

POCT for perioperative patient blood management

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POCT Definitions

- Any test that is performed at or near the patient
- A supplement to conventional laboratory services
- Easy to operate devices
- Small sample requirements
- Rapid availability of results

POCT Reputation

Transfusions based on erroneous results

Table 9.2
Transfusion based on
incorrect haemoglobin
result n=53

| Clinical causes of falsely low Hb value | No |
|--|-----------|
| Falsely low Hb due to phlebotomy from drip arm, or "diluted sample" | 16 |
| Unexplained low Hb result not queried prior to transfusion | 11 |
| Substitution of white cell count for Hb (transcription error) | 4 |
| Wrong results from point of care testing | |
| Blood gas machine Hb used | 7 |
| Erroneous result from POCT Hb estimation device | 2 |
| Incorrect POCT device used (measured glucose rather than Hb) | 1 |
| Faulty sample (clotted, short etc) | 3 |
| Result from an older pre-transfusion sample used after a transfusion had taken place | 2 |
| Sample tubes transposed in lab | 2 |
| Hb result belonged to another patient | 2 |
| Transfusion based on an old Hb result despite a more recent result being available | 1 |
| Hb transcription error | 1 |
| Verbal miscommunication of results | 1 |
| TOTAL | 53 |

POCT Guidelines

- RCP 2004
- IBMS 2004
- BCSH 2008
- MHRA 2010

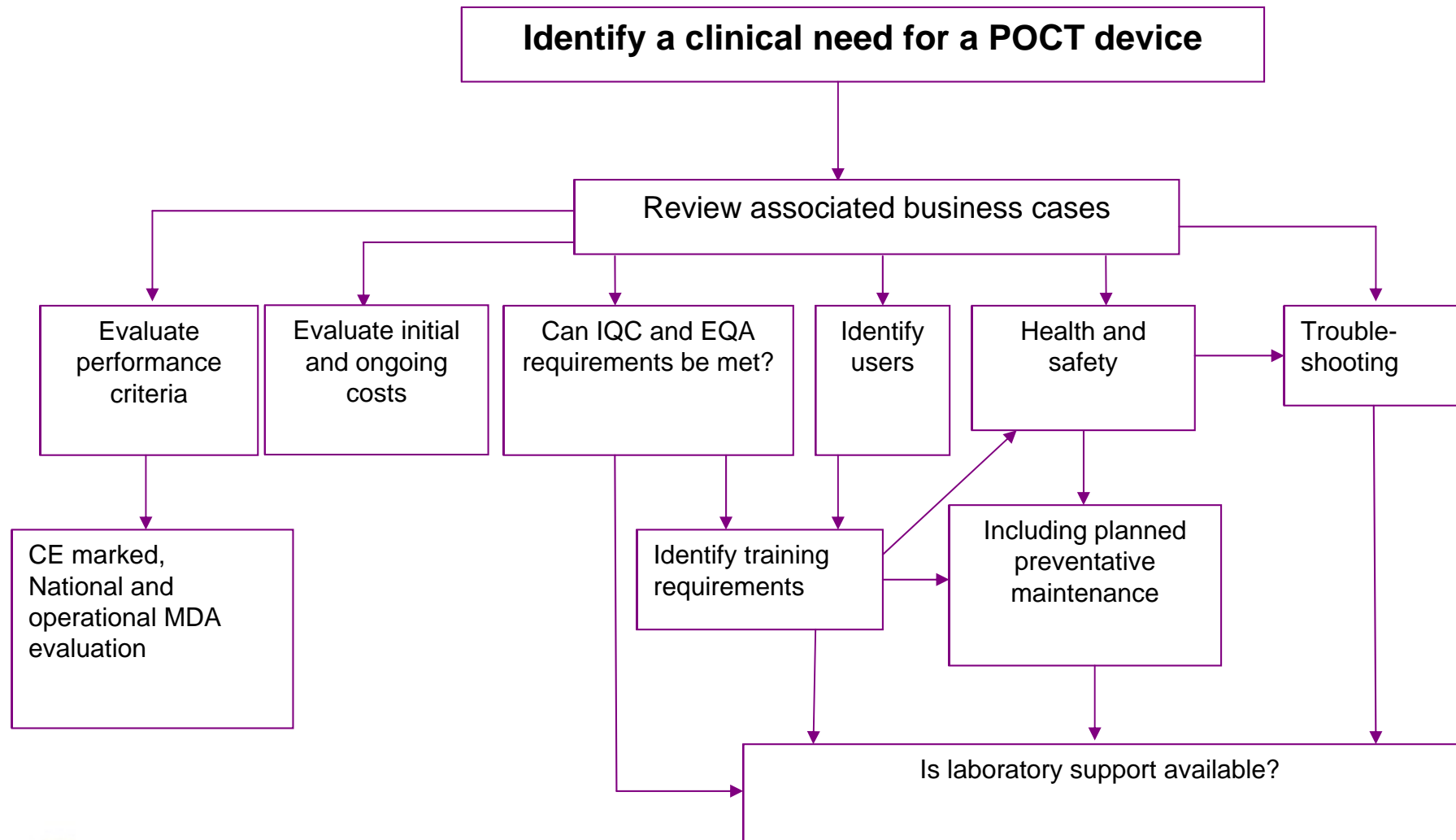
CPA

- Standards for the Medical Laboratory
- Additional Standards for Point of Care Testing Facilities
 - Standards A-H
 - Reports must distinguish POCT from laboratory results
 - Organisational approach

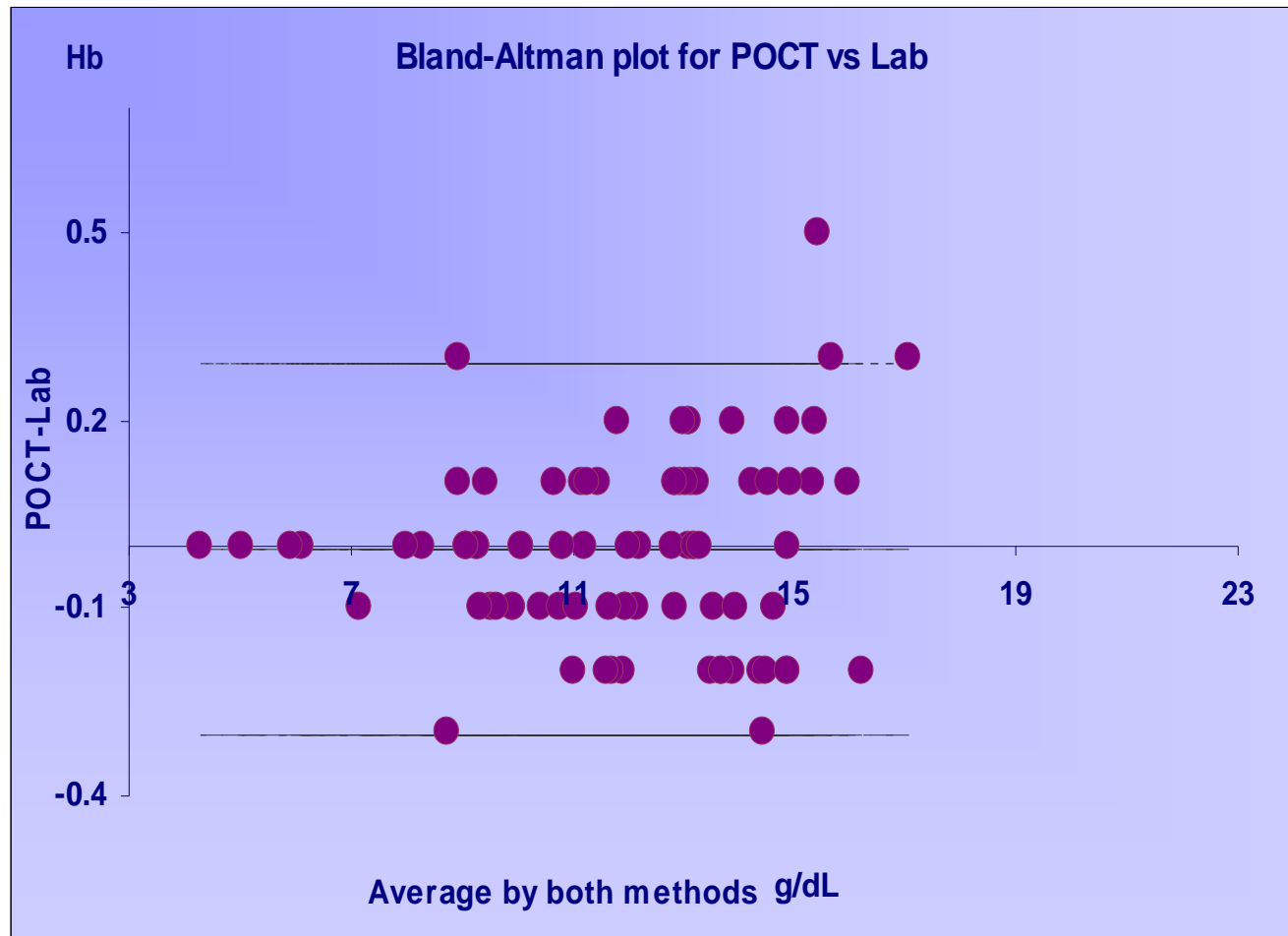
POCT Committee

- Membership
 - Chair: Head of Department
 - POCT Co-ordinator
 - General Manager, Pathology
 - Appropriate representatives
- Responsibilities
 - Manage the POCT policy
 - Manage POCT in accordance with accreditation standards and guidelines
 - Oversee the implementation of POCT tests and devices
 - Review applications for POCT equipment/service requests
- All POCT equipment must be purchased under the guidance of the committee

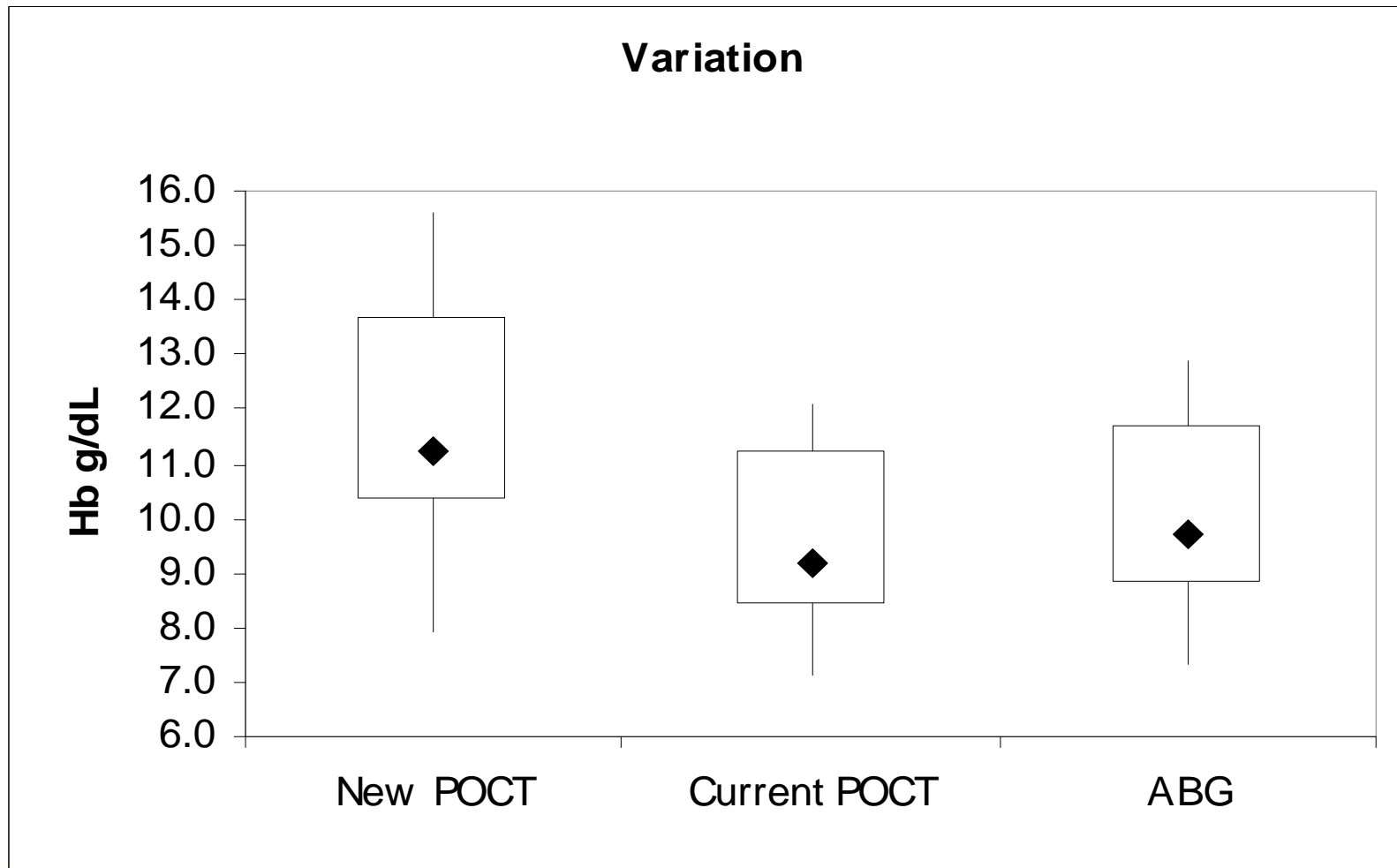
Establishing POCT



Method Evaluation 1



Method Evaluation 2



Perioperative POCT

- Monitoring of haemostasis during surgery
- On site testing
- Multidisciplinary TAT < 5 minute
- Testing available 24 hours/day



Perioperative transfusion audit 2004

- 25% reduction in RCC
- 34% reduction in FFP
- LOS >2 days from 18% to 3%

Perioperative Transfusions

| | 2009 | 2010 |
|-------------------------|------|------|
| Red Cells | 1289 | 1197 |
| FFP | 759 | 700 |
| Platelets | 188 | 205 |
| Red cells in Massive Tx | 420 | 358 |

CLINICAL PRACTICE

Point-of-care coagulation testing and transfusion algorithms

L. J. Enriquez and L. Shore-Lesserson*

Table 2 POC transfusion algorithm outcome studies

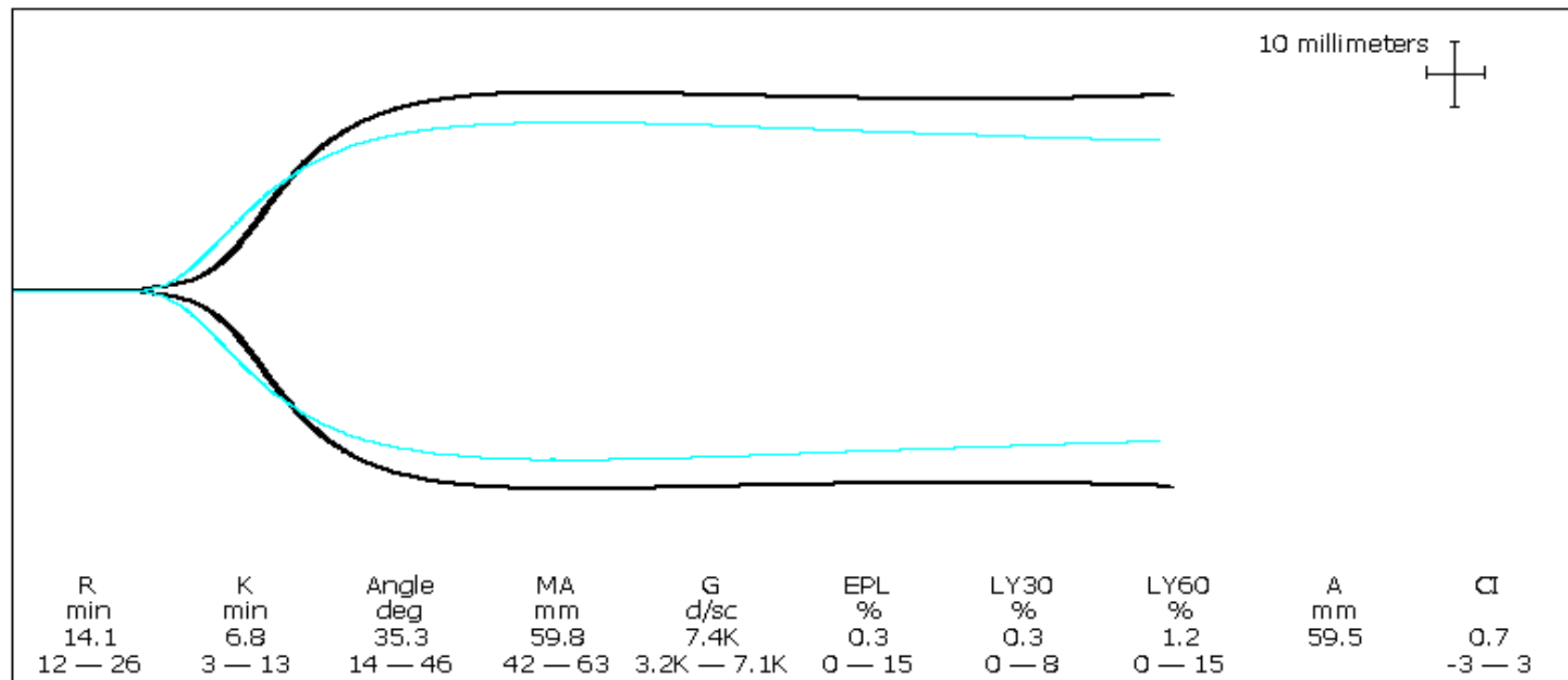
| Author | Surgery type | Study type | Patients | Outcome |
|--|------------------------------|---------------|----------|---|
| Despotis and colleagues ¹¹ | Cardiac | Prospective | 362 | Algorithm decreased transfusion and bleeding |
| Avidan and colleagues ³ | Cardiac | Prospective | 102 | Two algorithms decreased transfusion |
| Spiess and colleagues ⁶⁶ | Cardiac | Retrospective | 1079 | TEG use decreased transfusion |
| Shore-Lesserson and colleagues ⁶¹ | Cardiac | Prospective | 102 | TEG algorithm decreased transfusion |
| Nuttall and colleagues ⁴⁸ | Cardiac | Prospective | 836 | Algorithm decreased transfusion and bleeding |
| Capraro and colleagues ⁶ | Cardiac | Prospective | 1412 | Algorithm increased platelet transfusion, no difference in bleeding |
| Royston and von Kier ⁵⁸ | Cardiac and heart transplant | Prospective | 60 | TEG algorithm decreased transfusion |

Liver Transplant

3 Native

Baseline

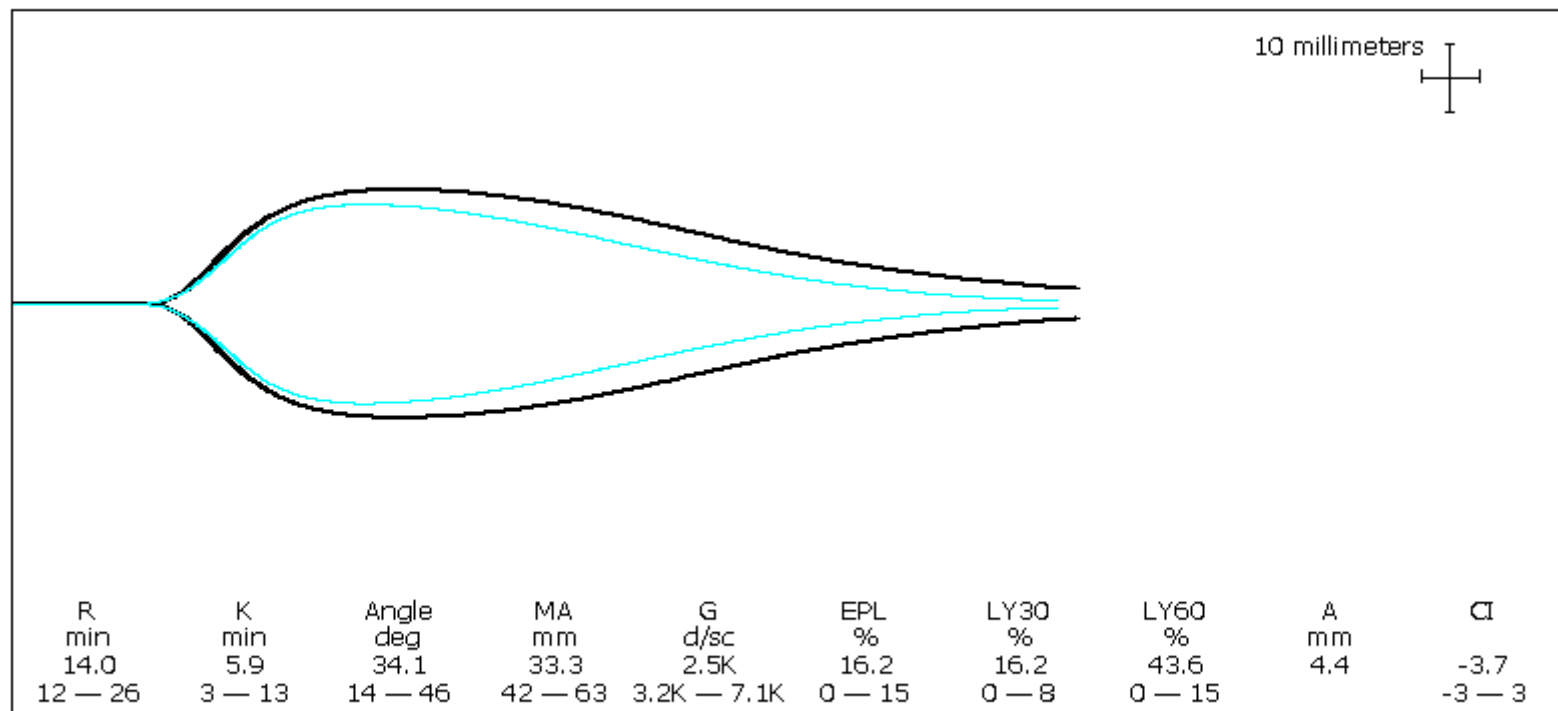
Sample: 09/06/2012 10:56-12:36



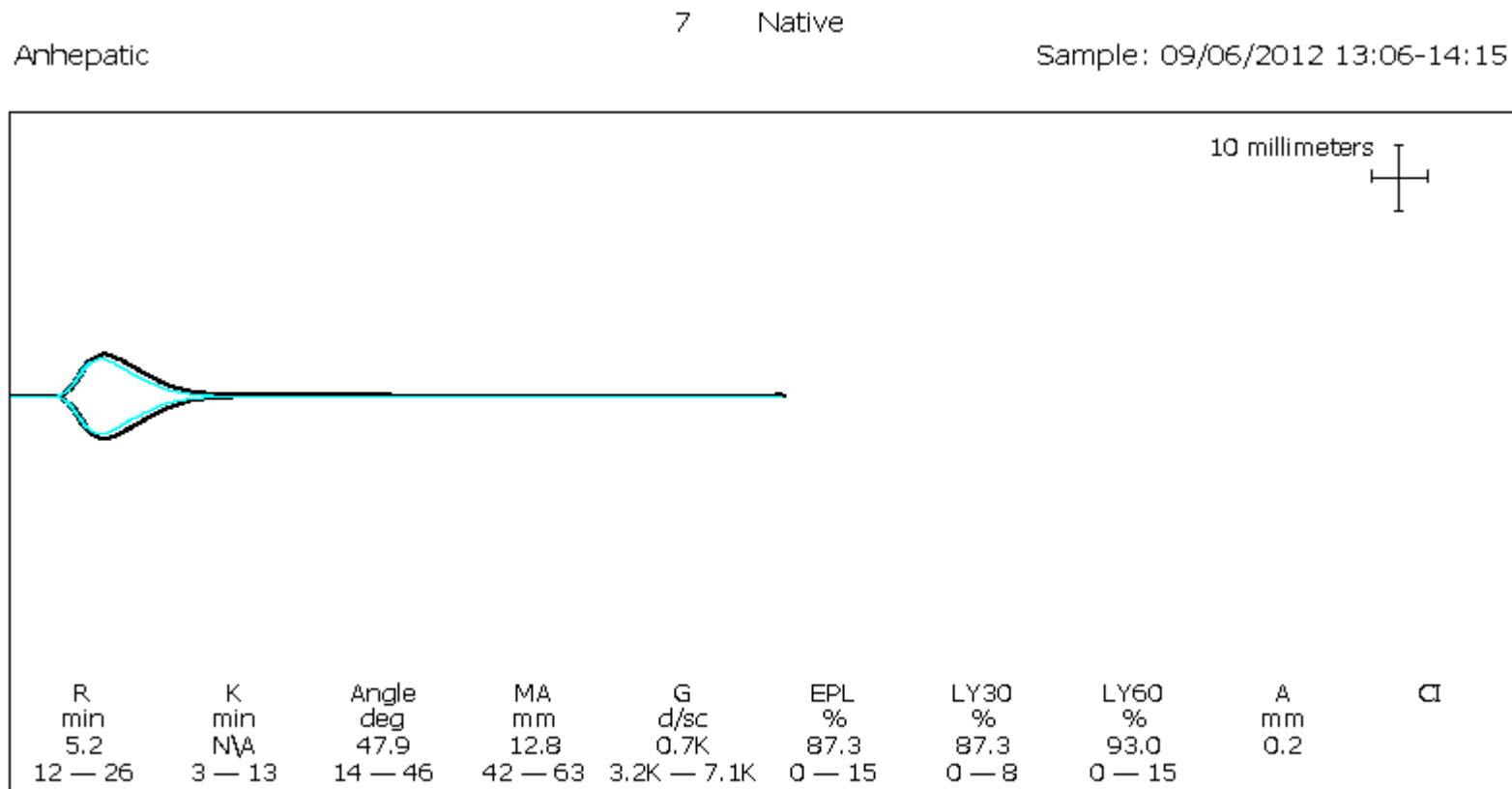
Liver Transplant

5 Native

Sample: 09/06/2012 12:06-13:38



Liver Transplant

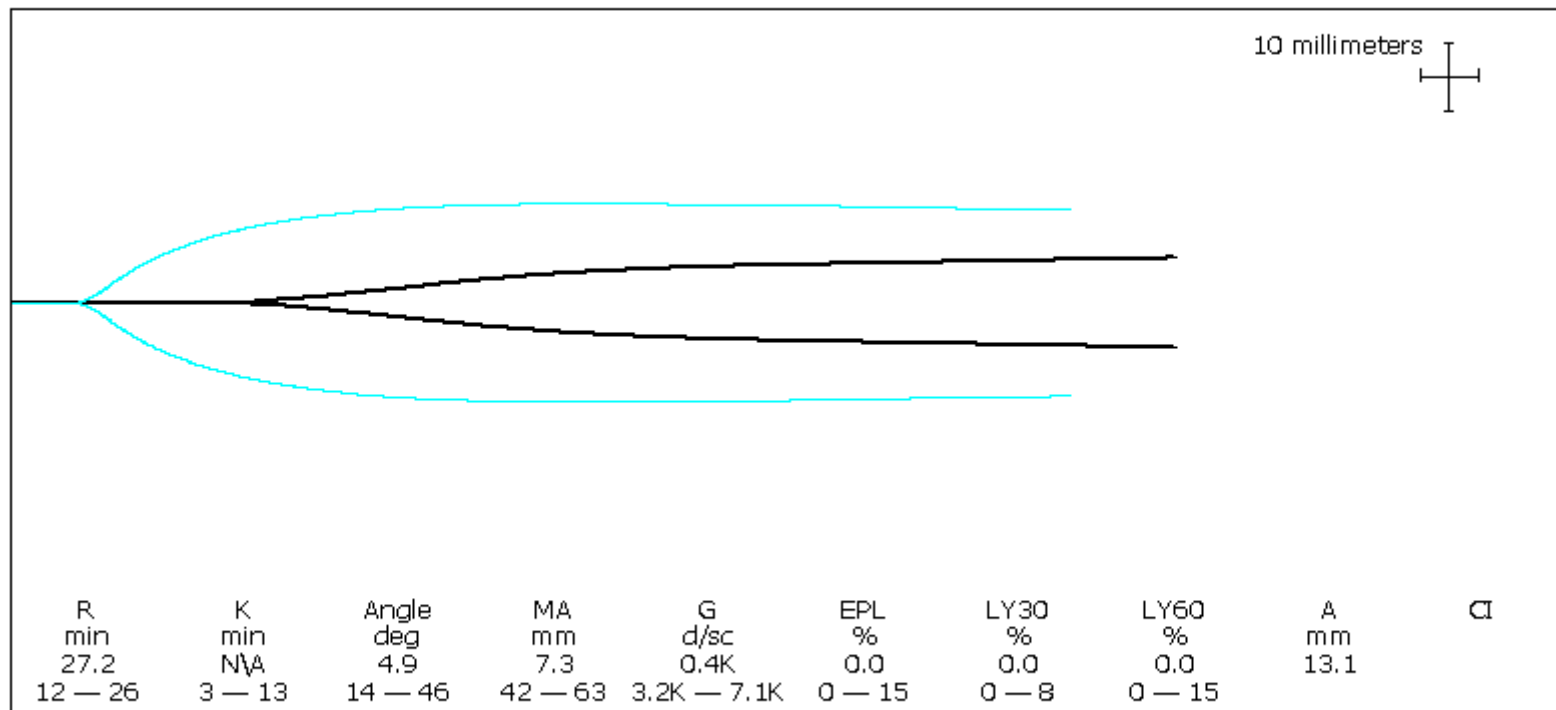


Liver Transplant

1 Native

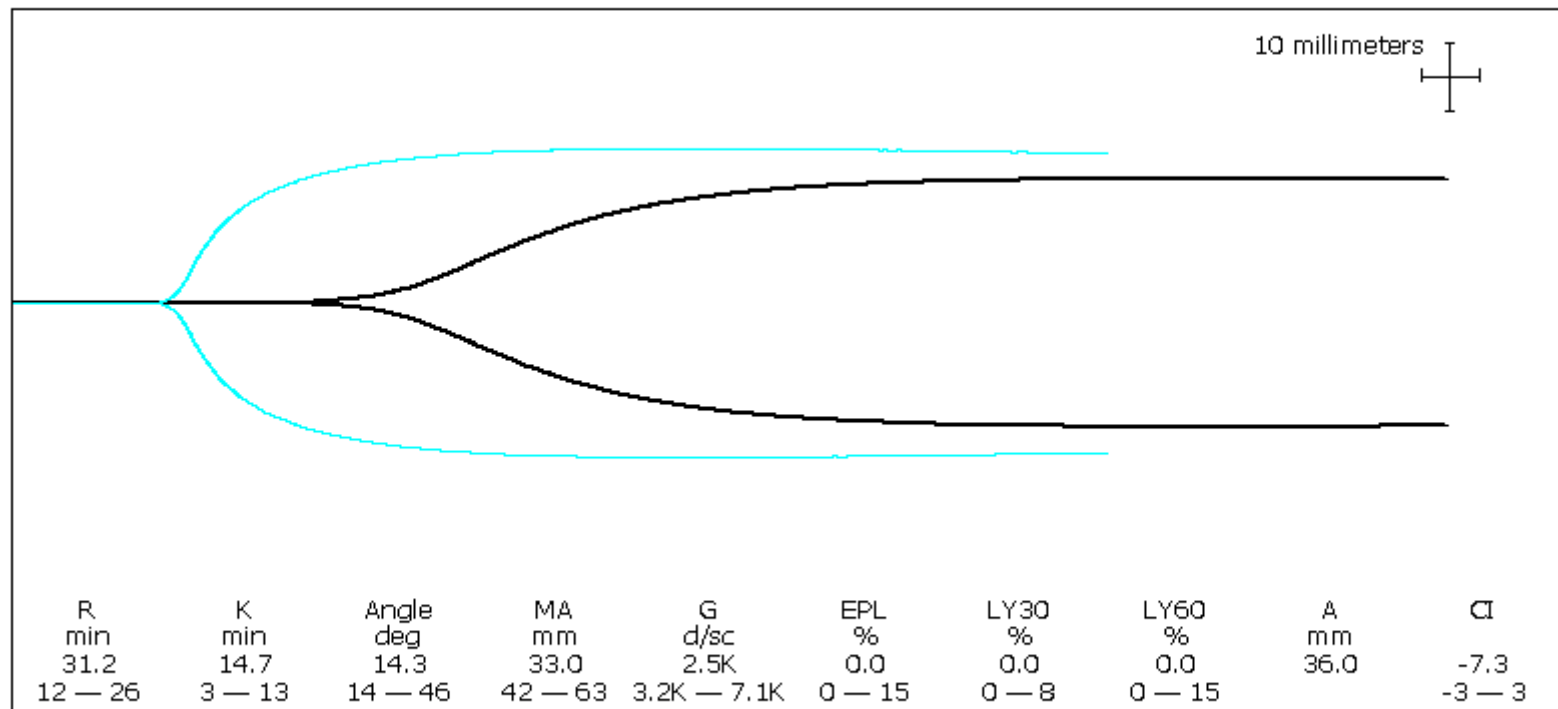
Reperfusion

Sample: 09/06/2012 14:07-15:47

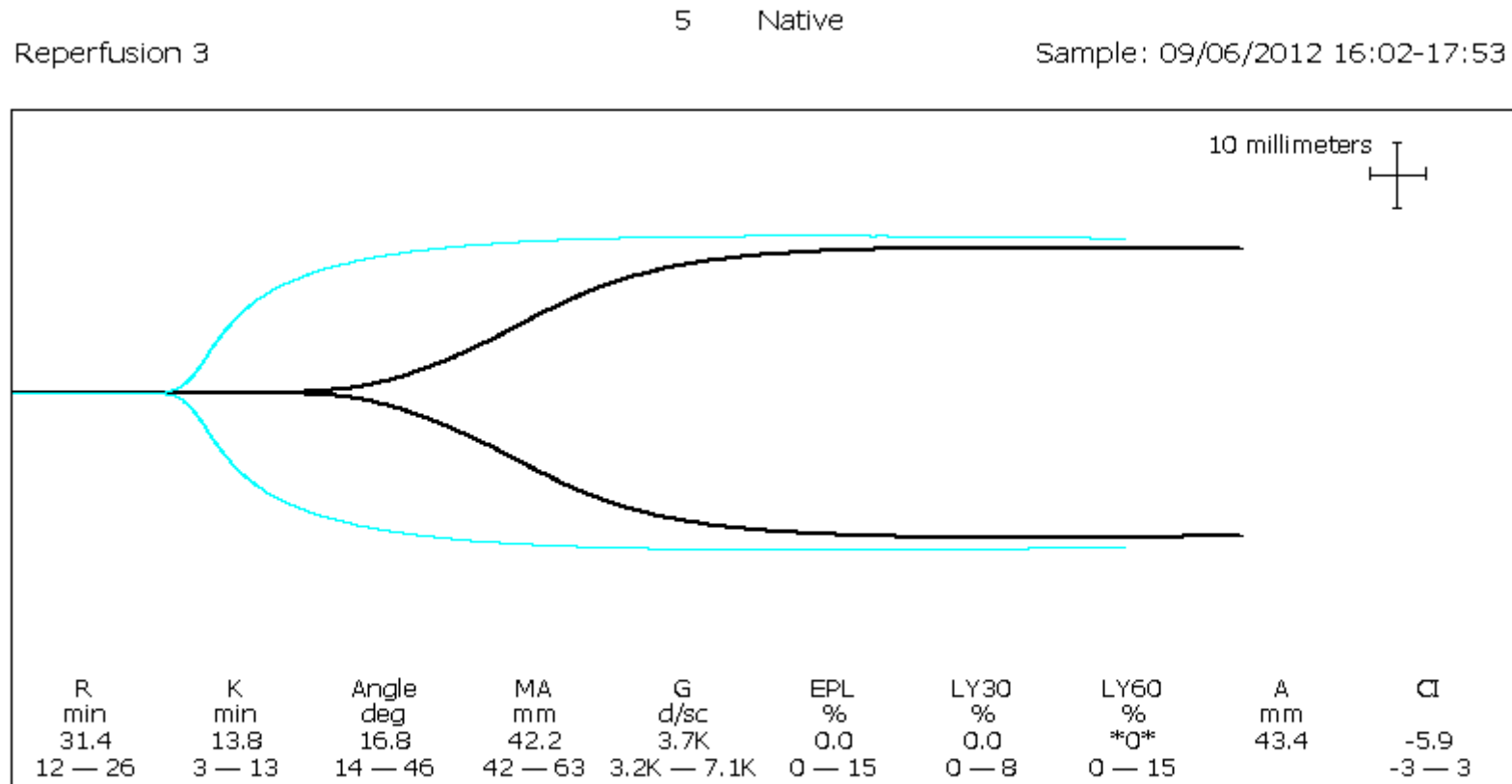


Liver Transplant

Reperfusion 2 3 Native Sample: 09/06/2012 15:06-17:10



Liver Transplant



Thank You

References

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http://www.shotuk.org/wp-content/uploads/2012/07/SHOT-ANNUAL-REPORT_FinalWebVersionBookmarked_2012_06_22.pdf
- Carter Report: <http://www.pathologists.org.uk/publications-page/Carter%20Report-The%20Report.pdf>
- BSCH guidelines for POCT haematology
http://www.bcsghguidelines.com/documents/pont_of_care_bjh_2008.pdf
- LJ Enriquez, L Shore-Lesserson; British Journal of Anaesthesia 103 (BJA/PGA Supplement): i14–i22 (2009)
- Mallett SV, Peachey TD, Sanahi O *et al*; Reducing red blood cell transfusion in elective surgical patients: the role of audit and practice guidelines. *Anaesthesia*. 2000;55:1013-1019.
- D Cox, Naidoo; Care of the Critically Ill, 1995, 11, 3; 98-103