Safe transfusion

For junior medical officers

Australian Red Cross Lifeblood

Safe transfusion

Blood components and products
How, what, when, why?

For more information refer to **transfusion.com.au** or the **Blood Component Information** booklet at **transfusion.com.au/bci**

The transfusion process
The decision to transfuse, consent, documentation, sample collection, administration, monitor and response.

For more information refer to **transfusion.com.au** or download the **iTransfuse App**

Adverse transfusion reactions Recognise, react and report

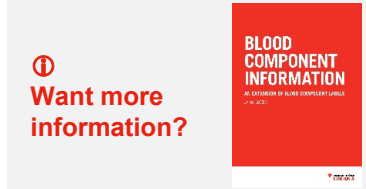
For more information refer to **transfusion.com.au** or download the **iTransfuse App**

Blood components and products

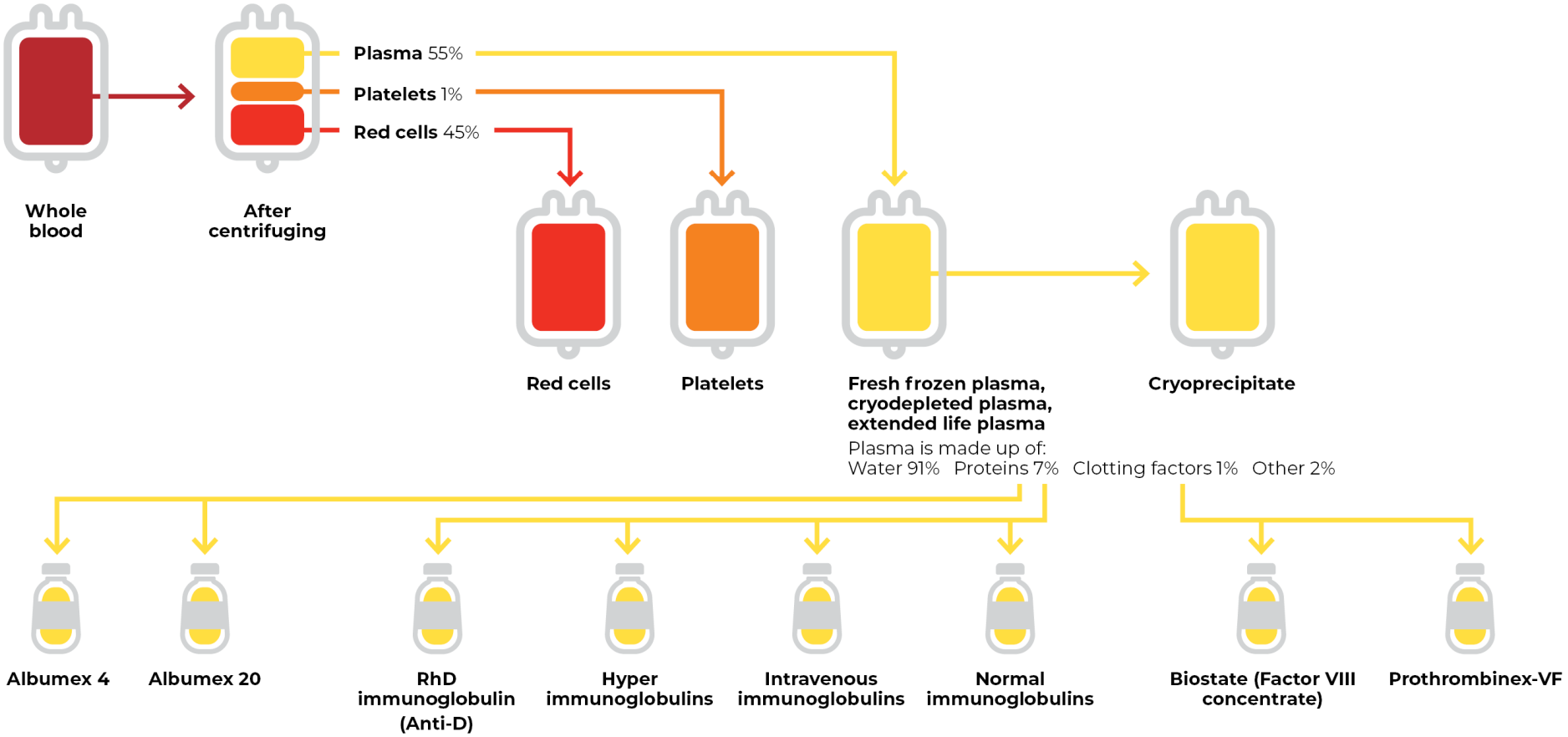
Australian Red Cross Lifeblood

Blood components and products

Want more information?



Blood components and products



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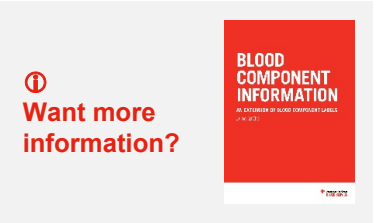


Fresh components

- Red cells
- Platelets

Frozen components

- Fresh frozen plasma (FFP)
- Cryoprecipitate
- Cryodepleted plasma

Fractionated plasma products

- Albumin
- Prothrombinex-VF
- Immunoglobulins
  - IVIg, SCIg
  - CMV Ig, HBV Ig
- Factor concentrates
  - FVIII, FIX for haemophilia

Red cells

Want more information?

Indications: Management of symptomatic anaemia or to maintain intravascular volume during critical bleeding.

Transfusion decision should NOT be based on a Hb trigger

- Transfusion should be **dictated by clinical status**, NOT by Hb alone
- Transfusion may not be required in well-compensated patients, or where other specific therapy is available
- Transfusion is not without risk; **patient blood management principles** should always be considered

Red cells

Want more information?

Dose: Single unit transfusion followed by clinical reassessment is considered current best practice. 1 unit is expected to increase Hb by 10g/L in stable 70 kg adults.

Product information: Manufactured from a whole blood donation, and available in Group A, B, O, AB and Rh D positive/negative.

Volume: 260±20mls
Storage: 2−6ºC for up to 42 days
Cost: $430 per unit

Platelets

Want more information?

Indications: Management for thrombocytopenia or abnormal platelet function with bleeding, or at risk of bleeding.

Prophylaxis

- Plts < $10x10^9$/L
- Plts < $20x10^9$/L with other risk factors
- Plts > $50x10^9$/L for most surgical procedures
- Plts > $100x10^9$/L for neurosurgery

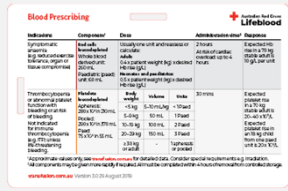
Treatment of bleeding

- Moderate thrombocytopenia
- Dysfunctional platelets due to medications or disease
- Microvascular bleeding with Plts < $50x10^9$/L

**Not indicated for immune thrombocytopenia (e.g. ITP) unless life-threatening bleeding*

Platelets

Want more information?



Dose: 1 unit is expected to increase platelets by 20-40x10^9/L in stable 70 kg adults.

Product information:

Pooled platelets

Manufactured from 4 whole blood donations.

Volume: 325±15mls
Cost: $300 per unit

Apheresis platelets

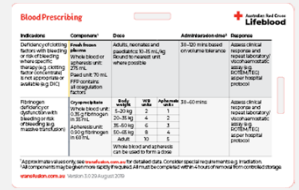
Manufactured from 1 apheresis donation.

Volume: 180±10mls
Cost: $660 per unit

Storage: Both pooled and apheresis platelets are stored agitated at 20–24°C for up to 5 days

Fresh frozen plasma

Want more information?

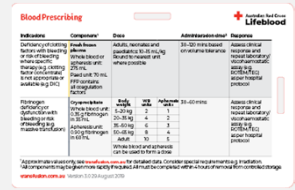


Indications: Management for acquired or congenital clotting factor deficiencies with bleeding or at risk of bleeding.

- Patients who are critically bleeding, and require massive transfusion resuscitation
- Patients with liver disease who are bleeding or at risk of bleeding
- Replacement of clotting factors where specific factor concentrates are not (readily) available e.g. FV deficiency
- Acute disseminated intravascular coagulopathy (DIC)
- Plasma exchange
- *Not recommended for routine warfarin reversal*

Fresh frozen plasma

Want more information?



Dose: 10−15mls/kg.

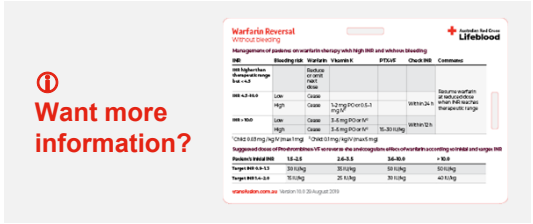
Product information:

Manufactured from whole blood or apheresis plasma donations and frozen (-30ºC) within 18 hours of collection.

Contains all of the coagulation factors.

Volume: 295±10%mls
Storage: ≤ 25ºC for up to 12 months
Cost: $185−$280 per unit

Prothrombinex-VF



Recommended for Warfarin reversal:

- Works within minutes but may take 20−40 minutes to administer
- Effective for 8−12 hours

Dose: 25−50 IU/kg

Product information:

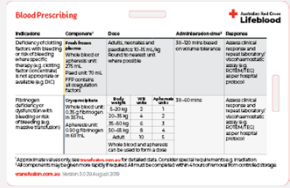
Manufactured by CSL Behring from plasma collected from voluntary Australian blood donors.

Contains 3 clotting factors – FII 500 IU, FIX 500 IU, FX 500 IU

Cost: $280 per 500 IU vial

Cryoprecipitate

Want more information?



Indications: Management for acquired or congenital fibrinogen deficiency (or dysfunction) with bleeding or at risk of bleeding.

Dose: 10 whole blood cryoprecipitate units = 5 apheresis

Product information:

Manufactured from the precipitated protein product recovered during the manufacture of FFP collected from whole blood or apheresis donations.

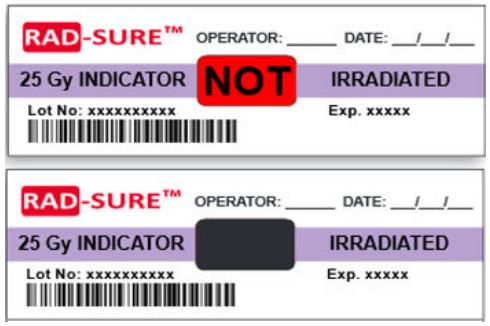
Contains Factors VIII, XIII, Von Willebrand Factor and **Fibrinogen**

Cost: $165–$350 per unit

Special modifications

ⓘ Want more information?

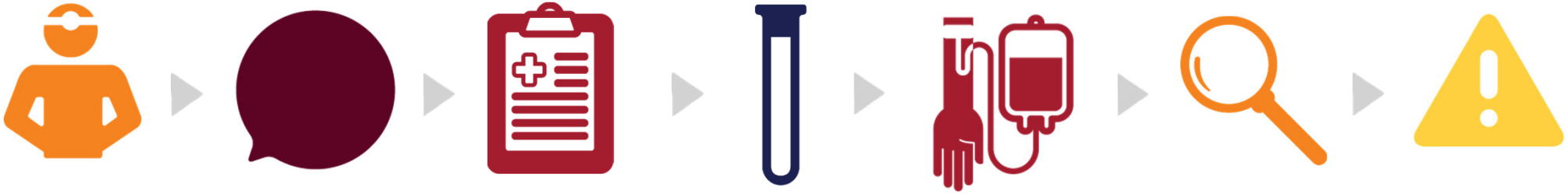
- All cellular blood components are **leucodepleted** in Australia
- **Phenotyped** red cells
- **Irradiated** red cells and platelets
- Human Leucocyte Antigen **(HLA) matched**
- Human Platelet Antigen **(HPA) matched**
- **Washed** red cells
- **Frozen** red cells
- **IgA deficient**
- **CMV negative**



Australian Red Cross Lifeblood

The transfusion process

The transfusion process



Decision to transfuse

Consent

Documentation

Pre-transfusion sample collection

Administration

Monitor

Response

Decision to transfuse

Question: Does the patient really need transfusion?

Considerations:

- Transfusion should be **dictated by clinical status, NOT** by Hb alone
- Transfusion may not be required in well-compensated patients, or where other specific therapy is available
- **Single unit transfusion** followed by clinical reassessment is considered current best practice
- Transfusion is not without risk; **patient blood management principles** should always be considered

Decision to transfuse 

Question: Does the patient really need transfusion?

Action:

- Assess patient
- Document transfusion decision
- Document any special requirements e.g. irradiated, CMV negative

Consent and documentation

Consent:

- Obtain **informed consent**

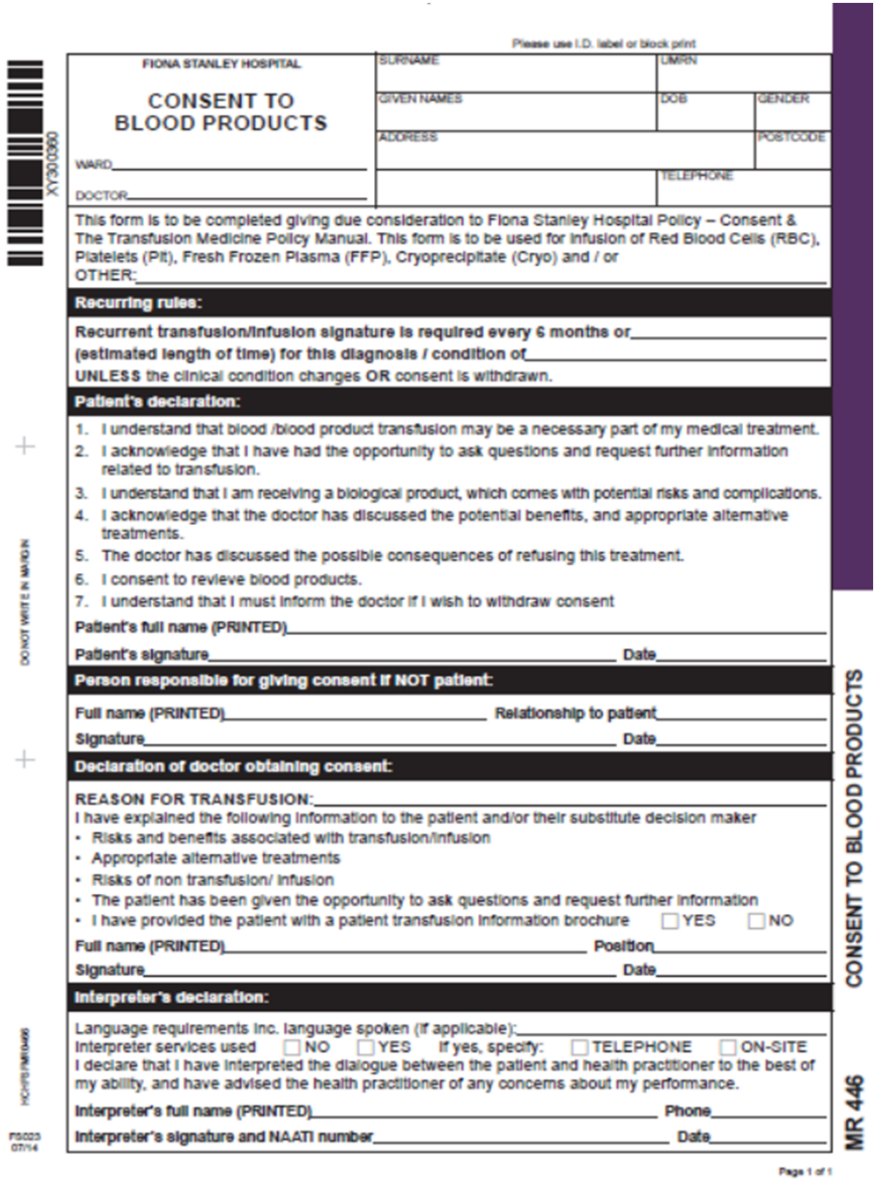
Documentation:

- **Complete prescription** for blood product transfusion including clinical indication, transfusion history and date and time the blood product is required

Communication:

- Inform ward and clinical staff

Consent to blood and blood products



Please use I.D. label or block print

FIONA STANLEY HOSPITAL

CONSENT TO BLOOD PRODUCTS

SURNAME | UMRN

GIVEN NAMES | DOB | GENDER

ADDRESS | POSTCODE

TELEPHONE

WARD

DOCTOR

XY30090

This form is to be completed giving due consideration to Fiona Stanley Hospital Policy – Consent & The Transfusion Medicine Policy Manual. This form is to be used for infusion of Red Blood Cells (RBC), Platelets (Plt), Fresh Frozen Plasma (FFP), Cryoprecipitate (Cryo) and / or
OTHER:

Recurring rules:

Recurrent transfusion/infusion signature is required every 6 months or
(estimated length of time) for this diagnosis / condition of
UNLESS the clinical condition changes **OR** consent is withdrawn.

Patient's declaration:

1. I understand that blood /blood product transfusion may be a necessary part of my medical treatment.
2. I acknowledge that I have had the opportunity to ask questions and request further information related to transfusion.
3. I understand that I am receiving a biological product, which comes with potential risks and complications.
4. I acknowledge that the doctor has discussed the potential benefits, and appropriate alternative treatments.
5. The doctor has discussed the possible consequences of refusing this treatment.
6. I consent to revieve blood products.
7. I understand that I must inform the doctor if I wish to withdraw consent

Patient's full name (PRINTED)

Patient's signature **Date**

Person responsible for giving consent if NOT patient:

Full name (PRINTED) **Relationship to patient**

Signature **Date**

Declaration of doctor obtaining consent:

REASON FOR TRANSFUSION:
I have explained the following information to the patient and/or their substitute decision maker
- Risks and benefits associated with transfusion/infusion
- Appropriate alternative treatments
- Risks of non transfusion/ infusion
- The patient has been given the opportunity to ask questions and request further information
- I have provided the patient with a patient transfusion information brochure ☐ YES ☐ NO

Full name (PRINTED) **Position**

Signature **Date**

Interpreter's declaration:

Language requirements inc. language spoken (if applicable):
Interpreter services used ☐ NO ☐ YES If yes, specify: ☐ TELEPHONE ☐ ON-SITE
I declare that I have interpreted the dialogue between the patient and health practitioner to the best of my ability, and have advised the health practitioner of any concerns about my performance.

Interpreter's full name (PRINTED) **Phone**

Interpreter's signature and NAATI number **Date**

DO NOT WRITE IN MARGIN

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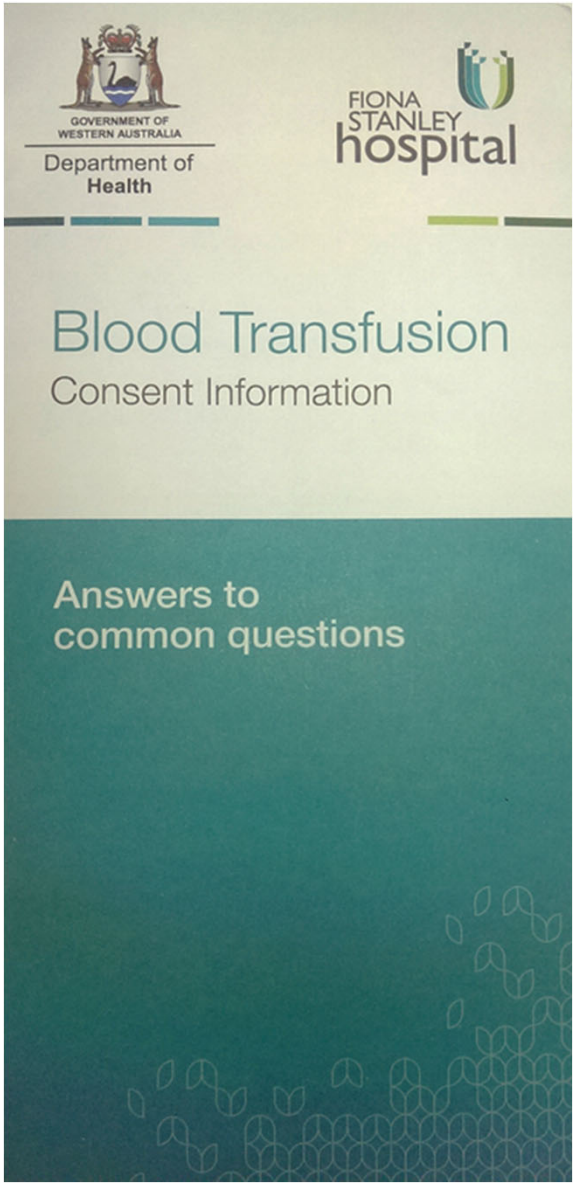
CONSENT TO BLOOD PRODUCTS

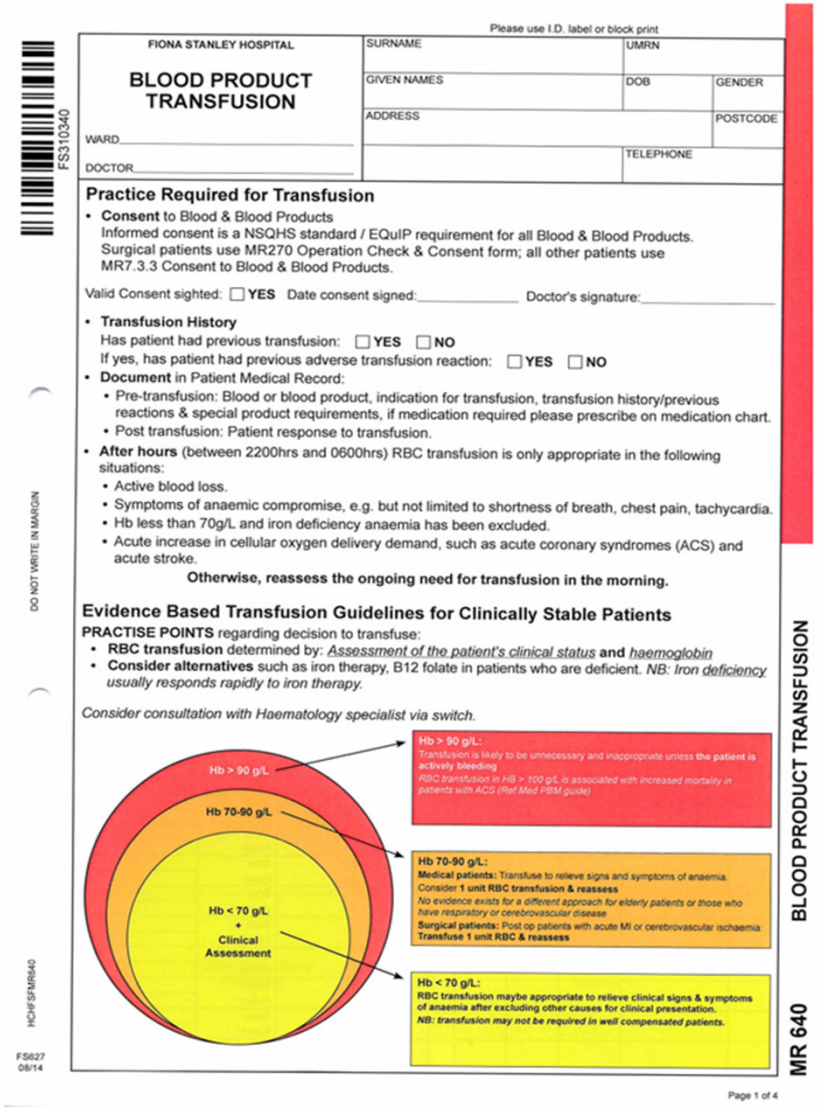
MR 446

Page 1 of 1

Patient information handout:



Blood product transfusion record



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FIONA STANLEY HOSPITAL

BLOOD PRODUCT TRANSFUSION

WARD_____

DOCTOR_____

SURNAME	UMRN	
GIVEN NAMES	DOB	GENDER
ADDRESS		POSTCODE
	TELEPHONE	

FS310340

Practice Required for Transfusion

- **Consent** to Blood & Blood Products
  Informed consent is a NSQHS standard / EQuIP requirement for all Blood & Blood Products.
  Surgical patients use MR270 Operation Check & Consent form; all other patients use MR7.3.3 Consent to Blood & Blood Products.

Valid Consent sighted: ☐ **YES** Date consent signed:_____ Doctor's signature:_____

- **Transfusion History**
  Has patient had previous transfusion: ☐ **YES** ☐ **NO**
  If yes, has patient had previous adverse transfusion reaction: ☐ **YES** ☐ **NO**
- **Document** in Patient Medical Record:
  - Pre-transfusion: Blood or blood product, indication for transfusion, transfusion history/previous reactions & special product requirements, if medication required please prescribe on medication chart.
  - Post transfusion: Patient response to transfusion.
- **After hours** (between 2200hrs and 0600hrs) RBC transfusion is only appropriate in the following situations:
  - Active blood loss.
  - Symptoms of anaemic compromise, e.g. but not limited to shortness of breath, chest pain, tachycardia.
  - Hb less than 70g/L and iron deficiency anaemia has been excluded.
  - Acute increase in cellular oxygen delivery demand, such as acute coronary syndromes (ACS) and acute stroke.

Otherwise, reassess the ongoing need for transfusion in the morning.

Evidence Based Transfusion Guidelines for Clinically Stable Patients

PRACTISE POINTS regarding decision to transfuse:

- **RBC transfusion** determined by: *Assessment of the patient's clinical status* **and** *haemoglobin*
- **Consider alternatives** such as iron therapy, B12 folate in patients who are deficient. *NB: Iron deficiency usually responds rapidly to iron therapy.*

Consider consultation with Haematology specialist via switch.

Hb > 90 g/L:
Transfusion is likely to be unnecessary and inappropriate unless **the patient is actively bleeding**
RBC transfusion in HB > 100 g/L is associated with increased mortality in patients with ACS (Ref Med PBM guide)

Hb 70-90 g/L:
Medical patients: Transfuse to relieve signs and symptoms of anaemia
Consider **1 unit RBC transfusion & reassess**
No evidence exists for a different approach for elderly patients or those who have respiratory or cerebrovascular disease
Surgical patients: Post op patients with acute MI or cerebrovascular ischaemia
Transfuse 1 unit RBC & reassess

Hb < 70 g/L:
RBC transfusion maybe appropriate to relieve clinical signs & symptoms of anaemia after excluding other causes for clinical presentation.
NB: transfusion may not be required in well compensated patients.

DO NOT WRITE IN MARGIN

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FS627
08/14

BLOOD PRODUCT TRANSFUSION

MR 640

Page 1 of 4

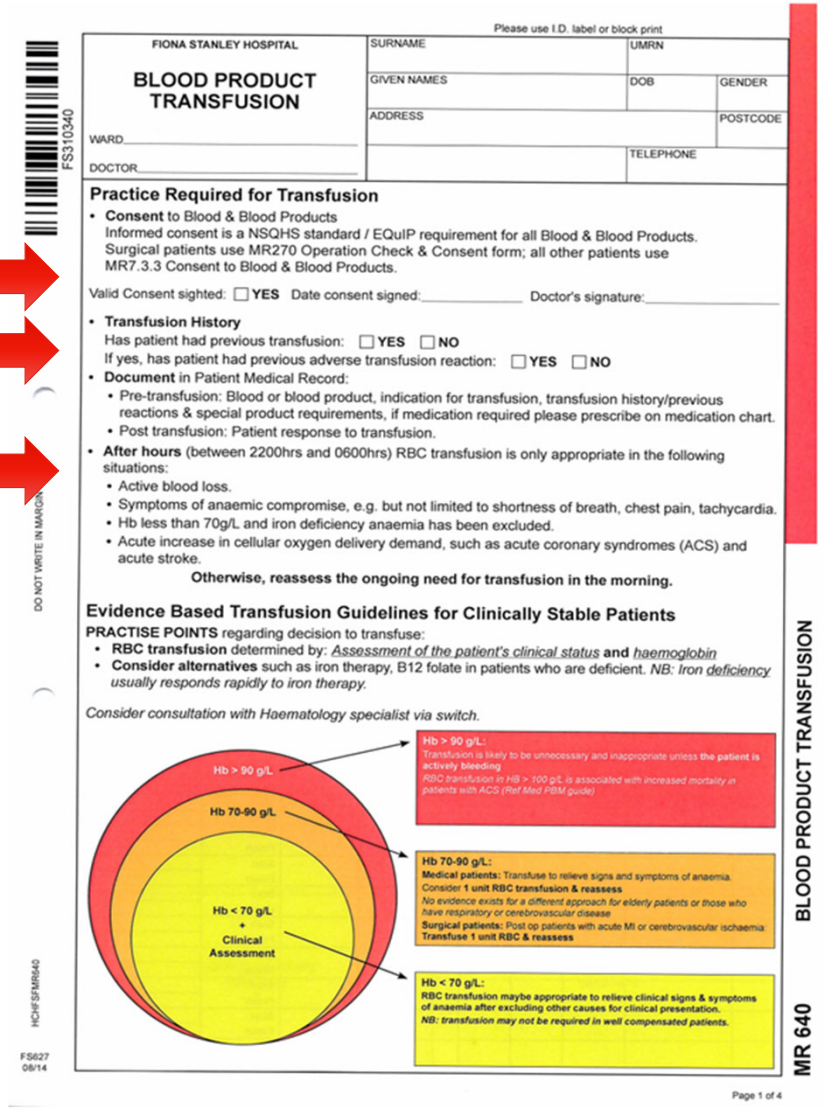
How do I prescribe blood products?

Tick, date and sign that a valid consent is complete

Indicate if the patient has had previous transfusions and/or reactions

Note guidelines for after hours

Practice points regarding decision to transfuse and alternatives



FIONA STANLEY HOSPITAL

BLOOD PRODUCT TRANSFUSION

Please use I.D. label or block print

SURNAME | UMRN

GIVEN NAMES | DOB | GENDER

ADDRESS | POSTCODE

TELEPHONE

WARD

DOCTOR

FS310340

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- **Transfusion History**
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BLOOD PRODUCT TRANSFUSION

MR 640

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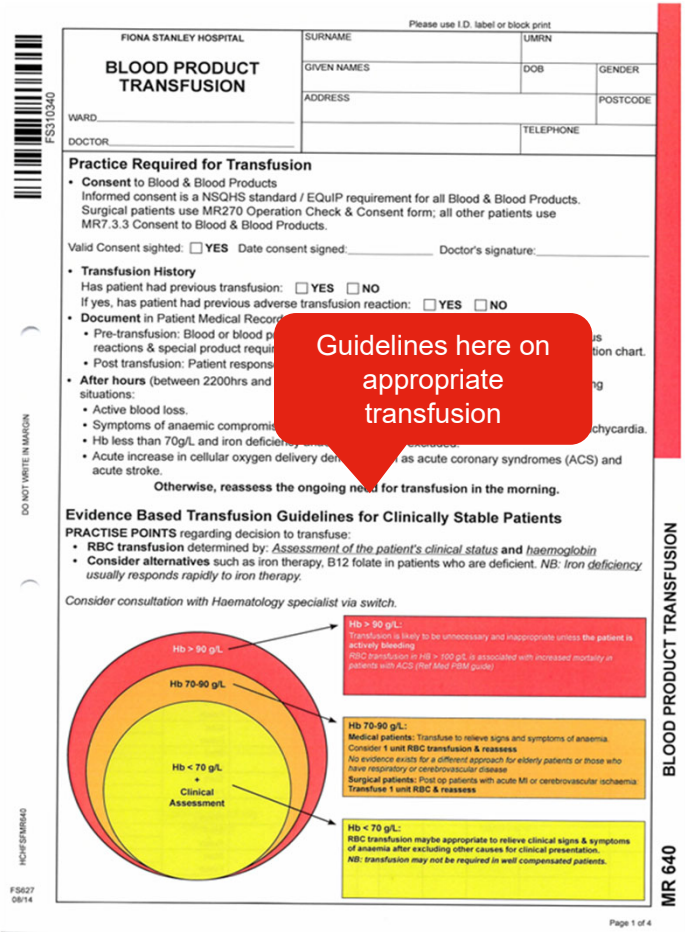
Blood product transfusion record



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BLOOD PRODUCT TRANSFUSION

Please use I.D. label or block print

SURNAME | UMRN | GIVEN NAMES | DOB | GENDER | ADDRESS | POSTCODE | TELEPHONE

WARD

DOCTOR

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Hb < 70 g/L:
RBC transfusion maybe appropriate to relieve clinical signs & symptoms of anaemia after excluding other causes for clinical presentation.
NB: transfusion may not be required in well compensated patients.

Guidelines here on appropriate transfusion

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BLOOD PRODUCT TRANSFUSION MR 640

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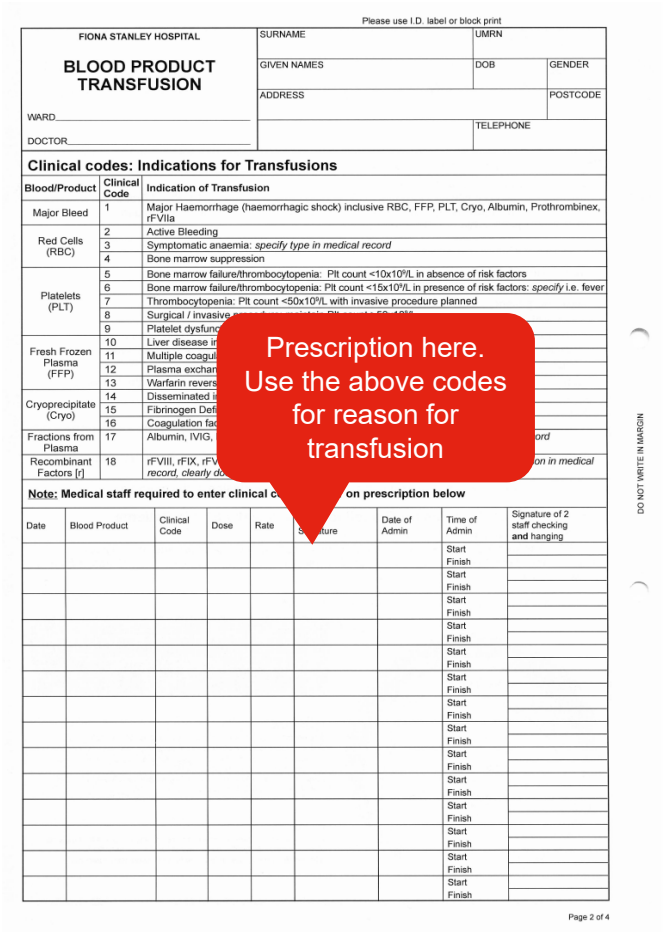

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SURNAME | UMRN | GIVEN NAMES | DOB | GENDER | ADDRESS | POSTCODE | TELEPHONE

WARD

DOCTOR

Clinical codes: Indications for Transfusions

Blood/Product	Clinical Code	Indication of Transfusion
Major Bleed	1	Major Haemorrhage (haemorrhagic shock) inclusive RBC, FFP, PLT, Cryo, Albumin, Prothrombinex, rFVIIa
Red Cells (RBC)	2	Active Bleeding
	3	Symptomatic anaemia: *specify type in medical record*
	4	Bone marrow suppression
Platelets (PLT)	5	Bone marrow failure/thrombocytopenia: Plt count <10x10⁹/L in absence of risk factors
	6	Bone marrow failure/thrombocytopenia: Plt count <15x10⁹/L in presence of risk factors: *specify* i.e. fever
	7	Thrombocytopenia: Plt count <50x10⁹/L with invasive procedure planned
	8	Surgical / invasive…
	9	Platelet dysfunc…
Fresh Frozen Plasma (FFP)	10	Liver disease in…
	11	Multiple coagul…
	12	Plasma exchan…
	13	Warfarin revers…
Cryoprecipitate (Cryo)	14	Disseminated i…
	15	Fibrinogen Def…
	16	Coagulation fac…
Fractions from Plasma	17	Albumin, IVIG, … *…ord*
Recombinant Factors [r]	18	rFVIII, rFIX, rFV… *…on in medical record, clearly do…*

Note: Medical staff required to enter clinical c… on prescription below

Date	Blood Product	Clinical Code	Dose	Rate	S…ture	Date of Admin	Time of Admin	Signature of 2 staff checking and hanging
							Start / Finish	

Prescription here. Use the above codes for reason for transfusion

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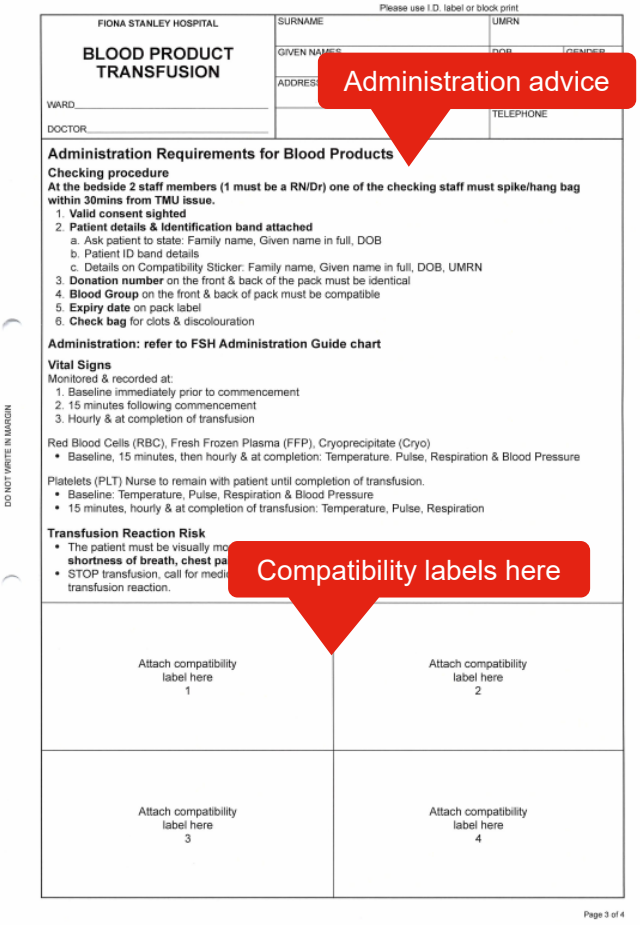

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BLOOD PRODUCT TRANSFUSION

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SURNAME | UMRN | GIVEN NAMES | DOB | GENDER | ADDRESS | POSTCODE | TELEPHONE

WARD

DOCTOR

Administration advice

Administration Requirements for Blood Products

Checking procedure

At the bedside 2 staff members (1 must be a RN/Dr) one of the checking staff must spike/hang bag within 30mins from TMU issue.

1. **Valid consent sighted**
2. **Patient details & Identification band attached**
   a. Ask patient to state: Family name, Given name in full, DOB
   b. Patient ID band details
   c. Details on Compatibility Sticker: Family name, Given name in full, DOB, UMRN
3. **Donation number** on the front & back of the pack must be identical
4. **Blood Group** on the front & back of pack must be compatible
5. **Expiry date** on pack label
6. **Check bag** for clots & discolouration

Administration: refer to FSH Administration Guide chart

Vital Signs

Monitored & recorded at:

1. Baseline immediately prior to commencement
2. 15 minutes following commencement
3. Hourly & at completion of transfusion

Red Blood Cells (RBC), Fresh Frozen Plasma (FFP), Cryoprecipitate (Cryo)

- Baseline, 15 minutes, then hourly & at completion: Temperature. Pulse, Respiration & Blood Pressure

Platelets (PLT) Nurse to remain with patient until completion of transfusion.

- Baseline: Temperature, Pulse, Respiration & Blood Pressure
- 15 minutes, hourly & at completion of transfusion: Temperature, Pulse, Respiration

Transfusion Reaction Risk

- The patient must be visually mo… **shortness of breath, chest pa…**
- STOP transfusion, call for medi… transfusion reaction.

Compatibility labels here

Attach compatibility label here 1	Attach compatibility label here 2
Attach compatibility label here 3	Attach compatibility label here 4

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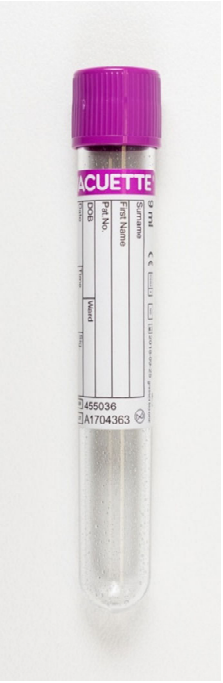
Page 3 of 4

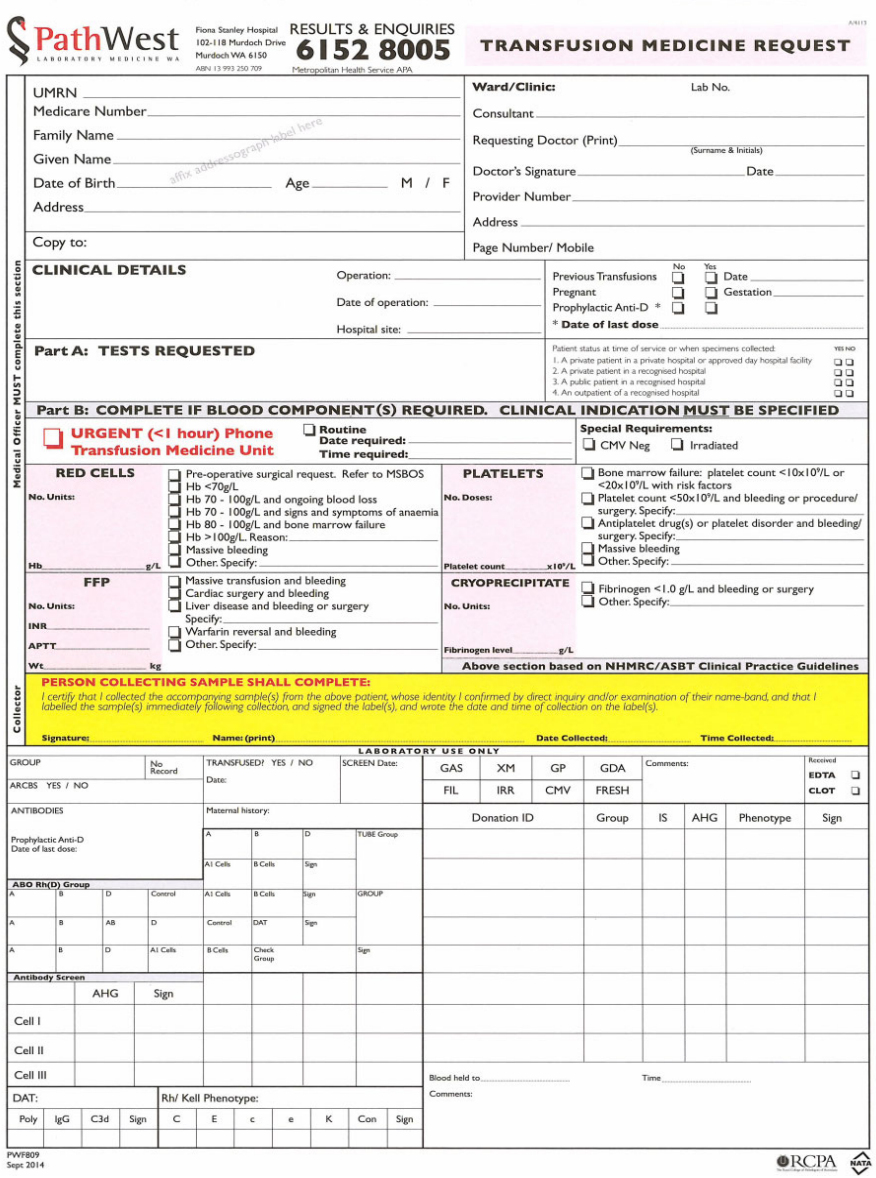
Pretransfusion sample collection

If a pretransfusion sample (or group and screen) is required:

- **Confirm patient's identity**
- **Collect** sample
- **Label sample immediately** after collection, at the patient's bedside with:
  - Full name
  - Date of birth
  - Unique hospital ID number
- Record date and time of collection
- **Sign** both the pretransfusion sample AND the collector's declaration on request form



Transfusion medicine request form



PathWest LABORATORY MEDICINE WA
Fiona Stanley Hospital
102-118 Murdoch Drive
Murdoch WA 6150
ABN 13 993 250 709
RESULTS & ENQUIRIES 6152 8005
Metropolitan Health Service APA

TRANSFUSION MEDICINE REQUEST

UMRN
Medicare Number
Family Name
Given Name
Date of Birth ____ Age ____ M / F
Address
Copy to:

affix addressograph label here

Ward/Clinic: Lab No.
Consultant
Requesting Doctor (Print) (Surname & Initials)
Doctor's Signature ____ Date
Provider Number
Address
Page Number/ Mobile

Medical Officer MUST completes this section

CLINICAL DETAILS
Operation:
Date of operation:
Hospital site:

	No	Yes	
Previous Transfusions	☐	☐	Date
Pregnant	☐	☐	Gestation
Prophylactic Anti-D *	☐	☐	

* **Date of last dose**

Part A: TESTS REQUESTED

Patient status at time of service or when specimens collected: YES NO
1. A private patient in a private hospital or approved day hospital facility ☐ ☐
2. A private patient in a recognised hospital ☐ ☐
3. A public patient in a recognised hospital ☐ ☐
4. An outpatient of a recognised hospital ☐ ☐

Part B: COMPLETE IF BLOOD COMPONENT(S) REQUIRED. CLINICAL INDICATION MUST BE SPECIFIED

☐ **URGENT (<1 hour) Phone Transfusion Medicine Unit**
☐ **Routine**
Date required:
Time required:

Special Requirements:
☐ CMV Neg ☐ Irradiated

RED CELLS
No. Units:
Hb ____ g/L
☐ Pre-operative surgical request. Refer to MSBOS
☐ Hb <70g/L
☐ Hb 70 - 100g/L and ongoing blood loss
☐ Hb 70 - 100g/L and signs and symptoms of anaemia
☐ Hb 80 - 100g/L and bone marrow failure
☐ Hb >100g/L. Reason:
☐ Massive bleeding
☐ Other. Specify:

PLATELETS
No. Doses:
Platelet count ____ x10⁹/L
☐ Bone marrow failure: platelet count <10x10⁹/L or <20x10⁹/L with risk factors
☐ Platelet count <50x10⁹/L and bleeding or procedure/ surgery. Specify:
☐ Antiplatelet drug(s) or platelet disorder and bleeding/ surgery. Specify:
☐ Massive bleeding
☐ Other. Specify:

FFP
No. Units:
INR
APTT
Wt ____ kg
☐ Massive transfusion and bleeding
☐ Cardiac surgery and bleeding
☐ Liver disease and bleeding or surgery
Specify:
☐ Warfarin reversal and bleeding
☐ Other. Specify:

CRYOPRECIPITATE
No. Units:
Fibrinogen level ____ g/L
☐ Fibrinogen <1.0 g/L and bleeding or surgery
☐ Other. Specify:

Above section based on NHMRC/ASBT Clinical Practice Guidelines

Collector

PERSON COLLECTING SAMPLE SHALL COMPLETE:
I certify that I collected the accompanying sample(s) from the above patient, whose identity I confirmed by direct inquiry and/or examination of their name-band, and that I labelled the sample(s) immediately following collection, and signed the label(s), and wrote the date and time of collection on the label(s).

Signature: **Name: (print)** **Date Collected:** **Time Collected:**

LABORATORY USE ONLY

GROUP / No Record
ARCBS YES / NO
TRANSFUSED? YES / NO
Date:
SCREEN Date:
ANTIBODIES
Prophylactic Anti-D
Date of last dose:
Maternal history:

A	B	D	TUBE Group
A1 Cells	B Cells	Sign	

ABO Rh(D) Group

A	B	D	Control	A1 Cells	B Cells	Sign	GROUP
A	B	AB	D	Control	DAT	Sign	
A	B	D	A1 Cells	B Cells	Check Group		Sign

Antibody Screen

	AHG	Sign
Cell I		
Cell II		
Cell III		

DAT:

Poly	IgG	C3d	Sign

Rh/ Kell Phenotype:

C	E	c	e	K	Con	Sign

GAS	XM	GP	GDA	Comments:	Received
FIL	IRR	CMV	FRESH		EDTA ☐ CLOT ☐

Donation ID	Group	IS	AHG	Phenotype	Sign

Blood held to ____ Time ____
Comments:

PWF809
Sept 2014

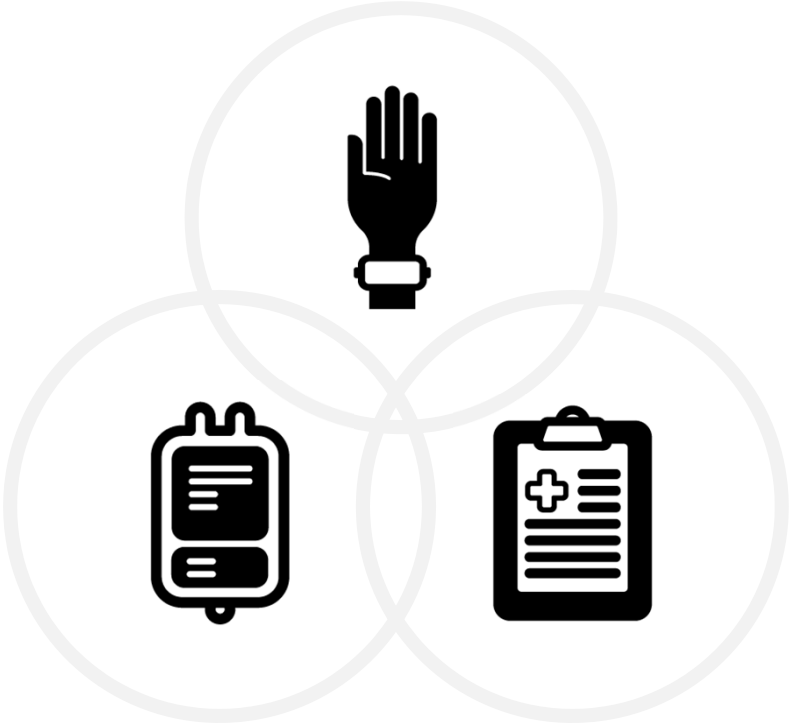
RCPA NATA

Administration

Ensure the pre-administration checklists confirms:

- ✓ Right patient
- ✓ Right blood product
- ✓ Right pack
- ✓ Right time

Reminder: *The **final check** between patient and blood product must be performed at the **bedside** prior to transfusion.*



Monitor and response 🔍⚠️

Monitor:

If suspected transfusion reaction occurs:

- **STOP** the transfusion and follow local transfusion reaction protocols
- Activate emergency procedures, if required

Response:

- Assess to determine if desired outcome of transfusion has been achieved
- Assess patient for further blood product transfusion/s as necessary
- Document assessment

Australian Red Cross Lifeblood

Transfusion reactions

Transfusion reactions

Any untoward event that occurs as a result of an infusion of blood or a blood component.

- **Immediate** (<24 hours) or **delayed** (>24 hours)
- **Immune** or **non-immune**

Acute haemolytic transfusion reaction (AHTR)

Allergy

Anaphylaxis

Bacterial contamination

Delayed haemolytic transfusion reaction (DHTR)

Febrile non-haemolytic transfusion reaction (FNHTR)

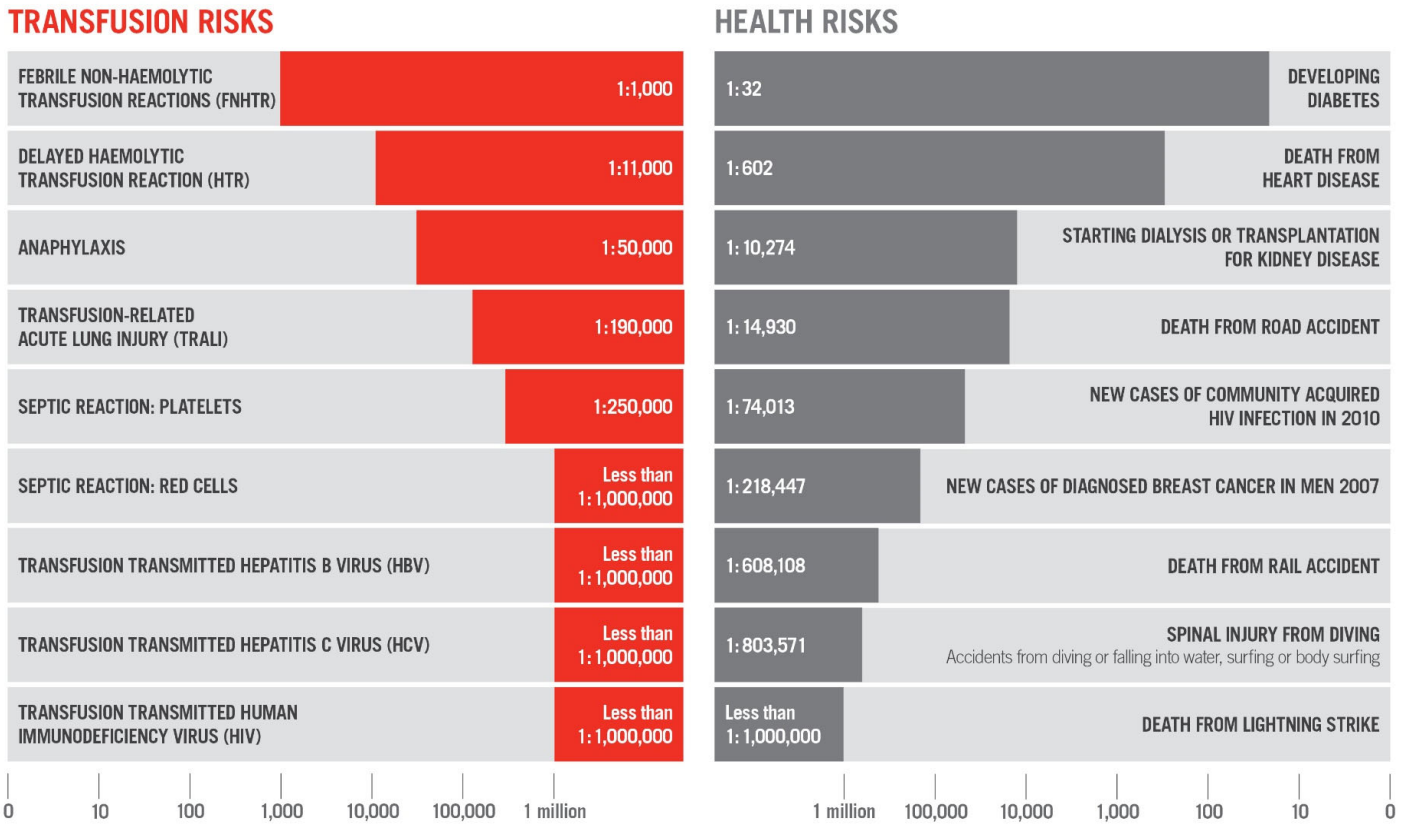
Post-transfusion purpura (PTP)

Transfusion-associated circulatory overload (TACO)

Transfusion-related acute lung injury (TRALI)

Transfusion-transmitted infection (TTI)

Relative risk of transfusion reactions



Most frequent transfusion reactions

Mild allergic reactions: **1-3%**

Transfusion-associated circulatory overload (TACO): **1%**

Febrile non-haemolytic transfusion reaction (FNHTR): **0.1-1%**

Remember to discuss these during the consent process.

Potentially life-threatening transfusion reactions

Severe fever with signs of cardiovascular shock and DIC

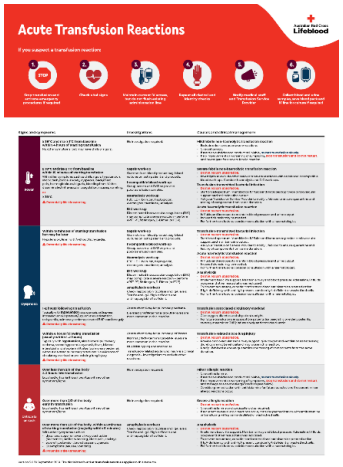
- Acute haemolytic transfusion reaction (AHTR) (e.g. from ABO incompatibility)
- Transfusion-transmitted bacterial infection (TTBI)

Severe hypoxia

- Anaphylaxis
- Transfusion-related acute lung injury (TRALI)
- Transfusion-associated circulatory overload (TACO)

These severe reactions may require immediate support from seniors so consider calling a MET or CODE early.

Investigation and management



RECOGNISE, REACT, REPORT

1. **Stop transfusion** and activate emergency procedures if required
2. **Check vital signs** (respiration, pulse, blood pressure, temperature and urine output)
3. **Maintain current IV access**, but do not flush existing administration line
4. **Repeat all clerical and identity checks** of the patient and blood product
5. **Notify** medical staff and transfusion laboratory
6. **Collect** blood and urine samples. Save the blood pack and IV line for culture if required.
7. **Commence specific clinical management**
8. **Document** reaction in patient's chart and complete incident report as per your local health service policy.

Febrile reactions

Signs and symptoms	Investigations	Causes and clinical management
Fever **≥ 38°C and rise ≥ 1°C from baseline within 4 hours of starting transfusion** No other symptoms (but may have chills or rigors).	No investigation required.	**Mild febrile non-haemolytic transfusion reaction** · Exclude other serious or severe reactions. · Give antipyretic. · If reaction subsides and product still viable, **restart transfusion slowly.** · If no improvement or worsening of symptoms, **stop transfusion and do not restart**, and investigate for a severe febrile reaction.
≥ 38°C and rise ≥ 1°C from baseline within 15 minutes of starting transfusion With other symptoms such as chills, rigors, hypotension, shock, tachycardia, anxiety, dyspnoea, back/chest pain, haemoglobinura/oliguria, bleeding from IV sites, disseminated intravascular coagulation, nausea, vomiting. **or** **≥ 39°C** ⚠ **Potentially life-threatening**	**Sepsis work-up** Gram stain on blood product bag; blood cultures on both patient and products. **Incompatible blood work-up** Group, screen and DAT on pre and post-transfusion samples. **Haemolysis work-up** FBC, LDH, bilirubin, haptoglobin, electrolytes, creatinine, urinalysis. **DIC work-up** Disseminated intravascular coagulation (DIC) may complicate a severe reaction – perform aPTT, PT, fibrinogen, D-Dimer (or FDP).	**Severe febrile non-haemolytic transfusion reaction** · **Do not restart transfusion.** · Investigate to exclude other serious or severe reactions with sepsis and incompatible blood work-ups. Consider haemolysis and DIC work-ups. **Transfusion-transmitted bacterial infection** · **Do not restart transfusion.** · Start broad-spectrum IV antibiotics, IV fluids and inotropes to provide cardiovascular support and maintain urine output. · Ask your Transfusion Service Provider to notify Lifeblood to ensure quarantine and testing of components from same donation. **Acute haemolytic transfusion reaction** · **Do not restart transfusion.** · IV fluids and inotropes to maintain blood pressure and urine output. · Induced diuresis may be needed. · For further transfusions, consider consultation with a haematologist.

Dyspnoea reactions

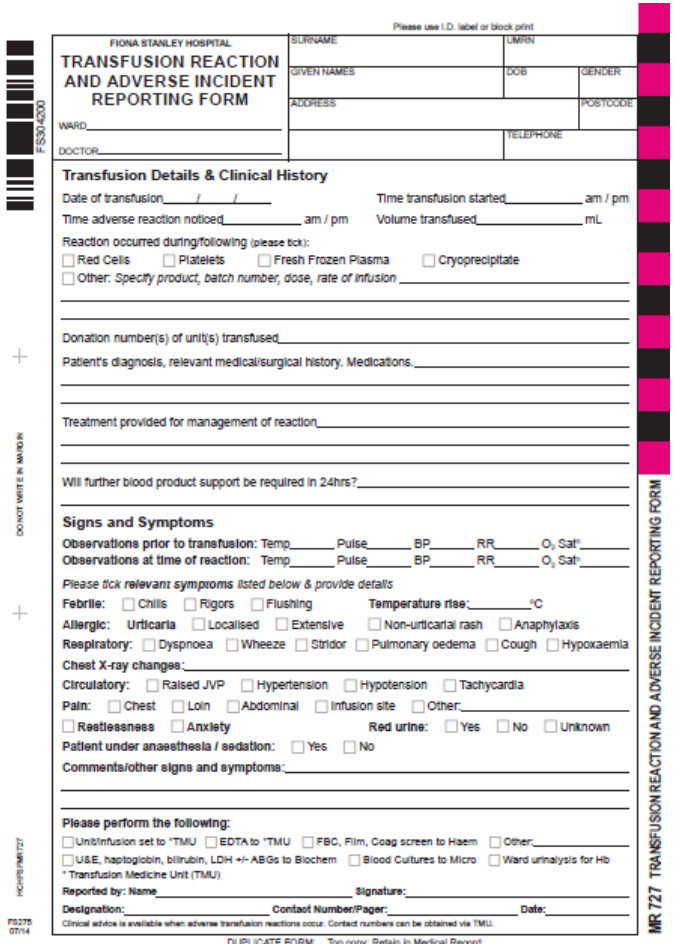
Signs and symptoms	Investigations	Causes and clinical management
 **Dyspnoea**		
Within 15 minutes of starting transfusion but may be later Hypotension, fever, with/without tachycardia. ⚠ Potentially life-threatening	**Sepsis work-up** Gram stain on blood product bag; blood cultures on both patient and products. **Incompatible blood work-up** Group, screen and DAT on pre and post-transfusion samples. **Haemolysis work-up** FBC, LDH, bilirubin, haptoglobin, electrolytes, creatinine, urinalysis. **DIC work-up** Disseminated intravascular coagulation (DIC) may complicate a severe reaction – perform aPTT, PT, fibrinogen, D-Dimer (or FDP). **Anaphylaxis work-up** Check haptoglobin, tryptase and IgA levels. Test for anti-IgA if IgA deficient and anti-haptoglobin if deficient.	**Transfusion-transmitted bacterial infection** · Do not restart transfusion. · Start broad-spectrum IV antibiotics, IV fluids and inotropes to provide cardiovascular support and maintain urine output. · Ask your Transfusion Service Provider to notify Lifeblood to ensure quarantine and testing of components from same donation. **Acute haemolytic transfusion reaction** · Do not restart transfusion. · IV fluids and inotropes to maintain blood pressure and urine output. · Induced diuresis may be needed. · For further transfusions consider consultation with a haematologist. **Anaphylaxis** · Do not restart transfusion. · Implement basic life support. Maintain airway and blood pressure. Adrenaline, IV fluids, oxygen and other resuscitation as indicated. · To prevent recurrence, consider corticosteroid and antihistamine premedication. If IgA-deficiency with anti-IgA present, consider IgA-deficient or washed red cells. · For further transfusions, consider consultation with a haematologist.
1–2 hours following transfusion Typically with **hypertension**, also cyanosis, orthopnea, increased venous pressure/jugular venous distension, tachycardia, pulmonary oedema, elevated BNP, cardiomegaly. ⚠ Potentially life-threatening	Assess chest X-ray for pulmonary oedema. Elevated BNP/N-terminal pro-BNP levels are more common in this reaction.	**Transfusion associated circulatory overload** · Do not restart transfusion. · Give oxygen, diuretics and sit patient upright. · For future transfusions in susceptible patients (i.e. paediatric or elderly patients, severely anaemic or CHD): infuse slowly and consider diuretic.
Within 6 hours following transfusion (usually within 1–2 hours) Typically with **hypotension**, also bilateral pulmonary oedema, severe hypoxemia, cyanosis, fever, bilateral interstitial and alveolar infiltrates (pulmonary oedema), without elevated pulmonary pressures. No evidence of circulatory overload or pre-existing lung injury. ⚠ Potentially life-threatening	Assess chest X-ray for pulmonary infiltrates. Normal BNP/N-terminal pro-BNP levels are more common in this reaction. HLA/HNA typing and antibodies. Transfusion-related acute lung injury is a clinical diagnosis – investigations to exclude other reactions.	**Transfusion-related acute lung injury** · Do not restart transfusion. · Provide cardiovascular and airway support; give oxygen and ventilation as necessary; diuretics are not beneficial and may worsen this reaction. · Notify Lifeblood to ensure quarantine and testing of components from the same donation.

Allergic reactions

Signs and symptoms		Investigations	Causes and clinical management
 **Urticaria or rash**	**Over less than 2/3 of the body** **2–3 hours into transfusion** Localised urticaria (hives), pruritus with no other symptoms/signs.	No investigation required.	**Minor allergic reaction** · Give antihistamine. · If reaction subsides and product still viable, **restart transfusion slowly.** · If no improvement or worsening of symptoms, **stop transfusion and do not restart**, and manage as a severe allergic reaction (see below). · Consider premedication with antihistamine for future transfusions if recurrent minor allergic reactions occur.
	Over more than 2/3 of the body **early in transfusion** Localised urticaria (hives), pruritus with no other symptoms/signs.	No investigation required.	**Severe allergic reaction** · **Do not restart transfusion.** · Give antihistamine and corticosteroid as required. · If recurrent severe allergic reactions occur, consider premedication with antihistamine or transfusing with plasma-depleted or washed red cells.
	Over more than 2/3 of the body, within 45 minutes of starting transfusion (majority within 5 minutes) With other symptoms such as: · dyspnoea, upper or lower airway obstruction (hoarseness, stridor, wheezing, chest pain, anxiety) · severe hypotension, bronchospasm, cyanosis · GI symptoms (nausea, vomiting). ⚠ **Potentially life-threatening**	**Anaphylaxis work-up** Check haptoglobin, tryptase and IgA levels. Test for anti-IgA if IgA deficient and anti-haptoglobin if deficient.	**Anaphylaxis** · **Do not restart transfusion.** · Implement basic life support. Maintain airway and blood pressure. Adrenaline, IV fluids, oxygen and other resuscitation as indicated. · To prevent recurrence, consider corticosteroid and antihistamine premedication. If IgA-deficiency with anti-IgA present, consider IgA-deficient or washed red cells. · For further transfusions, consider consultation with a haematologist.

Reporting adverse transfusion reactions

RECOGNISE, REACT, REPORT



Please use I.D. label or block print

FIONA STANLEY HOSPITAL

TRANSFUSION REACTION AND ADVERSE INCIDENT REPORTING FORM

SURNAME | UMRN | GIVEN NAMES | DOB | GENDER | ADDRESS | POSTCODE | TELEPHONE | WARD | DOCTOR

FS304200

Transfusion Details & Clinical History

Date of transfusion ___/___/___ Time transfusion started ___ am / pm

Time adverse reaction noticed ___ am / pm Volume transfused ___ mL

Reaction occurred during/following (please tick):

☐ Red Cells ☐ Platelets ☐ Fresh Frozen Plasma ☐ Cryoprecipitate

☐ Other: *Specify product, batch number, dose, rate of infusion* ___

Donation number(s) of unit(s) transfused ___

Patient's diagnosis, relevant medical/surgical history. Medications ___

Treatment provided for management of reaction ___

Will further blood product support be required in 24hrs? ___

Signs and Symptoms

Observations prior to transfusion: Temp ___ Pulse ___ BP ___ RR ___ O_2 Sat% ___

Observations at time of reaction: Temp ___ Pulse ___ BP ___ RR ___ O_2 Sat% ___

Please tick relevant symptoms listed below & provide details

Febrile: ☐ Chills ☐ Rigors ☐ Flushing **Temperature rise:** ___°C

Allergic: **Urticaria** ☐ Localised ☐ Extensive ☐ Non-urticarial rash ☐ Anaphylaxis

Respiratory: ☐ Dyspnoea ☐ Wheeze ☐ Stridor ☐ Pulmonary oedema ☐ Cough ☐ Hypoxaemia

Chest X-ray changes: ___

Circulatory: ☐ Raised JVP ☐ Hypertension ☐ Hypotension ☐ Tachycardia

Pain: ☐ Chest ☐ Loin ☐ Abdominal ☐ Infusion site ☐ Other: ___

☐ **Restlessness** ☐ **Anxiety** **Red urine:** ☐ Yes ☐ No ☐ Unknown

Patient under anaesthesia / sedation: ☐ Yes ☐ No

Comments/other signs and symptoms: ___

Please perform the following:

☐ Unit/Infusion set to *TMU ☐ EDTA to *TMU ☐ FBC, Film, Coag screen to Haem ☐ Other: ___

☐ U&E, haptoglobin, bilirubin, LDH +/- ABGs to Biochem ☐ Blood Cultures to Micro ☐ Ward urinalysis for Hb

* Transfusion Medicine Unit (TMU)

Reported by: Name ___ **Signature:** ___

Designation: ___ **Contact Number/Pager:** ___ **Date:** ___

Clinical advice is available when adverse transfusion reactions occur. Contact numbers can be obtained via TMU.

DO NOT WRITE IN MARGIN

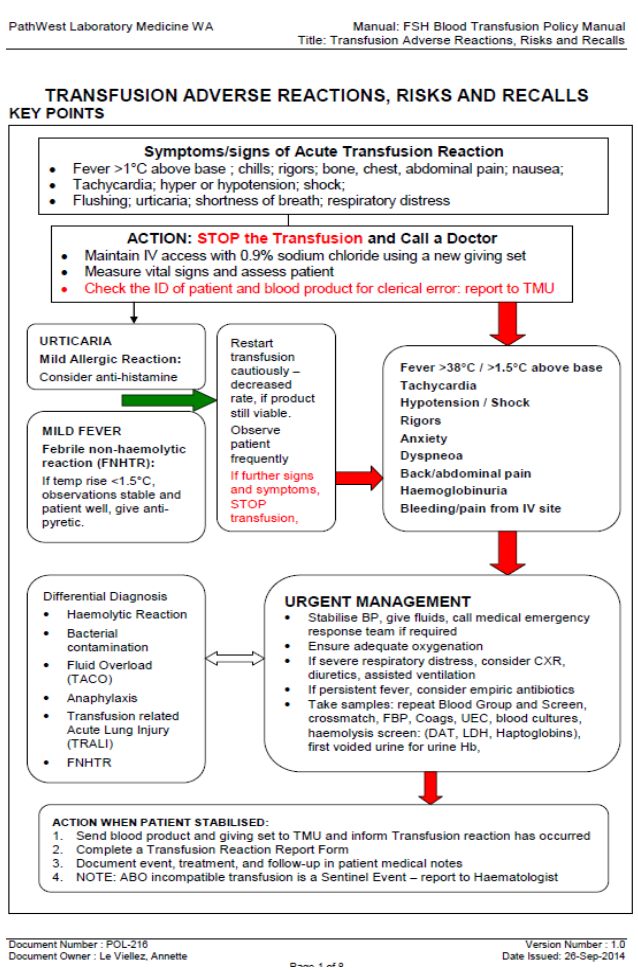
HCHFS/MR727

FS275 07/14

MR 727 TRANSFUSION REACTION AND ADVERSE INCIDENT REPORTING FORM

DUPLICATE FORM: Top copy: Retain in Medical Record
Bottom copy: To PathWest

Page 1 of 1



PathWest Laboratory Medicine WA

Manual: FSH Blood Transfusion Policy Manual
Title: Transfusion Adverse Reactions, Risks and Recalls

TRANSFUSION ADVERSE REACTIONS, RISKS AND RECALLS

KEY POINTS

Symptoms/signs of Acute Transfusion Reaction

- Fever >1°C above base ; chills; rigors; bone, chest, abdominal pain; nausea;
- Tachycardia; hyper or hypotension; shock;
- Flushing; urticaria; shortness of breath; respiratory distress

ACTION: STOP the Transfusion and Call a Doctor

- Maintain IV access with 0.9% sodium chloride using a new giving set
- Measure vital signs and assess patient
- Check the ID of patient and blood product for clerical error: report to TMU

URTICARIA
Mild Allergic Reaction:
Consider anti-histamine

MILD FEVER
Febrile non-haemolytic reaction (FNHTR):
If temp rise <1.5°C, observations stable and patient well, give anti-pyretic.

Restart transfusion cautiously – decreased rate, if product still viable.
Observe patient frequently
If further signs and symptoms, STOP transfusion,

Fever >38°C / >1.5°C above base
Tachycardia
Hypotension / Shock
Rigors
Anxiety
Dyspnoea
Back/abdominal pain
Haemoglobinuria
Bleeding/pain from IV site

Differential Diagnosis
- Haemolytic Reaction
- Bacterial contamination
- Fluid Overload (TACO)
- Anaphylaxis
- Transfusion related Acute Lung Injury (TRALI)
- FNHTR

URGENT MANAGEMENT
- Stabilise BP, give fluids, call medical emergency response team if required
- Ensure adequate oxygenation
- If severe respiratory distress, consider CXR, diuretics, assisted ventilation
- If persistent fever, consider empiric antibiotics
- Take samples: repeat Blood Group and Screen, crossmatch, FBP, Coags, UEC, blood cultures, haemolysis screen: (DAT, LDH, Haptoglobins), first voided urine for urine Hb,

ACTION WHEN PATIENT STABILISED:
1. Send blood product and giving set to TMU and inform Transfusion reaction has occurred
2. Complete a Transfusion Reaction Report Form
3. Document event, treatment, and follow-up in patient medical notes
4. NOTE: ABO incompatible transfusion is a Sentinel Event – report to Haematologist

Document Number : POL-216
Document Owner : Le Viellez, Annette

Version Number : 1.0
Date Issued: 26-Sep-2014

Australian Red Cross Lifeblood

Transfusion resources

Transfusion Orientation Pack

A free resource promoting safe transfusion to junior medical officers.

The pack was developed following extensive consultation with junior medical officers, and offers tools and resources designed to meet their needs.

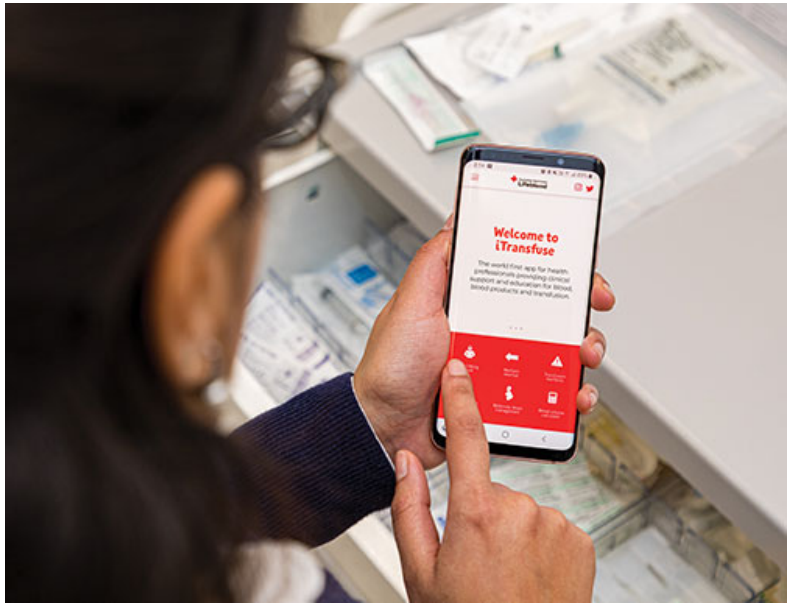
Download the pack at
transfusion.com.au/jmo_education

Transfusion Orientation Pack

The pack includes:

- Blood Component Prescribing Checklist
- Prescribing Red Cells
- Prescribing Platelets
- Prescribing Fresh Frozen Plasma
- Acute Transfusion Reactions Poster
- Quick reference cards:
    - Acute Transfusion Reactions Card
    - Blood Compatibility Card
    - Blood Prescribing Card
    - Warfarin Reversal Card

iTransfuse App



The free bedside tool for safe transfusion

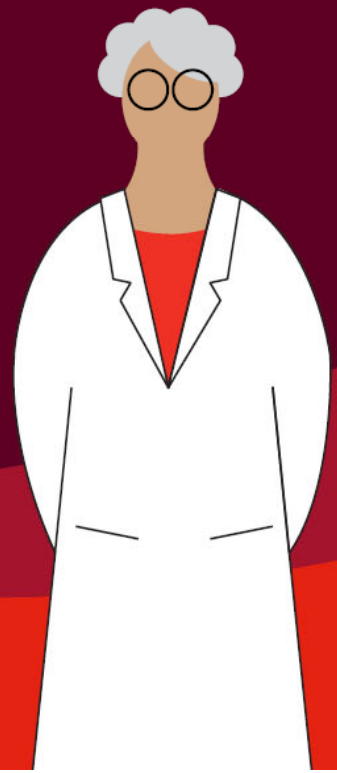
- Correct use and dosage of red cells, platelets and plasma
- Correct diagnosis and management of transfusion reactions
- Correct maternity blood management
- Library of clinical resources and patient information handouts

Download the app from the App Store or Google Play.

Australian Red Cross Lifeblood

transfusion.com.au

Information for health professionals
about transfusion practice and medicine.



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mytransfusion.com.au

Information for patients about blood transfusion.

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learn.transfusion.com.au

Transfusion education for health professionals, including upcoming education sessions and a catalogue of webinars and eLearning modules.

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Transfusion Policy and Education
30 Currie Street
Adelaide, South Australia, 5000

T: 08 8112 1303
E: transfusionlearning@redcrossblood.org.au

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lifeblood.com.au **transfusion.com.au**