

# MOH: A Case Study

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Transfusion Practitioner

# All started with an email: 15.12.17

Dear Team,

Preliminary plan for elective C section delivery for 37 year old woman who is 28 weeks gestation with confirmed Placenta Accreta and Uterine Didelphys. 2 previous pregnancies, both had premature rupture of membranes and C sections.

Consultant Obstetrics and Gynaecology

# And ended with a text

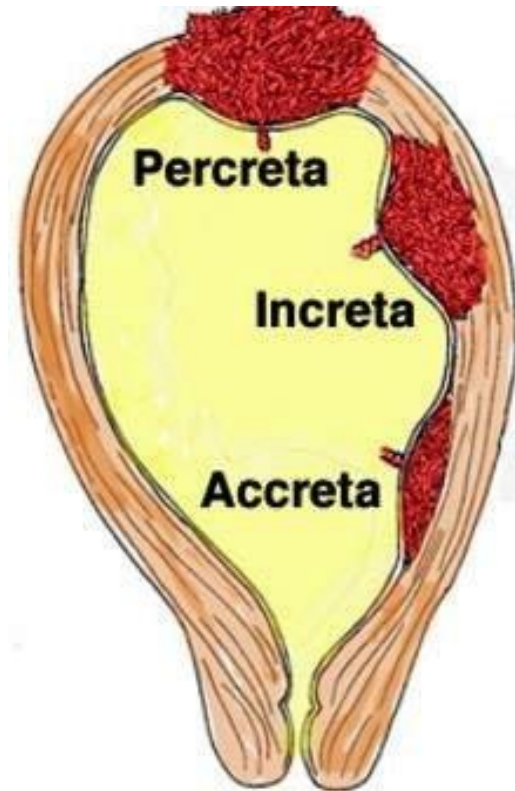
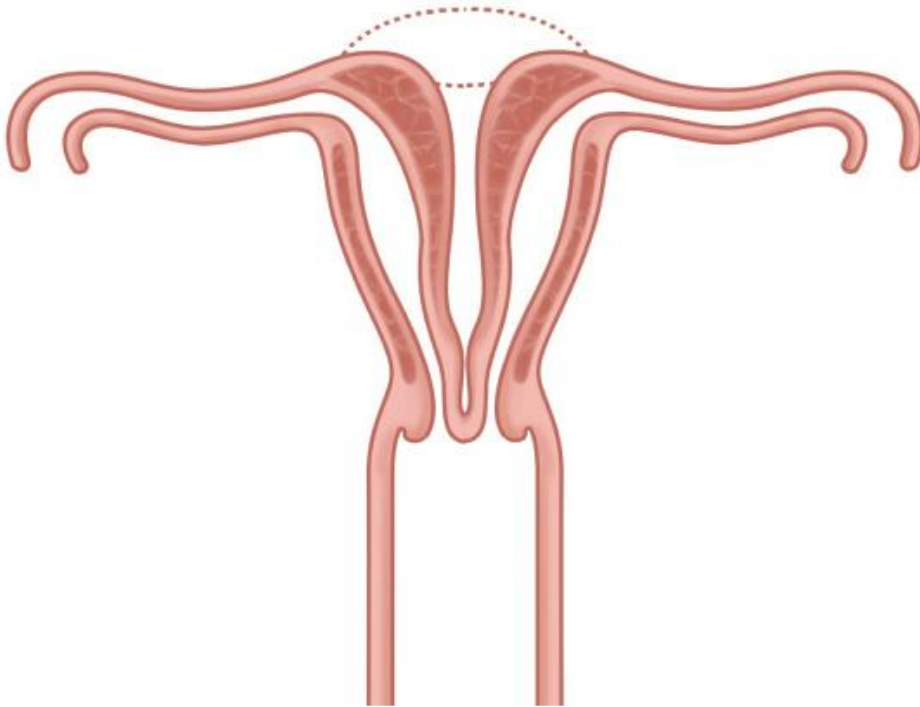
19 red cells, 9 octaplas, 6 cryo, 2 pools of platelets and one dose of Novo 7. Has been one helluva day

Senior BMS in Transfusion Laboratory

# So many questions!

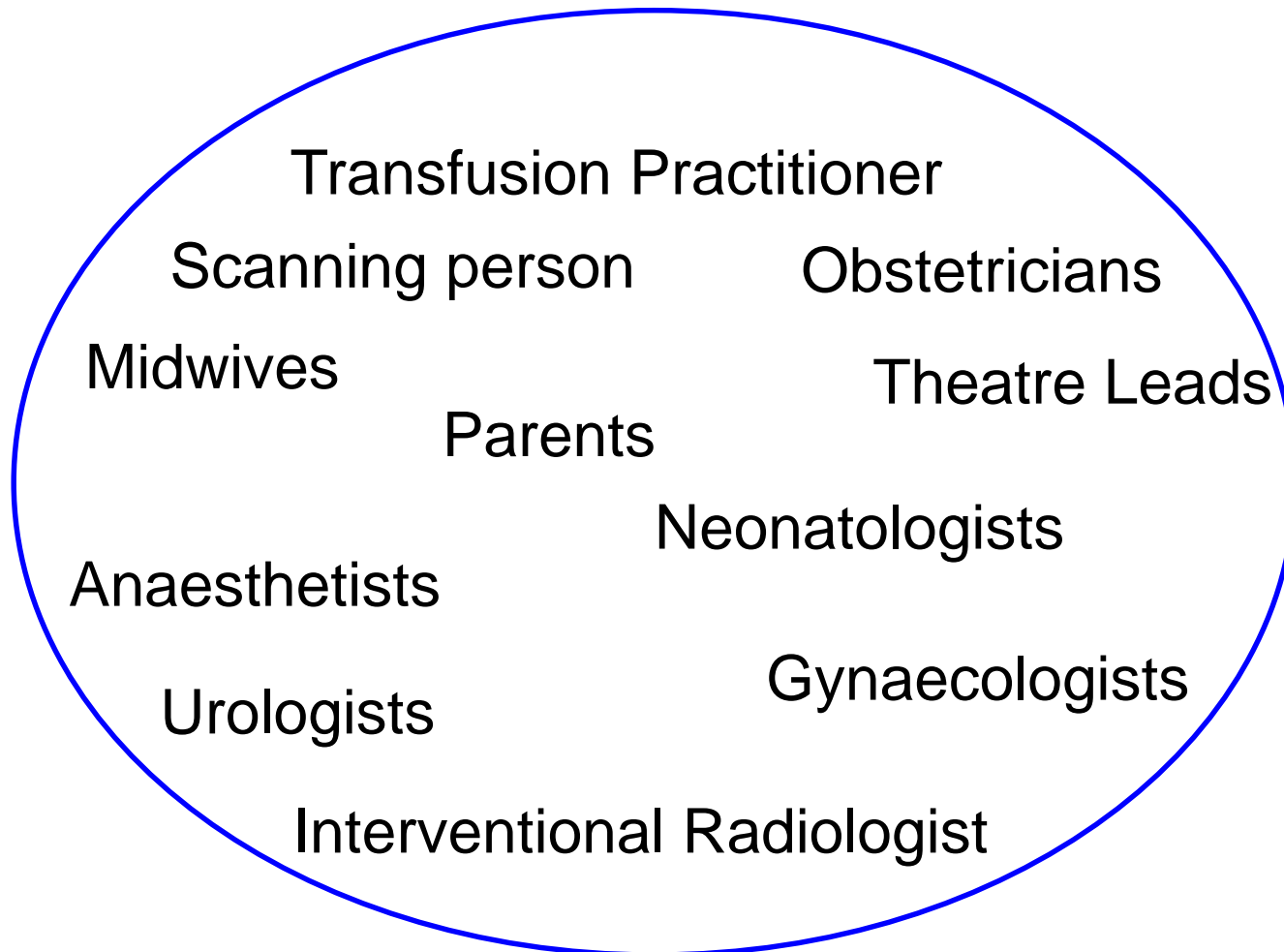
- So what happened in between?
- What contributed to the MOH?
- What lessons can be learnt?
- Recommendations for change?
- Outcome for woman and baby?

# Complicated history



## Preliminary plan

- Elective CS on 04.01.18 (at 31 weeks)
- Urgent MRI to exclude aortic/iliac abnormalities
- Only case on Theatre list that day
- Weekly Group & Save sample



## Further Planning: Transfusion

- Emailed Senior BMS in transfusion
- Confirmed blood group on file, no antibodies
- Asked if wanted plasma thawed in advance?  
The anaesthetist requested 3 to be ready
- Told to take a sample day before surgery and  
4 units issued by 08:30 on day of CS
- TP goes on annual leave!



## Further Planning: Other Teams

- MRI suggested element of placenta increta
- Not percreta / involvement of bladder / bowel
- Agreed to do Caesarean hysterectomy
- Pre operative insertion of Aortic balloon
- All equipment in theatre
- Cell Salvage machine to be used
- Urologist contacted about ureteric stenting

# 04.01.18 Day of C Section



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## 04.01.18 Day of C Section

- Pre Hb 121, platelets 165
- 4 units RBC in Maternity fridge
- 3 units of thawed Octaplas in lab fridge
- Senior BMS in transfusion on duty
- MOH speech bleep at 10:57, senior BMS on break. Stated uncontrolled MOH

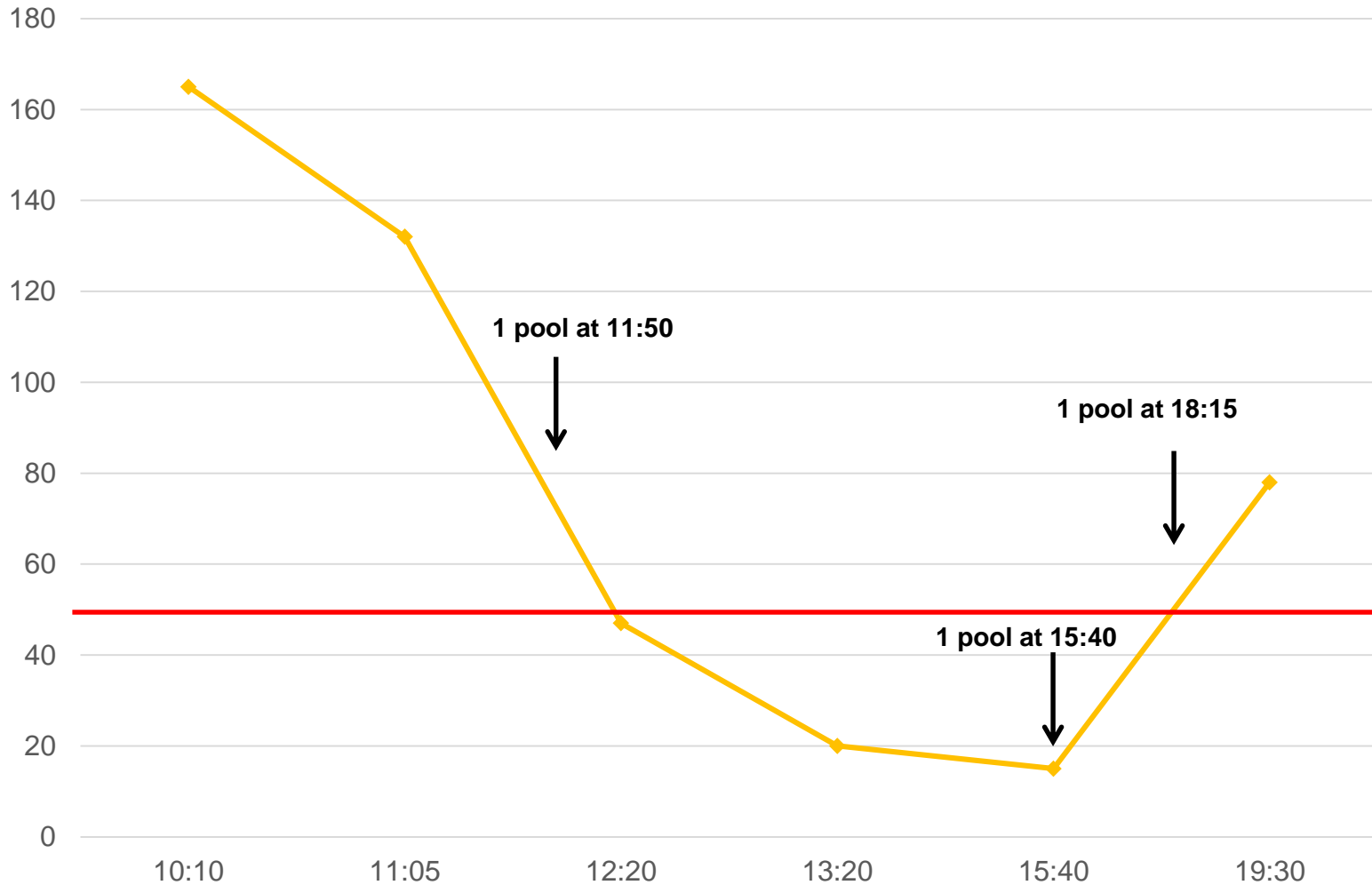
MOH call: 11:00 – 12:00

- Requested 4 more RBCs & issued
- Octaplas sent from lab to theatre
- FBC and clotting sent @ 11:06
- Requested platelets & Cryo @ 11:20
- Results @ 11:19: Hb 60 and Platelet 132
- Results @ 11:29: Fibrinogen 1.9
- Haematologists involved

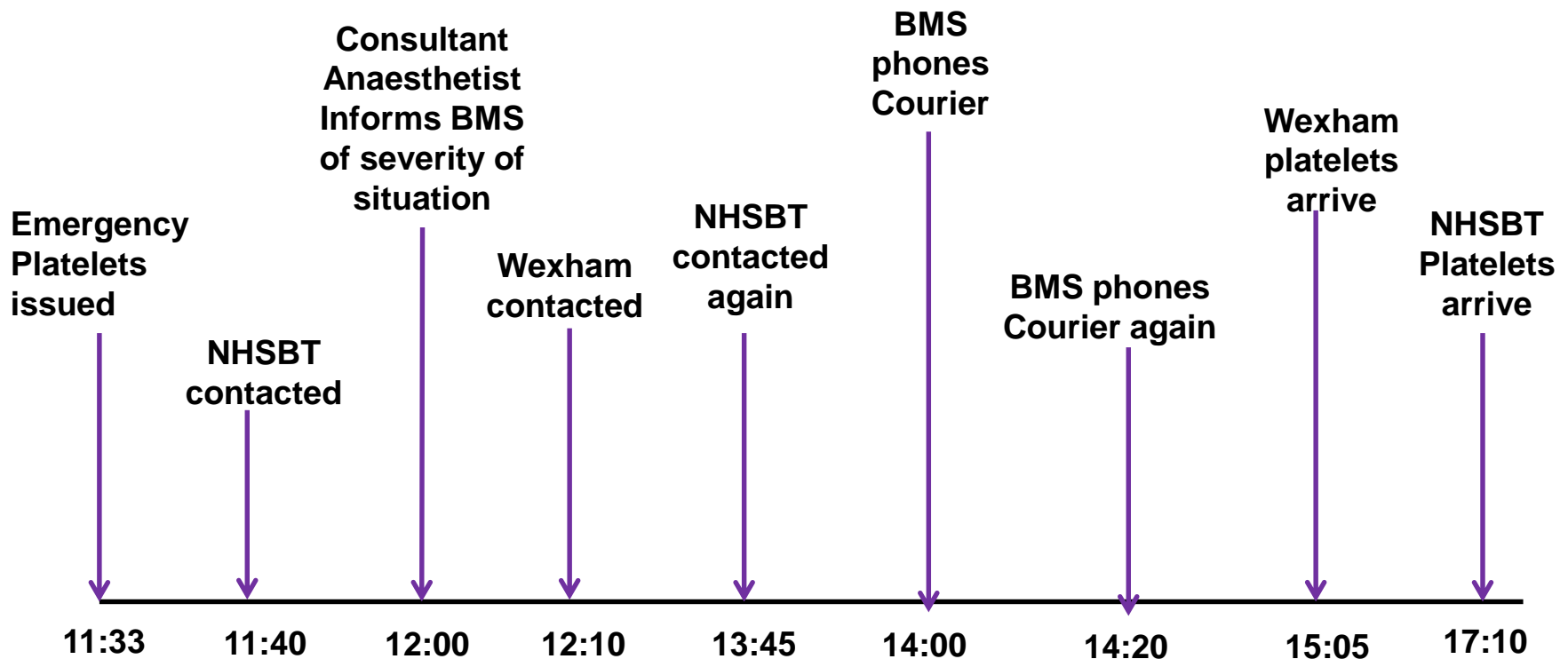
At 12:00 Consultant anaesthetist speaks  
directly to BMS and states:

**“We are struggling here”**

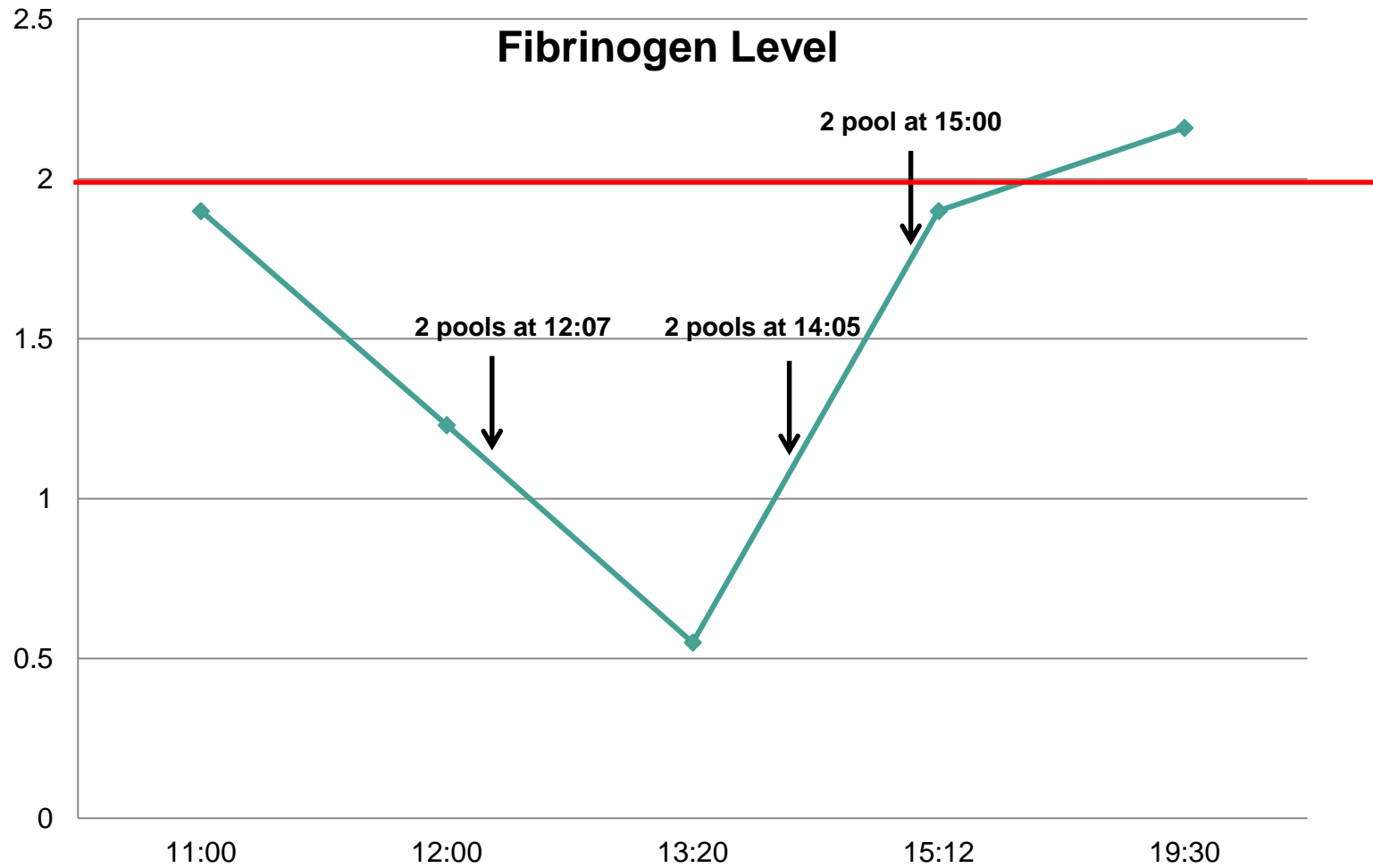
## Platelet Count



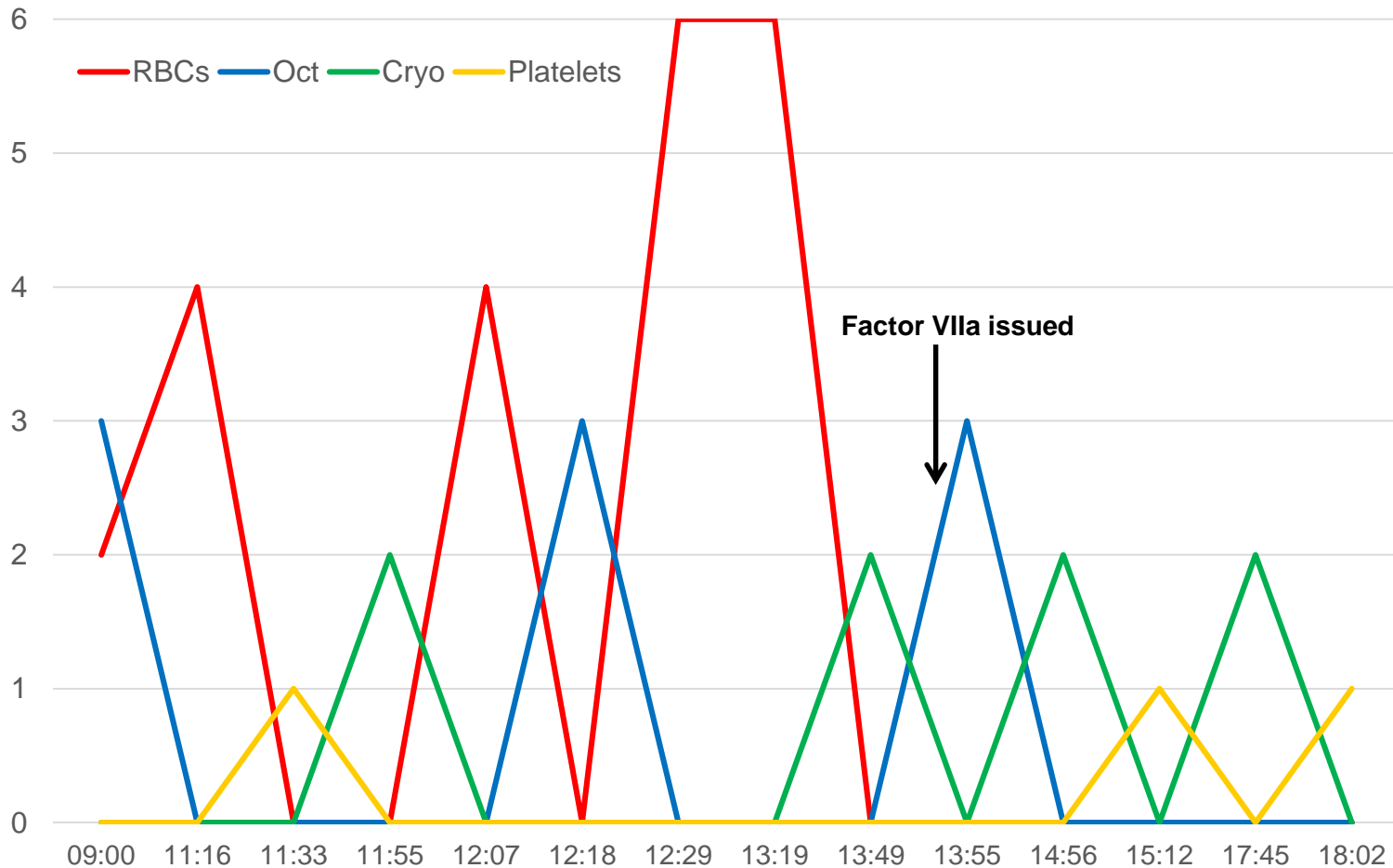
# Platelet Timeline

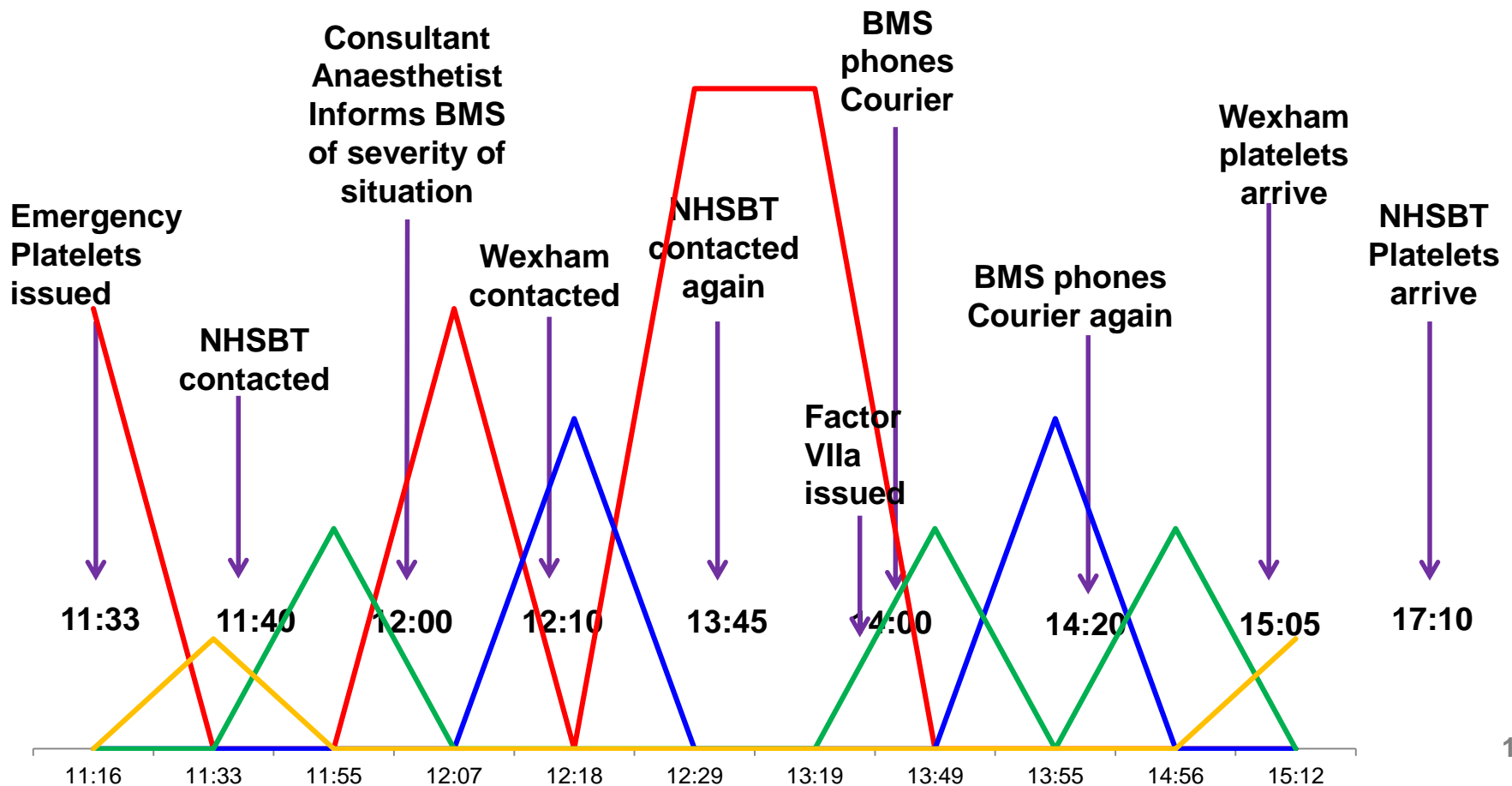






## Blood components Issued





## What had happened

- Operation more difficult than anticipated
- Uterus adhered to bladder
- Aortic balloon inflated / deflated about 8 times
- BP 40/25
- Oozing from venous plexus / coagulopathy
- Concerns about integrity of aorta
- At least 10 litre blood loss

## Following days

- Incident form / timelines for Maternity
- Debrief between BMS, TP & anaesthetist
- Debrief for staff involved
- Serious Incident RCA

# Contributory Factors

- Surgeons unaware of amount of blood loss as cell salvage collecting not normal suction
- Transfusion staff not communicated severity of situation
- Delays getting platelets

# Serious Incident Report: Root Causes

- Delays in availability of blood results
  - Between 20 and 40 minutes
  - Samples @ 11:05: Plts in 14 mins, Fib in 24 mins
  - Samples @ 12:20: Plts in 37 mins, Fib in 40 mins
- Delays in availability of blood components
  - Over 3 hour delay for platelets
  - Thawed components take 50 mins

# Recommendations for Transfusion

- Business case for near patient assessment of coagulation – TEG or ROTEM
- Discuss the possible introduction of Fibrinogen concentrate
- Senior clinician to communicate directly with lab staff during MOH
- Use of Major Haemorrhage documentation sheet



## Lessons learnt within Lab

- Inform all lab staff about high risk elective CS
- Document all communications during MOH
- Need another level of MOH – Catastrophic
- Ordered some platelets in advance
- Take into account times of platelet shortages
- TP not to go on A/L if complex case planned

## The outcome

- Discharged after 15 days
- Occlusion of common femoral artery
- Follow up with ICU and TP on May 25<sup>th</sup>
- Mum, Dad and baby all good
- Aim to get 20 of friends/family to donate blood