Effectively managing blood stocks to meet demand

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Practical Examples - Food retailers

• Manage the supply chain for all products
• Supply and demand challenges include:-
  ➢ Perishable foods
  ➢ Weather
  ➢ National and International events e.g.
UK Perishable food chain

A 10°C temperature rise on a summer weekend can mean customers buy 300% more barbecue meat.

More salads are bought on a Monday than any other day of the week.

Research from Tesco (the UK’s leading supermarket chain)
In Mauritius

Mangoes and lychees are in plentiful supply

BUT

Retailers need to assess requirements for imported rice and dairy products
Weather influences in Africa

The supply of maize and millet – African staples - can be devastated by drought and flooding affecting the food supply chain.
The 3 Ts theory of supply chain management

Wilding. R. Supply Chain Practice Vol. 5. No.3. 2003
The 3 Ts of supply chain management

• *Time*
• *Transparency*
• *Trust*

Each is inter-related and dependent on each other.

Understanding of time within the supply chain leads to transparency of what is happening leading to the development of trust.
Safe Blood and Blood Products

WHO recommendations for the provision of safe and sufficient blood (i)

• National blood policy and strategic plan
• Definition of the roles and responsibilities
• National standards for blood and blood products, services, processes and systems
• Regulatory mechanisms for registration, licensing, operation and inspection of blood transfusion services
Safe Blood and Blood Products

WHO recommendations for the provision of safe and sufficient blood (ii)

• Adequate personnel
• Suitable infrastructure and facilities
• Effective quality systems
• Donor education
• Safe blood collection
• Testing & processing using appropriate methodology
• Efficient inventory management
• Effective blood cold chain for safe storage
• Information management system – donor to patient
Step Wise Accreditation Standards

1. Quality system
2. Blood Donor Management
3. Collection of Blood from Donors
4. Handling, Transportation and Storage
5. Testing of Donated Blood
6. Blood component production
7. Receipt, Ordering and Selection of Blood Products
8. Compatibility Testing
9. Haemovigilance and Clinical Interface
10. Blood Administration
The Blood Supply Chain

Collection

Grouping & TTI Testing

Storage

Transfusion

Storage

Compatibility testing
Blood requirements in the UK in 2012

500 extra donations will be needed each week in the first six months of 2012 to build blood stocks and cover a decline in donation and extra potential need from Olympic visitors.

On one day in 2011 there were 851 fewer donations than on the same day in 2010, due to the combination of warm, sunny weather, the World Cup Quarter Final and Andy Murray’s Wimbledon Semi Final.
Essential Elements of the Blood Supply Chain

- Knowledge of the whole blood supply chain - *data*
- Voluntary blood donors – *key to the blood supply chain*
- Blood donation testing –
  - *Blood Grouping*
  - *Transfusion Transmitted Infections*
- Optimum storage and transport conditions
- Appropriate compatibility testing
- Appropriate patient use
The Blood Supply Chain

Simple tips for maximising supply when sufficient blood is available (i)

• Have a written standard operating procedure for ordering blood
• Ensure staff are trained in blood inventory management
• Include elements of the ordering and use of blood in the medical training programme
The Blood Supply Chain

Simple tips for maximising supply when sufficient blood is available (ii)

• Rotate stock; oldest at the front, freshest at the back
• Keep a list of blood that is going out of date in the next two days on the front of the fridge
• Ensure regular clearance of outlying fridges
• Appoint a stock champion
• Collect and analyse wastage data
Storage and the Cold Chain

Don’t forget blood storage and cold chain management

• Correct storage temperature $+2^0\text{C}$ to $10^0\text{C}$
• Fridge temperature monitoring
• An alarm system
• Power back up system
Fridge and Alarm Maintained Supply
UK Hospitals

Percentage Maintained

2007 2004
Number of Locations of Fridge Alarms - UK Hospitals

No of Locations in which the alarm sounds

% of fridges

- 1 Locations
- 2 Locations
- 3 Locations
- 4 Locations

2004

2007
Warning

If the local area where the alarm is situated is unmanned, laboratory staff will be unaware of a fridge problem with the potential loss of red cell units.
Drivers of good inventory performance

• Training
• Target stock levels and order patterns
• Collaboration across departments
• Transparency of inventories
• Simple inventory procedures

S Stanger, et. al. Blood Inventory Management: Hospital Best Practice Transfusion Medicine Reviews
*Volume 26, Issue 2, Pages 153-163, April 2012*
Conclusions

• Applying techniques that we use in our daily lives can influence the way in which we manage our blood stocks
• Simple measures can make a big impact
• Collecting and analysing data is key to improvement
• Benchmarking can also be useful

S Stanger, et. al. Blood Inventory Management: Hospital Best Practice
Transfusion Medicine Reviews
Volume 26, Issue 2, Pages 153-163, April 2012
Thank You

Useful advice is available from:-
• www.who.int/bloodsafety/en/
• www.bloodstocks.co.uk
• www.edqm.eu