

# Analysis of Blood Safety at the Department of Health

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# Aim

- Give an understanding of how analysts provide decision support for blood safety initiatives within the Department of Health (DH)

# Outline

- Blood Risks – The need for analysis
- DH Analysts – Our work for various stakeholders
- MSBTO – Their role in advising DH
- Decision Framework- How decisions are made
- Risk Assessments – Analysing the consequences

# Blood risks

- Blood is very safe.

# Is Blood Safe?

Compared to other common risks, the likelihood of getting an infection from a blood transfusion is very low

The risk of getting hepatitis C from a blood transfusion is 1 in 30 million

The risk of getting HIV from a blood transfusion is approximately 1 in 5 million

The risk of getting vCJD is unknown, but is probably low

The risk of dying in a road traffic accident is 1 in 16,800

The risk of dying from smoking related cancer is 1 in 387

The biggest risk from a blood transfusion is getting the wrong blood

**transfusion**  
awareness

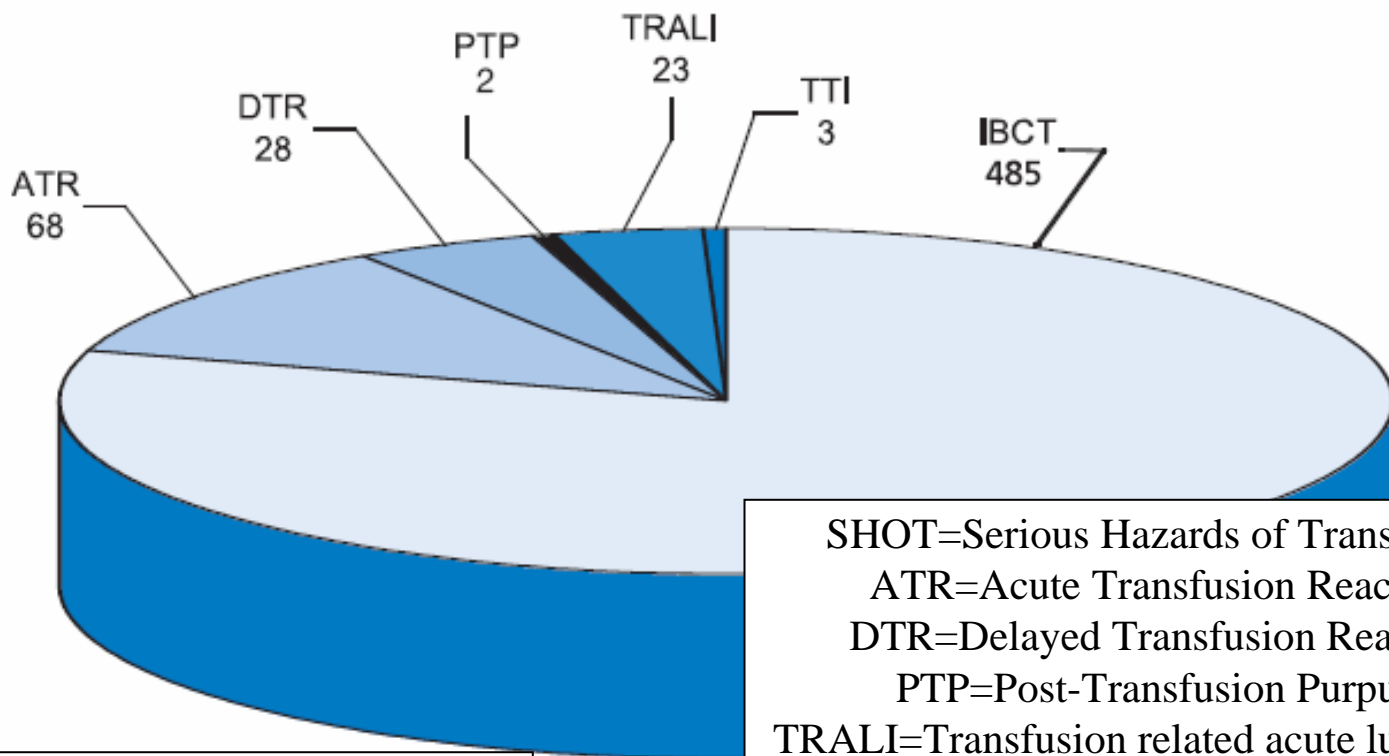
Please ask your doctor or nurse if you have any questions about receiving a blood transfusion

Source: Catherine Howell NHSBT.  
Poster created for Transfusion Awareness Week 23/4/07 – 27/4/07

# SHOT 2005 report

Figure 1

Breakdown of reports received in 2005 (n=609)



SHOT=Serious Hazards of Transfusion  
ATR=Acute Transfusion Reaction  
DTR=Delayed Transfusion Reaction  
PTP=Post-Transfusion Purpura  
TRALI=Transfusion related acute lung injury  
TTI=Transfusion transmitted infection  
IBCT=Incorrect blood component transfused

# Different type of risks

- Risks when considering the recipient population
- Risk to an individual
- Risks when considering the donor groups
- Risks from the transfusion procedure as well as from the blood product
- Risk of endemic infection / feedback effects
- Risk from lack of supply

# Blood risks

- Blood is very safe
- BUT, Blood is not 100% risk free
- Various initiatives have helped bring about this level of safety
- Decisions need to be made to choose appropriate future initiatives and review the current ones
- Analysis is required to aid these decisions.

# DH analysts

- DH analysts work on a range of projects:
  - Modelling options for increased component donation
  - Simulation of different approaches to donor relationship management
  - Pandemic flu planning
  - Problem structuring projects
  - TRALI risk reduction
  - vCJD risk reduction

# DH analysts

- DH analysts support with a range of stakeholders:
  - DH Policy
  - NHSBT
  - MSBTO
  - CJDIP
  - ACDP TSE working groups

## The Advisory Committee on the Microbiological Safety of Blood, Tissues & Organs for Transplantation (MSBTO)

- “To advise the Health Departments of the UK on measures to ensure the microbiological safety of blood, tissues and organs for transplantation.
- In making recommendations in relation to blood, the Committee will bear in mind the need for maintaining an adequate supply of blood of appropriate quality for both immediate use and for plasma processing.”

# MSBTO

- Examples of involvement over the last few years?
  - TRALI,
  - Options for window period testing for HCV
  - vCJD
  - MSM deferral policy

# FRAMEWORK TO AID DECISION-MAKING

# Framework to aid decision-making

- Consistent approach
- Recommendations in context of other decisions
- Key assumptions explicit
- Helps set priorities and best use of resources
- Covers safety, supply and efficacy
- Possible legal considerations
- Governance

# The framework

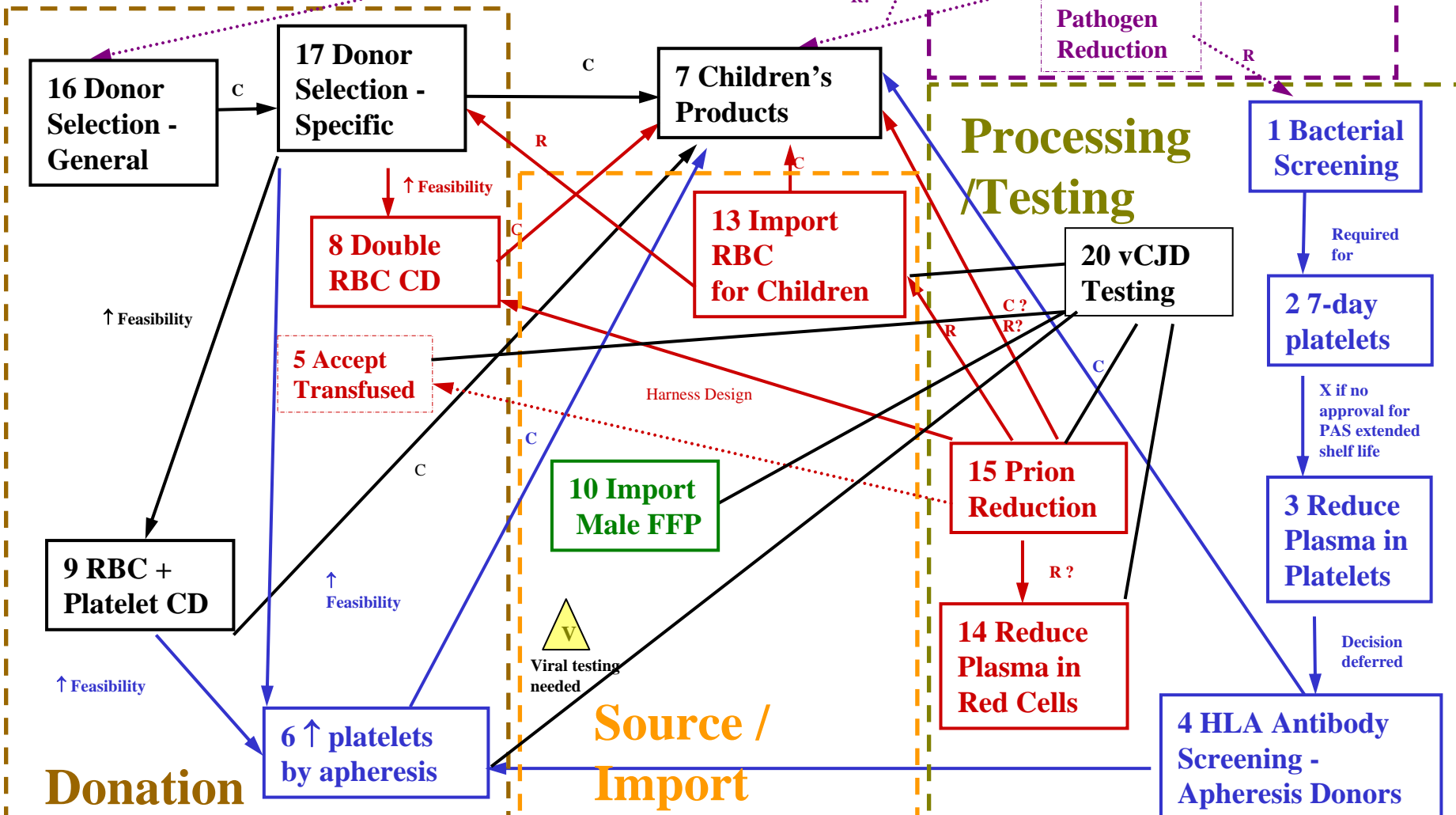
- An overview of all the key initiatives to enable comparison and prioritisation to be made.
- A linkages “map” and description of linkages so that interactions and dependencies between different initiatives can be made.
- A pro forma describing each initiative with supporting information.

Hazard	Effect of Hazard on patient	Initiative	Direct Cost to NBS	Impact of initiative			Linkages	External Considerations	Operational Considerations	Value For Money
				Mitigating Hazard	Patient	Component Supply				
Hazard A		Initiative A1								
		Initiative A2								
		Initiative A3								
		...								
Hazard B		Initiative B1								
		Initiative B2								
		Initiative B3								
		...								

# Linkages map

**Blood Product Key:**

● Platelets ● FFP ● RBC



# Pro-forma per initiative

- Effect of Hazard on patient
- Impact of Initiative on
  - Residual risk
  - Patient
  - Supply
- Value for money
- Linkages
- External Considerations
- Operational Considerations

# RISK ASSESSMENTS

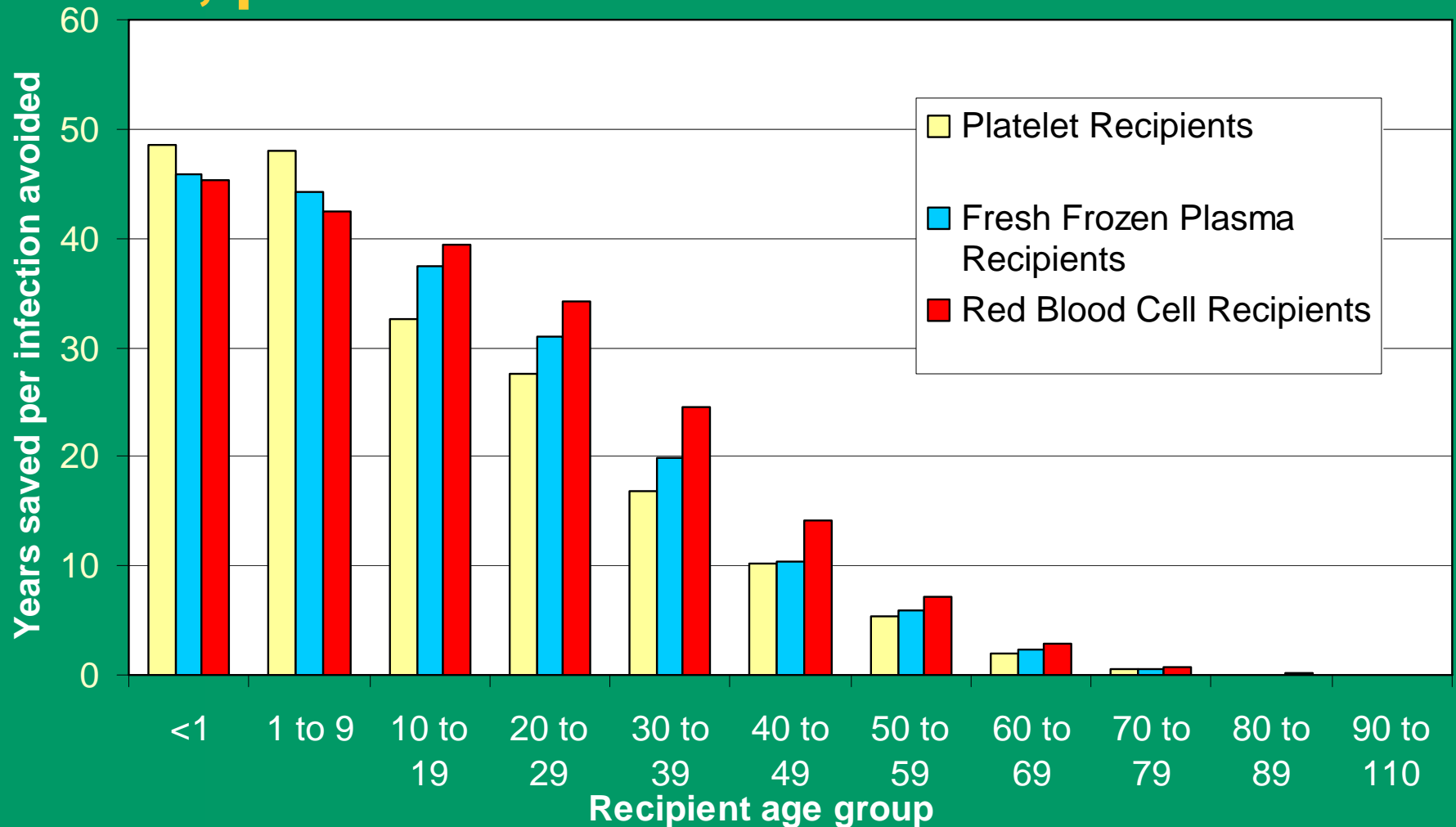
# Risk assessments

- Need to fill in the framework previously discussed
- Risks caused by infection or other hazard
- Residual risk / change in risk expected by introducing, changing or stopping a safety measure
- Cost effectiveness of risk reduction measures
- Implications for the public, the National Blood Service & the National Health Services

# Modelling initiatives: “the ideal”

- Quantification of risk
- Effectiveness of each risk reduction measure
- Effect on other risks
- Cost per life-year
- All relevant costs included
- Evaluate options against common framework
- Recommend optimal decision

# Symptom free life years saved, per infection avoided



Source: S.A.Dobra, P.G.Bennett, vCJD and blood transfusion: risk assessment in the United Kingdom. *Transfusion Clinique et Biologique* 13 (2006) 307-311.

# The reality: uncertainty and complexity

- Who gets blood? How much?
- Do we know the prevalence & infectivity
- Post transfusion survival without infection by diagnosis, age etc. – limited data
- Prognosis – how will the disease develop
- Compounding & feedback effects
- What costs – NBS costs, NHS treatment costs, cost of loss of public confidence

# Improving risk analysis

- Epidemiology study (ESTR)
  - Understand blood usage
  - Post-transfusion survival if no infection
- Continued surveillance (SHOT / screening)
  - Incidence & cause of infection
- Refine models/scenarios in light of evidence

# Risk analysis helps

- Explicit Assumptions
- Auditable
- Common framework
- Helps prioritisation
- Development of robust safety strategy
  
- BUT – risks often order of magnitude only
- Interactions need to be considered
- Appropriate Blood Use important!

# Conclusion

- Blood Risks – The need for analysis
- DH Analysts – Our work for various stakeholders
- MSBTO – Their role in advising DH
- Decision Framework- How decisions are made
- Risk Assessments – Analysing the consequences
- Given an understanding of how analysts provide decision support for blood safety initiatives within the DH