Red Blood Cells

TRANSFUSION MEDICINE SERVICES

OTHER NAMES	CLASSIFICATION	ALERTS
RBC Packed Red Blood Cell (PRBC)	Blood Component	HIGH ALERT SUBSTANCE VERIFICATION REQUIRED BY 2 HCP

PREPARATION and ADMINISTRATION

Prepared from Human Blood.
Ensure ABO Type is compatible with patient, consent is documented and blood matches prescribed order.

Primary Infusion

IV Bag (large volume pump)

Ready-to-use bag "unit" – exact amount is located on the unit label and Transfusion Medicine (TM) tag Diluent: none

Adults: 60-120mL/hr for initial 15 min then increase to ordered rate
Pediatrics: When appropriate, initiate at half the ordered rate for first 15 minutes. Increase rate if tolerating well
Maximum rate: 1500 mL/h

Complete infusion within 4 hours of **time of issue** found on the TM tag, or the time removed from a transport cooler

Do NOT transfuse multiple units simultaneously outside of an emergency

Syringe (syringe pump)

For instuctions on portioning (aliquot) units for syringe pumps, see Transfusing via Syringe Pumps Diluent: none

Adults: 60 mL/h for initial 15 min then increase to ordered rate
Pediatrics: When appropriate, initiate at half the ordered rate for first 15 minutes. Increase rate if tolerating well
Complete infusion within 4 hours of **time of issue** found on TM tag or time removed from transport cooler

Requirements and Monitoring

Administration: Infusion device, IV tubing with standard (170-260micron) blood filter "*Dual spike blood tubing*"

Do not over-spike the blood units. Insert with one quarter turn, clockwise twists. Do not pull, or twist in both directions while spiking or un-spiking.

Discard tubing after 4 units or 4 hours; if more than one hour has elapsed between transfusions; in accordance with the manufacturer's insert, and/or if tubing becomes occluded, contamination is suspected, or integrity compromised

Keep unopened back up bag of NS and standard IV tubing nearby for prompt response if an adverse event (AE) occurs.

Baseline vitals within 60 min before starting infusion. Reassess 15 min after starting infusion under direct observation, Q1h (minimum), when infusion is complete and 20 min to 1h post completion. Q4hx24hours for inpatients. **Document all vitals taken**.

Blood pressure via cuff or arterial line
Temperature
Heart Rate
Respirations
Lung sounds in non-verbal, non-oriented or pediatric patients and patients with CHF or pulmonary dysfunction

Assess patient for risk factors of TACO: Cardiac or renal dysfunction; older age; positive fluid balance; signs of cardio/pulmonary strain

INDICATIONS

- Symptomatic anemia (causing tachycardia, dizziness, impaired LOC and/or dyspnea on exertion)
- Acute sickle cell crisis

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- Actively bleeding, massively bleeding and suspected bleeding
- Acute coronary syndrome
- Intrauterine transfusions
- Chronically transfused
- Hemoglobin levels below transfusion threshold (See Dosage for Hemoglobin Thresholds and Reccommended Dosage)

ADVERSE EVENTS

NEW onset of any of the following:

Hypertension/Hypotension	Significant change in cardiac rate/rhythm	Patient feels unwell
Tachypnea/bradypnea/dyspnea	Severe headache	Unexplained anxiety
Fever/chills/rigors	Back/chest/flank pain	Bleeding/pain at IV site
Puritis/urticaria/rash	Anuria/hematuria/oliguria	Nausea/vomiting

If an AE is suspected: stop the transfusion, disconnect and cap the blood tubing, intiate the backup line of NS and consult the authorized perscriber (AP) for medical management. Notify the TM lab of a suspected reaction.

- Review the component label, TM tag and patient ID to rule out a verification (clerical) error and that the expiry date and time have not passed.
- Resume transfusion cautiously as directed by AP. Directly observe patient x5min then closely observe x10min.
- Ensure TM tag, along with a copy of the documented clinical data and interventions are sent to TM lab once transfusion is discontinued or completed.
- If the transfusion must be discontinued and a transfusion reaction workup is ordered, send the additional following items to TM lab:
  i. Blood work (1 Red top and 1 EDTA (Pink or Lavender top)
     *possible exception for pediatric patient: lab testing to be performed at discretion of Hematopathologist
  ii. Component and administration set (ensure set is safely capped)

Note: AP may also require additional testing such as: blood cultures, chest x-ray, EKG, or urine specimen

DOSAGE

Adult Hemoglobin Thresdholds	Recommendation and Dose
Less than or equal to 70 g/L	Transfuse 1 unit and re-check patient symptoms and hemoglobin prior to transfusing a 2nd unit
Outpatient or a patient undergoing dialysis and hemoglobin less than or equal to 70 g/L	Transfuse as requested
Less than or equal to 80 g/L with one or more of the following: • Pre-existing cardiovascular disease • Hematology/Oncology patient with chemotherapy-induced cytopenia • Undergoing orthopedic surgery or cardiac surgery	Transfuse as requested
Patient is undergoing radiation therapy and hemoglobin less than or equal to 100 g/L	Transfuse as requested

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Obstetrical patient with a high risk of postpartum hemorrhage and hemoglobin is between 80 g/L and 100 g/L	Transfuse as requested

Pediatric Patients Greater than 4 Months Corrected Age	Recommendation and Dose
Stable patient with hemoglobin greater than 50 g/L and up to 70 g/L	Transfuse 10-15 mL/kg PRBCs over a recommended time of 3.5 hours and re-check patient symptoms and hemoglobin prior to transfusing again
Stable patient with hemoglobin less than or equal to 50 g/L	Transfuse 10% of pre-transfusion hemoglobin level in mL/kg over a recommended time of 3.5 hours and re-check patient symptoms and hemoglobin prior to transfusing again (EXAMPLE: If pre-transfusion hemoglobin level is 40 g/L, then initial infusion rate is 4 mL/kg IV over a recommended time of 3.5 hours)
Patient is hematology/oncology patient with chemotherapy-induced cytopenias with hemoglobin less than or equal to 80 g/L	Transfuse 10-15 mL/kg PRBCs over a recommended time of 3.5 hours and re-check patient symptoms and hemoglobin prior to transfusing again
Patient is undergoing radiation therapy and hemoglobin less than or equal to 100 g/L	Transfuse as requested

COMPATIBILITY, STABILITY

- Compatible with NS only

  NOTE: Solutions, other than NS, intended for intravenous use may be used in an administration set with RBCs if they have been approved by Health Canada for this use under applicable requirements; or there is documentation available to show that addition of the solution to the blood component involved is safe.

- Only viable for four (4) hours from the **time of issue** found on TM tag or time removed from transport cooler
- Do not store unused units in refrigerator or opened transport cooler. Return to TM

DOSAGE FORMS

- 1 bag (unit); 250-400mL in volume – See Unit label or TM tag for exact amount
- Peditactric/neonate doses may be aliquoted into smaller volumes, based on ordered amount

MISCELLANEOUS

- Ensure patient receives a blue transfusion notificard card once per calendar year.
- Verification outside of hospital settings will include the Transfusionist and a capable adult.

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LIBRARIES

- Searchable Drug Library Document

REFERENCES

- CL-BP-001 Blood Component Utilization in Adults and Pediatrics
- CL-BP-030, IWK-625 Blood Component and Blood Product Administration - Policy and Procedure
- http://www.cdha.nshealth.ca/nova-scotia-provincial-blood-coordinating-program-7