

A new method for calculating platelet usage categories in the

Blood Stocks Management Scheme

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Introduction

The **Blood Stocks Management Scheme (BSMS)** collect data about stock and waste levels of red blood cells and platelets in hospitals in the UK and Ireland.

Hospitals enter their data into a data management system, VANESA. VANESA then provides hospitals with charts and graphs that allow them to **benchmark** their stock management performance against other similar hospitals

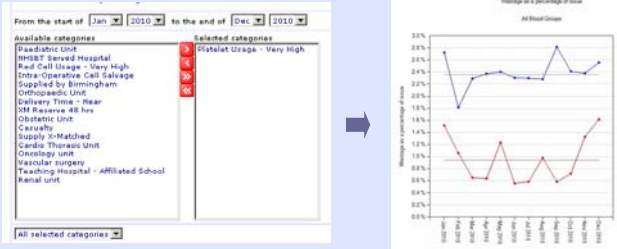


Figure 1 – Real time charts in VANESA. Hospitals can choose from a list of available categories (left) to produce graphs showing their performance compared with the “cluster” they have chosen (right). This enables hospitals to benchmark themselves against other similar hospitals.

Platelet usage categories

To ensure that hospitals are comparing themselves against similar hospitals the BSMS divides hospitals into categories. One of these is the platelet usage category.

The platelet usage category is currently calculated using the **number of platelet units issued** from the blood service and the **number of deliveries** a hospital receives (Table 1).

The aim is to **simplify** the method of calculating the platelet usage category assigned to individual hospitals for benchmarking purposes.



Usage category	Issues per annum	Days of deliveries per annum
Very Low	≤100	≤52
Low	>100 and ≤400	>52 and ≤156
Moderate	>400 and ≤650	>156 and ≤260
High	>650 and ≤1000	>260 and ≤312
Very High	>1000	>312

Table 1 – The current method of calculating platelet usage categories. The overall usage category is calculated by taking the lowest of the two categories

Methods

Comparison of existing data sets

- The current system uses a combination of the number of platelets issued and the number of deliveries. This method was evaluated and compared with using only the number of platelets issued.
- The analysis was carried out using data from the 2010/11 financial year.

Statistical analysis

- Statistical cluster analysis was investigated to determine whether it is an effective method for calculating the most appropriate groupings of hospitals.
- Cluster analysis divides hospitals into groups that have the least amount of variability in issue number.

Results

Should number of deliveries be included in the calculation of platelet usage category?

- The use of delivery information makes the categories difficult to explain and understand.
- The number of deliveries to hospitals varies widely, leading to hospitals with very high numbers of issues being compared with hospitals with much lower issue numbers.
- There is no evidence to suggest that the addition of delivery numbers makes the clusters any more appropriate for benchmarking than grouping hospitals based on the number of issues alone.



Is statistical analysis an effective method for calculating the new usage categories?

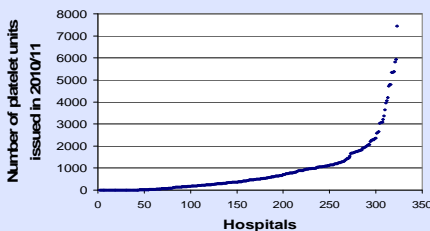


Figure 2 – Scatter plot showing the variation in the number of platelet issues across UK hospitals. Each point represents one hospital.

- A large proportion of hospitals have under 1000 issues per annum and a much smaller number of hospitals have many times that number of issues (**Figure 2**).
- Use of statistical cluster analysis placed a large number of hospitals (>100) into the lower usage categories and very small number of hospitals (<10) in the higher categories.
- Manual calculation of thresholds based on knowledge of the hospitals is a more appropriate method.

Table 2 – The revised usage categories. The new categories are calculated using only the number of issues and all clusters contain sufficient hospitals for effective benchmarking.

Usage category	Issues per annum	Number of hospitals
Very High	>1000	88
High	>650 and ≤1000	40
Moderate	>400 and ≤650	40
Low	>100 and ≤400	75
Very Low	≤100	57

Discussion

There is no evidence to suggest that the addition of delivery numbers makes the platelet usage categories any more appropriate for benchmarking than grouping hospitals based on the number of platelet issues alone.

The use of platelet issue data in calculating platelet usage categories is simple to implement, easy to understand and useful for comparison purposes.

The delivery data has been omitted from platelet usage category calculations from April 2011.

For more about the
Blood Stocks
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www.bloodstocks.co.uk

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