HEALTH HOLDING

HAFER ALBATIN HEALTH CLUSTER
MATERNITY AND CHILDREN HOSPITAL

Department:	Laboratory and Blood Bank		
Document:	Internal Policy and Procedure		
Title:	Blood Unit Screening		
Applies To:	All Blood Bank Staff		
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1. PURPOSE:

1.1 Provision of safe blood and blood products to recipients.

2. DEFINITONS:

2.1 Transfusion Transmitted Diseases (TTDs): Diseases that could be transmitted to the recipient as a result of blood transfusion.

3. POLICY:

3.1 **All blood units are subjected to immune-hematological Testing (using samples of blood obtained from the donor during blood/ blood component collection):**

- 3.1.1 Determination of the donor's forward ABO group (RBC grouping).
- 3.1.2 Determination of the donor's reverse ABO group (serum/ plasma grouping).
- 3.1.3 Determination of the donor's Rh-D type.
- 3.1.4 3Detection of unexpected antibodies to red cell antigens (antibody screening).

3.2 **All blood units are subjected to confirmation of the ABO/Rh-D grouping using segments from RBC components:**

- 3.2.1 Determination of the donor's forward ABO group (RBC grouping).
- 3.2.2 Determination of the donor's Rh-D type.
- 3.2.3 ABO/Rh-D conformation is performed after initial labeling.
- 3.2.4 All results and confirmation of agreement between donor's sample and unit segment grouping are documented

3.3 Discrepancies between donor's groups using blood tubes and bag segments are solved before releasing any blood/blood components.

3.4 All blood units must be tested for the detection of Unexpected Antibodies to Red Cell Antigens (for Allogeneic Donors) using the withdrawn serum/EDTA sample during donation.

3.5 **All blood units must be screened for the transfusion transmitted diseases (TTDs) by MOH approved method like chemiluminesence (using samples of blood obtained from the donor during blood/ blood component collection):**

- 3.5.1 HBsAg.
- 3.5.2 Anti-HBc Ab.
- 3.5.3 Anti-HBs Ab. for all Anti-HBc Ab. Positive samples
- 3.5.4 Anti-HCV Ab.
- 3.5.5 Anti HIV Ab.
- 3.5.6 Anti-HTLV Ab.
- 3.5.7 Nucleic acid testing (NAT) for HCV- RNA, HBV- DNA and HIV RNA.
- 3.5.8 Serological test for syphilis
- 3.5.9 Malaria by rapid immunochromatographic test for malaria Ag (e.g. OptiMal), other kit thick film or any other MOH approved tests.

3.6 All blood component units are stored in separate secured proper storage places and are not distributed or issued for transfusion unless all TTDs test results are released.

3.7 All screening tests are done in the central blood bank laboratory except for malaria (as applicable).

3.8 Anti-HBs Ab test should be performed to all Anti-HBc positive samples. Discard blood, if Anti-HBs result is negative (or positive < 100) and use blood if Anti-HBs result is positive (>100).

3.9 **Unit quarantine:** Blood unit or any prepared component is quarantined (and discarded) under the following circumstances:

3.9.1 Positive serological/ NAT test result for any of the transfusion transmitted diseases (TTD):

3.9.1.1 Blood unit will be discard in biohazard wastage (double yellow bags and inform yellow man to receive) and theses blood units will be entered in the specific register "Discard Blood Component".

3.9.1.2 After that inform public health department and hence they inform donor about his result and refer him to the concerned specialty.

3.9.2 Positive antibody screening tests

4. PROCEDURE:

4.1 Sending samples and Receiving results of TTDs:

4.1.1 Samples: (follow the central laboratory instructions)

4.1.1.1 NAT samples: One EDTA tube sample (about 4 ml), from which plasma is separated and kept in refrigerator. Other specimens may be used according to the kit manufacturer

4.1.1.2 Serology Samples: Plain tube 6 ml. or plasma sample from the bag as required.

4.1.2 Responsibility And Procedure:

4.1.2.1 Sampling is the responsibility of phlebotomist and technician/ specialist of the donor room.

4.1.2.2 The phlebotomist and technician/ specialist of the donor room must send requests for TTD testing to the central laboratory by printing it from hematos system of blood bank .

4.1.2.3 Technician/ specialist of the component preparation room receives the samples from the donation area. He/ She separates the serum or plasma, keep them in samples' refrigerator (2-8^{0}C) until transportation to the central lab and the serology unit.

4.1.2.4 Head of Lab and Blood Bank or his deputy is responsible for providing the facility for sending samples and forms to the central blood bank lab. He has to follow the safety transportation directions.

4.1.2.5 Malaria testing is done in Maternity and Children Hospital "MCH" as applicable. it should be done in blood bank by technician/specialist. In case of usage of blood film, the film is prepared by blood bank technician to be stained & examined in hematology unit of MCH lab.

4.1.2.6 Staffs of the central blood bank lab are responsible for testing all sent samples of blood donors and sending it through hematos system of blood bank if hematos not working they have to send results in written format by Fax or with the porter. Results also may be sent by E-mail. (They are also responsible for confirmation of positive samples results).

4.1.2.7 Supervisor of blood bank or his deputy receives the results from the central blood bank lab or technician of the serology unit, and record the results in the donor He/ She have to keep the result papers in the specified file.

4.1.2.8 Upon request, Supervisor of blood bank or his deputy sends other samples from plasma bags to be tested again to solve any problem about result confirmation, Melt FFP and get samples from ports or tubes.

4.2 Slides staining and examination for Malaria parasites:

4.2.1 Responsibility:

4.3.3.1 Blood Bank Technologists should adhere to the mentioned procedure.

4.3.3.2 Hematology doctor examine the slides and report the results.

4.2.2 Materials:

4.2.2.1 Two glass rods either over a sink or over a staining rack.

4.2.2.2 Giemsa stain (Ready for use).

4.2.2.3 Wash bottle containing buffered water.

4.2.2.4 Rack for drying slides

4.2.3 Procedure

4.2.3.1 Preparation of thick film:

4.2.3.1.1 A drop of blood, 3-5 mm in diameter is put into the center of glass slide and spread with the corner of another slide or swab stick to cover an oval area of approximately 10-15 mm in diameter.

4.2.3.1.2 Thoroughly dry the smear, in an incubator at 37 oc for one hour. Or leave at room temperature to the next morning.

4.2.3.2 Staining of the slide:

4.2.3.2.1 Cover the slide with diluted stain (1: 10 with distilled water) for 30 minutes.

4.2.3.2.2 Wash in tap water.

4.2.3.2.3 Wipe the back of the slides clean and set it up right to dry.

4.2.3.3 Examination of the Film: Examine the film by microscope under high power lens (x100) for the presence of malaria parasites.

4.2.3.4 Procedure Note:

4.2.3.4.1 The staining time may need changing, especially when a new batch of stain is received or the stain has been stored for a long time.

4.2.3.4.2 Films of all suspected or positive cases should be examined by two observers.

4.2.4 Detection of malaria antigen using rapid immune-chromatographic test (e.g. Opti-Mal@):

4.2.4.1 Principle:

4.2.4.1.1 It is a rapid immune-chromatographic test which uses monoclonal antibodies against the metabolic enzymes parasite lactate dehydrogenase (pLDH) of Plasmodium spp.

4.2.4.1.2 It is a rapid immune-chromatographic test which uses monoclonal antibodies against the metabolic enzymes parasite lactate dehydrogenase (pLDH) of Plasmodium spp.

4.2.4.2 Sample: whole blood

4.2.4.3 Method:

4.2.3.1 Unpack the contents.

4.2.3.2 Label the cad with blood donor number.

4.2.3.3 Put 1 drop and 4 drops of the buffer in the first (blood) and the second (buffer) wells respectively then wait for one minute.

4.2.3.4 Put about 10 ul of the well-mixed whole blood of donor in the first (blood) well, mix, and wait for one minute.

4.2.3.5 Put the strip in the first well, and wait for 10 minutes.

4.2.3.6 Remove the strip from the first well, put it in the second (buffer) well, and wait for 10 minutes

4.2.3.7 Interpret the results.

4.2.4.4 Result Interpretation:

4.2.4.4.1 For the test to be valid: the control (C) line must be present.

4.2.4.4.2 If no colored lines in the 2 test lines (PO and (P), the test is negative

4.2.4.4.3 If one colored line (P); the test is positive for malaria spp.

4.2.4.4.4 If both test lines (PO and (P) are colored; the test is positive for R falciparum.

5 MATERIALS AND EQUIPMENT:

5.1 Hematos system & Sample Sending Register
5.2 Hematos system & ,Donor register
5.3 Hematos system & NAT and Serology result file
5.4 Hematos system & Malaria Results register
5.5 Hematos system & Discard register

6 RESPONSIBILITIES:

6.1 All blood bank staff

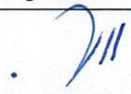
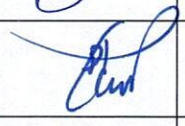
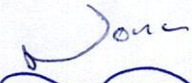
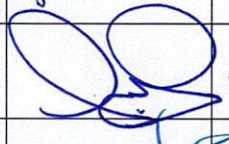
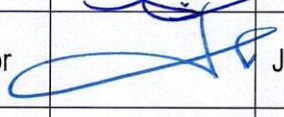
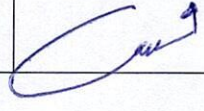
7 APPENDICES:

N/A

8 REFERENCES:

8.1 The Unified Practical Procedure Manual For Blood Banks In The Arab Countries, 1434-2013.
8.2 AABB Technical manual, 18th edition, 2014.
8.3 AABB Standards for Blood Banks and Transfusion Services, 30* edition, 2016.
8.4 Saudi Central Board For Accreditation Of Health Care Institutions; Third edition, 2015.
8.5 Mollison's Blood Transfusion in Clinical Medicine; 12th edition, 2014.
8.6 Dacie & Lewis Practical Hematology, 11 th edition, Churchill Livingstone. (2011);
8.7 Good Manufacturing Practice for Blood Establishments, Version 2.0, May 2019, Saudi FDA

9. APPROVALS:

	Name	Title	Signature	Date
Prepared by:	Ms. Maram Sulaiman Alanazi	Blood Bank Specialist		January 06, 2025
Prepared by:	Dr. Mohammed Amer	Blood Bank Physician		January 06, 2025
Reviewed by:	Dr. Kawther M. Abdou	Consultant & Lab. Medical Director		January 08, 2025
Reviewed by:	Ms. Noora Melfi Alanizi	Laboratory & Blood Bank Director		January 09, 2025
Reviewed by:	Mr. Abdulelah Ayed Al Mutairi	QM&PS Director		January 12, 2025
Reviewed by:	Dr. Tamer Mohamed Naguib	Medical Director		January 13, 2025
Approved by:	Mr. Fahad Hazam Alshammari	Hospital Director		January 20, 2025