

Laboratory Empowerment

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Why?



Health Service Circular

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Better Blood Transfusion
Safe and Appropriate Use of Blood

What did they say?

- **Avoid the unnecessary use of blood and blood components in medical and surgical practice**

Ensure the appropriate use of blood and the use of effective alternatives in every clinical practice where blood is transfused

- Establish local protocols to empower blood transfusion laboratory staff to ensure that appropriate clinical information is provided with requests for blood transfusion.
- Establish local protocols to empower blood transfusion laboratory staff to query clinicians about the appropriateness of requests for transfusion against local guidelines for blood use

HTCs and HTTs working with clinicians, pathology managers and blood transfusion laboratories

What was done at NNUH?

- Electronic ICE requesting was in use for requesting red cells
- NBTC Indication Codes were added to the ICE requesting screen, with explanations
- Red cell requests had to include an indication code in addition to clinical details
- Platelets, FFP and cryoprecipitate could only be ordered over the telephone. Lab staff (all grades) would ensure the request met pre-agreed indications and that the dose was appropriate. If it did not, the request was referred ie the requestor was given the number to contact the Consultant Haematologist or SpR
- Clinical support vital

Indication codes for red cell issue - NNUH

Indications for red cell transfusion

- **R1 acute blood loss**, emergency uncontrolled bleeding where Hb unreliable, refer to massive transfusion protocol, when normovolemic keep Hb >70g/l
- **R2 peri-operative transfusion**, in a controlled situation with adequate volume replacement, transfuse if Hb <70g/l
- **R3 acute anaemia**, known cardiovascular disease or other significant risk factors, transfuse if Hb <80g/l (may transfuse at higher Hb level if symptomatic)
- **R4 critical care patients**, transfuse if Hb <80g/l
- **R5 post-chemotherapy**, transfuse if Hb <90g/l especially if Hb expected to fall further
- **R6 radiotherapy**, transfuse if Hb <100g/l
- **R7 chronic anaemia**, transfuse to prevent symptoms of anaemia, usually when Hb <80g/l

- **R0 (R Zero) surgical procedure**
- **R8 group and save**
- **R9 other medical requests**
- **R10 transfusions on NICU**

Indication codes for FFP issue - NNUH

Indications for the use of fresh frozen plasma

- **F1** replacement of some single coagulation factor deficiencies eg factor V
- **[F2 urgent reversal of warfarin effect – USE for Beriplex issues]**
- **F3** in acute disseminated intravascular coagulation with bleeding/oozing
- **F7** in acute disseminated intravascular coagulation without bleeding/oozing
- **[F4 as plasma exchange in thrombotic thrombocytopenic purpura – USE for Octaplas issues]**
- **F5** in massive transfusion with uncontrolled bleeding, refer to massive transfusion protocol, maintain INR ratio <1.5
- **F6** in liver disease – patients with INR <1.5 are unlikely to benefit from FFP
- **F8** FFP transfused outside guidance

FFP Requests – when to issue something else

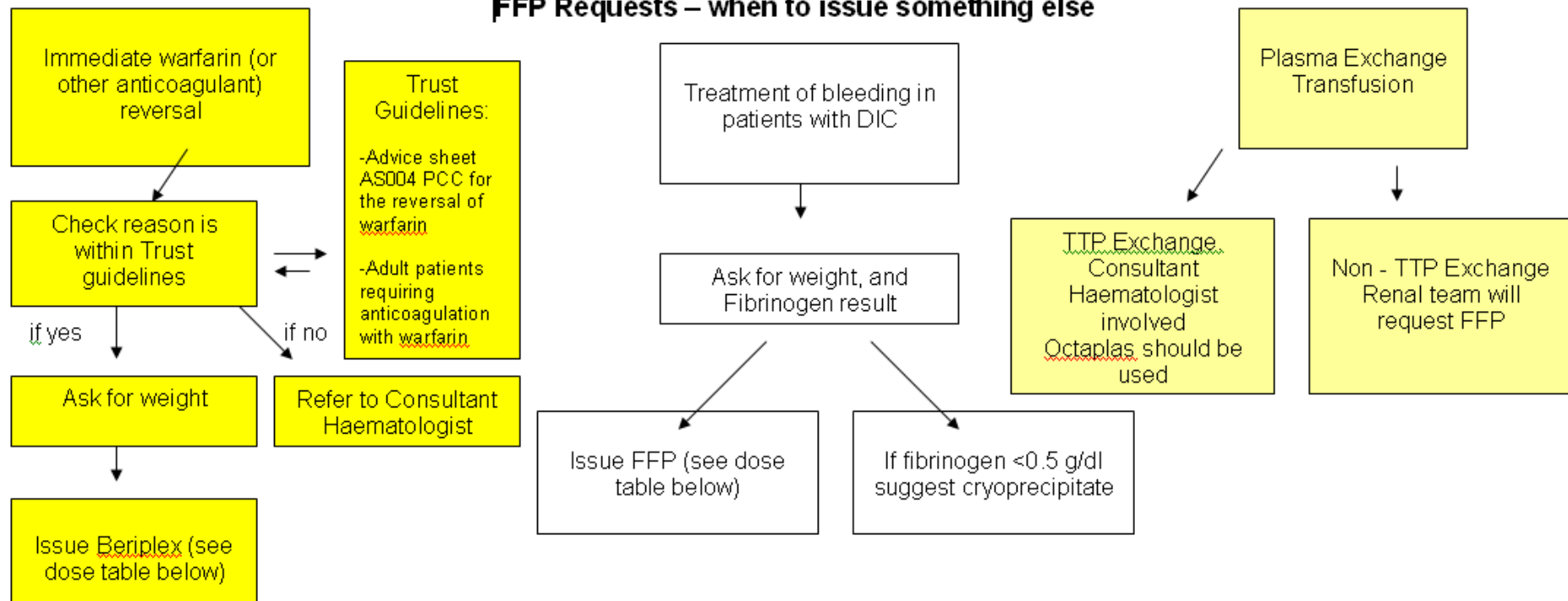


Table for calculating dose of <u>Beriplex</u>			The correct dose of FFP is 12-15 mls/kg:		The only indications for FFP according to national guidelines
MAXIMUM single dose should not exceed 3000IU			Weight in kgs	Number of bags of FFP	
Weight (kg)	Dose	Select 500IU and 1000IU vials as required	<45	2	F1 replacement of some single coagulation factor deficiencies (v rare)
< 30 Kg	30 unit per kg		45 – 54	2-3	
31-39 kg	1000 units		55 – 64	3	F3 in acute disseminated intravascular coagulation
40 – 54 kg	1500 units		65 – 74	3-4	
55 - 74 kg	2000 units		75 – 90	4	F5 in massive transfusion and PT >1.5 x control
75 - 89 kg	2500 units		>90	4-5	
>90 kg	3000 units				F6 in liver disease if PT>1.5 x control

Indication codes for platelet issue

Indications for platelet transfusion

- In bone marrow failure:
- **P1** to prevent bleeding in **reversible** bone marrow failure, platelet count $<10 \times 10^9/l$
- **P2** to prevent bleeding in patients at increased risk of haemorrhage eg sepsis, platelet count $<20 \times 10^9/l$
- **P3** to prevent bleeding in association with invasive procedures, platelet count $<80 \times 10^9/l$

- In critical care/surgery:
- **P4** in massive blood transfusion, maintain platelet count $>75 \times 10^9/l$ or $>100 \times 10^9/l$ if multiple trauma, CNS or eye trauma
- **P5** in acquired platelet dysfunction if non-surgically correctable bleeding, irrespective of platelet count
- **P6** in DIC with bleeding, maintain platelet count $>50 \times 10^9/l$
- **P7** in inherited platelet dysfunction with bleeding or pre-surgery, irrespective of count

- In immune thrombocytopenia:
- **P8** in immune ITP if major haemorrhage or pre-surgery; aim for count $>80 \times 10^9/l$ pre-surgery or for obstetric/regional axial anaesthesia
- **P9** in post-transfusion purpura only if actively bleeding
- **P10** in neonatal alloimmune thrombocytopenia (NAITP) to treat bleeding or to maintain platelet count $>30 \times 10^9/l$

Laboratory SOP for the issue of platelets

- Platelet orders must be questioned and an indication code for the platelet transfusion added to LIMS.
- Never issue more than one adult dose without referral to a Consultant Haematologist or SpR for appropriate advice
- If in doubt about appropriateness refer the case to a Consultant Haematologist or SpR for advice

Effectiveness of NNUH policy

- No formal audits performed of the referral process
- Have participated in National Comparative Audits and Regional Audits where component use has been, in general, appropriate
- Platelet use has always appeared tightly controlled when peer reviewed regionally in RTC meetings

What was done at QEH?

- Pro-active laboratory based approach
- Team effort
 - Laboratory & clinical staff
 - All grades
- Inappropriate red cell transfusions
 - deficiency related anaemias
 - TACO

Requests

- A component request is just that....

a request!

- Each one is assessed by laboratory staff
- Either honoured or referred

Laboratory Tools

- Algorithm for requests
- Referral forms
- Telephone request sheet

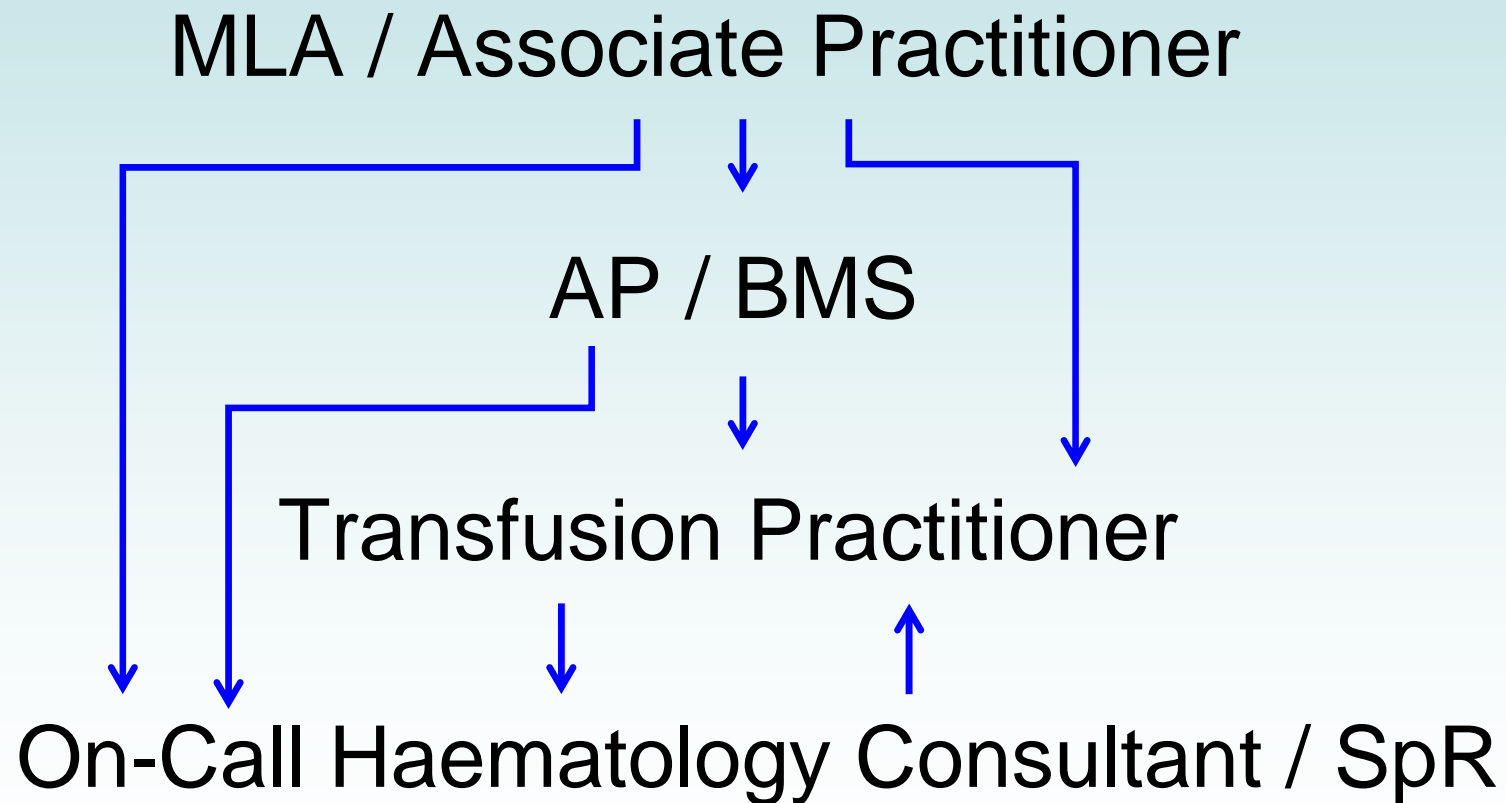
- Support from clinical staff

Telephone request sheet

PATIENTS DETAILS				
NAME:		K / S No:		
D. O. B:		SAMPLE No:		
LOCATION:		CONS:		
BLOOD GROUP:		IRR / CMV- / ABS:		
REQUESTED BLOOD COMPONENT DETAILS				
Number of units requested		Required Results		Reason
RED CELL		Hb		R
Pt weight	Kg	If <60 Kg and not bleeding give 1 unit then re-assess Hb & symptoms		
PLATELET		PC		P
CRYO		Fibrinogen		C
FFP		INR		F
Pt weight	Kg	APTT		
Date & Time required: (OK to come on round if needed?)				
MASSIVE BLOOD LOSS				
Team Leader:		Extension:		
Notification:	Primary:	Secondary:		
Clinical Information:				
TELEPHONE CALL DETAILS				
Requesting Dr:		Bleep / Tel No:		
Lab staff:		Date & Time call taken:		

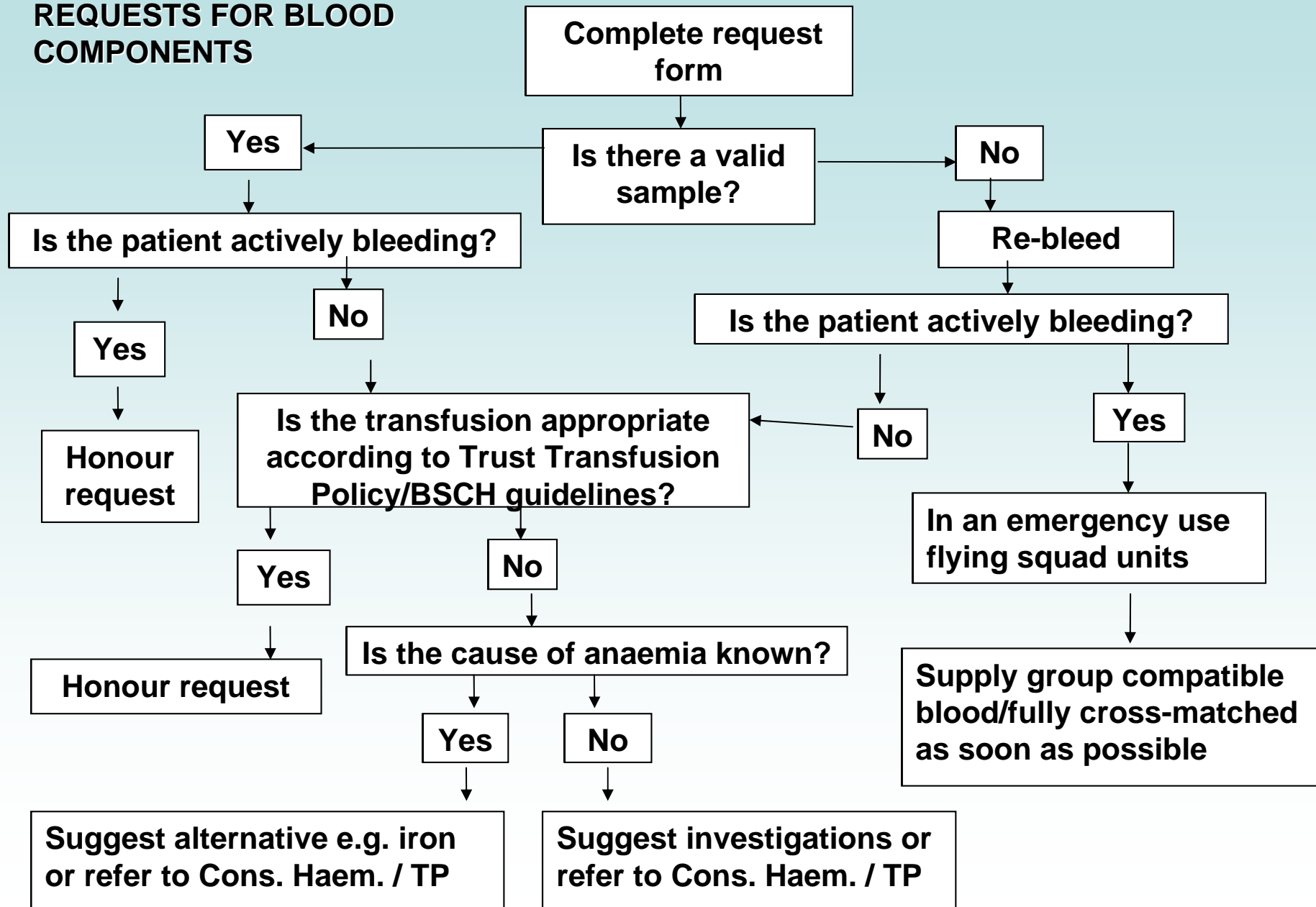


Referral process



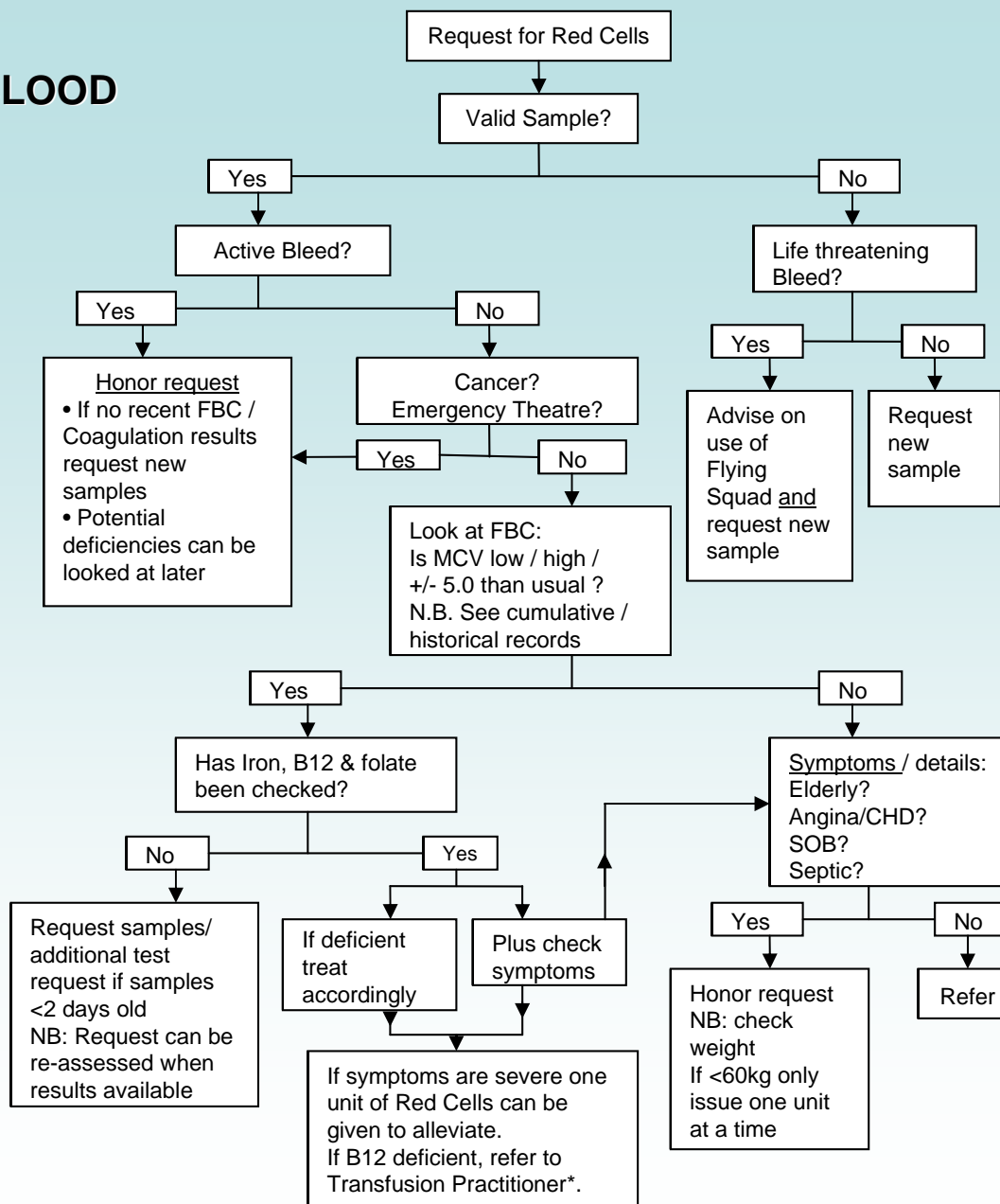
ALGORITHM FOR REQUESTS FOR BLOOD COMPONENTS

Version 1



ALGORITHM FOR REQUESTS FOR BLOOD COMPONENTS

Version 2



***Transfusion Practitioner: Claire Atterbury Ext 2620, Bleep 2795**
If unable to contact Claire Atterbury please bleep on-call Haematologist on bleep 2895

INAPPROPRIATE REQUEST REFERRAL FORM

PATIENT INFORMATION			
PATIENT NAME:	HOSPITAL NUMBER:	DATE OF BIRTH:	WARD:
REQUEST INFORMATION			
DATE & TIME:	NAME:	GRADE:	BLEEP:
NUMBER OF UNITS REQUESTED & COMPONENT TYPE:			
RELEVANT BLOOD RESULTS / INDICATIONS			
RED CELLS:	PLATELETS:	FFP	CRYOPRECIPITATE
Hb:	PLATELET COUNT:	INR:	FIBRINOGEN:
MVC:		APTT RATIO:	
FE & FE SAT:	ON ANTI-PLATELET RX?	ON WARFARIN?	DIC?
FERRITIN:	ABNORMAL PLT FUNCTION?	LIVER DISEASE?	LIVER DISEASE / FAILURE?
B12:	ITP?	HAD VIT K?	RENAL FAILURE?
FOLATE:	TTP?	DIC?	
ADDITIONAL COMMENTS:			
CLINICAL INFORMATION			
<input type="checkbox"/> ACTIVE BLEED (RED CELLS ISSUED) <input type="checkbox"/> KNOWN / SUSPECTED CANCER <input type="checkbox"/> ON CHEMO / RADIOTHERAPY <input type="checkbox"/> CARDIAC DISEASE <input type="checkbox"/> CEREBRAL DISEASE OR INJURY		<input type="checkbox"/> CURRENTLY ON / RECENTLY HAD IRON / B12 / FOLATE WHAT & WHEN? <input type="checkbox"/> ELECTIVE / EMERGENCY ADMISSION <input type="checkbox"/> PRE / POST OPERATION OR BIOPSY WHAT & WHEN: <input type="checkbox"/> SEPTIC / INFECTION	
OTHER RELEVANT DETAILS:			
REFERRAL			
REFERRED TO:	GRADE:	DATE & TIME:	
HAEM CONSULTANT / SPR INVOLVED? IF YES WHO?			
OUTCOME			
REFUSED / ACCEPTED / PART	ADDITIONAL TESTING REQUESTED:	SUGGESTED TREATMENT:	
OTHER COMMENTS:			
FOLLOW UP REQUIRED / DETAILS:			
REPORTED TO DATIX? (IF YES GIVE WEB NUMBER)			

Initial findings

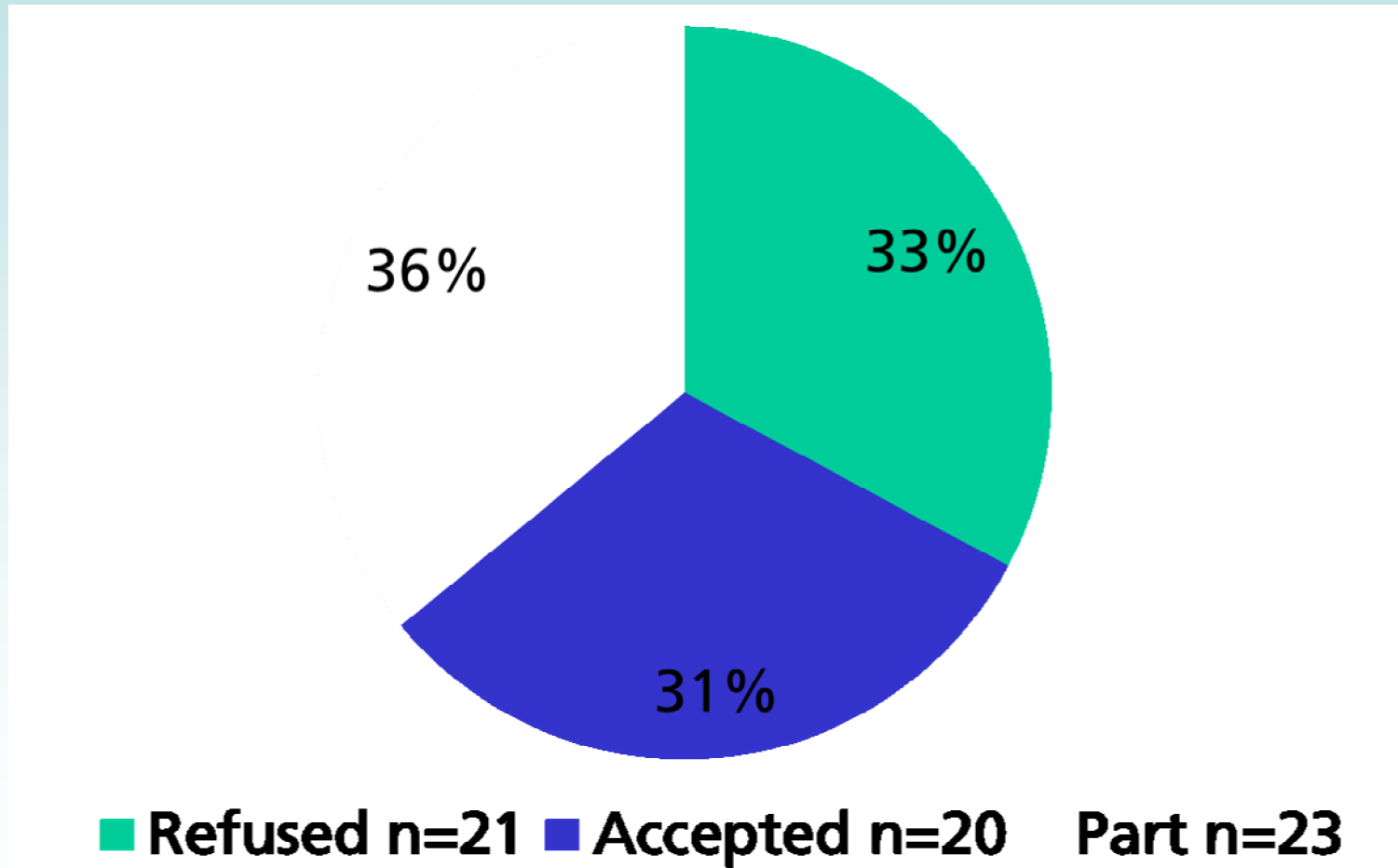
- Some reluctance
 - BMS staff
- Some offence taken
 - Requesting clinicians (all grades)
- Reputation as 'transfusion terriers'

Laboratory empowerment

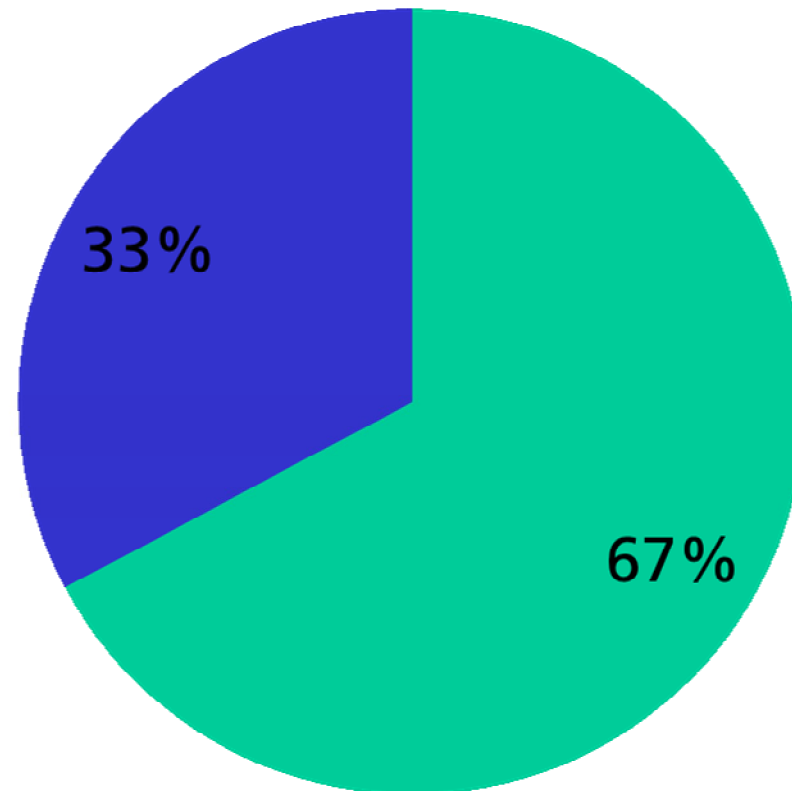
- Improved staff knowledge = greater confidence
- Laboratory staff aware of shared responsibility
- Limits are known
 - Requests never refused by laboratory staff
 - Still a clinical decision
- Ensures best possible service is offered

Effectiveness of QEH policy

Referral outcome

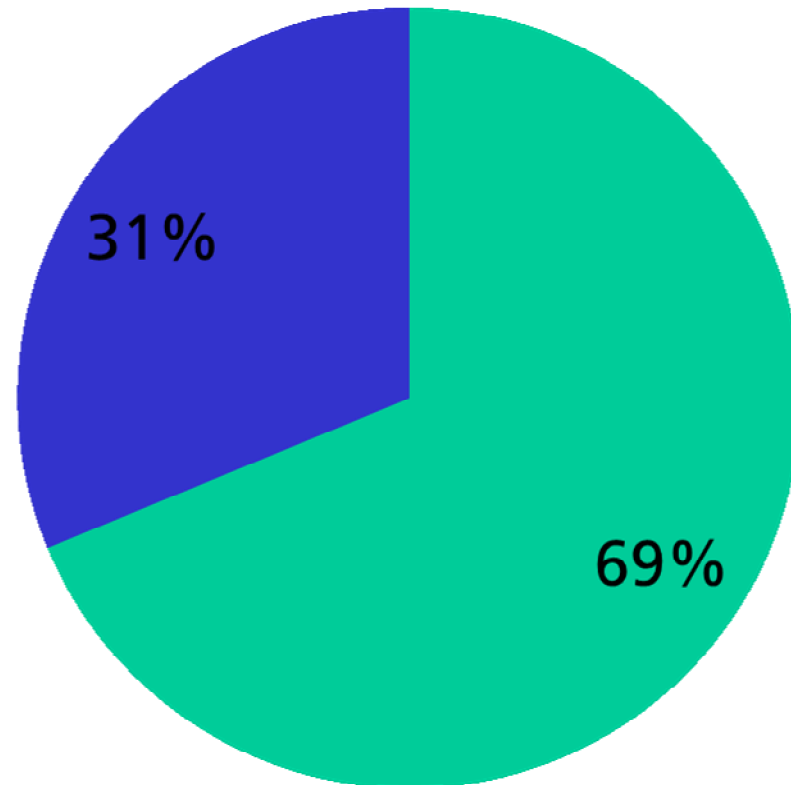


Additional testing



■ No additional testing n=43 ■ Additional testing n=21

Alternatives to blood

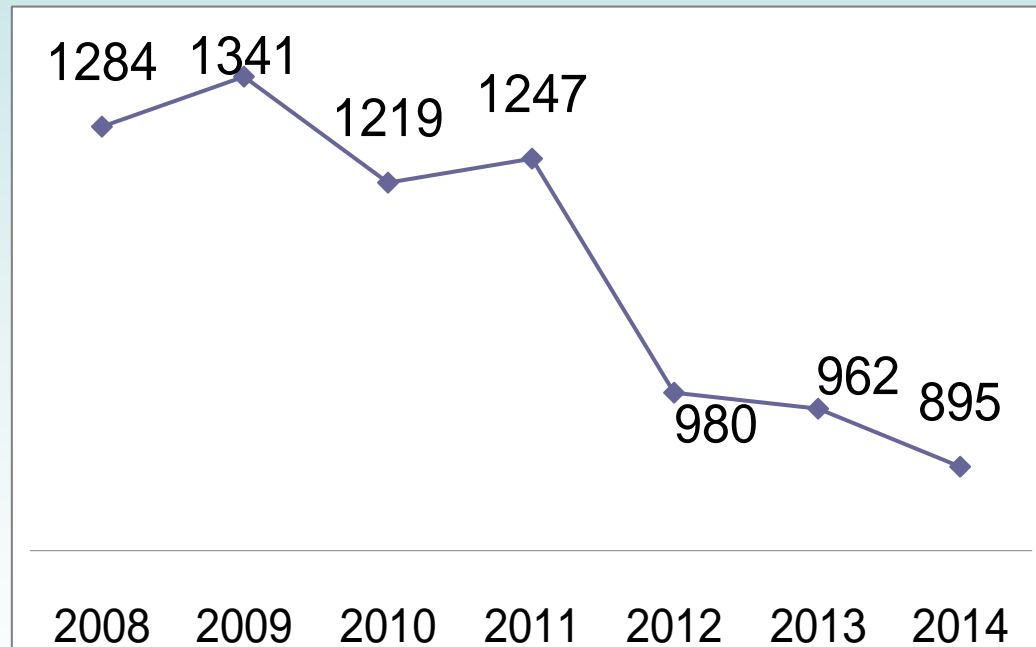


■ Suggested alternative rx n=44 ■ No suggestions n=20

Ripple effect

- Eagerness is contagious
- Clinicians now phone for advice
- Medical & Surgical directorates both engaged & developing own policies
- Some wards better than others
- Still room for improvement

QEH: No of patients transfused



June 2014



National Blood Transfusion Committee

Patient Blood Management

An evidence-based approach to patient care

Use of appropriate dose and thresholds for transfusion

- Use locally agreed triggers for transfusion based on national guidelines and use National Blood Transfusion Committee (NBTC) indication codes when requesting blood from the transfusion laboratory and when prescribing blood components
- Develop systems and protocols that empower transfusion laboratory staff to question requests that do not conform with these triggers and where inadequate clinical explanation is given

Barriers to continued improvements

- Lean working within the transfusion laboratory
- Ever increasing time spent on quality management - the BSQR and ISO15189
- PBM requirements

Clinical haematology support is
essential to laboratory
empowerment