HEALTH HOLDING

HAFER ALBATIN HEALTH CLUSTER
MATERNITY AND CHILDREN HOSPITAL

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| **Department:** | Laboratory and Blood Bank | | |
| **Document:** | Multidisciplinary Policy and Procedure | | |
| **Title:** | Ordering of Blood/Blood Products and Tests | | |
| **Applies To:** | All Blood Bank Staff and Treating Physicians | | |
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## 1. PURPOSE:

1.1 To ensure that blood & blood components and related tests are ordered for clinically appropriate conditions with a goal to optimize patient outcomes and ensure blood & blood components are used appropriately according to established standards.

## 2. DEFINITIONS:

2.1 **Cancellation:** the return of blood/blood components to the "available" inventory as soon as the potential need for a transfusion has passed.

## 3. POLICY:

3.1 Proper requesting of blood transfusion is important for patient safety and legibility purposes.
3.2 Only physicians order blood and in accordance with a policy clarifying when blood and blood products may be ordered.
3.3 For ordering blood or blood components, it must be on an order form (e.g. blood transfusion or massive transfusion request, written format) stamped from a medical doctor and must contain sufficient information for recipient identification to guide the selection of blood unit.
3.4 In emergency cases, the blood bank accepts requests accompanied by an ER number which must be followed shortly by an ID number of the patient.
3.5 Following the policy and procedure in "the emergency release of incompletely tested blood and blood components" chapter (LB-MPP-238):
  3.5.1 In extreme emergency, uncross matched or partially cross matched RBCs units may be released to the patient.
  3.5.2 If the screened units are not available and in extreme emergency, incompletely tested blood/blood components can be released to patients with written consents from the attending physician and the patient or next of kin, when applicable.
  3.5.3 When No Units Are "Compatible" and the need is sufficiently urgent, ABO-compatible but cross match incompatible red cells may have to be requested by the physician.
3.6 After Non-Group- Specific Transfusion, requesting ABO-identical RBC components can be done safely.
3.7 The phlebotomist must identify the potential recipient before collecting a pre-transfusion specimen and must ensure that the correct patient information is recorded on the label of the sample that is collected and on the "Blood & Blood Products Request & Release Form". Refer to "Patient Sample Handling And Labelling" (LB-IPP-204).
3.8 Collection of a type-and-screen specimen in advance of transfusion, with a second specimen being collected (by another nurse) for blood grouping is one approach to decrease the incidence of transfusion reaction due to Wrong Blood In Tube.
3.9 Every physician must follow his/ her case with the blood bank regarding the availability of the requested component and any required data that may be needed by blood bank.

## 4. PROCEDURE:

### 4.1 Requests for Transfusion:

4.1.1 For ordering blood or blood product it must be on an order form (blood transfusion or massive transfusion request) stamped from a physician.

4.1.2 To prevent avoidable, unnecessary delays, please ensure that all entries are legible and the request form is stamped from the treating doctor.

4.1.3 The request form (order) should specify the following:

- 4.1.3.1 Full name of patient (First name(s) in full, Surname/family name (correctly spelt) ).
- 4.1.3.2 I.D. of the patient or file number (Hospital number.).
- 4.1.3.3 Gender and age of patient.
- 4.1.3.4 Location of the patient (department).
- 4.1.3.5 Type of blood component, the volume (or number) to be administered, the group required and any special processing required of the component.
- 4.1.3.6 Type of order, and the date and time of prospective transfusion.
- 4.1.3.7 The name of the physician who is ordering the transfusion with his /her stamp.
- 4.1.3.8 Indication of transfusion, and any other specific requirements relating to the patient or request such as: Diagnosis, Haemoglobin level, Platelet count, and PT& PTT.
- 4.1.3.9 History and date of previous transfusion, and Previous blood transfusion reaction.
- 4.1.3.10 Previous antibody screening and antibody Identification
- 4.1.3.11 History of pregnancy.
- 4.1.3.12 Pre-transfusion order type: type and hold, type and screen, (routine or STAT), type and cross match (with the date and time of blood needed or STAT), emergency transfusion request, etc.

4.1.4 If the patient had a bone marrow transplant, please include this on the request form.

4.1.5 Additional data to be included:

- 4.1.5.1 The name of the nurse or phlebotomist who withdraws and labels the cross match sample. The date and time of sampling must be recorded on the request.
- 4.1.5.2 The name of the medical staff (nurses / phlebotomists/ technician/ doctor) who delivers the cross match sample and request. The date and time of delivery must be recorded on the request.
- 4.1.5.3 The name of blood bank technician/ specialist who receives the sample and request. The date and time of receiving must be recorded on the request.

4.1.6 Requests for blood or blood components that lack the required information, are inaccurate, or are illegible should not be accepted.

4.1.7 Samples and requests could be sent through the mechanical sample transfer system "Shooter" using its capsules.

### 4.2 Pre-transfusion Testing (orders) Schemes:

4.2.1 Type and hold: ABO, Rh(D) tests are performed.

4.2.2 Type and screen: ABO, Rh (D), and antibody screening are done. See later.

4.2.3 Type and cross matched: ABO, Rh (D), antibody screening, RBC unit selection, and crossmatch are performed.

4.2.4 Partially cross matched: ABO, Rh (D), and Immediate spin (saline phase) crossmatch are done.

4.2.5 Uncross matched: It is requested in extreme emergency.

### 4.3 Blood ordering in Non-urgent Situations:

4.3.1 Routine requests:

- 4.3.1.1 For suspected RBCs unit's need or once a surgical blood ordering schedule has been established, send the order as (type and screen) order.
  - 4.3.1.1.1 If antibody screen is positive, blood bank may ask for another sample for Ab identification and searching for compatible units for the patient.
  - 4.3.1.1.2 If compatible units or specific blood group are not available, blood bank will inform the patient care unit about the condition.

4.3.1.1.3 If transfusion becomes necessary in patients under a 'type-and-screen' order, ABO- and Rh-compatible blood can be safely released after an IS cross match if the antibody screen is negative and if there is no history of clinically significant antibodies. Blood bank must receive a call to start immediate spin.

4.3.1.2 If transfusion becomes necessary in patients under (type and hold) policy, RBCs units may be prepared within 4 hours after phone call but in urgent need of blood components, the nurse/ technician should attend the blood bank with another request form (STAT or emergency order).

4.3.1.3 For PRBC ordering from OBS/ Gyne non-urgent cases are as follows:

4.3.1.3.1 Preoperative:

4.3.1.3.1.1 OT list of scheduled cases: comes on the day before the day of operation.

4.3.1.3.1.2 The type of order (whether; Type and screen or crossmatch), and the number of required units should follow the guidelines of Ministry Of Health (MOH) Maximum Surgical Blood Ordering Schedule (MSBOS).

4.3.1.3.1.2.1 However, this Cannot substitute for clinical judgment and the need for flexibility in practice. It Should not be considered a mandate to transfuse or not to transfuse.

4.3.1.3.1.2.2 The treating physician should contact the blood bank for orders not conforming with "MOH MSBOS".

4.3.1.3.2 Cases with very high suspicious of bleeding and Congenital hemoglobinopathies: Type and Screen.

4.3.1.3.3 Hb< 7 gm / dl, Hb < 8 gm / dl in elderly with cardiovascular or respiratory disease, and Symptomatic anemia: Record the time of transfusion.

4.3.1.3.4 For Documentation that type and screen (T&S) testing was completed, blood bank staff records the results of type and screen on the request.

4.3.1.3.5 If the Ab screen is positive and compatible RBC is not available, blood bank staff will inform the department about the condition. The treating physician has to follow the blood bank in resolving the problem.

4.3.1.4 Unless otherwise specified, all coming request will be treated as "Type and hold" request.

4.3.2 STAT Requests:

4.3.2.1 The "STAT" statement must be written on the request and signed by the requesting physician.

4.3.2.2 STAT orders are prepared within 1 hour from receiving samples and requests.

4.3.2.3 Patients with antibodies may take much longer. Also, RBCs preparation for patients with thalassemia may take more than 1 hour. Blood bank staff will inform the patient care unit about the condition and the attending physician must contact blood bank laboratory to follow the results.

## 4.4 **Blood Ordering In An Emergency**:

4.4.1 General Guidelines:

4.4.1.1 Refer to the "the emergency release of incompletely tested blood and blood components" chapter (LB-MPP-238).

4.4.1.2 When RBCs units are urgently needed, the patient's physician must weigh the risk of transfusing uncross matched or partially cross matched RBCs unit against the risk of delaying transfusion until compatibility testing is complete.

4.4.1.3 The request must contain a signed statement from the requesting physician indicating that the clinical situation is sufficiently urgent to require the release of a unit before completion of compatibility testing or infectious disease testing.

4.4.1.4 Requests for emergency transfusion have priority over all other work for blood bank technologist and this request should have a unique identity. Multiple emergencies are handled on a first-received and first-processed basis.

4.4.1.5 If the screened units are not available and in extreme emergency, incompletely tested blood/blood components can be released to patients with written consents from the attending physician and the patient or next of kin, when applicable. The released blood products are conspicuously labelled to this effect. The release of these components is approved only for one transfusion event (except in life saving conditions).

4.4.1.6 Request may be modified, depending on the availability of blood or components with coordination between the requesting physician and staff of blood bank. This process considers age and sex factors.

4.4.1.7 Verbal requests are acceptable in urgent situations but should be documented during issuing blood.

4.4.1.7.1 Blood bank does not release any component for transfusion until a blood transfusion request is received indicating patient identification (incompletely filled request may be accepted in such event).

4.4.1.8 If RBC is released uncross matched or partially cross matched, the technician/ specialist will continue the cross match and will inform the doctor if there is any incompatibility, as soon as possible.

4.4.1.9 Recipients whose ABO; Rh(D) group has been determined by the blood bank will receive only ABO; Rh (D) group-specific or compatible blood components.

4.4.1.10 Blood bank technician indicates on the attached label on the bag and on the blood transfusion request that compatibility testing was not completed at the time of issue.

4.4.1.11 The blood bank doctor and the recipient's physician must be notified immediately of abnormal test results that may affect patient safety.

4.4.1.12 In extreme emergency and the blood group of the patient is not known, it is better for the physician to send request to the blood bank with two orders: one order for one unit uncross matched O RBC and the second order for ABO and Rh D group specific, uncross matched blood or partially cross matched RBC.

4.4.2 Notes:

4.4.2.1 In emergency cases, the blood bank accepts requests accompanied by an ER number which must be followed shortly by an ID number of the patient.

4.4.2.2 Due to the limited stock of Rh (D) negative RBCs units, Rh (D) positive units may be requested and released (in extreme emergency, and with the approval of the treating doctor) to:

4.4.2.2.1 Male patients.

4.4.2.2.2 Female patients older than childbearing age.

4.4.2.2.3 Female patients in life saving conditions.

4.5 **Ordering of blood after Non-Group-Specific Transfusion:** see "Selection Of Blood/Blood Product For Transfusions" policy (LB-MPP-237) (4.4.2).

4.6 **Ordering of Massive Transfusion:** see "massive transfusion" policy (LB-MPP-245).

4.7 **Ordering of Transfusion When No Units Are Compatible:** see "Selection Of Blood/Blood Product For Transfusions" policy (LB-MPP-237) (4.4.9).

4.7.1 One of the major deviations and exceptions of the blood bank is to use the Least incompatible blood products. Refer to "The Emergency Release Of Incompletely Tested Blood And Blood Components" policy(LB-MPP-238).

4.8 **Ordering of Tests:**

4.8.1 Principle:

4.8.1.1 It should be ordered using the laboratory multipurpose form.

4.8.1.2 Both the original order and its copy, (if required), must be stamped from the requesting doctor.

4.8.1.3 Blood bank receives emergency (urgent or STAT) requests for tests at any time. The reason for emergency should be documented on the request form.

4.8.2 The following data must be recorded on the test request:

4.8.2.1 The patient's name, ID, age, and sex.
4.8.2.2 Ward name and stamp.
4.8.2.3 Date and time of collection of the specimen.
4.8.2.4 Clinical history e.g. autoimmune disease, previous HDN, history of bone marrow transplant…etc.
4.8.2.5 History and date of previous blood component transfusion.
4.8.2.6 Blood group if known.
4.8.2.7 Previous antibody screening and antibody Identification (if known).
4.8.2.8 History of anti D administration with the date and dose of injection.
4.8.2.9 The type of the test requested and the type of order (routine or STAT).
4.8.2.10 Name and stamp of ordering physician and name and signatures of phlebotomists.

4.8.3 Identification of recipients, specimens required, labeling of blood specimens, and Specimen receipt: see "patient sample handling and labeling" chapter (LB-IPP-204).

4.8.4 Specimen Rejection:

4.8.4.1 Blood specimens submitted for Blood Bank are rejected for the following reasons:
4.8.4.1.1 Mislabelled specimen – if the specimen does not match the request.
4.8.4.1.2 Specimen with no label.
4.8.4.1.3 Specimen collected in the wrong tube.
4.8.4.1.4 Wrong specimen submitted.
4.8.4.1.5 Specimen is broken, leaking or contaminated.
4.8.4.1.6 Haemolysed specimen. Blood bank staff may accept haemolysed samples of patients with intravascular haemolysis like fauvism.
4.8.4.1.7 Inadequate volume of the specimen.
4.8.4.1.8 Samples without sufficient information on the requests, e.g. patient name, file number, physician name and stamp, diagnosis, date and time of collection, test to be done.

4.8.4.2 On rejecting a specimen, the responsible staff should:
4.8.4.2.1 Notify the requesting physician or nurse.
4.8.4.2.2 Report the cause of rejection and condition of sample.
4.8.4.2.3 Record the name of staff informed about the rejection of the sample.
4.8.4.2.4 Record the time of rejection.
4.8.4.2.5 Not allow nursing staff or phlebotomy staff to relabel improperly labelled specimens but ask for a new one.
4.8.4.2.6 Although samples of insufficient quantity should, generally, not be received, it may be necessary to process these samples when difficulties in collection were encountered.
4.8.4.2.7 Occurrence Variance Report (OVR) is written if the cause of rejection is repeated.

4.9 **Cancellation**:

4.9.1 If antibody screen of the patient is negative with no history of significant antibody, any x-matched blood not used after 24 hours should be regarded as cancelled.

4.9.2 If antibody screen of the patient is positive, any x-matched blood not used after 48 hours from sample withdrawal should be regarded as cancelled unless the blood bank is contacted to re-cross match the blood.

4.9.3 In emergency situations, already x-matched blood can be re-cross matched for another patient in greater need. Blood bank technician will inform the ward about cancellation.

4.10 **Maximum Surgical Blood Ordering Schedule (MSBOS):**

4.10.1 This schedule comes in accordance with that of "MOH Practical Manual" and MOH General Directorate of Hospitals circular No. 26/29/139218.

4.10.2 It is mainly concerned with obstetrics/gynaecological operations.

4.10.3

| Procedure | Cross match (Units) |
|---|---|
| Ectopic pregnancy (Laparoscopy or Laparotomy) | 2 U |
| Ectopic pregnancy with shock | 4 U |
| Complicated Abdominal and Vaginal hysterectomy | 2 U |
| Abdominal hysterectomy (by Laparoscopy) | 2 U |
| Radical hysterectomy | 4 U |
| Radical vulvectomy | 4 U |
| Myomectomy | 2 U |
| Molar Pregnancy | 2 U |
| Exploratory Laparotomy (Gyn) | 2 U |
| Simple hysterectomy | T/S |
| Ovarian cystectomy | T/S |
| Vaginal prolapsed repair | T/S |
| Diagnostic Dilatation and curettage (D & C) | T/S |
| Evacuation | T/S |
| Cervical cerclage | T/S |
| Cervical polyp | T/S |
| Inevitable miscarriage | T/S |
| Missed abortion | T/S |
| Diagnostic Laparoscopy | T/S |
| Perineorrhaphy | T/S |
| Loop electrocautery excision procedure | T/S |
| Vaginal resuspension | T/S |
| Operative hysteroscopy | T/S |
| Normal delivery | T/S |
| Unbooked cases in labour (high risk) | 1 U |
| Primary CS | 1 U |
| Repealed CS | 2 U |
| Ante partum or Postpartum haemorrhage (APH or PPH) | 4 U |
| Ruptured uterus | 4 U |
| Placenta previa | 4 U |
| Breast biopsy | T/S |

Note: ***T/S** = Type and Screen.

4.11 **Type And Screen (T & S):**

4.11.1 Typing involves determination of ABO and Rh types .

4.11.2 ABO and Rh types should be confirmed before type-specific blood can be administered .

4.11.3 The antibody screen tests recipient's plasma for the presence of blood group antibodies other than ABO antibodies (testing an indirect antiglobulin (Coomb's) reaction) .

4.11.4 Packed red blood cells can be provided within 15 minutes if the antibody screen is negative .

4.11.4.1 If the T & S is negative and the ABO/Rh Confirmation confirms the blood type, it is safe to give type specific blood without a classical "cross match" as < 1/50,000 patients whose plasma tests negative by antibody screen will have an RBC antibody that might cause a significant hemolytic reaction.

4.11.5 If transfusion becomes necessary in patients under a 'type-and-screen' order, ABO- and Rh-compatible blood can be safely released after an immediate (IS) cross match if the antibody screen is negative and if there is no history of clinically significant antibodies. Blood bank must receive a call to start immediate spin.

4.11.6 Immediate spin (IS) cross match: Refer to "CROSS MATCHING TECHNIQUES" chapter (LB-IPP-205).

4.11.6.1 It is acceptable for patient with no clinically significant antibodies (not detected in current antibody detection tests and there is no record of previous detection of such antibodies) or upon request by doctors in emergency situations. IS is not for neonates (less than 4 months of age).

4.11.6.2 Patient's sample:

4.11.6.2.1 For adult patients: Properly labelled EDTA blood (4 ml) from patient. Clotted sample is accepted in emergency cross match.

4.11.6.2.2 For infant and pediatric cases: Properly labelled EDTA blood (2 ml).

4.11.6.3 Procedure:

4.11.6.3.1 Place 2 drops of the patient plasma/serum in a properly labelled test tube (one tube for each unit to be cross matched)

4.11.6.3.2 Add one drop of 2-5 % saline suspension of donor red cells, and mix.

4.11.6.3.3 Centrifuge immediately (for 20 seconds at 1000 g), examine for hemolysis (if serum is used), re-suspend gently, read macroscopically for agglutination and record the results (in I.S. column).

## 5. MATERIALS AND EQUIPMENT:

5.1 **Forms and Records:**

5.1.1 Blood & Blood Products Request & Release Form

5.1.2 Receiving cross-match samples and request form and register.

5.1.3 Laboratory multipurpose form, hematos system of blood bank & careware system of the lab .

5.1.4 Sample rejection form & careware system of the lab .

5.1.5 Consent for blood transfusion without "ELISA &/or NAT" testing.

## 6. RESPONSIBILITIES:

6.1 It is the responsibility of all blood bank staff to accept only complete, accurate and legible requests which ordered only by authorized physician .

6.2 The treating physician have to follow guidelines of blood products ordering.

## 7. APPENDICES:

7.1 Laboratory multipurpose form

7.2 Consent for blood transfusion without "ELISA &/or NAT" testing

## 8. REFERENCES:


8.1 The Unified Practical Procedure Manual For Blood Banks In The Arab Countries, 1434-2013.

8.2 The Standard Policy For Blood Banks In The Kingdom Of Saudi Arabia, 1st edition, 1435-2014.

8.3 National Standards For Clinical laboratories and Blood Banks, 1st edition, 2015.

8.4 AABB Technical manual, 18th edition, 2014.

8.5 AABB Standards for Blood Banks and Transfusion Services, 30th edition, 2016.

8.6 Mollison's Blood Transfusion in Clinical Medicine; 12th edition, 2014.

8.7 Modern Blood Banking & Transfusion Practices, 6th edition, 2012.

8.8 Good Manufacturing Practice for Blood Establishments, Version 2.0, May 2019, Saudi FDA.

## 9. APPROVALS:

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