

Inventory Practice Survey November 2003

-- Platelets --

Headline Summary

- 224/255 hospitals (87%) completed the platelet inventory practice survey.
- 164 hospitals (73%) had a platelet ordering Standard Operating Procedure (SOP). Of the 60 hospitals without such an SOP, 22 intend to introduce one within 6 months.
- Consistently the two most common protocols for prescribing platelets were for patients with haematological disorders and major haemorrhage.
- Platelets were most commonly ordered by blood transfusion staff or the blood transfusion laboratory manager
- 178 hospitals (79%) indicated that their platelet storage facilities met the current red book guidelines, 29 hospitals (13%) did not meet the guidelines of which 21 were in the 'very low platelet usage' category.
- 23 hospitals (10%) routinely hold a stock of platelets and another 7 (3%) sometimes hold platelet stocks.
- 105 hospitals (47%) ordered platelets on a 'per patient' basis, 49 (22%) regularly use block ordering whilst the remaining 66 (30%) used a mixture of block ordering and *ad-hoc* deliveries (4 hospitals did not respond).
- The most common reasons for *ad-hoc* platelet deliveries were 'emergency requests' and 'sporadic ordering from the clinician'.
- 61 hospitals (27%) provided training on the indications for the use of platelets, 153 hospitals (68%) did not provide any training, (10 hospitals did not respond).
- The most common subject for training was platelet trigger levels, with the haematologist providing the training in the majority of hospitals.

1 Background

The data collection profile for the scheme was extended to include platelets in April 2003. As little information is available on hospital platelet ordering and stock management practice it was decided to distribute an Inventory Practice Survey (IPS) to gather information on platelet ordering, platelet storage and stock, and training in the ordering and use of platelets.

2 Platelet Usage Categories

An algorithm was developed to assign hospitals to a platelet usage category. It is based on the absolute number of platelet units issued and the number of events (days on which platelets are issued). In order for a hospital to be placed in a particular category it must receive a specified number of platelet units spread over a specified number of days.

Details of the categories and the number of hospitals participating in the IPS are given in Table 1.

Platelet usage category	Number of Hospitals in cluster	Number of Hospitals returning questionnaire	Percentage returning questionnaire
Very High	40	35	88%
High	47	44	94%
Moderate	66	60	91%
Low	47	38	81%
Very Low	56	47	84%

Table 1. Platelet Usage categories

3 Platelet Ordering

3.1 Platelet prescribing

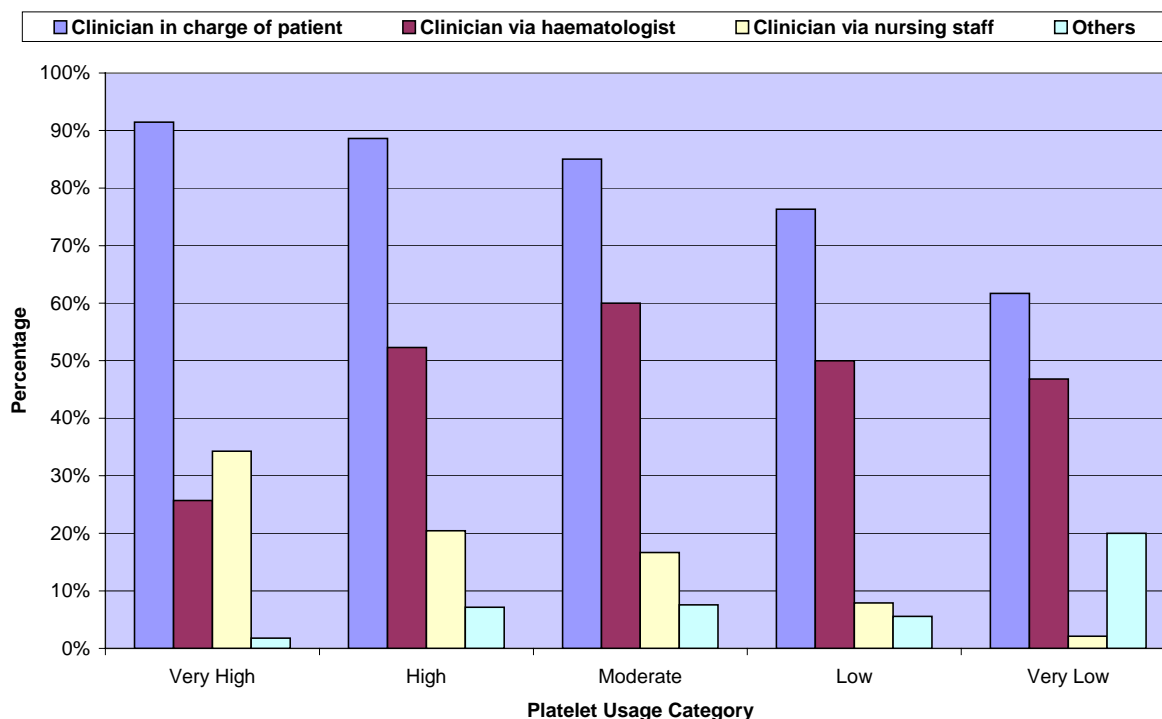


Fig 1. Responsibility for prescribing platelets

“Others” included haematology nurse specialist, clinician via specialist practitioner and oncology practitioner to no-one is routinely responsible.

Three main groups were identified as routinely responsible for prescribing platelets, ‘the clinician in charge of the patient’ was the most common for all clusters, ranging from 91% for the ‘very high’ users to 62% for the ‘very low’ users (Fig 1).

Protocol Available	Platelet Usage Category				
	Very High	High	Moderate	Low	Very Low
Haematological disorders	86%	77%	60%	61%	38%
Major Haemorrhage	66%	61%	50%	58%	34%
Neonates	43%	32%	15%	26%	4%
Obstetrics	34%	25%	21%	32%	6%
Solid tumours / Oncology	66%	34%	28%	32%	26%
Surgery	49%	27%	25%	34%	30%
All Protocols	20%	16%	8%	21%	0%

Table 2. Standard protocols available at hospitals by platelet usage category

The two most common protocols for prescribing platelets, across all platelet usage categories, were for 'patients with haematological disorders' and 'major haemorrhage'. The 'solid tumours / oncology' patient protocol was high amongst the 'very high' platelet users. In total 27 hospitals (12%) had all standard protocols available.

3.2 Platelet Ordering SOP

164 hospitals (73%) returning data have an SOP that is used for platelet ordering, the review period is shown in Fig 2.

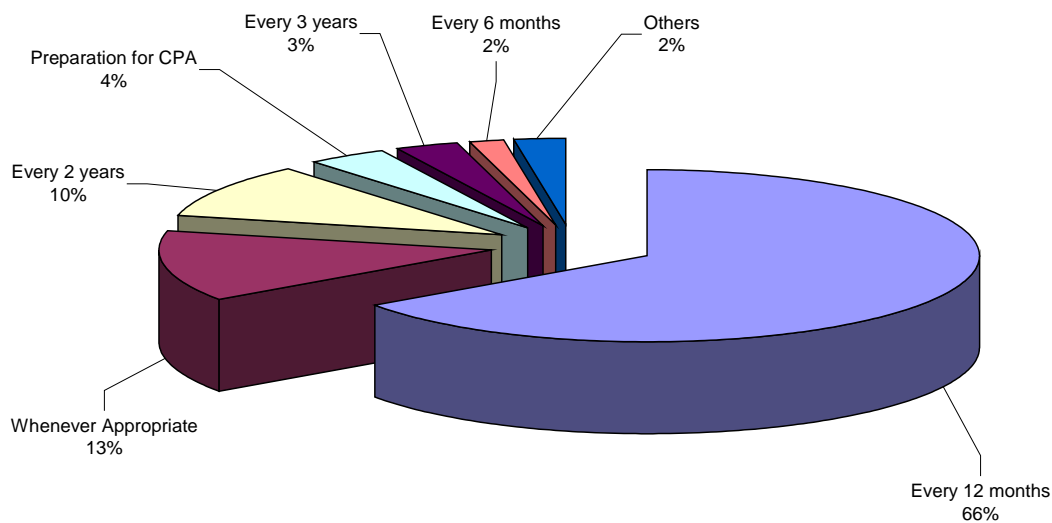


Fig 2. Review periods for the platelet ordering SOP.

107 hospitals (65%) review their platelet ordering SOP every 12 months. The next most common review period was 'whenever appropriate' with 22 hospitals (13%).

60 hospitals (27%) did not have a SOP that covered platelet ordering. Of these 22 (37%) had plans to introduce such a SOP within the next six months. However, 32 hospitals (53%) have no plans to introduce a platelet ordering SOP (Table 3).

<i>Platelet Usage Category</i>	<i>Number of hospitals</i>	<i>As percentage of cluster</i>
Very High	2	6%
High	9	21%
Moderate	9	15%
Low	6	16%
Very Low	6	1%

Table 3. Platelet usage category of hospitals with no plans to introduce a platelet ordering SOP

Of the 32 hospitals with no platelet ordering SOP or any plans to introduce one, nine hospitals were from the 'high' platelet usage category (over 20% of cluster and two from 'very high' platelet usage category (over 6% of cluster).

3.3 Platelet requesting from the NBS

3.3.1 The person responsible for ordering platelets from the NBS

'Other transfusion staff' was the most popular group for ordering platelets from the NBS for all platelet usage categories, accounting for 72% - 90% of responses. In general the proportion of orders placed by the transfusion laboratory manager increases as the platelet usage decreases.

3.3.2 Platelet ordering rationales

- 105 hospitals (47%) order platelets on a per-patient per-request basis
- 49 hospitals (22%) aimed to collate platelet requests to facilitate block ordering, 32 hospitals only did so if the requests were not for an emergency.
- 66 hospitals (30%) use a mixture of block and *ad-hoc* ordering
- The remaining 4 hospitals did not answer the question.

3.3.3 Platelets only ordered on a 'per patient' basis

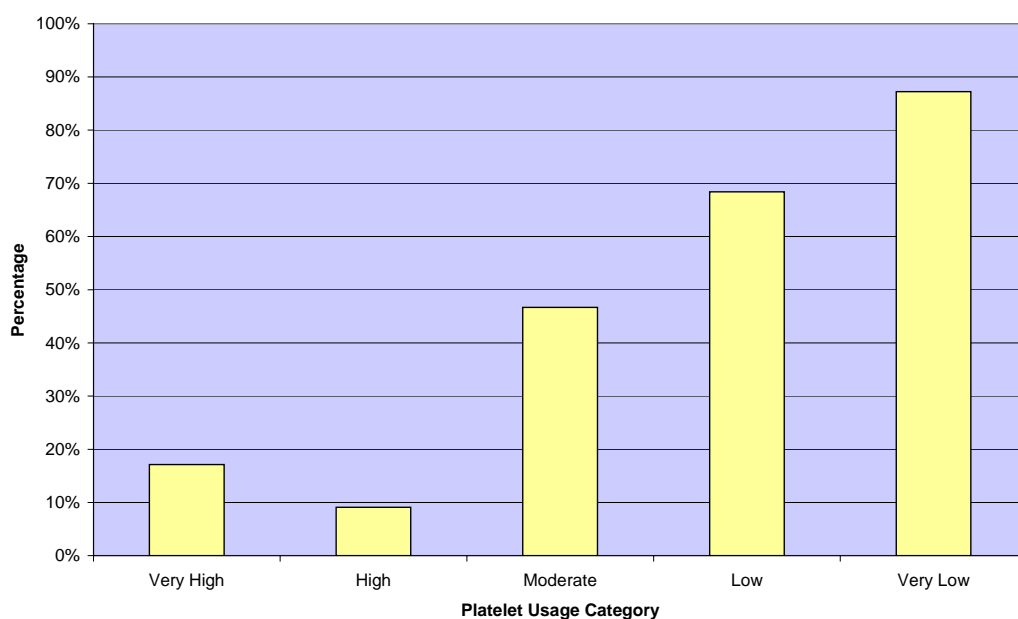


Fig 3. Usage category of hospitals using "per patient" platelet ordering

As platelet usage decreases there is generally a higher likelihood of the hospital using platelet ordering on a 'per patient' basis (Fig 3).

105 hospitals stated they only ordered platelets for specific patients when requested. However, of these, 28 hospitals gave one of the reasons for using *ad-hoc* platelet deliveries as 'the request had been received after the last planned block order had been placed'. Although in contradiction, this may have arisen because the hospitals concerned thought that the question referred to red cell block ordering.

- 104 of 105 hospitals indicated their level of reliance on *ad-hoc* platelet deliveries.
- 17% of 'very high' platelet users did not use *ad-hoc* deliveries at all
- 51% of 'very low' and 27% of the 'low' platelet users placed a 100% reliance on *ad-hoc* deliveries.
- 50% of 'high' and 46% of 'moderate' platelet users had 76% - 99% reliance on *ad-hoc* deliveries.
- As the platelet usage category decreases there is an increased reliance on *ad-hoc* deliveries to fulfil platelet requests.

3.3.4 Collation of platelet requests

119 hospitals (53%) indicated they used block platelet ordering (request collation) to some extent. Hospitals relying solely on block ordering belong to the "very high", "high" or "moderate" platelet usage categories. Generally the most popular rationale used was that of both collation of platelet requests and *ad-hoc* ordering.

112 hospitals (50%) returned data on their block ordering regimes. The percentage of hospitals making multiple block orders increases as the platelet usage category increases. 8 hospitals (23%) from the very high usage cluster make three or more block orders a day.

Of the 112 hospitals placing block orders 72 (64%) expect to receive their main block order the same day whilst 40 (36%) expect to receive it the following day. There seems to be regional disparity in the ordering and receipt of block orders, this may be due to local ordering policies.

3.3.5 Collation of requests and *ad-hoc* deliveries

64 of 66 hospitals using a mixture of *ad-hoc* deliveries and block ordering gave an indication of their reliance on *ad-hoc* deliveries. Those hospitals in the lowest platelet usage category placed greatest emphasis on *ad-hoc* deliveries.

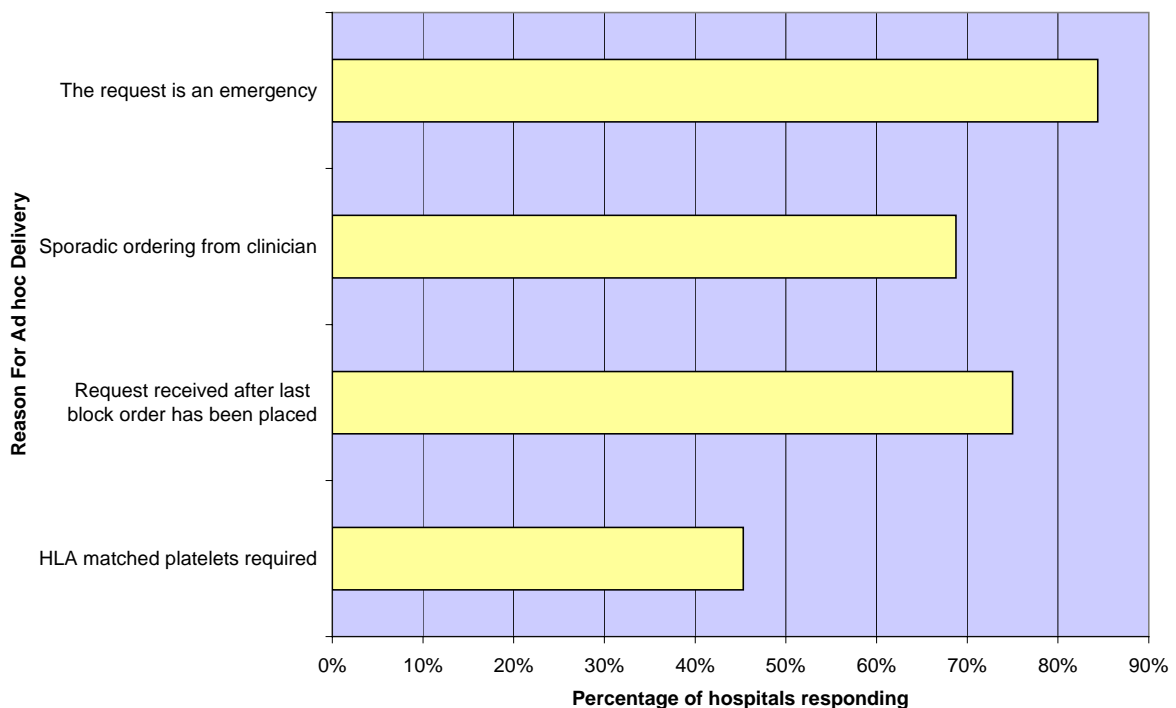


Fig 4. Reasons for using a mixture of block ordering and *ad-hoc* deliveries.

85% of hospitals cited 'Emergency requests', 76% of hospitals 'request being received after the last block order had been placed' and 69% of hospitals 'sporadic ordering from the clinician' as the main reasons for a mixture of block ordering and *ad-hoc* deliveries (Fig 5). There were no marked differences in the distribution of reasons between the various platelet usage categories.

4 HLA Matched Platelets

150 hospitals (67%) use HLA matched platelets. 68 hospitals (30%) did not use HLA matched platelets and no entry was made by a further six hospitals. Of the 68 hospitals that did not use HLA platelets 36 (53%) were of the 'very low', platelet usage category and 17 hospitals (25%) were of the 'low' platelet usage category.

<i>Reason based on</i>	<i>% of Hospitals</i>
SUSPECTED HLA antibodies	9%
SUSPECTED HLA antibodies not yet confirmed	29%
CONFIRMED HLA antibodies	58%
Refractory to normal platelets	3%
Clinical decision	1%

Table 4. Reasons why HLA matched platelets were used

For all platelet usage categories the most common reason for using HLA matched platelets was the confirmed presence of HLA antibodies (Table 4). 11% of hospitals belonging to the 'very low' platelet usage category gave the reason to use HLA matched platelets as a clinical decision.

5 Platelet Storage

178 hospitals (79%) had platelet storage facilities that meet the current red book guidelines. 29 hospitals (13%) had facilities that did not meet the required standards, of these 21 (72%) were from the 'very low' platelet usage category, and two hospitals (7%) were from the 'low' platelet usage category. However, four hospitals were from the 'moderate' and 2 were from the 'high' platelet usage categories (Table 5). The reasons for non-compliance are shown in Table 6.

<i>Hospital Platelet Storage Facilities</i>	<i>Platelet Usage Category</i>				
	<i>Very High</i>	<i>High</i>	<i>Moderate</i>	<i>Low</i>	<i>Very Low</i>
Do meet current guidelines	94%	93%	90%	89%	34%
Do Not meet current guidelines		5%	7%	5%	45%
Unaware of guidelines					4%
Do not store platelets					11%
No answer	6%	3%	3%	6%	6%

Table 5. Suitability of platelet storage facilities by platelet usage group

Reasons why platelet storage facilities do not comply	Platelet Usage Category				
	Very High	High	Moderate	Low	Very Low
Insufficient financial resources		4%	3%	3%	3%
Insufficient space in laboratory		2%			4%
Rarely order platelets requiring storage			1%	3%	36%
Other		2%			3%

Table 6. Reasons for non-compliance of platelet storage facilities

The most common reason for non-compliance with the guidelines for platelet storage facilities was that platelets were rarely stored in the laboratory (Table 6). Although, it should be noted that there were two hospitals belonging to the ‘high’ and a further two belonging to the ‘moderate platelet usage’ category that did not have platelet storage facilities that met the red book guidelines because of insufficient funds being available.

6 Platelet Stocks

184 hospitals (82%) do not routinely hold a stock of platelets. 23 hospitals (10%) do hold stocks on a routine basis, and 7 (3%) hospitals sometimes holding a routine stock of platelets depending on either the patient mix or to cover for weekends. The remaining nine hospitals did not answer. Stock holding by platelet usage category is shown in Fig 8.

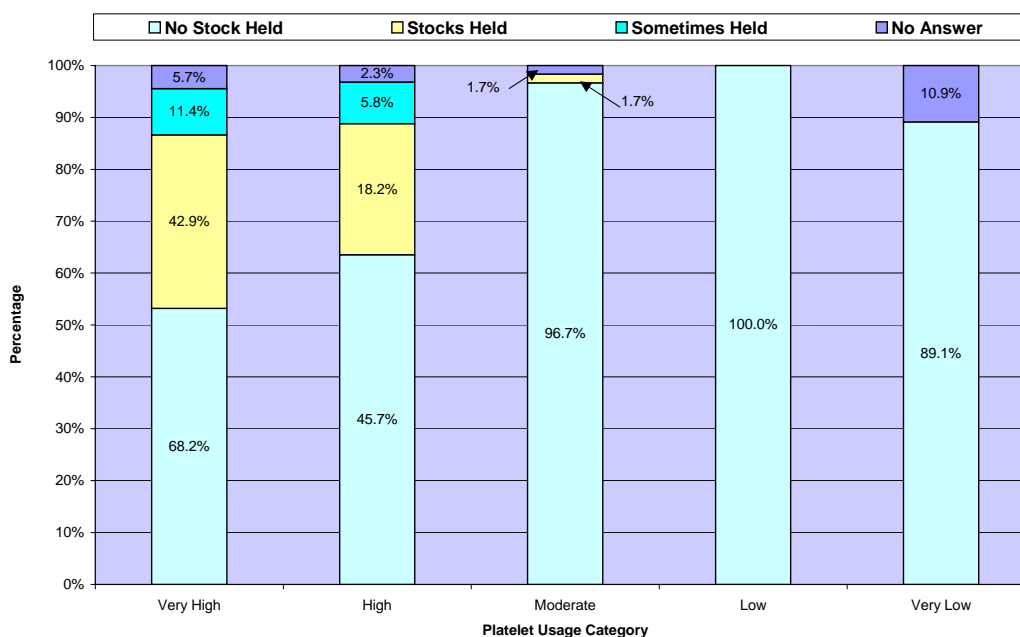


Fig 5. Platelet stock holding by platelet usage category

The majority of hospitals holding stocks of platelets belong to either the ‘very high’ or ‘high’ platelet usage categories. The one ‘moderate platelet usage’ hospital that routinely holds a stock does so because it provides cover for cardiac surgery. 6 of the 23 hospitals routinely holding platelet stock do so for use by other hospitals as well as themselves. 7/224 (3%) hospitals (2 ‘very high’ & 5 ‘high’) responded that *ad-hoc* platelets took too long to reach them as one of the reasons for storing platelets but in no instance was this the only reason given.

<i>Reason</i>	<i>Platelet Usage – Very High</i>	<i>Platelet Usage – High</i>
Vascular Surgery Cover		5%
Cardiac Surgery Cover	34%	5%
Major Trauma Centre	16%	20%
Major Haematology/Oncology Centre	32%	25%
<i>Ad-hoc</i> deliveries take too long	5%	25%
To cover a contingency	13%	15%

Table 7. Reasons given by the high and very-high platelet usage category hospitals for routinely holding a stock of platelets.

N.B. Hospitals could give more than one reason.

The most popular reasons for holding routine stocks of platelets were that the hospital was a 'designated major haematology / oncology centre' or to 'cover cardiac surgery' (Table 7).

The number of platelet units held in stock varied from a maximum of 12 to a minimum of 1 (average 2.65). The percentage of O Neg and A Neg units held in stock in the 23 hospitals holding a stock of platelets is disproportional to the % of the blood group in the general population (Fig 7). There is an equal mix of random and irradiated/CMV negative platelets (Fig 8).

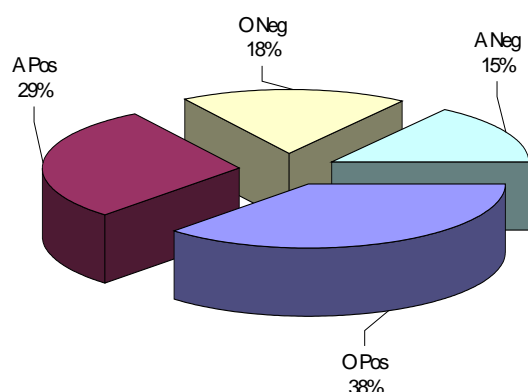


Fig 6. Platelet units held as stock by blood group

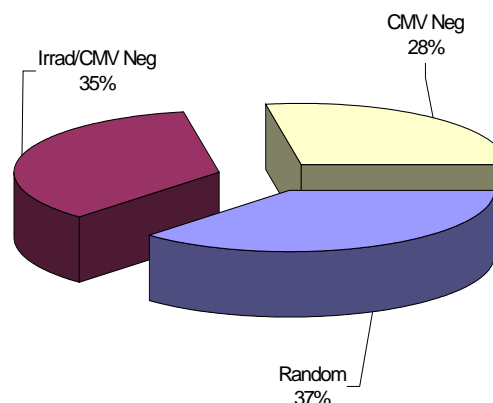


Fig 7. Platelet type of platelet units held as stock.

7 Training in the ordering and use of platelets

61 hospitals (27%) provided training on the indications for the use of platelets to junior medical staff at their induction. 153 hospitals (68%) provided no training, with a further 10 hospitals (4%) either not answering the question or unsure if training was provided (Table 8).

The haematologist provided the platelet training in over 80% of hospitals, the transfusion practitioner in 40% of hospitals and transfusion laboratory personnel in 22% of hospitals.

<i>Platelet Usage Category</i>	<i>No Training</i>	<i>Training Given</i>	<i>Other Responses</i>
Very High	51%	40%	9%
High	64%	36%	
Moderate	67%	28%	5%
Low	74%	24%	3%
Very Low	83%	11%	6%
For all Categories	68%	27%	5%

Table 8. Number of hospitals offering training on indications for use of platelets

The greatest proportion of hospitals providing training on the use of platelets were the ‘very high usage’ hospitals (40%) and the ‘high usage’ hospitals (36%). Of those hospitals that did offer training the topics offered and the percentage of hospitals offering training within each platelet usage cluster is shown in Table 9.

<i>Training subject area offered</i>	<i>Platelet Usage Category</i>				
	<i>Very High</i>	<i>High</i>	<i>Moderate</i>	<i>Low</i>	<i>Very Low</i>
Platelet trigger levels	86%	70%	94%	78%	100%
Platelet ordering cut-off times	29%	44%	35%	56%	20%
Platelet request protocols	57%	63%	77%	56%	80%
Review of national guidelines	29%	6%	12%	11%	20%

Table 9. Training topics by platelet usage cluster.

For all clusters the most popular topic was platelet trigger levels (Table 9), with over 70% of hospitals offering training. The least popular subject was a review of the national guidelines.