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BLOOD LOSS: ACCURACY OF VISUAL ESTIMATION

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As discussed in numerous other chapters, clinical estimation of blood loss is notoriously inaccurate. The degree of inaccuracy varies greatly, with many studies demonstrating that visual estimates range from 30 to 50% of actual losses¹⁻³. Of great importance, this inaccuracy increases with increasing blood loss². When translated into clinical practice, underestimation may delay or deter identification and diagnosis of postpartum hemorrhage. This circumstance may result in an unplanned obstetric emergency, with catastrophic outcomes. To overcome this potential problem, multidisciplinary drills to highlight the nature of the problem may be of help, particularly in training programs.

We designed a labor ward drill to provide obstetric care teams an opportunity to assess their blood loss-assessing skills. A multi-station blood loss simulation was designed with seven stations which created opportunities to assess

predetermined simulated blood losses. Grape jelly and pomegranate juice were used to simulate clots and blood. Each station had a measured amount, ranging from 50 to 4000 ml. Simulated blood quantities were placed on sanitary pads, delivery pads, basins and drapes and on the floor. This study was approved by the Institution Review Board.

A total of 49 participants completed the skills session. Participants included medical students, physician assistants, nurses, obstetric and gynecologic residents and attending staff. The results of the study are depicted in Figure 1. The findings clearly document the inaccurate estimation of blood estimation, as well as the fact that the accuracy of the estimate decreased with increasing blood volume. This was particularly true above 1000 ml. Of interest, the underbuttocks absorbent delivery pad was most deceptive for estimating. In general, underestimates were similar for liquid and clots, but the 4000 ml

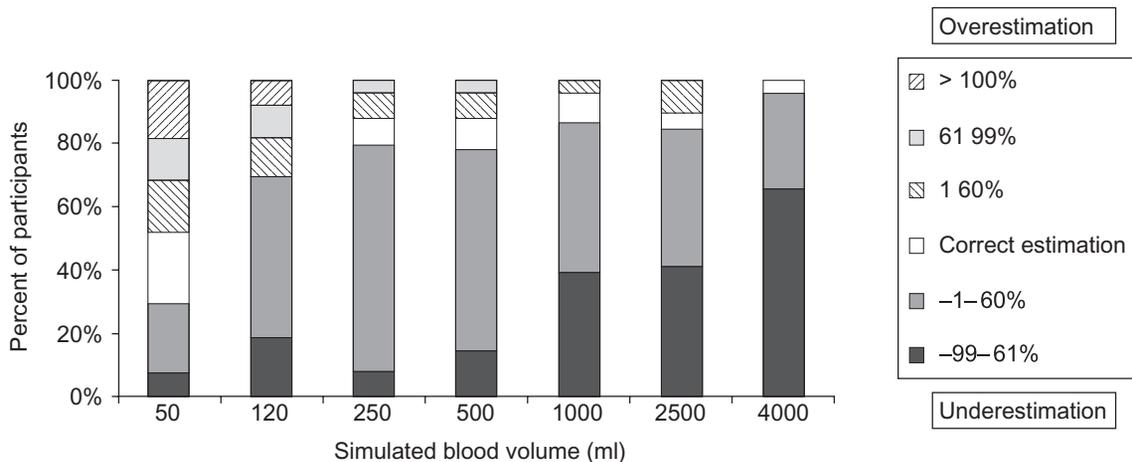


Figure 1 Accuracy of blood volume estimate

station consisted entirely of 'clots' and was most underestimated by the vast majority of participants.

This training program was enlightening for participants to understand the limitations of the visual assessment of blood loss. Repetitive interval sessions may aid individuals to increase accuracy or to develop a personal blood loss assessment coefficient to anticipate levels of underestimation. Such a coefficient would be comparable to a golf handicap and of great use to individuals who regularly are called upon to assess blood loss in a variety of situations. Future studies could expand on this experiment with larger numbers and under more varied conditions, of which the quality and quantity of atmospheric lighting is most important. This information may be informative in the ongoing education of labor and delivery room staff in drills and other attempts to simulate real-time emergency situations.

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