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Abstract:

*Supply Chain Management
of Platelets and Red Cells In
Blood Banks and in Hospitals.*

The EBA Benchmarking data show that we have great differences in the performance of the Blood Banks in the losses in the supply chain for Red Cells and for platelets.

Figure 1 & 2

We organized a special workshop in September 2012 in Hamburg, to discuss and understand the differences and to identify best practice in the management of the supply chain of platelets.

The management of the supply chain of platelet is not easy and we came up with the following arguments:

- Short (available) shelf life*
- Variation (unpredictable) in demand*
- No integrated data flow from hospital (patient) to Blood Bank*
- Mismatch in demand (7 days) and collection and processing days (4 - 5 days a week)*
- Supply in all situations*
- Different stocks for different products (irradiated etc)*

The EBA workshop resulted in the following recommendations that will support the Blood Bank to improve their performance:

Extend shelf life (working on release time)

Figure 3

Organise a central steering point for Supply Chain management (platelets, Red cells)
Better communication with hospitals to get an idea on the next day demand for platelets (improve the predictability of demand)
Implement a Decision Support System (DSS) like TIMO, to improve the control of the supply chain of platelets. TIMO is able to cope with the variation in demand and suggests "order -up-to" stock levels, that result in good availability and

low outdated risks

Decompose your supply chain management system to be able to apply your DSS system on every level. TIMO shows that planning on the highest level give better results.

The data of the EBA Benchmarking project also show great differences in loss in the Supply Chain Red Cells (RBC) .

The EBA did not organize a workshop focused on the supply chain management of Red Cells. But we think that there are a lot of similarities between supply chain management of platelets and RBC's

Figure 4

Arlinke Bokhorst presented the results of the EBA workshop on Donor Deferrals. We will focus on the reduction of the outdated losses of RBC's. Why is it so difficult for Red Cells. The shelf life in most countries is 35 days and sometimes 42 days.

Analyzing the RBC stock levels in different countries we concluded that the variations in collections are greater than the variation in demand. It seems to be difficult to understand donor behavior and probably it is difficult to make good decisions in the invitation of donors. In Sanquin we did not fully understand how the donor reacts on an invitation for a fixed donor center. Students Operations Research found the following pattern in donor attendance.

Figure 5

If your stocks are above or below your target level you have to take into account what the effects are of your invitation decisions of 1 and 2 weeks ago, when making the decision to invite donors for the next week.

Of course if you only organize mobile sessions,

than the behavior of your donor is easier to understand. And if you have a successful appointment system for your donors than it is even easier to control the number of your collections.

We have the following suggestions to improve your supply chain management of Red Cells:
Organize a central steering point for supply chain management in your Blood Bank
Try to understand the future demand of RBC's via good communication with hospitals and/or collect and analyze the stock levels in hospitals. Portugal and Ireland have successful implemented a simple internet-based tool. A next step could be the implementation of Vendor Managed Inventory (VMI) of the stocks in hospitals
Implement a Decision Support System to control your supply chain. Students of the University of Amsterdam developed a prototype of such a DSS. They called it RIMO. They convinced the management of the Sanquin Blood Bank that the target stock levels could be reduced, resulting in lower risks of outdated and fresher transfusion of the RBC's.

Our conclusion is that we face a lot of challenges in the performance of the supply chain management of platelets and RBC's.

It is for most countries realistic to reduce the outdated risks of platelets to less than 5%. The BB in Nijmegen showed that using TIMO a level of 2% outdated is achievable.
The outdated risks for RBC's can be reduced to less than 0,5%
The most important condition for realizing these target levels are: focus of the senior management, organizational change to make 1 officer

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accountable for supply chain management, good communication and collaboration with hospitals and an open view to implement tools of Lean management or decisions support systems.

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Supply Chain losses platelet pools

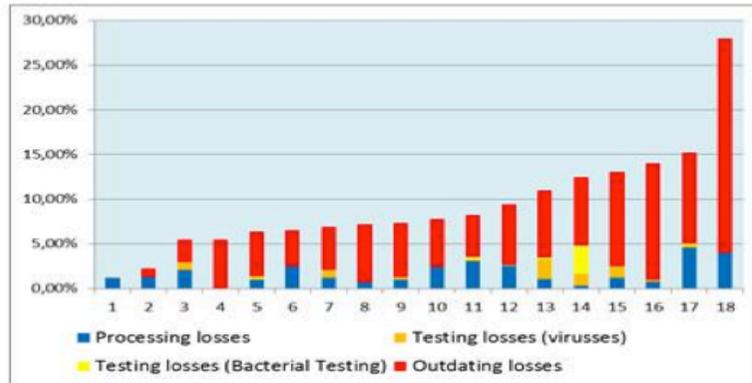


Figure 1



Supply Chain losses Apheresis platelets

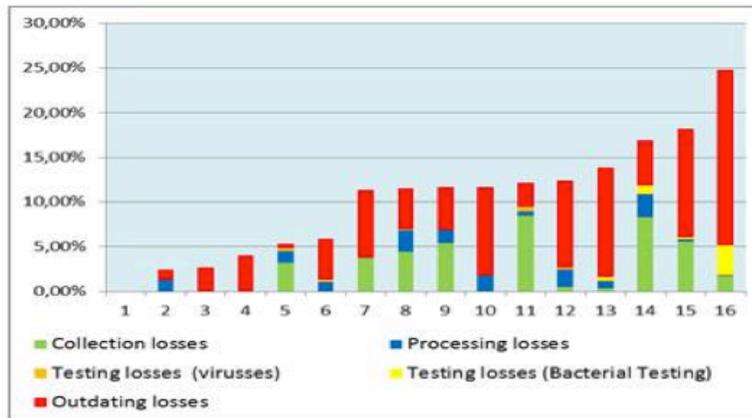


Figure 2



Top 5 solutions Supply Chain Management for platelets (1)

1. Extend shelf life (working on release time)

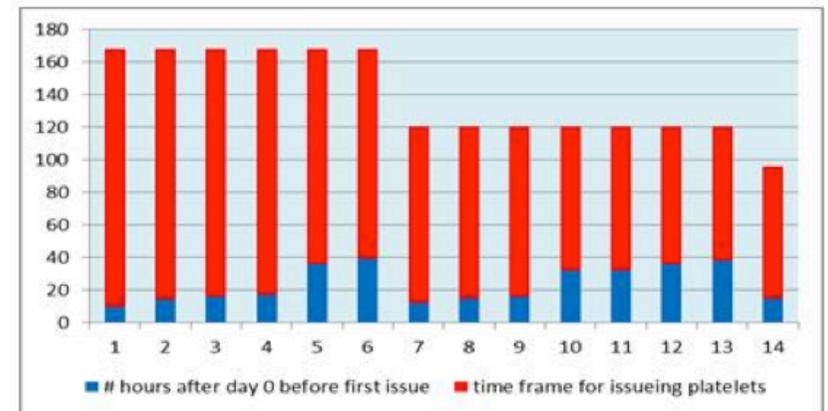


Figure 3

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RBC Supply Chain Losses

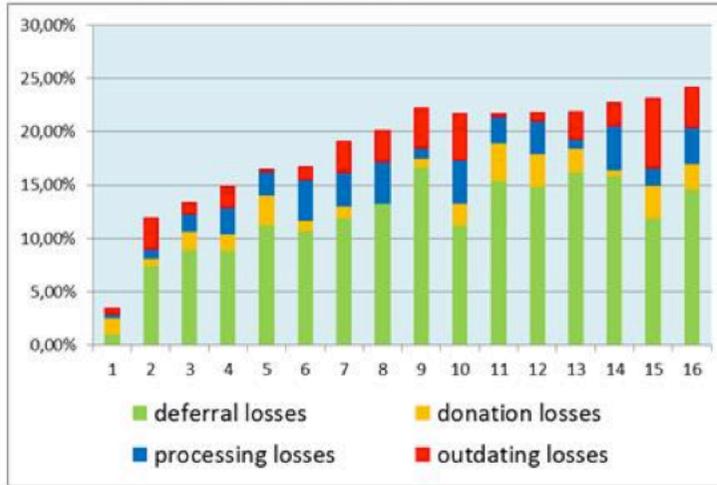


Figure 4

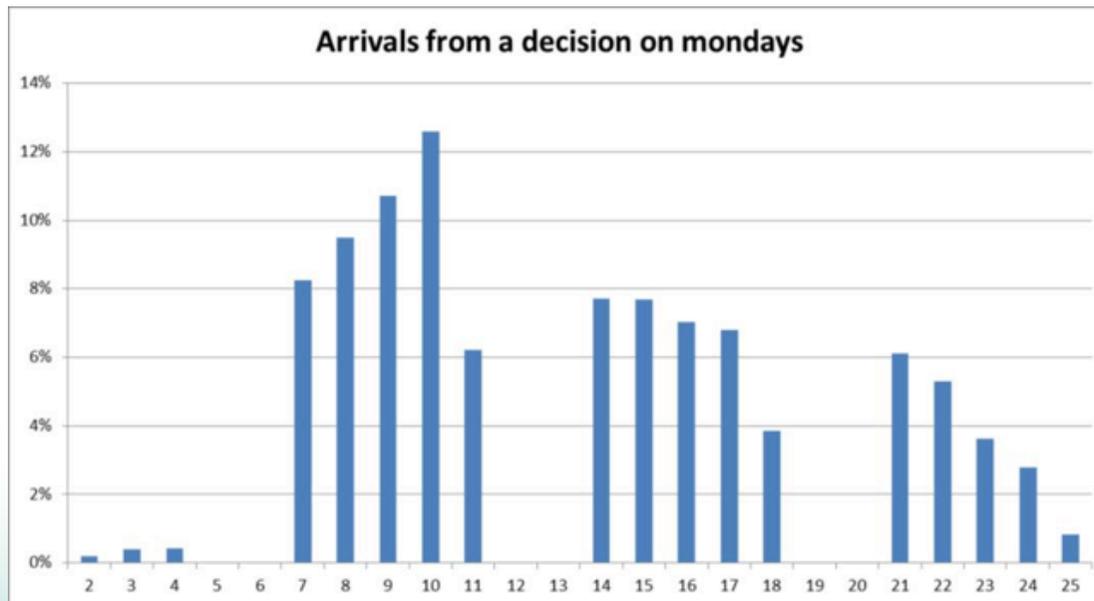


Figure 5