1998). Indeed, studies in India have noted that babies were generally received with unwashed and ungloved hands by TBAs (Syamala, 2004). Hence, increasing tetanus toxoid coverage remains important for the prevention of neonatal tetanus deaths (Parashar et al., 1998; WHO, 1998a). A study examining TBA training outcomes demonstrated a fall in the incidence of low birthweight and neonatal tetanus that occurred with an increase in referral for tetanus toxoid injections by TBAs who had been trained (Lartson et al., 1987).

### *The delivery kit*

Delivery kits are pre-packaged, single use, disposable kits containing essential items provided to TBAs for conducting a clean delivery. The use of a delivery kit is based on WHO's principles of cleanliness; clean hands, clean delivery surface, clean perineum and clean cord (Winani et al., 2007). The delivery kit usually includes a plastic sheet, a soap, a clean razor blade, and cord ties. Studies have shown a positive influence of the use of the delivery kit on sepsis among mothers and infants. A study in Tanzania evaluating the clean delivery kit intervention found a significant association between use of deliver kit and a lower incidence of cord infection among newborn babies and puerperal sepsis among women (Winani et al., 2007). However, a review of medical literature to identify new and underutilized technologies to reduce maternal mortality related to puerperal sepsis in developing countries states that a safe delivery kit primarily prevents cord infections in the newborn rather than puerperal infections in the mother (Hussein and Fortney, 2004). An intervention study in Bangladesh established that the three clean methods alone does not control sepsis among mothers (Goodburn et al., 2002). The study observed that TBAs are only



one of the sources of infection and the other main source includes the health and hygiene of mothers themselves.

#### *Traditional birth attendants practices and infant care*

According to recent estimates, about four million newborn babies in developing countries die within four weeks after birth (WHO, 2005). South Asia accounts for more than one third (36 per cent) of these deaths (Hyder et al., 2003). A recent study observes that, globally, the main direct causes of neonatal death are estimated to be pre-term birth (28 per cent), severe infections (26 per cent) and asphyxia (23 per cent) (Lawn et al., 2005). Hence extra care for infants born underweight pre-term is required to protect them from hypothermia and infections. Previous studies in India have shown that non-sterilised material for cutting the cord was used not only by TBAs but Auxiliary Nurse Midwives (ANMs), a public health personnel trained by the biomedical sector (Khandekar et al., 1993; Nandan and Mishra, 1996; Mathews et al., 2005). Substances that may be contaminated with bacteria such as ghee oil, cow dung and betel nut are applied to the umbilical cord in India (Nandan and Mishra, 1996). A recent report observed that most maternal and newborn deaths could be prevented with tetanus injections for pregnant women, prompt treatment of newborn infections and awareness on the significance of hygiene, maintenance of infant warmth and breast feeding (Save the Children, 2006).

#### *Warmth for newborn babies*

According to the WHO, delayed bathing at least for six hours after birth preferably to the second or third day reduces the risk of neonatal hypothermia (WHO, 1997b). In India, according to the NFHS-3 data only 45 per cent of the babies were immediately wiped dry and then wrapped without being bathed (IIPS, 2007). Other studies reveal that TBAs and family members in India tend to bathe infants soon after birth (Mathews et al., 2005; Sreeramareddy et al., 2006). Even in health institutions in India, babies are bathed immediately with lukewarm water (Mathews et al., 2005). Given the fact that pre-term births are one of the main causes of neonatal deaths, underweight babies immediately exposed to water potentially increases the risks of hypothermia. Newborn babies are often considered to be 'polluted' and bathed within the first hour of birth, which may lead to hypothermia especially among underweight and/or pre-term babies (Sreeramareddy et al., 2006).

#### *Low birthweight*

A recent study observes that low birthweight is an important indirect cause of neonatal deaths (Lawn et al., 2005). Babies with a lower birth weight have a higher neonatal mortality rate (IIPS, 2007). Low birthweight calculated at less than 2500 g is an indicator of the newborn's chances for survival, growth, long-term health and psychosocial development. According to NFHS data, in India only one third babies had their weight recorded on birth and 22 per cent of those were of low birthweight (IIPS, 2007). In India, there is evidence that institutional birth does not necessarily assure weighing of babies at birth. A study in India shows that even in the Primary Health Centres and government hospitals, only 11 per cent of the babies were weighed at birth (Mathews et al., 2005). Hence it is not just the TBAs but the community at large that is relaxed about weighing newborn babies.

#### *Feeding of colostrum*

According to recent reports about 55 per cent of the infant deaths worldwide from diarrhoea and respiratory infection may

be due to ineffective breast feeding (PATH, 2008). Initiation of breast feeding within the first hour of life, exclusive breast feeding for six months and continued breast feeding are practices that can improve infant and child health (PATH, 2008). According to NFHS data, only 25 per cent mothers in India initiate breast feeding within the desired one hour after birth and only 55 per cent do so by the end of the first day (IIPS, 2007). Breast feeding is strongly influenced by cultural factors and family perceptions (Kumar et al., 2006; Laroia and Sharma, 2006; Sharma and Kanani, 2006). The colostrum is considered 'dirty' milk and discarded because of the perception that it is unhealthy for the child (Chongsuvivatwong et al., 1991; Bhale and Jain, 1999; Khan, 2000; Sharma and Kanani, 2006; Sreeramareddy et al., 2006). The practices of discarding colostrum and bathing babies immediately after birth can cause harm to the health especially of underweight and premature babies.

There are certain practices used by TBAs that are beneficial, such as the birthing position and community support (Saravanan et al., 2010). Research and implementation efforts need to investigate how these can be included in the public health system so that it is more conducive for people who want to maintain beneficial local practices while they access these services. The above review reveals that apart from TBAs others members in the community also participate in decision making on delivery and infant care practices. Personal and community hygiene are also important elements along with the TBA practices. Certain unhygienic and harmful practices need to be addressed with appropriate TBA training programmes together with community awareness programmes. Hence, the context of the existing practices and the applicability of the new methods to be taught to TBAs need to be understood before conducting training programs.

#### **Study findings: content covered in the TBA training programme in Ahmednagar district**

The content of a TBA training programme conducted CRHP and PMT in Ahmednagar district of Maharashtra state has been critically reviewed. The available documental evidence on the content covered in the TBA training programme included; the training manual prepared by PMT and distributed to TBAs after the training, the video shown to TBAs during the training programme, and the training project report submitted by PMT to the GOI.

#### *Birthing position*

A review of the training manual revealed that TBAs were instructed to request women to take the supine position after the water breaks. Beyond this point in the manual the woman was diagrammatically shown in the supine position until the infant is delivered. There are other indications through which the suitability of supine position was conveyed to TBAs during training. The video on safe delivery showed the woman in the supine position during the entire childbirth process. The video shown was of a delivery conducted by a nurse in uniform in primarily biomedical surroundings which are aloof from the situation that TBAs and women face in home deliveries. Moreover, the birthing woman was portrayed as a medical object rather than a human being who needs support and encouragement during childbirth.

#### *Instructions on hygienic practices*

In the manual provided to the TBAs, they were instructed to wash their hands with a soap and brush and to refrain from



wiping their hands on a towel after washing. However, they were not instructed to wash their hands again before cutting the cord or conducting an internal examination. In the training manual TBAs were instructed to wait for the pulse to stop before cutting the cord with a clean instrument. They were asked to refrain from using any blunt objects or a sickle to cut the cord, however there is no mention about potential harmful materials that are used to apply to the cord. TBAs were provided with a delivery kit at the end of the local training programme. The purpose of the kit is to maintain clean cord care, clean hands and a clean environment. The kit therefore consists of basic materials to assist TBAs in conducting clean deliveries including a plastic sheet, a pair of gloves, a clean blade to cut the cord and clean threads. TBAs were instructed to use the kit during delivery to maintain cleanliness. There was also a clear message that use of the kit's contents will prevent the occurrence of sepsis among babies. However replenishment of the kit material was not a part of the TBA training programme.

#### *Infant care*

WHO suggests immediately drying and wrapping, skin-to-skin contact, immediate breast feeding and postponed bathing of newborn babies (WHO, 1997a). However, the local training manual instructed TBAs to leave the infant lightly unwrapped on the floor between the mothers' legs until the pulse in the cord stops. TBAs are then instructed to wrap the infant, clean the infant, and keep the infant close to the mother. These instructions were given despite increasing knowledge about the advantages of immediate skin to skin contact with the mother and delayed bathing of newborn babies. Further, there was no mention of postponed bathing or information to prevent, identify or address hypothermia among babies. TBAs were instructed in the training manual to refer the infants to the health centres so that they can be weighed. However the significance of weighing babies soon after birth to determine low birthweight was not emphasised in the training manual. This is despite widespread knowledge and concern in the research community about the large number of babies not weighed after birth in India.

Colostrum, the yellowish, sticky breast milk produced at the end of pregnancy, is rich in vitamins and antibodies and provides natural immunity to the infant, is recommended by WHO as the perfect food for the newborn, and feeding should be initiated within the first hour after birth (WHO, 2003). According to WHO, initiation of breast feeding within the first hour of birth is a vital step towards reducing infant and under-five mortality. There are arguments that delay in initiation of breast feeding may lead to hypoglycaemia, hypothermia and acidosis especially among low birthweight infants (Prasad and Costello, 1995). The TBA training manual prepared by PMT however instructed TBAs to initiate breast milk a few hours after birth. Moreover TBAs were encouraged to feed boiled water to infants between every two breast feeds.

#### *Maternal complications*

TBAs were instructed in the manual to refrain from pulling on the cord during the placenta delivery as it causes postpartum bleeding and to check if the entire placenta has been delivered. The training manual prepared by PMT only mentioned excessive bleeding as a postpartum maternal complication. However, there was no mention about what action needs to be taken to recognise this complication. Apart from excessive postpartum bleeding, there are several other potentially complicated situations that can lead to emergencies that have been left out of the local training manual such as fever (infections), prolonged

unproductive labour, retained placenta, shock (convulsions or fits) and the womb turning inside out. Certain non-life threatening complications such as the cervix showing or protruding at the vagina after the birth, vaginal discomfort, breast infection, maternal lack of interest post partum (depression) and leg pain (Smith, 2004) have been excluded from the local training manual. It is important that TBAs be made vigilant to prevent some of these complications, to recognise the signs, and be equipped with knowledge of simple methods to handle them until women can reach formal health-care services.

#### *Complications among newborn babies*

TBAs have been instructed through the local training manual prepared by PMT to watch for the following signs that require referral; breech or transverse presentation of infant, twin babies, the pulse of the infant not heard in the womb, and the infant not moving in the womb. Similar to maternal complications however, the local training manual excluded some of the complications pertaining to babies such as prematurity, premature rupture of membranes, meconium staining in the amniotic fluid, cord prolapse, shoulder dystocia, cord around the infant's neck, poor colour of the infant, jaundice, dehydration, lack of weight gain, infection, and birth defects (Smith, 2004).

## **Discussion**

Previous systematic reviews have identified that are inadequacies in the reporting of training design and content quality of TBA training programmes in developing countries (Sibley et al., 2004). Among the studies that have assessed TBA training designs many note that 'most programmes did not undertake any needs assessment to derive an information base for developing an appropriate curriculum for TBAs' (UNFPA, 1996: 4). Similarly, findings from this study in Ahmednagar reveals certain transparency issues in relation to whether the baseline study and needs assessment reported to have been conducted by the local NGO were actually conducted; an issue that has direct implications on the content covered in the training programme.

It has been observed that TBA training programmes are more cost-effective when the coverage and caseload of the TBA participants is high (Gol, 2000a). A recent meta-analytical study also revealed that there is insufficient documentation of the selection criteria used in TBA training programmes (Sibley et al., 2004). Indeed, this study noted that the selection criteria used in the study area was inadequate as young mothers who had no previous experience in midwifery were also selected for the training programme, almost half of whom were VHWS<sup>5</sup> working in their ongoing health and hygiene awareness programme. The inaccurate criteria used in selecting TBAs for training in the study area created tensions between the trained and untrained TBAs within the community.

According to Gol programme documents, TBAs are to be provided with 100 Rupees as remuneration for every delivery which has an outcome of a live mother and infant (Gol, 2002). TBAs in the study reported that they have never received any remuneration for their service although there is contradictory information given by the health centre personnel. TBAs in study area are dissatisfied with the government health-care system because they perceive the lack of remuneration as a form of disregard for the significant service that they provide to the

<sup>5</sup> Almost half (47 per cent) of the TBAs (18/24) selected for training in the study area were VHWS working with CRHP.

community. However TBAs in India are expected to perform several tasks as voluntary contributions (GoI, 2002; Syamala, 2004).

Kruske and Barclay (2004) warn against training programs for TBAs that ignore the local context, implemented without community consultation. Results from the study reported herein confirm that this is partially true. Documental evidences of the training content conducted in Ahmednagar district revealed carelessness in conveying significant and sometimes even basic information to TBAs. The well-accepted positive birthing practices such as use of upright position during delivery, exclusive breast feeding for six months and immediate breast feeding are not conveyed in the training programme. In fact the training content suggests breast feeding after a few hours, feeding water at short intervals to newborn babies and the use of supine position during delivery. Hence information conveyed was not concurrent with the TBA intervention effectiveness of certain birthing practice implemented in developing countries worldwide. Certain vital information was omitted including advice to delay bathing babies for at least six hours after birth, to refrain from applying oil on the infant, and to wash hands again before directly handling mother or infant. Information on complication management and hypothermia was not adequately covered in the local TBA training programme.

The recommendations of this study suggest improvements in the content and design of TBA training to enhance outcomes. The suggested improvements include the need to include a baseline study, appropriate selection criteria, improve information in the training manual to increase clarity of meaning, and to encourage beneficial traditional practices through training. Accordingly, the training manual needs to portray mothers in various positions and to suggest that mothers can choose a preferred position during childbirth. The material provided to TBAs needs to be sensitive in its portrayal of childbirth assistance as a humane service provided to birthing mothers. TBA training should include baseline study data from which to understand the local practices that are prevalent within communities and to incorporate them into the training. An effective outcome of training also depends on the appropriate initial selection of TBAs for training.

The following suggestions are recommended to improve the clarity of meaning in the training manual. The training manual should include the following information: wash hands before directly handling the mother and infant at different times during delivery; the 'warm chain' information with diagrams such as immediate drying and wrapping of babies, skin-to-skin contact, immediate breast feeding and postponed bathing; simple technique of detecting hypothermia by touching method, emphasise the weighing of babies immediately after birth, include the importance of tetanus injections and folic acid tablets; and refer to different types of maternal and infant complications and information on action to be taken during complications. Situations that need immediate medical attention can be separated from those that may require more antenatal monitoring.

Conceptualisation and planning of the TBA training programme should incorporate the 'traditional' knowledge of women in the local community level where the knowledge is beneficial and appropriate to longer term health outcomes. Certain harmful practices are widespread such as discarding colostrum, bathing all newborn babies and other practices that cause hypothermia and sepsis among babies. However, there are beneficial practices that may be specific to a particular area that can be known only through baseline and needs assessment studies and which may comfort mothers during a time that is both intimate and, in many communities, requires extreme modesty on the part of the birthing mother. Activities that can be conducted before training can well include a baseline study and needs assessment in order to gather information about the preferred birthing practices in the local community that is targeted for training.

## Re-examining authoritative knowledge

The programmes' rationale and objectives were based on the assumption that the institutionalisation of birth and the provision of skilled attendants during delivery are the solution to improve maternal and infant health in developing countries, thus emphasising a biomedical approach to maternal and infant health problems. Indeed, the implementation of the TBA training programme at the local level overlooks the significance of and need for a baseline study and needs assessment at the local community level from which to build a training programme that is apposite to the local mother's needs and that fits within their 'comfort zone' during an act that, for most, requires a forum in which issues of modesty can be addressed. There was also little scope for the training to be a two way process of learning between the health professionals and the TBAs with hands-on experience and knowledge.

The incorrect selection criteria further constrained the possibility of integrating traditional and biomedical knowledge during the training and thereby in optimising existing human resources within the local community. The birthing skills, experience and knowledge base of TBAs was hence considered insignificant by the trainers. Evidence from this study shows that the implementation of TBA training programmes are insensitive to the two-way learning process and emphasise more on imparting biomedical knowledge to the TBAs rather than learning from their experience. The positive element of the TBA training design in Ahmednagar is the use of practical and theoretical teaching methods and the use of various materials meant to target non-literate trainees. The evidence from this study shows that there is an overall 'authority' of biomedical over traditional knowledge in the planning and implementation process of the TBA training programme. Thus there is an imposition of strategies to address maternal and infant health problems, rather than a consultative process with TBAs and women at the local communities.

## Appendix A. Supplementary data

Supplementary data associated with this article can be found in the online version at [doi:10.1016/j.midw.2011.04.006](https://doi.org/10.1016/j.midw.2011.04.006).

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