

# Reduction of time expiry wastage in the blood supply chain by sharing stock

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## Background

In the 1980s Kendall & Lee suggested that redistribution of blood between hospitals could lead to a reduction in time expired wastage. There have been no further publications on this topic.

2009/10 data from the Blood Stocks Management Scheme indicates that time expiry of red cells accounts for 69% of red cell losses in hospitals.

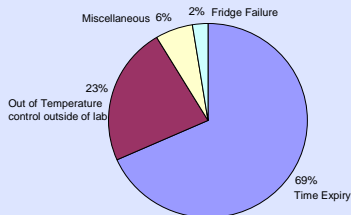


Figure 1 Reasons for red cell wastage

This study looks at the impact of hospital size and variability of demand on red cell time expiry wastage in hospitals and identifies the benefits and barriers to effective stock sharing relationships.

## Methodology

An online survey was developed from interviews conducted with hospital Transfusion Laboratory Managers.

Areas covered by the survey:

- Key benefits of stock sharing
- Drivers for stock sharing
- Barriers to stock sharing

The survey was sent to 314 hospitals in the UK and Ireland during February 2011. 208 hospitals responded, which corresponds to a 66% response rate.

Table 1 Survey returns by hospital involvement in stock sharing

Sharing stock	Yes	No
No of hospitals	75	133

## Results

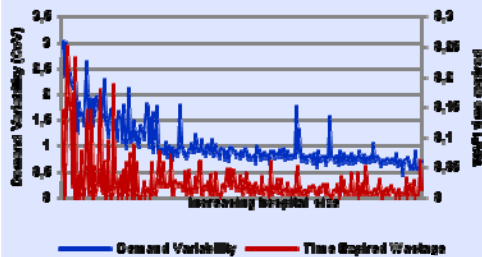


Figure 2 Graph showing impact of hospital size and variability of demand on red cell time expiry wastage

Time expiry wastage as a percentage of red cell issues received from the blood service (WAPI) was calculated.

The analysis indicated a significant relationship between hospitals size, demand variability and time expired wastage.

Larger hospitals exhibit lower levels of demand variability and generally have lower levels of time expiry wastage.

Smaller hospitals exhibit high levels of demand variability and have higher levels of time expiry wastage.

By redistributing their red cell stock to larger hospitals the smaller hospitals can reduce their time expiry wastage.

## Barriers

The survey identified a number of barriers to stock sharing.

### Cold Chain Validation

Validating the cold chain was seen as the key barrier in setting up effective stock sharing relationships.

### Set up costs

Finding a hospital willing to share stock and negotiating service level agreements was identified as being time consuming and requiring considerable resource.

### Financial arrangements

The stock sharing partnership needs to be financially beneficial for both parties.

### IT system / Documentation

Documentation of the audit trail must be maintained throughout the stock sharing process.

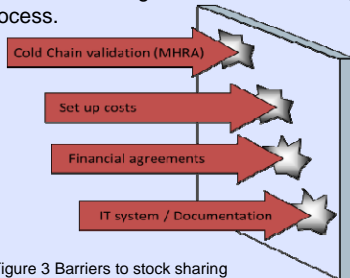


Figure 3 Barriers to stock sharing

## Benefits

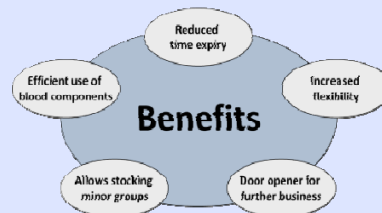


Figure 4 – Benefits of sharing stock

### Reduced time expiry wastage

Analysis showed a significant relationship between hospital size and time expiry levels of red cells. Red cells close to expiry are more likely to be transfused if they are moved to another larger hospital.

### Trust between hospitals

Stock sharing requires and creates trust between hospitals. Stock sharing can be seen as a precursor for further collaboration.

### Stock management flexibility

Red cells of minor blood groups could be stocked by smaller hospitals without increasing time expiry losses.

## Key findings and recommendations

- Sharing stock with a larger hospital can help reduce time expiry wastage provided that the barriers identified in the survey can be overcome.
- The validation of the cold chain throughout the process of stock sharing was identified as a major concern for hospitals.
- Stock sharing relationships should be formalised through service level agreements with responsibilities being clearly defined.

Figure 5 – Factors critical to stock sharing success

