## Appendix 1: Data tables, ScR on Lay provider treatment of PPH

## Characteristics of included studies

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| Study author, title, and geography  | Methodology | Lay provider type + education | Interventions and comparator (if present) | Outcomes/findings  |
| **Experimental studies**  |
| Abbas 2019, 290: Using misoprostol to treat postpartum hemorrhage in home deliveries attended by traditional birth attendants (Pakistan)  | RCT  | TBATBAs received basic training on safe delivery practices, and were also trained on trial procedures, diagnosing PPH, administering misoprostol for PPH prevention and treatment, and managing adverse effects. | *Intervention:* Misoprostol *Comparator:* placebo pill  | Proportion of women who experienced a drop in hemoglobin of 20 g/L or more between pre-and post delivery. * Fewer women in the intervention arm experienced a drop, but the difference was not significant
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| Mary 2021, 118: The Safety and Feasibility of a Family First Aid Approach for the Management of Postpartum Hemorrhage in Home Births: A Pre-post Intervention Study in Rural Pakistan | Prospective pre-post intervention study  | Pregnant women and their families (self-care) As part of the intervention, pregnant women received a counselling session including educational materials on birth preparedness, pregnancy danger signs, and newborn care, as well as information on how to identify excessive bleeding and the importance of seeking care at a facility if excessive bleeding occurs  | *Intervention:*Misoprostol + education and counselling*Comparator:* No misoprostol, only education and counselling  | Proportion of women reporting use of misoprostol for Family First Aid for excessive bleeding at home deliveries:* 92 (92.9%) of 99 people experiencing PPH reported using misoprostol

Rates of reported PPH:* 5.4% in the pre-intervention group
* 10.1% in the intervention group

Cases referred to healthcare facility:* 14.5% pre-intervention
* 1.0 % intervention
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| Prata 2005, 51: Controlling postpartum hemorrhage after home births in Tanzania  | Non-randomised experimental study  | Traditional birth attendants (TBAs) instructed on rectal administration of misoprostol for PPH treatment and referral to health facility if condition did not improve or worsened  | *Intervention:* Misoprostol and referral to nearest health facility upon PPH*Comparator:* No misoprostol and referral to nearest health facility upon PPH  | PPH blood loss > 500mL: * 111 (24.5%) in the intervention group
* 73 (18.5%) in the non intervention group

Referrals:* 8 (1.8%) in the intervention group

75 (19%) in the non-intervention group |
| **Observational research**  |
| Andretta 2012, 371: Two-provider technique for bimanual uterine compression to control postpartum hemorrhage (Ghana)  | Observational study  | TBAs Trained to recognize PPH from uterine atony using the American College of Nurse-Midwives Life Saving Skills materials and to perform bimanual uterine compression using simulation- based methods. | Team based bimanual uterine compression for managing PPH due to uterine atony  | * Individuals were unable to fully compress the uterus and maintain compression for more than 150 seconds without fatiguing
* All paired teams were able to fully compress the uterus and maintain the compression for the maximum allotted time of 5 minutes.
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| Brauer 2015, 105:Handling postpartum haemorrhage- obstetrics between tradition and modernity in post-war Sierra Leone | Cross-sectional study  | TBAsThree groups of TBAs were included in the study: TBAs who had never attended any official training course, TBAs who attended at least one official training course, and officially birth attendants  | TBAs utilized many types of medical and physical interventions to treat PPH: * change of position
* manual manoeuvres
* breastfeeding
* application of heat
* application of cold
* herbal medicine
* synthetical medicine
 | * There are gaps in TBA knowledge compared to modern obstetrics, but similar procedures exist
* Officially trained birth attendants demonstrate knowledge deficiencies and lack resources and infrastructure to manage PPH adequately
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| Nabatanzi 2024, 349: Understanding maternal Ethnomedical Folklore in Central Uganda: a cross-sectional study of herbal remedies for managing Postpartum hemorrhage, inducing uterine contractions and abortion in Najjembe sub-county, Buikwe district | Cross-sectional ethnobotanical survey  | TBAsEducation not reported  | TBAs used a variety of traditional medicine and indigenous plants and herbs to treat PPH, the most frequently used being *Hoslundia opposita*. Traditional medicine and herbs were administered in a variety of ways, including rectally, vaginally, and orally. If traditional medicine did not work, TBAs gave mothers “conventional drugs”, which were not specified.  | * 81% of surveyed TBAs reported using indigenous plants for treating PPH. *Hoslundia opposita* was the most frequently used plant, and was considered the most effective plant by mothers
* Surveyed women reported preferring delivering with TBAs in comparison to hospitals, as they described hospitals as far, expensive, and sometimes ineffective. Furthermore, mothers felt that traditional “hospital” uterotonic caused negative symptoms.
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| Prata 2009, 117: Community-Based Availability of Misoprostol: Is It Safe? (Tanzania)  | Cross-sectional study  | TBAsTBAs were instructed on rectal administration of misoprostol for PPH treatment and referral to health facility if condition did not improve or worsened | *Intervention:*Misoprostol *Comparator:* No misoprostol  | * Misoprostol for PPH treatment is perceived as highly acceptable
* Findings showed that the majority of TBAs administered misoprostol at the correct time (76%).
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| **Qualitative studies**  |
| Collins 2016, 69:An exploration of village-level uterotonic practices in Fenerive-Est, Madagascar | Qualitative research  | Community agents - volunteers who are supervised by health providers and get training on their dutiesMatrones – unskilled traditional birth attendants  | Uterotonic traditional teas given to women in labour to prevent/treat PPH  | * Matrones reported routinely providing women with a tambavy (medicinal uterotonic tea); uses included washing the womb, regulating fertility, or accelerating delivery and treating complications such as retained placenta or postpartum hemorrhage.
* Indications for medicinal plant use during labor, as recounted by Matrones, include: to accelerate labor, to aid in delivery, to deliver the placenta, and to prevent and treat hemorrhage.
* Physicians have issues with unintended complications due to the uterotonic teas
* Uterotonic teas were sometimes used for abortions or for post-abortion care
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| Fobo 2024, 9: Management of the third stage of labour by Basotho traditional birth attendants (South Africa) | Qualitative research  | TBAsTBAs were trained on how to assist women during childbirth from other TBAs | Qualitative discussions of interventions used to treat PPH:* Positioning women so that they were squatting was discussed as a method of preventing excessive blood loss through tearing
* Traditional medications were given to manage blood loss, including Rooibos tea, wild rhubarb, selentjane, leksoku, moroto (rock rabbit urine)
* If the TBA noted the bleeding was severe or too difficult for them to manage, they would refer the woman to a health facility
 | * The main outcome of this study was to qualitatively explore the methods Basotho TBAs used for the third stage of management of labour. Most of the identified themes revolved around the appropriate and timely delivery of the placenta, and measures to ensure that placenta was not retained. Basotho TBAs were also cognisant of excessive bleeding, of which the main qualitative findings were about prevention, treatment of excessive bleeding, and transfer to healthcare facility if management by TBA was not possible
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| Hose 2020, 5436:Perceptions and management of postpartum haemorrhage among remote communities in Lao PDR | Qualitative research | Pregnant women and their support networks, which included husbands, mothers, and mothers-in law; village health volunteers  | Qualitative discussions of interventions used to treat PPH included physical and medical interventions: * warm bath, drinking water and/or herbal tea
* cold compress on the abdomen and abdominal massage
* lying on a "hot bed" of embers and traditional herbs for 10-35 days post partum, to help the uterus contract
* - removing the placenta by using a piece of bamboo to wrap around the umbilical cord to apply traction
 | * Women described postpartum bleeding as a normal, necessary process
* Participants were able to describe late symptoms of postpartum haemorrhage but did not describe any methods to accurately estimate the amount of blood loss that required intervention.
* Traditional remedies were the first courses of action, potentially delaying treatment at a healthcare facility.
* When asked about the acceptability of taking oral medication immediately following home births to prevent postpartum haemorrhage, most women felt it would be acceptable provided it would not stop normal bleeding, and its usage, benefits and side-effects were clearly explained.
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| Nelson 2013, 27: Use of uterine balloon tamponade for control of postpartum hemorrhage by community-based health providers in South Sudan | Qualitative research  | Most providers were non-literate, unskilled birth attendants such as traditional birth attendants and community midwivesTraining included description, demonstration, and practice sessions with the UCB. Trainees were given a pictorial PPH checklist as well.  | Uterine balloon tamponade  | * Providers applied the UCB in appropriate clinical situations
* The UCB was effective in controlling PPH
* The referral process for further care was difficult due to the remote setting, but the UCB appeared to overcome these challenges
* Equipment and supplies were available despite the resource-limited setting
* Universal satisfaction with the UCB
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| Ononge 2016, 211: Excessive bleeding is a normal cleansing process: a qualitative study of postpartum haemorrhage among rural Uganda women | Qualitative research | TBAsTBAs were untrained, had received training from World Vision, had been trained by the district health office, and had previous experience as a nursing aide.  | Interventions provided by TBAs to treat PPH included:* Ergometrine kept at their homes to administer after childbirth
* abdominal massage
* cold water or soda
* traditional medicines
 | * TBAs considered bleeding after childbirth to be a normal process, which if stopped might lead to negative health consequences for the mother
* TBAs recognized PPH using a variety of criteria: rate of blood flow, amount of blood (equivalent to two clenched fists), fainting, feeling thirsty, collapsing or losing consciousness immediately after birth, and seemed to correctly identify women at risk of PPH
* TBAs used cold drinks, uterine massage and traditional medicine to treat PPH.
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| **Guidelines**  |
| Lalonde 2012, 108: Prevention and treatment of postpartum hemorrhage in low-resource settings | Guideline  | The paper discusses that untrained birth attendants and family members who are present at birth may act to treat PPH | N/A  | Recommends the following physical and medical interventions: * Teaching anyone who attends the birth home-based life-saving skills (HBLSS), which includes techniques such as uterine fundal massage and emergency preparedness.
* In home births without a skilled attendant, misoprostol may be the only technology available to control PPH.
* Aortic compression is described as something which can be done by someone who is not qualified
* Other promising techniques appropriate for low-resource settings for assessment and treatment of PPH include easy and accurate blood loss measurement, oxytocin in Uniject, and the anti-shock garment. The guidelines notes that these interventions are still under investigation for use in low-resources settings, but may prove important especially for women far from skilled care
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| Nyasulu 2010, 98: The community approach to prevention and management of postpartum haemorrhage (PPH) (South Africa)  | Guideline  | Mention of birth attendant involvement in deliveries, but encourages women to go to a facility to delivery when possible  | N/A  | Recommends the following physical and medical interventions: * Training TBAs to administer uterotonic agents such as 400-600micrograms of oral misoprostol after delivery of the placenta/with excessive bleeding may reduce morbidity from PPH
* If cold chain facilities exist, injectable oxytocin (such as the Uniject system) is a safer and more effective alternative to misoprostol
* In areas with high rates of home delivery, TBAS should be advised to deliver the placenta with maternal force and gravity (i.e. with the woman in a squatting position) and massage the uterus after delivery of the placenta
* Recommends against application of controlled cord traction by an unskilled birth attendant
* Encourages TBAs to promote early and frequent voiding; self-massage of the uterus and self monitoring by the woman; immediate breastfeeding or nipple stimulation
* Promotes “Home-based life-saving skills” (HBLSS) (table 3) to address PPH by negotiating and working with women and communities on interventions that can be done at home.
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| **Device assessment**  |
| Candidori 2024, 104223:Improving maternal safety: Usability and performance assessment of a new medical device for the treatment of postpartum haemorrhage (Italy)  | Usability and performance assessment of a new medical device | “Non-medical users” (study volunteers) to represent unqualified subjects in low resources settings who help with birthTrained on how to use the BAMBI device:1. Live session (i.e., participants received live training from qualified personnel on how to perform the procedure); 2. Paper IFU; 3. Video training (i.e., a short video showing how to perform the procedure). | Physical intervention: the BAMBI device is a low-cost CBT device designed to be used in low resource setting | * The useability score of the BAMBI was higher than of a regular condom balloon tamponade (CBT) for medical users
* There is not significant difference in the useability score of the BAMBI between non-medical users undergoing different trainings
* There was no significant difference in the useability score of the BAMBI between medical and non-medical users
* The useability score of the BAMBI was higher for non-medical users compared to medical users for regular CBT
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| **Text and opinion**  |
| Rodgers 2012, 56:LifeWraps: Low-tech First Aid for Obstetric Hemorrhage | Text – magazine article  | No specific providers – the intervention is described as able to be taught to anyone  |  | Non-inflatable anti-shock garment (NASG) - lower body suit which forces blood back into the vital organs, especially the heart, brain, and lungs, reducing blood loss and maintaining blood pressure |

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