Irradiation of blood components for the prevention of transfusion-associated graft-versus-host disease

RIGHT COMPONENT TO RIGHT PATIENT SURVEY

Report for the South West Regional Transfusion Committee (SW RTC)

The British Committee for Standards in Haematology (BCSH) Guidelines for the gamma irradiation of blood components for the prevention of transfusion-associated graft-versus-host disease (TA-GvHD) (1996) states:

- *Gamma irradiation is currently the only recommended method for TA-GvHD prevention. Leucodepletion by current filtration technology is inadequate for this purpose.*
- *For at-risk patients, all red cell, platelet and granulocyte transfusions should be irradiated.*

The Serious Hazards of Transfusion (SHOT) scheme has continually shown that the inappropriate transfusion of non-irradiated blood components is placing patients at risk of TA-GvHD. The 2006 SHOT report highlighted 82 such incidents. In the 'near miss' category there were a further 503 incidents where 'special requirements' (including irradiated) were not requested / met.

SHOT recommendations (2004, 2005, 2006 reports) have emphasised that:

- *Mechanisms must be put in place for appropriate and timely communication of information regarding special transfusion requirements*
- *Robust systems for noting patients' special requirements should be developed together with a policy of empowering patients to be more aware of their own special needs*
- *A formal mechanism needs to be introduced for informing other hospitals of patients' special requirements.*

The aims of this survey were to identify:

- The policies hospitals have in place for provision of irradiated blood components
- The mechanisms in place in hospitals to communicate information to the hospital transfusion laboratory
- How the requirement for irradiated blood components is documented
- How patients are informed of their need for irradiated blood components
- Which mechanisms appear to be the most robust and most effective means of communication and documentation

This survey was supported by SHOT and the National Blood Transfusion Committee (NBTC).

Reports are available for the NBTC, each of the Regional Transfusion Committees, and for Wales, Scotland and Northern Ireland.

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1. Distribution of the 'Right component to right patient' survey and responses received.

The survey was distributed to National Health Service (NHS) and private hospitals in England, Wales, Northern Ireland and Scotland (via the blood services) during June 2007. It was acknowledged that for some Trusts* with more than one acute hospital, different mechanisms may be in place for the management of irradiated blood components. Therefore, responses were requested from each hospital where appropriate, rather than from each Trust.
In England, the results were collated by the Regional Transfusion Committee (RTC) administrators. In Wales, Northern Ireland and Scotland, results were collated by the blood services.

The survey was sent to a total of 384 hospitals (297 NHS and 87 private). A total of 163 responses were received (42%) - 149 NHS hospitals (50%) and 14 private hospitals (16%).
2 private hospitals responded that they did not use irradiated blood products. Therefore the results given are presented for 161 responses.

Within the SW RTC, this survey was sent to 28 hospitals (19 NHS and 9 private). A total of 19 responses were received (68%) – 14 NHS hospitals (74%) and 5 private hospitals (56%).
1 private hospitals responded that they did not use irradiated blood products. Therefore the results given are presented for 18 responses.

2. Results

The results are presented using the same structure as the survey questionnaire (see appendix 1).

2.1 Indication for irradiated blood components – which patients would you supply irradiated blood components to?

Indication	UK		SW RTC	
	Yes – we would supply irradiated blood components n=161	Is this included in local hospital policy? Yes	Yes – we would supply irradiated blood components n=18	Is this included in local hospital policy? Yes
Allograft	151 (94%)	125 / 151 (83%)	17 (94%)	16 / 17 (94%)
Autograft	153 (95%)	124 / 153 (81%)	18 (100%)	16 / 18 (89%)
Purine Analogues	158 (98%)	126 / 158 (80%)	18 (100%)	15 / 18 (83%)
Hodgkin's Disease	154 (96%)	127 / 154 (83%)	18 (100%)	16 / 18 (89%)
Congenital Immunological Deficiencies	134 (83%)	117 / 134 (87%)	18 (100%)	15 / 18 (83%)
1st or 2nd Degree Relatives	113 (70%)	89 / 113 (79%)	15 (83%)	11 / 15 (73%)
Intrauterine transfusion (IUT)	103 (64%)	80 / 103 (78%)	11 (61%)	10 / 11 (91%)
Paediatric Exchange (previous IUT)	131 (81%)	106 / 113 (81%)	10 (56%)	10 / 10 (100%)
Paediatric Exchange (no previous IUT)	112 (70%)	91 / 112 (82%)	9 (50%)	8 / 9 (89%)
HLA Platelet Transfusions	131 (81%)	98 / 131 (75%)	15 (83%)	13 / 15 (87%)
Granulocyte Concentrates	103 (64%)	66 / 103 (64%)	14 (78%)	10 / 14 (71%)

Comments:
There is wide variation in practice. For some indications e.g. Intrauterine Transfusion (IUT) this variation may be because that procedure is not practiced in all hospitals. However, hospitals should consider that for all longer term conditions e.g. Hodgkin's disease, that patients may attend any hospital, possibly for unrelated reasons, and require transfusion support.
A number of hospitals (UK mean 21%, SW RTC mean 14%) are not including all indications for irradiated blood components in their local blood transfusion policies / guidelines.

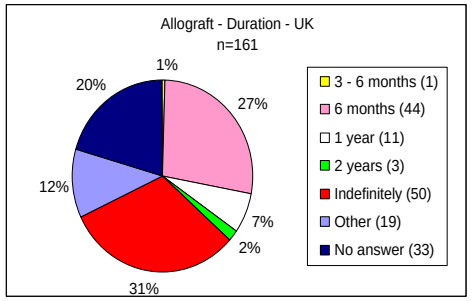
Recommendation: hospitals should include all indications for irradiated blood components in their local blood transfusion policies / guidelines.

** for the purpose of this report the term 'Trust' is used for the Scottish equivalent 'Division'.

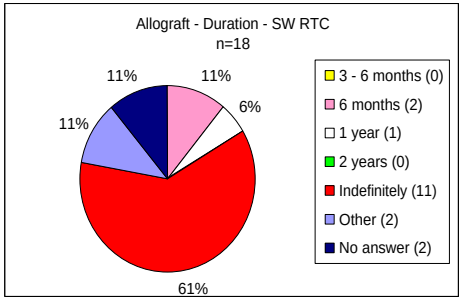
2.2 Indication for irradiated blood components – Duration: How long do you continue to supply irradiated blood components for:

Allograft?

UK

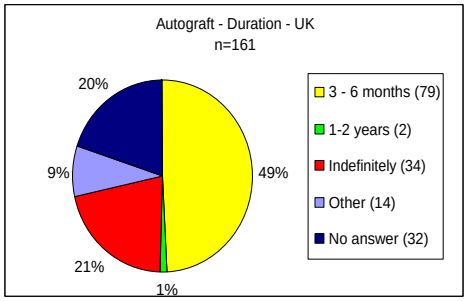


SW RTC



Autograft?

UK



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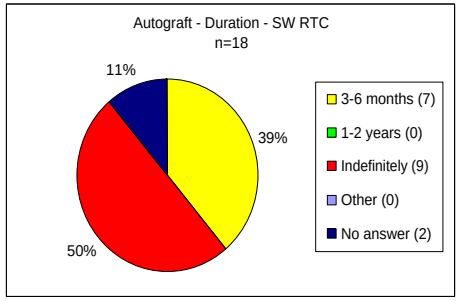
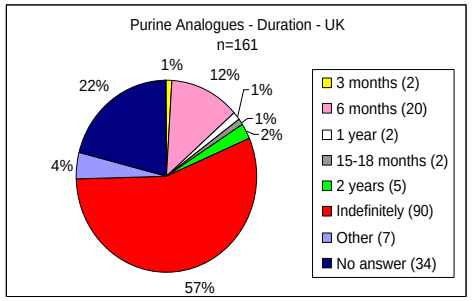


Purine Analogues?

UK



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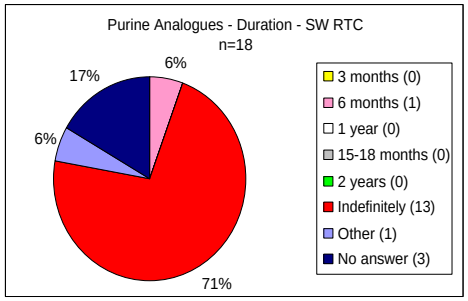
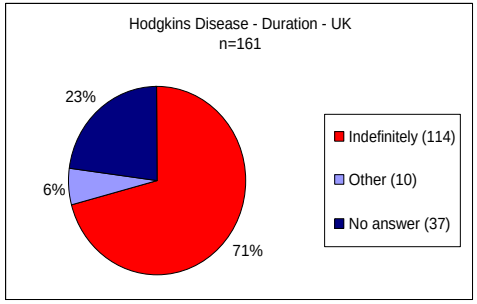
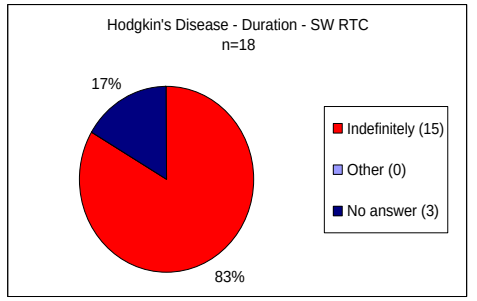


Hodgkin's?

UK



SW RTC



'Other' includes until after remission, as long as they receive treatment, during chemotherapy, varies between clinician, guided by treating Trust (shared care)

Comments:
There is wide variation in practice.

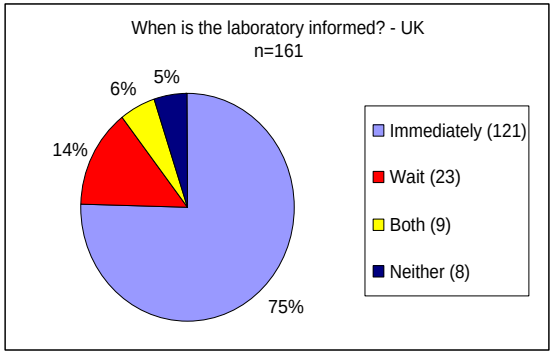
This variation may cause confusion if patients receive 'shared care' within two or more hospitals, or when clinical or laboratory staff move between different hospitals, especially where local practice is not documented in hospital policies (see comments section 2.1).

Of note, the current BCSH guidelines for the gamma irradiation of blood components for the prevention of TA-GvHD date back to 1996, and are now outdated and under review.

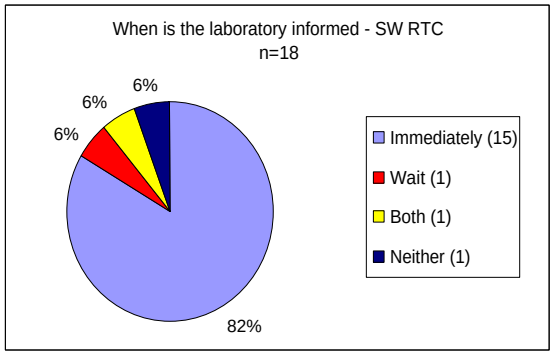
Recommendation: Current indications for irradiated blood components are available in the Handbook of Transfusion Medicine (2007) – see appendix 2. Hospital blood transfusion policies / guidelines should refer to this.

3.1 What communication mechanisms are in place - When do you initially inform the laboratory of a patients irradiated blood component requirements?

UK



SW RTC

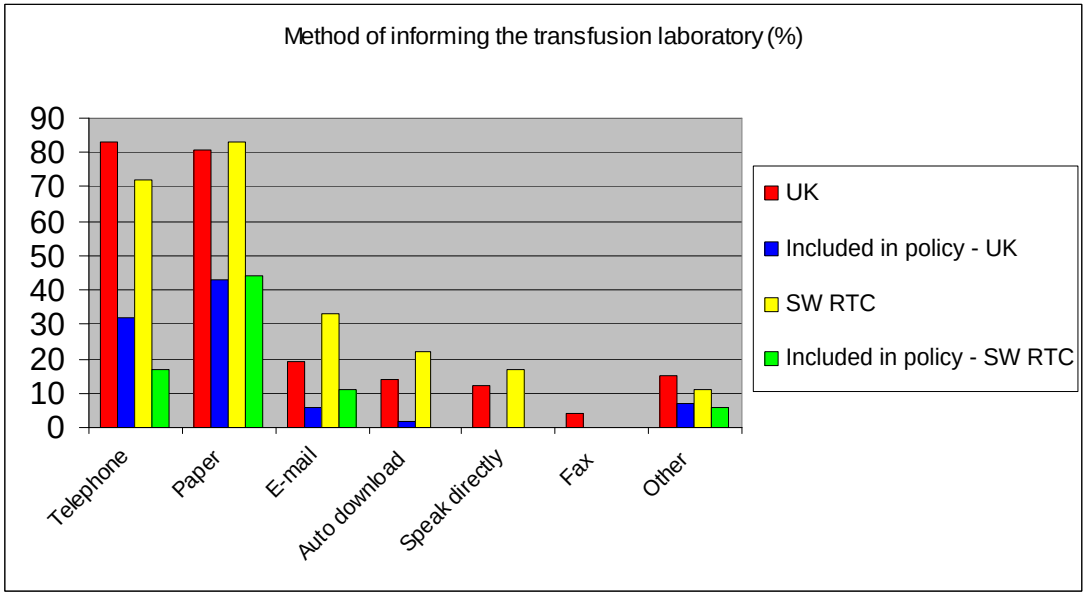


Comments:
'Immediately' is where the transfusion laboratory is informed as soon as the patient is diagnosed with a condition or is commenced on a treatment which requires irradiated blood products.
'Wait' is where the transfusion laboratory in not informed until there is an actual requirement for blood components.

There were a number of comments that this is an area where communications often break down.

Recommendation: SHOT (2006) recommends that when purine analogues are prescribed for a patient, or when a histological diagnosis of Hodgkin's disease is made, this should be immediately communicated to the transfusion laboratory.

3.2 What communication mechanisms are in place – How do you inform the laboratory?

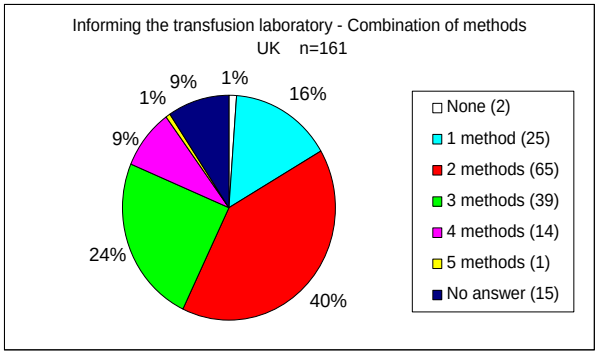


Comments:
The majority of hospitals used either telephone or a paper based mechanism to inform the laboratory.
Documentation of these communication mechanisms in local hospital policy / guidelines is poor.

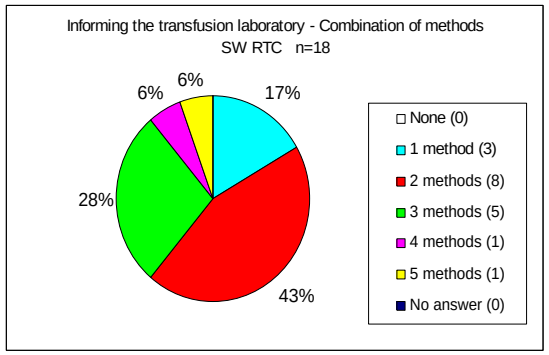
Many hospitals used more than one mechanism – see 3.3.

3.3 What combination of mechanisms are used to inform the laboratory in each hospital?

UK



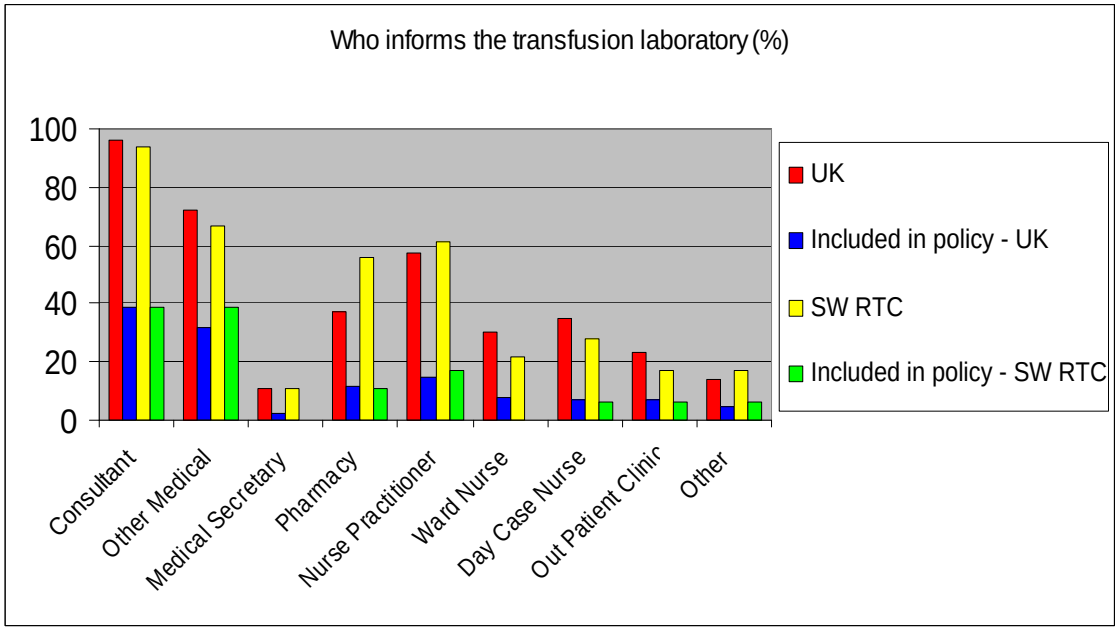
SW RTC



Comments:
In the UK, 25 hospitals (15%) utilised a single method to inform the laboratory. Of these, 9 (36%) used telephone only. Although this may appear to provide sufficient communications, no documented record or audit trail of the communication is produced, which may result in future discrepancies.

This survey was unable to establish whether the various mechanisms of communication had an impact on the number of incidents / errors.

3.4 What communication mechanisms are in place - Who informs the laboratory?

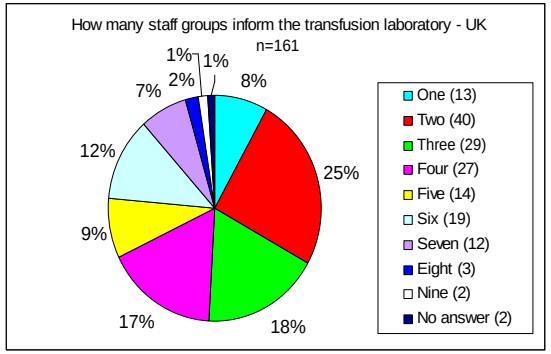


Comments:
The majority of hospitals stated that the patients' consultant was responsible for informing the laboratory, but for many hospitals a combination of other staff groups are involved – see 3.5.

Many local policies / guidelines do not reflect this.

3.4 What communication mechanisms are in place - How many staff groups inform the laboratory?

UK



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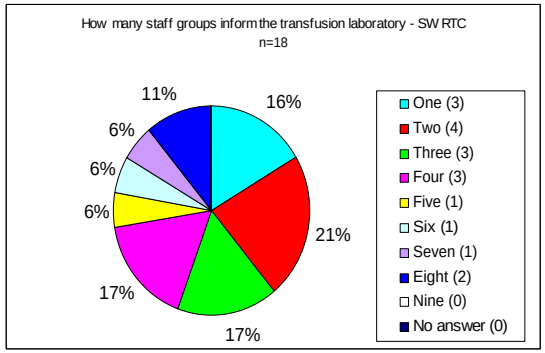


Comments

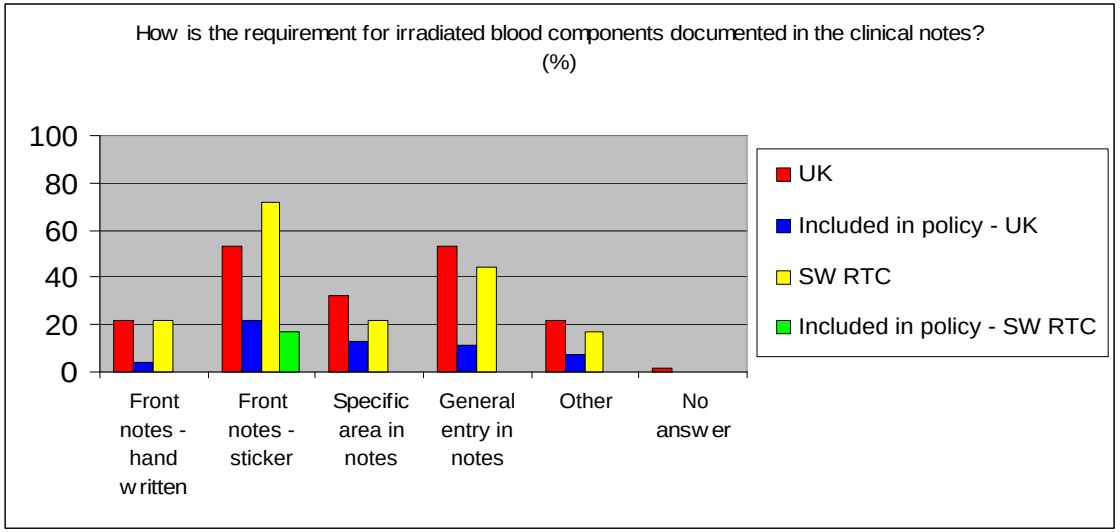
SHOT (2006) states that identifying the need for special transfusion requirements is ultimately a clinical responsibility.

Most hospitals stated that the patients' consultant would inform the laboratory, but many hospitals are also utilising a number of other staff, although in the majority of cases this is not reflected in hospital policy. It is unclear from this survey whether involving more staff groups in this process assists or exacerbates communications. It may be suggested that if it is the sole duty of one person, the onus is on them and there can be no confusion of responsibility.

If many staff groups are involved, either the transfusion laboratory may get informed several times about the same patient, or communications may fail completely because all those involved *think* that someone else has completed that task.

Recommendation: hospitals should assess current communication mechanisms to determine effectiveness. Hospital policy should clearly define staff responsibilities.

4.1 How is the requirement for irradiated blood components recorded - Documentation in the patients' clinical notes?



Comments

	UK	SW RTC
No documentation on front of clinical notes	58 (36%)	5 (28%)
No specific documentation area in clinical notes (general entry only)	31 (19%)	3 (17%)
No documentation in clinical notes	12 (7%)	1 (6%)

The Health Service Circular HSC 2007/001 Better Blood Transfusion *Safe and Appropriate Use of Blood* (2007) states that protocols for practice should include the documentation required during transfusion. Poorly defined or no documentation may help result in irradiated requirement identification errors.

Recommendation: The need for irradiated blood components must be clearly indicated in the patients clinical notes (SHOT 2006).

4.2 Patients clinical notes: Are clinical notes paper based or electronic?

In the UK, 5 hospitals did not answer. The remaining 156 all answered clinical notes are electronic, with an additional 11 stating notes are also electronic (2 partial, 1 just starting to implement).

In the SW RTC, 1 hospital did not answer. The remaining 17 all answered clinical notes are electronic. 2 also have partial electronic.

4.2 Is there a specific area in the nursing notes where the requirement for irradiated blood components should be recorded?

	Yes	Included in local organisational policy?
UK	42 / 161 (26%)	20 / 42 (48%)
SW RTC	4 / 18 (22%)	1 / 4 (25%)

Comments:
Poor or no documentation of the requirement for irradiated blood components in the nursing notes may compound requirement identification errors in the clinical area, especially on haematology and oncology units.

Recommendation: Hospitals should assess nursing documentation of the requirement for irradiated blood components, especially in high use specialities, for example haemato-oncology.

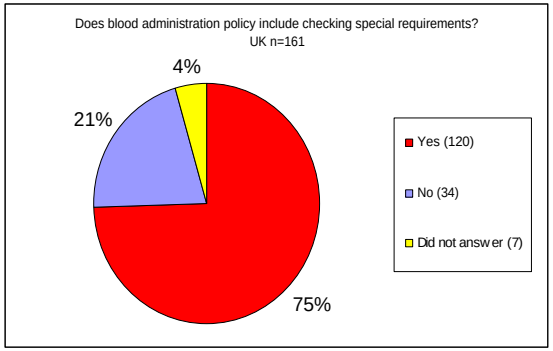
4.4 IT flag – is there a mechanism for 'flagging up' patients with special requirements?

	Yes
UK	142 / 161 (95%)
SW RTC	16 / 18 (89%)

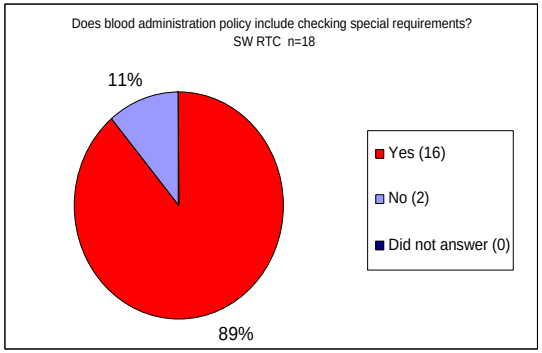
Recommendation: 'IT flags' should be used whenever possible (SHOT 2006).

4.5 Does your hospital blood administration policy include the need to check for any special requirements?

UK



SW RTC



Comments:
SHOT (2006) recommends that the pre-transfusion check at the patients' bedside must include checking of special requirements against the prescription. The HSC 2007/001 states that all Trusts should have agreed and disseminated protocols for (among other items) the complete transfusion process from blood sample collection to administration.

Recommendation: hospital blood administration policies should provide appropriate guidance to clinical staff for the checking of any special requirements.

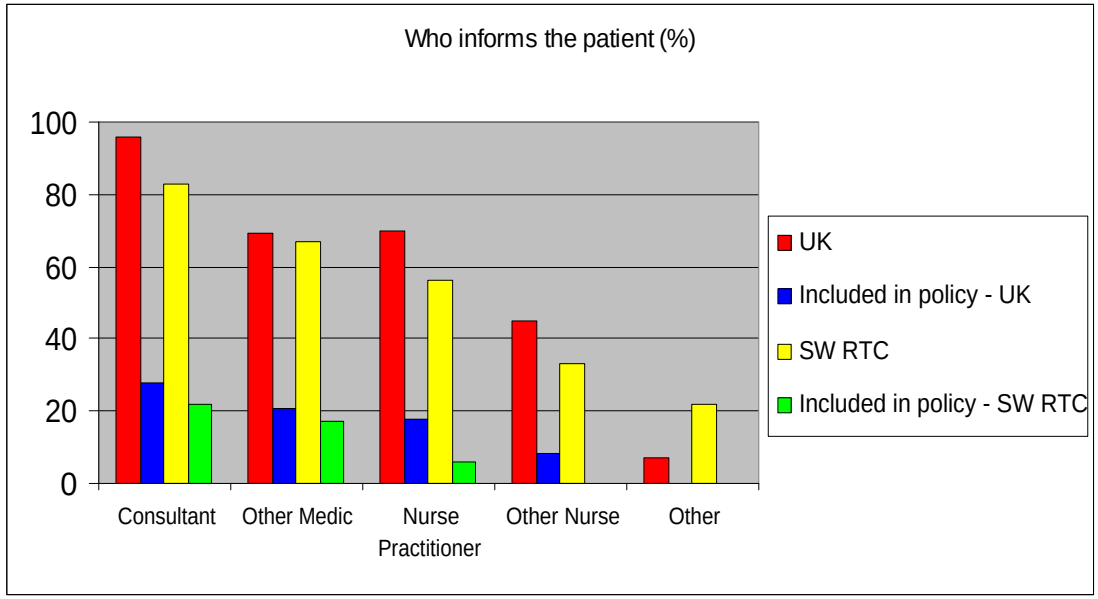
5.1 Patient information – Are patients generally informed of their requirement for irradiated blood components?

	Yes
UK	136 / 161 (86%)
SW RTC	17 / 18 (94%)

Comments:
The HSC 2007/001 and SHOT (2006) encourages patient information and patient involvement.

Many hospitals have stated in this survey that they rely on patients to inform other departments or hospitals of special transfusion requirements (see sections 6.1 and 6.2).
Some respondees indicated that although patients in their hospital should be informed, in reality this was sporadic and could not be relied upon.

5.2 Patient information – Who informs patients?



Comments:
The majority of hospitals stated that the patients' consultant was responsible for informing the patient, but many hospitals also involved other staff groups.
Again, many local policies / guidelines do not reflect this.

Recommendation: local policy should reflect who is responsible for informing the patient about their requirement for irradiated blood components.

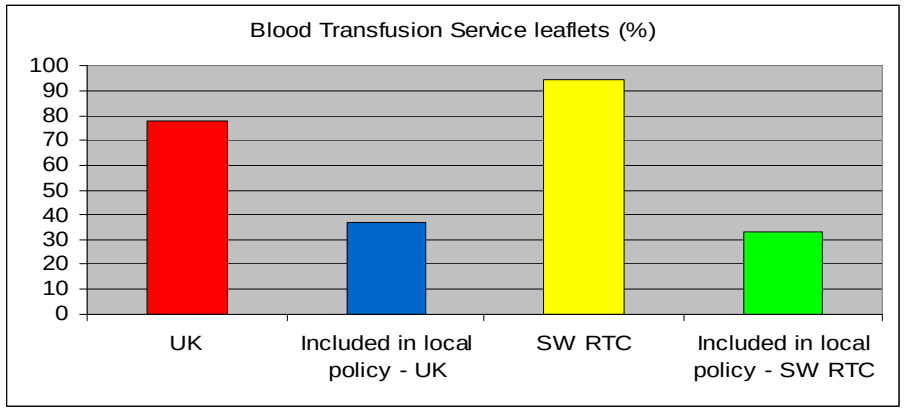
5.3 Patient information – Are patients given written information?

	Yes
UK	130 / 161 (81%)
SW RTC	17 / 18 (94%)

Comments:
The HSC 2007/001 and SHOT (2006) encourages the provision of written patient information.

Some respondees stated this was sporadic and could not be relied upon.

5.4 Patient information – Which written information is used?



Comments:
In the UK, 5 (3%) hospitals have produced local patient information leaflets. 2/5 (40%) have included this in local policy / guidelines.

In the SW RTC, no hospitals have produced local patient information leaflets.

Recommendation: local policy should include the requirements for the provision of written patient information.

5.5 Patient information – Are patients given an alert card to carry?

	Yes
UK	115 / 161 (71%)
SW RTC	14 / 18 (78%)

Comments: In England, alert cards are readily available from NHS Blood and Transplant and are included in the 'Information for patients needing irradiated blood components' leaflets.

6.1 Shared care – do you have a mechanism of informing other departments / hospitals within your Trust / organisation of a patients irradiated blood components requirements?

	Yes
UK	78 / 161 (48%)
SW RTC	9 / 18 (50%)

Examples of mechanisms in use and comments:

Mechanism	Comment
Alert on patients notes	Patients' clinical notes must be available in the clinical area. The alert should be clearly evident.
Single blood bank in Trust – flag on IT system Or The two blood banks inform each other	Although these systems inform the blood bank of the requirement, this system fails to inform the clinical area. Therefore staff in the clinical area are dependant on any information contained in the patients' clinical / nursing notes (see section 4.1 and 4.3).
Patients encouraged to show alert card at all consultations	This system puts the onus of communication on the patient. Although this should be encouraged, hospitals should not rely on this method. Not all patients are given alert cards. Regionally 9 / 18 hospitals (50%) state that patients are given alert cards. Nationally this figure is 71%, with additional comments that informing the patient could be sporadic and could not be relied on. Alert cards may also be lost or forgotten.

6.2 Shared care – do you have a mechanism of informing other Trusts of a patients irradiated blood components requirements if patients are transferred?

	Yes
UK	62 / 161 (39%)
SW RTC	8 / 18 (44%)

Examples of mechanisms in use and comments:

Mechanism	Comment
Transfer of blood to other hospital documentation	This system indicates that the referring hospital only informs the receiving hospital if blood components are also transferred.
Patients encouraged to show alert card at all consultations	This system puts the onus of communication on the patient. Although this should be encouraged, hospitals should not rely on this method. Not all patients are given alert cards. Regionally 9 / 18 hospitals (50%) state that patients are given alert cards. Nationally this figure is 77%, with additional comments that informing the patient could be sporadic and could not be relied on. Alert cards may also be lost or forgotten. The hospital transfusion laboratory is not directly informed.
Patients' notes include summary letter plus patient alert card	This system indicates that the clinical area of the receiving hospital is informed, but the hospital transfusion laboratory is not directly informed.

In the SHOT 2006 report there were 19 cases of 'special requirements not met' where the patient care was shared between two healthcare organisations and the need for the special requirement was not communicated to the organisation where the patient was being transfused.

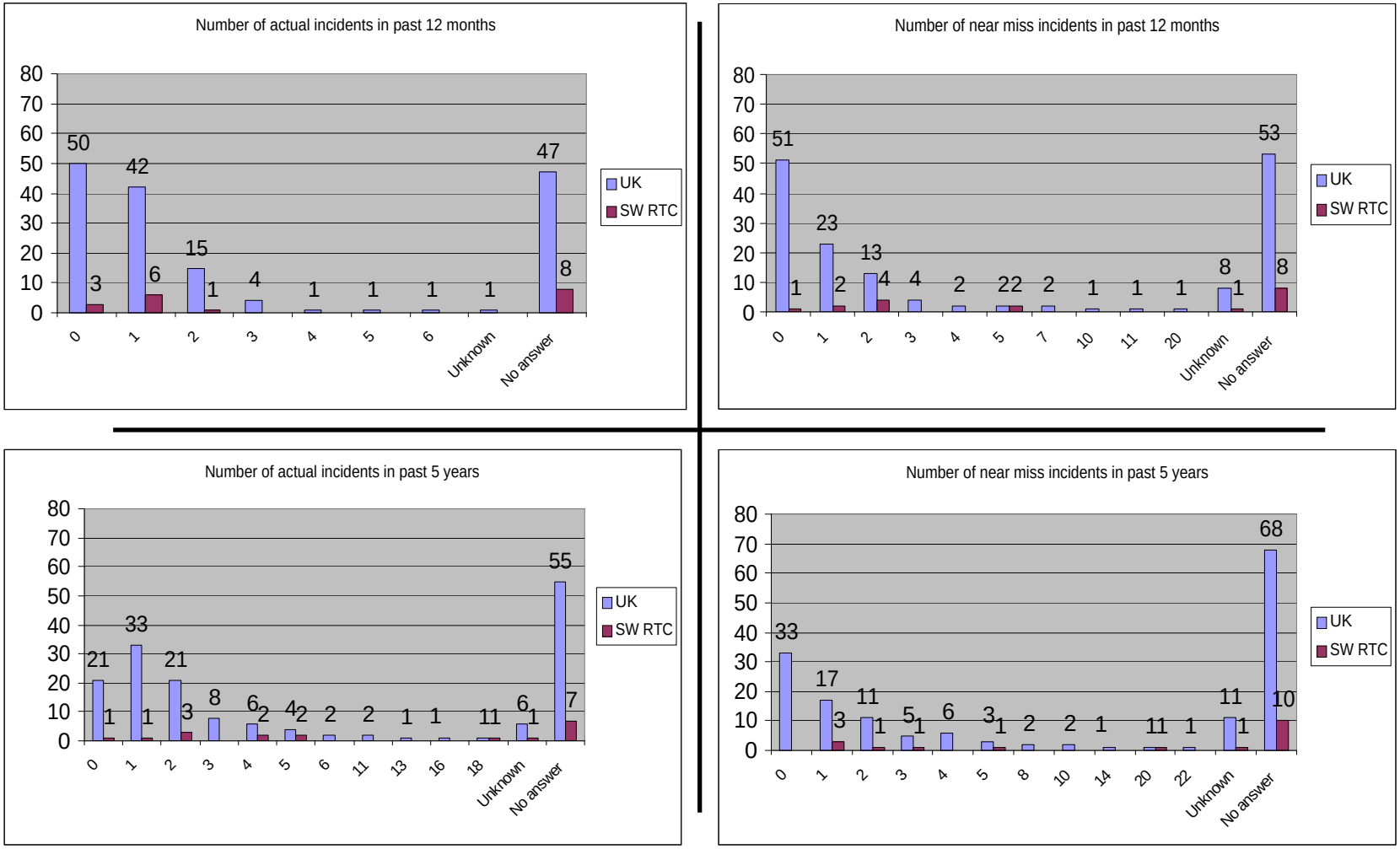
7.1 Failures with the systems / mechanisms in place – have you identified any failures?

	Within your own Trust (including internal 'shared care')?	When patients from your own Trust attend other Trusts?	When patients from other Trusts attend your Trust?
UK	105 / 161 (65%)	32 / 161 (20%)	70 / 161 (44%)
SW RTC	10 / 18 (56%)	3 / 18 (17%)	6 / 18 (33%)

The majority of hospitals have identified failures with the mechanisms / systems in place.
Comments included 'relies on a manual system', 'relies on patient carrying alert card' and 'failures in communication'.
More than twice as many hospitals were aware of failures when patients from other Trusts were attending own Trust than when patients from own Trust attend other Trusts. This would suggest that hospitals are not actively acknowledging and communicating failures to each other.

Recommendation: SHOT recommendations include a formal mechanism needs to be introduced for informing other hospitals of patients' special requirements and arrangements for shared care must specifically include communication of special transfusion requirements.

7.2 How many incidents have occurred over the past 12 months / 5 years?



There is a wide variation in the number of incidents, which is not entirely explained for by the size of the hospital. Although a number of larger hospitals did report a higher number of incidents, 4 of the 9 hospitals who stated that they had had no incidents, actual or near miss within the past 5 years, were high usage hospitals (4 high, 3 moderate, 2 lower usage hospitals – see appendix 2 for classifications).
Many hospitals did not complete this section, whilst others stated that numbers of incidents, actual or near miss, were unknown or approximate. This impacted on data analysis and no correlation between the procedures in place and numbers of incidents could be found.

8.1 Audit: Do you / have you ever audited any of the mechanisms discussed in this survey?

The HSC 2007/001 'Better Blood Transfusion '*Safe and Appropriate Use of Blood*' (2007) states that hospitals should ensure that appropriate blood transfusion policies are in place, implemented and monitored.
In the UK only 39 (24%) and in the SW RTC 7 (39%) of hospitals stated that they have audited any of the mechanisms discussed in this survey.

Types of audits undertaken:

- Transfusion laboratory notification of patients irradiated blood requirements
- Transfusion request forms – documentation of irradiated blood component requirements
- Patients clinical notes – documentation of irradiated blood component requirements
- Transfusion charts / prescription sheets - documentation of irradiated blood component requirements
- Review of haematology / oncology patients (Hodgkin's disease audit, fludarabine audit)
- Patients clinical notes documentation compared against laboratory computer records
- Pharmacy record of patients receiving purine analogues against laboratory computer records
- Compliance with patient information / leaflets
- Medical staffs knowledge of irradiated components
-

2 responders described continuous audit, 1 weekly audit, 1 yearly audit, and 1 audited at times of errors occurring to try to improve the system.

Some hospitals commented that as a result of these audits, the numbers of actual / near miss incidents identified had increased.

Recommendation: Hospitals should audit compliance with hospital blood transfusion policy.

Conclusions
The key points of this report are:

- There is wide variation in practice – this includes which patients receive irradiated blood components and for how long.
- The current BCSH guidelines Gamma irradiation of blood components for the prevention of TA-GvHD date back to 1996 and our outdated. This may cause confusion regarding current indications for the use of irradiated blood components. These guidelines are under review. Guidance is currently available in the Handbook of Transfusion Medicine (2007).
- Many local policies / guidelines fail to include the processes required for the identification of patient requirements, communication mechanisms (within and outwith the hospital) or detailing staff responsibilities.
- Documentation in patients' clinical and nursing notes is variable and may often be unclear.
- Whilst the majority of hospitals endeavour to inform patients of their requirements for irradiated blood components, many respondees stated that this was sporadic and could not be relied on. Not all hospitals provided written information or patient alert cards.

References

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Appendix 1
Survey questionnaire

Details of person completing this survey:

Name:

Position:

Department:

Hospital:

Trust:

Postcode:

Question 1

1. On average, how many red cells does your blood bank issue per year?

2. On average, how many irradiated blood components does your blood bank issue per year?

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Question 2

Which patients would you supply irradiated blood components to and for how long (duration):
Please tick as appropriate and state duration where appropriate (e.g. indefinitely / for 6 months)
Please also indicate / comment if your hospital blood transfusion policy contains guidance re. irradiated blood components – indications for use.

Patient / product	Tick as appropriate	Duration (where appropriate)	Comments	Included in hospital policy?
Allograft bone marrow / stem cell recipients	3. Y ☐ N ☐	4.	5.	6. Y ☐ N ☐
Autograft bone marrow / stem cell recipients	7. Y ☐ N ☐	8.	9.	10. Y ☐ N ☐
Patients treated with purine analogues	11. Y ☐ N ☐	12.	13.	14. Y ☐ N ☐
Patients diagnosed with Hodgkin's Disease	15. Y ☐ N ☐	16.	17.	18. Y ☐ N ☐
Patients diagnosed with congenital immunological deficiencies	19. Y ☐ N ☐	20.	21.	22. Y ☐ N ☐
Donations from family members (1st or 2nd degree relatives)	23. Y ☐ N ☐	24.	25.	26. Y ☐ N ☐
Paediatric Exchange transfusions (if previous IUT)	27. Y ☐ N ☐	28.	29.	30. Y ☐ N ☐
Paediatric Exchange transfusions (no previous IUT)	31. Y ☐ N ☐	32.	33.	34. Y ☐ N ☐
Intrauterine transfusions	35. Y ☐ N ☐	36.	37.	38. Y ☐ N ☐
HLA selected platelet transfusions	39. Y ☐ N ☐	40.	41.	42. Y ☐ N ☐
Granulocyte concentrations	43. Y ☐ N ☐	44.	45.	46. Y ☐ N ☐
Other (please specify)	47. Y ☐ N ☐	48.	49.	50. Y ☐ N ☐

51. Comments:

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Question 3

What mechanisms are in place to communicate patient irradiation requirements / clinical details to the hospital blood bank?

1. Generally, do you inform the laboratory as soon as the requirement is identified (i.e. diagnosis made, started on purine analogue…) 52. Y☐ N☐

2. Generally, do you wait until there is a requirement for blood before consulting the laboratory? 53. Y☐ N☐

Please tick as appropriate:
Please also indicate / comment if your hospital blood transfusion policy contains guidance.

Mechanism	Tick as appropriate	Additional comments	Included in hospital policy?
Telephone	54. Y☐ N☐	55.	56. Y☐ N☐
E-mail	57. Y☐ N☐	58.	59. Y☐ N☐
Paper form	60. Y☐ N☐	61.	62. Y☐ N☐
Automatic electronic download from pharmacy	63. Y☐ N☐	64. Please state frequency e.g. weekly / monthly	65. Y☐ N☐
Other	66. Y☐ N☐	67.	

Who by?
Please tick all that apply:

		Tick as appropriate	Additional comments
Consultant haematologist/oncologist/immunologist		69. Y☐ N☐	70.
Other medical staff (e.g. SHO / HO)		72. Y☐ N☐	73.
Medical secretary		75. Y☐ N☐	76.
Hospital pharmacy department		78. Y☐ N☐	79.
Nurse practitioner		81. Y☐ N☐	82.
Other nursing staff:	Ward	84. Y☐ N☐	85.
	Daycase	87. Y☐ N☐	89.
	Outpatient clinic	90. Y☐ N☐	91.
Other (please specify)		93. Y☐ N☐	94.

Question 4

How is the requirement for irradiated blood components recorded?
What warning systems are in place to alert staff to the need for irradiated products?
Please tick as appropriate.
Please also indicate / comment if your hospital blood transfusion policy contains guidance

Medical notes:

Mechanism for recording requirements in medical notes:		Tick as appropriate	Additional comments	Included in hospital policy?
On the front of medical notes:	Hand written	96. Y☐ N☐	97.	98. Y☐ N☐
	Sticker	99. Y☐ N☐	100.	101. Y☐ N☐
A specific documentation area within the notes		102. Y☐ N☐	103.	104. Y☐ N☐
A general written entry within the notes		105. Y☐ N☐	106.	107. Y☐ N☐
Other – please specify		108. Y☐ N☐	109.	110. Y☐ N☐
Are your medical notes:	Paper	111. Y☐ N☐	112.	113. Y☐ N☐
	Electronic	114. Y☐ N☐	115.	116. Y☐ N☐

Nursing notes:
Is there a specific area of the nursing documentation where the requirement for irradiated blood products is documented?

Tick as appropriate	Please specify	Included in hospital policy?
117. Y☐ N☐	118.	119. Y☐ N☐

Hospital Blood Bank:

Question	Comment	Included in hospital policy?
How is the requirement for irradiated blood recorded on / transferred to the electronic blood bank records?	120.	121. Y☐ N☐
Is this information also recorded on a patient record system (e.g. PAS)	122.	123. Y☐ N☐
Is there a mechanism for 'flagging up' patients with special requirements? Please select the following:	• Does the lab IT system flags up need for irradiated blood? 124. Y☐ N☐ • Do you have a manual system? 125. Y☐ N☐ • Do you rely on a BMS checking the diagnosis? 127. Y☐ N☐	126. Y☐ N☐
128. Additional comments:		

Question 5

Are patients requiring irradiated blood products generally informed of this? 129. Y ☐ N ☐ *(Tick as appropriate)*

If yes, who by?
Please tick as appropriate.
Please also indicate / comment if your hospital blood transfusion policy contains guidance

	Tick as appropriate	Additional comments	Included in hospital policy?
Consultant	130. Y ☐ N ☐	131.	132. Y ☐ N ☐
Other medical staff (e.g. SHO / HO)	133. Y ☐ N ☐	134.	135. Y ☐ N ☐
Nurse practitioner	136. Y ☐ N ☐	137.	138. Y ☐ N ☐
Other nursing staff (please specify)	139. Y ☐ N ☐	140.	141. Y ☐ N ☐
Other (please specify)	142. Y ☐ N ☐	143.	144. Y ☐ N ☐

Are patients given any written information about irradiated blood product requirements? 145. Y ☐ N ☐ *(Tick as appropriate)*
If yes, is this:

	Tick as appropriate	Additional comments	Included in
NBS 'Information for patients needing irradiated blood'	146. Y ☐ N ☐	147.	
Locally produced patient information leaflets	148. Y ☐ N ☐	150.	

Are patients given an 'alert card' to carry? 152. Y ☐ N ☐ *(Tick as appropriate)*

Does your hospital blood administration policy state that special requirements must be check

154. If yes, how is this done?
155. Additional comments:

Question 6

With regards to 'shared care', do you have a mechanism for informing other departments / hospitals **within your Trust?** 156. Y ☐ N ☐

157. If yes, please give details:

Do you have a mechanism for informing **other Trusts** of any special transfusion requirements if patients are transferred? 158. Y ☐ N ☐

159. If yes, please give details:

Question 7

Have you identified any failures with the systems / mechanisms in place?

	Tick as appropriate	Comments
Within your own Trust (including internal 'shared care')	160. Y ☐ N ☐	161.
When patients from your own Trust attend other Trusts	162. Y ☐ N ☐	163.
When patients from other Trusts attend your Trust	164. Y ☐ N ☐	165.

Have there been any actual or near miss incidents where patients have not received irradiated blood components? 166. Y ☐ N ☐

If yes, how many incidents have occurred:

Over the past 12 months	
Number of actual incidents	Number of near miss incidents
167.	168.

Over the past 5 years	
Number of actual incidents	Number of near miss incidents
169.	170.

171. Additional comments:

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Do you / have you ever audited any of the mechanisms discussed in this survey? 173. Y ☐ N ☐

172. If yes, please give details (including when these audits were performed, how often, and which aspects were audited, main learning points / identified issues):

If requested, would you be willing to share with us:

- Your local hospital policy(ies) for irradiated blood components 174. Y ☐ N ☐ N/A (none available) ☐ (Tick as appropriate)
- Any locally produced patient information relating to irradiated blood products 175. Y ☐ N ☐ N/A (none available) ☐

176. Comments:

Thank you for taking the time to complete this questionnaire.

Appendix 2
Indications for the use of gamma-irradiated cellular blood components

Transfusions from first- or second- degree relatives

Any granulocyte transfusion for any recipient

HLA selected platelet units

Patients receiving purine analogues (fludarabine, cladribine, deoxycoformycin): probably safer to use indefinitely

Intrauterine transfusions (IUT)

Exchange transfusions (provided that irradiation does not unduly delay transfusion)

Red cell or platelet transfusion in neonates – only if there has been a previous IUT or if blood is from a first- or second- degree relative

All patients of allogeneic haemopoietic stem cell (HSC) grafts, from start of conditioning therapy and while patient remains on GvHD prophylaxis

Blood transfused to allogeneic HSC donors before and during the harvest of their HSC

Patients who will have autologous HSC graft:
- Any transfusion within 7 days of the collection of their HSC
- Any transfusion from the start of conditioning therapy until:
  - 3 months post transplant
  - 6 months post transplant if conditioning TBI has been given

Hodgkin's disease at all stages of the disease

Congenital immunodeficiency with defective cell-mediated immunity (e.g. SCID, Di George syndrome, Wiskott Aldrich syndrome, purine nucleoside deficiency, reticular dysgenesis, ADA, Ataxia telangectasia, chronic mucosal candidiasis, MHC class 1 or 2 deficiency)

Taken from Handbook of Transfusion Medicine (2007)

Appendix 3
Hospital category

Hospital category	Red cell unit issues per annum
High usage	> 11.000
Moderate usage	6,000 – 11,000
Low usage	< 6000

Taken from Blood Stocks Management Scheme
(www.bloodstocks.co.uk)