Response to the letter by K Killicoat, A Nesbitt, L McDonagh, W Yoong

Marian Knight\textsuperscript{1}, Simon S. Stanworth\textsuperscript{2}, Frances M. Seeney\textsuperscript{3}, Cathy Hopkinson\textsuperscript{3}, Peter W. Collins\textsuperscript{4}, Rachel E. Collis\textsuperscript{5}, Nigel A.B. Simpson\textsuperscript{6}, Andrew Weeks\textsuperscript{7}, Laura Green\textsuperscript{8}

\textsuperscript{1}National Perinatal Epidemiology Unit, University of Oxford, United Kingdom
\textsuperscript{2}NHS Blood and Transplant, Oxford & Oxford University Hospitals NHS Trust, United Kingdom
\textsuperscript{3}Statistics and Clinical Studies, NHS Blood and Transplant, Bristol, United Kingdom
\textsuperscript{4}Arthur Bloom Haemophilia Centre, Cardiff University, United Kingdom
\textsuperscript{5}Dept of Anaesthetics, Cardiff and Vale University Health Board, United Kingdom
\textsuperscript{6}Department of Women's and Children's Health, University of Leeds, United Kingdom
\textsuperscript{7}Department of Women's and Children's Health, University of Liverpool, United Kingdom
\textsuperscript{8}Barts Health NHS Trust & NHS Blood and Transplant, London, United Kingdom

We thank Dr Killicoat and colleagues for their interest in our paper. We agree that it is important that both trainee and consultant obstetricians and midwives are skilled in recognising and managing obstetric haemorrhage. Haemorrhage remains the second most frequent cause of direct maternal death in the UK; there has been no significant decrease in maternal death rate from haemorrhage since 2009\textsuperscript{1}. The most recent UK Confidential Enquiries into Maternal Deaths which reviewed the care of women who died from haemorrhage reported that improvements in care may have made a difference to outcome in all of the women who died. The report highlighted a number of key messages to improve future care of women with haemorrhage\textsuperscript{2}.

Three women who died were anaemic in the antenatal period and only one received oral iron. Haemoglobin levels below the normal range for pregnancy should be investigated and iron supplementation considered if indicated to optimise haemoglobin before delivery.

Inadequate observations were a feature in seven deaths and abnormal observations were not escalated in five women. Physiological observations including the respiratory rate should be used to monitor all antenatal and postnatal admissions. However, it is the response to the abnormal score that will affect outcome not simply its documentation. Concerns should be escalated to a senior doctor or midwife if a
woman deteriorates, and there should be a named senior doctor in charge of ongoing care.

In several deaths an acute point of care of single haemoglobin measurement result falsely reassured staff. Fluid resuscitation and blood transfusion management, which has been described elsewhere\(^3\), are also important, and should not be delayed because of false reassurance from a single haemoglobin result; the whole clinical picture should be considered.

In several instances, women deteriorated despite ongoing resuscitation because the source of bleeding was not stopped. Of particular relevance to the observations of Dr Killicoat and colleagues, eight women had attempted balloon tamponade and the report notes that there appeared to be a tendency to try an intrauterine balloon even when the situation was extreme. The figures from Dr Killicoat and colleagues noting a higher rate of intrauterine balloon use in women with a haemorrhage of 3000ml or more perhaps reflects this. The report highlighted once again the importance of early recourse to hysterectomy if simpler medical and surgical interventions prove ineffective, and this applies equally to intrauterine balloon use.

References

