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Study on medical donor deferrals at sessions

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SUMMARY. A 10-month audit of reasons for donor medical deferral at sessions was carried out in two Scottish regions of the SNBTS. Six thousand deferred donors were assessed. Although the deferred donor population mirrored the attending donor population in both regions, significantly more donors, both new and regular, were deferred in the Edinburgh and South East region, compared with the North East. The main differences in deferral were attributable to three clinical conditions (cervical carcinoma *in situ*, other gynaecological conditions and hypertension) and to donors admitting to high-risk behaviour. Although the staff in the deferral process – doctors, nurses and clerks – were involved in roughly equal proportions in both regions, the spectrum of medical conditions seen by each staff grouping appeared to be different in each region. The staff in the South East appeared to have made more correct decisions. Further analysis and audits are being undertaken in areas highlighted by this study.

Key words: audit, blood donor sessions, donor deferrals.

Uniform SNBTS guidelines for donor medical selection exist throughout Scotland and they are uniformly used throughout the five SNBTS regions. Yet there are large regional variations in donor referral rates between the regions, varying from 5–7% in the North (equivalent to approximately 1000 donors deferred yearly) to 11–12% in the South East (equivalent to 9000 donors being deferred yearly). In the West (the largest centre), the deferral rate is 9·5% (equivalent to over 15 000 donors being deferred yearly). It is clear, therefore, that these varying deferral rates have a major impact on the number of donors being deferred from donating, accounting for approximately 30 000 donors being deferred yearly throughout Scotland (Scottish National Blood Transfusion Service National Statistics 1985–93). This deferral variation is a persistent one, with no significant variation noted between 1989 and 1993.

The reasons for this are not clear, but may be due to a number of factors. There may be varying levels of adherence to the guidelines, different managerial levels of dealing with donor medical queries, e.g. donor deferred by a clerk, a doctor or a nurse, regional differences in the attending donor population and/or their health. It was therefore felt important that an audit be instituted to examine the reasons for donor deferral within the SNBTS.

A preliminary, observational study was carried out to identify the main features of donor medical deferral management in each centre, focusing on points where donor deferrals occur. Although this highlighted important differences in donor medical query handling, it was decided not to audit all the donors to service points of contact, since the variables, particularly in management terms, are too wide, and the data too complex, to collect comprehensively, and therefore the study concerned itself solely with reasons for deferrals at sessions.

METHODS

The North East and South East regions had already started collecting data on donor deferral in a systematic fashion as part of their session statistics. It was intended to use the expertise collected thus far from the two centres to conduct the audit, without major additional resources.

Data collected from these two centres were recorded and stored on DBASE IV and the entire population of deferred donors in question was examined. Care was taken to maintain confidentiality

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and anonymity, both for donors deferred and for the staff involved in deferring them.

The objectives of the study were to identify the following.

1 What are the main reasons for donor medical deferrals at sessions, based on current SNBTS guidelines as stated by deferrers?

2 Who made the decision—medical, nursing or clerical staff?

3 What was the quality of the decision-making process for deferring donors?

4 Are there any significant differences between the two regions?

5 If differences are found, to try and identify areas where change in practice may be recommended.

6 To identify areas where further audits may be indicated.

The study was conducted for a 10-month period (December 1991 to September 1992 inclusive). The data collected are shown in Table 1. The reasons for deferral were subdivided to improve the analysis as in Table 2.

The deferral codes were based on the SNBTS *Donor Medical Selection Guidelines*, and all the data in this study were coded by a senior medical officer with experience in donor care. Whether the deferral was correct or not was analysed independently and blindly by a different senior medical officer.

The data collected were analysed statistically by using χ^2 analysis and z tests for proportions, as appropriate.

It is important to stress that this study only observed how stated decisions or reasons for deferral related to the SNBTS guidelines. It did not directly observe the clinical decision-making process, and therefore could not identify differences in clinical practice, thresholds, decision-making, etc.

To ensure commonality of data interpretation between the two regions, raw data from two random weeks during the study period from each region were blindly scored by the medical staff in the other region to assess the concordance of interpretation of clinical data. The results show that the concordance in interpretation of key data and its assessment are close enough (>85% for each parameter) to allow valid comparisons between the two regions to be made. Moreover, it was ensured that during the period of the study the staff involved in the audit have not changed. They had all been adequately trained in donor selection procedures in their respective centres and for the purpose of this study it was therefore assumed that all staff categories had broadly comparable competence.

Table 1. Data collected for the audit study

1. Donor registration number
2. The session location
3. The date of the session
4. The donor's status (i.e. new/repeat donor)
5. The donor's date of birth
6. Stated reason why the donor was deferred
7. Whether the donor was on any medication*
8. The length of deferral
9. By whom the donor was deferred
10. The correctness of the deferral and the deferral period

* These data were not used for further analysis in this study.

Table 2. Reasons for deferral and medication codes

Code	Condition
C00	Not known
C01	Medical
C02	Surgical
C03	Gynaecological
C04	Dental
C05	Travel, Malaria
C06	Travel, Other
C07	Risk of hepatitis:
	history of hepatitis
	acupuncture
	tattoos
	ear piercing
	transfusion
	electrolysis
	needle-prick injuries
C08	Cold/cold sores/flu
C09	Pregnancy related
C10	Cervical smear (CIN)
C11	Hypertension
C12	Donating too soon
C13	Others (administration):
	underweight
	too old, etc.
C14	High-risk donors
C15	Infectious disease contact
C16	Neoplasia

RESULTS

Donor characteristics

Donors who attended and were deferred in each region are shown in Table 3. The results show statistically significant differences in the deferral rates

Table 3. Comparisons of donors attending and deferred in the two regions, Aberdeen and Edinburgh

	Aberdeen	Edinburgh	Significance
Total donor attendances	27 636	69 308	
New donor attendances	4759 (17·2%)	11 493 (16·5%)	
Total donors deferred	2079 (7·5%)	7329 (10·6%)	
Donors deferred for medical reasons	1549 (5·56%)	4712 (6·8%)	<0·01
New donors deferred for medical reasons	322 (6·7%)*	1123 (9·7%)*	<0·01
Regular donors deferred for medical reasons	1215 (5·3%)†	3589 (6·2%)†	<0·01
Male donors deferred for medical reasons	639 (4·8%)‡	1908 (6%)‡	<0·01
Female donors deferred for medical reasons	898 (6·2%)§	2804 (7·4%)§	<0·01

* Percentage of new donors attending; † percentage of regular donors attending; ‡ percentage of male donors attending; § percentage of female donors attending.

between the two regions, not only in the total deferrals but also when analysed for new and regular donors and by sex separately, with Edinburgh region consistently deferring more donors in each category.

The donor characteristics in terms of age and sex distribution are very similar in both regions, both for the donors attending to donate and for those deferred. Relatively more females and new donors are deferred in both regions compared with those attending. The mean ages of donors deferred (both males and females) mirrors very closely the mean ages of donors attending, showing no bias towards older/younger age groups.

The collection of blood within the Regional Transfusion Centres (RTCs) was 33% in Aberdeen and 26% in Edinburgh. The rest was collected from mobile sessions. The donor deferral rate mirrored exactly the collection site, i.e. 33% of deferrals in Aberdeen occurred in RTCs and 26% of deferrals in Edinburgh occurred in RTCs, indicating that the deferral process was uniform in both regions, irrespective of where the blood was being collected.

Table 4. Analysis of the donors deferred in both regions by the deferral condition codes

Code	No. of donors (%)		Statistical significance
	Aberdeen	Edinburgh	
C00	156 (10·1)	413 (8·8)	ns
C01	529 (34·4)	1715 (36·4)	ns
C02	189 (12·3)	558 (11·8)	ns
C03	29 (1·9)	169 (3·6)	$P < 0·01$*
C04	26 (1·7)	123 (2·6)	ns
C05	3 (<1)	2 (<1)	ns
C06	4 (<1)	6 (<11)	ns
C07	103 (6·7)	306 (6·5)	ns
C08	282 (18·3)	615 (13)	ns
C09	24 (1·6)	109 (2·3)	ns
C10	20 (1·3)	112 (2·4)	$P < 0·01$*
C11	26 (1·7)	174 (3·7)	$P < 0·01$†
C12	60 (3·9)	13 (<1)	$P < 0·01$†
C13	41 (2·7)	161 (3·4)	ns
C14	8 (<1)	103 (2·2)	$P < 0·01$†
C15	25 (1·6)	109 (2·3)	ns
C16	12 (<1)	24 (<1)	ns

* For these codes (C03 = gynaecology, C10 = CIN), the significant difference is causally linked to the female sex.
† For these codes (C12 = donating too soon, C11 = hypertension, C14 = high-risk behaviour), the significant difference applies to both sexes.

Reasons for deferral

The number of donors deferred and the reasons for their deferral are given in Table 4. The data were further analysed by donor gender, and by whether donors were new or repeat ones. The latter data are shown in Table 5. The data indicate that for gynaecological reasons and for carcinoma *in situ* of the cervix (CIN), significantly more donors were deferred in the South East region. A similar pattern is also noted for hypertension. Repeat donors coming to donate too soon are deferred more frequently in the North East region.

Donors deferred for high-risk behaviour form a very important aspect of the medical deferral process within the SNBTS. It is clear that a significant difference exists between the two regions, with the South East deferring many more donors who admit to high-risk behaviour (<1% vs. 2·2%, $P = 0·0001$), with males and females being equally deferred for this reason.

Data were also analysed to find out the contributions of new versus known/regular donors to each

Table 5. Comparison of regular and new deferrals in the two regions

	New			Repeat		
Condition	Aberdeen (%)	Edinburgh (%)	*P*	Aberdeen (%)	Edinburgh (%)	*P*
C00	33 (10·2)	82 (7·3)	ns	123 (10·1)	329 (9·1)	ns
C01	140 (43·4)	408 (36·3)	<0·01	389 (32·0)	1306 (36·3)	<0·01
C02	17 (5·2)	95 (8·4)	ns	172 (14·1)	463 (12·9)	ns
C03	3 (0·9)	35 (3·1)	<0·01	26 (2·1)	134 (3·7)	<0·01
C04	1 (0·3)	22 (1·9)	<0·01	25 (2·8)	101 (2·8)	ns
C05	1 (0·3)	1 (0·08)	ns	2 (0·1)	2 (0·02)	ns
C06	1 (0·3)	0	ns	3 (0·2)	6 (0·1)	ns
C07	41 (12·7)	127 (11·3)	ns	62 (5·1)	179 (4·9)	ns
C08	42 (13·0)	107 (9·5)	ns	240 (19·7)	508 (14·1)	<0·01
C09	7 (2·1)	34 (3·0)	ns	17 (1·4)	75 (2·0)	ns
C10	4 (1·2)	38 (3·3)	0·04	16 (1·3)	74 (2·0)	ns
C11	5 (1·5)	23 (2·0)	ns	21 (1·7)	151 (4·2)	<0·01
C12	1 (0·1)	2 (0·1)	ns	59 (4·8)	1 (0·3)	<0·01
C13	14 (4·3)	74 (6·5)	ns	27 (2·2)	87 (2·4)	ns
C14	5 (1·5)	56 (4·9)	<0·01	3 (0·2)	47 (1·3)	<0·01
C15	4 (1·2)	17 (1·5)	ns	21 (1·7)	92 (2·5)	ns
C16	3 (0·9)	2 (0·1)	0·04	9 (0·7)	22 (0·6)	ns
Total	322	1123		1215	3589	

region's deferral process. Only for CIN is the deferral process picking up more new donors in the South East and the link between CIN and first time donors is weak. Deferring donors for hypertension and for coming forward to donate too soon is causally linked to regular donors and deferral for high-risk behaviour and gynaecological conditions occurs in both new and regular donors. Two other conditions were also independently linked with first-time donors (deferral for dental problems and for neoplasia), with significantly more first-time donors being deferred in the South East for dental reasons and more first-time donors being deferred in the North East for the latter.

Quality of the decision-making process

The results are shown in Table 6. Deferrals for reasons which were not in the guidelines were also noted. They formed a very small proportion of all deferrals – 61 out of over 6000 deferrals. Deferrals, where it was not possible to decide whether it was correct or not to defer, were classified as 'Unknown'.

There was no statistically significant difference between the two regions in the correctness of the decision to defer as taken for each staff group, i.e. clerks, doctors and nurses, with the exception of a statistically significant difference between nurses, with

Table 6. Decision-making by staff categories in Aberdeen and Edinburgh

	Clerk		Doctor		Nurse	
Decision	Aberdeen	Edinburgh	Aberdeen	Edinburgh	Aberdeen	Edinburgh
Correct	389	1234	397	1820	415	1460
Incorrect	17	3	38	18	32	16
Not in guidelines	4	1	16	10	25	5
Unknown	52	28	80	48	72	56

Table 7. Comparison of referrals by staff category for each condition code in the two regions

	Clerks			Doctors			Nurses		
Condition	Aberdeen (%)	Edinburgh (%)	*P*	Aberdeen (%)	Edinburgh (%)	*P*	Aberdeen (%)	Edinburgh (%)	*P*
C00	88 (56·4)	150 (36·3)	<0·01	41 (26·2)	135 (32·7)	ns	27 (17·3)	125 (30·2)	0·001
C01	43 (8·1)	346 (20·1)	<0·01	228 (43·1)	783 (45·7)	ns	258 (48·7)	578 (33·7)	0·0001
C02	4 (2·1)	90 (16·1)	<0·01	90 (47·6)	237 (42·5)	ns	95 (50·2)	230 (41·2)	0·0308
C07	70 (67·9)	123 (40·1)	<0·01	21 (20·4)	83 (27·1)	ns	12 (11·6)	110 (35·9)	0·0001

the nurses in the South East having fewer incorrect decisions ($P < 0·01$). There was a statistically significant difference for the deferral period for each staff group between the regions, with the clerks, nurses and doctors having a considerably higher proportion of correct decisions on the period of deferral in the South East ($P < 0·01$ in each case).

The workload was roughly a three-way split between the staff groupings in each region. It was important to determine, however, what contribution each category of staff made to each deferral to obtain a clear deferral pattern of practice between the two regions. The significant differences are shown in Table 7. Although doctors in both regions behave very similarly, significantly more clerks made the decision to defer for medical and surgical donor deferrals in Edinburgh than in Aberdeen, while 'hepatitis risk' patients were more often deferred by clerks in Aberdeen than in Edinburgh.

DISCUSSION

This is a 10-month audit on the deferral of donors in two regions of the SNBTS. Over 6000 deferrals were made out of approximately 100 000 attendances. Some limitations have to be kept in mind when interpreting the data in this study. Although commonality of data interpretation was established by the preliminary cross-over study, differences in interpretation may still exist. For approximately 10% of cases in each region, no decision could be taken on the appropriateness or otherwise of the deferral due to lack of adequate documentation and the data are based on stated deferrals reasons, not direct observational studies.

Notwithstanding, some important conclusions can be drawn.

Donor demographics. The donor populations in both regions are very similar in terms of age and sex distributions, as is the population of deferred donors in each region. In neither region is there a bias for deferring older donors. One could have expected a higher proportion of deferred donors to be in the older age group, where the incidence of medical/surgical conditions would be higher. This is not the case. In each region more first-time donors are deferred. This confirms previous impressions and is supported by some evidence on the prevalence of blood donors found positive for microbiological markers. Pre-donation health check screening is done for all blood donors and it is to be expected therefore that known donors who have been previously screened will have a lower deferral rate. Also, in each region more females are deferred than males. Again, this is a well-established phenomenon, due mostly to pregnancy-related deferrals (Scottish National Blood Transfusion Service, 1993/94). The South East deferred 3% more (9·7% vs. 6·7%) new donors than the North East, which is much higher than the difference in deferral rates (1%) for regular donors, although the latter was also significant.

Edinburgh has a different medical screening procedure for first-time donors, requiring either a personal interview (at the RTC) or a self-completion questionnaire (at mobile sessions), in contrast to the routine medical health checks for regular donors which is standard practice for *all* donors in the North East. The deferral rate is, however, significantly higher in Edinburgh for *both* new and regular donors than in Aberdeen. This might indicate that either the mechanisms in place in the South East are better at deferring donors in general or that the prevalence of medical conditions necessitating deferral amongst their blood donor population is higher. From the data in this study, there is no reason to believe the latter. Therefore, we need to look critically at the differences between the two regions in donor deferrals at sessions, both in terms of the process, the deferrers and the nature of their clinical decision-making. It may also be that donors in the South East are being

inappropriately deferred when they should have been accepted. These are avenues that need further investigation.

The deferral rate in each region was uniform, irrespective of whether the session was held at the RTC or at a mobile session, indicating that the mechanism for deferring donors was uniformly applied regardless of location.

Reasons for deferral. Four medical categories stand out as significant in terms of differences between the centres. In the South East significantly more donors were deferred for gynaecological reasons including CIN, hypertension and high-risk donors. When these categories are broken down into first-time or regular donors, high-risk behaviour and gynaecological deferrals were proportionately spread between the two categories of donors, while history of hypertension was linked to regular donors. Only CIN was significantly related to first-time donors. No clear patterns are therefore seen and direct observational studies are warranted to examine these more closely.

High-risk behaviour is a very important aspect of SNBTS medical screening policies for blood donors. Seroprevalence for HIV markers is higher among first-time donors (Rawlinson & Gunson, 1991), and likewise the number of donors admitting to high-risk activities is higher in first-time donors (1·5% in Aberdeen and 4·9% in Edinburgh). The role of direct oral questioning has been an area of independent study and the findings will be published separately. In both categories of donors, i.e. new/regular, more were deferred in the South East. The reasons for this are numerous and may include the following.

Although no data support more high-risk activity amongst the Edinburgh blood donor population, differences in the prevalence of markers (e.g. anti-HIV) in non-blood donor populations (e.g. antenatal women) in the two regions may suggest this (Goldberg *et al.*, 1992).

There is some evidence to suggest that the population in the South East is more open about high-risk behaviour, admitting to it more readily than those in the North East (Robertson & McQueen, 1993).

A different clinical approach to donor screening in the South East is compatible with the other data in this study, since the South East had more donors deferred in other categories, e.g. gynaecology and hypertension. This, too, needs to be examined more closely.

Quality of the decision-making process. This is the most difficult area to interpret since, as previously stated, this study only assessed how stated decisions or reasons for deferral related to the SNBTS guidelines. No attempt was made to observe the decision-making process. However, the following conclusions can be drawn.

The South East seems to have overall more correct decisions than the North East, particularly when it comes to deferral periods. It is important to note that these data are very much dependent on the rigour with which we examine the deferral data and are an accepted limitation of the 'data-capture' systems used in the study, which used techniques and methodology already in place in the two regions. A single adjudicator examining the data blindly from the two regions would be a possible solution for further studies.

Doctors behaved very similarly in the two regions in the kind of donor they deferred. Clerks deferred more donors for medical and surgical reasons in Edinburgh than in Aberdeen, and the reverse held true for nurses. Conversely, more clerks deferred 'hepatitis risk' donors in Aberdeen than in Edinburgh, with the reverse situation holding for nurses. The reasons for this need to be examined more closely since this may reflect the different managerial systems in place, whereby the less obvious decisions are referred by, for example, a clerk to a doctor or nurse, in which case different categories of staff are deciding on a different donor population than shown in this study. Although the Edinburgh deferrals were higher overall, it may be that inappropriate deferrals are taking place there, resulting in negative feelings amongst donors for no good reason. It is noteworthy to mention that this study only looked at donor deferrals and no attempt was made to look at donor acceptances, inappropriate or otherwise. These aspects of donor care were outside the scope of the current study and need an independent audit study.

Two other important findings emerged from this study. Only a very small proportion of conditions could not be found in the current SNBTS *Medical Selection Guidelines*, indicating that either they are in general satisfactory or that staff are very adept at interpreting them. The overall SNBTS deferral statistics collected nationally include all deferrals, i.e. donors deferred for all 'medical' reasons and those who fail to pass the haemoglobin screening tests. When the deferrals are split into these two broad categories, it was noted that there was a major discrepancy in the haemoglobin deferrals between the two regions, with the North East deferring far fewer donors (2·5% vs. 5·0%) for this reason. This instigated an audit of haemoglobin screening methods in Aberdeen and a major review was undertaken.

Based on the findings of this audit, more detailed health screening has been undertaken on a

Scottish-wide basis. Based on the fact that more first-time donors were deferred in the South East, and since that region uses a more rigorous screening of donors by using a self-completion questionnaire (at mobile sessions) or a personal interview (at RTC) for these donors, self-completion questionnaires (in contrast to simply reading health check questions) were introduced throughout Scotland in different formats for new and regular donors. Moreover, separate studies have taken place to assess the impact of personal interviews on donors, with a view to implementing them as soon as practical for first-time and lapsed donors in the first instance.

More specific studies need to take place to look more closely at some of the findings of this audit. We need to examine closely if the higher deferral rates in the South East are 'better' than the lower rates in the North East. We need to focus on the decision-making processes of the staff involved in donor deferrals and we also need to find out if inappropriate acceptances are taking place that may account for some of the differences noted.

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