


Universal Plasma/Cryoprecipitate project update: one step closer to universal components?

Rhian Edwards – Nov 2022

Caring Expert Quality

“As we look to the future, our ambition is to save and improve *even more lives*”

Drive innovation 
to improve patient outcomes

 **Our goal: A world where every patient receives the donation they need**

To drive innovation we will...

- ▶ Invest in genotyping to improve matching between donors and patients
- ▶ Continue seeking opportunities for the use of new technologies (e.g. machine perfusion) to improve organ utilisation and efficacy
- ▶ **Focus on the development of a few new products (e.g. universal components, whole blood), keeping a watching brief on others**
- ▶ Integrate system-wide datasets to develop novel insights and track the impact of interventions
- ▶ Establish a systematic approach to horizon scanning and investment decisions

To accelerate development and adoption we will:

- ▶ **Actively pursue external funding, commercial partnership opportunities and collaborations**

What is Universal Plasma?

	A	B	AB	O
ABO Blood Group				
ABO Antigens present on red blood cells	A antigen	B antigen	A + B antigens	None
ABO Antibodies present in plasma	Anti-B	Anti-A	None	Anti-A + Anti-B
ABO Antigens and Antibodies present in platelet preparations	A antigen + Anti-B	B antigen + Anti-A	A + B antigens + no antibodies	No antigens + Anti-A + Anti-B

Figure 1: The ABO Blood group system

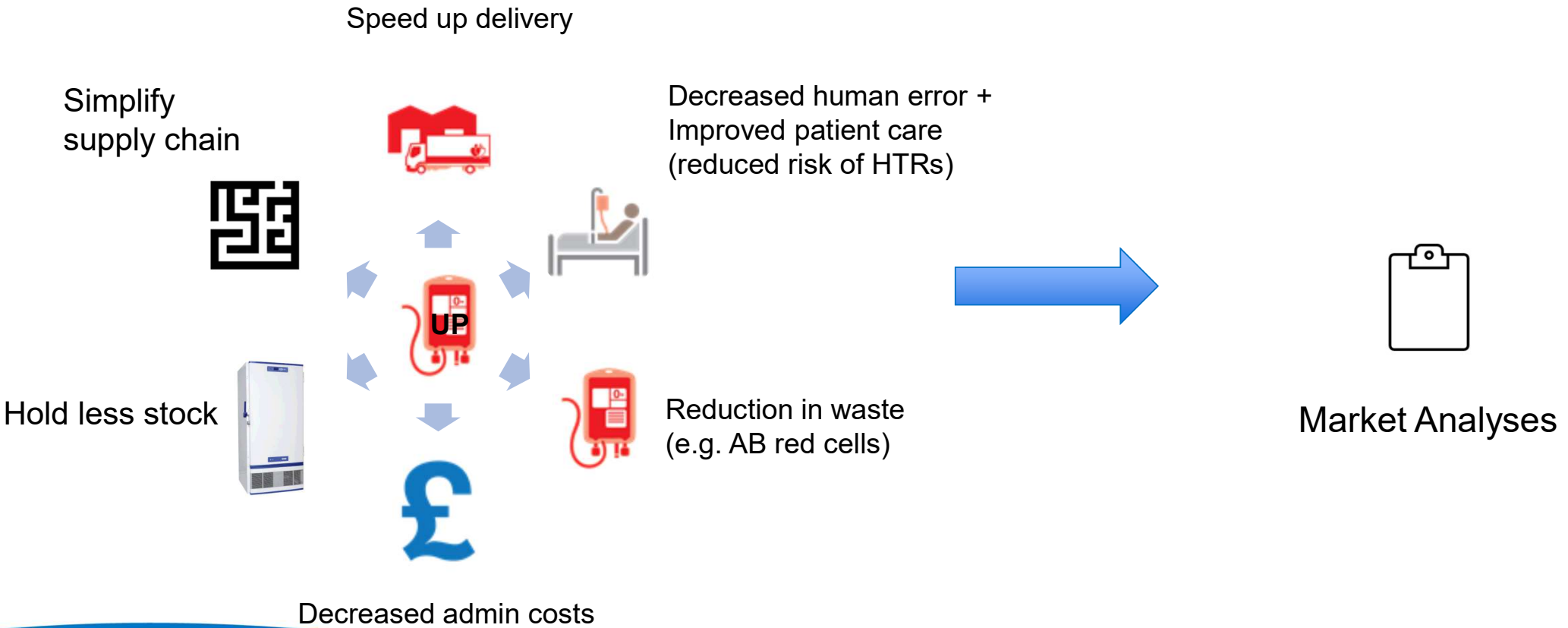
- Blood group AB is Universal
- Only 4% of the UK population is AB
- In current practice plasma that matches the patients blood group is transfused, with plasma A being used as the next best alternative if no matching plasma is available
- Removal of anti-B and/or anti-A from plasma A, B or O would produce plasma that can be transfused to anyone regardless of blood group

Universal Plasma Collaboration

To produce a cost effective device that will remove ABO antibodies from plasma rendering it Universal Plasma and suitable for transfusion to anyone regardless of blood type.

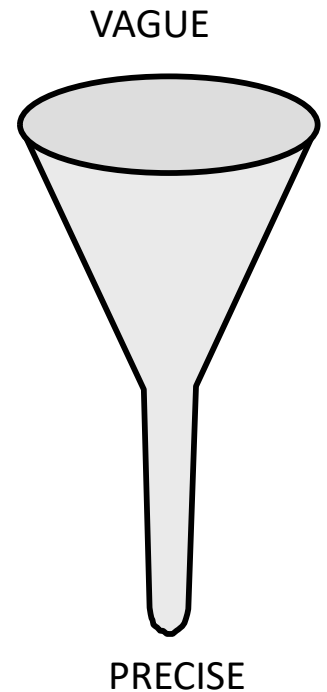


Perceived benefits of Universal Plasma



Aims of the Market Analyses?

- To ensure the product would be technically acceptable and commercially viable to the end user.
- To understand the benefit of a potential development in blood components.
- **Key tasks** to understand the potential market including:
 - Key drivers, Barriers to entry, Adoptability factors, Educational messaging needed, Patient opinion, Pricing



Work undertaken:



Blood and Transplant

SURVEYS

English hospitals survey:
Broad scope
267 hospitals

English hospitals follow-up survey:
Focused, 80 hospitals

Patient survey:
Obstetric and Trauma Patient and Public Involvements groups

International Blood Service Survey:
6 countries

ANALYSIS

Supply & wastage of Frozen components within NHSBT & hospitals

Cost Benefit Analysis (Scope limited)
DHSCC Health Economic experts

EVENTS

NHSBT Supply Chain day
Analysing costs/benefits to NHSBT

A Day In the Life of Plasma
Potential benefits of UP in Hospitals

Regional Transfusion Committees
Raising awareness & Feedback

National Laboratory Managers
Raising Awareness & Feedback

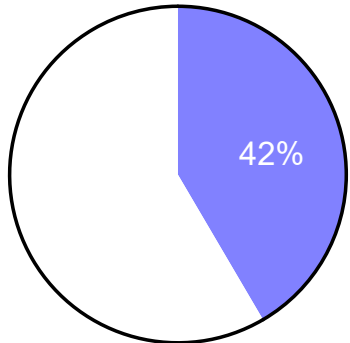
National Blood Transfusion Committee
Raising Awareness & Feedback

LIMs providers
Raising Awareness & Understanding costs/barriers

Is UP a desirable product?
What is the real need?
What is the willingness to pay?
Clearly identify areas of cost and benefit?
Is our target price area accurate?
Can the project produce a commercially viable product?

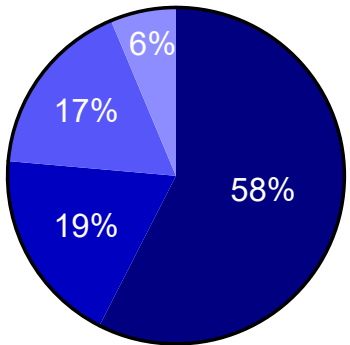
Survey Demographics

Survey 1



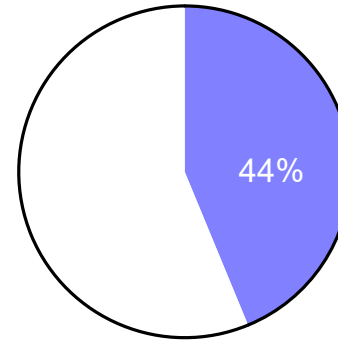
Response Rate

- 14 Questions
- 3 wks to complete
- Primarily tick box
- Distributed to 267 hospitals



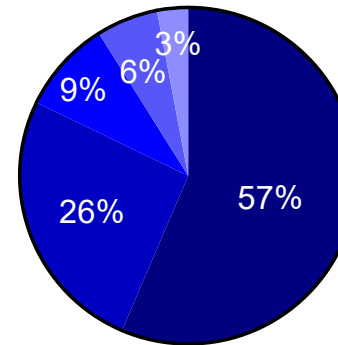
- Transfusion laboratory managers
- Transfusion practitioners
- Other
- Haematology Consultants

Survey 2



Response Rate

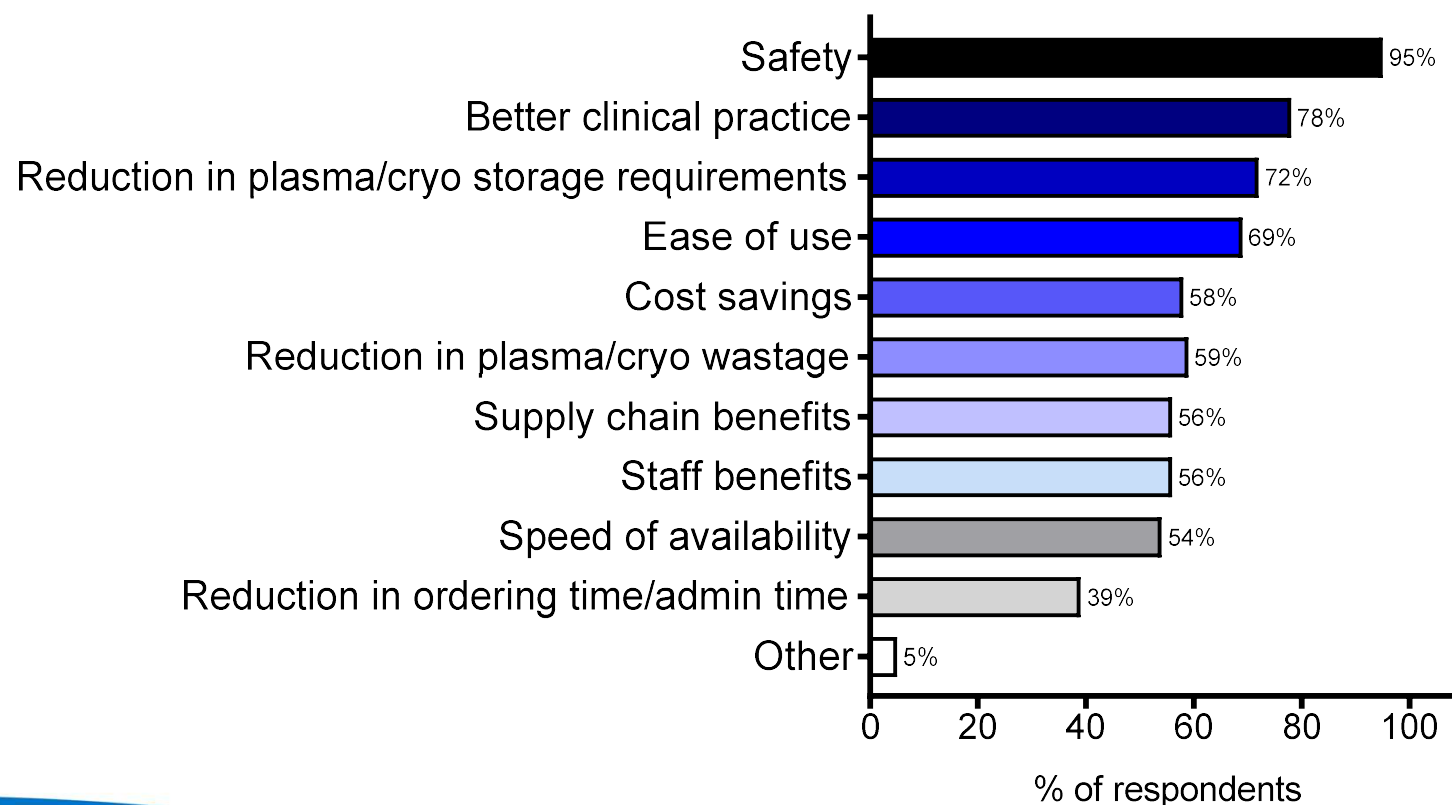
- 18 Questions
- 5 wks to complete
- Primarily tick box
- Targeted high/med/low plasma users and survey 1 “detractors”
- Distributed to 80 hospitals



- Transfusion laboratory managers
- Biomedical Scientist
- Other
- Transfusion practitioner
- Transfusion Specialist

Two surveys distributed to hospitals in England using Survey Monkey

Safety is the top perceived benefit of Universal Plasma/Cryo



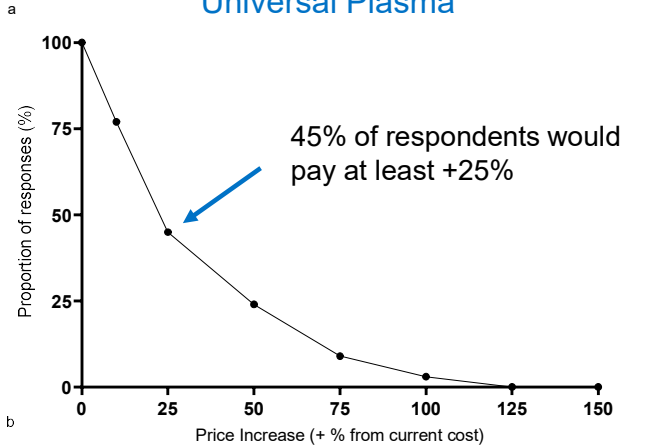
118 respondents answered this question.

England Hospitals are willing to pay more for a unit of Universal Plasma

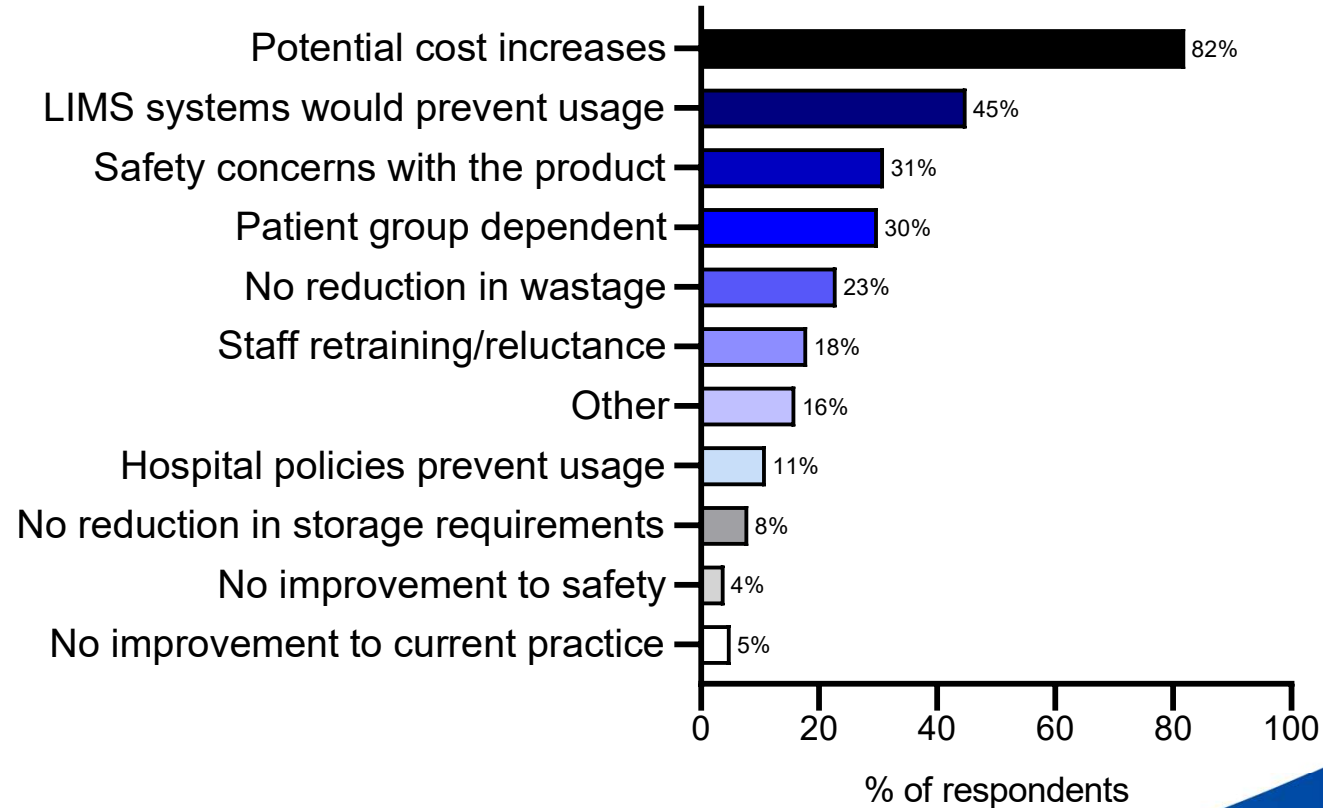
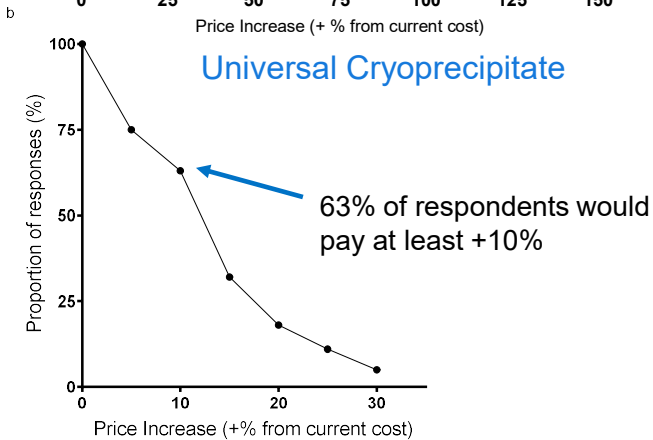


Blood and Transplant

Universal Plasma



Universal Cryoprecipitate

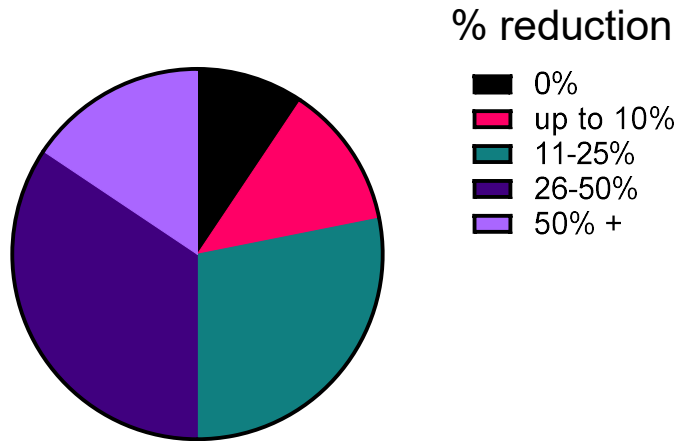


114 respondents answered this question

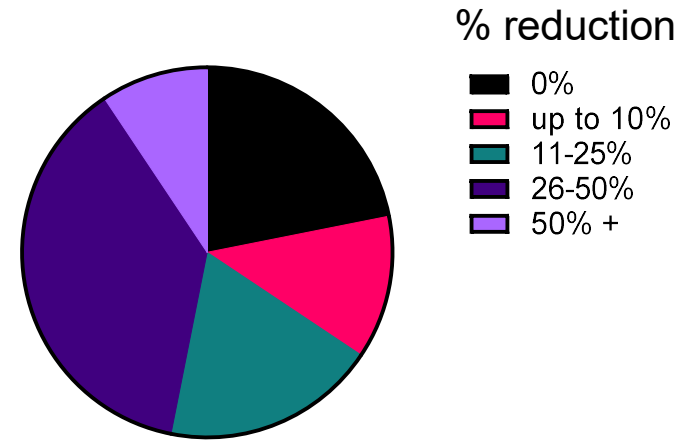
Total number of respondents who answered for Universal Plasma = 109 and Universal cryoprecipitate = 110.

Universal plasma or cryo would lead to a potential reduction in plasma stockholding

Plasma



Cryoprecipitate

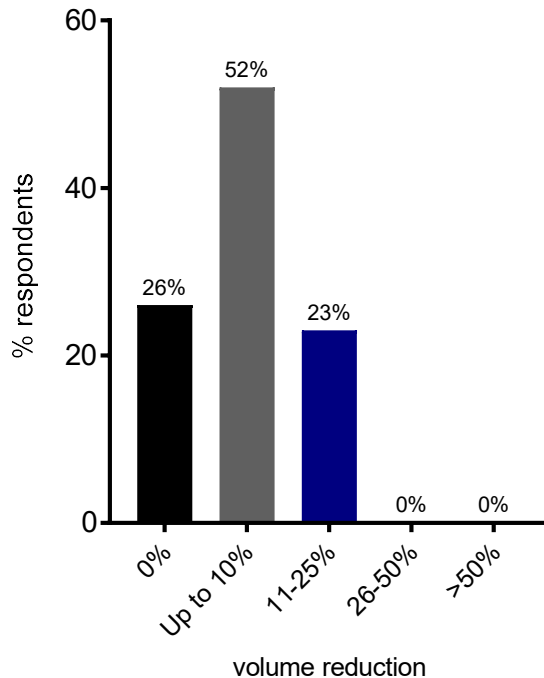


91% of hospitals have indicated that by holding universal plasma instead of ABO group specific they would see a reduction in their plasma stockholding with 16% of hospitals anticipating a reduction greater than 50%.

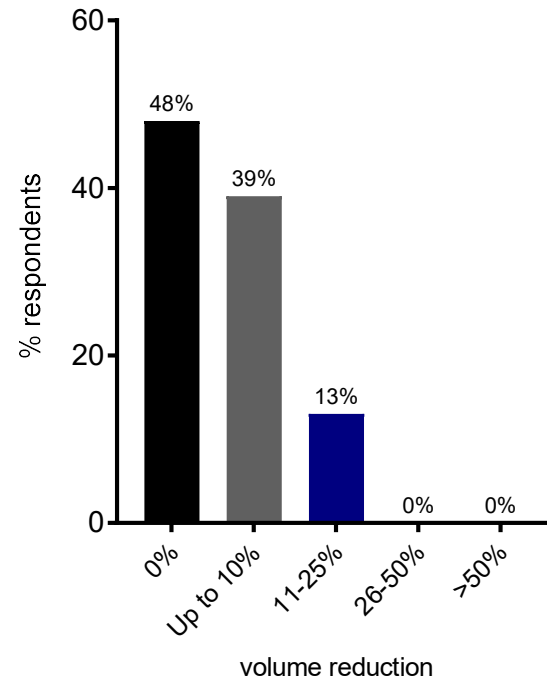
32 respondents answered this question.

Universal plasma or cryo will result in a potential reduction in plasma waste

Plasma



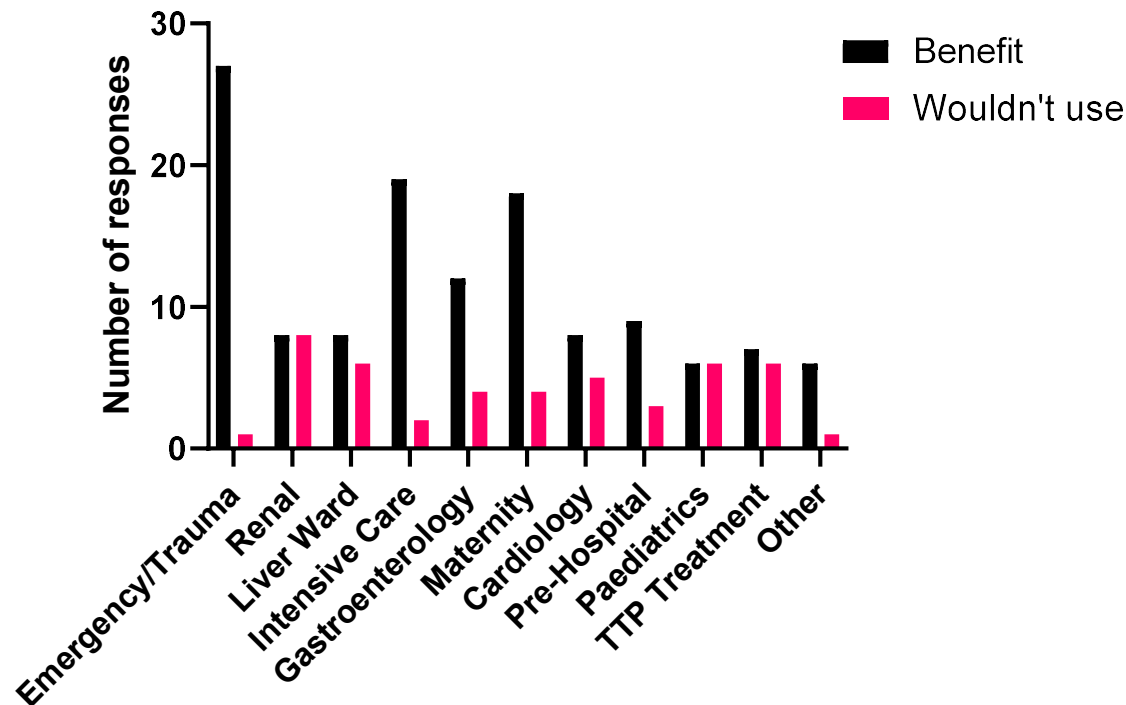
Cryoprecipitate



- 74% of hospitals anticipated a reduction in plasma wastage
- 52% of hospitals anticipated a reduction in cryo wastage

31 respondents answered this question.

The greatest benefit of Universal plasma/cryo could be realised in the emergency/trauma department.



- The emergency/trauma department was deemed to be the area which would see the greatest benefit from having universal blood components
- This was followed by intensive care, maternity, and the gastroenterology departments
- However, 71% respondents would replace all their current plasma and cryoprecipitate stock with Universal components.

31 respondents answered this question.

UP project has informed our strategy

The safety case



Universality is top customer ask



Improved safety key benefit



Reduced decision making/complexity



to universal Platelets

The economic case



Hospitals want UP and will pay more for it



Hospitals want U platelets as well



Benefits maximised at scale



Benefits likely enhanced if U platelets as well as U plasma

Summary

- This is the most comprehensive work undertaken in UK to understand the benefit of a potential development in blood components. The mechanisms established can be applied to future projects.
- The collaboration between all the parties to produce the detailed surveys and results analysis has worked extremely well, and the strength of the results, obtained by NHSBT leading the surveys and research, could arguably not have been obtained by purely commercial organisations.
- Knowledge of and access to key stakeholders, their high levels of responsiveness and willingness to provide detailed answers, has proven invaluable in building a strong detailed picture of the potential for Universal Plasma.
- Overall the combination of in depth surveys, one-off events, and the cost benefit analysis have in many ways reinforced the initial perception that Universal Plasma is a desirable product to be able to offer. It has given the group a clear idea of where the price for UP needs to be.
- A paper is currently being written for the Journal Blood Transfusion on the results from the English surveys.