

Developing a web-based app for calculation of measured blood loss in obstetrics: a quality improvement project

Dr Holly Lamont, Dr Mike Papadopoulos, Dr Kimberley Hoyland

Obstetric haemorrhage is a leading cause of maternal mortality worldwide. Early recognition of obstetric haemorrhage is essential and allows prompt treatment and prevention of massive haemorrhage. Visual estimation is frequently inaccurate and underestimates the severity of blood loss, leading to delayed response to haemorrhage. Quantitative blood loss measurement has been shown to improve recognition of major obstetric haemorrhage¹ and to reduce length of stay² and is an important part of obstetric care. Furthermore, blood loss should be considered in the context of maternal blood volume in order to individualise patient care. The aim of the project was to improve quantitative blood loss calculation with the design and implementation of a web-based app.

Methods

An online survey was distributed to theatre staff working in obstetric theatres. The survey was designed to assess their confidence in calculating blood loss and desire for a web-based app to improve ease of calculation. The web page app was then created and trialled within obstetric theatres. The app allowed staff to input the patient's height and weight and calculate an estimated circulating blood volume. The app then allowed wet swab weights to be entered and the blood loss calculated along with a percentage of circulating blood volume lost estimation. A second online survey was then distributed to assess the impact of the app on staff's confidence and ease of calculation.

Discussion

The accurate and prompt calculation of measured blood loss during obstetric haemorrhage is an essential part of the delivery of safe obstetric care. The person tasked with the calculation is often working as the sole runner in theatre with other important tasks to manage concurrently, leading to increased cognitive load and risk of error during an emergency. The creation of a webpage app to improve the ease of calculation, and to highlight the blood loss in the context of the patient's estimated circulating volume, was received well by staff and the majority of staff found it useful. Future aims of this project are to expand use of the app to other NHS trusts, and evaluating the effect of the app's introduction on clinical outcomes.

Results

A total of 27 theatre staff completed the initial survey. 62% percent of respondents were either always or usually the sole person running and calculating blood loss. 86% percent of respondents responded that they would find a web-based app helpful.

