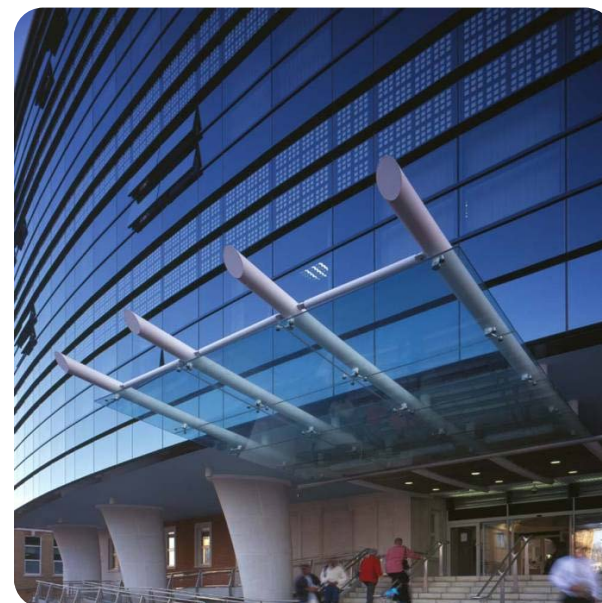
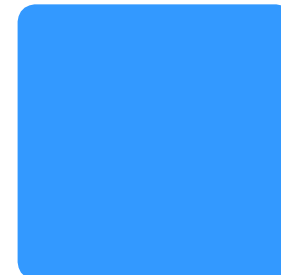


Patient Blood Management (PBM) review and establishment for very preterm neonates in a large teaching hospital

Project Lead: Dr. Carolina Zorro

Date: 15th September 2017
BBTS annual conference – Glasgow 2017



KING'S HEALTH PARTNERS

Background

- Transfusions in neonatal units are frequent, particularly in very preterm infants (<32 weeks of gestational age. National Comparative Audit, 2010) and convey both benefits and risks.
- There are several reasons for anaemia in preterm babies, but **iatrogenic** causes related to blood sampling and blood loss is the commonest.

The beginning...

Audit in neonatal transfusions in preterm infants born <32 weeks of gestation:

- Investigate blood product transfusion practice in the NICU
- Investigate phlebotomy practice

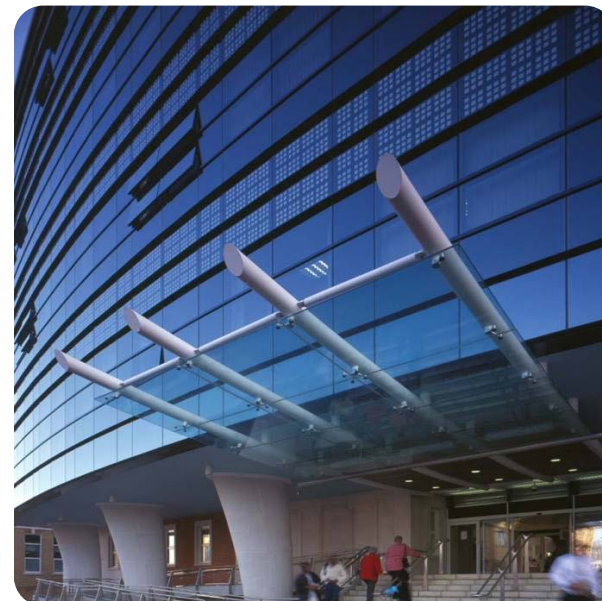
Standards and BCSH Guideline

Guidelines	
1.	KCH NICU Guidelines 2010
2.	BCSH "Guidelines on transfusions for fetuses, neonates and older children". April 2016

- Hospitals should develop policies that help to minimise exposure of infants to multiple donors
 - Babies <32 weeks of gestation should have 6 paediatric packs of red cells allocated from one donor
 - Subsequent allocations between 3 and 6 units according to likely future blood requirements
- Minimise phlebotomy where possible:
 - Agree a local policy on the frequency and types of regular blood tests required
 - Collect small samples
 - Use small-volume laboratory analysers and near-patient testing.

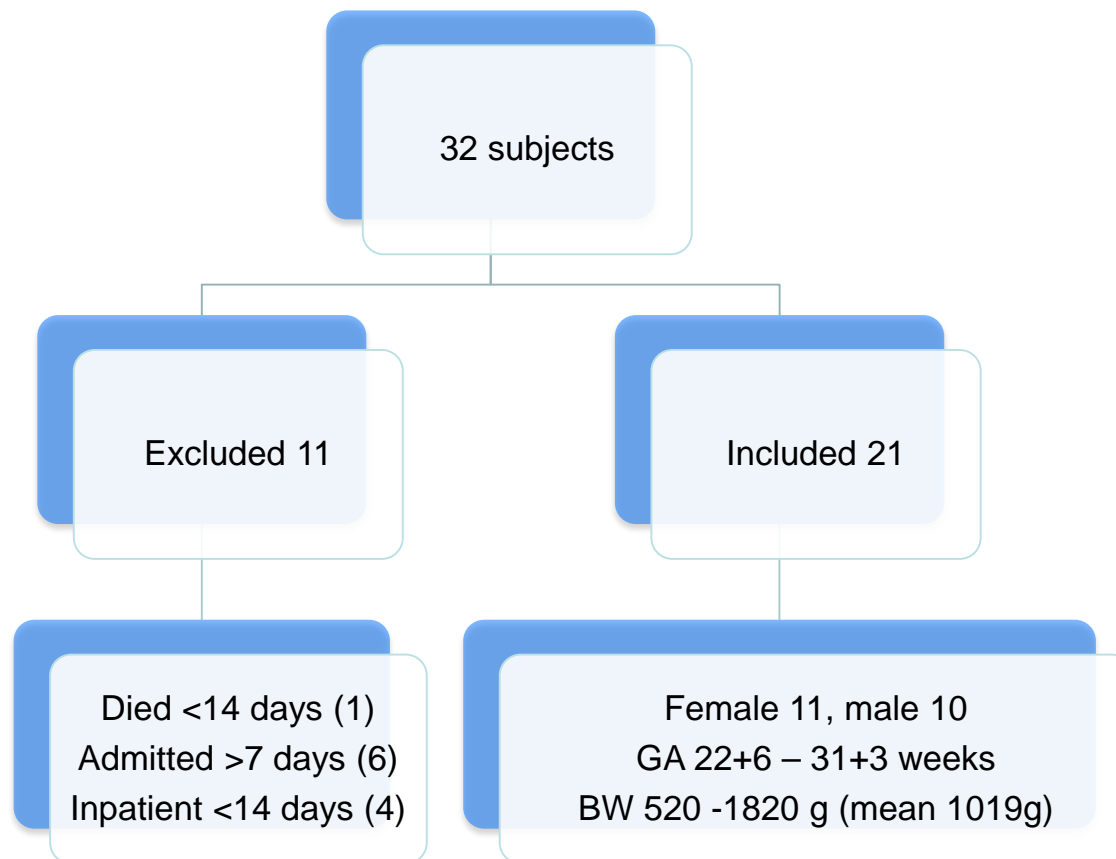
Results

King's



KING'S HEALTH PARTNERS

Results – demographic data

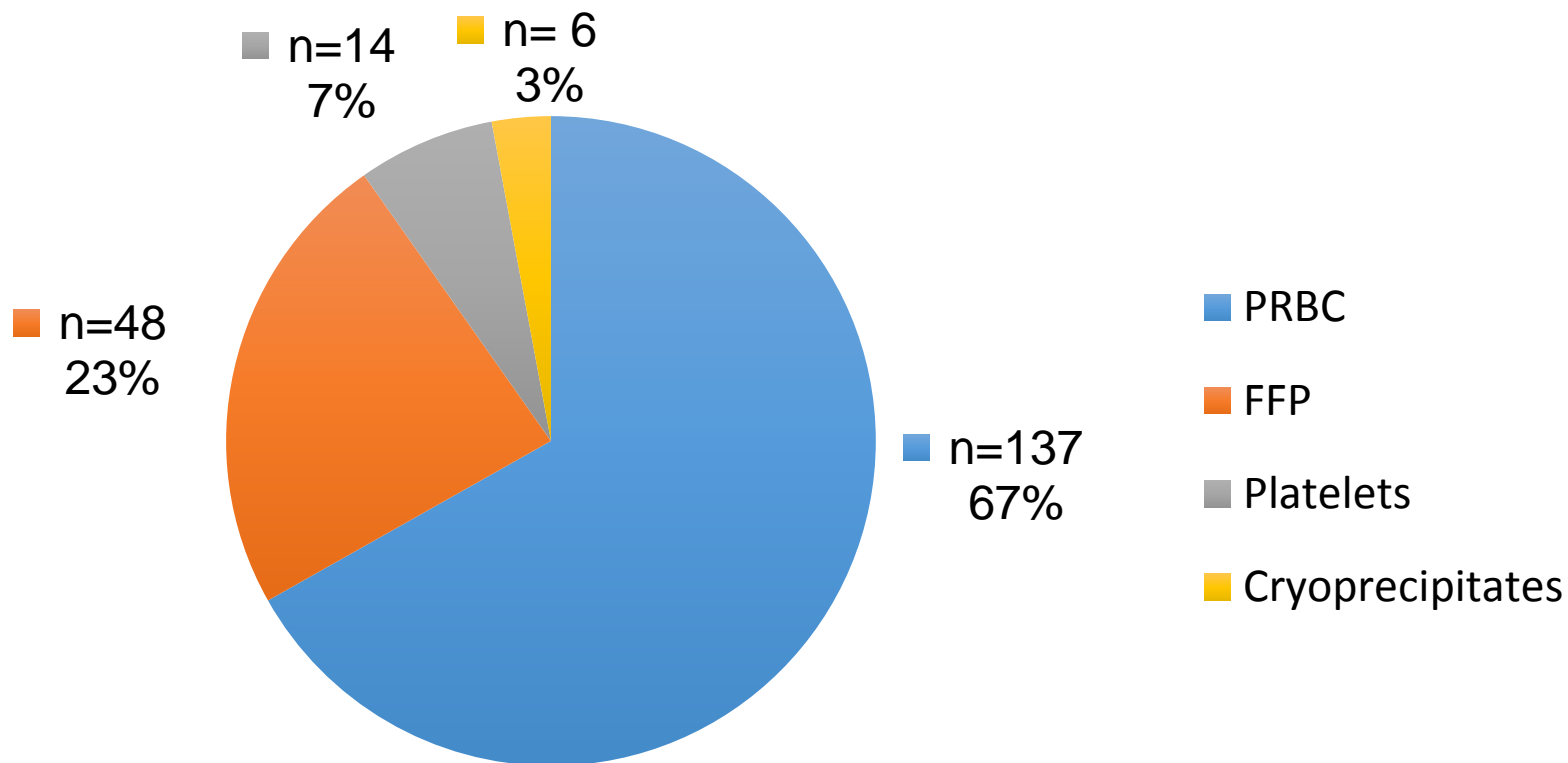


- Inclusion criteria: All babies born at less than 32 weeks of gestation between 01/01/2016 and 31/03/2016, admitted to NICU (born at KCH or transferred from other trusts within the first week of life) and remained as inpatients for at least two weeks
- Sample identification: BadgerNet database and the ward admission book
- Audit period: first quarter of 2016

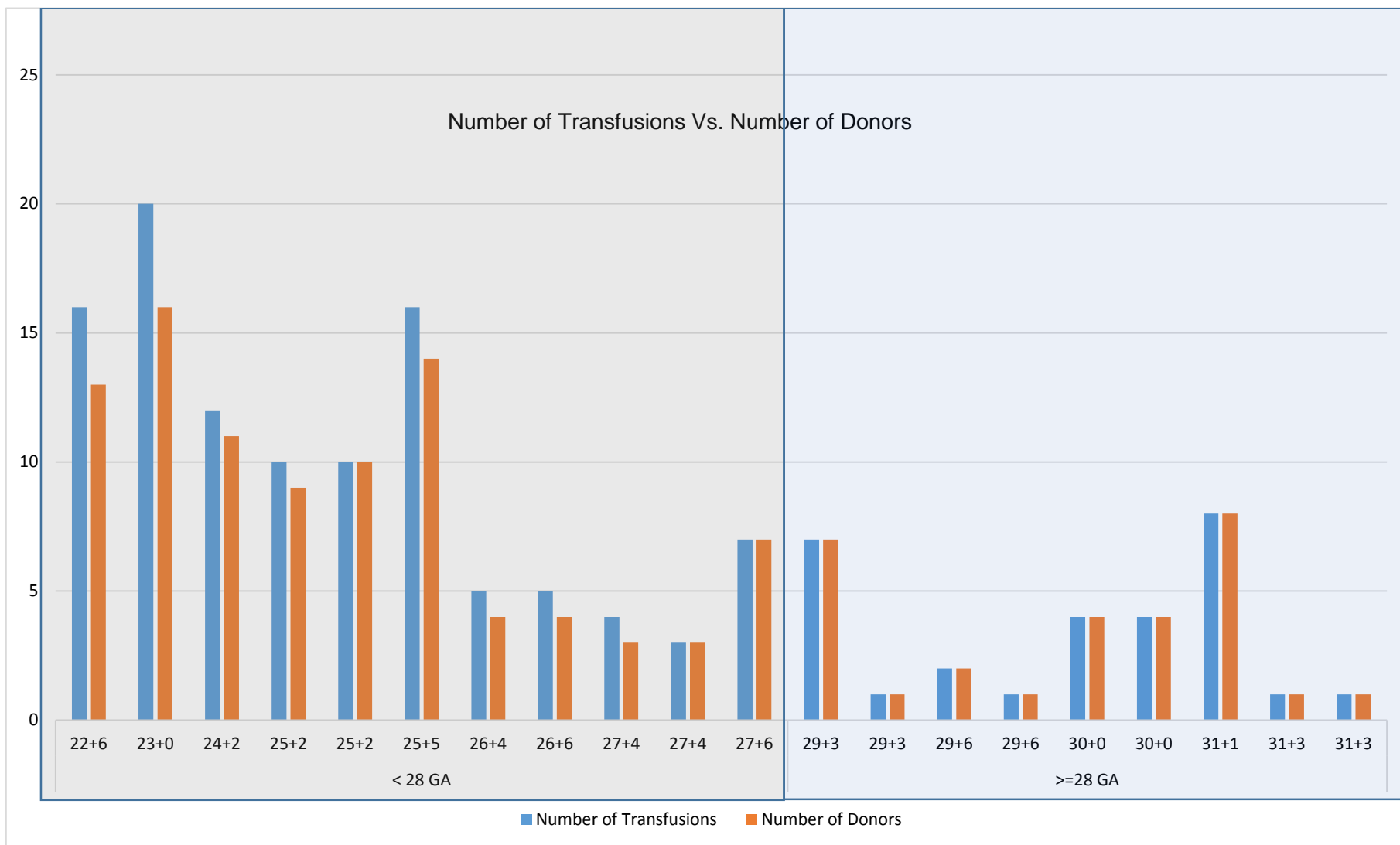
Results – No. transfusions

21 babies, 205 transfusions

No. of transfusions

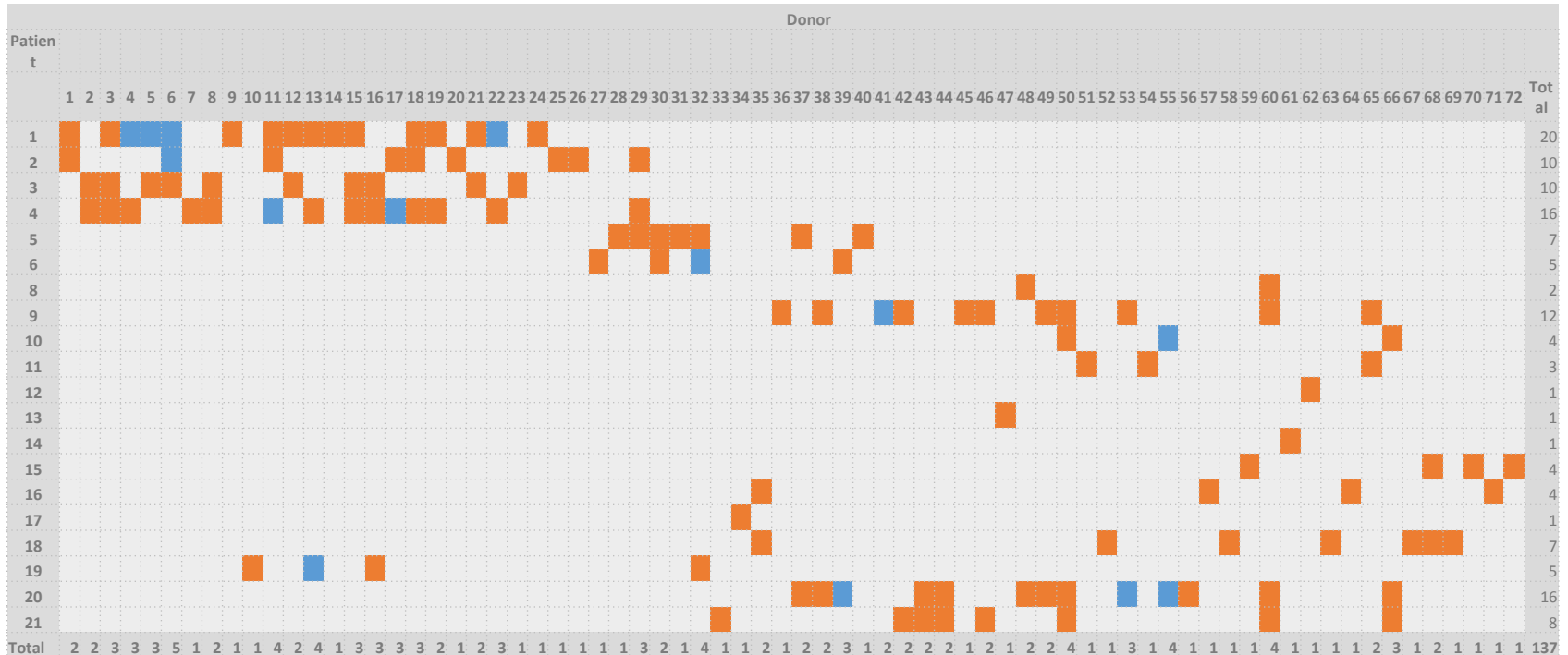


Results – Donor exposure



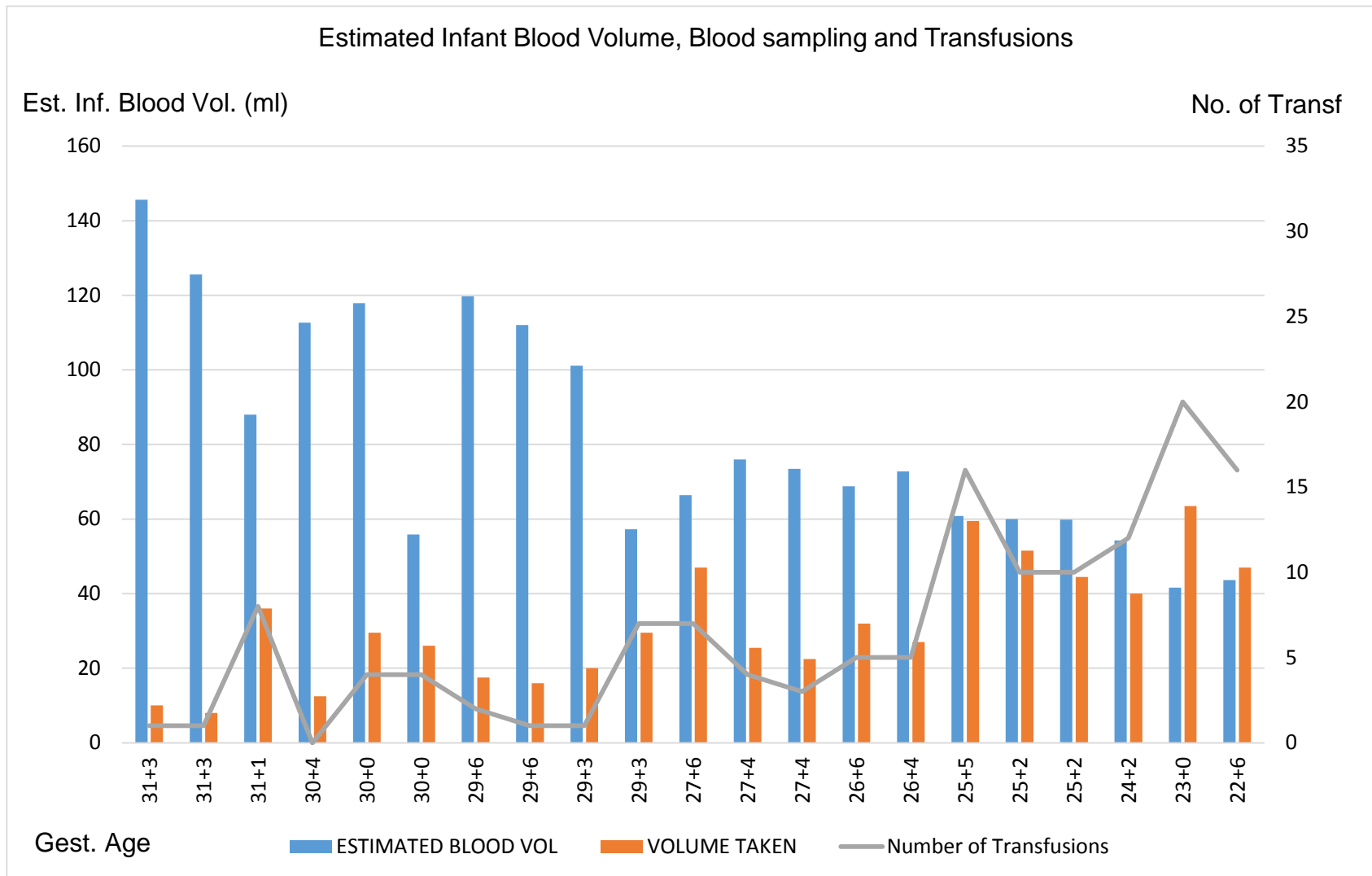
Results – Donor exposure

Distribution of paediatric packs from each donor



- Orange: one paediatric pack from one donor to one baby
- Blue: two paediatric packs from one donor to one baby
- No baby received more than three paediatric packs from the same donor

Results—Infant blood volume, sampling and transfusions



Results –PRBC current practice against guidelines

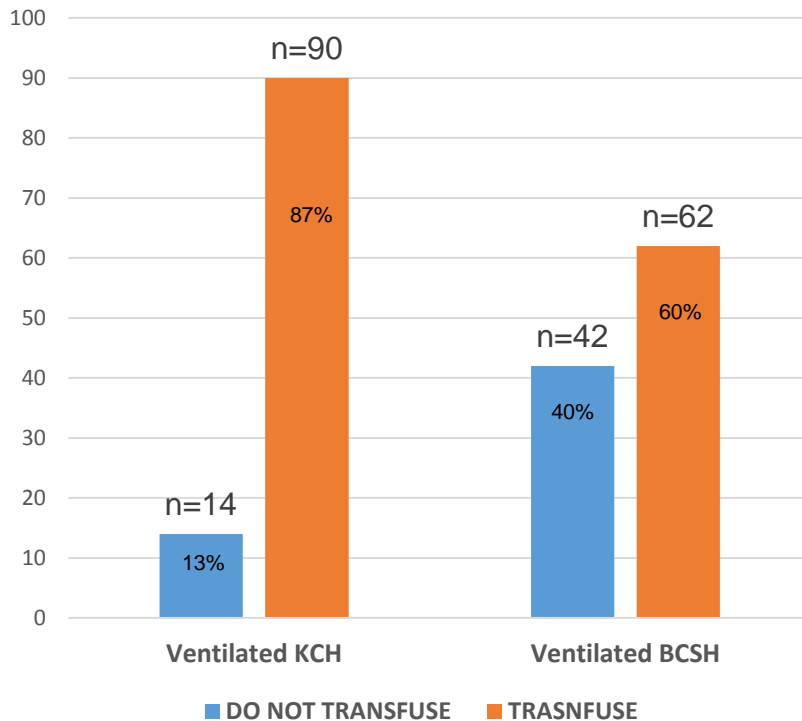
KCH – NICU guideline 2010

- Ventilated: Hb <13.3 g/dl
- nCPAP or supplemental O2: Hb < 10.0 g/dl
- None: Hb < 8.0 g/dl

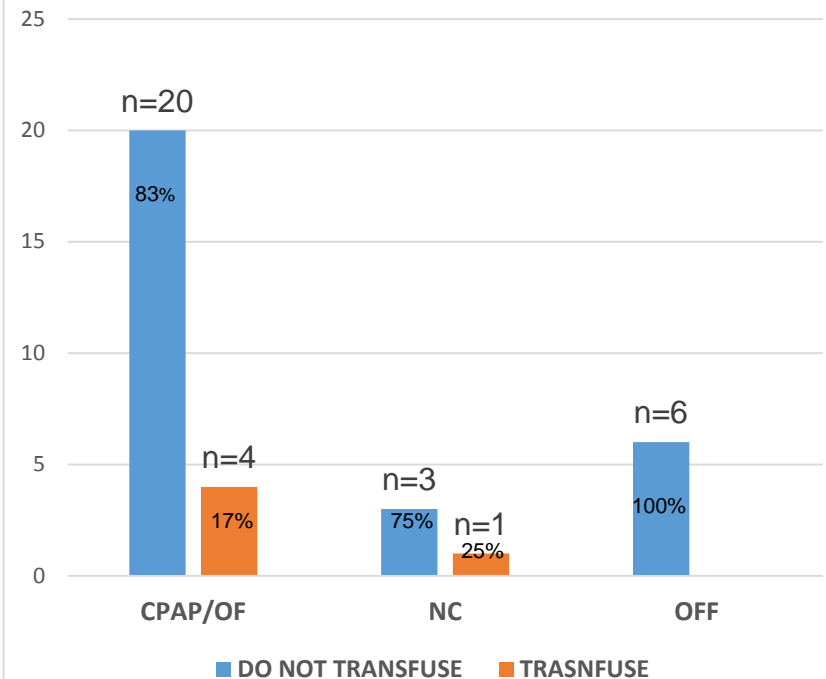
BCSH – guideline 2016

- Ventilated: Hb <12.0 g/dl
- nCPAP or supplemental O2: Hb < 10.0 g/dl
- None: Hb < 7.5-8.5 g/dl

Ventilated - KCH vs BCSH Guidelines

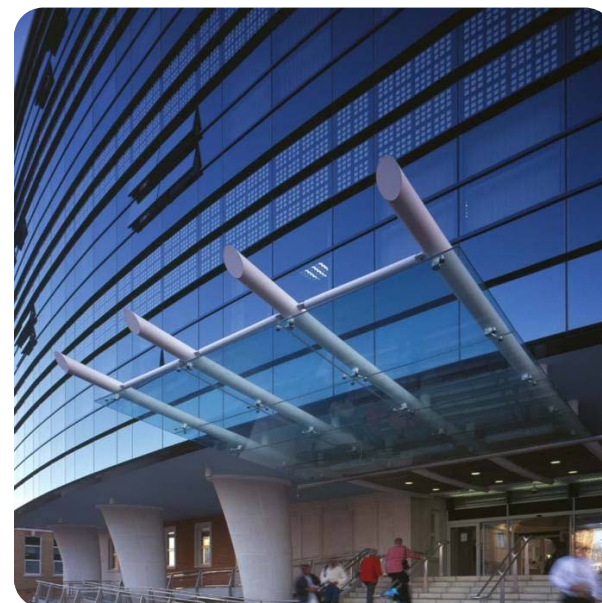


Non ventilated - KCH and BCSH Guidelines



Actions taken

King's



KING'S HEALTH PARTNERS

Establishment of PBM

Patient Blood Management (PBM): “multidisciplinary, evidence-based approach to optimising the care of patients who might need a blood transfusion. PBM puts the patient at the heart of decisions made about blood transfusion to ensure they receive the best treatment”

Objectives of PBM in very low birth weight infants:

- Minimise donor exposure
- Reduce the number of blood transfusions
- Reduce uncomfortable procedures
- Optimise blood sampling
- Reduce costs

Actions taken – Blood bank

Minimise donor exposure

- Team work between NICU, blood bank and EPR to create a “NICU group and save” request
- Allocate paediatric packs from the same donor
 - 6 paedipacks for <28 weeks
 - 3 paedipacks for 28-32 weeks or multiple transfusions expected
- Weekly communication between blood bank and NICU
- 2 Irradiated PPBC for neonatal

King's College Hospital NHS NHS Trust Transfusion Department Date: 15-Mar-2017 Consultant: Cardozo, Linda Location: Test(PP&D only)	 Hospital Number: P171635 Surname: Zzztest Forename: Aeleven-Test Gender: Female DOB: 1/1/1969  003CDWZXN
--	---

NICU Group & Screen Infection risk: None known Date of procedure (if applicable): Gestational age: 28-32 weeks Received Intrauterine Transfusions (IUT): Yes Clinical Details: EPR TESTING Signature: _____	Requested Date: 3/15/2017 3:24:00 PM 16-Mar-2017 Multiple transfusions expected: Yes
--	--

Printed: 15/03/2017 15:25	Requested By	
Hospital No: P171635	Firstname: Aeleven-Test	Surname: Zzztest
Date and time of referral: 15/03/2017		

Actions taken – NICU and Labour ward

Minimise phlebotomy losses and blood sampling

- Delay cord clamping when possible
- Obtain admission bloods from the umbilical cord
- Use umbilical lines for at least one week (UAC and double lumen UVC)
- Use “near patient testing” for daily monitoring and prescribing PN
- Once or twice weekly “PN bloods” instead of daily bloods
- Optimise volume for transfusion when possible (10-15 ml/Kg)
- Update “Guideline for blood products transfusion” and “Guideline for parenteral nutrition prescription”

Actions taken – Transformation team

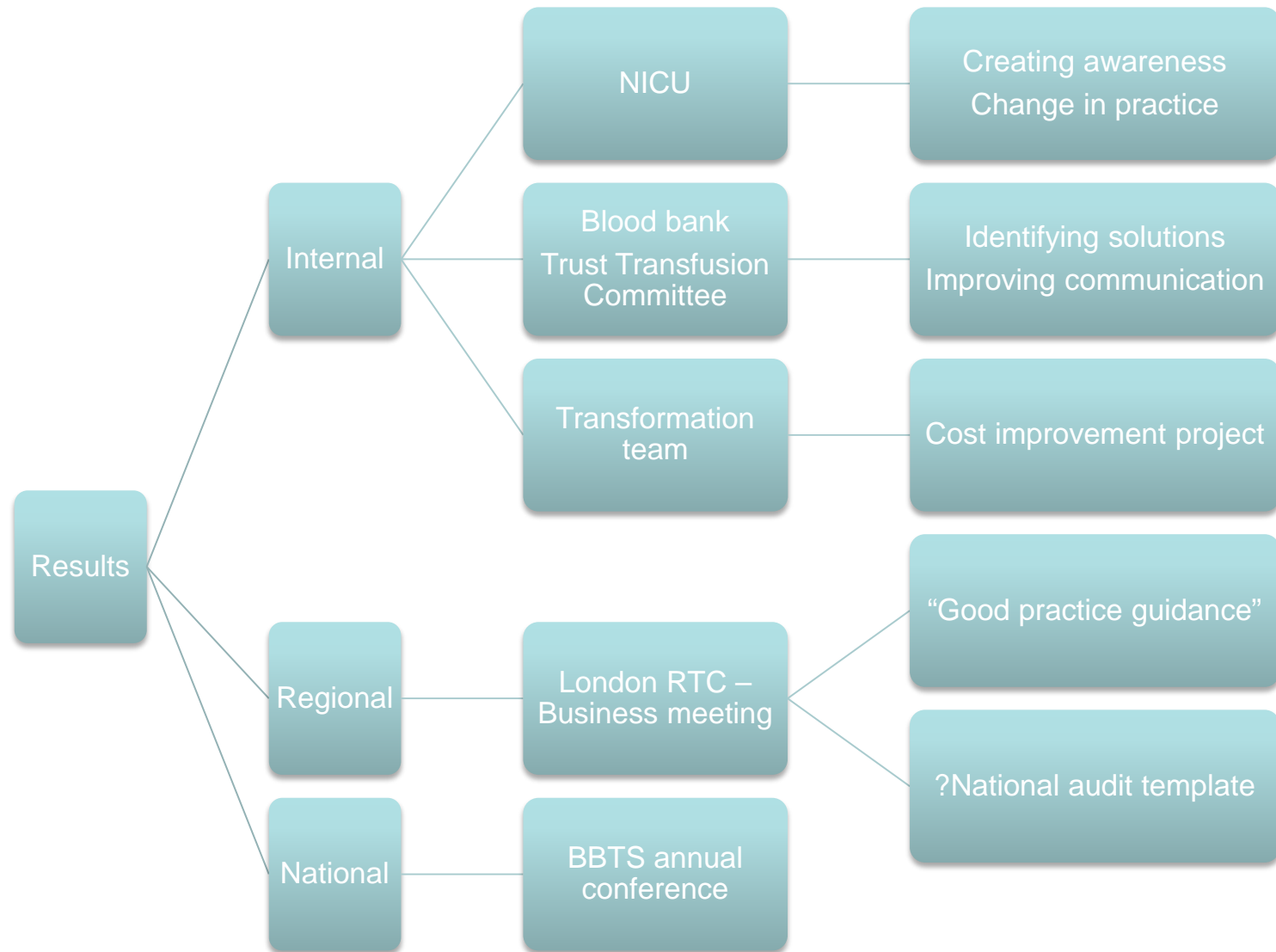
Reduce costs

- Cost improvement project
- Approximately red blood cell usage/year for preterm babies <32 weeks of gestational age: 780 units at £62.65 = £49,000
- Estimated cost saving: £10.000

King's College Hospital POD Template

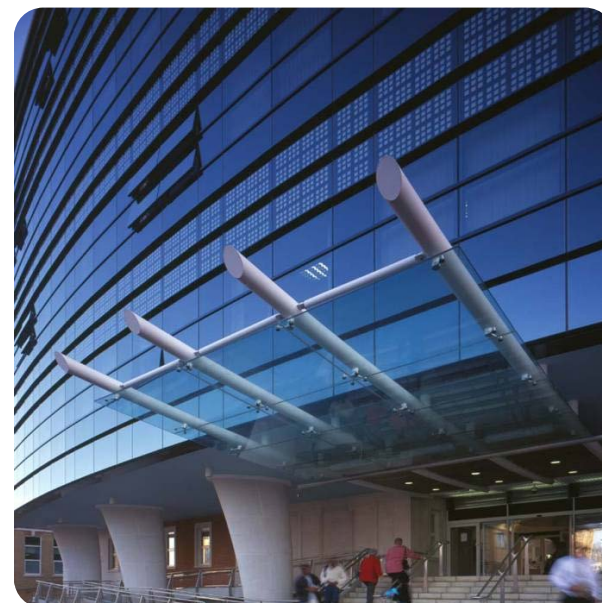
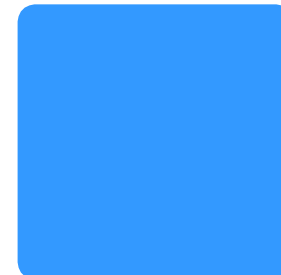
POD Name/Ref	NICU diagnostics / NWC028	Division / Specialty	Networked / VCH
Work Stream			
Executive Sponsor	Fiona Wheeler	Clinical Lead	Ann Hickey
Divisional Lead	Laura <u>Badley</u>	Responsible Officer	Laura <u>Badley</u>
Project Manager	Carolina Zorro	HR Lead	Jane <u>Matty</u>
Finance Lead	Susan Lewis	PMO link	<u>Zoya Shumanska</u>
Non Recurrent/ Recurrent	Recurrent	Type of Scheme	Non-Pay
Work Stream Report	Non Pay - Clinical Supplies and Services	Monitor Reports	Clinical Supplier
POD Executive Summary	<p><i>Describe what the POD is aiming to achieve; state the 'from' and 'to' state; the financial savings that will be delivered; and any key changes.</i></p> <p>By reducing the frequency of blood tests in admissions to the neonatal unit and following national guidelines (British committee of the standards in haematology) within NICU we aim to reduce the use of blood products and thus save in the region of £10,000.</p> <ol style="list-style-type: none"> 1. Reduce frequency of blood tests in all infants 2. Reduce blood loss via phlebotomy and thus need for transfusions in preterm infants 3. Follow national guidelines for transfusion thresholds with resultant reduction in transfusions 		

Actions taken – Dissemination of results



Acknowledgements:

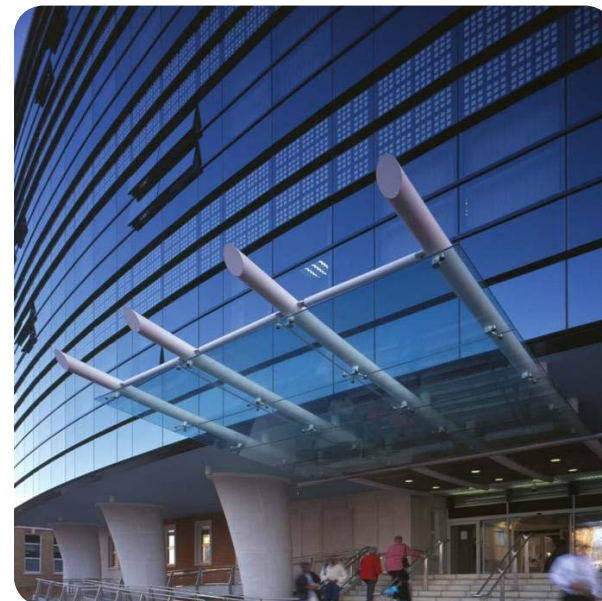
- NICU: Dr. Ann Hickey and neonatal team
- Blood bank: Emily Carpenter, James Davies, Kelly Nwankiti, Barbara Umlauf, Ken Amenyah
- Transformation team: Megan Beardsmore-Rust
- Midwifery team
- NHSBT



KING'S HEALTH PARTNERS

Thank you!

King's



KING'S HEALTH PARTNERS