Are Major Haemorrhage Protocols Effective? An audit of 4 major trauma centres.

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on behalf of the London Haematology Trauma Group.

Major Haemorrhage Protocols

- NPSA report 2010:
  - Delays in provision of emergency blood
  - 11 deaths, 83 incidents of harm
- Trauma:
- 9% all MHP are activated for trauma in UK
  - Observational data demonstrate MHPs:
    - May improve survival (up to 26%)
    - May reduce MOF and sepsis

Johansson & Stensballe. *Vox Sang* 2009; **96**: 111-8.
Riskin et al. *J Am Coll Surg* 2009; **209**: 198-205.
Cotton et al. *J Trauma* 2009; **66**: 41-9.
Dente et al. *J Trauma* 2009; **66**: 1616-24.

Major Trauma Audit

- 4 major trauma centres
  - Hospitals within London & South East Haematology Trauma Group
- Focus of audit:
  - Timelines for X match samples and delivery of blood
  - Communication at clinical/laboratory interface
  - FFP:RBC ratios

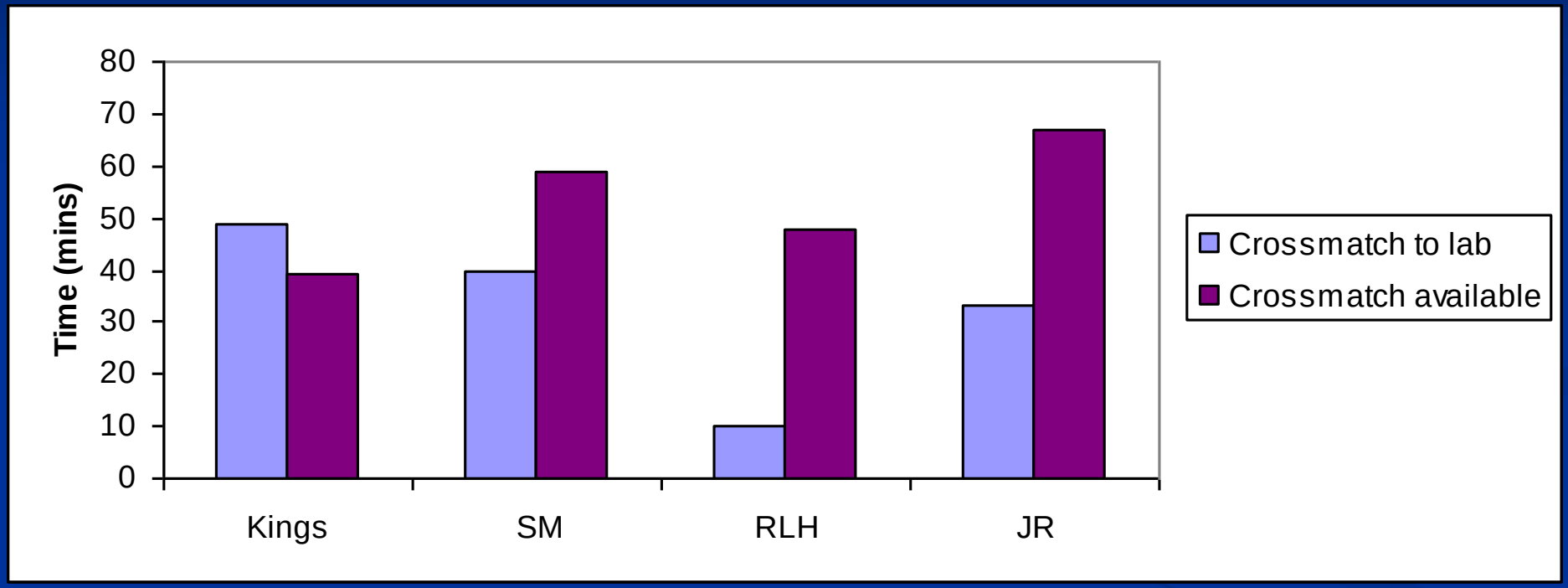
Participating Hospitals

- 4 major trauma centres:
  - Kings, John Radcliffe, Royal London, St Mary's
  - Up to 10 consecutive adult trauma patients requiring activation of local MHP
  - Prospective data collection
  - Aim: to collect concomitant data from laboratory and clinical areas

Results

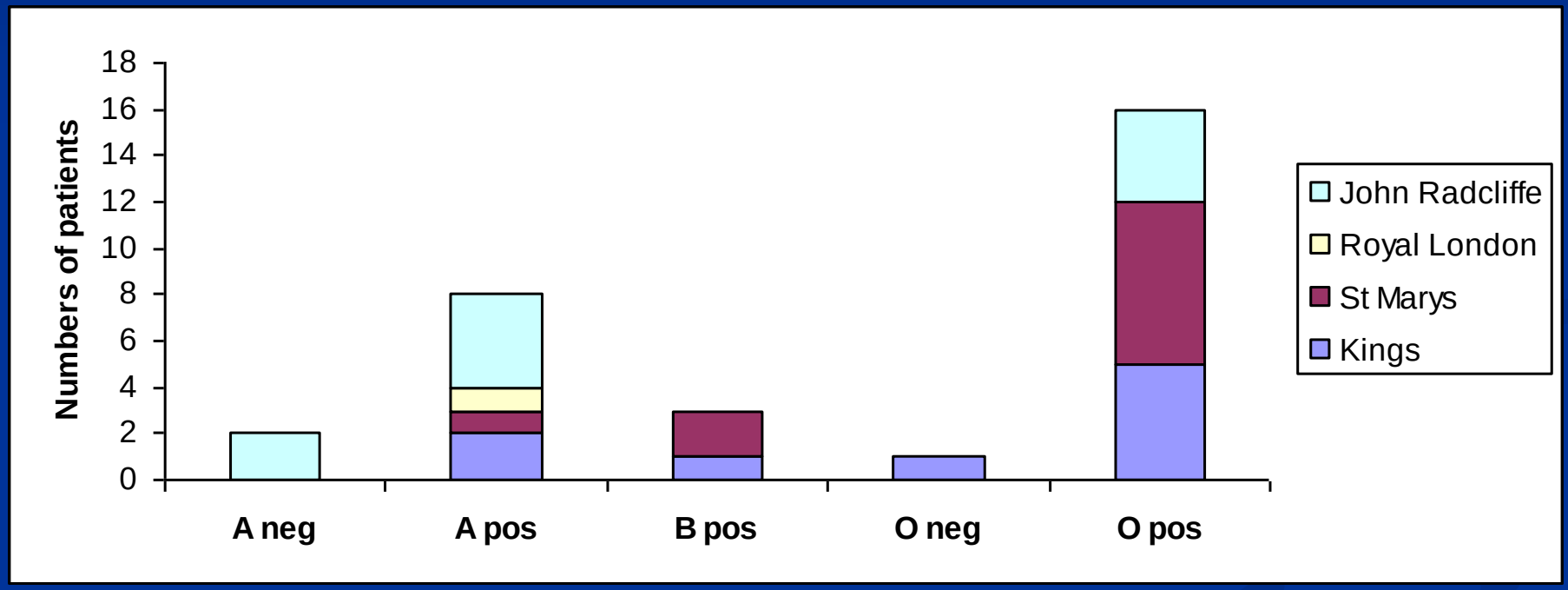
- 31 laboratory & 4 clinical forms completed for 31 patients:
  - Median age: 38 (range: 19 – 67)
  - 81% male
  - 29/31 had MHP correctly activated
  - 2 instances: MHP not activated by clinical teams
  - Time to first emergency PRBC: 10 mins (range: 5-13)
  - 30/31 X match samples correctly labelled

Crossmatch times

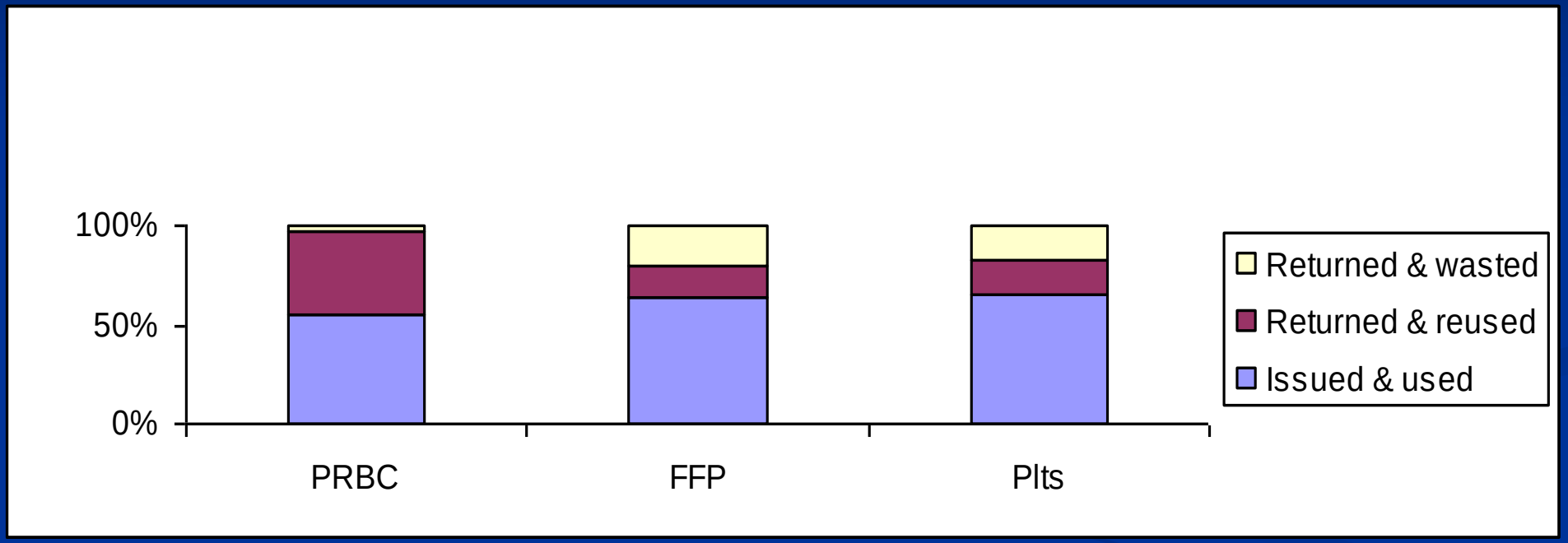


- Median time for X match to reach blood bank = 26 mins
- Median time for X match result to be available = 54 mins
- Coag screen: 41 mins FBC: 21mins

Validated blood groups



Emergency issues



- 188 U PRBC (167 O neg, 21 O pos), 107U FFP & 17 platelet pools delivered to 31 patients
- 19U PRBC were self service (10%)
- 4% of the O neg U were wasted

24 hour requirements

	Emergency	Group Specific/X-Matched	Total in 24 hours	Overall Wastage
PRBC	188 U	118 U	306 U	6 U (2%)
FFP	107 U	102 U	209 U	35 U (17%)
Plts	17 pools	21 pools	39 pools	5 pools (13%)
Cryo		29 pools	29 pools	7 pools (24%)

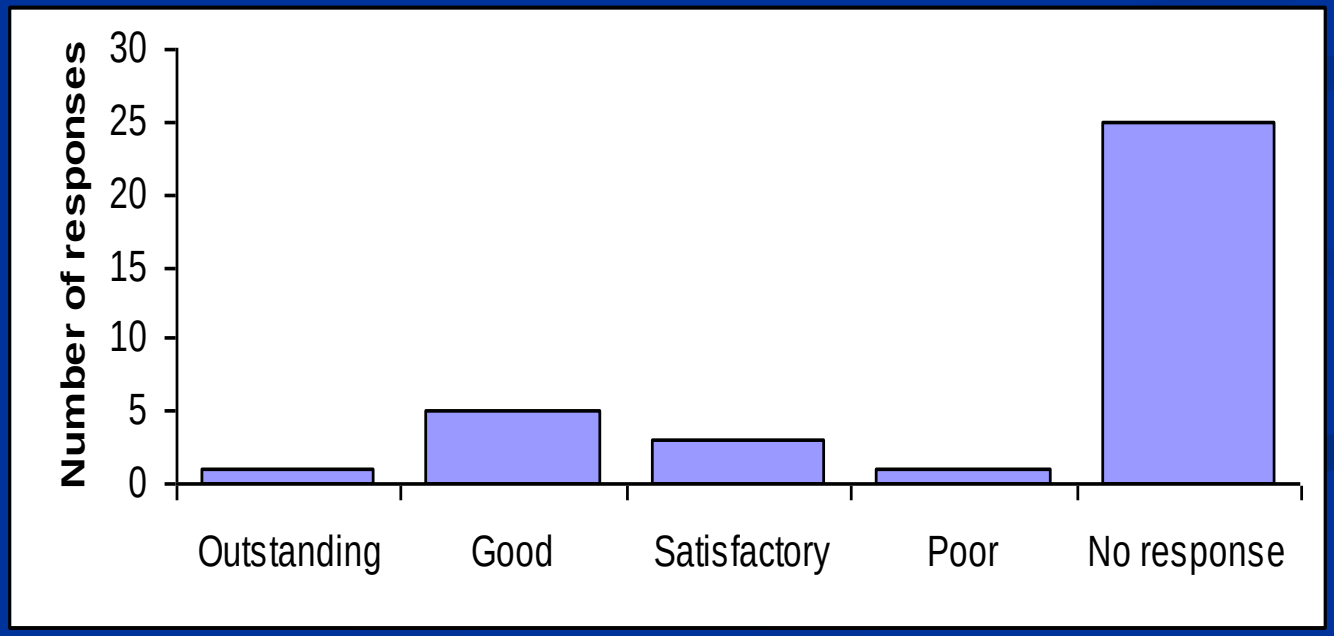
FFP:PRBC ratios

- All participating hospitals had a MHP recommending 1:1.5 ratio

- Six hour FFP:PRBC ratio = 1:1.6
- 24 hour FFP:PRBC ratio = 1:1.5

Communication

- Staff in the laboratory & in resus were asked to rate communication during the MHP:



Conclusions

- Results from the 4 centres were broadly similar
- Delivery of blood & blood components is timely
- Good FFP:PRBC ratios are achieved early
- Wastage of FFP, platelets & cryoprecipitate is high
- Communication is difficult to audit without buy in from both laboratory & clinical teams

Future Considerations

- This audit did not evaluate tranexamic acid use – this will be addressed in the next audit
- Component wastage:
  - Which factors influence blood component wastage?
  - Could increased clinical haematology input on the ground reduce this?
  - Might point of care testing i.e. TEG or ROTEM help with blood component use & wastage?
- Regular simulation sessions may help
  - To improve communication between lab/clinical interface

Acknowledgements

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