

Debadutta Behera, Tabitha Tanqueray, Anca Zaharencu, Desikan Rangarajan, Homerton Healthcare NHS Foundation Trust

INTRODUCTION

- Point-of-care testing (POCT) is recommended to guide correction of coagulopathy in postpartum haemorrhage (PPH)⁽¹⁾.
- The qLabs® FIB measurement system is a small, portable MHRA-approved device which measures fibrinogen in the range of 1-4g/L and yields results in less than 10 minutes, using one drop of whole blood from a citrated laboratory tube.
- Results outside of this range are represented as 1.0g/L or >4.0g/L.
- It uses low-cost consumable test strips.
- The system is available in our Maternity Unit, but there are limited data on the use of qLabs® FIB for fibrinogen measurement in PPH.



AIM

- To evaluate the reliability of qLabs® FIB compared with laboratory Clauss fibrinogen in the setting of acute PPH.

METHOD

- Paired coagulation samples were obtained from a single venepuncture in patients with PPH. Fibrinogen values from qLabs® FIB point-of-care testing were compared with those from the laboratory-based Clauss assay.
- This project was classified as a service evaluation by our Research Ethics Committee.

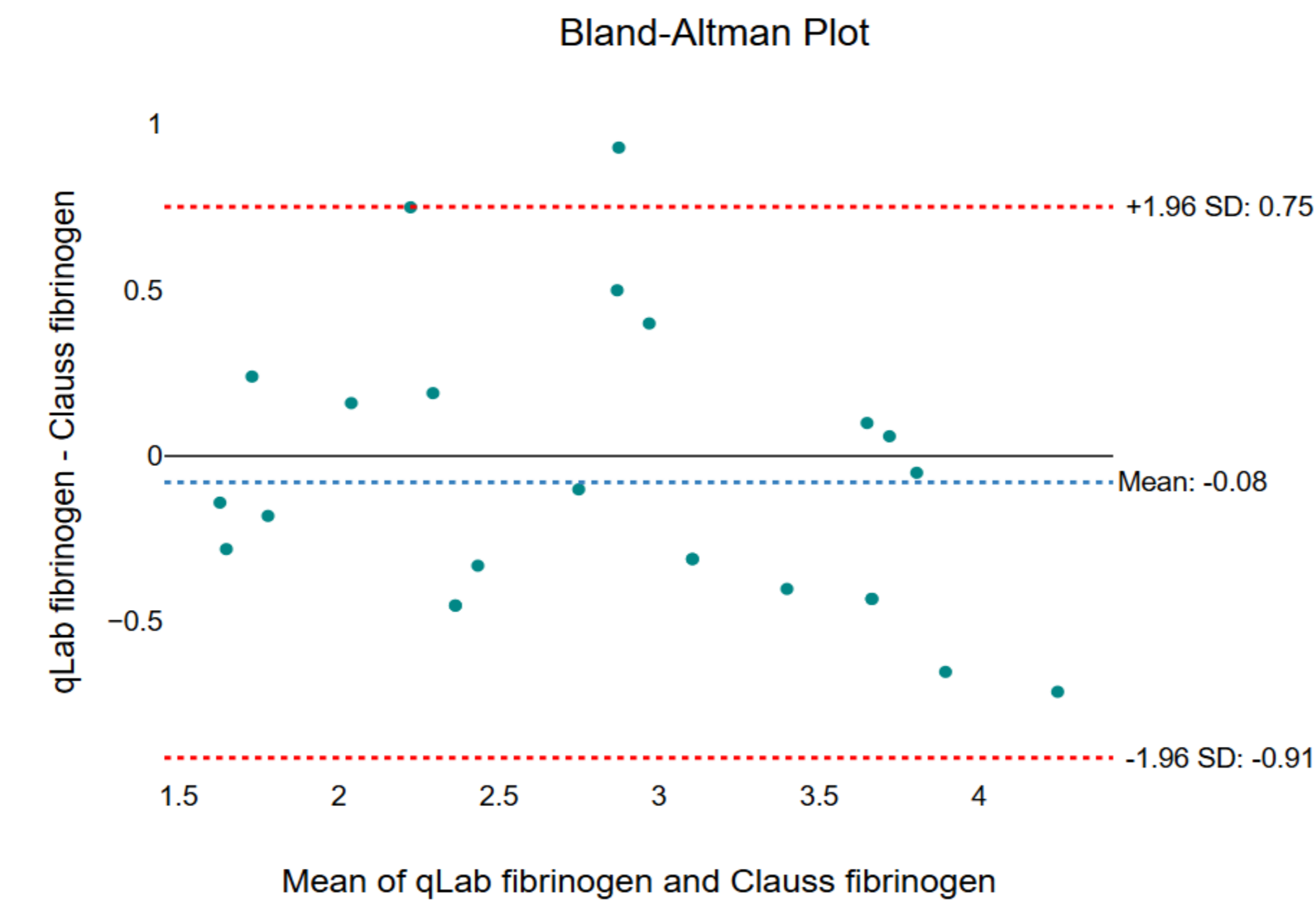


Figure 1: The mean difference (bias) between the two methods was -0.08 (95% CI: -0.26 to 0.10 ; $p = 0.37$, SD 0.42)

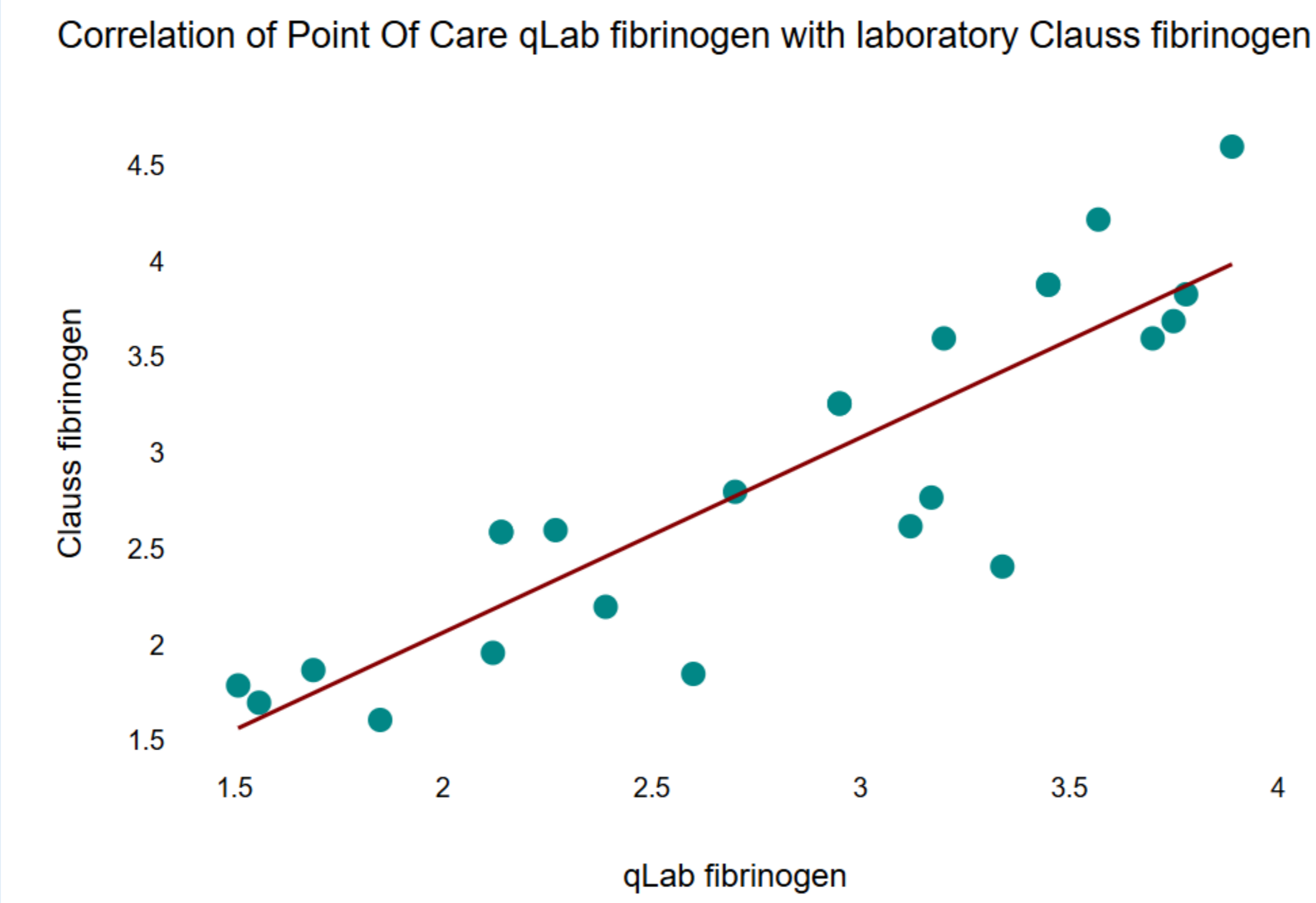


Figure 2: Significant, strong positive correlation was seen between the tests. Correlation coefficient of 0.88 , p value < 0.0001

RESULTS

- 39 paired samples from 36 patients with acute PPH were obtained.
- 13 samples had qLabs values >4 g/L (upper limit of the test), and 2 laboratory samples were haemolysed.
- The remaining 24 samples were analysed using a Bland–Altman plot (fig 1) and a scatter plot (fig 2).
- **The qLabs® FIB fibrinogen correlated strongly with the Clauss fibrinogen** ($r=0.88$, $p<0.0001$). Bland-Altman analysis demonstrated a small mean bias (0.08 , 95% CI -0.26 to 0.10 , $p=0.37$), suggesting clinically acceptable agreement.
- Among 13 observations with qLabs® FIB values >4 g/L the laboratory Clauss fibrinogen values were >3.8 g/L in 12 cases and 3.11 g/L in one case.

DISCUSSION

- The hand-held qLabs® FIB system delivers fibrinogen results within 1–10 minutes, making it suitable for use in acute clinical settings on Delivery Suite and in theatres⁽²⁾.
- We found a strong correlation between the qLabs® FIB fibrinogen and the Clauss fibrinogen.
- In our clinical experience, the qLabs® FIB system has proven reliable for detection and exclusion of hypofibrinogenaemia in a range of severe post partum haemorrhage situations, enabling rapid detection and correction of coagulopathy.
- Our samples were generally taken in the setting of dilutional coagulopathy after major obstetric haemorrhage. We aim to continue collecting data to verify the reliability of the qLabs® FIB system in Acute Obstetric Coagulopathy.

Performance in clinical scenarios with fibrinogen <3.0

qLabs fibrinogen	Clauss fibrinogen	Clinical situation at time of sample
3.17	2.77	SVD, MBL 1500ml (trauma, tone)
3.37	2.41	ELCS twins, MBL 2000ml (tone)
2.12	1.95	Laparotomy for PPH at 23/40, placenta increta, MBL 3000ml
2.6	1.85	Repeated following coagulation products, ongoing bleeding, hysterectomy
2.7	2.8	Twins, pre-eclampsia, HELLP 33/40. MBL 1500ml at EMCS (tone)
2.27	2.6	Congenital neutropenia with thrombocytopenia, APH 35/40, CS MBL 1800ml
2.14	2.59	EUA, laparotomy for PPH. MBL 5400. Post transfusion, FFP, cryoprecipitate
1.85	1.61	EUA for secondary PPH post EMCS MBL 2500ml+
2.39	2.2	Ruptured uterus MBL 1000ml, ongoing
3.12	2.62	Repeated post transfusion, cryoprecipitate, FFP MBL 3000ml+, hysterectomy
1.51	1.79	EMCS, trauma MBL 2500ml brisk
1.56	1.70	Repeated following fibrinogen concentrate, further bleeding

REFERENCES

- 1) The maternal care bundle England.nhs.uk
- 2) Usability study of the qLabs® FIB: A new point-of-care system for functional fibrinogen testing. Hureau Bouthors, Deroo et al, Thrombosis Update (2024), 100192



ACKNOWLEDGEMENT

- We thank Stago UK Ltd for loaning us the qLabs® FIB meter and supplying test strips during the clinical evaluation phase.