

Foetal-Maternal Haemorrhage – Exposure to the D

MATT SUMMERS – THE CANBERRA HOSPITAL

Background

- 24 year old woman who underwent an emergency caesarean at a district hospital
- Baby's haemoglobin was 56 g/L at birth
- Baby was transfused with one unit of PRBC at the district hospital
- Mother and baby both transferred to Canberra Hospital

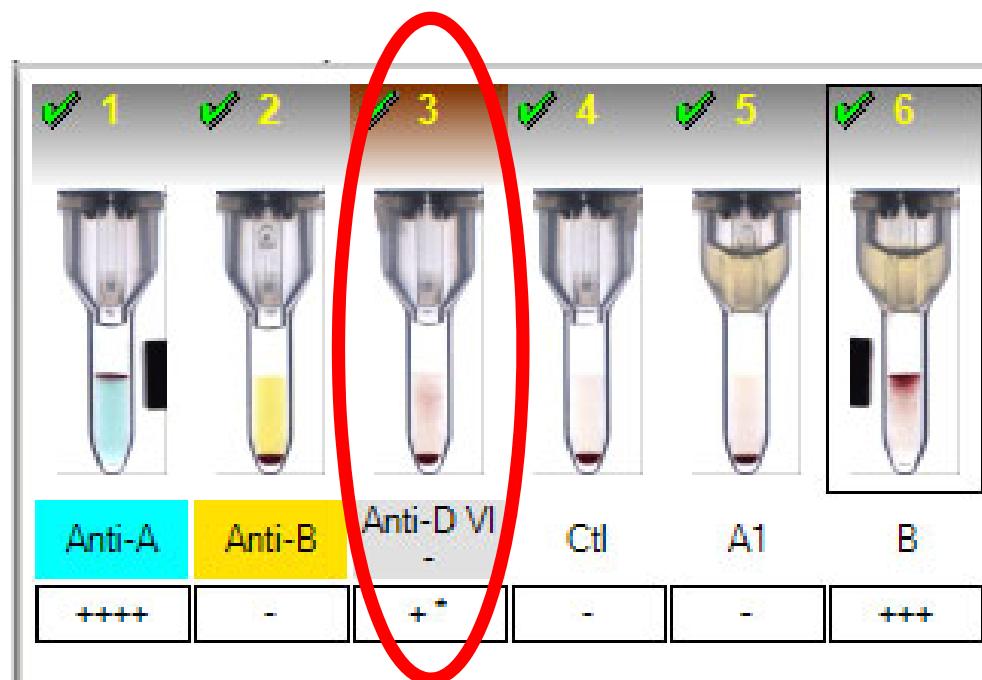
On arrival at The Canberra Hospital

- Mothers haemoglobin was 125 g/L
- Urgent foetal-maternal haemorrhage (FMH) testing was performed
- Result of FMH testing showed a foetal bleed of 124.6 mL
- Maternal blood group determined as A Rh(D) Negative
- As a result urgent Rhophylac was ordered
- Histological analysis of the placenta showed a hyper coiled umbilical cord

Anti-D background

- Foetal-maternal haemorrhage occurs in up to 7% of pregnancies during the gestational period
- Foetal bleeding into maternal circulation during delivery can occur in up to 50% of women.
- The volume of foetal blood that is detected in ‘normal’ pregnancies is usually very small, however even very minor foetal bleeds can stimulate the mother to develop an immune anti-D.
- Approximately 85% of Rh(D) negative people who are exposed to the D antigen will develop anti-D.

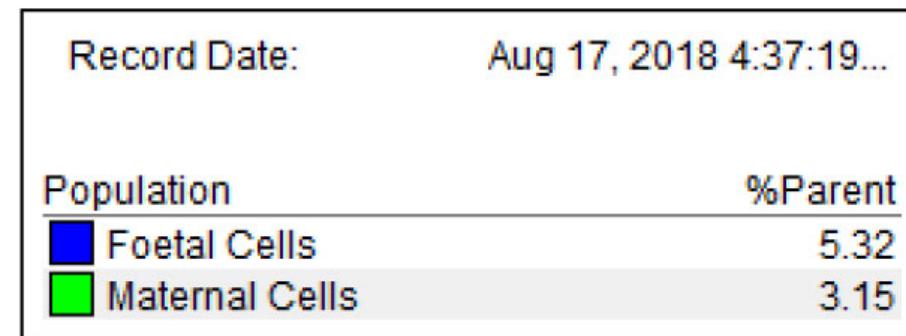
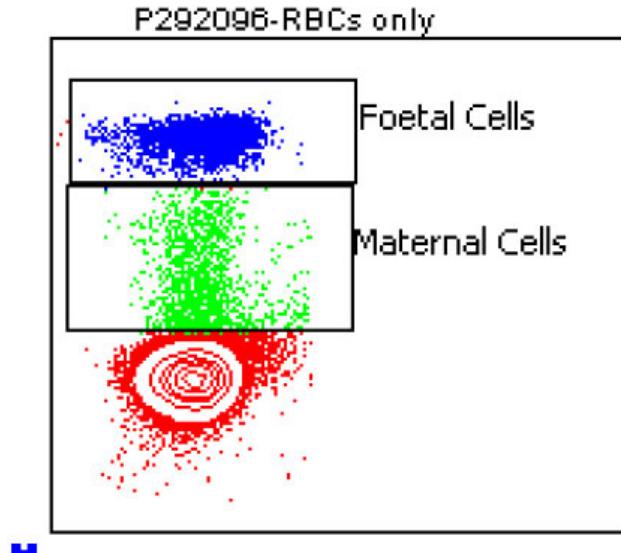
Blood group on presentation



FMH testing by Flow Cytometry

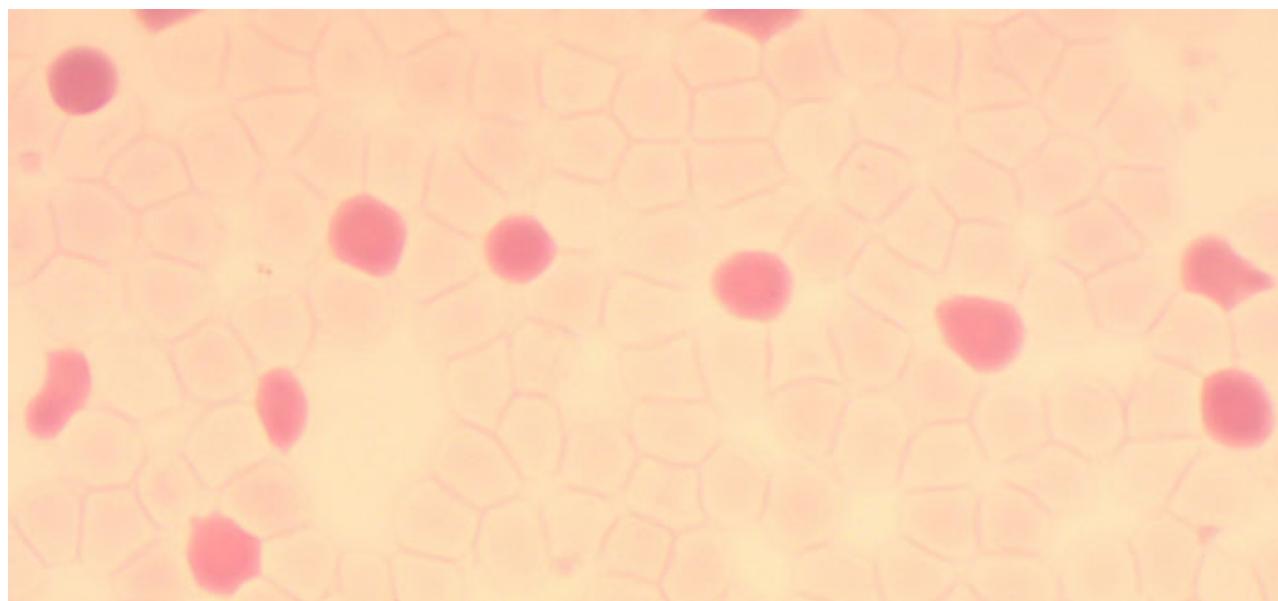
PI-A

HbF FITC-A



- Result of FMH testing showed a foetal bleed of 124.6 mL
- Testing done using Anti-HbF monoclonal antibody and Propodium iodide.

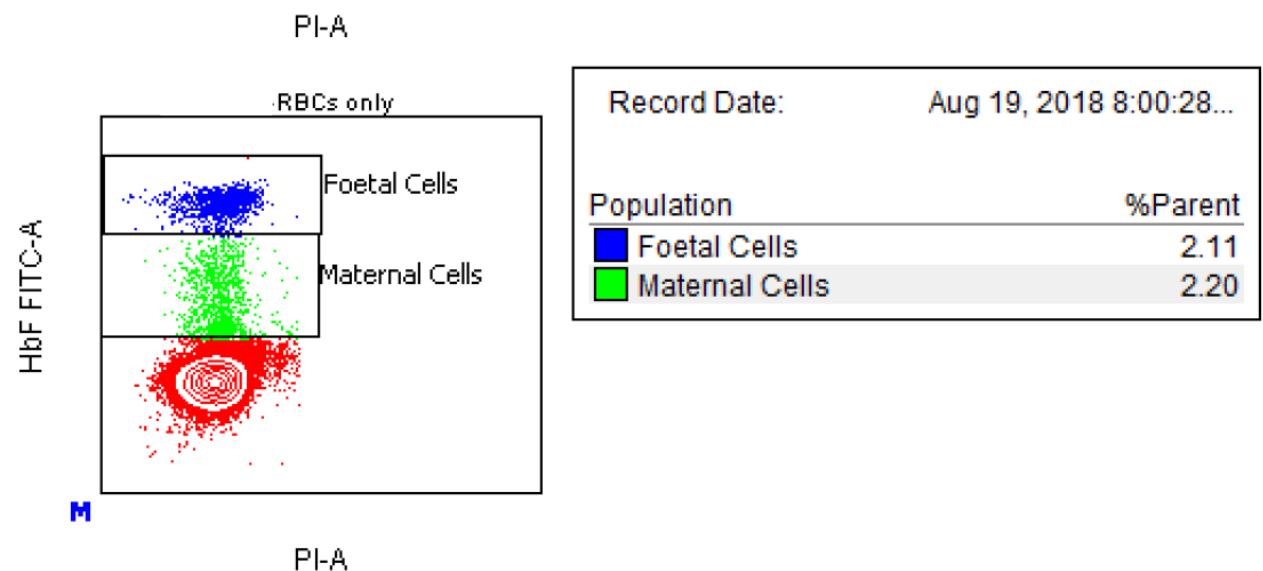
Kleihauer testing



Foetal cells counted: 52
Adult cells counted: 1056
Foetal cell percentage: 4.92%
Equals a bleed of 118.2 mL

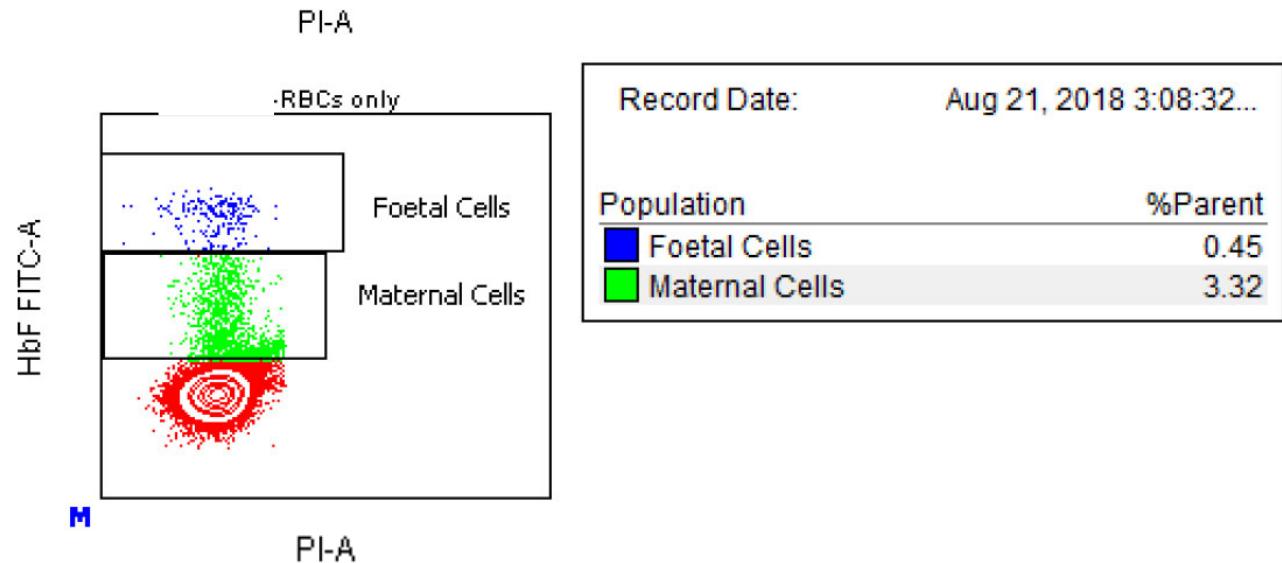
Two days post Rhophylac

- Fetal cells in maternal circulation calculated at 50.6 mL.
- Anti-D in maternal plasma showed grade 2-3 reactions.



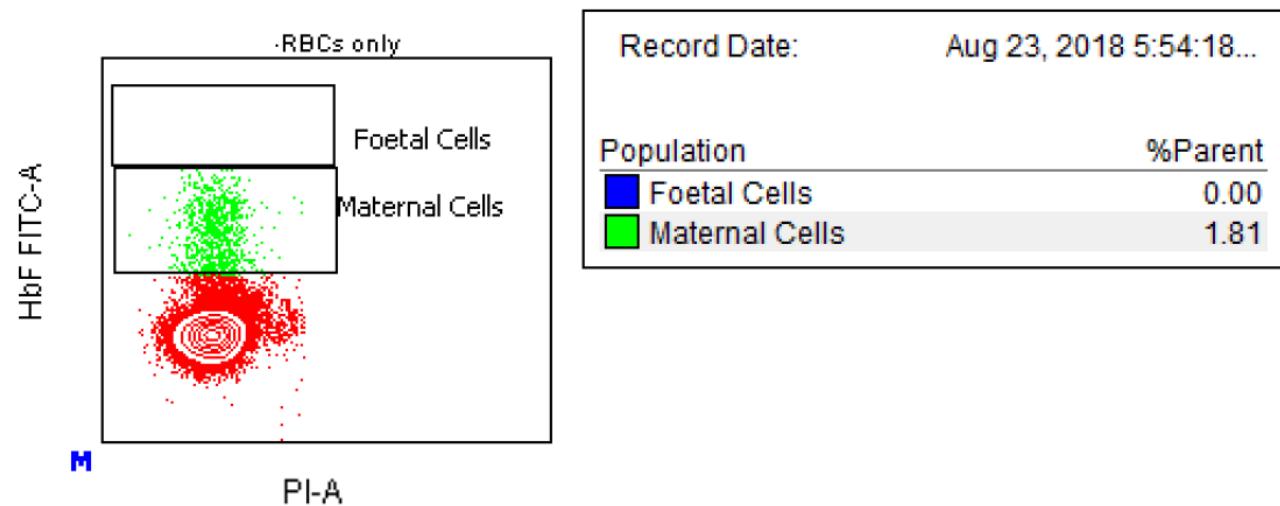
Four days post Rhophylac

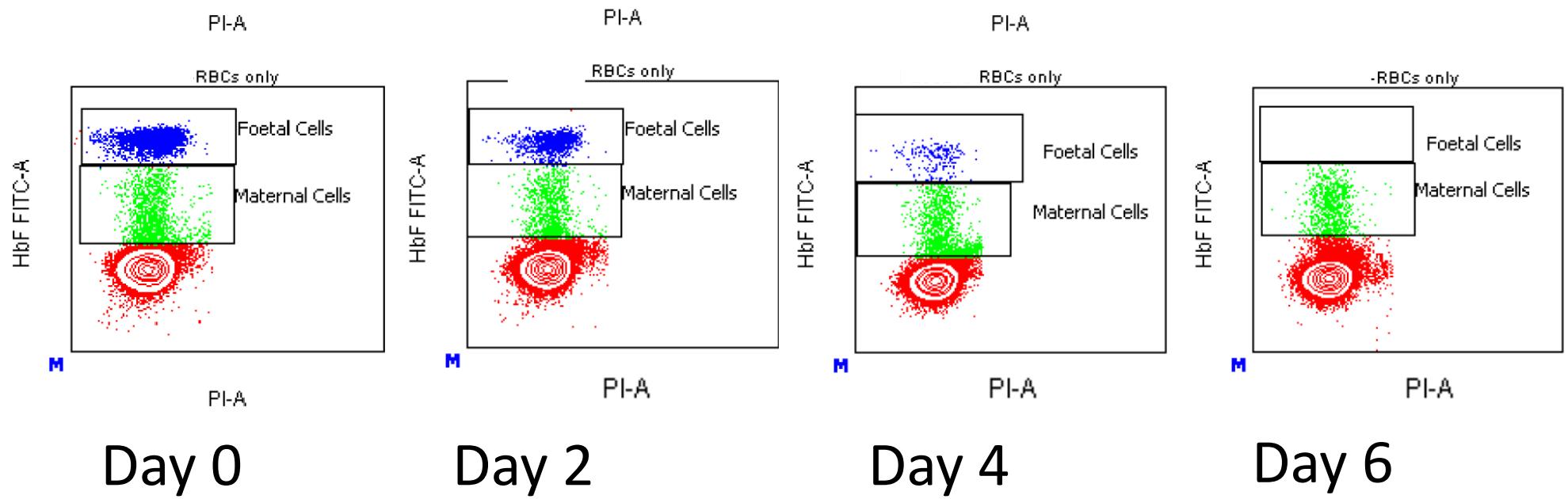
- Fetal cells in maternal circulation calculated at 10.8 mL.
- Anti-D in maternal plasma showed grade 2-3 reactions.



Six days post Rhophylac

- No foetal cells were present in maternal circulation.
- Anti-D in maternal plasma showed grade 2-3 reactions.





Continual monitoring of the patients antibody screen will be performed to ensure the patient has not developed an immune anti-D.

References:

Harmening, D. M. (2012) *Modern Blood Banking and Transfusion Practices*. Sixth Edition. F.A Davis Company, Philadelphia.