NATIONAL NURSING AUDIT MINISTRY OF HEALTH MALAYSIA

ELEMENT 5: **CONTINUUM OF CARE**

5.4 BLOOD/ BLOOD COMPONENT TRANSFUSION

1. INTRODUCTION

Blood transfusion, save life and improve health. However, there are risks associated with blood transfusion due to human error. These errors can lead to complications, which can be serious and life threatening.

Nurses need to be competent in administrating the blood/ blood component to an individual and their responsibility is to comply to the safety standards and practices in order to prevent occurrence of adverse transfusion errors. This involves confirming pre-transfusion checks to ensure the correct patient receives the correct blood. It also involves supporting and monitoring the patient throughout the transfusion procedure, identifying and responding promptly to indications of adverse reactions, completing relevant documents and proper handling of used blood bags and other used equipment on completion of infusion.

Nurses must be aware of potential adverse events, including febrile non-haemolytic reaction, acute haemolytic reaction, anaphylaxis, transfusion-associated graft-versus-host disease (GVHD), and infection (Noor Haslina et al., 2021).

The most common signs and symptoms of transfusion reactions include fever, chills, hives, and itching, which may resolve with little or no treatment; however, respiratory distress, high fever, hypotension, and hemoglobinuria may indicate a more serious reaction (Suddock & Crookston, 2023).

Blood and blood product transfusions carry several adverse effects and should be performed only when the benefits outweigh the risks. Advances in transfusion practice have significantly improved care for surgical, trauma, obstetric, and critically ill patients (Krishna et al., 2023)

2. OBJECTIVES

2.1 Blood and blood components are administered safely to patients.
2.2 Adverse reactions related to blood or blood component transfusions are promptly detected, addressed, and reported.
2.3 Nurses demonstrate a caring approach when administering blood and blood components to patients.
2.4 Accurate and comprehensive documentation is maintained.

3. METHODOLOGY

3.1	Design	:	Direct observation of blood/ blood component transfusion and also gathering information from documents.
3.2	Setting	:	Inpatient, daycare area and Emergency Department (ED).
3.3	Inclusion criteria	:	All patients who are receiving blood/ blood components transfusion.
3.4	Exclusion criteria	:	Unit Hemodialysis, Operation Theater (OT)
3.5	Population	:	Registered nurses
3.6	Sample design	:	Convenient sampling
3.7	Sample size	:	30 sample - Major Specialist Hospital 20 sample - Minor Specialist Hospital 10 sample - Non-specialist hospital
3.8	Frequency	:	Once a year
3.9	Duration	:	2 months
4.0	Instrument	:	Check list (E5 AF 5.4 Pind.1/2026)

4. STANDARD

100% compliance with the standards for the administration of blood/ blood components.

5. DEFINITION

NO	TERMS	DEFINITIONS
1.	DEFINITION OF BLOOD TRANSFUSION	Blood transfusion is a vital, life-saving process in patients with both acute and chronic conditions, aiming to replace lost components of the blood (Noor Haslina et al., 2021).
2.	CONFIRM PATIENT'S IDENTIFICATION	• Confirm patient's identity by 2 identifiers: a. Patient's full name b. Registration or identification number c. Ask patient to verbalize name and cross check with patient's wrist band for name and registration number or identification number d. Verify accuracy of identifier with patient's medical record. • Verify unconscious patient's identity with two identifiers **(second** checker) a. Patient's full name b. Registration or identification number
3.	WRITTEN PRESCRIPTION	Prescription of blood or blood components transfusion as endorsed in the patient's medical records.
4.	WRITTEN CONSENT	The nurse needs to verify consent is already taken by the doctor. In the event when consent is not obtained, nurse need to remind the doctor

		and ensure consent are available before commencing the transfusion.
5.	VERIFY RIGHT BLOOD/ BLOOD COMPONENT FOR THE RIGHT PATIENTS INVOLVE THE FOLLOWING STEPS	**Step 1** • Confirm patient's identity by two identifiers: a. Patient full name b. Registration number/ Identification number c. Ask patient to confirm name and cross check with patient's wrist band for name and registration number/ Identification number d. Verify accuracy of identifier with patient's medical record • Verify unconscious patient's identity with two identifiers (second checker) a. Patient's full name b. Registration or identification number **Step 2** Verify accuracy of identifier with patient's medical record and blood request form, this includes patient's identity card number. **Step 3** Confirm the right blood or blood components by verifying the labels on the blood or blood components with patient's blood request form to ensure: • Type of blood or blood component • ABO grouping & Rhesus factor correspond • Expiry date

6.	ESSENCE OF CARE	When explaining to patient the nurse shall communicate in a respectful manner and will exhibit caring component.
7.	BLOOD ADMINISTRATION SETS	ALL blood and blood components shall be transfused through a blood administration set containing special IV tubing with an integrated filter (170 –260 0 μm) to remove blood clots and particles. If an administration set has previously been used for the transfusion of red cells, it shall NOT be used for transfusing platelets. A fresh transfusion set shall be used.
8.	BASELINE MONITORING	Assessment of patient pre-transfusion (baseline). Nurses need to determine the patient's status prior transfusion by checking: • blood pressure • pulse rate • temperature • respiration • pain assessment
9.	CLOSE MONITORING (Vital Signs Shall Be Monitored and Recorded)	i. Before starting transfusion. ii. During the transfusion (close observation and monitoring for the first **5 to 10 minutes**, and subsequently **half hourly** and then **hourly**. Perform vital sign monitoring every 15 minutes for unconscious patients receiving transfusion. iii. After completion of transfusion. (National Blood Centre Ministry of Health Malaysia 4th Edition, 2016)

10.	TIME LIMIT FOR TRANSFUSION	• Blood or blood component must be transfused within **30** minutes of removing the pack from the blood refrigerator. • To start transfusion at 20 drops per minute. Nurse is to be at the patient's bedside and to observe the patient for the first 10 minutes. (National Blood Centre Ministry of Health Malaysia 4th Edition, 2016) • Appropriate time frame per pack ✓ Whole blood : within 4 hours ✓ Packed cells : within 4 hours ✓ Fresh frozen plasma : within 30 minutes ✓ Cryoprecipitate : within 30 minutes ✓ Platelet concentrate : within 30 minutes
11.	TRANSFUSION REACTIONS INCLUDES	Chills, rigors, skin changes (rashes), pyrexia, hypo/ hypertension, respiratory distress, nausea, vomiting, haematuria, pain at infusion site, chest pain, abdominal and loin pain, renal shutdown (oliguria/ anuria), anaphylactic shock.
12.	REMEDIAL ACTION/ APPROPRIATE MEASURES	Stop blood transfusion immediately, transfuse normal saline 0.9% with new drip set. Inform doctor **IMMEDIATELY** Close monitoring every 15 minutes for 1 hour Taken blood and urine sample to verified blood **incompatibility** Document measures taken (National Blood Centre Ministry of Health Malaysia 4th Edition, 2016)
13.	ACCURATE AND COMPLETE DOCUMENTATION	a. Check list and blood card must be completed accurately. b. Date, time, blood type, amount infused and

	COMPLIANCE INCLUDES ALL OF THE FOLLOWING	time of completion of blood or blood components must be indicated in the intake and output chart, patient's progress notes and temperature chart. Used **black ink** for patient progress note. **Red ink** for intake and output chart. c. Document vital signs in observation chart. d. Document any identified adverse reaction to the blood or blood components transfused and the appropriate measures taken. e. All entries to be endorsed with full name, stamped with signature and dated.

6. WORK PROCESS

Structure
1. Each patient has written prescription for blood or blood component transfusion. 2. There is a Standard Operating Procedure (SOP) for blood or blood component transfusion. **NATIONAL BLOOD CENTRE Ministry of Health Malaysia 4TH EDITION, 2016.** 3. The nurse has knowledge and competent in administrating blood or blood component. 4. The nurse has knowledge of transfusion reaction and its measures. 5. Consent for blood transfusion. 6. GXM request form.

7. Blood transfusion set
8. Blood card.
9. Patient progress notes/ observation chart.
10. Intake/ output chart.
11. Pre transfusion checklist.

Process

1. Greet patient
2. Confirm patient identification.
3. Confirm prescription.
4. Verify right patient and blood or blood components together with the doctor.
5. Complete pre-transfusion checklist.
   5.1 Verify screening.
   5.2 Verify expiry date.
6. Verify consent taken.
7. Perform baseline monitoring.
8. Prime line with intravenous solution 0.9 % Normal Saline.
9. Blood/ blood component must be transfused within 30 minutes of removing the pack from blood refrigerator.

10. Administer transfusion as order follow protocol blood or blood product transfusion.

11. Titrate flow rate.

12. Observe for reactions. If any reaction stop immediately.

13. Take appropriate measures.

14. Listen, respond to patient/ care promptly and politely.

15. Perform accurate documentation.

Outcome

1. Patient is informed and aware of possible risk of blood or blood components transfusion.

2. Patient received blood or blood component as prescribed.

3. Blood reactions are detected early and measures taken appropriately.

4. Accurate and complete documentation.

7. TECHNICAL SPECIFICATION FOR BLOOD/ BLOOD COMPONENT TRANSFUSION

Indicator	Percentage of compliance with the standard for administration of blood and blood component transfusions.
Rationale	To ensure patient safety and appropriate transfusion practices in hospital as recommended by Ministry of Health Malaysia.
Definition	Blood transfusion is a vital, life-saving process in patients with both acute and chronic conditions, aiming to replace lost components of the blood (Noor Haslina et al., 2021). The most common signs and symptoms of a transfusion reaction include fever, chills, urticaria (hives), and itching. Some symptoms resolve with little or no treatment; however, respiratory distress, high fever, hypotension (low blood pressure), and red urine (hemoglobinuria) may indicate a more serious reaction (Suddock & Crookston, 2023). Transfusion of blood and blood products has many adverse effects and should be performed only if the patient's benefits outweigh the associated risks. Current understanding of blood transfusion has improved dramatically, revolutionizing the care of surgical, trauma, obstetric, and critically ill patients (Krishna et al., 2023).
Criteria	**Inclusion:** All patients in the ward/ Daycare ward/ Emergency Department (yellow zone/ observation ward) who received blood & blood component. **Exclusion:** Unit Hemodialysis, Operation Theater (OT)

Numerator	Total conformance of items
Denominator	Total number of items – Total number of items marked as NA
Formula	$\frac{\text{Numerator}}{\text{Denominator}} \times 100\%$
Standard	**100%**
Data Collection	1. **Where:** Data will be collected in all ward/ unit/ Emergency Department 2. **Who:** Data will be collected by the NNA Committee in the hospital/ institution 3. **How to collect:** Audit Form (E5 AF 5.3 Pind.1/2026) 4. **How frequent:** Once a year and duration 2 months 5. **Who should verify:** All data must be verified by the Head of Nursing
References	1. Krishna, H. M., Prasad, M. K., Mitragotri, M. V., Bipin, G. I., Gupta, D., & Sharma, R. (2023). Recent advances in perioperative blood management. Indian Journal of Anaesthesia, 67(1), 130–138. 2. Noor Haslina, et al. (2021, October 19). Blood transfusion knowledge among nurses in Malaysia: A university hospital experience. International Journal of Environmental Research and Public Health, 18(21), 11194. https://doi.org/10.3390/ijerph182111194 3. StatPearls. (2023). Suddock, J. T., & Crookston, K. P. Transfusion reactions. In StatPearls [Internet]. StatPearls Publishing.

8. AUDIT FORM

NATIONAL NURSING AUDIT MINISTRY OF HEALTH MALAYSIA	**VERSION 8/ Pind.1/2026**
ELEMENT 5 : CONTINUUM OF CARE	
TOPIC : 5.4 BLOOD AND BLOOD COMPONENT TRANSFUSION	**DATE: 15 JAN 2026**
DOCUMENT NO : E5 AF 5.4 Pind.1/2026	

OBJECTIVES

1. Blood or blood components is safely administered to patient.
2. Reactions related to blood or blood component transfusion are detected, reported and action taken immediately.
3. Nurses exhibit the caring component when administering blood or blood components to patients.
4. Accurate and complete documentation is maintained.

STANDARD : 100% compliance with the standards for the administration of blood/blood components

Date of Audit : .....

Locality : .....

Auditor : .....

Auditee : .....

N.B. Instructions for Auditors

1. To tick [√] at appropriate column.
2. S/ T/ D indicate soft skill/ technical skill/ documentation respectively.
3. Item T1 for conscious patient, T2 for unconscious patient. Please choose either one.
4. A nurse is responsible for conducting the Blood transfusion procedure for unconscious patient throughout the process.
5. Item S6 is related not applicable (N/A) for unconscious patient.
6. Item T15 and T16 are related not applicable (N/A) if patient did not develop reaction.

S/N	ITEM		SOURCE OF INFORMATION	YES	NO	N/A
T1	Confirm patient's identification with two identifiers.		Observe nurse			
	Conscious patient's					
	T1.1	Name				
	T1.2	Registration or identification number				
T2	Verify unconscious patient's by second checker					
	T2.1	Patient's full name				
	T2.2	Registration or identification number				
T3	Confirm written prescription.		Observe nurse			
T4	Verify consent.		Observe nurse and check written evidence			
T5	The nurse explains to the patient/ career prior to procedure: Possible reactions that may		Observe and listen explanation given by the nurse			

	occur during transfusion and when to call for nurse.					
S6	Nurse listens, responds promptly and politely to patient's questions.		Observe and listen			
T7	Verify right blood/ blood components prior transfusion perform together with doctor					
	T7.1	Confirm detail patient with patient medical report/ Electronic medical report	Observe nurse and check written evidence			
	T7.2	Verify Right blood or blood component as prescribed	Observe nurse and check written evidence			
	T7.3	ABO grouping & Rhesus factor correspond	Observe nurse and check written evidence			
	T7.4	Verify expiry date	Observe nurse and check written evidence			
T8	Perform baseline monitoring.		Observe nurse			
T9	Prime line with saline infusion by nurse.		Observe nurse			
T10	Administer blood transfusion as order follow protocol blood/ blood product transfusion.		Observe nurse			
T11	Titrate flow rate accordingly		Observe nurse			
T12	Monitor patient within first 5 to 10 minutes of transfusion. Nurse must be at patient bedside.		Observe nurse			

T13	Check vital sign accordingly till transfusion is complete.	Observe nurse			
T14	Monitor time limit of transfusion.	Observe nurse/ Ask patient/ Check written evidence			
T15	Identify reactions post transfusion	Observe/ ask nurse/ Ask patient/ Check written evidence			
T16	Take appropriate measure if required.	Observe nurse/ Ask patient/ Check written evidence			
D17	Accurate and complete documentation.	Observe nurse/ Ask patient/ Check written evidence			

AUDIT REPORT

(Please [√] the appropriate box)

Rating:

Criteria	Item	Conformance	Non conformance
Technical	18		
Documentation	1		
Soft skill	1		
Total	**20**		

Calculation: _____ X 100% = _____

REMARKS:

Auditor (name and signature) : …….

*Calculation: $\frac{\text{Total conformance of items}}{\text{Total number of items – Total number of items marked as NA}} \times 100\%$

9. REFERENCES

Krishna, H. M., Prasad, M. K., Mitragotri, M. V., Bipin, G. I., Gupta, D., & Sharma, R. (2023). Recent advances in perioperative blood management. *Indian Journal of Anaesthesia, 67*(1), 130–138.

National Blood Centre, Ministry of Health Malaysia. (2016). *Standard operating procedure for blood or blood component transfusion* (4th ed.). Ministry of Health Malaysia

Noor Haslina, et al. (2021, October 19). Blood transfusion knowledge among nurses in Malaysia: A university hospital experience. *International Journal of Environmental Research and Public Health*, 18(21), 11194. https://doi.org/10.3390/ijerph182111194

Suddock, J. T., & Crookston, K. P. (2023). Transfusion reactions. In *StatPearls*. StatPearls Publishing. https://www.statpearls.com