HEALTH HOLDING

HAFER ALBATIN HEALTH CLUSTER
MATERNITY AND CHILDREN HOSPITAL

Department:	Laboratory and Blood Bank (Haematology)		
Document:	Internal Policy and Procedure		
Title:	Haematology Specimen Collection Requirement		
Applies To:	All Haematology Staff		
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1. PURPOSE:

1.1 Is to know how to do proper sample collection

2. DEFINITONS:

2.1 Anticoagulants are defined as substances which prevent blood clotting / coagulation, and allow separation of the blood into cellular and liquid (plasma) components. Generally, plasma contains coagulation factors. Three Anticoagulants commonly used in haematology laboratory are:

2.1.1 Ethylene Di-Amine Tetra-Acetic Acid (EDTA): EDTA can be found in three salt forms:

2.1.1.1 Tri-Potassium EDTA

2.1.1.2 Di-Sodium EDTA

2.1.1.3 Di-Lithium EDTA

2.1.2 Sodium Citrate: Is the anticoagulant of choice for coagulation and platelet function tests, also is used for ESR (erythrocyte sedimentation rate test). It acts by precipitating calcium, thus it will not be available for clotting process. It came in a liquid form, as 3.8% tri-sodium citrate. For coagulation testing, the ratio of 9 volumes of blood to one volume of anticoagulant (9 volumes blood:1 volume anticoagulant) is very important.

3. POLICY:

3.1 When receiving the specimen, make sure that they are in the proper container with the correct amount of blood required especially for coagulation studies.

4. PROCEDURE:

4.1 EDTA is the most commonly used anticoagulant in the hematology laboratory, and is the anticoagulant of choice for the CBC

4.2 Anticoagulants commonly Used in the Hematology Laboratory and their use:

	Anticoagulant	Hematology Laboratory Use	Universal Color Code
	EDTA	Routine Hematology Procedures.	Lavender, Pink
	Sodium citrate	Coagulation, Platelets Tests, ESR.	Blue
	Heparin	Osmotic Fragility, Hematocrit	Green, Brown

4.3 Specimens Rejection Criteria

4.3.1 Labelling Problem

4.3.1.1 Unlabelled: any specimen is unlabelled if the specimen container don have a label fixed it with patient name, Medical Record Number

4.3.1.2 Mislabelled: if any of the patients identification information differs from the patients identification on the requisition associated with it

4.3.2 Incompletely labelled: any missing information on label will necessitates holding of the specimen until deficiency is corrected the lab will not correct improperly labeled specimen

4.3.3 Unacceptable Container due to: Non sterile for microbiological specimen Wrong tube for test needed (wrong additive/ anticoagulant) Leakage, contaminated or spilled

4.3.4 Unacceptable Specimen

4.3.5 Inappropriate volume of blood (Over filled) or under filled tubes. Exp in citrated tube for coagulation profile

4.3.6 Quantity not sufficient for the test (QNS)

4.3.7 Haemolysis samples exp. For tests affected by haemolysis

4.3.8 Specimen which cannot be Re-obtained: Specimens which cannot be re-obtained such as:

4.3.8.1 Normally Sterile Body Fluids (i.e.: pericardial, peritoneal, CSF)

4.3.8.2 Will be processed under a tempura provision which requires the collector to come to the laboratory and fill out the appropriate of acknowledging responsibility and verifying the identity of the specimen. This procedure must be completed before the results will be posted

5. MATERIAL AND EQUIPMENT:

5.1 EDTA
5.2 Sodium citrate
5.3 Heparin

6. RESPONSIBILITIES:

6.1 All Haematology Staff

7. APPENDICES:

7.1 Specimen Collection Requirements

8. REFERENCES:

8.1 A Manual Laboratory & Diagnostic Tests (Lippincott Williams & Wilkins
8.2 Medical Encyclopedia (Medlin Plus
8.3 Clinical Laboratory Methods/ John D. Bauer – MD- Mosby
8.4 Practical Hematology (Sir John V. Dacie)

9. APPROVALS:

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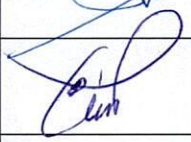
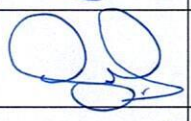
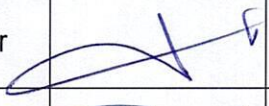
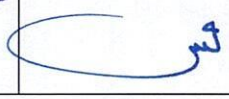
Prepared by:	Dr. Fatma Hassan Ahmed	Clinical Pathologist		January 06, 2025
Reviewed by:	Dr. Kawther M. Abdou	Consultant & Lab. Medical Director		January 08, 2025
Reviewed by:	Ms. Noora Melfi Alanizi	Laboratory & Blood Bank Director		January 09, 2025
Reviewed by:	Mr. Abdulelah Ayed Al Mutairi	QM&PS Director		January 12, 2025
Reviewed by:	Dr. Tamer Mohamed Naguib	Medical Director		January 12, 2025
Approved by:	Mr. Fahad Hazam Alshammari	Hospital Director		January 20, 2025

Appendix 7.1

SPECIMEN COLLECTION REQUIREMENTS

Test	Tube	Volume Requirement	Reference Values of adult population
Automated CBC			
Complete blood count (CBC)	K_2-EDTA	2-4 mL Blood	WBC : 4-11x10^3/µL RBC male : 4.5-5.5x10^6/µL Female : 3.8-4.8x10^6/µL HGB: male : 13-17g/dL Female : 12-16 g/dL HCT: male : 40-50 % Female : 36-46 % MCV : 79-96 fL, MCH : 27-32 pg MCHC : 32-36 g/dL PLT : 150-400 x10^3/µL
CBCD *(CBC with automated differential)*	K_2-EDTA	2-4 mL Blood	Neutrophils : 2.0-7.0 x10^3/µL (40-80%)
			Lymphocytes : 1.0-3.0 x10^3/µL (20-40%)
			Monocytes : 0.2-1.0 x10^3/µL (2-10%)
			Eosinophils : 0.02-0.5 x10^3/µL (1-6%)
			0.02 x0.1x10^3/µL(<1-2%)
Automated reticulocyte count	K_2-EDTA	2-4 mL Blood	0.5-2.5%
Microscopy			
Manual reticulocyte count	K_2-EDTA	2-4 mL Blood	0.5-2.5%
Manual differential count & peripheral blood film review	K_2-EDTA	2-4 ml blood (The smear is done from the CBC sample)	The same like CBC with automated differential
Test for Malaria *(thick & thin films)*	K_2-EDTA	2-4 mL Blood	Negative
CSF cell count & physical examination	Plain tube	>1 Ml	Clear, colorless Cell count: <5x10^6/L(<5/µL) (Normal no cells or few lymphocytes and few monocytes are present)
Other body fluids cell count & physical examination Pleural fluid Pericardial fluid Peritoneal fluid Synovial fluid	?Pleural fl.: plain tube ?Pericardial fl.: plain tube ?Peritoneal fl.: plain tube ?Synovial fl.: Na heparin Or steril container	4-5 mL Fluid	Clear, colorless Cell count: (per µL) Pleural fl.: <500/µL Pericardial fl.: <500/µL Peritoneal fl.: <500/µL (PMN< 25%) Synovial fl.: <200/µL (mainly monocytes and PMN< 50%)

Homeostasis tests			
International normalized ratio (INR)	3.2% Na_3-Citrate	Blood/anticoagulant ratio should be kept at 9:1. For tubes with 0.2 mL Na_3-Citrate, 1.8 mL blood should be added with final volume of 2 mL. For tubes with 0.5 mL Na_3-Citrate, 4.5 mL blood should be added with final volume of 5 mL. If vacutainers are used, blood should be filled up to the mark on the tube.	0.8-1.2
Prothrombin time (PT)	3.2% Na_3-Citrate		11-14.5 seconds
Activated partial thromboplastin time (APTT)	3.2% Na_3-Citrate		26-40 seconds
Special Hematology tests			
Erythrocyte sedimentation rate (ESR)	3.2% Na_3-Citrate	-Blood/anti-coagulant ratio: 4:1 -ESR-specific 1mL tubes OR ≥2mL blood For tube with 0.2 ml Na_3-Citrate, 0.8 mL blood should be added with final volume of 1 mL. For tube with 0.4 ml Na_3-Citrate, 1.6 mL blood should be added with final volume of 2 mL.	Men: <10mm/hour Women: <20mm/hour Elderly: <30mm/hour
Sickling test	K_2-EDTA	2-4 mL Blood	Negative