



Published in final edited form as:

Midwifery. 2013 March ; 29(3): 225–232. doi:10.1016/j.midw.2011.12.009.

Practices related to postpartum uterine involution in the Western Highlands of Guatemala

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Abstract

Background—Guatemala has the third highest level of maternal mortality in Latin America. Postpartum haemorrhage is the main cause of maternal mortality. In rural Guatemala, most women rely on Traditional Birth Attendants (TBAs) during labour, delivery, and the postpartum period. Little is known about current postpartum practices that may contribute to uterine involution provided by Mam- and Spanish-speaking TBAs in the Western Highlands of Guatemala.

Methods—a qualitative study was conducted with 39 women who participated in five focus groups in the San Marcos Department of Guatemala. Questions regarding postpartum practices were discussed during four focus groups of TBAs and one group of auxiliary nurses.

Results—three postpartum practices believed to aid postpartum uterine involution were identified: use of the chuj (Mam) (Spanish, temazcal), a traditional wood-fired sauna-bath used by Mam-speaking women; herbal baths and teas; and administration of biomedicines.

Conclusions—TBAs provide the majority of care to women during childbirth and the postpartum period and have developed a set of practices to prevent and treat postpartum haemorrhage. Integration of these practices may prove an effective method to reduce maternal morbidity and mortality in the Western Highlands of Guatemala.

Keywords

Guatemala; Maternal mortality; Postpartum haemorrhage; Traditional birth attendant

Introduction

Maternal mortality is defined as the number of women who die due to childbirth related reasons during pregnancy, delivery, or the 42 day postpartum period (WHO, 2004). In Guatemala, maternal mortality is estimated at 110 maternal deaths per 100,000 live births (WHO, UNICEF, UNFPA, World Bank, 2010.). Women at highest risk for maternal

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Conflict of interest statement The authors have no conflict of interest to report.

mortality in Guatemala are indigenous, multiparous, have low levels of education, have geographic barriers to reaching health centres, and give birth at home (Tzul et al., 2006; SEGEPLAN, 2010). Among rural, indigenous women in the Western Highlands of Guatemala, levels of maternal mortality are three times higher than national rates (MSPAS, 2010). In 2007, the San Marcos Department reported a maternal mortality rate of 107 per 100,000 live births (SEGEPLAN, 2010). In this region of Guatemala, half of maternal deaths occurred at home (MSPAS, 2010). The Government of Guatemala reported that in 2010 the country had made insufficient progress in meeting Millennium Development Goal 5 (MDG5) to reduce by three-quarters maternal mortality between 1990 and 2015 (SEGEPLAN, 2010).

Postpartum haemorrhage (PPH) is the primary direct cause of maternal mortality in Guatemala and low-income countries worldwide (WHO, 2005; SEGEPLAN, 2010). In a systematic review by Khan et al. (2006) 20.8% of maternal deaths in Latin America and the Caribbean were due to PPH.

Traditional Birth Attendants (TBAs) attend an estimated 50–90% of Guatemala's births and over 90% in some rural areas (Kwast, 1995; Replogle, 2007; Maupin, 2008). Little qualitative research exists regarding current postpartum practices used by TBAs in rural Western Highland Guatemalan communities to promote uterine involution, which may prevent PPH. The aim of the present study was to identify traditional postpartum practices among Spanish- and Mam-speaking (Mayan dialect) TBAs in rural Guatemalan communities.

Background

This qualitative study was conducted in the San Marcos Department, located in the Western Highlands of Guatemala. San Marcos has a population of 1,019,719 of which 30% are Mam-speaking Mayan and 70% are Spanish-speaking Ladino inhabitants (INE, 2011). San Marcos is characterised by its low socio-economic status with 73% of inhabitants living in abject poverty (less than the equivalent of US\$554 annually) and 24% in extreme poverty (less than the equivalent of US\$245 annually) (SEGEPLAN, 2002). Additionally, 32% of women in the Western Highlands have received no formal education (INE et al., 1999b).

The San Marcos Department is a mountainous region covering 925 miles². The rural highlands are densely populated with indigenous communities that maintain their traditional languages and health practices, including TBA-attended homebirth and use of a traditional wood-fired sauna-bath (*chuj* in Mam) for bathing and traditional healing (Foster et al., 2004). In the past decade, the Government of Guatemala has made great strides in improving the local health-care infrastructure. The Ministry of Health in San Marcos manages two hospitals, a Maternal–Infant health centre, 14 health centres that are open 24-hrs a day, and 20 ambulances to facilitate transport from rural health centres to regional hospitals in San Marcos (SEGEPLAN, 2010). However, due to geographic and economic barriers, it remains difficult for childbearing women residing in remote, rural communities to access urban health centres that have the capacity to manage obstetric emergencies (SEGEPLAN, 2010).

Prenatal, delivery, and postpartum care is provided primarily by TBAs, and secondarily by skilled birth attendants, including nurses and physicians (Glei and Goldman, 2000). In the most recent Guatemalan Demographic and Health Survey, 38% of the women in the San Marcos Department received prenatal care from a TBA, 22% from a physician, 12% from a nurse, and 28% had no care (INE et al., 1999a). In 1999, 86% of women in the region delivered at home (67% of births attended by TBAs, 14% attended by a friend or family member, and 5% unattended). The remaining births were attended by physicians (11%) and

nurses (3%) in a hospital (INE et al., 1999a). Presently, close to 60% of deliveries continue to be attended by TBAs in the San Marcos Department (SEGEPLAN, 2010). Though TBAs are an integral part of pregnancy and delivery care, births attended by physicians and nurses have increased with efforts to meet the MDG5 objective to promote skilled attendance at birth (SEGEPLAN, 2010). In the Western Highlands region, skilled attendance by nurses and physicians accounted for 31% of deliveries in 2002 and 45% in 2008–2009 (SEGEPLAN, 2010).

Forty-four maternal deaths were reported in the San Marcos Department in 2010 (MSPAS, 2010). Of these deaths, 19 occurred in the hospital, 22 at home, and one at a local health centre (MSPAS, 2010).

The Phases of Delay Theory explains non-medical factors that contribute to delays in receiving emergency obstetric care resulting in maternal death (Thaddeus and Maine, 1994). Three delay phases are categorised as identifying an obstetric emergency; accessing a health-care facility; and in receiving quality care at a health-care facility. A Guatemalan study classified maternal deaths using this theory, though more than one delay phase can contribute to mortality: 30% were related to a lack of identifying an obstetric emergency; 30% delayed transfer to a health centre when signs of an emergency arose; 23% did not transfer to a health centre due to lack of financial resources, transportation, or distance from a health-care facility; and 41% lacked the necessary conditions or skills to treat the emergency once the woman presented to a health-care facility (SEGEPLAN, 2010). Maternal deaths may not have occurred at the location of birth, but while in transit to a health-care facility or upon arrival in grave condition to a health-care facility (SEGEPLAN, 2010).

Tzul et al. (2006) investigated causes of extra-hospital and intra-hospital deaths of childbearing women in Guatemala. Overall, they found that of the 649 maternal deaths that occurred in 2000, mortality was more likely for births attended outside of the hospital, 385 vs. 200, with 64 occurring in an unknown location. Births to women experiencing extra-hospital death were more frequently attended by TBAs (59.89%) or a family member (28.23%), and rarely by a physician (4.49%) or an unknown attendant (7.39%). Births to women experiencing intra-hospital death were attended by TBAs (13.70%), family members (9.26%), and physicians (68.52%), indicating that deaths attended by TBAs and family members most likely occurred after transfer to the hospital.

In 2007, approximately 42% of maternal mortalities in Guatemala were related to PPH, the leading cause of maternal death worldwide (SEGEPLAN, 2010). Principal causes of maternal deaths were as follows: PPH (42%); eclampsia (18%); postpartum infections (15%); and abortions (10%) (15% from unknown and indirect causes) (SEGEPLAN, 2010). Similar to the national statistics, the primary cause of maternal death in San Marcos in 2010 was due to PPH (C. Fuentes Gonzales, personal communication, 11 December 2011).

The International Confederation of Midwives (ICM) and the International Federation of Gynaecologists and Obstetricians (FIGO) advocate for active management of the third stage of labour (AMTSL) to prevent PPH (ICM/FIGO, 2003). AMTSL includes administration of uterotonic agents such as oxytocin, controlled traction of the umbilical cord, and uterine fundal massage after delivery of the placenta. These techniques have been proven to reduce the quantity of postpartum blood loss and thus prevent PPH (ICM/FIGO, 2003). In low resource settings such as San Marcos, where most deliveries are attended by TBAs, AMTSL has not been incorporated into the care of labouring women at home.

High rates of maternal mortality in the region, low use of facility-based obstetric care, and reliance on TBAs are most likely the result of various socio-economic factors, traditional

practices, and culturally derived constructs related to childbearing, referred to as 'cosmovision' (Thaddeus and Maine, 1994; Callister and Vega, 1998; Gleib et al., 2003; Berry, 2006, 2008). This cosmovision is constructed upon beliefs that birth is a sacred ritual (Walsh, 2006), ethnomedical interpretations of obstetric danger signs, and a general mistrust of western health-care (Berry, 2008). These factors may contribute to delays in receiving obstetric care when emergencies such as PPH arise (Thaddeus and Maine, 1994).

Cross-cultural techniques used by TBAs during the postpartum period have developed throughout human evolution to prevent PPH, and these practices often emulate the steps of AMTSL (Abrams and Rutherford, 2011). Techniques that have been documented include administering substances that induce valsalva manoeuvres such as sneezing, gagging, vomiting, or blowing forcefully into a bottle to contract uterine muscles.

Current practices among Western Highland communities of Guatemala that promote postpartum uterine involution and may prevent PPH have not been documented. An early investigation reported on the use of herbs, baths, and massage postpartum to restore both physical and spiritual 'balance' to the puerperal woman (Greenberg, 1982). Lang and Elkin (1997) discussed cultural practices of TBAs, including massage of the uterus and use of the traditional sauna-bath postpartum, but did not discuss perceived benefits of these practices. TBAs believed that bleeding was not a postpartum complication and therefore did not necessitate treatment. Several traditional midwives commented that bleeding was a way to cleanse the body of 'bad blood' and "women don't die from it" (Lang and Elkin, 1997). p. 28

A qualitative study conducted with TBAs in San Miguel Ixtahuacán, Guatemala found that traditional midwives believed it appropriate to refer women to the hospital when there is prolonged bleeding postpartum. However, most TBAs admitted that they had never referred a woman to the hospital. One traditional midwife stated that she would not refer women to the hospital under any circumstance since traditional remedies were considered effective to cure complications (Rööst et al., 2004).

Kaqchikel TBAs in Sololá, Guatemala rarely accompanied women to the hospital for a referral for an obstetric emergency and never for postpartum complications (Berry, 2006). Berry (2006) related that the role of these TBAs was to deliver babies and that the interpretation and management of complications fell outside of their practice norms. TBAs cared for childbearing women within a cosmovision dictating that pregnancy, delivery, and postpartum are essentially normal states requiring little intervention (Berry, 2006).

The aim of the present qualitative study was to examine traditional postpartum practices that are performed by TBAs in rural areas of San Marcos, Guatemala. Rates of maternal mortality are disparagingly high in the region, and continue to be high despite efforts to increase skilled attendance at birth. Because TBAs continue to be the primary providers for childbearing women in the region it is imperative to investigate what practices they administer at home births and during the postpartum period. This study's objective was to explore practices that are employed by TBAs that may contribute to postpartum uterine involution, and may prevent maternal mortality by reducing PPH.

Methods

The findings for this study were derived from a larger qualitative study conducted in June 2010 in San Marcos, Guatemala to identify knowledge, attitude, and behaviours related to antenatal, intrapartum, postpartum, newborn care, and household environmental health. A convenience sample of TBAs and auxiliary nurses in active practice in the surrounding communities was selected for participation based on availability, with assistance from the research coordinator from the Universidad del Valle de Guatemala (UVG) (CR).

Focus group surveys included open-ended questions with emphasis on environmental health, prenatal care, obstetric emergencies, and traditional postpartum practices. Prior to conducting focus groups, surveys were piloted during individual interviews with key informants from the region including auxiliary nurses, licensed nurses, physicians, and Spanish and Mam-speaking TBAs. Language for open-ended interview questions was clarified based on responses from these key informants.

Focus groups were conducted in a private room at the UVG Research Centre in San Lorenzo, San Marcos, Guatemala. Focus groups were facilitated by a group of three Guatemalan field workers who were fluent in Spanish and Mam and trained in focus group methodology. One field worker facilitated the focus group in Spanish or Mam, one field worker transcribed responses in Spanish, and a third field worker sat outside the circle with the two researchers bilingual in English and Spanish (KR and KCB) to translate, clarify cross-talk, and facilitate note-taking. Each group lasted 90–120 mins. Following the focus groups conducted in Mam, the researchers transcribed the recordings in Spanish and English with the assistance of the field workers. The notes from Spanish-speaking groups were immediately compared for content and later transcribed. Following all groups, the researchers and field workers reflected on the discussion and group dynamics. All focus groups were digitally recorded. Recordings were later transcribed into Spanish.

To compensate participants for their time, TBAs were paid the equivalent of US\$5.00. In addition, TBAs received a 'birth kit' consisting of a plastic basin for handwashing, alcohol cleaning gel, alcohol swabs, gloves, and material for tying the umbilical cord. Auxiliary nurses were provided with a gift of cooking supplies.

Validity was ensured during this qualitative study via proposed standards: primary validity criteria included credibility, authenticity, criticality, and integrity, and secondary validity criteria included vividness, thoroughness, congruence, and sensitivity (Whittemore et al., 2011). Reliance on local field workers to facilitate the focus groups and interpret findings together with the researchers assured credibility and authenticity throughout the research process. Results reflect the experience of TBAs and auxiliary nurses in the community stated in their own words. Notes from the facilitators were compared with notes prepared by the researchers to ensure that themes corroborated and concepts accurately reflected the participant's experiences. Notes were then cross-checked with recordings to ensure criticality and integrity of themes. Discussion among the research team members and the facilitators confirmed the researcher's interpretation of themes and reduced bias. The use of exact quotations, which were transcribed from recordings and cross checked with notes, showed congruence and thoroughness. Sensitivity was exercised during the interview process, framing questions related to experiences with maternal death and complications in a broad scope.

The study was approved by the Committee for Human Research at the University of California, San Francisco and the Universidad del Valle, Guatemala. Written consent was obtained from all participants, and a thumbprint was used in place of a signature for participants with low literacy.

Findings

Five focus groups were conducted with 39 local experts in the field of maternal–child health including traditional birth attendants (TBAs) ($n=30$), and auxiliary nurses ($n=9$). TBAs serving both the Ladino Spanish-speaking and Mayan Mam-speaking communities were selected for focus groups in order to provide a broad view of traditional birthing practices in the rural highlands of San Marcos. Auxiliary nurses were included in the study because of their knowledge of traditional birth practices and intersection with western medicine.

Furthermore, auxiliary nurses work rural health clinics, provide a substantial number of prenatal care visits, are increasingly attending births in health-care facilities, and are familiar with TBA care. The five focus groups were composed of Spanish-speaking TBAs with less than 10 years of experience ($n=5$), Spanish-speaking TBAs with greater than 10 years experience ($n=10$), Mam-speaking TBAs with greater than 10 years experience, (Group I) ($n=7$), Mam-speaking TBAs with greater than 10 years experience, (Group II) ($n=8$), and auxiliary nurses with varied length of work experience ($n=9$) (Table 1).

PPH was mentioned by all but one group (Mam-speaking TBAs with greater than 10 years experience (Group II)) as a complication that required immediate referral to the central health post. Only one of the TBA focus group participants reported having managed a patient with PPH:

In my case I have seen a complication...a person who gave birth...had a complication after, because at the time of birth, when the baby was born there was a great rain of blood, and at the time of the birth of the placenta, it was worse. This was a complication...because births aren't like this—Spanish-speaking TBA>10 years experience

The reported lack of experience with PPH during practice by TBAs may be a result of non-disclosure due to fear of judgment by fellow traditional midwives or researchers during the interview process or possible retaliation by governmental organisations if the information shared in the group were to be discussed with others. Auxiliary nurses reported familiarity with PPH, management of vaginal bleeding, and the importance of transfer to a higher level health centre.

Amongst TBAs, there may be differences in interpretation of biomedical symptoms as an emergency or PPH (Rööst et al., 2004; Berry, 2006). Participants may have witnessed PPH but ascribed it to other origins that did not require referral to a health services agency (Rööst et al., 2004; Berry, 2006). In the present study, one participant attributed antenatal bleeding to a desire to eat a food that she smelled cooking:

The midwife had a squash on the table and she was cooking when a pregnant woman arrived at the house. She smelled the scent of the squash cooking. The midwife examined and attended to the woman. The woman went to her house, but immediately she suffered from vaginal bleeding, but it is because she wanted to eat what the midwife was cooking. The mother-in-law went to ask the midwife to give her some of the food for the pregnant woman. She gave her a bit and some corn to cook at her home. The pregnant woman cooked and ate and only with this the vaginal bleeding disappeared. It was a sign of miscarriage, a danger sign—Mam speaking TBA>10 years

All focus group participants stated that visits during the immediate postpartum period are integral to ensure the well-being of the new mother. Auxiliary nurses commented that they rarely see immediate postpartum women at their homes or in the health centre. Recent Ministry of Health statistics reveal that only 16% of puerperal women in San Marcos received a postpartum visit at a health centre (MSPAS et al., 2009). Nurses reported that most puerperal women attend the health centre one month postpartum when seeking the first round of infant vaccinations. Consequently, TBAs are most likely to manage the care of postpartum women. TBA focus group participants initiated postpartum visits the day of the birth up to three days postpartum. At this time traditional remedies are administered. TBAs in previous studies have commented on the importance of postpartum visits as an opportunity to massage the puerperal woman, review the newborn, and support the family of the new mother (Greenberg, 1982; Lang and Elkin, 1997). In the present study, focus group discussions revealed three common postpartum customs practiced by Spanish and Mam-

speaking TBAs in San Marcos that are considered to promote postpartum uterine involution: the *chuj* or traditional wood-fired Mayan sauna-bath; herbal baths and teas; and biomedicines. All three practices were identified during focus groups with TBAs and auxiliary nurses.

The *Chuj*: The *chuj* or traditional wood-fired sauna-bath is used on a weekly basis by Mam-speaking communities, and is the primary method of bathing (Thompson et al., 2011). During the post-partum period, the *chuj* is used more intensively for healing purposes. Focus group participants recommend use of the traditional sauna-bath for 20 days after delivery. Typically, it is used in the morning and again in the evening for 1 week, then only in the evening until 20 days postpartum. Alternatively, it may be used only in the mornings for 20 days postpartum. Use of the *chuj* is commonly initiated the day of the birth or three days postpartum.

The traditional sauna-bath is a longstanding cultural norm for postpartum Mayan women believed to normalise, heal, and warm the uterus. The concept of 'warming' the uterus is based on the cultural belief of 'hot-cold-balance' (Kim-Goodwin, 2003). Blood loss during the postpartum period is believed to cause a cold state and many practices, including that of the *chuj*, are aimed at restoring and maintaining warmth, 'balancing' the puerperal woman (Greenberg, 1982; Kim-Goodwin, 2003).

[The *chuj*] solidifies the uterus, warms [it]—Spanish-speaking TBA<10 years experience (Mam participant)

According to our history, according to our mothers, it is used so that the uterus returns to its normal by 40 days...also so that it is warmed. For me this is cultural —Mam-speaking Auxiliary Nurse

We do not use herbs, just baths in the *chuj*, this is how it is in my community, I believe that we are different and we bathe in the *chuj*—Spanish speaking TBA<10 years (Mam participant)

The *chuj* is also believed to reduce haemorrhage and post-partum pain. Specifically, participants stated that using the sauna-bath during the postpartum would heal the uterus. Focus group participants reported the following in relation to the use of the *chuj* postpartum:

So that the uterus closes, so that it arrives at its normal state, so that the woman normalizes—Mam TBA>10 years experience To normalize the uterus of the woman—Mam TBA>10 years experience

And with this [*chuj*], one doesn't complain, oh, my feet hurt or I am bleeding! No, to the contrary, after one week there is no more bleeding—Mam Auxiliary Nurse

The *chuj* is a cultural practice used by most Mam-speaking TBAs and childbearing women in San Marcos. It is also a tradition familiar to and accepted by auxiliary nurses in the community, to such a degree that a sauna-bath was recently constructed in the postpartum unit of a Ministry of Health 24-hr health-care facility. It is believed that the use of the sauna-bath promotes uterine involution and decreases postpartum bleeding. The use of the sauna-bath has been reported in other investigations as a post-partum custom, though perceived health benefits have not previously been discussed (Lang and Elkin, 1997).

Herbal teas and baths

The use of herbal medicines to heal the uterus postpartum is common among both Ladino and Mam communities. Spanish-speaking (Ladina) women do not use the *chuj*, but instead are advised by TBAs to use an immersion bath containing herbal remedies to heal the uterus

postpartum and expel clots. The following statements reveal the importance of herbal baths in San Marcos:

It is like a custom...they say that if they don't do the baths that they will not be well
—Spanish speaking TBA>10 years experience

If they ask I put a lot of herbs in the water so that they feel solidified, so they feel good—Spanish speaking TBA<10 years experience

Guatemalan TBAs have a long tradition of herbal remedy use. Obstetric complications have been treated with a variety of herbal and dietary remedies (Greenberg, 1982; Lang and Elkin, 1997). In a previous qualitative study, a TBA who reported that she would never refer a woman to the hospital under any circumstance stated that most problems could be resolved with traditional remedies including massage, herbs, and salt (Rööst et al., 2004).

An array of herbal remedies are added to baths or given in teas to puerperal women by TBAs in San Marcos. One previous investigation with TBAs in the San Marcos Department reported that herbal baths are essential to strengthen the puerperal woman's body, which has been weakened by childbirth, as well as to 'prepare' her breast milk (Greenberg, 1982). Local use of plants as remedies is well documented, although pharmacological properties of these plants have not been determined (Anónimo, 2002). The following herbal remedies were commonly cited by participants as being used during the postpartum to solidify and heal the puerperal woman (Table 2).

One participant explained that the herbal remedies she used had a warming effect, restoring the 'hot-cold-balance' postpartum:

I give two baths, good baths with warming herbs. I use marjoram, chicajol, chilca, bretonica, I put a little bit of apple and peach [leaf]—Spanish speaking TBA<10 years experience

Although the active constituents of plant-based remedies used by the TBAs in this investigation have not been studied, various herbal medicines have been found to exert a uterotonic effect that can stimulate labour and may be used postpartum to reduce bleeding (Michel et al., 2007; Gruber and O'Brien, 2011). A Mam-speaking TBA reported that herbal remedies used in baths and teas are an integral part of postpartum care, aiding in the expulsion of clots.

They are given water [to drink] from grasses and trees, cypress, pine, oak, pear, eucalyptus. With this water the woman feels better after. To make the bath you sit in a large tub with the tree waters. The midwife massages the stomach and clots of blood fall out of the woman. She also drinks the tree water with oil while she is in the tub and clots fall out—Mam speaking TBA>10 years experience

Biomedicines

TBA focus group participants discussed the use of biomedicines, including pills and injections, procured from local pharmacies as an option for healing the uterus postpartum. Upon investigation at a local pharmacy it was found that methergine, a uterotonic medication offered in pill or injection, was readily available for purchase without a prescription. Auxiliary nurses reported stabilising the patient with an intravenous catheter and fluids and then transferring to a higher level health facility, but did not mention the use of uterotonic medications.

The use of medications by TBAs represents a cultural shift – the incorporation of biomedicines into home practice – and diverges from the traditional practices of the *chuj* and herbal baths. It is unclear exactly which medications are used, whether they are self-

administered by the childbearing woman or by the TBA, or when in the postpartum period they are administered. The use of uterotonic medications following delivery fulfills the ICM/FIGO first step of AMTSL to prevent PPH (ICM/FIGO, 2003). Two TBAs explained how puerperal women may choose to use medications rather than traditional practices.

There are women who do not use the *chuj*, they do not bathe, and they do not use the *mejorana* tea, they only use pills three days after—Mam-speaking TBA>10 years experience

If the *chuj* is not used in the days of relaxation then they say that the women are not well. After, they become swollen and the uterus becomes inflamed. This is advice from our elders. Now people can use injections instead of the *chuj*—Mam-speaking TBA>10 years experience

Although there is evidence that medications are being used during the postpartum period by TBAs, use is typically complementary to other traditional practices. Medications are not an exact exchange for herbal baths, the *chuj*, or observing other cultural norms such as following the postpartum *'dieta'*:

Also, there is another way, so if one wants they can have an injection, but they have to keep the *dieta* as well, if not it's no more than putting an injection—Spanish-speaking TBA<10 years experience

This example illustrates that although medications are being utilised by Guatemalan women they are not a replacement for traditional practices. Innovative approaches to incorporating uterotonic medications into practice by TBAs in conjunction with traditional customs may prove to be an effective approach to reducing PPH in Guatemala.

Discussion

Rural women who deliver at home in the Western Highlands of Guatemala are at increased risk for PPH, which contributes to maternal morbidity and mortality. The TBAs who participated in the focus groups attend home deliveries, provide postpartum care, and are the first-line for identification, treatment and/or referral for PPH. Only one of the TBA focus group participants reported having cared for a woman who had PPH. This was surprising given the collective experience of women in the focus groups and the high incidence of PPH in this region of Guatemala. Participants may have been reluctant to discuss personal experience with PPH given the retribution that could result from other TBAs or community members that rely on these women for the provision of care.

Previous investigations with TBAs in Guatemala reveal that traditional midwives are aware of obstetric emergencies that should be referred to health centres, though in practice, they are unlikely to recommend a woman if a complication arises (Lang and Elkin, 1997; Rööst et al., 2004; Berry, 2006). Differences in interpretation by TBAs of biomedical symptoms as 'emergencies' are often at the root of this problem; rather, psychosocial or ethnomedical explanations for danger signs are used to describe complications. The belief by many TBAs that birth is essentially normal, combined with the aforementioned cosmovision may result in delays in identifying and treating complications when they arise. Delays that have been found to contribute to maternal mortality in Guatemala include lack of identifying obstetric danger signs, delaying transfer to a health-care facility when obstetric danger signs arise, financial and geographical barriers to transferring a woman to a health-care facility, and lack of resources/skill to provide care once at a health-care facility (SEGEPLAN, 2010).

Although the TBAs did not discuss management of PPH, they described practices used to promote postpartum uterine involution. Focus group discussion identified three postpartum practices believed to aid postpartum uterine involution: the *chuj* or traditional sauna-bath;

herbal baths and teas; and biomedicines. The use of the *chuj* and herbal teas and baths represent longstanding cultural practices. These traditions are supported by Abrams and Rutherford's (2011) premise that TBAs have developed autochthonous practices throughout time to prevent PPH within their communities. The use of the *chuj* is commonly used by Mam-speaking postpartum women. The TBAs who recommend the *chuj* believe that it has important curative qualities for the puerperal woman, assisting in 'healing,' 'warming,' and 'normalising' the uterus. Discussion with TBAs and field workers confirmed that the *chuj* is used to contract and allow involution of the uterus postpartum. The warming qualities of the *chuj* supports the cultural construct of restoring 'hot-and-cold-balance', which is considered necessary for postpartum healing and prevention of complications by various traditional peoples (Greenberg, 1982; Kim-Goodwin, 2003). Although the use of the *chuj* has been reported in other studies, this is the first time its use has been described as aiding postpartum uterine involution (Lang and Elkin, 1997; Kim-Goodwin, 2003). It is important to note that the *chuj* is a source of acute exposures to carbon monoxide, since the sauna is wood-fired (Thompson et al., 2011). If improperly used, the *chuj* can lead to acute carbon monoxide poisoning, including death (Marroquin, 2010). Thus, while the *chuj* is an important cultural practice that has existed for centuries, careful use during the post-partum period is essential.

The use of herbal baths and teas is deeply ingrained into the healing practices of both Ladino and Mam communities. Herbal remedies have been documented in various investigations of Guatemalan TBAs (Greenberg, 1982; Lang and Elkin, 1997; Röst et al., 2004; Michel et al., 2007) as a method for preventing PPH (Abrams and Rutherford, 2011). Some TBAs are reticent to refer their patients to hospital, preferring to rely upon traditional remedies for childbirth complications, such as massage and herbal treatments (Lang and Elkin, 1997; Röst et al., 2004). Herbal remedies have been shown to exert a uterotonic effect causing contraction of the uterus (Gruber and O'Brien, 2011). This uterotonic effect may be inherent to traditional herbal remedies used by TBAs in the current study. Herbal remedies prepared as baths are attributed to 'solidifying' the uterus and expelling clots; two processes related to postpartum uterine involution. Baths prepared by TBAs may also have an additional hygienic effect, reducing risk for postpartum infection. Further research on the pharmacological properties of herbal remedies used by TBAs in the region is warranted.

The finding that TBAs incorporate uterotonic medications into their practice is quite provocative. TBAs in this region may have the capacity and interest to integrate the ICM/FIGO recommendations for AMTSL to prevent PPH into their routine postpartum practice. This concept aligns with the most recent ICM/FIGO statement calling for innovative methods of PPH prevention, including the administration of uterotonic medications by TBAs (ICM/FIGO, 2006). ICM/FIGO recommends that TBAs be trained to provide uterotonics in home and that legislative barriers to their use be lifted by local governments (ICM/FIGO, 2006).

TBA-administered Misoprostol, a prostaglandin uterotonic medication, has been found to successfully reduce PPH in low-income countries with high rates of maternal mortality such as Tanzania, Guinea-Bissau, and Indonesia (Karoshi and Keith, 2009). Engaging TBAs in the highlands of Guatemala to administer Misoprostol after delivery to prevent PPH seems achievable. This intervention requires little technical skill/knowledge, is useful in resource poor settings since the medication is inexpensive, requires no refrigeration, needles, or special devices, and may be used in conjunction with longstanding traditional practices for postpartum uterine involution such as the *chuj* or herbal baths (Karoshi and Keith, 2009). TBAs have gained knowledge of the use of postpartum biomedicines and are currently using them in San Marcos communities. Future research to train TBAs in the use of uterotonics and the steps of AMTSL should be conducted.

Despite the recent WHO recommendations to reduce maternal mortality by training TBAs to refer women to higher levels of care for treatment, rather than treating women themselves (WHO, 2005), it is obvious that TBAs remain an integral part of the management of pregnancy, birth, and postpartum women in the San Marcos Department (Glei and Goldman, 2000). In addition, rates of maternal mortality and TBA care remain high in San Marcos despite the addition of Ministry of Health centres and promotion of skilled attendance at birth. As suggested (Walraven and Weeks, 1999), in traditional Guatemalan communities TBAs are often the only health-care personnel that pregnant women choose to rely on; as such their strengths must be built upon to improve outcomes for childbearing women. Integrating systems of traditional practices, such as the *chuj* or herbal baths, with biomedical ones, such as AMTSL or administration of post-partum misoprostol, may be an innovative method to strengthen TBA's capabilities to reduce PPH within a culturally sensitive construct. Training of TBAs currently being conducted in Guatemala may also improve the TBA's capacity and contribute to reductions in maternal mortality by increasing referrals to health centres for obstetric emergencies (Replogle, 2007). A recent systematic review recommends revisiting the role that TBAs play in increasing skilled attendance at birth and promoting safe motherhood (Byrne and Morgan, 2011). The authors found that integrating TBAs into the health system reduced delays in seeking, accessing, and receiving obstetric care, and in select cases, significantly decreased maternal mortality.

Understanding traditional postpartum practices that promote uterine involution provides the opportunity to build upon TBA's strengths to reduce PPH and maternal mortality within low-income, rural communities of the San Marcos Department, Guatemala. Finding a balance between traditional modes of healing and modern biomedicine in the Western Highlands of Guatemala may hold the key to improving maternal health and reducing maternal mortality (Greenberg, 1982).

Conclusion

Maternal morbidity and mortality remain high in the Western Highlands of Guatemala where PPH is a major contributor. Despite national efforts to refer women to skilled birth attendants at health-care facilities, TBAs continue to provide the majority of care to women in their home during childbirth and the post-partum period. Focus groups in the current study identified three postpartum practices believed to aid postpartum uterine involution: use of the *chuj* or traditional sauna-bath; herbal baths and teas; and biomedicines. Integration of longstanding cultural practices with biomedicine may prove to be a useful tactic to combat PPH in the Western Highlands of Guatemala.

Acknowledgments

The authors would like to thank the field workers and staff from the Universidad del Valle, Guatemala for their generous support in successfully completing this qualitative study. Thank you also to Dr. Cali Fuentes Gonzales, Medical Coordinator for the San Lorenzo/Rio Blanco district and Anaité Diaz Artiga, director of Field Epidemiology training at UVG, for their support in gathering important statistics related to the San Marcos Department. We also would like to thank the TBAs and auxiliary nurses who shared their valuable wisdom and practices with us.

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Table 1

Demographic characteristics of focus group participants: traditional birth attendants and auxiliary nurses.

Focus groups	Spanish-speaking TBA<10 years of experience n=5	Spanish-speaking TBA>10 years of experience n=10	Mam-speaking TBA>10 years of experience Group I n=7	Mam-speaking TBA>10 years of experience Group II n=8	Auxiliary nurses n=9
Total n=39					
Age (years) (SD, standard deviation)	44.8±5.8	58.5±14.5	62.9±13.9	53.4±9.1	28.9±5.2
Education (years)					
None (%)	20	20	86	88	0
1–6 (%)	40	80	14	12	0
7–9 (%)	40	0	0	0	0
10+ (%)	0	0	0	0	100
No. of years working, SD	6.2±2.9	28.9±10.7	31.5±17.1	25.9±11.1	5.04±3.9
Spanish-speaking only (%)	80	80	0	0	56
Mam-speaking only (%)	0	0	100	88	0
Spanish and Mam-speaking (%)	20	20	0	13	45
No. of pregnant women under care in the past 6 months, SD	9.6±6.5	8.3±10.2	8.7±8.7	10.6±13.7	66.2±58.9*
No. of births attended in the past 6 months, SD	7.0±7.7	7.0±10.6	9.14±7.0	10.6±15.4	4.7±4.9

* The total number of pregnancies for one out of the nine nurses who worked at the regional health centre was very high and was omitted when calculating the average and standard deviation.

Table 2Herbal remedies used in baths by TBAs. *Source:* Anónimo (2002).

Spanish/Mam	English	Latin
• Mejorana	• Marjoram	• <i>Origanum majorana</i>
• Chicajol	• Snakeroot	• <i>Ageratina ligustriana</i>
• Chilca	• Barkley's ragwort	• <i>Senecio salignus</i>
• Hoja de manzana	• Apple leaf	• <i>Malus</i> spp.
• Hoja de durazno	• Peach leaf	• <i>Prunus</i> spp.
• Ruda	• Rue	• <i>Ruta chalepensis</i>