APW
ON
SUPPLY AND EQUIPMENT NEEDS ASSESSMENT OF 97 BLOOD CENTRES AND REFERENCE LABORATORY

PROGRAM MANAGER - BAN BCT 001
AND
DIRECTOR - HOSPITALS AND CLINICS
DGHS, MOHAKHALI, DHAKA-1212.

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ABSTRACTS

Mandatory blood screening programme initiated for the detection of infection marker for HIV/AIDS, Hepatitis B, Hepatitis C, Syphilis and Malaria at 97-blood centres under the safe blood transfusion program. The different kinds of needs especially supply and equipments needs for the 97-blood centres and also for the reference laboratory was reviewed in this APW. Data for this review was collected from 04 MCH, 03 Specialized Hospitals, 08 District Hospitals, 02 Non Govt. Blood banks and also from Reference Laboratory. The data from one MCH blood banks was partial because of the non availability of the concerned person and some aspect of the data also was not available from the NGO blood banks due to their attitudinal problem. The collected data focused on the following areas like manpower, infrastructure facility, equipment, furniture, Screening reagent, reports return, use of checklist, logistic supply, expenditure pattern of users fees of different blood banks. The existing status and opinions about the needs of those mentioned major areas were collected from the service providers.

Result of the review shows that the Govt. blood banks were not staffed properly to provide 24 hours service in comparison to NGO blood banks. The category of manpower was more or less similar in same type of Govt. blood banks but different in strength. The NGO blood banks category of manpower was different from the Govt. blood banks manpower. All the Govt. level hospitals have separate room for the blood banks and not attached with general lab except 1 DH. The air condition was available 100% in MCH, Specialized hospitals and NGO blood banks but available only in one DH blood bank (12.5%). The existing total floor space is not similar because in MCH it ranges from 600 sft to 2,700 sft, in specialized hospitals it ranges from 900sft to 2700 sft, and the NGO blood banks the range is from 900 sft to 3000 sft. But the variation is limited in DH blood banks and it is 300 sft to 600 sft.

The existing equipment status was more or less similar in the MCH and specialized hospitals blood banks but different in quantity. The DH blood banks equipments type was less in comparison to MCH and specialized hospital blood banks, and this variation is probably due to the type of service delivery. The service providers wanted some equipment like Plasma expresser, Automatic blood collector, Platelet agitator and blood collector weight machine, which was not supplied. The common equipments like ELISA, Incubator, Incinerator, Micropipette, Bench Top Centrifuge,

Refrigerator, Weight machine, Hot Air Oven and Microscope were supplied. Some of the supplied equipments were detected as non-functioning. The striking feature was that, one ELISA machine was non-functioning because of the non-availability of reagent.

The requisite furniture for running a blood bank was not sufficient in the different types of blood banks. So, they wanted extra furniture depending upon the existing strength and actual need. Total 14-type of furniture were enlisted in their demand.

The different type of records in MCH and specialized hospitals blood banks were maintained 100% properly except screening reagent register and the percentage was 66.67%. The screening reagent register and cash book was not maintained properly in 25% of DH blood banks and other registers also was not maintained in 12.5% of DH blood banks samples.

The monthly consumption and yearly need of the blood grouping and screening reagent varied depending upon the type of blood bank and performance. In MCH blood banks the range of monthly consumption of 5 screening reagent was from 250 - 400 unit to 851-1050 unit. The consumption pattern of the specialized hospitals blood banks was more or less similar with MCH blood banks. The monthly consumption of DH blood banks ranges from 0-50 to 151-200 unit. The scenario clearly indicated the under-utilization of the DH blood banks.

The system of sending report in respect of reagent (consumption and requirement) and functioning status of the supplied equipment was not actually developed properly and because of that 62.5% DH, 33.33% of Specialized Hospital and MCH blood banks did not send their report properly. There is no system of sending report on functioning status of equipment.

The scenario of practicing checklist of QC of reagent and lab safety was not encouraging because 50% MCH, 66.67% Specialized Hospital and 87.5% DH blood banks were not practicing QC of reagent. The scenario of the use of lab safety checklist was also poor in DH, NGO and MCH and the percentage of not practicing were 87.5%, 50%, 50% accordingly.

The different type of blood banks experienced shortage of screening reagent supply and it exists up to 3 months. The Specialized Hospital blood banks experienced shortage of HCV reagent and the percentage was 66.67% but the shortage of HIV and malaria reagent was 33.33%. The MCH blood banks experienced 25% shortage of supply in respect of HIV, HbS Ag, HCV and DH blood banks also experienced 12.5%

shortage for the above mentioned screening reagents. The reason for reagent shortage was due to improper distribution of reagent from program office (SBTP) and also improper utilization of the collected user fees by the local authority.

Proper utilization of the supplied reagent is one of the important aspects of the program management. The MCH, Specialized Hospital and DH blood banks experienced wastage of screening reagent but no wastage of reagent was observed in NGO blood banks. The wastage was marked in 1-MCH, 1-Specialized Hospital and 02-DH blood banks.

The expenditure pattern of collected user fees of different type of blood banks was not similar. The blood bank service providers utilized their collected user fees in the 04-area, namely reagent and blood purchase, repair and maintenance of equipment and for contingency support. The blood was purchased only by MCH blood banks but not by the others.

The present status of the reference laboratory is not satisfactory in respect of existing manpower, equipment, furniture and performance. So, to improve the condition immediate measures is needed for creation of post, supply of requisite equipment and furniture. Side by side, structured monitoring is also needed for improving the performance.

Introduction:

Provision of safe blood to the patients is one of the major aspects of the health care. So, Govt. support and commitment in terms of resources, both human and financial is always necessary for ensuring safe blood. The Safe Blood Transfusion Program (SBTP) started functioning through 97 blood centers. The main objective of the SBTP was i) Establishment of a reference laboratory and 97 blood centre ii) Capacity development of the personnel for providing services, iii) Providing kits reagent and equipment for detection of HIV, Hepatitis B, Hepatitis C, Syphilis and Malaria. iv) Enhancement of voluntary blood donation through motivation programme and IEC campaign. The following implementing strategy was developed to obtain the goal of the safe transfusion program.

"Reduction of morbidity and mortality due to transfusion and transmissible diseases including HIV/AIDS by widespread use of screened blood"

Stratagies:

- Strengthening of centre
- Training
- Advocacy and dissemination
- Monitoring.

The 97 blood centres are situated at different type of hosptial. The hosptials / institutions are MCHs, Specialized Hospitals, District Hospitals, Armed forced hospital, Police Hospital, BDR Hospital, BIRDEM, Red Crescent, ICMH, BSMMU, Kumudini MCH etc., Simultanously one reference lab at DMCH is also working for the quality assurance of 97 blood transfusion centres. The ideal basic function of a blood transfusion centre are -

- Organizing the services
- Recruitment of blood donors
- Collection, processing, storage and distribution of blood and blood component
- Lab investigation
- Participation in clinical use of blood and blood components

- Teaching and training.
- Research and development

Among the 97 blood centres a good number of centres are maintaining the ideal basic function and as a result of that some visible changes are already marked. The changes are like falling of professional donor from 70% to 18.99% (at the end of 2002), increased percentage of voluntary blood donation, and increased percentage of 5 diseases screening resulting decrease in TTI. The basic need of a blood bank centre is proper infrastructural facility, staff strength, equipment, timely supply of requisite reagent, quality control system, and also proper capacity of the personnel to run the centre. The need of the 97 blood centres at the time of establishement already shifted according to the client demand. So, time to time need assessment is always essential for upholding the quality services including the blood safety. In this study an attemp is made to review the need assesment of 97 blood centres and reference lab for the above said purpose.

Background:

The implementation of safe blood transfusion program initiated as technical assistance project proposal in the month of July/1997. The proposal documented the govt. commitment that all patients should have access to enough and appropriate safe blood and blood products, wherever there is need for hospitals. The project objectives were:

- Development of facilties of blood screening at medical college hospitals / institutes upto district level hospitals and development of reference laboratory for National Blood Transfusion (NBTS).
- Development of skilled manpower in blood transfusion services to help in the management, monitoring and evaluation of services.
- Involvment of multi-sectoral organization in developing voluntary donor base.
- Phase out of high risk blood donors.

The program strategies were determined in the following way:

(1) Establishment of project office and reference laboratory for NBTS.

(2) Installment of equipment, supplies screening kits to MCH - 13, Institute - 5 (IPGMR, NICVD, RIHD, AFIP and IDCH), CMH including Naval - 13, DH - 53, other big hospitals (Police, BMCH, NAMCH, Kumudini, ICMH, Shishu Hospital), BDR, Red Crescent, BIRDEM and Reference Lab.

(3) Provision of facilities for blood collection, storage and testing in DH.

(4) Provision of traning for doctors and MT for implementation of blood screening programme.

(5) Organize workshops for community awareness development on voluntary non-remunerated blood donation, safe and rational use of blood.

(6) Development and mobilization of mass media materials for educating and motivating people about blood donation on voluntary basis, as well as the consequences of unscreened blood.

(7) Expand voluntary blood donor base with the assistance of NGOs in the hospital blood transfusion services replacing high risk blood donors from hospitals.

The activities of SBT started in the year 1999 (1st December) with the support of UNDP. The total budget was 1602.86 lakh taka. This SBT program started under HPSP as a component of Line Director - Hospital Services Operation Plan and also continued in the HNPSP under Line Director - HIV/AID and SBTP. The program authority already supplied 101 refrigerator, 101 microscope, 101 VDRL shaker, 53 Hot Air Oven, 101 Distilled Water Plan, 23 Air Conditioner, 46 ELISA equipment to different centres. They also supplied 1 Lab Table, 3 Revolving Lab Chair, 01 Easy Chair, 01 Bench and 01 Bleeding Table for each centre. In addition to that the following things were also supplied by the SBTP authority.

- Distribution of kit for screening of 5 diseases and blood grouping reagent.
- Printed forms and register in relation to program.
- Printed folder, leaflet and blood donor identity card.
- 97 bill board
- Procurement and supply of equipment for reference laboratory
- Installation of waste disposal incinerator.

Simultanously they also developed training manual and also conducted training for the professional i.e. doctors and paramedics on basic blood transfusion, blood screening management, motivational technique, record keeping, quality control etc. The program monitoring system was also developed by the program personnel. The different inputs were provided for the program but need-based infrastructural facility and creation of post yet to develop.

Objectives:

i) To review the existing status of the routine supply of screening reagent, other logistics and supplied equipment to 97 blood centres and reference laboratory.

ii) To review the existing infrastructural facility and to collect the opinion of the service provider in respect of infrastructural need for different categories of blood banks.

iii) To asses the actual need of the reagent, equipment, furniture for providing better services in 97 blood banks and reference lab.

iv) To explore the present status of some special areas like utilization of collected user fees pattern, reagent wastage, maintenance of equipment, record keeping and quality monitoring of reagents for formulating recommendation to improve the situation.

Justification of APW

Under HPSP, the Bangladesh Government introduced safe blood transfusion programme in 97 blood centres and a reference laboratory with an aim to provide safe blood for the patient. During establishment of the 97 blood centre under SBTP the following major activities were completed:

- Development of plan of action
- Identification of centres
- Development of capacity of service providers
- Supply of equipment and furniture to each centre.
- Supply of reagent and other logistic.
- Development of record keeping system and supply of necessary logistic.
- Development of BCC material and campaign for voluntary blood donation.

After the completion of the said activities, the focus was given to quality assurance, performance monitoring with the help of site visit, report and documentation review. After launching of the program it needs time to time thorough review for the improvement of programmatic management. The needs of the clients and service provider's are not at all constant. So the policy makers, planner and service providers need to acknowledge the changes needed to strengthen the program. The identification of the present needs specially infrastructure, equipment, furniture, manpower and other supporting logistic is always helpful to locate the areas where the actual changes are needed for improving the situation. Side by side it also needs to examine the present developed system for running a blood bank. In this APW all the activities are directed to address the mentioned things.

Limitation of the study / Review

1. The study / review reflects the different needs and practices but we cannot say the findings are hundred percent representations due to its small sample size.
2. During data collection the NGO blood banks under SBTP were not interested to provide information about some portion of the questionnaire especially financial part.
3. The study design, especially sample size was influenced by the allocated budget of the WHO.
4. Supporting literature in relation to the study was not properly available.
5. The projected needs of the different areas are completely based on assumptive opinion of the service providers.

Methodology

Approach: After signing the contract of APW between Director (Hospital and Clinics), DGHS, Dhaka and WHO, the total methodology of the review was figured out on the basis of submitted proposal. The following things were considered during the formulation of review process:

- Development of questionnaire
- Sampling procedure including sample size.
- Pre-testing of the drafted questionnaire
- Finalization of the questionnaire
- Data collection procedure
- Identification of data collector
- Data collection
- Data processing and analysis
- Report writing.

Development of questionnaire for data collection

One draft questionnaire for the collection of data was developed, considering the predetermined objectives. The draft questionnaire also shared with the personnel working in the SBT programme. The main areas addressed in the questionnaire were equipment and other logistic need, reagent supply status, reagent need and wastage status, infrastructure facility, manpower, quality assurance, record keeping, expenditure pattern of the collected user fees of the 97 blood centers. The main focus of the questionnaire was to assess the institutional capacity of different type of blood banks under SBTP.

The usual step of designing a questionnaire was followed. Firstly the contents of the questionnaire were developed considering the objectives and variables. Secondly on the basis of each variable the questions were selected. Thirdly the sequencing of questionnaire was done. Lastly the formatting of questionnaire was completed.

Sampling procedure and sample size

Purposive sampling procedures were followed due to shortage of time and resources. The blood banks samples were divided mainly into MCH, Specialized Hospital and District Hospital blood banks running under SBTP. The selection of government MCH, Specialized Hospital and District Hospital blood banks were done by lottery method. The selection of 2 non-govt blood banks (Red Crescent and BIRDEM) was done purposively and the inclusion of reference laboratory in the sample was done according to the proposal of APW. The sample size was influenced by the allocated fund for data collection. The total sample size was 18 and among them 4 MCH, 03 specialized hospital blood bank, 8 DH blood bank, 02 Non govt. blood bank and 1-Referance Laboratory.

Data Collection Procedure

Firstly a list of resource persons was prepared for data collection and the selected resource persons were oriented about the task, questionnaire and the process of data collection. The selected resource persons collected data from their assigned place/institution. They collected data in the following way:

- In-depth interview with the personnel working in the blood bank.
- Observing physically.
- Review of the documentation used in the blood banks.
- Filling up of the questionnaires form on the basis of findings and discussion.

Data processing and analysis

Data was processed by hand and analysis was done with the help of electronic calculator. Tables were made and analyzed on the basis of collected data.

Results:

In this study the data were collected from 18 institutions (blood banks and reference laboratory) situated at different level and running with the support from SBTP. Among them are MCH, Specialized Hospitals, DH blood banks, NGO blood banks and Reference Lab. 1-MCH blood bank data collection was partial because of the non availability of the concerned person. The service providers of the NGO blood banks were also not interested to provide information about the financial part of the questioniare.

Table No. 01

Type of institution included in the assessment

The total sample size of the study was 18 and among them 44.44% (08) was DH blood banks and 22.22% (04) was MCH blood banks. The sample from specialized hospitals blood banks and Non govt. hospital blood banks was also included and the percentages were 16.67% (03) and 11.11% (02) accordingly. The only reference laboratory was also included in the assessment.

Table No. 02 (A)

Type of Manpower working in the different category of govt. blood banks

The manpower scenario of 4 MCH, 03 specialized hospital 8-DH blood banks and one reference laboratory were reflected in the table. At the level of MCH 1 Professor, 02 Assoc. Prof., 03 Assist. Prof., 07 M.O, 2 Lab. Tech., 13 MLSS, 01 Pharmacist and 01 Office Assistant was working. The numbers of Assoc. Prof, Assistant Prof, M.O, Lab Tech., Lab Attendant, MLSS, and EMO in the specialized hospital blood banks were 01, 01, 03, 08, 05, 03 and 02 accordingly. The category of personnel of the DH blood banks were few and namely Consultant/ Pathologist, M.O, Lab. Tech, MLSS. The numbers of personnel working in the above mentioned post were 03, 08, 14, and 01 accordingly.

Table No. 02 (B)

Type of Manpower working in the non govt. blood banks Under safe blood transfusion program

The category of manpower working in the non govt. blood bank (BIRDEM and Red Crescent) was not similar with the category of manpower working in the Govt. hospital blood banks. The types and the numbers were 1-incharge blood bank, 01- Junior Consultant, 05-MO, 01 - DCMT, 06 - MT, 01-Assistant Director, 01-Assistant Accountant, 03-Scientific Assistant, 08-Guard/Darwan, 03-Driver, 01-Aya, 02-Sweeper, 03-Driver, 01-Motivation Officer, 02-Program organizer, 01-Junior Equipment Operator, 01-Cashier, 02-Staff Nurse and 05-Office Assistant.

Table No. 03 (a)

Infrastructure facility status of blood banks situated at different level

Separate room for the blood bank was available 100% in MCH, Specialized Hospital, District Hospital and Non Govt. Blood banks. The blood banks are operating as individual unit in the different type of hospitals (included in the assessment) except 12.5% i.e. one DH. Although the air condition is necessary for the blood banks, but it was available only 12.5% i.e. in one DH blood bank. The blood banks of MCH, Specialized hospital and Non-govt. were provided 100% with air condition.

Table No. 03 (b)

Total number of room present in different categories of blood banks

The total numbers of rooms in the different categories of blood banks varies and are not similar. The numbers of rooms in MCH blood banks (among the sample) are 2 rooms - 25%, 4 rooms - 25%, 10 rooms - 25% and 11+ rooms - 25%. The numbers of rooms in specialized hospital blood banks are 5 rooms - 33.33%, 7 rooms - 33.33% and 8 rooms - 33.33%. The scenarios of DH blood banks are, 1 room - 12.5%, 2 rooms - 75% and 3 room 12.5%. Among the two Non Govt. blood banks, one blood bank having 5 rooms and the other one is 11+.

Table No. 03 (c)

Total floor space in different categories of blood banks

Among the MCH blood banks 25% having floor-space up-to 600 sft, and the rest MCH blood banks floor space are 25% up to 1200 sft, 25% up-to 1800 sft and 25% up-to 2700 sft. The highest percentage 66.67% of specialized hospitals blood banks floor space is up to 900 sft. and only 33.33% blood banks floor space is up to 2700 sft. 50% of the DH blood bank floor space is up to 300 sft and the rest 50% is up to 600 sft. The variation of the total floor space is well marked in Non. Govt. blood banks i.e. 50% blood bank (01) floor space is up to 900 sft and the rest 50% (01) having floor space up to 3000 sft.

Table No. 04

Service providers opinion about infrastructure facility need for different categories of blood banks.

The opinions of the service providers were different about the facility needs. The MCH blood banks service provider opined that they should have 1 donor waiting room (25%), 1- Lab room (100%), 1-bleeding room (100%), 04-Doctors room (100%), 1-store room (75%), and 2 store room (25%), 1-office room (100%), 1-reception room (75%), 1-donor rest room (75%), 1-counselling room (75%), 1-donor examination room (100%), 1-cross match room (50%), 2-toilets' (50%) and 3-toilets' (50%). The specialized hospitals blood bank service providers opined similarity with MCH blood banks in respect of donor waiting room, lab room, bleeding room, but expressed different opinion about other areas and the areas are 1-doctors room(33.33%) and 2-doctors room (66.67%), 1-ELISA room (66.67%), 1-tecnician room (33.33%), 1-office room (33.33%), 1-reception room (33.33%), 1-blood component room (33.33%), 1-donor rest room (100%), 1-blood grouping and testing room (33.33%), 1-counselling room (66.67%). The district hospitals blood banks service providers opined 100% similar in respect of 1-lab room, 1-bleeding room, 1-office room and 62.5% of the respondent expressed their similarity about 1-donor waiting room, 1-donor rest room. In addition to that they expressed the following opinion, 1-doctors room (25%), 2-doctors room (37.5%), 3-doctors room (12.5%) and 4-doctors room (25%). Moreover they expressed the need of 1-store room, 1-reception room, 1-counselling room, 1-blood transfusion room, 1-donor examination room, 1-blood preservation room and the percentage were 37.5%, 25%, 12.5%, 12.5%, 50% and 75% accordingly. The NGO service providers expressed 100%

similar opinion about the following areas, doctors' room-2 (100%), bleeding room-1 (100%), store room-1 (100%), reception room-1 (100%), blood grouping and testing room-1 (100%), toilet-1 (100%). The half of the service provider's opined similarity about lab room-1, technologist room-1, reception room-2, counselling room-1, blood transfusion room-1, but 50% expressed different opinion in 2 areas, that is - 2-lab room, and 3-office room.

Table No. 05. a).

Present status of the equipment/instruments in different types of blood banks.

The data was collected according to the type of blood banks. Among the MCH blood banks 1 sample was non-responsive because of the non availability of the concerned person. The equipment like ELISA, Incubator, Incinerator, Micro pipette, Bench top centrifuge machine, Refrigerator, Deep freezer, Light box on white tile, Water bath, Thermometer, Pasteur pipette, Hand lens, Microscope, Weight Machine, Hot air oven, Mechanical cell separator, Voltage stabilizer, Mechanical cell separator, Voltage stabilizer, VDRL shaker, Distilled water plan, BP machine were present in the MCH blood banks but the total number of above said equipment/ instruments were not similar, and some of them were also not available. The equipment like Plasma Expresser, Automatic blood collector, Platelet Agitator and blood collector weight machine were not available at all. The scenario of the specialized hospitals blood banks was more or less similar. The district hospitals blood banks also does not have Pasteur pipette, Glass tube for anti-globulin test, Automatic tube seater, Bio-mixture machine, Mechanical cell separator, Refrigerator cell separator, Plasma expresser, Automatic blood collector, Platelet agitator, and blood collector weight machine at all.

Table No. 05. b).

Extra need of the equipment/instruments in different types of blood banks.

The different types of blood banks are functioning with the supplied equipment / instrument from the SBTP office. Although they are equipped with the equipment to run the blood banks, but they wanted some extra equipment for the improvement of their service delivery. The total extra need of MCH blood banks (in the sample) are- ELISA-1, Incubator-2, Micro-pipette 10 X 100 micro L - 2, Micro-pipette 5 X 50 micro L - 2, Micro-pipette 10 X 1000 micro L - 2, Bench top Centrifuge-1, Refrigerator for reagent-2, Deep freezer for serum sample-2, Light box on white tile - 2, Water bath - 1, Thermometer - 3, Hand Lens (2X5) - 4, Microscope - 3, Weight Machine - 2, Hot air

oven- 3, Automatic tube seater- 1, Bio-mixture machine - 1, Mechanical cell separator- 1, Refrigerator cell separator -1, Voltage Stabilizer - 2, VDRL shaker machine (Rotator) - 2, Distilled Water Plant - 1, BP Machine - 4, Platelet Agitator - 1, Blood collector weight machine-1.

The extra need of the Specialized hospitals blood banks (in the sample size) are more or less similar and the needs are - ELISA-1, Incubator-2, Micro-pipette 10 X 100 micro L - 3, Micro-pipette 5 X 50 micro L - 3, Micro-pipette 10 X 1000 micro L - 3, Refrigerator for reagent-1, Deep freezer for serum sample-3, Light box on white tile - 3, Water bath - 3, Thermometer - 5, Hand Lens (2X5) - 5, Weight Machine - 5, Hot air oven- 4, Automatic tube seater- 2, Bio-mixture machine - 1, Mechanical cell separator- 2, Refrigerated cell separator -2, Voltage Stabilizer - 6, VDRL shaker machine (Rotator) - 3, Distilled Water Plant - 1, BP Machine - 9, Plasma expresser -3, Blood collector weight machine - 4.

The needs of the District hospitals blood banks (in the sample size) are different in quantity but similar with the type of equipment. The needs are - ELISA - 6, Incubator - 7, Micro-pipette 10 X 100 micro L - 6, Micro-pipette 5 X 50 micro L - 8, Micro-pipette 10 X 1000 micro L - 8, Bench top Centrifuge- 5, Refrigerator for reagent- 5, Deep freezer for serum sample-5, Light box on white tile - 4, Water bath at 37 degree centigrade on incubator- 6, Thermometer - 19, Hand Lens (2X5) - 14, Microscope - 4, Weight Machine - 8, Hot air oven- 2, Automatic tube seater- 4, Bio-mixture machine - 4, Mechanical cell separator - 1, Voltage Stabilizer - 10, VDRL shaker machine (Rotator) - 2, BP Machine - 15, Blood collector weight machine - 2, Analyzer - 2.

Table No. 06

Non functioning status of the equipments in different categories of blood banks

The non-functioning status of the ELISA machine was detected 01 in MCH, 02 in Specialized Hospital and 01 in DH. Among the 4 non functioning ELISA machine one was non-functioning because of the shortage of reagent. Total 03 incinerators were detected non-functioning and 01 was in MCH and the other two were in DH and non Govt. organization. Among the 03 incinerator, two were non-functioning because the machines were not installed at the time of visit. One bench top centrifuge machine of DH blood banks found non-functioning and the other was in non-govt. blood bank. One water bath was found non-functioning in DH blood banks and 03- microscope, 01-hot

air oven, 02-rotator, 02-distilled water plant were also detected non-functioning. One voltage stabilizer, one microscope was not at all serviceable in specialized blood banks and one voltage stabilizer, one Shaker also detected non-functioning in MCH blood banks.

Table No. 07 (a)

Existing and total need of the furniture in MCH and NGO blood banks:

The total need was reflected by asserting the existing status and adding with extra need. Fourteen categories of furniture were included in the list. The opinion of the service providers were reflected in the estimation of need. The need of different categories of blood banks in the sample size are reflected below:

Furniture Names	Range (Lowest and Highest)
1. Full Secretariat Table	02 - 04
2. Half Secretariat Table	02 - 06
3. Normal Table	06 - 08
4. Laboratory Table	02 - 04
5. Bleeding Table	02 - 04
6. Chair	20 - 20
7. Easy Chair	01 - 04
8. Almirah	03 - 08
9. Bench	02 - 10
10. Sofa Set	01 - 05
11. Stool	03 - 20
12. File Cabinet	02 - 02
13. Book Shelf	Nil. - 03

(b) District Hospital blood banks

Furniture Names	Range (Lowest and Highest)
1. Full Secretariat Table	01 - 04
2. Half Secretariat Table	Nil. - 03
3. Normal Table	Nil. - 04
4. Laboratory Table	01 - 03
5. Bleeding Table	01 - 02
6. Chair	06 - 15
7. Easy Chair	01 - 02
8. Almirah	Nil. - 05
9. Bench	Nil. - 05
10. Sofa Set	Nil. - 06

11. Revolving Chair	Nil. - 03
12. File Cabinet	Nil. - 02

(c) Specialized Hospital blood banks

Furniture Names	Range (Lowest and Highest)
1. Full Secretariat Table	01 - 02
2. Half Secretariat Table	03 - 04
3. Normal Table	02 - 04
4. Laboratory Table	01 - 05
5. Bleeding Table	02 - 03
6. Chair	13 - 21
7. Easy Chair	Nil. - 02
8. Almirah	02 - 06
9. Bench	01 - 04
10. Sofa Set	01 - 02
11. Stool	02 - 06
12. Revolving Chair	Nil. - 05
13. File Cabinet	Nil. - 06
14. Book Shelf	Nil. - 02

Table No. 08

Record keeping status of the different categories of blood banks

The highest percentage of document maintained properly in MCH blood banks ie. 100% in respect of different register namely screening reagent, donor, patient, blood supply, blood stock, cross match, general, equipment, blood grouping, Asset and cash book. In specialized hospitals blood banks, all the above mentioned register were maintained 100% properly except screening reagent ledger and the percentage was only 33.33. The Donor, Patient, Blood Supply, Blood Stock, Cross Match, General, Equipment, Blood Grouping and Asset Register of DH blood banks were maintained 87.5% properly. But the screening reagent register and cash book were maintained 75% properly.

Table No. 09 (a)

Monthly consumption and yearly need of blood grouping and screening reagents

MCH Blood Banks:

The monthly consumption and yearly need of blood screening reagent was different according to the type of blood banks. The calculation was made according to individual units. The monthly consumption of HbS Ag screening reagent varied from 250 - 400 units to 851 - 1050 unit and the yearly need was from 5000 - 7000 units to 11001 - 13000 units. The monthly consumption of HIV, HCV, VDRL and MP screening agent was similar to HbS Ag reagent and the yearly need also projected by the service provider also same as like HbS Ag screening reagent. The monthly consumption range of blood grouping reagent was from 851 - 1050 unit to 1051 - 1250 unit and the projected yearly need was 7000 - 9000 unit to 11001 - 13000 unit.

Specialized hospital blood banks

The monthly consumption range of HbSAg, HIV, HIC, VDRL and MP was 250 - 450 units to 651 - 850 units and the projected yearly need was from 1000 unit to 5000 - 7000 units. The monthly consumption range of blood grouping reagent Anti A, B, D was 250 - 450 unit to 851 - 1050 unit and the projected yearly need was 1001 - 3000 unit to 7000+ unit.

Table No. 09 (b)

Monthly consumption and yearly need of blood grouping and screening reagents

DH Blood banks

The monthly consumption of HbSAg, HIV, HIC, VDRL and MP was from 50 unit to 200 unit and the projected yearly need was from 500 unit to 4000 unit. The monthly consumption of blood grouping reagent Anti A, B, D was from 50 unit to 350 unit and the projected yearly need was from 500 unit to 4000 unit. The monthly consumption of blood grouping reagent Anti A, B, D was from 50 unit to 350 unit and the projected yearly need was from 1000 unit to 5000+ unit.

NGO blood banks

The monthly consumption of HbSAg, HIV, HIC, VDRL and MP was from 500 unit to 1500 unit and the projected yearly need was from 6,000 unit to 20,000 unit. The monthly consumption of blood grouping reagent Anti A, B, D was from 2500 unit to 3000 unit and the projected yearly need was from 30,000 unit to 36,000 unit.

Table No. 10

Report sending status for reagent consumption and equipments of different categories of blood banks

There is a system of sending report of reagent expenditure from different institution to SBTP in relation to the number of blood screened client. 66.67% of MCH and specialized hospital blood banks sent their report on regular basis but 33.33% were not on regular basis, 62.5% of DH blood banks were not sending the report on regular basis but 37.5% were sending on regular basis.

All the MCH, Specialized hospital and DH blood banks in the sample size did not send any report regarding equipment status to higher authority.

Table No. 11

Practice of checklist status for monitoring QC of reagents and safety in lab.

The status of practicing checklist for daily quality control of reagent was 50% 'Yes' and 50% 'No' for MCH blood banks. The status of 'Yes' in specialized hospital, DH and NGO blood banks were 33.33%, 12.5% and 100% accordingly.

The status of practicing checklist for the lab safety was 50% 'Yes' and 50% 'No' for MCH blood banks and the status of practicing checklist properly in specialized hospital, DH and NGO blood banks were 100%, 12.5% and 50% accordingly.

Table No. 12

Method of receiving logistics in different types of blood banks

The MCH blood banks received their logistic in different ways/method namely Push, Pull, Both and the percentage were 50%, 25% and 25% accordingly. The specialized hospital blood banks received their logistic 100% by push method. 75% of the DH blood banks received their logistic by push method and the percentage of pull and both

method were 12.5% and 12.5% accordingly. The NGO blood banks received their logistic 100% by both i.e. combination of pull and push method.

Table No. 13

Statement of shortage of supply of blood grouping and screening reagents (according to the type of reagent):

The MCH, Specialized hospital, DH blood banks and NGO blood banks experienced shortage of blood grouping reagent and the percentage were 25%, Nil, 25% and Nil. All those blood banks experienced shortage of HIV screening reagent and the percentage was 25%, 33.33%, 12.5% and Nil. The shortage of HbSAg screening reagent also experienced 25%, Nil, 25% and Nil. The highest percentage 66.67% of Specialized Hospital blood banks experienced shortage in respect of HCV screening reagent and MCH, DH and NGO blood banks also experienced shortage 25%, 25%, Nil accordingly. The DH blood banks also suffered from shortage of RPR screening reagent and the percentage was 12.5% but the other type of blood banks did not experience any shortage. 33.33% of Specialized Hospital blood banks and 12.5% of DH blood banks experienced shortage of Malaria screening reagent and the others not. The duration of the shortage of different screening reagent was different but ranges from 1 to 3 month.

Table No. - 14

Wastage statement of blood screening reagent for different type of blood banks

The wastage of blood screening reagent according to the type of blood banks was different. Among the MCH blood banks 25% of the institution experienced wastage of HCV, HbSAg, RPR, Malaria and HIV Screening reagent. 33.33% of the Specialized Hospitals blood banks included in the sample size experienced wastage in respect of HCV, HbSAg, RPR, and HIV but for the Malaria screening reagent no wastage was detected. Among the DH blood banks 25% experienced wastage in respect of HCV, RPR and HIV screening reagent but experienced 12.5% and nil for HbSAg and Malaria screening reagent accordingly. The NGO blood banks did not experience any wastage for any type of screening reagents.

Table No. - 15

Status of formal training on maintenance of equipment for the personnel working in different type of blood banks

One Associate Professor and 02 Lab Technician of MCH blood banks received training on maintenance of equipment but no Medical Officer and Asstt. professor received any training. In the Specialized Hospitals blood banks none of the Asstt. Professor, Sr. Medical Officer, Medical Officer and Lab Technician received any training. 02 MO and 01 Lab Technician from DH blood banks received training on the above mentioned subject. The status of receiving training on maintenance of equipment for the personnel working in the NGO blood bank were MO - 02, DCMT - 01 and MT - 05.

Table No. - 16

Particulars of equipment / instrument disposed through condemnation board.

During data collection their was no document produced before the data collector about the particulars of the equipment / instrument disposed through condemnation board i.e. none of the medical college hospitals, specialized hospitals, district hospitals blood banks and NGO blood banks disposed their equipment / instrument through condemnation board.

Table No. - 17

Expenditure Pattern of user fees in different type of blood banks

Among the total respondent of DH blood banks 62.5% did not purchase any screening reagent but the rest respondent spent their user fees for purchasing reagent in the following way, 12.5% DH blood banks spent 0-5%, 12.5% DH blood banks spent 6-10%, 12.5% DH blood banks spent 21-25% of their user fees. In respect of blood purchase 87.5% DH blood banks did not purchase but 12.5% purchased blood and the percentage of expenditure was 16-20%. The majority DH blood banks i.e. 87.5% did not make any expenditure against repair and maintenance, but only 12.5% DH blood banks made 0-5% expenditure. 25% DH blood banks spent contingency below 1% and rest 75% blood banks spent below 3% of the users fees. Others expenditure i.e.

miscellaneous expenditure was done 0-3%, 7-9%, 13-15% by 12.5%, 75% and 12.5% of DH blood banks accordingly.

The reagent was purchased by 33.33% of MCH blood banks and they spent 16-20% money against the collected user fees but 66.67% did not spend any money in this respect. The amount of money spent by MCH blood banks for purchasing of blood was 0-5% and 11-15% of the collected user fees by 33.33% and 66.67% MCH blood banks accordingly. 100% of MCH blood banks spent money 6-10% against the user's fees in respect of their equipment repair and maintenance. 66.67% and 33.33% of MCH blood banks spent money below 3% and below 1% against the user's fees in respect of contingencies. Among the specialized Hospital blood banks the amount of money spent for reagent purchase was 0-5% of user fees by 50% of blood banks. Purchase of blood and rapair maintentance was not done by any specialized hospital blood banks. 50% of the specialized hospital blood banks spent below 2% of the user fees for contingency support. The NGO blood banks was non-responsive and 1-Specialized Hospital blood bank did not collect any user fees.

Discussion:

The assessment was conducted on small sample size of different categories of blood banks running under SBTP and it reflects the present status of 97 blood banks under SBTP in respect of equipment, furniture, screening reagent expenditure, infrastructure facility, manpower and expenditure modality of user fees, Quality assurance practice, record keeping, capacity for equipment maintenance etc. was also included in the assessment. The data for the study was collected from 16-08-04 to 12-02-05.

The total number of sample size was 18 and among the highest percentage 44.44% were DH blood banks (8DH). The numbers of MCH blood banks in the sample size were 04 (22.22%) and the rest was Specialized Hospitals blood banks 03 (16.67%), NGO blood banks (Red Crescent and BIRDEM) 02 (11.11%) and reference laboratory01 (5.56%). The status of data collection was partial from one MCH blood bank because of the absence of the proper person to provide information. The data collection from 02 NGO blood banks is not 100% complete, because of the unwillingness of the local authority to provide information about some segment of the questionnaire (table No.-1).

The requisite manpower is highly essential to run a blood transfusion centre round the clock considering it as an important and emergency service. The creation of post was not done properly according to the type and level of blood banks. The post of manpower like professor, Associate Professor, Medical Officer, Laboratory Technician, Lab Attendant, MLSS are exist in MCH blood banks and the number varied from one institution to another one. The manpower working of DH blood banks are only limited to Consultant, Medical Officer, Laboratory Technician and MLSS. There is no post created for reference laboratory and at present 01 Assistant Professor and 3 Laboratory Technician are working in reference laboratory on deputation. The requisite number is inadequate to run a blood bank for 24 hours. The type of manpower working in NGO blood banks are not similar with the type of manpower working in the govt. blood banks. The post like Assistant Director, Motivation officer, Program Organizer, Assistant Accountant, Scientific Assistant, Jr. Equipment Operator, Staff Nurse is present in the NGO blood banks but not in the Govt. system. The gap between existing strength of

manpower and the actual need should be addressed properly for better functioning of the blood banks round the clock (Table No. 2(a) and 2(b)).

Blood banks at different level of hospitals are functioning as separate unit. So, separate facility is necessary for proper functioning. The separate room for the blood bank is existing 100% at DH, MCH, Specialized hospital and NGO blood banks and it is not attached with general laboratory, except 12.5% (01) of DH blood bank. Although air condition is prerequisite for providing quality service but the majority DH blood banks i.e. 87.5% does not have any air conditioning. The existing facility for different level of blood banks is not enough and the infrastructure needs still remains. Among the MCH blood banks samples, total number of rooms existing are 02 (25%), 04 (25%), 10 (25%) and 11+ (25%) and specialized hospital blood banks sample, total number of room are 05 (33.33%), 07 (33.33%) and 08 (33.33%). The total number of existing rooms in DH blood banks varies from 1 to 3 and in the Non-govt. blood banks it is from 05 to 11+. There is no uniformity for the similar type of blood banks. Although the different level of authority are running their blood banks within existing infrastructure facility but a standard infrastructure facility needs to be figured out for the different level of blood banks through a process of consensus (3a, 3b).

The existing floor space of the blood banks also varies within the same type and also with the different types. In the MCH blood banks it varies from 600 sq foot to 3000 sq foot and in the Specialized Hospitals blood banks it varies from 900 sq foot to 2700 sq foot. The floor space of DH blood banks varies form 300 sq foot to 600 sq foot and in Non-govt blood banks it also varies from 900 sq foot to 3000 sq foot. The range of variation is more in MCH, Specialized Hospital and Non-govt blood banks. But the variation is not so much marked in case of DH blood banks. Basically there is no existing infrastructural standard for different level of blood banks resulting in this type of variation (Table 3-c)).

The standard infra-structure facility for the blood banks is an important aspect for quality service delivery. At present there is no standard infrastructure exist for running blood banks especially in the Government sector. The service providers opined their infrastructure need. The MCH blood banks service providers expressed 100% similar opinion about the necessity of lab room, bleeding room, donor examination room, store room, and majority i.e. 75% also wanted reception room, donor rest room, counselling

room. The necessity of the donor waiting room, cross match room and the toilets, was also mentioned by the service provider. The specialized hospitals blood banks service providers expressed similar type of opinion but wanted ELISA room, technologist room, blood component room, but not mentioned by MCH blood banks service providers. The district hospitals blood banks service providers expressed similar types of opinion and NGO blood banks service providers also expressed more or less similar opinion. The authority of Safe Blood Transfusion Programme should take initiative to formulate standardized infrastructural need according to the type of blood banks (Table No-04).

After launching of the Safe Blood Transfusion Programme (SBTP) under HPSP all the 97 centers were equipped with supplied equipment from SBTP authority. The Equipment items were not similar for all blood banks. Some equipment were supplied to the MCH and Specialized Hospital blood banks but not supplied to District Hospitals blood banks. The equipments like ELISA, Incubator, Mechanical Cell Separator; Refrigerated Cell Separator was available in the MCH blood banks but was not available in the District Hospitals blood banks. But majority was available in the Specialized Hospitals blood banks. Some important equipment like Plasma expresser, Automatic Blood Collector, Platelet Agitator, Blood collector weight machine, Automatic Tube Seater was not available neither in MCH blood banks nor in the Specialized Hospitals blood banks. The essential instrument / equipment like ELISA, Incubator, Micro Pipette, Bench Top Centrifuge, Refrigerator, Microscope, Weight Machine, VDRL shaker, Distilled water Plant were present in different quantity both in MCH and Specialized Hospital blood banks. The district hospitals blood banks were also equipped with essential equipment / instruments but some important things were not available like Thermometer in 6-DH, BP machine in 2-DH. The SBTP authority now needs a stock taking of functioning equipments for the all blood centres running under them and also to prepare a list of equipment which is needed in accordance with the present needs and the future needs (Table No. 05-A).

The need of the equipments / instrument was assessed by asking question from the local service providers. Due to lack of standardized list of equipment (level-wise), the information they provided more or less completely on assumptive basis. The extra need is also assessed on the basis of available equipment and its future needs. The DH blood banks service providers wanted sophisticated equipment like ELISA, Incubator, Automatic Tube Seater, Bio-mixture machine but re-visit is needed to fix-up the rationality of their need (Table No. 05-B).

Functioning status of the equipment is essential to ensure service. The non functioning status of the equipment namely ELISA machine, Incinerator and Bench top centrifuge machine were detected in MCH, DH, Specialized Hospital and NGO blood banks. Among the non-functioning ELISA machine, one was non-functioning due to the shortage of reagent although they had recyclable user fees for purchasing of reagents and repair for the non functioning equipment. 02 Incinerator machine were not installed resulting in non-functioning. Central monitoring and development of the system for routine repair and maintenance of equipment is necessary for proper functioning of the equipment (Table - 06).

Under safe blood transfusion program all the developed centers were provided furniture according to list. At the beginning of the program the type and number of furniture was sufficient but at present it is not fulfilling the needs. The different level of service providers expressed their needs of furniture. The opinion about the need was not similar for the same type and also for different type of blood banks. The total need was calculated by existing status plus extra need. The opinion about the furniture type and needs was more or less similar for the MCH, Specialized Hospitals, District Hospitals and NGO blood banks but varied in number. After proper examination of the need it is clear that due to absence of standard list according to the type and level of blood banks the service provider opined their extra need on the assumptive basis (Table no 7a, 7b, 7c).

Record keeping in relation to the service delivery, logistic management and utilization of user fees was reviewed. Among the type of stock ledger, 11 type of ledger were examined. The status of MCH blood banks and Specialized Hospital blood banks was good. The DH blood banks record keeping status was also fair but needs further improvement. Local authority of DH needs to strengthen their monitoring in this respect (Table No.-8)

The monthly consumption of different screening reagent was determined on the basis of their consumption and yearly need was also determined on the basis of their previous yearly expenditure plus expected service growth. The monthly expenditure of HIV, HCV, VDRL, and HbSAg, Screening reagent in MCH blood banks varied from 250 units to 1050 units. So, it is clear from the scenario that the expenditure probably depends upon the client flow, local initiative, community awareness and also performance monitoring. The same scenario also exists in specialized Hospital blood banks. The variation of monthly expenditure was also highly marked in respect of DH

blood banks and the range was from 50-units to 200 units for the above said screening reagent. So, the performance monitoring by the local authority and from the SBTP authority is necessary (9.a), 9.b)).

The sending of reports on reagent expenditure, balance and equipment status i.e. functioning status is not well structured and also not practiced properly. The MCH, Specialized Hospital and DH blood banks reagent report status "yes" was 66.67%, 66.67% and 37.5% accordingly. But the status of sending equipment report was "Nil" for MCH, Specialized Hospital and DH blood banks. Both the area needs meticulous address for the improvement (Table no - 10).

Monitoring the activities of blood banks is an important aspect for program management. Among the monitoring activities quality aspect monitoring is very much vital to ensure safe blood. The practice of checklist for daily QC of reagent and Lab safety needs monitoring regularly for up-holding the quality. The checklist for QC of reagents is being practiced in MCH, Specialized Hospitals, DH and NGO hospital blood banks and the percentage were 50%, 33.33%, 12.5% and 100% accordingly. The mentioned hospital blood banks also practiced the lab safety checklist and percentage were 50%, 100%, 12.5% and 50% accordingly. The status of DH blood banks as a whole was poor, probably due to inadequate supervision and improper capacity of the blood banks service providers. The status of Specialized Hospital blood banks was also poor in respect of using daily QC checklist of reagent. So, the mentioned areas need improvement to uphold the quality (Table No. 11).

The different categories of blood bank received their logistic in different ways namely pull, push and combination of both. The pull methods were used 25%, Nil, 12.5% and Nil for the MCH, Specialized Hospitals, DH and NGO Blood banks accordingly. The specialized Hospital blood banks used 66.67% push method for receiving their logistic and the MCH, DH and NGO hospitals blood banks used push methods 50%, 75%, and Nil accordingly for receiving their logistics. The combination of both pull and push (both) methods were also used by the MCH, specialized hospital, DH and NGO blood banks and the percentage were 25%, 33.33%, 12.5% and 100% accordingly. The variety of methods exists because the SBTP authority are procuring logistic centrally and distributing the different blood banks running under SBT program not in a weighted method. So, some of the blood banks procured their logistic specially screening reagent by the collected user fees when they experienced shortage of

supply. Logistic management needs to re-visit for developing a system on the basis of weighted method (Table 12).

The different level of blood banks experienced shortage of blood screening reagents. Only one MCH blood bank experienced shortage of blood grouping reagent and the percentage was 25%. The status of Specialized Hospital blood banks and DH blood banks was Nil and 25% accordingly. For HIV screening reagent the shortage was detected in each type of blood banks except NGO blood banks. The scenario of HbSAg screening reagent was more or less similar with HIV and the shortage was detected in MCH and DH blood banks but not in Specialized Hospital blood banks. The shortage of HCV screening reagent was 25%, 66.67%, 25% for the MCH, Specialized Hospital and DH blood banks. So, the shortage of HCV screening reagent was more marked in specialized hospital blood banks only. One DH blood banks experienced shortage of RPR screening reagent. One specialized hospital and one DH blood bank experienced shortage of malaria screening reagent. Although supply of screening reagent from the SBTP authority was not regular, timely and not on weighted method, even that the shortage was not rational because the authority could purchase the reagent with the collected user fees fund. The duration of shortage of screening reagent also varied and was ranging from 1 month to 3+ months (Table No. 13).

Proper utilization of supplied screening reagent is very important but the wastage of blood screening reagent was detected in different categories of blood banks. The wastage of 5 types of screening reagent was detected only in 25% of MCH blood banks and the same scenario was also detected in Specialized Hospital blood banks except Malaria screening reagent i.e. no wastage detected in respect of Malaria screening reagent. The wastage of HCV, RPR and HIV reagent was detected in 25% of the DH blood banks except HbSAg, Malaria and the status was 12.5% and Nil accordingly. The wastage of screening reagent was not detected in the NGO blood banks. The proper utilization of screening reagent depends upon the performance and monitoring. So, to minimize the wastage, the initiation should be under taken for the improvement of performance and monitoring of the blood screening reagent expenditure against the performance (Table-14).

The capacity development of the personnel working in different categories of blood bank is always an important issue to address. The blood banks service provider's needs proper skill not only for the proper service delivery but also for the maintenance

of blood bank equipment. This is a neglected area and in the study the scenario is also not encouraging. Only one Associate Professor and 2 Lab Technician were trained on maintenance of blood bank equipment in MCH blood banks and the status of specialized hospital blood banks were Nil in this respect. Among the DH blood banks service providers only 2 MO and 1 Lab Technician had received training. The picture of NGO blood banks was better in comparison, because in the 2 NGO blood banks 2 MO, 1 DCMT and 5 MT received training. So, priority attention is needed in this area for smooth running of the different categories of blood banks (Table No. 15).

The system of condemnation for the non-repairable equipment exist but no equipment was placed before the condemnation board according to the document of MCH, Specialized Hospital and DH blood banks (Table No. 16).

Only three DH blood banks out of eight DH blood banks used their collected user fees for purchasing of blood screening reagent. Only one DH blood bank used 0-5% of user fees for repair and maintenance but majority i.e. six DH blood banks used 7-9% of user fees for other reason. The majority MCH blood banks i.e. 66.67% used user fees 11-15% and below 3% for blood purchase and contingency support. Only one Specialized Hospital blood banks used 0-5% of the user fees for reagent purchase and below 2% for contingency support. Some of the blood banks although experienced shortage of screening reagent but did not utilize their collected user fees for purchase of reagent. Majority of DH blood banks did not utilize their collected user fees because of the improper monitoring and initiation. The utilization of the collected user fees is a great opportunity for the better implementation of the program, but the service providers failed to utilize it properly. So, guideline / order in this respects is not sufficient but need to establish a monitoring mechanism (Table No. 17).

Recommendation

1. Standard list of equipment, furniture and other logistic for different categories of blood bank (according to type and level-wise) needs to develop for improving service delivery.

2. Supply of equipment, furniture and other logistic to blood banks according to the developed standard list.

3. Safe Blood Transfusion Programme authority should develop proper strategy about their logistic management especially about the supply of reagent to avoid wastage and shortage.

4. Development of standardized infrastructure facility model according to the type and level of blood banks is needed for ensuring proper environment and facilitating quality service delivery.

5. Need based construction/extension of building for creating proper blood banks infrastructure facility at different level of hospitals.

6. Creation of post in the Government blood banks according to the different level of hospitals.

7. Provision of air condition in the district level hospital blood banks for improving quality and environment.

8. Development of a system for regular repair and maintenance of blood banks equipment according to the need.

9. Proper reporting system need to be developed for reagent and equipment status in addition to performance reports.

10. Maintenance of documents needs to address especially for the DH blood banks.

11. SBTP authority should develop a system to collect the statement of expenditure from the different government blood banks on collected user fees for ensuring proper utilization and also for the establishment of the accountability framework.

12. Proper capacity development of the blood banks service providers on maintenance of equipment.

13. The status of the use of check-list on QC of screening reagents and lab safety by the blood banks service providers' needs improvement for upholding the quality.

14. Proper staffing of the reference lab for fulfilling the objectives and proper functioning.

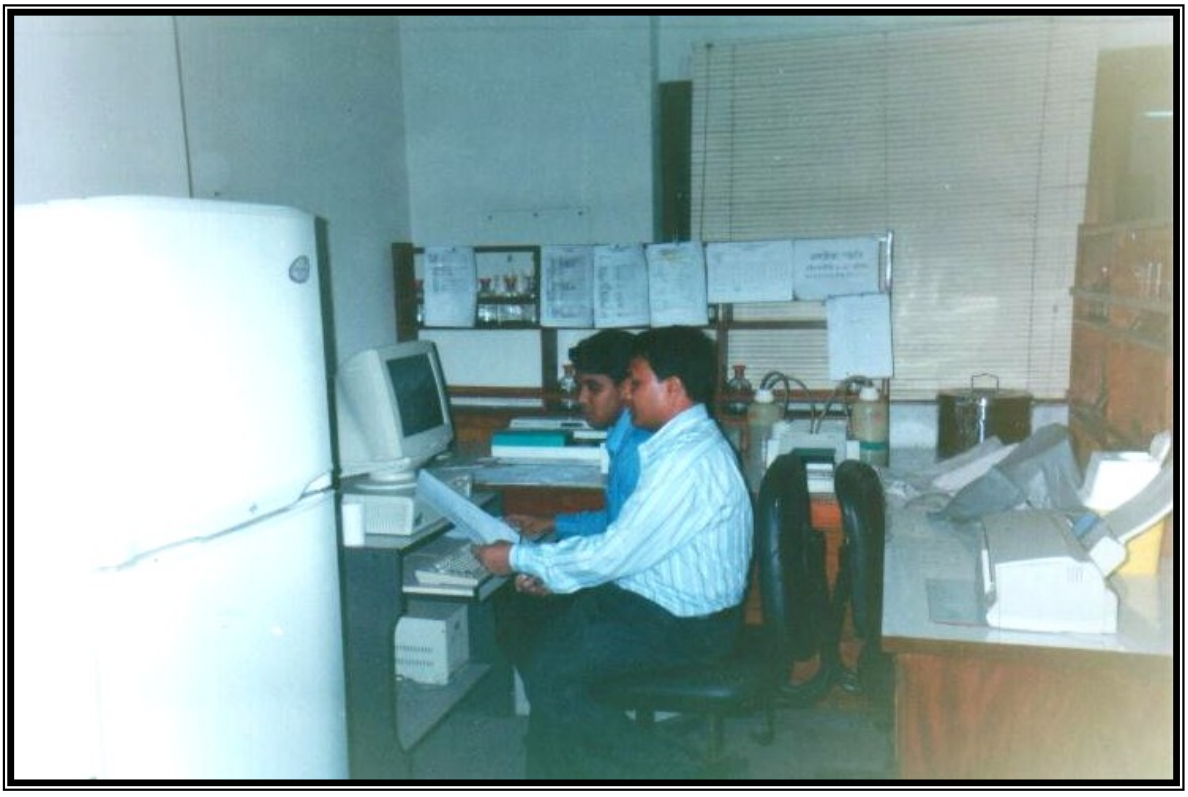
15. Supply of requisite equipment and other logistic support for the reference laboratory to facilitate the expected activities for ensuring quality of blood centre working under SBTP.

16. Structured supervision and monitoring needs to strengthen for improving the performance of blood banks especially in the DH blood banks.

REFERENCE LABORATORY

FOR

BLOOD BANKS



LAB TECHNICIAN WORKING IN REFERENCE LABORATORY

Reference laboratory

The maintenance of quality assurance of established 97 blood centres was a big challenge for the authority for providing safe blood. The reference laboratory was established with an aim to up-hold the quality assurance of 97 blood centres. Every blood centre must have system and evaluation mechanism of proper patient identification and preparation, specimen collection, identification, preservation, transportation and processing, and accurate result reporting. The role of the reference laboratory is to ensure the above said activities. The reference laboratory was establised with the following objectives:

Objectives

- Maintenance of quality assurance of 97 Blood Transfusion Centres.
- Maintenance of quality Control of all Blood Transfusion Centres both Internal & External.
- Clerical Procedure - Record keeping.
- Specification & quality control of' reagent.
- Monitoring & maintenance of standard operating procedure to all BTC.
- Quality control of Equipment.
- Quality control of test for TTI agent.
- Controlling the bio-safety of the Transfusion laboratory
- To conduct training / orientation on regular basis to develop skilled manpower.
- Regular monitoring & spot training for capacity building
- Investigation of referred cases of the peripheral centre & solution of their- problem.

Expected Major Activities:

Maintenance of quality assurance of Blood Transfusion Centres by:

1. Maintaining Standard Operating Procedure (SOP's) in all centres.
2. Monitoring of the quality of screening reagent and blood grouping reagent.
3. Monitoring the record keeping system.
4. Monitoring the distribution of kits to all centres.
5. Monitoring the motivational activities.
6. Integrated monitoring:
    - Monthly blood Screening Report compilation;
    - Compilation of annual blood collection & screening data;
    - Update of screening report;
    - Compilation of category of blood donors in 97 centers;
    - Compilation of functional status of equipments;
    - Internal audit of the reference laboratory;
    - Monitoring the progress of work plan quarterly.

Existing status of the reference laboratory

The reference lab is situated at DMCH and running in a wing of DMCH. The infrastructural facility and manpower status is not at all satisfactory to fullfill the objectives. The present manpower status is very poor.

Sl. No.	Type of post	Sanctioned	Posted	Remarks
1.	Asstt. Professor	Nil.	01	As OSD
2.	Medical Technologist	Nil.	03	On deputation

To improve the situation the service providers opined the following proposed manpower:

Standard Manpower: (According to the opinion of the service provider)

- Chief scientific officer .....01 (One)
- Principal scientific officer.....02 (Two)
- Senior scientific officer.....02 (Two)

- Scientific officer.....04 (Four)
- Counsellor .....01 (One)
- Chief Medical Technologist.....01 (One)
- Sr. Medical Technologist .....02 (Two)
- Medical Technologist .....06 (Six)
- Electro medical Tech nologist.....01 (One)
- Computer Operator .....01 (One)
- Laboratory Attendant .....06 (Six).
- MLSS .....04 (Four)
- Cleaner .....04 (Four).
- Security Guard .....04 (Four).

Proper infrastructural facility is always needed to ensure proper service delivery. The proposed infrastructural need is given below (according the the opinion of the local service provider):

Service provider's opinion about Infrastructure facility need for Reference Laboratory

Sl. No.	Type of Room	Room #	Remarks
1.	Main Laboratory	02	
2.	Conference Room	01	
3.	Store Room	02	
4.	Research Lab	01	
5.	Consultant & doctor's Room	09	
6.	Office Room	02	
7.	Supporting Staff Room	02	
8.	Counselling Room	01	
9.	Reception Room	01	
10.	Bleeding Room	01	
11.	Waiting Room	01	
12.	Toilet Room	04	

Furniture need of the reference laboratory:

Sl. No.	Name of the equipment / Instrument	Quantity Exist	Extra Need
1.	Full Secretariat Table	02	04
2.	Half Secretariat Table	Nil.	06
3.	Normal Table	01	02
4.	Laboratory Table	06	02
5.	Bleeding Table	01	03
6.	Chair	06	10
7.	Easy Chair	02	02
8.	Almirah	04	06
9.	Bench	01	05
10.	Sofa Set	Nil.	02
11.	Laboratory Chair	04	06
12.	File Cabinet	Nil.	02
13.	Book Self	Nil.	03

The local service provider also urged for different types of equipment and other logistics for reference laboratory. The present stock of the equipment and other logistics also reflected here:

Standard need of Equipment. Instrument, Reagent and other logistics for Reference Laboratory.

Sl. No.	Name of the Equipment	Present Stock	Standard Need	Remarks
1.	Air Cooler	04	10	
2.	ELISA Set	03	06	
3.	Blood Bank Refrigerator (Temperature monitoring)	02	06	
4.	Blood Plasma Freeze (-40C)	02	03	
5.	Deep Freeze (-70C)	00	02	
6.	Platelet Agitator with Incubator	00	04	
7.	Pharmaceutical Refrigerator	04	06	
8.	Cell Separator	00	02	
9.	Electrophoresis set	00	02	
10.	Blood Collection Monitor	00	02	

Sl. No.	Name of the Equipment	Present Stock	Standard Need	Remarks
11.	Optic System	00	08	
12.	Polyphone film tube sealer	00	06	
13.	Hemoglobin Electrophoresis	00	02	
14.	Refrigerated Centrifuge Machine	00	02	
15.	PCR Test	00	02	
16.	Auto Blood Analyzer	00	02	
17.	Centrifuge Machine	01	06	
18.	Scale	00	04	
19.	PH Meter	01	02	
20.	Ultra Violet Lamp for Sterilization	00	02	
21.	Hot Air Oven	02	04	
22.	Lamina Flow Cabinet	00	04	
23.	Water Bath	03	06	
24.	Platelet Aggregation Tester	00	06	
25.	Coombs' washing machine	00	02	
26.	Fluorescent Microscope	00	02	
27.	Fractionation plant & Anti-sera	00	02	
28.	Deionizer water plant	01	00	
29.	Hematology Analyzer	00	02	
30.	Biomedical Mixture	00	02	
31.	Auto cell washing centrifuge	00	02	
32.	Inverted Microscope	00	02	
33.	VDRL Shaker	04	10	
34.	Auto pipetting Machine	00	02	
35.	Auto pipette Washer	00	02	
36.	Micropipette Multi-channel	02	10	
37.	Computer with UPS	00	05	
38.	Laser Printer	00	05	
39.	Binocular Microscope	02	05	
40.	Color Jet Printer	00	02	
41.	Electric Balance	00	02	
42.	Pipette pump (Electric)	00	02	
43.	Tissue Typing & organ transplantation, Cord Blood banking	00	02	
44.	Calculator	02	06	
45.	Water-bath	03	06	
46.	Weighing machine	01	03	
47.	Centrifuge Machine	01	06	

Sl. No.	Name of the Equipment	Present Stock	Standard Need	Remarks
48.	Waste Disposal	01	01	
49.	Vaccine Carrier	01	10	
50.	BP instrument	04	06	
51.	Stethoscope	04	06	
52.	Haemoglobinometer	05	05	
53.	Sharp container	200	200	
54.	Thermometer	01	10	
55.	Kidney Tray	04	06	
56.	Spencer welis Box join Artery Forceps	10	20	
57.	Spencer S.Steel Blunt ends	02	05	
58.	Scissor S.S. closed shank F point	05	10	
59.	Petri Dish pyrex 60 X 20mm	10	20	
60.	Petri Dish Pyrex 100 X 20mm	01	05	
61.	Lome card tiles for hemoglobin test	10	20	
62.	Micropipette Ultra 100-1000 ml	02	20	
63.	Micropipette Ultra 10-100 ml	02	10	
64.	Micropipette Ultra 5-50 ml	03	10	
65.	Magnifier Hand Lens	06	10	
66.	Volumetric Flask 1000 ml	07	10	
67.	Volumetric Flask 500 ml	08	10	
68.	Funnel - Size 40 ml	05	10	
69.	Funnel - Size 55 ml	08	10	
70.	Funnel - Size 75 ml	08	10	
71.	Funnel - Size 100 ml	08	10	
72.	Reagent Bottle - Size 100 ml	10	20	
73.	Reagent Bottle - Size 250 ml	04	10	
74.	Reagent Bottle - Size 500 ml	10	20	
75.	Lens Tissues	01	10	
76.	Slide Staining Rack	06	10	
77.	Staining Trough	06	10	
78.	Gauzes S.S. Plain	01	05	
79.	Test Tube Soda Glass	01	05	
80.	Test Tube Soda Glass Light	01	05	
81.	Test Tubes Rack Kits Azlon pp 13 mm white	03	05	
82.	Rack microfuge tube kit	03	05	
83.	Instrument Tray stainless	04	08	
84.	Gloves rubber emperor heavy black	15	20	

Sl. No.	Name of the Equipment	Present Stock	Standard Need	Remarks
85.	Filter membrane	12	15	
86.	Brushes test tube nylon various size	25	50	
87.	Cylinder measuring glass, size - 500 ml	08	10	
88.	Cylinder measuring glass, size - 1000ml	07	10	
89.	Pasteur pipettes, size - 150mm	01	05	
90.	Pasteur pipettes, size - 230mm	01	05	
91.	Rubber teat	05	10	
92.	Stand Petri	10	15	
93.	Rod Stirring glass	10	15	
94.	Wooden applicator	01	05	
95.	Sterilizer drum	05	10	
96.	Container blood specimen	02	05	
97.	Pipettes Graduated, size- 1 ml	50	100	
98.	Pipettes Graduated, size- 2 ml	50	100	
99.	Pipettes Graduated, size- 10 ml	50	100	
100.	Microscope slide, plain 1.0 ml	05	100	
101.	Cover Slips no: 1.5 mm	05	100	

Tables

Table No - 01
Type of institution included in the assessment

Sl. No.	Type of institution	Total No.	Percentage	Remarks
1.	Medical College Hospital blood banks	04	22.22	
2.	Specialized Hospital blood banks	03	16.67	
3.	District Hospital blood banks	08	44.44	
4.	Others (Ref. Laboratory)	01	5.56	
5.	Non govt. blood banks	02	11.11	
	Total :	**18**	**100.00**	

Table No. 2 (a)
Type of manpower working in the different category of Govt. Blood Banks

Sl. No.	Type of Hospital	Sample size	Category of personnel with their number										
			Professor	Assoc. Professor	Assistant Professor	Consultant / Pathologist	Medical Officer	Lab. Technician	Lab. Attendant	MLSS / Ward boy	EMO	Pharmacist	Office Assistant
1.	MCH	04	01	02	03	Nil.	07	02	Nil.	13	Nil.	01	01
2.	Specialized Hospital	03	Nil.	01	01	Nil.	03	08	05	03	02	Nil.	Nil.
3.	District Hospital	08	Nil.	Nil.	Nil.	03	08	14	Nil.	01	Nil.	Nil.	Nil.
	Total :	**15**	**01**	**03**	**04**	**03**	**18**	**24**	**05**	**17**	**02**	**01**	**01**

Table No. 2 (b)
Type of manpower working in the non-government Blood Banks

Sample size	In-charge (blood bank)	Junior Consultant	Medical Officer	Dep. Chief MT	Medical Technologist	Asstt. Director	Motivation Officer	Program Organizer	Asstt. Accountant	Scientific Asstt.	Jr. Equip. Operator	Cashier	Staff Nurse	Office Assistant	Guard / Darwan	MLSS / Lab Attendant	Driver	Aya	Sweeper
02	01	01	05	01	06	01	01	02	01	01	01	01	02	05	08	03	3	01	02

Table No. 03

3. a) Infra structure facility status of blood banks situated at different level.

Sl. No.	Type of facility	MCH		Specialized Hospital		District Hospital		Non-govt.		Remarks
		Yes	No	Yes	No	Yes	No	Yes	No	
1.	Separate room for the blood bank	04 (100%)	Nil.	03 (100%)	Nil.	08 (100%)	Nil.	02 (100%)	Nil.	
2.	Blood Bank attached with general lab.	Nil.	04 (100%)	Nil.	03 (100%)	01 (12.5%)	07 (87.5%)	Nil.	02 (100%)	
3.	Air Condition of the lab room	04 (100%)	Nil.	03 (100%)	Nil.	01 (12.5%)	07 (87.5%)	02 (100%)	Nil.	

3. b) Total number of room in different categories of blood banks

Sl. No.	Type of Institution	Sample Size	Total Room No.											Remarks
			1	2	3	4	5	6	7	8	9	10	11+	
1.	Medical College Hospital blood banks	04	Nil.	01 (25%)	Nil.	01 (25%)	Nil.	Nil.	Nil.	Nil.	Nil.	01 (25%)	01 (25%)	
2.	Specialized Hospital blood banks	03	Nil.	Nil.	Nil.	Nil.	01 (33.33%)	Nil.	01 (33.33%)	01 (33.33%)	Nil.	Nil.	Nil.	
3.	District Hospital blood banks	08	01 (12.5%)	06 (75%)	01 (12.5%)	Nil.	Nil.	Nil.	Nil.	Nil.	Nil.	Nil.	Nil.	
4.	Non-govt. Blood banks	02	Nil.	Nil.	Nil.	Nil.	01 (50%)	Nil.	Nil.	Nil.	Nil.	Nil.	01 (50%)	

3. c) Total floor space in different categories of blood banks

Sl. No.	Type of Institution	Sample Size	Floor Space										Remarks
			Up to 300 sft	Up to 600 sft	Up to 900 sft	Up to 1200 sft	Up to 1500 sft	Up to 1800 sft	Up to 2100 sft	Up to 2400 sft	Up to 2700 sft.	Up to 3000 sft	
1.	Medical College Hospital blood banks	04	Nil.	01 (25%)	Nil.	01 (25%)	Nil.	01 (25%)	Nil.	Nil.	01 (25%)	Nil.	
2.	Specialized Hospital blood banks	03	Nil.	Nil.	02 (66.67%)	Nil.	Nil.	Nil.	Nil.	Nil.	01 (33.33%)	Nil.	
3.	District Hospital blood banks	08	04 (50%)	04 (50%)	Nil.	Nil.	Nil.	Nil.	Nil.	Nil.	Nil.	Nil.	
4.	Non-govt. Blood banks	02	Nil.	Nil.	01 (50%)	Nil.	Nil.	Nil.	Nil.	Nil.	Nil.	01 (50%)	

Table No. 04
Service provider's opinion about Infrastructure facility need for different categories of Blood Banks

Sl. No.	Type of Room	MCH (room #)				Specialized Hospital (room #)				District Hospital (room #)				Non-govt. Blood Banks (room #)				Remarks
		1	2	3	4+	1	2	3	4+	1	2	3	4+	1	2	3	4+	
1.	Donor waiting room	01 25%				03 100%				05 62.5%								
2.	Doctors room				04 100%	01 33.33%		02 66.67%		02 25%	03 37.5%	01 12.5%	02 25%		02 100%			
3.	Laboratory room	04 100%				003 100%				08 100%				01 50%	01 50%			
4.	Bleeding room	04 100%				03 100%				08 100%				02 100%				
5.	Store room	03 75%	01 25%			03 100%				03 37.5%				02 100%				
6.	ELISA room					02 66.67%								01 50%				
7.	Technologist room					01 33.33%												
8.	Office room	04 100%				01 33.33%				08 100%					01 50%	01 50%		
9.	Reception room	03 75%				01 33.33%				02 25%				02 100%				
10.	Blood component room separation					01 33.33%												
11.	Donor Rest room	03 75%				03 100%				05 62.5%				02 100%				
12.	Blood grouping and testing room					01 33.33%												
13.	Counselling room	03 75%				02 66.67%				01 12.5%				01 50%				
14.	Blood Transfusion									01 12.5%				01 50%				
16.	Donor Examination room	04 100%								04 50%								
17.	Blood preservation									06 75%								
18.	Cross Match room	02 50%																
19.	Toilet		02 50%	02 50%							06 75%	02 25%			02 100%			

Table No. 05
a) Present status of the equipment/ instrument in different categories of blood banks

Sl. No	Name of the equipment Instrument	Medical College Hospital (#)					Specialized Hospital (#)					District Hospital (#)					Remarks
		Nil.	1	2	3	4+	Nil.	1	2	3	4+	Nil.	1	2	3	4+	
1.	ELISA	-	3	-	-	-	-	3	-	-	-	7	1	-	-	-	
2.	Incubator	-	2	1	-	-	3	-	-	-	-	7	1	-	-	-	
3.	Incinerator	-	3	-	-	-	1	2	-	-	-	-	8	-	-	-	
4.	Micro pipette 10 X 100 micro L	-	2	1	-	-	-	3	-	-	-	1	6	1	-	-	
5.	Micro pipette 5 X 50 micro L	2	1	-	-	-	-	3	-	-	-	2	6	-	-	-	
6.	Micro pipette 10 X 1000 micro L	1	2	-	-	-	1	2	-	-	-	6	2	-	-	-	
7.	Bench top Centrifuge	1	-	2	-	-	-	1	1	1	-	4	3	1	-	-	
8.	Refrigerator for strong reagent, ABO cell and sample	-	1	2	-	-	1	-	1	1	-	-	5	1	2	-	
9.	Deep freezer for strong serum sample	2	1	-	-	-	2	1	-	-	-	7	1	-	-	-	
10.	Light box on white tile	2	1	-	-	-	2	1	-	-	-	7	1	-	-	-	
11.	Water bath	1	2	-	-	-	3	-	-	-	-	6	2	-	-	-	
12.	Thermometer	1	1	1	-	-	1	1	-	1	-	6	2	-	-	-	
13.	Pasteur pipette	2	-	1	-	-	2	1	-	-	-	8	-	-	-	-	
14.	Glass tube for indirect anti-globulin test (75 x 12 mm)	1	-	1	1	-	2	1	-	-	-	8	-	-	-	-	
15.	Hand Lens (2X5)	-	3	-	-	-	2	1	-	-	-	8	-	-	-	-	
16.	Microscope	-	-	3	-	-	-	-	2	1	-	-	5	3	-	-	

Sl. No	Name of the equipment Instrument	Medical College Hospital (#)					Specialized Hospital (#)					District Hospital (#)					Remarks
		Nil.	1	2	3	4+	Nil.	1	2	3	4+	Nil.	1	2	3	4+	
17.	Weight Machine	-	1	1	1	-	-	2	1	-	-	4	4	-	-	-	
18.	Hot air oven	1	2	-	-	-	2	-	1	-	-	4	4	-	-	-	
19.	Automatic tube seater	3	-	-	-	-	2	1	-	-	-	8	-	-	-	-	
20.	Bio-mixture machine	3	-	-	-	-	3	-	-	-	-	8	-	-	-	-	
21.	Mechanical cell separator	2	1	-	-	-	3	-	-	-	-	8	-	-	-	-	
22.	Refrigerated Cell Separator	2	1	-	-	-	3	-	-	-	-	8	-	-	-	-	
23.	Voltage Stabilizer	-	-	2	1	-	1	-	2	-	-	3	5	-	-	-	
24.	VDRL shaker machine (Rotator)	1	2	-	-	-	-	3	-	-	-	-	8	-	-	-	
25.	Distilled Water Plant	-	1	1	1	-	1	2	-	-	-	1	7	-	-	-	
26.	BP Machine	-	-	2	1	-	-	-	1	2	-	2	4	1	1	-	
27.	Plasma expresser	3	-	-	-	-	3	-	-	-	-	8	-	-	-	-	
28.	Automatic Blood Collector	3	-	-	-	-	3	-	-	-	-	8	-	-	-	-	
29.	Platelet Agitator	3	-	-	-	-	3	-	-	-	-	8	-	-	-	-	
30.	Blood collector weight machine	3	-	-	-	-	3	-	-	-	-	8	-	-	-	-	

* 1-MCH sample was non-responsive.

5. b) Extra need of the equipment/ instruments in different categories of blood banks

Sl. No	Name of the equipment Instrument	Medical College Hospital (#)				Specialized Hospital (#)				District Hospital (#)				Remarks
		1	2	3	4+	1	2	3	4+	1	2	3	4+	
1.	ELISA	1	--	--	--	1	--	--	--	6	--	--	--	
2.	Incubator	2	--	--	--	2	--	--	--	7	--	--	--	
3.	Incinerator	--	--	--	--	--	--	--	--	--	--	--	--	
4.	Micro-pipette 10 X 100 micro L	2	--	--	--	3	--	--	--	4	1	--	--	
5.	Micro-pipette 5 X 50 micro L	2	--	--	--	3	--	--	-	4	2	--	--	
6.	Micro-pipette 10 X 1000 micro L	2	--	--	--	3	--	--	--	4	2	--	--	
7.	Bench top Centrifuge	1	--	--	--	--	--	--	--	5	--	--	--	
8.	Refrigerator for strong reagent, ABO cell and sample	2	--	--	--	1	--	-	--	5	--	-	--	
9.	Deep freezer for strong serum sample	2	--	--	--	3	--	--	--	5	--	--	--	
10.	Light box on white tile	2	--	--	--	3	--	--	--	4	--	--	--	
11.	Water bath at 37 degree centigrade on incubator	1	--	--	--	3	--	--	--	6	--	--	--	
12.	Thermometer	1	1	--	--	--	2	1	--	1	4	2	1	
13.	Hand Lens (2X5)	1	--	1	--	1	--	--	1	3	4	1	--	
14.	Microscope	1	1	--	--	--	--	--	--	4	--	--	--	
15.	Weight Machine	--	1	--	--	1	2	--	--	4	2	--	--	
16.	Hot air oven	1	1	--	--	2	1	--	--	2	--	--	--	

Sl. No	Name of the equipment Instrument	Medical College Hospital (#)				Specialized Hospital (#)				District Hospital (#)				Remarks
		1	2	3	4+	1	2	3	4+	1	2	3	4+	
17.	Automatic tube seater	1	--	--	--	2	--	--	--	4	--	--	--	
18.	Bio-mixture machine	1	--	--	--	1	--	--	--	4	--	--	--	
19.	Mechanical cell separator	1	--	--	--	2	--	--	--	1	--	--	--	
20.	Refrigerator cell separator	1	--	--	--	2	--	--	--	1	--	--	--	
21.	Voltage Stabilizer	--	1	--	--	--	1	--	1	4	3	--	--	
22.	VDRL shaker machine (Rotator)	2	--	--	--	1	1	--	--	2	--	--	--	
23.	Distilled Water Plant	1	--	--	--	1	--	--	--	--	--	--	--	
24.	BP Machine	--	--	--	1	--	1	1	1	5	1	--	2	
25.	Plasma expresser	-	-	-	-	1	1	--	--	-	-	-	-	
26.	Automatic Blood Collector	-	-	-	-	--	2	--	--	-	-	-	-	
27.	Platelet Agitator	1	-	-	-	--	--	--	--	-	--	-	-	
28.	Blood collector weight machine	1	-	-	-	--	--	--	--	2	-	-	-	
29.	Analyzer	-	-	-	-	--	--	--	--	2	-	-	-	

* 1-MCH sample was non-responsive.

Table No. 06
Non-functioning status of the equipments in different categories of blood banks

Sl. No.	Name of the equipment / Instrument	Medical College Hospital (#)			Specialized Hospital			District Hospital			Non-govt. Organization			Remarks
		1	2	3+	1	2	3+	1	2	3+	1	2	3+	
1.	ELISA	01	--	--	02			01						1 is non functioning because of the reagent non-availability
2.	Incinerator	01	--	--				01			01			02 not yet installed
3.	Bench top Centrifuge		--	--				01			01			
4.	Refrigerator for reagent, ABO cell and sample		--	--				02						
5.	Light box on white tile		--	--				01						
6.	Water bath at 37 degree centigrade on incubator		--	--				01						
7.	Microscope		--	--	01			03						
8.	Hot air oven		--	--				01						
9.	Voltage Stabilizer	01			01					01				
10.	VDRL shaker machine (Rotator)	01						02						
11.	Distilled Water Plant							02						

Table No. 07

a) Type of Furniture exists and total need of the different categories of blood banks (MCH & NGO)

Sl. No.	Name of the Furniture	Chittagong MCH		Bogra MCH		Faridpur MCH		Mymensing MCH		Red Crescent		BIRDEM		Remarks
		Q.Exist	Q.Need	Q.Exist	Q.Need	Q.Exist	Q.Need	Q.Exist	Q.Need	Q.Exist	Q.Need	Q.Exist	Q.Need	
1.	Full Secretariat Table	02	02	01	04	Non Responsive		02	04	06	06	Non Responsive		
2.	Half Secretariat Table	02	04	03	06			02	02	03	03			
3.	Normal Table	02	06	01	06			04	08	03	03			
4.	Lab Table	02	04	01	02			01	04	02	02			
5.	Bleeding Table	01	03	01	02			04	04	04	04			
6.	Chair	10	20	07	20			20	40	40	55			
7.	Easy Chair	02	02	01	01			02	04	01	02			
8.	Almirah	03	03	03	08			02	04	04	06			
9.	Bench	Nil.	05	02	02			06	10	Nil.	02			
10.	Sofa Set	Nil.	05	Nil.	01			Nil.	02	01	02			
11.	Stool	02	07	03	03			10	20	04	06			
12.	Revolving Chair	--	--	--	--			--	--	--	--			
13.	File Cabinet	--	02	--	02			--	02	--	02			
14.	Book Self	01	03	--	--			--	--	--	--			

* Quantity need = existing + extra need

Table No. 07

b) Type of Furniture exists and total need of the different categories of blood banks (District Hospital**)**

Sl. No.	Name of the Furniture	Kushtia DH		Cox'sbazar DH		Narayangonj Hospital		Naogaon DH		Moulvibazar DH		Tangail DH		Manikgonj DH		Gazipur DH		Remarks
		Quantity Exist	Quantity Need	Quantity Exist	Quantity Need	Quantity Exist	Quantity Need	Quantity Exist	Quantity Need	Quantity Exist	Quantity Need	Quantity Exist	Quantity Need	Quantity Exist	Quantity Need	Quantity Exist	Quantity Need	
1.	Full Secretariat Table	Nil.	04	01	05	--	01	--	01	--	02	--	04	--	01	--	02	
2.	Half Secretariat Table	Nil.	03	--	02	01	01	--	01	--	01	--	02	--	01	--	03	
3.	Normal Table	01	04	--	02	01	01	--	01	--	--	--	02	--	01	--	02	
4.	Lab Table	01	02	01	02	01	03	01	01	01	02	01	02	01	01	01	01	
5.	Bleeding Table	01	02	01	01	01	01	01	02	01	02	01	02	01	01	01	01	
6.	Chair	03	15	03	15	03	10	03	12	05	09	04	20	03	06	01	15	
7.	Easy Chair	01	02	01	01	01	01	01	01	01	01	01	02	01	01	01	02	
8.	Almirah	02	05	--	04	01	02	01	03	01	02	02	06	01	02	01	01	
9.	Bench	01	05	01	02	01	01	01	02	--	01	02	04	01	01	01	03	
10.	Sofa Set	--	01	--	01	--	01	--	--	--	01	--	01	--	01	--	01	
11.	Stool	03	06	--	04	03	05	--	06	01	04	02	06	--	06	--	05	
12.	Revolving Chair	--	-	--	--	--	03	--	--	--	--	--	--	--	--	--	--	
13.	File Cabinet	--	02	--	01	--	01	--	--	--	-	--	01	--	02	--	02	
14.	Book Self	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	

* Quantity need = existing + extra need

Table No. 07
c) Type of Furniture exists and total need of the different categories of blood banks (Specialized Hospital)

Sl. No.	Name of the Furniture	NICVD		NITOR		Chittagong Port Hospital		Remarks
		Quantity Exist	Quantity Need	Quantity Exist	Quantity Need	Quantity Exist	Quantity Need	
1.	Full Secretariat Table	01	01	02	02	01	01	
2.	Half Secretariat Table	04	04	--	04	03	03	
3.	Normal Table	04	04	01	03	02	02	
4.	Lab Table	02	03	03	05	01	01	
5.	Bleeding Table	03	03	01	02	01	02	
6.	Chair	21	21	13	20	13	13	
7.	Easy Chair	01	02	01	02	01	02	
8.	Almirah	06	06	04	08	02	03	
9.	Bench	01	01	02	04	01	02	
10.	Sofa Set	--	01	--	02	01	01	
11.	Stool	04	06	02	06	01	02	
12.	Revolving Chair	--	--	--	--	03	05	
13.	File Cabinet	--	02	--	06	--	--	
14.	Book Self	--	--	--	02	--	--	

* Quantity need = existing + extra need

Table No. 08
Record keeping status of the different categories of blood banks

Sl. No.	Type of Ledger	MCH Properly Maintained		Specialized Hospital Properly Maintained		District Hospital Properly Maintained		Remarks
		Yes	No.	Yes	No.	Yes	No.	
1.	Screening Reagent	3 (100%)	--	01 (33.33%)	02 (66.67%)	06 (75%)	02 (25%)	
2.	Donor	3 (100%)	--	3 (100%)	--	07 (87.5%)	01 (12.5%)	
3.	Patient	3 (100%)	--	3 (100%)	--	07 (87.5%)	01 (12.5%)	
4.	Blood Supply	3 (100%)	--	3 (100%)	--	07 (87.5%)	01 (12.5%)	
5.	Blood Stock	3 (100%)	--	3 (100%)	--	07 (87.5%)	01 (12.5%)	
6.	Cross Match	3 (100%)	--	3 (100%)	--	07 (87.5%)	01 (12.5%)	
7.	General	3 (100%)	--	3 (100%)	--	07 (87.5%)	01 (12.5%)	
8.	Equipment	3 (100%)	--	3 (100%)	--	07 (87.5%)	01 (12.5%)	
9.	Blood Grouping	3 (100%)	--	3 (100%)	--	07 (87.5%)	01 (12.5%)	
10.	Asset	3 (100%)	--	3 (100%)	--	07 (87.5%)	01 (12.5%)	
11.	Cash Book	3 (100%)	--	3 (100%)	--	06 (75%)	02 (25%)	

** One MCH Blood bank was non-responsive.

Table no -9

a) Monthly consumption including yearly need of blood grouping and screening reagents for different categories of blood banks

Sl. No	Name of the reagent / other logistic	MCH										Specialized Hospital										Remarks
		Sample Size (03)	Monthly consumption					Yearly Need				Sample Size (03)	Monthly consumption					Yearly Need				
			250-400	451-650	651-850	851-1050	1051-1250+	5000-7000	7001-9000	9001-11000	11001-13000		250-450	451-650	651-850	851-1050	1051-1250+	up-to 1000	1001-3000	3001-5000	5001-7000	7001+	
I	HbS Ag		01 33.33%	01 33.33%	--	01 33.33%	--	02 66.67%	--	--	01 33.33%		01 33.33%	01 33.33%	01 33.33%	--	--	01 33.33%	--	01 33.33%	01 33.33%	--	
2.	HIV		01 33.33%	01 33.33%	--	01 33.33%	--	02 66.67%	--	--	01 33.33%		01 33.33%	01 33.33%	01 33.33%	--	--	01 33.33%	--	01 33.33%	01 33.33%	--	
3.	HCV		01 33.33%	01 33.33%	--	01 33.33%	--	02 66.67%	--	--	01 33.33%		01 33.33%	01 33.33%	01 33.33%	--	--	01 33.33%	--	01 33.33%	01 33.33%	--	
4.	VDRL		01 33.33%	01 33.33%	--	01 33.33%	--	02 66.67%	--	--	01 33.33%		01 33.33%	01 33.33%	01 33.33%	--	--	01 33.33%	--	01 33.33%	01 33.33%	--	
5.	MP		01 33.33%	01 33.33%	--	01 33.33%	--	02 66.67%	--	--	01 33.33%		01 33.33%	01 33.33%	01 33.33%	--	--	01 33.33%	--	01 33.33%	01 33.33%	--	* Reagent expressed in unit. * 1-MCH blood bank was non-responsive.
6.	Anti-A					02 66.67%	01 33.33%	--	01 33.33%	01 33.33%	01 33.33%		01 33.33%	01 33.33%	--	01 33.33%	--	--	01 33.33%	--	01 33.33%	01 33.33%	
7.	Anti-B					02 66.67%	01 33.33%	--	01 33.33%	01 33.33%	01 33.33%		01 33.33%	01 33.33%	--	01 33.33%	--	--	01 33.33%	--	01 33.33%	01 33.33%	
8.	Anti-D					02 66.67%	01 33.33%	--	01 33.33%	01 33.33%	01 33.33%		01 33.33%	01 33.33%	--	01 33.33%	--	--	01 33.33%	--	01 33.33%	01 33.33%	

Table no -9

b) Monthly consumption including yearly need of blood grouping and screening reagents for different categories of blood banks

Sl. No.	Name of the reagent / other logistic	District Hospital																			NGO								Remarks
			Monthly consumption							Yearly Need											Monthly consumption				Yearly Need				
																					Sample # 1		Sample # 2		Sample # 1		Sample # 2		
		Sample Size (08)	0-50	51-100	101-150	151-200	201-250	251-300	301-350	up-to 500	501-1000	1001-1500	1501-2000	2001-2500	2501-3000	3001-3500	3501-4000	4001-4500	4501-5000	5000+	500	3,000	1,500	2,500	6,000	36,000	20,000	30,000	
I	HbS Ag		04 (50%)	01 (12.5%)	--	03 37.5%	--	--	--	01 (12.5%)	03 (37.5%)	--	--	--	03 37.5%	--	01 (12.5%)	--	--	--	01 (50%)	--	01 (50%)	--	01 (50%)	--	01 (50%)	--	
2.	HIV		04 (50%)	01 (12.5%)	--	03 37.5%	--	--	--	01 (12.5%)	03 (37.5%)	--	--	--	03 37.5%	--	01 (12.5%)	--	--	--	01 (50%)	--	01 (50%)	--	01 (50%)	--	01 (50%)	--	
3.	HCV		04 (50%)	01 (12.5%)	--	03 37.5%	--	--	--	01 (12.5%)	03 (37.5%)	--	--	--	03 37.5%	--	01 (12.5%)	--	--	--	01 (50%)	--	01 (50%)	--	01 (50%)	--	01 (50%)	--	
4.	VDRL		04 (50%)	01 (12.5%)	--	03 37.5%	--	--	--	01 (12.5%)	03 (37.5%)	--	--	--	03 37.5%	--	01 (12.5%)	--	--	--	01 (50%)	--	01 (50%)	--	01 (50%)	--	01 (50%)	--	
5.	MP		04 (50%)	01 (12.5%)	--	03 37.5%	--	--	--	01 (12.5%)	03 (37.5%)	--	--	--	03 37.5%	--	01 (12.5%)	--	--	--	01 (50%)	--	01 (50%)	--	01 (50%)	--	01 (50%)	--	
6.	Anti-A		02 (25%)	02 (25%)	01 (12.5%)	--	01 (12.5%)	01 (12.5%)	01 (12.5%)	--	01 (12.5%)	02 (25%)	01 (12.5%)	--01 (12.5%)	--	--	--	--	--	03 (37.5%)	--	01 (50%)	--	01 (50%)	--	01 (50%)	--	01 (50%)	
7.	Anti-B		02 (25%)	02 (25%)	01 (12.5%)	--	01 (12.5%)	01 (12.5%)	01 (12.5%)	--	01 (12.5%)	02 (25%)	01 (12.5%)	--01 (12.5%)	--	--	--	--	--	03 (37.5%)	--	01 (50%)	--	01 (50%)	--	01 (50%)	--	01 (50%)	
8.	Anti-D		02 (25%)	02 (25%)	01 (12.5%)	--	01 (12.5%)	01 (12.5%)	01 (12.5%)	--	01 (12.5%)	02 (25%)	01 (12.5%)	--01 (12.5%)	--	--	--	--	--	03 (37.5%)	--	01 (50%)	--	01 (50%)	--	01 (50%)	--	01 (50%)	

Table No - 10

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Report sending in relation to reagents expenditure and equipments status

SL. No	Type of Report	MCH		Specialized		District hospital		Remarks
		Yes	No	Yes	No	Yes	No	
1.	Reagent Report	02 (66.67%)	01 (33.33%)	02 (66.67%)	01 (33.33%)	03 (37.5%)	05 (62.5%)	
2	Equipment status report	Nil.	03 (100%)	Nil.	03 (100%)	Nil.	08 (100%)	

* One MCH Blood Bank was non-responsive.

Table No - 11

Practice of checklist status for monitoring QC of reagents and safety in lab

SL. No	Name of the Checklist	MCH Practice properly			Specialized Hospital Practice Properly			DH Practice Properly			NGO blood banks Practice Properly		
		S.S.	Yes	No	S.S.	Yes	No	S.S.	Yes	No	S.S.	Yes	No
1	Checklist for daily QC of reagent	04	02 (50%)	02 (50%)	03	01 33.33%	02 66.67%	08	01 12.5%	07 87.5%	02	100%	Nil.
2	Checklist for the Safety in the laboratory	04	02 (50%)	02 (50%)	03	03 100%	Nil.	08	01 12.5%	07 87.5%	02	01 50%	01 50%

Table No - 12
Method of Receiving Logistic for different categories of blood banks

Sl. No	Type of blood banks	Type of method for receiving Logistic			Remarks
		Pull	Push	Both	
1.	Medical College Hospital	01 25%	02 50%	01 25%	
2.	Specialized Hospital	Nil.	02 66.67%	01 33.33%	
3.	District Hospital	01 12.5%	06 75%	01 12.5%	
4.	Others (NGO)	Nil.	Nil.	02 100%	

Table No - 13
Statement regarding shortage supply of blood grouping and screening reagents

Sl. No	Name of the reagent	Duration of shortage																					
		MCH						Specialized Hospital						DH						Others (NGO)					
		Shortage Status		0-1 M	1-2 M	2-3M	3M+	Shortage Status		Duration in month				Shortage Status		Duration in month				Shortage Status		Duration in month			
		Yes	No					Yes	No	0-1	1-2	2-3	3+	Yes	No	0-1	1-2	2-3	3+	Yes	No	0-1	1-2	2-3	3+
1.	Blood grouping reagent	01 25%	03 75%	--	--	--	01	Nil.	3 100%	--	--	--	--	02 25%	06 75%	01	--	--	01	Nil.	02 100%	--	--	--	--
2.	HIV	01 25%	03 75%	--	--	--	01	01 33.33%	02 66.67%	--	--	--	01	01 12.5%	07 87.5%	--	01	--	--	Nil.	02 100%	--	--	--	--
8.	HbS Ag.	01 25%	03 75%	--	--	--	01	Nil.	03 100%	--	--	--	--	02 25%	06 75%	--	02	--	--	Nil.	02 100%	--	--	--	--
3.	HCV	01 25%	03 75%	--	--	--	01	02 66.67%	01. 33.33%	--	--	--	02	02 25%	06 75%	01	--	--	01	Nil.	02 100%	--	--	--	--
4.	RPR	Nil.	04 100%	--	--	--	01	Nil.	3 100%	--	--	--	--	01 12.5%	07 87.5%	01	--	--	--	Nil.	02 100%	--	--	--	--
5.	Malaria	Nil.	04 100%	--	--	--	--	01 33.33%	02 66.67%	--	--	--	01	01 12.5%	07 87.5%	--	01	--	--	Nil.	02 100%	--	--	--	--

Table No - 14
Blood screening reagents wastage statement for different category of blood banks

Sl. No.	Name of the reagent	Wastage detected							
		Medical College Hospital		Specialized Hospital		District Hospital		NGO blood banks	
		Yes	No	Yes	No	Yes	No	Yes	No
1.	HCV	01 25%	03 75%	01 33.33%	02 66.67%	02 25%	06 75%	Nil.	02 100%
2.	HbS.Ag	01 25%	03 75%	01 33.33%	02 66.67%	01 12.5%	07 87.5%	Nil.	02 100%
3.	RPR	01 25%	03 75%	01 33.33%	02 66.67%	02 25%	06 75%	Nil.	02 100%
4.	Malaria	01 25%	03 75%	Nil.	03 100%	Nil.	08 100%	Nil.	02 100%
5.	HIV	01 25%	03 75%	01 33.33%	02 66.67%	02 25%	06 75%	Nil.	02 100%

Table No. 15
Status of formal training on maintenance of equipment for the personnel working in different categories of blood banks

Sl. No.	Type of Blood banks	Type of Interviewed person	No. of personnel received formal training	Remarks
01.	Medical College Hospital	Assoc. Professor	01	
		Asstt. Professor	--	
		Medical Officer	--	
		Lab. Technician	02	
02.	Specialized Hospital	Asstt. Professor	--	
		Sr. Medical Officer	--	
		Medical Officer	--	
		Lab. Technician	--	
03.	District Hospital	Medical Officer	02	
		Lab. Technician	01	
04.	Others Hospital (NGO blood banks)	In-charge, Medical Officer	--	
		Medical Officer	02	
		D.C. M.T.	01	
		M.T.	05	

Table No. 16
Particular of equipment/ instrument disposed through condemnation board

Sl. No.	Type of blood banks	Condemnation done		Remarks
		Yes	No	
1.	Medical College Hospitals	--	100%	
2.	Specialized Hospital	--	100%	
3.	District Hospital	--	100%	
4.	NGO Blood Banks	--	100%	

Table No. 17
Expenditure pattern of users fees in different categories of blood bank

Blood Bank Types	Total Respondent	Reagent purchase						Blood Purchase					Repair Maintenance			Contingencies				Others				
		Nil.	0-5%	6-10%	11-15%	16-20%	21-25%	Nil.	0-5%	6-10%	11-15%	16-20%	Nil.	0-5%	6-10%	Nil.	>1%	>2%	>3%	Nil.	0-3%	4-6%	7-9%	13-15%
District Hospital	08 (100%)	05 (62.5%)	01 (12.5%)	01 (12.5%)	--	--	01 (12.5%)	07 (87.5%)	--	--	--	01 (12.5%)	07 (87.5%)	01 (12.5%)	--	--	02 (25%)	--	06 (75%)	--	01 (12.5%)	--	06 (75%)	01 (12.5%)
Medical College Hospital	03 (75%)	02 (66.67%)	--	--	--	01 (33.33%)	--	--	01 (33.33%)	--	02 (66.67%)	--	--	--	03 (100%)		01 (33.33%)	--	02 (66.67%)	03 (100%)	--	--	--	--
Specialized Hospital	02 (66.67%)	01 (50%)	01 (50%)	--	--	--	--	02 (100%)	--	--	--	--	02 (100%)	--	--	01 (50%)	--	01 (50%)	--	02 (100%)	--	--	--	--
NGO				Non Responsive																				

* One specialized hospital blood bank did not collect user fees;
** 1-MCH blood bank was also non-responsive.

References:

1. Strategy for safe blood transfusion: Motivation, Blood safety document, WHO.
2. TAPP document on implementation of Safe Blood Transfusion - 1998.
3. Murad, Safe Blood Transfusion Program in Bangladesh, Oct'01 - Dec'03, working paper (SBTP)
4. M.W. Zaman, Lecture Note on safe blood transfusion in Bangladesh, 2004.
5. Blood Safety, AIDE MEMOIRE for national blood programmes, WHO-2002.
6. Blood Centres in South-East - A status report, WHO - 2002.
7. Operational Plan (July '03 - Dec'03) of SBTP, DGHS
8. Strategy for Safe Blood Transfusion, Blood Safety, WHO - 2004.
9. Article on blood transfusion safety, WHO 2005.
10. Safe Blood Transfusion Module, SBTP, DGHS 2001.
11. Bangladesh blood transfusion fund bylaws, MOH&FW, January 1995.
12. Quality Assurance and quality control, WHO, 1998.

Annexures:

Annex - I: Questionnaire

WHO TA for S/E needs assessment for reference lab and 97 blood transfusions centre.

Survey conducted by: Line Director, Improved Hospital Services Management &
Programme manager BAN BCT 001
DGHS, Mohalhali. Dhaka

Visit Date:

1. Name of the Institution

2. **Type of institution** a. MCH b. Specialized Hosp. c. DH d. NGO / Non profit hospital

3. Staff pattern

Sl. No	Type of post	Sanctioned	Posted	Vacant	Remarks

4. a. Facility status of the institution:

Room no---------- Floor space----------

Separate room for the blood bank Yes ☐ No ☐ .

Blood bank lab. Attached with General lab. Yes ☐ No ☐ .

Air Condition of the lab and room Yes ☐ No ☐ .

4 b. Facility need (Ideal Situation) for blood bank operation

Sl. No	Type of room	Nos	Floor space	Remarks

5. Status of the supplied major equipments:

Sl. No	Name of the equipment / Instrument	Total No exist	Functioning	Non Functioning		Reason
				Serviceable	Non serviceable	
	ELISA					
	Incubator					
	Incinerator					
	Micro-pipette					
	10x100 micro L					
	10x50 micro L					
	10x1000 micro L					
	Bench top centrifuge					
	Refrigerator for storing reagent, ABO cell and sample					
	Deep freezer for storing serum sample					
	Light box on white tile					
	Water bath at 37 degree centigrade on incubator					
	Thermometer					
	Pasteur pipette					
	Glass tube for indirect anti-globulin test (75 x 12 mm)					
	Waterproof marker for glass and plastic tube					
	Hand lens (2x 5)					
	Microscope					
	Weight machine					
	Hot air oven					
	Lab Rotator / VDRL shaker					
	Distilled water plant					
	Voltage Stabilizer					

6. Record keeping

Sl. No	Type of stock ledger	Properly maintained		If not, Reason	Remarks
		Yes	No		

7. Standard need of the blood banks

a. Equipment, Instrument, accessories

Sl. No	Name of the equipment /instrument/accessories	Quantity needed	Available amount	Actual need
	ELISA			
	Incubator			
	Incinerator			
	Micro-pipette			
	10x100 micro L			
	10x50 micro L			
	10x1000 micro L			
	Bench top centrifuge			
	Refrigerator for storing reagent, ABO cell and sample			

Sl. No	Name of the equipment /instrument/accessories	Quantity needed	Available amount	Actual need
	Deep freezer for storing serum sample			
	Light box on white tile			
	Water bath at 37 degree centigrade on incubator			
	Thermometer			
	Pasteur pipette			
	Glass tube for indirect anti-globulin test (75 x 12 mm)			
	Hand lens (2x 5)			
	Microscope			
	Weight machine			
	Hot air oven			
	Automatic tube seater			
	Bio-mixture machine			
	Mechanical Cell Separator			
	Refrigerated Cell Separator			
	Voltage Stabilizer			
	VDRL Shaker Machine (Rotator)			
	Distilled Water Plant			
	BP Machine			

b. Reagent

Sl.No	Name of the reagent	Monthly consumption	Yearly need (At present)	Yearly need after expected service growth	Remarks
1	HBsAG				
2	HIV				
3	HCV				
4	VDRL				
5	MP				
6	Anti-A				
7	Anti-B				
8	Anti-D				

C. Furniture

Sl. No	Name of the furniture	Quantity exist	Total need	Actual need	Remarks
	Secretariat table				
	Full				
	Half				
	Normal				
	Lab Table				
	Bleeding Table / Bed				
	Chair (wooden + cushion)				
	Easy Chair				
	Almirah				
	Bench				
	Sofa set				
	Stool				

8. Any report send to central authority regarding consumption of reagent and status of equipment (Last 12 month)

a. Reagent report Yes ☐ No ☐ .

b. Equipment report Yes ☐ No ☐ .

c. No of report send to higher authority a. Reagent ... . b. Equipment ... .

9. Monitoring system of the logistics

a. Checklist for daily QC of reagent practiced properly. Yes ☐ No ☐ .

b. Checklist for safety in the laboratory practiced properly. Yes ☐ No ☐ .

10. Logistic received from the centre by a. Pull method b. Push method.

If pull method then indent was submitted and received accordingly

a. Yes ☐ b. No ☐ .

11. Action taken for any shortage of supply (reagent) July 03-June 04

Name of the reagent / Other materials	Duration of shortage	Action taken by the local authority	Remarks

12. Reagent Wastage statement

Sl. No	Name of the reagent	Wastage amount	Remarks

13. Capacity for day to day operational / maintenance of equipment

Category of personnel	Type of training received	Duration	Place	Remarks

14. Particulars of Equipment and other item disposed in Condemnations board.

Financial Year	Name of equipment & nos.	Name of instrument & nos.	Reagent (Amount)					Remarks
			Blood grouping	HIV	HCV	HBsAg	VDRL	

15. Standard Manpower

Sl.No.	Existing Manpower	Nos.	Proposed Manpower	Nos.	Remarks

16. Utilization of Users fee (July / 03-June / 04)

Sl. No	Month	Total Income	Total Expendi-ture	Item wise Expenditure					Remarks
				Cont-ingency	Reagent purchase	Repair / maintenance	Blood purchase	Others	
1.	July /03								
	August/03								
	Sept/03								
	Oct/03								
	Nov/03								
	Dec/03								
	Jan /'04								
	Feb/'04								
	Mar/'04								
	Apr/'04								
	May/'04								
	Jun /04								
	Total								
	Percentage								

Annex - II : List of person involved in data collection

1. Dr. Dr. Md. Akber Ali, Deputy Director (Hospital-2), DGHS, Mohakhali, Dhaka
2. Dr. Kazi Sahadat Hossain, Asstt. Director (Hospital-3), DGHS, Mohakhali, Dhaka
3. Dr. W. Zaman, Asstt. Professor, SBT programme
4. Dr. Md. Idris Ali, DPM (Logistic), DGHS, Mohakhali, Dhaka.
5. Dr. S. A. J. Md. Musa, DPM (Training), DGHS, Mohakhali, Dhaka.
6. Dr. Md. Aminul Hasan, Medical Officer (Hospital), DGHS, Mohakhali, Dhaka.

Annex -III : Bangladesh Transfusion Fund Bylaws

evsjv‡`k i³ cwimÂvjb dv‡Ûi (evB-j) Dcwewa-mgn

MYcRvZš¿x evsjv‡`k miKv‡ii ¯v¯¨ I cwievi Kj¨vY gš¿Yvjq, nvmcvZvj-2 Gi cÁvc‡b 10B gvN 1401/23†k Rvbqvix 1995 Bs Zwi‡L RwiKZ)

¯§viK bs- nvm-2/we‡kl-48/94/38-MYcRvZš¿x evsjv‡`k miKv‡ii ¯v¯¨ I cwievi Kj¨vY gš¿Yvj‡qi nvmcvZvj kvLv-2 Gi cÁvcb bs-nvmc-2-2/Xvt¤P gnv-1/91/168, ZwiL-22/1/98evs / 05-05-92Bs †gvZv‡eK miKvi evsjv‡`k i³ cwimÂvjb KwgwU cb¤eb¨vm I cYMVb Kwiqv‡Qb| D³ mwfm KwgwU Ges Dnvi dvÛ cwiPvjbvi Rb¨ Òevsjv‡`k i³ cwimÂvjb dv‡Ûi Dcwewa (evB-j) mgnÓ bv‡g wbæi“c Dc-wewa mgn Rwi Kiv nBj|

c¡_g Aa¨vq

01| GB dvÛ †ckv`vi i³`vi i³`vZv nB‡Z i³ µ‡qi Rb¨ Ges evsjv‡`k i³ cwimÂvjb mwfm KwgwUi wbqg †gvZv‡eK D³ mwf‡mi ¯v‡_ Ab¨ Lv‡ZI e¨eüZ nB‡e|

02| KwgwU wZbRb m`m¨‡K †Kv-AÞ Kwi‡Z cwi‡eb|

03| mfvcwZi AbgwZµ‡g mvavib m¤úv`‡Ki Avnev‡b KwgwU cwZwU cwZ Pvi gv‡m AšZt GKevi wgwUs- G ewm‡e| PviRb m`m¨ Dcw¯Z _wK‡j †Kvivg nB‡e|

04| miKvix Awd‡m KgiZ KwgwUi Awdm †eqvivi Ges m`m¨M‡Yi ågY LiP wbR wbR cwZôvb nB‡Z e¨q nB‡e| Ab¨vb¨‡`i Rb¨ cKZ e¨q dvÛ nB‡Z †`lqv nB‡e|

05| wbevnx KgKZv wnmv‡e cwiPvjK dv‡Ûi mKj Khµg MnY Kwi‡eb| mfvcwZi Abcw¯wZ‡Z wZwb mfvi mfvcwZZ Kwi‡eb Ges Zvnvi Abcw¯wZ‡Z Dcw¯Z m`m¨M‡bi g‡a¨ GKRb‡K mfcwZZ Kivi Rb¨ wbevPb Kiv nB‡e| cwiPvjK †`‡ki i³ cwimÂvjb wefvM/ †K›`mgn cwi`kb Kwi‡eb Ges c‡qvRbxq wb‡`k c`vb Kwi‡eb|

06| mKj †gwW‡Kj K‡jR, †gwW‡Kj BbwówUDU I Ab¨vb¨ nvmcvZv‡ji i³ cwimÂvjb †K‡›`i cavbMY c`waKvie‡j evsjv‡`k i³ cwimÂvjb mwfm Kwgwui m`m¨ nB‡eb|

07| (1) mKj †gwW‡Kj K‡jR, †gwW‡Kj BbwówUDU I Ab¨vb¨ nvmcvZv‡ji i³cwimÂvjb †K‡›` wbæwjwLZ m`m¨ wb‡q e¨e¯vcbv Kwgwu MwVZ nB‡et-

(K) †Pqvig¨vb - nvmcvZv‡ji cwiPvjK / cavb KgKZv

(L) m`m¨ - `BRb cL¨vZ mgvR‡mex (GKRb gwnjv) hvnviv Kwgwui mfvcwZ KZK g‡bvbxZ nB‡eb|

(M) m`m¨ - †Rj ZËveavqK (c‡hvR¨ †¶‡Î)

(N) m`m¨ - nvmcvZvj Awdm KgKZvM‡Yi ga¨ nB‡Z `BRb KgKZv †Pqvig¨vb KZK g‡bvbxZ|

(O) †Kvlva¨¶ - mswkó nvmcvZv‡ji Dc-cwiPvjK Ab¨_vq Kwgwu wbawiZ KgKZv|

(P) mwPe - i³ cwimÂvjb wefvM ev †K‡›`i BbPvR c`waKvi e‡j mwPe nB‡eb|

07| (2) †hLv‡b evW e¨vsK iwnqv‡Q †m mKj †gwW‡Kj BbwówUDU/nvmcvZv‡j evW e¨vs‡Ki BbPvRMY nvmcvZv‡ji cavb KgKZv wb‡q Dc‡iv³ Kwgwui Abi¡c Kwgwu MVb Kwi‡eb|

08| miKv‡ii 05-05-1992Bs Zwi‡Li 168-Gi cÁvc‡b MwVZ evsjv‡`k i³ cwimÂvjb mwfm Kwgwu †`‡ki Ab¨vb¨ mKj i³ cwimÂvjb Kwgwu‡K mgq mgq civgk I wb‡`k `vb Kwi‡eb|

09| i³ cwimÂvjb KvDwÝ‡ji m`m¨ mwPe-Gi c` †Kvb Kvi‡Y kb¨ nB‡j AvB.wc.wR.Gg. GÛ Avi-Gi i³ cwimÂvjb wefv‡Mi wefvMxq cavb c`waKvi e‡j Zvr¶wYKfv‡e D³ Kwgwui m`m¨ mwPe wnmv‡e `wqZ

cvjb Kwi‡eb| Abi¡cfv‡e i³ cwimÂvjb KwgwUi mvaviY m¤úv`‡Ki c` †Kvb Kvi‡Y kb¨ n‡j AvB.wc.wR.Gg. GÛ Avi-Gi i³ cwimÂvjb wefv‡M wefvMxq cavb D³ c‡` `wqZ cvjb Kwi‡eb|

10| GB Dc-wewamg‡ni †Kvb Dcaviv cwieZb cwieab ev ms‡hvRb Kwi‡Z nB‡j evsjv‡`k i³ cwimÂvjb mwfm KwgwUi Ab‡gv`b jwM‡e|

wØZxq Aa¨vq

01| (K) **cwiPvjKt** wZwb evsjv‡`k i³ cwimÂvjb KwgwUi Gi wbevnx KgKZv wnmv‡e mKj KgKvÛ cwiPvjbv Kwi‡eb|

(L) **mvaviY m¤úv`Kt-** mwfm Ges dv‡Ûi ¯vfweK cwiPvjbvi Rb¨ KwgwUi mvaviY m¤úv`K cwiPvjK‡K mnvqZv Kwi‡eb| dv‡Ûi e¨vsK GKvD›U Zvnvi Ges †Kvlva¨‡¶i mM¨-¯v¶‡i cwiPwjZ nB‡e| †Kvb GKR‡bi Abc¯wZ‡Z cwiPvjK ¯v¶i Kwi‡eb|

(M) **BbPvR i³ cwimÂvjb wefvM/‡K›`ª, KwgwUi mvaviY m¤úv`K/mwPet-** wZwb c‡qvRb Abmv‡i i³ µq Kwi‡Z cwi‡eb| †ckv`vi i³ `vZv‡K wbqgvbmv‡i UvKv c`vb Kwi‡Z cwi‡eb| wZwb iwk` c`vb KiZt dv‡Ûi Avq MnY Kwi‡eb Ges msMnxZ A_ dv‡Ûi e¨vs‡K wnmv‡e Rgv †`lqvi Rb¨ †Kvlva¨‡¶i wbKU c`vb Kwi‡eb| Avq-e¨‡qi GKwU †iwRóvi l wZwb msi¶Y Kwi‡eb Ges Zvnv K¨vk eB-Gi mwnZ mgq mgq (gv‡m AšZt 2 evi) wgjvBqv †`wL‡eb|

(N) **†Kvlva¨¶** t- †Kvlva¨¶ i³ cwimÂvjb dv‡Ûi msMnxZ UvKv wbqggZ Hw`bB dv‡Ûi e¨vs‡K Rgv w`‡eb| wZwb wewagZ dv‡Ûi K¨vk eB-G dv‡Ûi Avq-e¨‡qi wnmve msi¶Y Kwi‡eb hvnv‡Z msMnxZ †gvU UvKv Ges Rgv UvKvi wnmve wbKvk cvlqv hvB‡e| wZwb dv‡Ûi Rgv I Li‡Pi fvDPvi msi¶Y Kwi‡eb| dv‡Ûi e¨vsK GKvD›U-G GKRb ¯v¶i`vZv wnmv‡e wZwb ¯v¶i Kwi‡eb hvnv Zvnvi I mvaviY m¤úv`‡Ki †hŠ_ ¯v¶‡i cwiPwjZ nB‡e| wZwb e¨vs‡Ki GKwU cvk eBI msi¶Y Kwi‡eb|

02| **AwMg K¨vk** t- BbPvR, i³ cwimÂvjb wefv†Mi Avbmw½K LiP wgUv‡bvi Rb¨ 500/- UvKv bM` iwL‡Z cwi‡eb| c‡qvRb g‡Z wZwb msMnxZ UvKv w`qv AwMg K¨vk ciY Kwi‡Z cwi‡eb|

03| **Avbmw½K ¯í LiP** t- BbPvR i³ cwimÂvjb wefvM/‡K›`, KwgwUi Ab‡gv`b e¨wZ‡i‡K wb‡æ ewYZ Avbmw½K LiP wgUvB‡Z cwi‡eb| Z‡e c‡Z¨K †¶‡Î AvB‡Ug cwZ LiP 200/- UvKvi AwaK nB‡e bv| (K) i³ `vZvi Avc¨vqb LiP (L) webvg‡j¨ i³ `vZvi hvZvqvZ LiP (M) wewfb †óvim I †ókbvix `e¨w` µq BZ¨w`|

04| cwZw`b e¨vsK-Gi mg‡qi g‡a¨ K¨vk eB‡qi Hw`b Avq-e¨q wjwce× Kwi‡Z nB‡e| e¨vs‡Ki †jb‡`b- Gi mg‡qi ci hZ UvKv msMnxZ nB‡e Zvnv c‡ii w`bB e¨vs‡K Rgv w`‡Z nB‡e|

05| wewagZ wVKfv‡e ¯v¶wiZ I cvkKZ Dch³ fvDPvi Qvov †Kvb cKvi UvKv c`vb Kiv hvB‡e bv|

06| **Ri“ix c‡qvR‡bi Rb¨ bM` Znwej**t- Ri“ix wfwË‡Z i³ µ‡qi c‡qvRb nB‡j i³ µ‡qi Rb¨ BbPvR i³ cwimÂvjb wefvM/‡K›` †gvW‡Kj K‡jR/ BbwówUDU mewaK 2000/- (`B nvRvi) UvKv, 200-500 kh¨wewkó †Rjv nvmcvZvj 1000/- (GKnvRvi) UvKv I Ab¨vb¨ nvmcvZ‡j 500/-(cvPkZ)UvKv bM` iwL‡Z cwi‡eb|

07| **gwmK cwZ‡e`bt** BbPvR i³ cwimÂvjb wefvM/ †K›`, cwZ gv‡m Avq- e¨‡qi wnmve wbix¶v Kwi‡eb Ges KZ e¨vM/ BDwbU i³ e¨envi nBj Zvnvl †`wL‡eb| cwZwU †K›` gwmK cwZ‡e`‡bi GKwU Kwc evsjv‡`k i³ cwimÂvjb mwfm KwgwU mvavib m¤úv`†Ki wbKU cvVvB‡eb|

08| **UvKv †diZ t** UvKv †diZ m¤wjZ `vex mvaviYfv‡e MnY Kiv nB‡e bv| evW e¨vsK nB‡Z GKevi i³ jBqv †M‡j Bnv †Kvbµ‡g †diZ jlqv nB‡e bv| Z‡e we‡kl †¶‡Î Ri“ix c‡qvR‡b hLb †Kvb †ivMxi Rb¨ i³ c¯Z ivLv nBqwQj Ges cieZxKv‡j i³ e¨envi e¨wZ‡i‡K †ivMx gviv †M‡j A_ev Av‡ivM¨ jvf Kwi‡j Ges †h i³ c¯Z wQj Dnvi Rb¨ hw` Kvj‡¶cb bv nq Ges H i³ evW e¨vs‡Ki ¶wZ QvovB cbivq e¨envi †hvM¨ nq, †mB†¶‡Î i“Mx A_ev i“Mx KZK g‡bvbxZ e¨w³i wjwLZ `iLv‡¯i gva¨‡g mswkó `wqZcvß wPwKrm‡Ki

mcwikµ‡g †gvU UvKvi `B ZZxqvsk chš †diZ wb‡Z cwi‡eb| Bnv ïagvÎ †K‡›`i nvmcvZv‡ji i“Mx‡`i †ejvq c‡hvR¨|

09| webvg‡j¨ i‡³i Rb¨ †ivMx‡K ÔwdÕ di‡g `iLv¯— Kwi‡Z nB‡e Ges Dnv‡Z †ivMxi wPwKrmK/mvR‡bi mcwik Ges nvmcvZv‡ji cwiPvj‡Ki/mcwib‡Ub‡W‡›Ui/cavb KgKZvi Ab‡gv`b jB‡Z nB‡e| Z‡e AwZ Ri“ix †¶‡Î mswkó wPwKrm‡Ki I nvmcvZvj mgvR‡Re‡Ki mcwikµ‡g evW e¨vs†Ki BbPvR webvg‡j¨ i³ mieivn Kwi‡Z cwi‡eb|

10| evsjv‡`k i³ cwimÂvjb Kwgwdi mvaviY m¤úv`K 500/- UvKv chš LiP Ab‡gv`b Kwi‡Z cwi‡eb| 500/- UvKvi Dc‡i e¨q nB‡j, evsjv‡`k i³ cwimÂvjb mwfm Kwgwdi Ab‡gv`b jwM‡e|

11| wbæwjwLZ msw¶ß A¶i dv‡Ûi Ô†iKWÕ I †iwRóvi mn‡R †jLvi Rb¨ e¨envi Kiv hvB‡Z cv‡it-

webvg‡j¨ = weg

g‡j¨ = g

cwie‡Z = X

(X-Gi wecix‡Z Òcwie‡ZÓ †h i³ cvIqv wMqv‡Q Dnvi e¨vM bs wjwL‡Z nB‡e)|

12| evsjv‡`k i³ cwimÂvjb mKj BDwb‡Ui dvÛ erm‡i GKevi AwWU nB‡e Ges AwWU wi‡cvU c‡qvRbxq e¨e¯v Mn‡Yi Rb¨ ¯-¯ Kwgwdi wbKU †ck Kwi‡Z nB‡e| AwWU wi‡cv‡Ui GK Kwc evsjv‡`k i³ cwimÂvjb Kwgwdi wbKU †ciY Kwi‡Z nB‡e|

13| i³ mieivn wbæwjwLZ wbq‡g cwiPwjZ nB‡e t- mvaviYfv‡e 1(GK) e¨vM i³ mieiv‡ni Ab‡iv‡ai mv‡_ `BRb m¶g i³`vZv Awm‡Z nB‡e| Z‡e we‡kl †¶‡Î evW e¨vs‡Ki BbPv‡Ri wbKU MnY‡hvM¨ nB‡j GKRb m¶g i³`vZvi i‡³i cwie‡Z i³ mieivn Kiv hvB‡Z cv‡it

(L) miKvix nvmcvZv‡ji Iqv‡Wi †ivMxt- M“wcs µmg¨wPs I Ab¨vb¨ cix¶vi Rb¨ †Kvb PvR jwM‡e bv| wKš cwZ e¨vM (cvq 350 wgtwjt) i‡³i Rb¨ 100/- (GKkZ) UvKv c`vb Kwi‡Z nB‡e|

(M) nvmcvZv‡ji †Kwe‡bi I cvB‡fU †ivMxi cix¶v wbix¶vt PvR wbæi“c t-

(1) <u>i“wUb cix¶v wbix¶vt</u>

M“wcs PvR (G,we, I)..... 50/- (cÂvk) UvKv

µmg¨wPs..... 50/- (cÂvk) UvKv

†imvm (wW) d¨v±i ..... 50/- (cÂvk) UvKv

K¤m †Uó (WvB‡i±)..... 100/- (GKkZ) UvKv

K¤m †Uó (BbWvB‡i±) ..... 150/- (GKkZ cÂvk) UvKv

(2) we‡kl cix¶v wbix¶vt

G»UewW wbY‡qi PvR..... 125/- (GKkZ cwPk) UvKv

G»UewW UvBUvi ..... 150/- (GKkZ cÂvk) UvKv

m‡›`nRbK wcZZ wbY‡qi PvR ..... 600/- (QqkZ) UvKv
= (G, we, I, †imvm M“wcs Ab¨vb¨
evW/M“cm I K¤m cix¶vmn

** `óe¨ t we‡kl c‡qvR‡b GBP.Gj.G UvBwcs I wmivg †cwUb Kiv nB‡e|

†imvm (eo Ôwmô) d¨v±i ..... 50/- (cÂvk) UvKv

†imvm (†QvU Ôwmô) d¨v±i..... 50/- (cÂvk) UvKv

†imvm (eo ÔBô) d¨v±i ..... 50/- (cÂvk) UvKv

†imvm (‡QvU ÔBô) d¨v±i..... 50/- (cÂvk) UvKv

†imvm †R‡bvUvBc I †d‡bvUvBc ..... 350/- (wZbkZ cÂvk) UvKv

GbRvBg/Gjewgb cwZwU †Uó PvR .... 30/- (wÎk) UvKv

g¨v‡jwiqvj c¨vivmvBU (¯vBW) ..... 20/- (wek) UvKv

wf.ww.Avi.Gj †Uó

GBP.we.Gm.GwR(†j‡U·)..... 150/- (GKkZ cÂvk) UvKv

GBP.AvB.wf. †Uó, GBP.Gj.G g¨v‡jwiqvj Gw›UewW, †ncvUvBwUm-we Gi Ab¨vb¨ †m‡ivjwRK¨vj †Uó, wm.Gg.wf-Gi wmivg, wewji“web, wn‡gv‡Mweb I KvB-nvIqvi †Uó cfwZi Rb¨ miKvi wbawiZ nv‡i wi-G‡R›U Gi cKZ LiP Abmv‡i avh Kiv hvB‡e|

i³ mieiv‡ni PvR = 100/- (GKkZ) UvKv cwZ e¨vM (cvq 350 wgtwjt)| i³ mieiv‡ni PvR = 100/- (GKkZ) UvKv cwZ e¨vM (cvq 350 wgtwjt)|

wet`t- GB Dcwewamgn Abmv‡i i‡³i Rb¨ avhKZ gj¨ Qvov †Kweb A_ev cvB‡fU †ivMxi M“wcs, µmg¨wPs, K¤m †Uó A_ev/Ges Gw›UewW wbY‡qi †gvU PvR = 300/- (wZbkZ) UvKvi AwaK nB‡e bv| †cwqs †e‡Wi †¶‡Î me‡gvU = 150/- (GKkZ cÂvk) UvKvi AwaK nB‡e bv|

14| webvg‡j¨ i³`vZv Qvov Ab¨ i³`vZv‡K 350 wgtwjt i‡³i Rb¨ 90/- (beŸB) UvKv †`lqv nB‡e Ges Zjbvgjkfv‡e Kg i‡³i Rb¨ Kg UvKv †`lqv nB‡e|

15| †Kvb †ivMx mivmwi †Kvb i³`vZv‡K UvKv c`vb Kwi‡Z cwi‡eb bv|

16| miKv‡ii ¯§viK bs-2120 †gwW‡Kj, Zvs-15-04-54Bs †gvZv‡eK evW M“wcs, µmg¨wPs Ges Ab¨vb¨ we‡kl cix¶v wbix¶vi †¶‡Î †Kweb/cvB‡fU †ivMx nB‡Z †h UvKv msMnxZ nB‡e Zvnvi kZKiv 50 fvM i³cwimÂvjb †K‡›`i KgKZv I KgPvixMY cvB‡eb| GB kZKiv 50 fv‡Mi g‡a¨ kZKiv 30 fvM evW e¨vs‡Ki BbPvR I Ab¨vb¨ Wv³viMY cvB‡eb Ges kZKiv 20 fvM KgPvixMY cvB‡eb| G kZKiv 30 fv‡Mi g‡a¨ BbPvR 14% mn‡hvMx/mnKvix Aa¨vcKMY 8% Ges †gwW‡Kj AwdmviMY 8% cvB‡eb| miKvix KgPvix‡`i kZKiv 20 fv‡Mi g‡a¨ 3q †kYxi KgPvixMY 14% Ges 4_ †kYxi KgPvixMY 6% cvB‡eb| evKx 50% i³ cwimÂvjb dv‡Û Rgv _wK‡e|

GB cix¶v-wbix¶vi †ejvq ïagvÎ miKvix dvÛ nB‡Z µqKZ wRwblcÎ e¨eüZ nB‡e, wKš wbR¯ hšcwZ ev wi-G‡R›U e¨envi Kwi‡j †Kvb AwZwi³ PvR avh Kiv hvB‡e bv|

17| wbR¯ i³`vZv KZK `vbKZ i³ †ivMxi Rb¨ Av‡`Š c‡qvRb bv nB‡j Dnv evW e¨vs‡Ki m¤úwË nB‡e| evW e¨vsK KZc¶ wewagZ GB i³ Ab¨ †ivMxi Rb¨ eivÏ Kwi‡Z cwi‡eb| Z‡e mswkó evW e¨vs‡Ki BbPvR i³`vZv‡K GB g‡g mwUwd‡KU c`vb Kwi‡eb †h `vZv D³ evW e¨vs‡Ki i³ `vb Kwiqv‡Qb (GLv‡b `vZvi bvg, wVKvbv, Zvnvi i‡³i M“c I e¨vP bs BZ¨vw` we¯wiZ D‡jL Kwi‡Z nB‡e) cieZx‡Z mg‡q D³ i³`vZvi wb‡Ri i‡³i c‡qvRb nB‡j cgvY `wLj Kwiqv webvg‡j¨ mgcwigvY i³ cvB‡Z cwi‡eb|

18| i³cwimÂvjb †K‡›`i Rb¨ Ri“ix c‡qvR‡b Zvr¶wYKfv‡e †Kvb wi-G‡R›U, hšcwZ eve` ev Ab¨ †Kvb c‡qvRbxq Lv‡Z evW e¨vs‡Ki dvÛ nB‡Z mwPe e¨q Kwi‡Z cwi‡eb| H fvDPvimg‡n ¯vbxq KwgwUi mfvcwZi Ab¯v¶i jwM‡e Ges cwie‡Z Zvnv evsjv‡`k i³cwimÂvjb mwfm KwgwU KZK Ab‡gv`b Kwi‡Z nB‡e|

¯vt-

ivócwZi Av‡`kµ‡g
gbmi Avng`
mnKvix mwPe|

[evsjv‡`k †M‡R‡Ui 1g L‡Û, 13B Gwcj, 1995 Zwi‡L cKwkZ]