

Name of Block	I
Name of Elective	Blood and blood component requisition and crossmatch
Location of hospital lab or research facility	Dept. of Immunohaematology & Blood Transfusion
Name of internal preceptor (if applicable)	Dr. Deepika Aggarwal
Learning objectives of elective	- How to generate requisition of Blood and Blood component from concern areas. - To know emergency, urgent, routine & elective - Identify the blood and blood component requisition and specimen for each ordering schedule. - Sample checking for patient identification, labeling and physical inspection of samples. - Checking the availability of the checklist to determine & recording of the time of receiving blood and blood component. - Pre-transfusion Testing - Understand ABO and Rh(D) blood grouping principles. - Perform blood grouping under supervision. - Crossmatch Techniques - Describe and observe different crossmatch methods (Immediate spin, AHG, gel / column agglutination techniques). - Understand indications for each method. - Sample Handling & Identification - Follow proper sample collection, labeling, and acceptance criteria. - Understand patient and donor identification and traceability. - Reagent & Equipment Handling - Identify reagents used in crossmatching and their storage. - Handle centrifuge, incubator, gel cards, and analyzers correctly. - Result Interpretation - Interpret compatible and incompatible crossmatch results under supervision. - Recognize hemolysis and agglutination patterns. - Quality Control & Assurance

	• Perform and record internal quality control. • Understand EQAS and validation procedures.
Number of students that can be accommodated in this elective	4
Pre-requisites for elective	Knowledge of 1. Internet browsing 2. Microsoft Excel/Word/Powerpoint 3. Google form
Learning resources for students	1. Drug and Cosmetic Act 2022. 2. Technical Manual by DGHS 2024.
List of activities of student participation	1. To fill the requisition form under observation. • To know the emergency, elective and routine order. • How to use cold box for transportation. 2. Sample Collection & Handling • Verification of patient and donor identification • Receiving and checking blood samples for adequacy • Proper labeling, barcoding, and sample acceptance criteria • Sample storage as per SOP 3. Blood Grouping Activities • Performing ABO and Rh(D) blood grouping under supervision • Forward and reverse grouping • Recording and verification of results 4. Crossmatch Procedures • Assisting in different crossmatch methods: • Immediate spin crossmatch • AHG (Coombs) crossmatch • Gel / column agglutination technique • Preparation of red cell suspension 5. Reagent & Equipment Handling • Checking reagent validity and storage conditions • Operation of centrifuge, incubator, and gel card centrifuge • Daily maintenance and temperature log entry 6. Result Interpretation • Reading and grading agglutination reactions • Identification of compatible and incompatible results

	• Recognizing hemolysis and abnormal reactions
Portfolio entries required	Blood and blood component requisition done
Log book entry required	Satisfactory, "M" Grade
Assessment	• Attendance • Log book entry • MCQs • Creating a assignment • Concept tests • Peer assessment • Inter active presentation
Other comments	

INTRODUCTION

Blood services management is a patient -based approach to the management and utilization of blood transfusion services and should be subject to an inherent standard of care:

Prescription of Blood and Blood request form: A request form for whole blood/components accompanied by the appropriately labeled blood samples of the recipients should contain the following information and should be filled before sending to blood bank:

- a. Two identification details of Recipient, i.e. Hospital registration Number & full name.
- b. Name of hospital where patient is admitted, bed and ward No.
- c. Quantity, date and time of blood/ component needed/ required
- d. Whether Routine/ emergency/elective
- e. Diagnosis
- f. Reason for transfusion - hemoglobin/ platelet count
- g. History of previous transfusion, reaction if any & if yes, details of reaction
- h. Obstetric history in case of female patient/ recipient
- i. Signature, name & MCI registration no. of the medical officer ordering blood/ component & under whose supervision the blood is to be transfused.
- j. Name and signature of the phlebotomist collecting patient/ sample of recipient, (both on the form and sample)

Blood cross-matching is a crucial pre-transfusion test that mixes a patient's blood serum with donor red blood cells (major crossmatch) and vice versa (minor crossmatch) to check for harmful antigen-antibody reactions, preventing severe hemolytic reactions by ensuring compatibility; a negative (compatible) result shows no clumping or destruction, while a positive (incompatible) result indicates a reaction, meaning the blood cannot be used.

Purpose

- **Detect Antibodies:**
Identifies antibodies in the recipient's plasma that might attack the donor's red blood cells (RBCs).
- **Prevent Reactions:**
Stops severe hemolytic reactions, kidney failure, shock, or death from incompatible blood.
- **Confirm Compatibility:**
Ensures the donor blood is safe for the specific recipient, going beyond basic ABO/Rh typing.

