Royal Hospital for Women (RHW)
NEONATAL BUSINESS RULE
COVER SHEET

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SUMMARY	To guide clinicians on performing a neonatal exchange blood transfusion in Newborn Care Centre
Key Words	Exchange transfusion, blood products, blood transfusion, jaundice, bilirubin, SBR, neonate, umbilical catheter, Haemolytic Disease of the Newborn

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This Clinical Business Rule (CBR) is developed to guide safe clinical practice at the Royal Hospital for Women (RHW). Individual patient circumstances may mean that practice diverges from this Clinical Business Rule. Using this document outside RHW or its reproduction in whole or part, is subject to acknowledgement that it is the property of RHW and is valid and applicable for use at the time of publication. RHW is not responsible for consequences that may develop from the use of this document outside RHW.

Within this document we will use the term woman, this is not to exclude those who give birth and do not identify as female. It is crucial to use the preferred language and terminology as described and guided by each individual person when providing care.

Exchange Transfusion - Neonates RHW CLIN139

1 BACKGROUND

An exchange transfusion removes aliquots of patient blood and replaces with donor blood to remove abnormal blood components and circulating toxins whilst maintaining adequate circulating blood volume. It is primarily performed to remove antibodies and excess bilirubin in isoimmune disease. The incidence of exchange transfusion is decreasing secondary to the prevention and improved prenatal management of alloimmune haemolytic disease and improvements in the management of neonatal hyperbilirubinemia. A total serum bilirubin level (SBR) at or above the exchange transfusion level should be considered a medical emergency and intensive phototherapy (multiple light) should be commenced immediately.

2 RESPONSIBILITIES

2.1.1 Medical / Neonatal Nurse Practitioner

- Obtain informed consent for blood transfusion and the exchange transfusion procedure from parent/guardian.
- Collect pre-exchange pathology blood samples from neonate and mother.
- Calculate and cross-check the blood volume required for exchange transfusion with neonate's bedside nurse or assistant proceduralist.
- Record calculated blood volume on Exchange Blood Transfusion Record form.
- Establish vascular access/es on neonate for blood exchange transfusion.
- Prescribe required blood products on patient's medical record.
- Order blood products on eMR and send pink form to blood bank with porter.
- Cross-check the bag of blood with the assistant proceduralist against neonate's identification label.
- Cross-check the bag of blood with the assistant proceduralist against the NSW Health Pathology Blood Bank Form and the neonate's identification label.
- Perform the exchange transfusion procedure.
- Perform required investigations post exchange transfusion.
- Inform parent/guardian of outcome of exchange transfusion.
- Document procedure summary in medical progress notes in eRIC.
- Record any incidents or adverse outcomes in the Incident Management System (IMS+) when required.

2.1.2 Nursing Staff

- Prepare the neonate and assist the proceduralist with the procedure.
- Perform a set of pre-exchange observations
- Perform all checks as stated in the Exchange Blood Transfusion Record Form.
- Perform all cross-checking procedures with the proceduralist.
- Monitor and record neonate's observation during the procedure.
- Document procedure summary in nursing progress notes in eRIC.
- Record any incidents or adverse outcomes in the IMS+ when required.

2.1.3 Porter

- Completes BloodSafe e-Learning: Transporting Blood
- Transport blood components from blood bank

2.1.4 Blood Bank

- Dispenses blood components
- Accepts return of blood components as required
- Completes Transfusion Reaction Investigation Reports as required

3 PROCEDURES

3.1.1 General Equipment

- GE Bili- soft blanket
- Disposable blanket cover (small or large)
- Disposable eye protection mask (correct size for neonate)
- Neonatal Jaundice Threshold Graphs (appropriate graph for gestation)
- Hat, mask, goggles, sterile gown and gloves
- Disinfectant wipes
- Sterile plastic drape (Large)
- 0.5% Chlorhexidine and 70% Alcohol wipes x3
- Vygon exchange transfusion set (275.00)
- 3-way tap for isovolumetric exchange
- Adhesive tape and scissors
- Biegler Dry Heat Infusing Warmer (BW 685 S)
- Extension Set (WB35000) thermal grade for the use with Biegler Dry Heat Infusing Warmer
- Cross-matched blood product/s
- Exchange transfusion record chart
- Pathology request forms, collection tubes and blood gas syringe
    - 3 x purple top tubes
    - 3 x yellow top tubes
    - 3 x blood gas syringe
    - 3 x coagulation study tube
- Cardiopulmonary monitor and pulse oximeter
- Servo control skin temperature probe and cover
- Neopuff™ with appropriately sized face mask
- Neonatal Resuscitation Equipment/trolley

3.1.2 Biegler blood warming equipment (Picture 1)

1. Secure to an Intravenous (IV) pole
2. Connect to the power supply and switch on.

Picture 1

3. Prime the heating tubing with required blood products.
4. Position the primed heating tubing in the groove from the start point for coiling as indicated on the heating equipment and coil 4 times in an anticlockwise direction.
5. Adjust the temperature to 37°C using the ▲ and ▼ arrows
6. Press ⊙ to start the heating.
7. Document the temperature reading hourly during the procedure.

3.2 Clinical Practice

3.2.1 When to undertake an exchange transfusion

- The total SBR is above the exchange transfusion threshold (refer to PT charts)
- SBR is rising ≥ 8.5 micromol/L per hour despite multiple light PT in a neonate with known haemolysis
- There are signs of bilirubin encephalopathy
- Significant polycythaemia (consider partial exchange at Neonatologists discretion)

3.2.2 Calculating Blood volume

- Blood volume for exchange is calculated using an estimate of the circulating blood volume
  - Term neonates 80ml/kg
  - Preterm neonates 100ml/kg

3.2.3 Type of exchange transfusion

- **Double volume exchange transfusion**
  - Used to remove of bilirubin and antibodies
  - 2x circulating blood volume
  - Replaces approximately 85% of the blood volume to reduce approximately 50% of the pre-exchange bilirubin level – watch for rebound
- **Single volume exchange transfusion**
  - 1 x circulating blood volume
  - Replaces approximately 60% of the blood volume
  - considered when aetiology is not Haemolytic Disease of the Newborn
- **Partial exchange transfusion**
  - For polycythaemia using 0.9% sodium chloride
  - Where desired haematocrit following exchange transfusion is 0.55
  - The volume of exchange calculated as

$$\frac{(\text{actual Hct} - \text{desired Hct}) \times \text{neonate's blood volume (mL)}}{\text{actual Hct}}$$

3.2.4 Blood Product

- Ensure appropriate samples for pre-exchange testing are sent to Blood Bank as early as possible.
- Notify Blood Bank via telephone as soon as possible after decision is made to exchange and order appropriate volume of blood as an **urgent request.**
- Order required amount of Packed Red Blood Cells (PRBC) and Fresh Frozen Plasma (FFP) for the exchange transfusion as calculated.
- Appropriate red cells for exchange transfusion should meet the following criteria:
  - Appropriate group based on neonate and maternal blood group and antibodies
  - Negative for antigens determined by maternal antibodies
  - Leukocyte depleted
  - Irradiated and used within 24 hours of irradiation
  - Cytomegalovirus (CMV) negative
  - As fresh as possible (ensure less than 5 days old)

3.2.4 Pre-transfusion sample collection

- Collect Cross Match and Group and Hold sample or check validity of previously collected sample result.
- Collect Newborn Bloodspot Screening Test (NBST) sample prior blood product transfusion if not previously collected.
- Sample **must be** collected if blood products are to be given <24 hours of age.

NOTE
Specimen labels **MUST BE** handwritten, **DO NOT USE A PATIENT LABEL**. Ensure the information and signatures are identical to that on the request form and electronic record including:
• Patient's name, date of birth and Medical Record Number (MRN) (when available)
• Date and time of collection
• Double signed on the label
• Complete and double sign the verification section on the request form with the same person.
Label templates are kept in the cupboard above blood gas machine. (Picture 2)

MRN	DOB	MRN	DOB
Surname		Surname	
First name		First name	
Collection date	Collection time	Collection date	Collection time
Initial 1_____	Initial 2_____	Initial 1_____	Initial 2_____

Picture 2

3.2.5 Consent for blood products

- A medical officer must obtain valid informed written consent including alternative therapies and the right to refuse transfusion from the parent/guardian before prescribing any blood products[8] on the Blood & Blood Products Administration form (Appendix 1).
- A parent/guardian may refuse the use of blood or blood components as part of their neonate's treatment. This may be due to religious reasons (as for Jehovah's Witnesses) or for other personal reasons. In these situations, alternative therapies may be necessary to treat or prevent anaemia. The Health Care Record should contain clear documentation that the parent/guardian is aware that the planned procedure/treatment may entail a higher risk in the event of further complications. A clinical haematology review is recommended.

3.2.6 Prescribing and Ordering

- Document indications for exchange transfusion in patient's health care record.
- Check if patient has valid Group and Hold blood test for crossmatch.
- Order the blood product in eMR Powerchart and send the printed request form to SEALS laboratory.
- Albumin can be directly collected from Blood Bank using the 'Authority to Issue Blood Products Form' (pink form) (Appendix 1).
- For urgent blood requests, call to alert blood bank of the urgent request.
- Check blood product availability in Patient Product Enquiry tab of Powerchart.
- Order the blood product, desired volume and infusion rate in eRIC.

3.2.7 Request for blood products

• The administration of CMV negative products is indicated for neonates up to 28 days
• Complete the Blood Transfusion Request Form, including:
  - Patient identification details
  - Clinical notes

- Pre-transfusion history
- Blood products required
- Transfusion checklist (including reason for transfusion)
- Requesting practitioner details
- Urgency of the transfusion
- Date and time the transfusion will take place

3.2.8 Collection, storage and transport

- Ensure the neonate is ready to receive the blood component and is wearing an identification band.
- Ensure that a signed valid consent and a prescription for the blood component forms is completed. (Appendix 1)
- Ensure the neonate has adequate number of patent vascular access to receive the blood components
- Check to see if the blood component is ready to be dispensed from Blood Bank via Patient Product Inquiry or phoning Blood Bank if not on eMR.
- Complete an 'Authority to Issue Blood Products Form' (pink form) (Appendix 2) ensuring special requirements section is completed (i.e. Irradiated, CMV negative etc.).
- Blood components are collected from Blood Bank (Level 4 Campus Centre) by a Porter, RN or MO.

> Note
> PRBC transfusions MUST commence within 30 mins of leaving a designated blood fridge or returned within 30 minutes to a designated blood fridge to prevent wastage with a Return Blood Product To Blood Bank form. (Appendix 5)

3.2.9 Preparation of neonate

1. Place the neonate on a bili- soft blanket, in a comfortable position on an open bed under servo temperature control.
2. Ensure neonate is connected to cardio-respiratory and pulse oximeter monitor.
3. Ensure all necessary vascular access are established, functional and secured.
   - A separate cannula is recommended for continuous infusion of FFP during the procedure
4. Perform a set of clinical observations prior to commencement of procedure.
   - Axilla temperature
   - Heart rate
   - Respiratory rate
   - Oxygen saturations
   - Non- invasive blood pressure
   - Arterial blood gas (if required)
5. Aspirate the gastric content and leave the intragastric tube on free drainage.
6. Ensure the resuscitation equipment/trolley is functional and nearby.
7. Complete the compatibility check at the patient bedside with a second RN or MO prior to the administration of **ALL** blood components.
8. Complete the 'SEALS Blood Bank Issue Report' checklist (Appendix 3) sent by blood bank with all blood products to be infused including:
   - Consent has been obtained
   - Validate patient details against patient identifier band
   - Validate blood product against issue report
   - Validate donation number and blood group on blood product against issue report

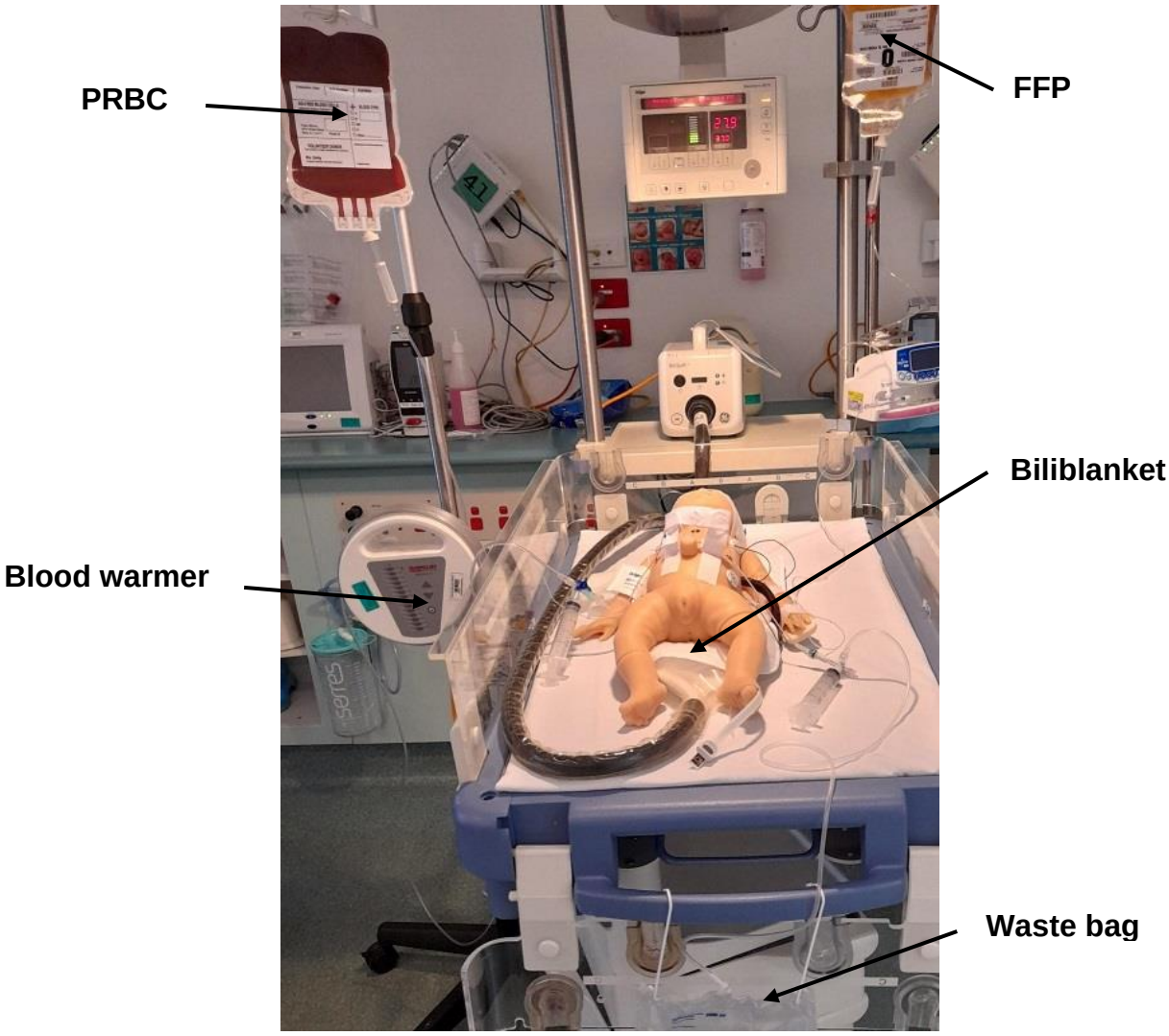
- Visually inspect the blood product
- Cross check for any special instructions
- Check product expiry date
- Check crossmatch expiry date

1. Document observations on the Neonatal Exchange Blood Transfusion Record (Appendix 4 A and B).

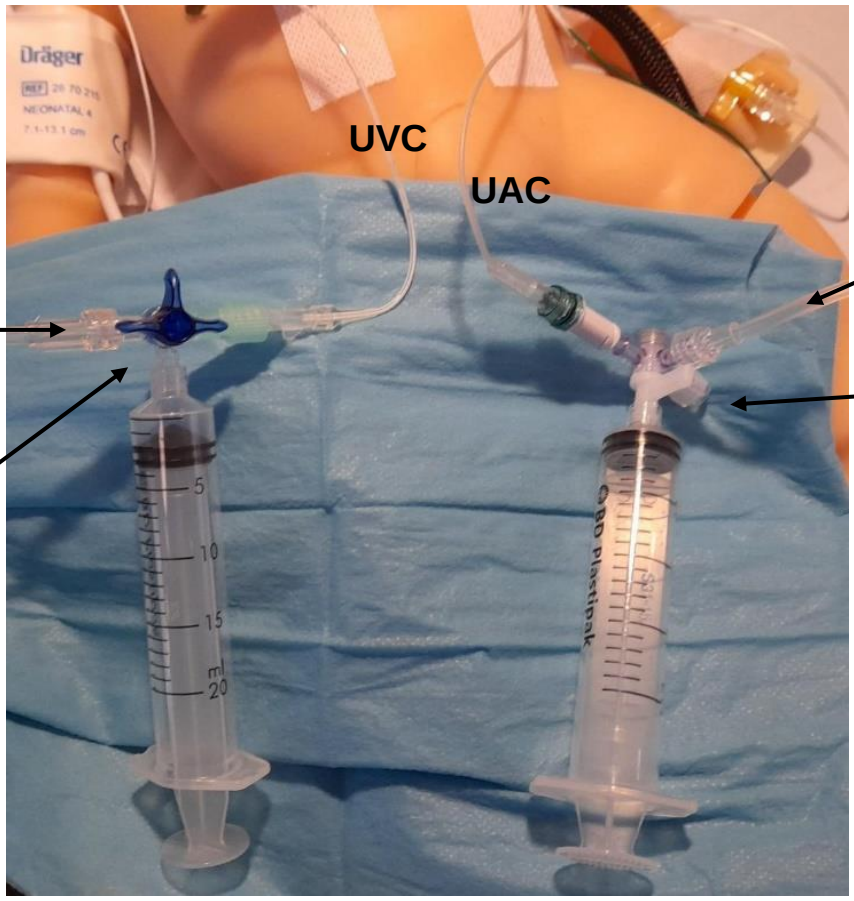
3.2.10 Exchange methods

- **Isovolumetric or simultaneous exchange** (Picture 3 and 4)
  - The preferred method, whereby blood is slowly withdrawn via one vascular access (such as via an arterial access) in pre-determined aliquots with simultaneous replacement of donor blood via the second vascular access (such as a venous access) using the same aliquot size.
  - The procedure should take a minimum of 2 hours but not exceeding 3.5 hours

2 proceduralists, blood products are at either sides of bed, using two blood vessels



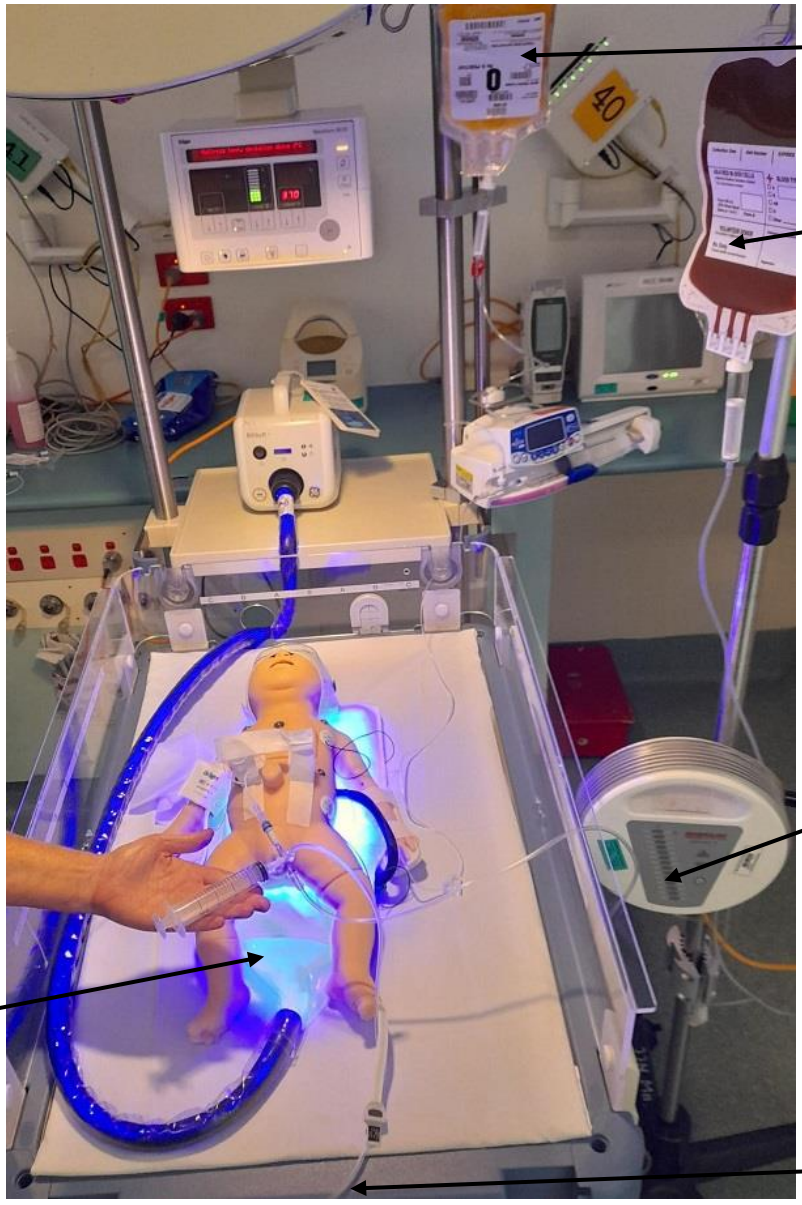
Picture 3


UVC
UAC
Connect to PRBC via blood giving set
3-way tap
Connect to the waste bag
4-way tap, 4th port capped

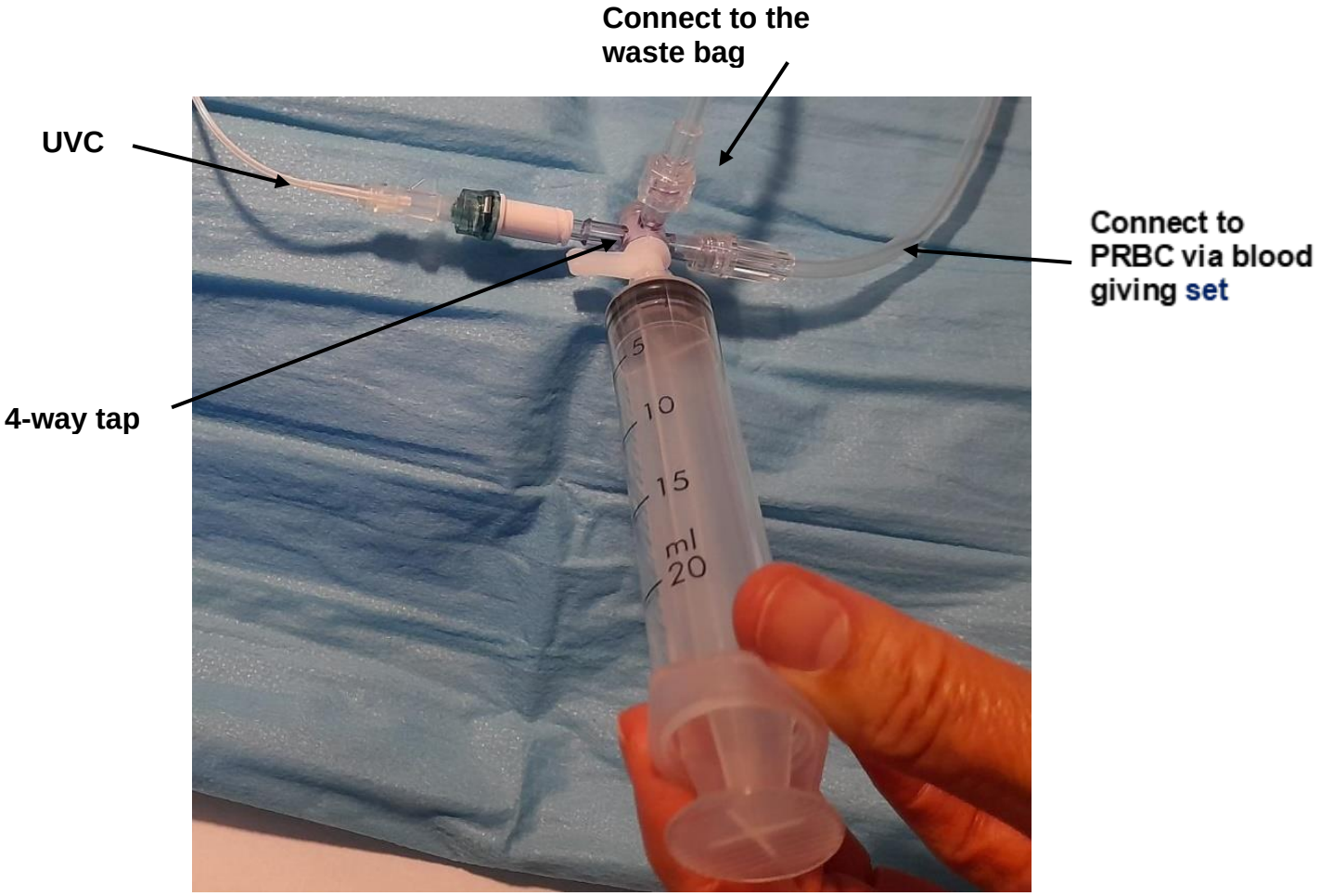
Picture 4

- **Push-pull method** (Picture 5 and 6)
  - This method uses one catheter to infuse and withdraw the aliquots of blood usually via an umbilical venous catheter.
  - The procedure should take a minimum of 2 hours but not exceeding 3.5 hours

1 proceduralist, blood products are on the same side of bed, using one blood vessel



Picture 5


Connect to the waste bag
UVC
Connect to PRBC via blood giving set
4-way tap
5
10
15
ml
20

Picture 6

- **Aliquots tolerated for exchange transfusion**:
  - Suggested to complete the process in 30 aliquots over a minimum of 2 hours that is 4 minutes per cycle
  - Less than 1500g – 5mL
  - 1500g – 2500g – 10mL
  - More than 2500g – 15mL
  - It is the neonatologist's discretion to increase the aliquots to 20mL if clinically indicated

IN	OUT	Number of Proceduralist	Assistant
Umbilical vein	Umbilical vein	1	1-2
Umbilical vein	Peripheral artery	2	1-2
Peripheral vein	Umbilical vein	2	1-2
Peripheral vein	Umbilical artery	2	1-2
Peripheral vein	Peripheral artery	2	1-2

Table 1

NOTE:
Exchange transfusion is a sterile procedure that requires surgical Aseptic non- touch technique (ANTT) throughout

3.3 Procedure set up

1. Clean the work-surface
2. Perform hand hygiene. Put hat, mask and goggles on.
3. Perform surgical hand wash, dry hands with sterile towel.
4. Don sterile gown and gloves.
5. Proceduralists to cover the work-surface with sterile plastic drape.
6. Assistant to open packets of equipment onto work surface.
7. Proceduralist to prime the blood giving set with blood product.
8. Proceduralist is to commence exchange transfusion procedure after assembling equipment.
9. Assistant is to commence documentation of procedure.

3.3.1 Isovolumetric or simultaneous exchange steps (Table 1)

3.3.1.1 Removing blood via first vascular access

- Connect 10 or 20 mL syringe to the exchange transfusion set via the opaque 4 way connector.
- Connect waste line to the luer lock of 4-way tap.
- Insert end of waste line into the waste bag and secure it with adhesive tape.
- Cap the remaining luer lock port of the 4- way tap (keep port capped and do not use for the whole procedure).
- Connect the slip port of the exchange transfusion set to the hub of the vascular access after cleaning with chlorhexidine 0.5% and alcohol 70% swabs 3 times for 30 seconds. Allow to dry.
- Proceduralist 1 turns the 4-way tap towards the vascular access and withdraws blood into the syringe in 4 minutes per aliquots while proceduralist 2 is simultaneously infusing the same volume of aliquots of blood through the alternate vascular access.
- Turn 4-way tap off to the vascular access and open to the waste-bag to empty the withdrawn blood.
- Repeat procedure until the calculated blood volume is administered.

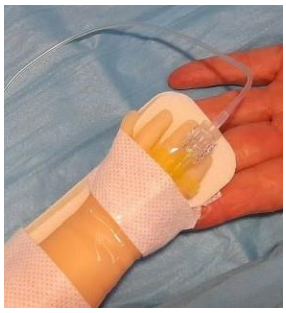
3.3.1.2. Infusing blood via second vascular access

- Connect blood giving set with 200-micron filter to heating line.
- Connect heating line to a 3-way tap.
- Connect 10 or 20 mL syringe to the second port of the 3-way tap.
- Connect blood giving set to the bag of blood and hang on the IV pole.
- Prime blood infusion line.
- Insert heating coil into the grooves of the Biegler blood warming equipment and coil 4 times in an anticlockwise direction.
- Clean the second vascular access with chlorhexidine 0.5% and alcohol 70% swab 3 times for 30 seconds. Allow to dry.
- Turn 3-way tap towards blood giving set and draw calculated aliquots of blood into syringe.
- Turning 3-way tap towards neonate, proceduralist 2 is infusing blood to the alternate vascular access in 4 minutes per aliquots while proceduralist 1 simultaneously withdraws the same volume of aliquots of blood from the primary vascular access.
- Repeat procedure until the calculated blood volume is administered.
- Assistant gently rotates the bag of blood product every hour during the procedure and is completing documentation as per Neonatal Exchange Blood Transfusion Record. (Appendix 4 A and B)

3.3.2 Push-pull method (Table 1)

1. Connect 10 or 20 mL syringe to the exchange transfusion set via the opaque 4-way connector.
2. Connect waste line to a luer lock of 4-way tap.
3. Insert the end of waste line into the waste bag and secure it with adhesive tape.
4. Connect heating line to the second luer lock port of 4-way tap.
5. Connect blood giving set with 200- micron filter to heating extension.
6. Connect blood giving set to the bag of blood and hang on the IV pole.
7. Insert heating coil into the grooves of the Biegler blood warming equipment and coil 4 times in an anticlockwise direction.
8. Check all lines are securely connected to the 4-way tap.
9. Prime the exchange transfusion set.
10. Connect the primed 4-way tap to the umbilical venous catheter.
11. Proceduralist to turn the 4-way tap towards the vascular access and withdraw blood into the syringe in 4 minutes per aliquots.
12. Turn 4-way tap off to the vascular access and open to the waste-bag to empty the withdrawn blood.
13. Turn 4-way tap to blood giving set and draw calculated aliquots of blood to syringe.
14. Turning 4-way tap towards neonate, proceduralist is infusing blood to the vascular access in 4 minutes per aliquots.
15. Repeat procedure until the calculated blood volume is administered
16. Assistant to gently rotate the bag of blood product every hour during the procedure and completes documentation as per Neonatal Exchange Blood Transfusion Record. (Appendix 4 A and B)

NOTE:
FFP is continually infusing via a peripheral intravenous catheter (PIVC) during exchange procedure (Picture 7)
Do not use albumin priming during exchange transfusion.
Do not routinely administer IV calcium following exchange transfusion.



Picture 7

3.4 Monitoring the neonate during the procedure

1. Initial blood tests
   - Use the first withdrawn aliquot of blood to analyse Full blood count (FBC), creatinine, sodium, potassium, magnesium, calcium, glucose, SBR, Arterial Blood Gas (ABG), lactate and NBST (if not already taken). Record the amount of blood taken from the neonate for pathology at commencement of procedure on the Blood Exchange Observation Chart (if medically required). (Appendix 4 A and B)
   - Repeat blood tests after every 10 cycles using the waste blood for FBC urea, creatinine, sodium, potassium, magnesium, calcium, glucose, ABGs and lactate, coagulation profile
2. Record the amount of blood removed and infused on the Blood Exchange Observation Chart.
3. Monitor and record the neonate's vital signs and record on Observation Chart (Appendix 1 and 2)
   - Every 15 minutes readings from the monitor of:
     - Heart rate
     - Respiratory rate
   - Hourly readings of:
     - Servo Temperature
     - Temperature of infusion Warmer (Biegler BW 685 S) – maintain at 37°C
     - Blood pressure (cuff reading if no continuous blood pressure monitoring)
     - Saturation of partial oxygen (SpO_2) oximeter reading
     - Observe neonate's behavioural state during the procedure

3.5 Post Exchange care

- Notify parents that the procedure has been completed, and their baby is comfortable.
- Repeat all vital signs and observations 30 minutely for 4 hours followed by routine observations
- Continue prescribed phototherapy and review with SBR 2 hours post procedure.
- Continue 6 hourly SBRs unless otherwise directed by neonatologist.
- Remove exchange transfusion equipment and discard in waste container.
- Connect intravenous and arterial fluids as ordered.
- Check blood glucose levels and ABGs (if indicated) 30 minutes after exchange and as clinical condition dictating.
- Monitor signs and possible complications including thrombocytopenia, bleeding, signs of infection, feed intolerance or abdominal distension.

3.6 Adverse reactions

- Hypothermia -skin temperature below 36°C.
- Hyperglycaemia – donor blood is preserved in dextrose.
- Hypoglycaemia - may occur during and shortly after the exchange.

- Hyperkalaemia - more likely to in a sick preterm neonate.
- Hypocalcaemia - rare occurrence as preservative anticoagulants used.
- Hypernatremia**.**
- Metabolic acidosis - mild metabolic acidosis is common, no treatment is required.
- Thrombocytopaenia - stored red cells are platelet depleted causing platelet count to fall, may need to correct platelet counts.
- Polycythaemia or anaemia
- Coagulopathy or neutropenia (more likely with multiple episodes of transfusion)
- Blood transmitted infections (i.e. cytomegalovirus)
- Infection.
- Necrotising Enterocolitis - ensure that Umbilical arterial catheter or umbilical venous catheter are in correct position.
- Air Embolus.
- Seizure
- Graft versus Host disease (more likely with preterm neonates, intrauterine transfusions, multiple exchanges and related donors)
- Arrhythmias, bradycardia, cardiac arrest

3.7 Management for Adverse Reaction and/or Negative Outcome

1. Correct adverse reactions if possible.
2. Initiate resuscitative actions as indicated (maintaining Airway, Breathing and Circulation)
3. Disconnect blood infusion lines and ensure a patent vascular access is available for resuscitation if required.
4. Keep all infusion lines for dispatch to the Blood Bank for investigation.
5. Document the adverse reaction/s in neonate's notes (eRIC) and IMS+
6. Review the neonate's health status and the continuation of the procedure.

3.7.1 Management for Adverse Reaction resulting in neonate's death

1. Inform the Medical and Nursing Co-Directors, Nursing Unit Manager and Nursing Supervisor on duty.
2. Keep all infusion lines for dispatch to the Blood Bank for investigation.
3. Photograph the transfusion set-up, procedure trolley, bedspace and any relevant pictures related to the procedure.
4. Do not remove any access device/s or lines in situ – Coroner's permission must be obtained.
5. Any lines and blood packs removed must be sent to Blood Bank for analysis.
6. Photocopy all clinical records of neonate for the coroner.
7. Do not dispose any equipment used in the Exchange Transfusion. They are required by the coroner.

3.8 Documentation

- In eRIC nursing notes
- In eRIC medical progress notes
- Exchange transfusion record within the jaundice tab on eRIC
- Neonatal Exchange Blood Transfusion Record (Appendix 4 A and B)

3.9 Abbreviations

SBR	Serum Bilirubin	Ims+	Incident management system
IV	Intravenous	PRBC	Packed Red Blood Cells

FFP	Fresh Frozen Plasma	CMV	Cytomegalovirus
NBST	Newborn Bloodspot Screening Test	MRN	Medical Record Number
ANTT	Aseptic Non-Touch Technique	PIVC	Peripheral Intravascular Catheter
FBC	Full blood count	ABG	Arterial Blood Gas
SpO_2	Saturation of partial oxygen		

3.10 References

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3.11 RELATED BUSINESS RULES AND POLICY DOCUMENTS

- RHW NCC Medical CBR- Antisepsis in the Newborn Care Centre
- RHW NCC Medical CBR- Blood Product Transfusion – Neonate
- RHW NCC Medical CBR- Umbilical Catheterisation
- Reference jaundice policies

4 ABORIGINAL HEALTH IMPACT STATEMENT DOCUMENTATION

- Considerations for culturally safe and appropriate care provision have been made in the development of this Business Rule and will be accounted for in its implementation.
- When clinical risks are identified for an Aboriginal and/or Torres Strait Islander woman or family, they may require additional supports. This may include Aboriginal health professionals such as Aboriginal liaison officers, health workers or other culturally specific services

5 Cultural Support

- For a Culturally and Linguistically Diverse CALD woman, notify the nominated cross-cultural health worker during Monday to Friday business hours
- If the woman is from a non-English speaking background, call the interpreter service: NSW Ministry of Health Policy Directive PD2017_044-Interpreters Standard Procedures for Working with Health Care Interpreters.

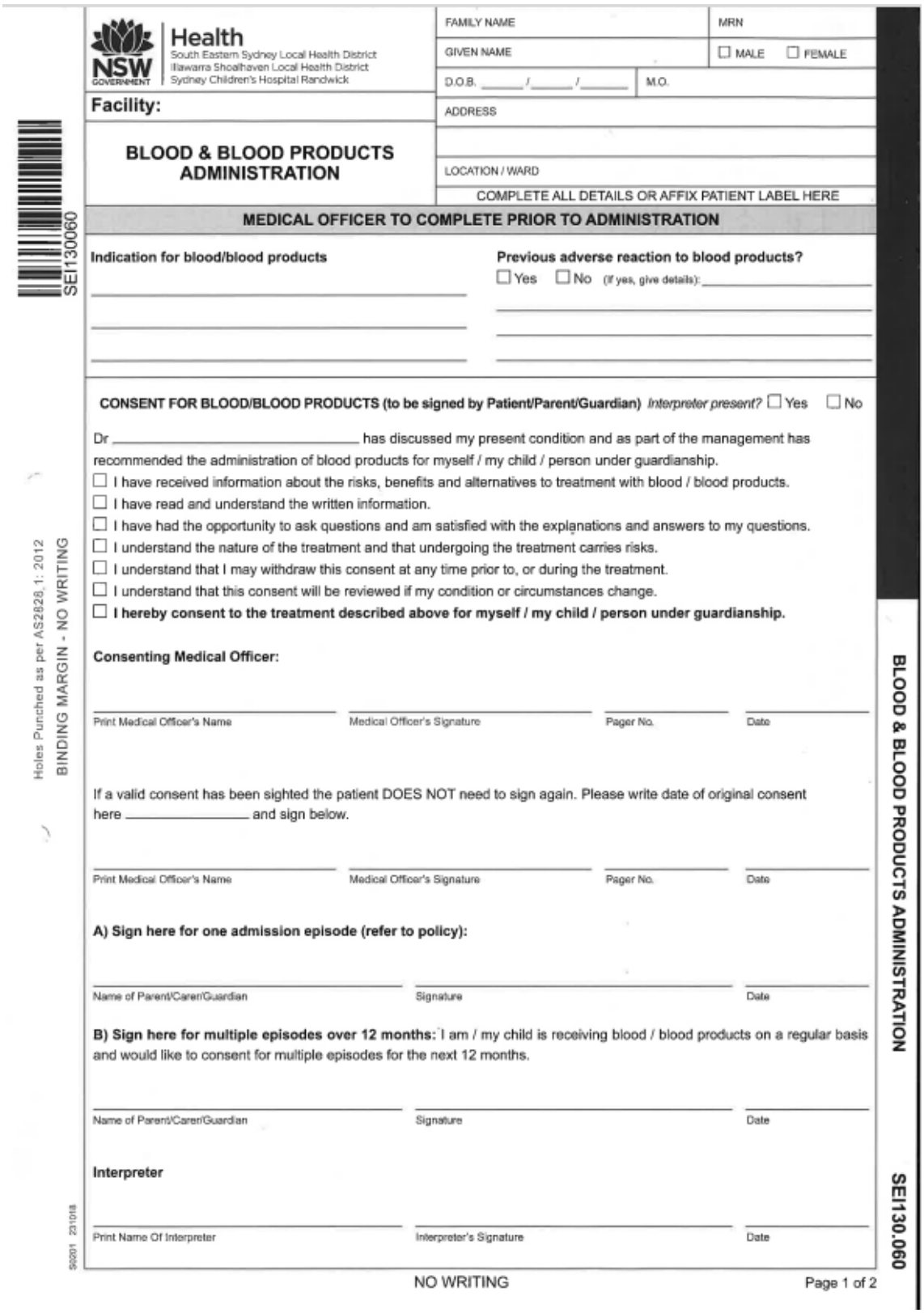
6 NATIONAL STANDARDS

- Standard 1 Clinical Governance
- Standard 2 Communicating for Safety
- Standard 3 Preventing and Controlling Infections
- Standard 5 Comprehensive Care
- Standard 7 Blood Management
- Standard 8 Recognising and Responding to Acute Deterioration

7 REVISION AND APPROVAL HISTORY

Date	Revision No.	Author and Approval
2005	Primary	KB Lindrea (CNC), NCC Policy/Procedure Working Group
08/04/2013	2	KB Lindrea (CNC), NCC Policy/Procedure Working Group
18/07/2018	3	KB Lindrea (CNC), NCC Policy/Procedure Working Group
11/11/2024 6.3.25	4	E Jozsa (CNS), KB Lindrea (CNC), S. Walsh (CNE) Endorsed NCC CBR Committee
28.4.25	4	RHW BRGC

Appendix 1 Blood & Blood Products Administration form



Health
South Eastern Sydney Local Health District
Illawarra Shoalhaven Local Health District
Sydney Children's Hospital Randwick

Facility:

BLOOD & BLOOD PRODUCTS ADMINISTRATION

SEI130060

FAMILY NAME | MRN
GIVEN NAME | ☐ MALE ☐ FEMALE
D.O.B. ___/___/___ | M.O.
ADDRESS
LOCATION / WARD
COMPLETE ALL DETAILS OR AFFIX PATIENT LABEL HERE

MEDICAL OFFICER TO COMPLETE PRIOR TO ADMINISTRATION

Indication for blood/blood products

Previous adverse reaction to blood products? ☐ Yes ☐ No (If yes, give details): _____

CONSENT FOR BLOOD/BLOOD PRODUCTS (to be signed by Patient/Parent/Guardian) *Interpreter present?* ☐ Yes ☐ No

Dr _____ has discussed my present condition and as part of the management has recommended the administration of blood products for myself / my child / person under guardianship.

- ☐ I have received information about the risks, benefits and alternatives to treatment with blood / blood products.
- ☐ I have read and understand the written information.
- ☐ I have had the opportunity to ask questions and am satisfied with the explanations and answers to my questions.
- ☐ I understand the nature of the treatment and that undergoing the treatment carries risks.
- ☐ I understand that I may withdraw this consent at any time prior to, or during the treatment.
- ☐ I understand that this consent will be reviewed if my condition or circumstances change.
- ☐ **I hereby consent to the treatment described above for myself / my child / person under guardianship.**

Consenting Medical Officer:

Print Medical Officer's Name | Medical Officer's Signature | Pager No. | Date

If a valid consent has been sighted the patient DOES NOT need to sign again. Please write date of original consent here _____ and sign below.

Print Medical Officer's Name | Medical Officer's Signature | Pager No. | Date

A) Sign here for one admission episode (refer to policy):

Name of Parent/Carer/Guardian | Signature | Date

B) Sign here for multiple episodes over 12 months: I am / my child is receiving blood / blood products on a regular basis and would like to consent for multiple episodes for the next 12 months.

Name of Parent/Carer/Guardian | Signature | Date

Interpreter

Print Name Of Interpreter | Interpreter's Signature | Date

NO WRITING

Page 1 of 2

BLOOD & BLOOD PRODUCTS ADMINISTRATION SEI130.060

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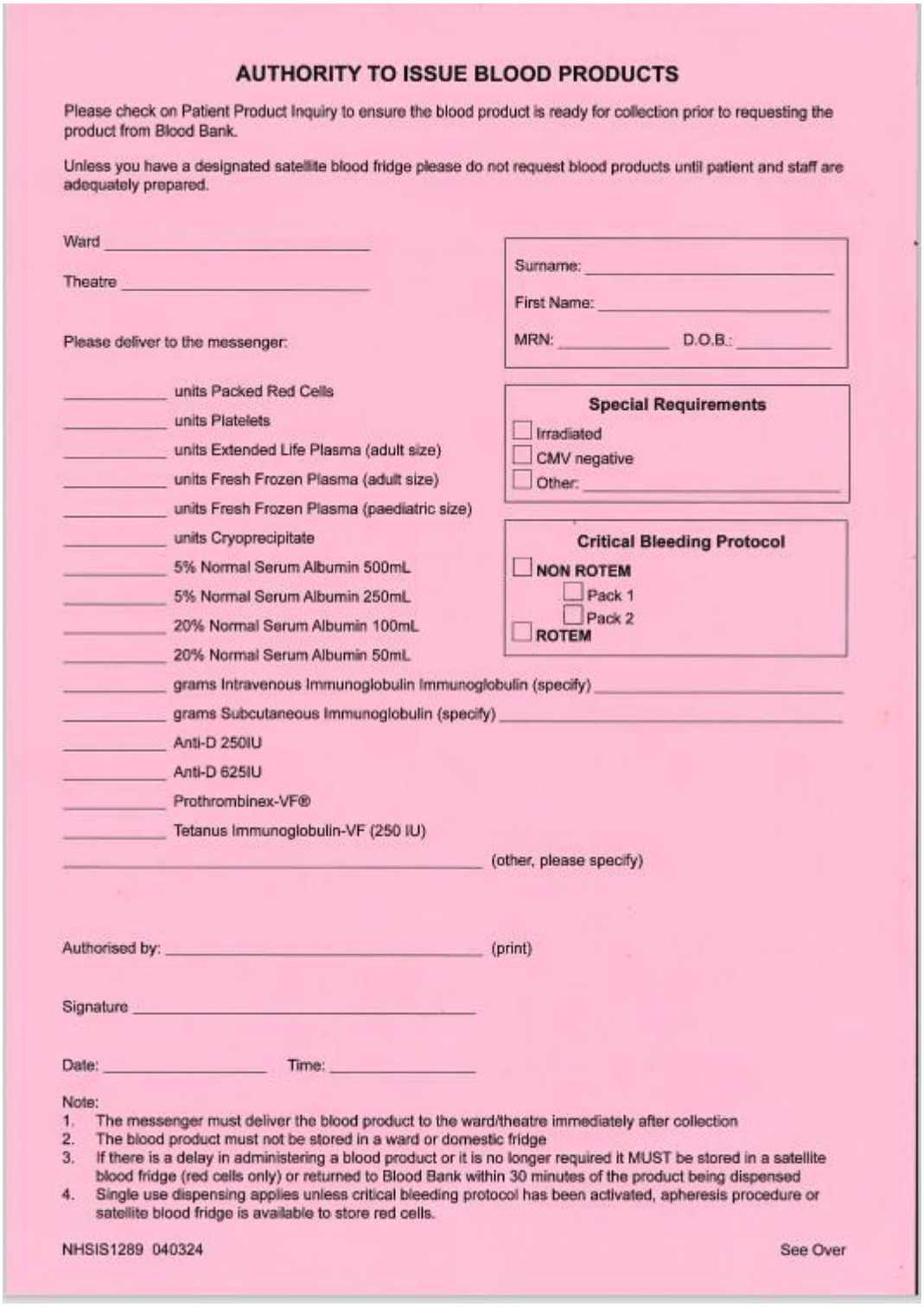
Appendix 2 Authority to Issue Blood Products Form (pink form)



AUTHORITY TO ISSUE BLOOD PRODUCTS

Please check on Patient Product Inquiry to ensure the blood product is ready for collection prior to requesting the product from Blood Bank.

Unless you have a designated satellite blood fridge please do not request blood products until patient and staff are adequately prepared.

Ward _____

Theatre _____

Please deliver to the messenger:

Surname: _____

First Name: _____

MRN: _____ D.O.B.: _____

_____ units Packed Red Cells
_____ units Platelets
_____ units Extended Life Plasma (adult size)
_____ units Fresh Frozen Plasma (adult size)
_____ units Fresh Frozen Plasma (paediatric size)
_____ units Cryoprecipitate
_____ 5% Normal Serum Albumin 500mL
_____ 5% Normal Serum Albumin 250mL
_____ 20% Normal Serum Albumin 100mL
_____ 20% Normal Serum Albumin 50mL
_____ grams Intravenous Immunoglobulin Immunoglobulin (specify) _____
_____ grams Subcutaneous Immunoglobulin (specify) _____
_____ Anti-D 250IU
_____ Anti-D 625IU
_____ Prothrombinex-VF®
_____ Tetanus Immunoglobulin-VF (250 IU)
_____ (other, please specify)

Special Requirements
☐ Irradiated
☐ CMV negative
☐ Other: _____

Critical Bleeding Protocol
☐ **NON ROTEM**
☐ Pack 1
☐ Pack 2
☐ **ROTEM**

Authorised by: _____ (print)

Signature _____

Date: _____ Time: _____

Note:
1. The messenger must deliver the blood product to the ward/theatre immediately after collection
2. The blood product must not be stored in a ward or domestic fridge
3. If there is a delay in administering a blood product or it is no longer required it MUST be stored in a satellite blood fridge (red cells only) or returned to Blood Bank within 30 minutes of the product being dispensed
4. Single use dispensing applies unless critical bleeding protocol has been activated, apheresis procedure or satellite blood fridge is available to store red cells.

NHSIS1289 040324 See Over

Appendix 3 SEALS Blood Bank Issue Report' checklist

NSW Health Pathology

creating better health & justice systems
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NSWHP East–South Blood Bank Issue Report

Antibodies:

Patient Name: [redacted]
Date of Birth: 23 JUN 2024
Patient Blood Group: O Pos
Special Instructions:

Facility/MRN: [redacted]

Issued to: NICU RHW
Issued at: 24 JUN 2024 17:15
Issued by: 60277804

Hx Name: [redacted]

Hx MRN: [redacted]

Crossmatch Expiry: 21 OCT 2024 23:59

Transfusion Administration Checklist:

The following details must be independently checked by 2 accredited staff members, and both staff must sign this issue report

- ☐ 1. Check patient has received education (verbal / written) and is ready for procedure
- ☐ 2. Check that consent has been obtained
- ☐ 3. Validate patient details against patient identification band
- ☐ 4. Validate blood product against the issue report
- ☐ 5. Validate donation number and blood group on blood product against issue report
- ☐ 6. Visually inspect the blood product
- ☐ 7. Crosscheck for any special instructions and determine if premedication is required
- ☐ 8. Check Product Expiry date
- ☐ 9. Check Crossmatch Expiry date

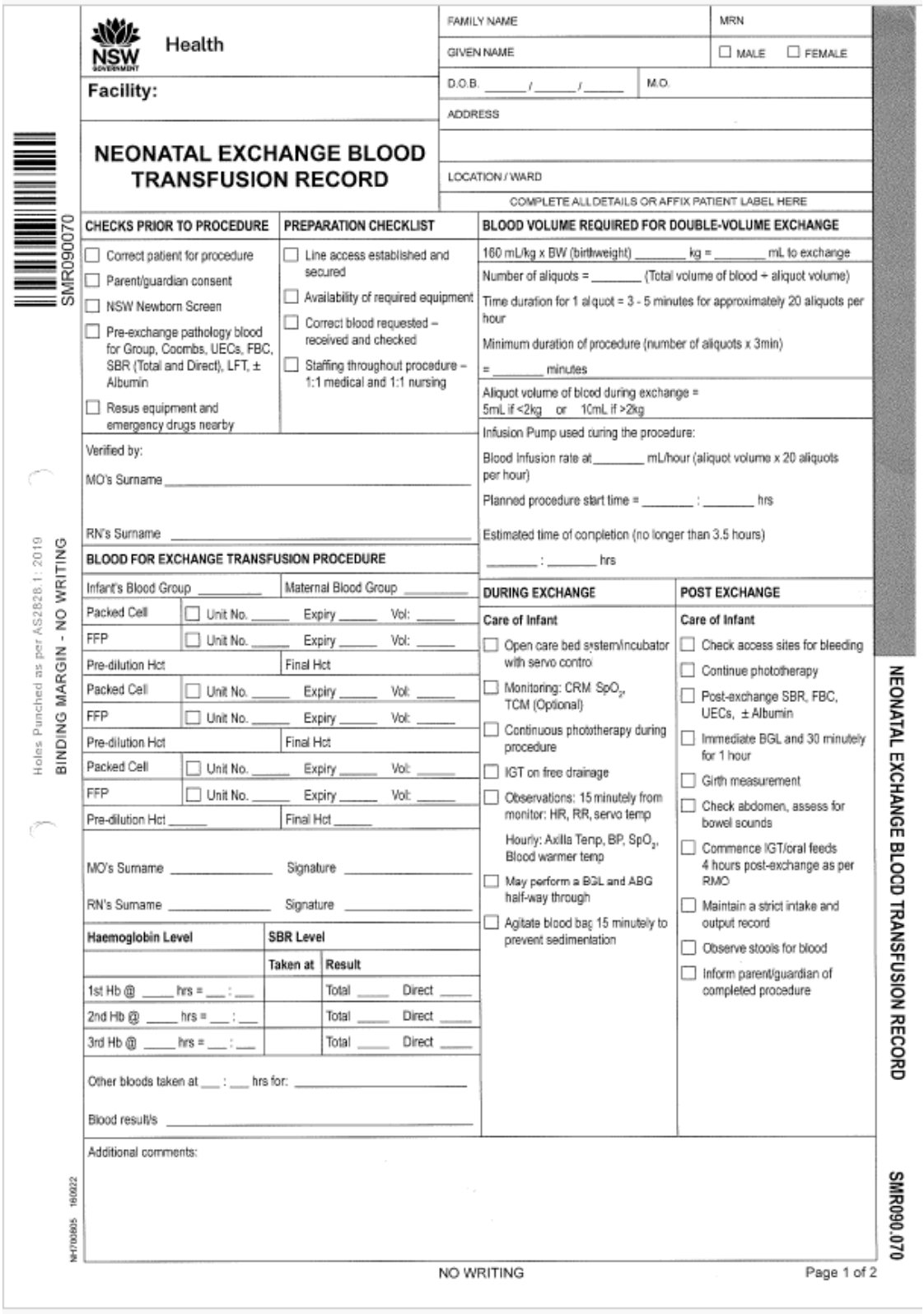
Product Type	Product No.	Blood Group	Expiry Date & Time	Checked by: Signature	Administered by: Signature	Start Date	Start Time	Finish Date	Finish Time
PC IRR LD	2382230	O Pos	04 JUL 2024 23:59	[signature]	[signature]	17 4 0	24/6/24		

Phone 1800 073 257

Date printed: 24-JUN-2024, Page 1 of 1

Transfusion

Appendix 4 A Exchange Blood Transfusion Record



NSW Health

Facility:

FAMILY NAME | MRN

GIVEN NAME | ☐ MALE ☐ FEMALE

D.O.B. ____/____/____ | M.O.

ADDRESS

LOCATION / WARD

COMPLETE ALL DETAILS OR AFFIX PATIENT LABEL HERE

NEONATAL EXCHANGE BLOOD TRANSFUSION RECORD

SMR090070

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CHECKS PRIOR TO PROCEDURE

- ☐ Correct patient for procedure
- ☐ Parent/guardian consent
- ☐ NSW Newborn Screen
- ☐ Pre-exchange pathology blood for Group, Coombs, UECs, FBC, SBR (Total and Direct), LFT, ± Albumin
- ☐ Resus equipment and emergency drugs nearby

PREPARATION CHECKLIST

- ☐ Line access established and secured
- ☐ Availability of required equipment
- ☐ Correct blood requested – received and checked
- ☐ Staffing throughout procedure – 1:1 medical and 1:1 nursing

BLOOD VOLUME REQUIRED FOR DOUBLE-VOLUME EXCHANGE

160 mL/kg x BW (birthweight) _____ kg = _____ mL to exchange

Number of aliquots = _____ (Total volume of blood ÷ aliquot volume)

Time duration for 1 aliquot = 3 - 5 minutes for approximately 20 aliquots per hour

Minimum duration of procedure (number of aliquots x 3min)

= _____ minutes

Aliquot volume of blood during exchange =
5mL if <2kg or 10mL if >2kg

Infusion Pump used during the procedure:

Blood Infusion rate at _____ mL/hour (aliquot volume x 20 aliquots per hour)

Planned procedure start time = _____ : _____ hrs

Estimated time of completion (no longer than 3.5 hours)

_____ : _____ hrs

Verified by:

MO's Surname _____

RN's Surname _____

BLOOD FOR EXCHANGE TRANSFUSION PROCEDURE

Infant's Blood Group _____	Maternal Blood Group _____	
Packed Cell	☐ Unit No. ____ Expiry ____	Vol: ____
FFP	☐ Unit No. ____ Expiry ____	Vol: ____
Pre-dilution Hct	Final Hct	
Packed Cell	☐ Unit No. ____ Expiry ____	Vol: ____
FFP	☐ Unit No. ____ Expiry ____	Vol: ____
Pre-dilution Hct	Final Hct	
Packed Cell	☐ Unit No. ____ Expiry ____	Vol: ____
FFP	☐ Unit No. ____ Expiry ____	Vol: ____
Pre-dilution Hct ____	Final Hct ____	

MO's Surname _____ Signature _____

RN's Surname _____ Signature _____

Haemoglobin Level	SBR Level	
	Taken at	Result
1st Hb @ ____ hrs = ___ : ___		Total ____ Direct ____
2nd Hb @ ____ hrs = ___ : ___		Total ____ Direct ____
3rd Hb @ ____ hrs = ___ : ___		Total ____ Direct ____

Other bloods taken at ___ : ___ hrs for: _____

Blood result/s _____

DURING EXCHANGE

Care of Infant

- ☐ Open care bed system/incubator with servo contro
- ☐ Monitoring: CRM SpO_2, TCM (Optional)
- ☐ Continuous phototherapy during procedure
- ☐ IGT on free drainage
- ☐ Observations: 15 minutely from monitor: HR, RR, servo temp
  Hourly: Axilla Temp, BP, SpO_2, Blood warmer temp
- ☐ May perform a BGL and ABG half-way through
- ☐ Agitate blood bag 15 minutely to prevent sedimentation

POST EXCHANGE

Care of Infant

- ☐ Check access sites for bleeding
- ☐ Continue phototherapy
- ☐ Post-exchange SBR, FBC, UECs, ± Albumin
- ☐ Immediate BGL and 30 minutely for 1 hour
- ☐ Girth measurement
- ☐ Check abdomen, assess for bowel sounds
- ☐ Commence IGT/oral feeds 4 hours post-exchange as per RMO
- ☐ Maintain a strict intake and output record
- ☐ Observe stools for blood
- ☐ Inform parent/guardian of completed procedure

Additional comments:

NEONATAL EXCHANGE BLOOD TRANSFUSION RECORD

SMR090.070

NH1700805 160922

NO WRITING

Page 1 of 2

Appendix 4 Exchange Blood Transfusion Record

NSW Health

Facility:

NEONATAL EXCHANGE BLOOD TRANSFUSION RECORD

FAMILY NAME	MRN
GIVEN NAME	☐ MALE ☐ FEMALE
D.O.B. ______/______/______	M.O.
ADDRESS	
LOCATION / WARD	

COMPLETE ALL DETAILS OR AFFIX PATIENT LABEL HERE

Pre-Exchange Observations

Date	Time	Temp	HR	BP	BGL	SpO_2	TCM	Girth	Other			
_/_/__	__:__											

Post-Exchange Observations

Observations during Procedure

OUT			IN			OBSERVATIONS					
Time	Vol Out	Total Out	Time	Vol In	Total In	**TEMP**	**HR** 15 minutely monitor readings	**RR**	**Invasive or NI BP**	**BLOOD WARMER TEMP** Hrly	**MEDS** (Time given - e.g. calcium gluconate, sedation, etc.) **Path Bloods** Time sent and results
__:__			__:__								
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BINDING MARGIN - NO WRITING

Holes Punched as per AS2828.1: 2019

SMR090070

Page 2 of 2 NO WRITING

Appendix 5 Return of Blood or Blood Product(s) to Blood Bank at the back of the Authority to Issue Blood Products Form (pink form)

RETURN OF BLOOD PRODUCTS TO BLOOD BANK

Blood products must be returned to Blood Bank as soon as possible for appropriate storage to prevent wastage.
The following blood product(s) is/are to be returned to Blood Bank:

Product Type:	Product Number:	Patient Name:

Was the blood product kept at any time at room temperature? ☐ Yes ☐ No
If yes, please give details of time and place:

Authorised by: _____ (print)

Signature _____

Date: _____ Time: _____

TRANSFUSION REACTION INVESTIGATION

- In the event of a transfusion reaction, check the blood pack, patient ID, labels and forms for discrepancies and contact Blood Bank immediately
- In the event of a major reaction, consult the Haematologist on call
- Send the following samples with urgent request forms to Blood Bank
  1 x labelled clotted specimen (urea and electrolytes)
  2 x labelled EDTA specimens (repeat cross match, FBC and haemolytic markers)
  1 x labelled coagulation specimen
  First void urine specimen
  Blood cultures if the patient's temperature rises > 1.5°C above baseline or if bacterial sepsis is suspected

PATIENT DETAILS	REQUESTING PRACTITIONER
MRN:	SURNAME:
SURNAME:	FIRST NAMES:
FIRST NAME:	SIGNATURE:
DOB: __/__/____	PAGER NO: _____ PHONE NO: _____
AFFIX PATIENT ID LABEL	

Date of report: ____/____/_____ Time of report: _____ am/pm Ward/Unit: _____

Suspected blood product(s): _____ Blood product donation number: _____

Clinical Details: _____

Time transfusion commenced: _____ Time reaction noted: _____

Time transfusion stopped: _____ Estimate volume of blood product transfused: _____

Type of reaction suspected::
☐ Febrile non-haemolytic ☐ Urticarial
☐ Circulatory overload ☐ Haemolytic
☐ Bacterial contamination ☐ Transfusion-related acute lung injury (TRALI)
☐ Anaphylactic ☐ Other (please state): _____

Symptoms:
☐ Hypotension ☐ Dyspnoea ☐ Urticaria ☐ Oliguria / Anuria
☐ Tachycardia ☐ Bronchospasm ☐ Lumbar pain ☐ Jaundice
☐ Pyrexia ☐ Pulmonary Oedema ☐ Haemoglobinuria
☐ Rigors ☐ Rash ☐ Other (please state): _____