CHAPTER VI

LABORATORY SERVICES & BLOOD BANK

6.1 Each hospital should have well equipped laboratories covering all major sub areas like Clinical Pathology (Laboratory Medicine), Microbiology, Histopathology, Cytology, Biochemistry etc.

6.2 A Head of Laboratories should be designated who will be over all in charge of all laboratories. Each sub area should be under active supervision of senior most concerned consultant specialist.

6.3 The Central Emergency laboratory should function round the clock. It should provide facilities for all essential investigation (pertaining to Clinical Pathology, Biochemistry, Microbiology) required for patient management.

6.4 Routine investigation should be done with a time schedule for collection of samples, processing of samples, delivery of reports to O.P.D. and Wards. Indoor patients should get a priority over O.P.D. patient if required.

6.5 A Central sample collection center should be established where samples are drawn for all laboratories so that patient does not have to visit many places in the hospital.

6.6 The report of indoor patients should be sent to ward where patient is admitted preferably within 24 hours. The O.P.D. reports should be dispatched to the concerned O.P.D. and the patient collects these from there. Urgent sample reports should be communicated to the treating ward immediately. System of same day collection of reports by the patient or relative is also preferred.

6.7 Indoor patient's sample, duly labeled by the Nurse of the ward is to be sent to respective laboratories or Central Collection Center, which is feasible, at appropriate time after entering in the register.

6.8 Receiving of samples to be done by Lab. Assistant and signed.

6.9 Sample processing and technical tests to be done by technical staff on duty. It is the responsibility of the technical staff to take care of the samples and process them meticulously, methodically before producing the results to the medical staff for interpretation.

6.10 Interpretation of results to be done by Senior Residents who should sign and get their results confirmed by the Consultants/ Specialists/ Assistant Professor/Associate Professor and above.

6.11 Laboratory staff will be responsible for the report dispatch and Senior Nurse of the ward/O.P.D. will receive the report.

6.12 No test including emergency test should be conducted in the laboratory without a written requisition of Medical Officer/Resident. Junior Resident/House surgeon should not send the requisitions for special tests. Whosoever sends the requisition should print his name and designation and sign thereon. He should also indicate there in clinical notes of the patient in brief.

6.13 Requests for laboratory tests for emergency cases should be attended to expeditiously and report to be available within one hour. Officer In charge of the division should see that wards and outpatient departments do not misuse this facility. For this purpose he should arrange periodical discussions with the clinical staff particularly the junior ones.

6.14 Quality assessment measures should be installed in the laboratory services to ensure reliability of the tests. Procurement of reagents, chemicals, kits to be standardized and quality assured material to be procured.

6.15 Laboratory reports to be signed by the technical staff that does the procedure and countersigned by the medical officer concerned. In 24 hours emergency laboratory system if medical officer is not available, the report can be dispatched.

6.16 Responsibility for rendering reliable laboratory reports rests on the technician and the official in charge of laboratory/HOD.

6.17 It is desirable to organize refresher courses for all technicians periodically to keep them well informed of the advancement of laboratory practices.

6.18 Instructions for preparing the patients should be prepared in easily understandable language. Equipments should also be periodically calibrated or standardized to maintain accuracy of test.

6.19 It is desirable that technical staff is rotated in the various disciplines of the laboratory periodically so that they gain all round experience.

6.20 Every effort should be made to introduce appointment system wherever required so that the patient called for does not has to wait for long.

6.21 Procedure for collection of laboratory charges where levi able should be streamlined and made convenient fot the patients. Display boards should be placed at collection sites in this regard.

6.22 Work-study techniques and costing of the services rendered should be adopted for effective management control of the laboratory.

6.23 In the interest of efficiency, automation should be introduced wherever possible. The laboratory should be supplied with computers for database, information and interpretation system.

6.24 Distribution of laboratory reports should be systematized to ensure that no report is misplaced or lost and the practice of giving duplicate copy of the report is minimized.

6.25 Messenger system for bringing specimens from the wards and outpatient departments to the main Centralized Laboratory should be introduced wherever possible in the interest of efficiency.

6.26 Preventive maintenance of all laboratory equipment should be done wherever possible.

GUIDELINES FOR COLLECTION OF BLOOD SAMPLES

6.27 Use gloves and take special care if there are cuts or scratches on the hands.

6.28 Take care to avoid contamination of the hands and surrounding areas with blood.

6.29 Use disposable or autoclaved syringes and needles.

6.30 Use thick dressing pads or absorbent cotton below the forearm when drawing blood.

6.31 Tourniquet must be removed before the needle is withdrawn.

6.32 Place dry cotton swab and flex the elbow to keep this in place till bleeding stops.

6.33 Place used needles syringes in puncture resistant container containing disinfectant as per hospital infection control guidelines.

6.34 Do not recap used needles.

6.35 Do not remove needle from syringe.

6.36 Use disposable screw capped vials to avoid risk of leakage, breakage or spills.

6.37 Seal specimen containers securely. Wipe off exterior of the container free of any blood with a disinfectant.

6.38 The vials should preferably be placed in small plastic bags, which should be appropriately tied.

6.39 Plastic 'bread boxes' with proper ' **caution'** labels should be used for transporting this specimen to the laboratory.

6.40 Wash hands following completion of blood collection.

6.41 In the event of needle prick/other skin puncture wound, wash thoroughly with soap and water and let blood flow freely. Then apply iodophor/tincture of iodine.

6.42 All objects contaminated with blood must be regarded as infected.

6.43 Report all accidental exposure to the authorities.

6.44 No paper work to be done on potentially contaminated surfaces.

6.45 Label all specimens carefully.

6.46 Decontaminate by autoclaving all potentially contaminated material used in the laboratory before disposal or discard in a bucket containing 1% sodium hypo chlorite solution.

Prevention of Sharps/Needle Prick Injuries.

6.47 Although many potential routes of exposure exist, 80% of all exposures of health care workers occur as a result of needle pricks. Avoid the use of needles and syringes when possible.

6.48 Needles should not be recapped, purposely bend or broken by hand, removed from disposable syringes or otherwise manipulated by hand.

6.49 Disposable syringes and needles, scalpel, blades and other sharps should be placed in puncture resistant containers located as close as practical to the area of use.

Management of Sharps/Needle Prick Injury

6.50 Encourage bleeding and wash under running water, apply Tincture Iodine and dressing.

6.51 Submit blood specimen for testing for HBV, HIV.

6.52 Collect blood from source patient (with informed consent, test for HBV, HIV).

6.53 Management of exposure to HBV is as follows

Patient is HBs Ag negative-	No further action
Patient is HBs Ag positive	
Injured worker non-immune-	Hepatitis B immunoglobulin within 48 hrs
	Or
Ab response is < 10 mu/ml-	Hepatitis B vaccine

6.54 Management of exposure to HIV

Patient is HIV/Ab negative -	No further action if no risk factors. (Risk factors +ve –ve test after 3-6 months)
Pateint is HIV Ab positive -	Counselling, look for sero convention by testing after 3-6 months.
Massive exposures	
I/M or deep needle prick : (< 1 ml blood)	ZIDOUVUDINE or treatment as advised by the doctors

BLOOD BANK

6.55 The Blood bank is a unit that carries the operation for collection, storage, processing and distribution of blood or its components safely and adequately by arranging blood from donors.

6.56 It is mandatory under law to get each Blood bank licensed by the Drug Controller under the Drugs and Cosmetic Act. It is the responsibility of Head of Institution to get the blood bank licensed and renewed from time to time. Separate license is required for Blood components.

6.57 The Blood Bank is to be looked after by a Medical Officer in charge who is qualified by training or by experience. The in charge is responsible for all the day-to-day activities in the Blood Bank and supervises all other staff working in the Department. The in charge is also responsible for laying down policies, standard operating procedures, training of staff, making supplies available, quality control and administrative work relating to Blood Bank (Condition of license notification Part XII-B 5.4.99 2nd amendment).

6.58 The location of Blood Bank should be such that it can be kept clean hygienic and should have around 100 sq. meters of area. If blood components are prepared, additional 50 sq. meters is required.

6.59 Blood Bank should have provision for separate air conditioned space for blood collection, blood component separation, testing lab., refreshment cum rest room for donors. In addition, space is required for reception, sterlisation cum washing, and store cum record room.

6.60 The Staff required for this unit are Medical Officer, Blood bank technician registered nurse, technical supervisor (for blood components), lab. technician etc. These staff should have qualification/experience provided under the notification.

6.61 The required equipments for this unit are temperature recorder, refrigerated centrifuge, hematocrit centrifuge, general laboratory centrifuge, automated blood typing, haemoglobinometer, refractometer, weighing machine, water bath, autoclave, serological rotators, lab. thermometer, electronic thermometer, blood agitators etc. These equipments should be kept in proper running condition, standardized frequently and caliberated if required.

6.62 The consumable supplies like testing reagents/kits should be kept in clean environment, at the temperature recommended for each reagent. The principle of F1F0 should be adopted so that expiry of materials is avoided.

6.63 Each blood bank, based upon the rules framed under the Drugs & Cosmetic Act, should develop standard operating procedures which will include all steps to be followed for collection, processing, testing, compatibility, storage, distribution transport of blood, preparation of blood components, autologous transfusion, donor suitability, donor qualifying

tests, donor referral, adverse reaction management, record keeping, quality control etc. The technical staff working in blood should be made well trained in following these SOPs.

6.64 It is the responsibility of the incharge blood bank to ensure that whole blood collected, processed and supplied conforms to the standards laid down in the Indian Pharmacopoeia and other texts published, if any. Currently, test are done for HIV I, HIV II, Hepatitis B, Hepatitis C, VDRL and Malaria parasite. The result of such tests is recorded on the label of the containers.

6.65 Records - Many records are mandatory to be kept in Blood Bank like Blood donor record, Master Register for blood, issue register, register of components supplied, record of ACD/CPD bags, register for diagnostic kits cross match register, adverse reaction record, stock book. The label of blood bags is also prescribed under the act having different standardized color-coding for different groups.

6.66 Voluntary – Blood donations camps outside the institution can be organized by a licensed designated regional transfusion center, a licensed Government Blood Bank and Indian Red Cross society. The inter Government hospital transfer of blood can be done to meet shortage of any particular group of blood or blood components.

6.67 For technical procedural details, mandatory provisions, Blood bank in charge should refer to the Drug & Cosmetic Act(2nd ammendement) Rules 1999 Part II Section 3, Sub Section(i) No.164 issued by Gazette notification dated 5th April 1999 by Ministry of Health & F.W.(Government of India), New Delhi.

6.68 Biosafety — Immunisation of all blood bank staff against Hepatitis B should be done and booster doses given at appropriate interval. All the staff should adopt universal barrier precautions. The disposal of blood bank waste should be done as per guidelines issued by Ministry of Environment and Forest in their BMW rules 1998. All HIV, HBsAg, VDRL, Malaria, Hemolysed, Time barred blood bags should be disposed off by incineration on regular basis.
