

Measurement of postpartum blood loss

Better accuracy is only the first step towards improving outcomes



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Delayed diagnosis and poor management of postpartum haemorrhage are associated with increased mortality and morbidity.¹⁻⁴ The challenge, particularly in developing countries, is to improve management—for example, by using prophylactic administration of uterotonics in deliveries. In the linked cluster randomised controlled trial, Zhang and colleagues assessed whether using a transparent plastic collector bag to measure postpartum blood loss after vaginal delivery reduced the incidence of severe postpartum haemorrhage.¹

Clinicians continue to rely on visual assessment to determine the volume of postpartum blood loss. Studies have repeatedly shown visual estimates to be inaccurate (overestimating blood loss at low volumes and underestimating blood loss at high volumes).⁵⁻⁶ Several technologies have been developed to help clinicians to measure postpartum blood loss more accurately, with the intention of improving outcomes after postpartum haemorrhage. These include direct collection of blood in pans, gravimetric measurement of sponges (weighed before and after use), spectrophotometric methods,⁷ calibrated and non-calibrated drapes, and even enhanced teaching methods for visual estimation. Several studies in developed countries have reported that such interventions have improved the accuracy of measuring blood loss but that more accurate measurement has little effect on postpartum haemorrhage outcomes.⁸⁻¹⁰

Zhang and colleagues' trial, which was conducted in hospitals in 13 European countries, concluded that a more accurate assessment of blood loss is not, by itself, sufficient to affect rates of postpartum haemorrhage. The population included had a low incidence of postpartum haemorrhage of 1-2% and very low associated mortality. In this setting, clinicians' awareness of postpartum haemorrhage is high, and management—including prophylactic use of uterotonics in the third stage of labour—is standard.

In the developing world where most women deliver outside healthcare facilities and where trained clinicians are few (women are often accompanied by traditional birth attendants or family members) the public health importance of accurate measurement of blood loss may be different.

A recent randomised controlled trial of postpartum haemorrhage after home births with traditional birth attendants in Tanzania assessed the safety and effectiveness of a traditional blood loss measurement tool on the diagnosis and treatment of postpartum haemorrhage.¹¹ Here, traditional birth attendants place kangas (colourful, rectangular cotton garments of standard size, used by women in East Africa) under the woman's buttocks to absorb postpartum bleeding, and they use four blood soaked kangas as a threshold measure for postpartum haemorrhage, at which point women are referred to a health facility. A pilot study determined that two blood soaked kangas was slightly more than 500 ml of blood. Building on existing practice, traditional birth attendants in the trial were trained to diagnose postpartum haemorrhage after two kangas had been soaked through, and the study found that they could accurately diagnose

postpartum haemorrhage and refer women to health facilities in a timely manner. Although this method does not provide a perfect measure of blood loss, by recalibrating the threshold for postpartum haemorrhage diagnosis from four blood soaked kangas to two, the timing of referral to a facility was greatly improved, reducing the risk of death from postpartum haemorrhage. Another trial conducted in a hospital setting in Karnataka, India, compared visual estimation of postpartum blood loss to estimation using a calibrated drape.¹² Visual estimation underestimated blood loss by 33% compared with assessment using the drape, and the authors concluded that in low resource settings more accurate measurement of blood loss using a drape (or similar low cost method) could greatly reduce maternal death by allowing women to receive quicker treatment.

In developing countries where the incidence of postpartum haemorrhage varies between 5% and 20%, tools for the measurement of blood loss can be used to standardise timing of administration of an intervention, decide when to refer the patient, and plan for administration of additional interventions. Thus, research to help identify culturally acceptable blood collection methods, determine their accuracy and generalisability to various populations, and train providers on their use should be encouraged. By facilitating the timely diagnosis of postpartum haemorrhage, even during home births, such interventions can help manage postpartum haemorrhage and prompt referrals in a timely manner, ultimately helping to reduce the high associated mortality in the developing world.

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