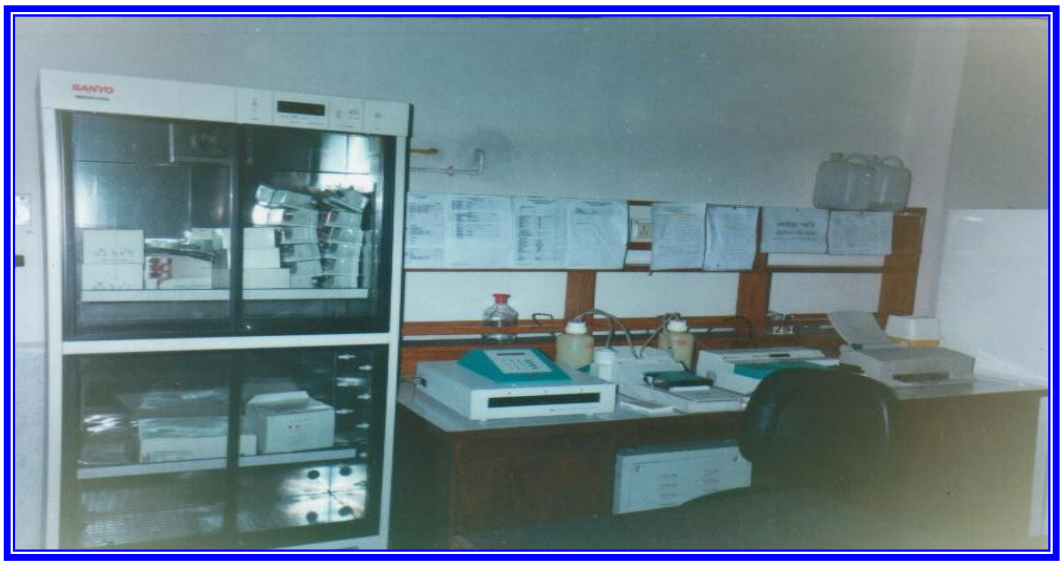
Review of the capacity of

Regulated and unregulated blood banks



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Foreword

Blood Transfusion Service is an important and essential part of the hospital services. The primary objective of the blood transfusion services is to ensure the availability of sufficient supply of quality blood and blood components for transfusion with maximum efficacy and minimum risk to both donors and recipients. The Ministry of Health and Family Welfare and the Directorate General of Health Services already has launched the Safe Blood Transfusion program, considering the importance of blood transfusion services. The government is committed to ensure that all patients have access to safe blood and blood product whenever needed by hospitals free from HIV, Viral Hepatitis and other Transfusion transmissible diseases. The basic strategic priorities for Blood Transfusion Services are retention of quality donors, mandatory screening of blood, rational use, capacity building and training of the service providers. At present 98 blood centers are providing blood under SBTP. Beside this a good number of private sector blood banks also provide blood. After introduction of Safe Blood Transfusion Program the achievement like declining of professional donor number, decrease trend in the prevalence of transfusion transmissible infection marker is significant. The capacity of the government sector and private sector blood banks may be different in terms of service modality, quality assurance, equipment status, skill of the service providers and infrastructure facility but both the sector always needed time to time review for strengthening the blood safety program as a whole. In this work has produced some important findings in resepct of the capacity of government and private sector blood banks. The findings have identified the areas where we need proper attention and intervention to ensure blood safety in Bangladesh. I hope that the planners and the program implementers will be benifited by utilizing the findings of the study for the future planning and implementation. I would like to congratulate Director - Hospitals and Clinics and his team for the conduction of an important study. I would also like to thanks WHO for providing excellent support.

Professor Dr. Md. Shahadat Hossain
Director General
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Acknowledgement

The APW on review of the capacity of regulated and unregulated blood banks is an activity under WHO BAN BCT 001 program supported by WHO, Bangladesh. The study was designed to explore the present scenario of the blood banks operating in the public and private sector, specially focusing the capacity which encompasses the structural facility, basic equipment, manpower, skill, quality assurance and services delivery. At present 98 blood centres are providing safe blood under safe blood transfusion program. More over a good number of private blood banks at different level also provides blood. The capacity of the functioning blood banks in the public and private sector may not be the same status but time to time assessment always necessary for the further improvement in those sectors. The findings of this APW will help the policy makers, program managers and service providers for the improvement of the service delivery of public and private blood banks. I would like to give special thanks to Professor Dr. Md. Shahadat Hossain, Director General, DGHS, Mohakhali and Maj Gen (Dr.) ASM Matiur Rahman (Rtd.), Chief Adviser, HAPP, NASP & Chairman TC of NAC for their excellent feedback for the APW as independent reviewer. I also want to give thanks to all concern for their effort in completion of the APW especially Dr.S.A.J. Md. Musa, DPM (Training -Hospital), DGHS and Dr. Md. Aminul Hasan, MO, Hospital section, DGHS. I hope that this document will strengthen the blood safety in Bangladesh.

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Abstract

In Bangladesh at present 98 blood centres are providing safe blood under safe blood transfusion program. Beside this a good number of private blood banks are also providing blood but without any regulatory mechanism initiated by the government although safe blood transfusion law has already passed by the parliament. Data for this review was collected from 2 MCH, 8 DH, one 300 bedded government general hospital from the public sector and 2-MCH, 2 Non-profit organizations, National Heart Foundation, 12 other private blood banks from the private sector. In this document the public sector blood banks and private sector blood banks are classified as regulated and unregulated blood banks.

Result of the review showed that all public blood banks operating as a part of the hospital but varieties remain in the private sector. The highest 46.66% private blood banks are attached with pathological lab. The infrastructure facility like lab facility for examination was not present in 58.82% of the private blood banks. In addition to that other facilities like proper ventilation, proper lighting, and water supply with basin were also not present in 58.82%, 52.94% and 70.59% accordingly of the private blood banks. Staff strength to provide 24 hours service in public blood banks are not accordingly to working load. The number of manpower categories working in the private blood banks is more in comparison to public blood banks but total strength is also not sufficient.

Major percentages of the personnel working in the private blood banks have general education, especially the lab technician. The private blood banks are mostly depends on lab technician and lab attendant although they do not have any recognized qualification for providing service. The training need of the personnel working in the public blood banks or private blood banks are more or less similar in nature and the respondents were mostly lab technician and medical officer. Although screening of 5 diseases is very important to ensure safe blood even that HCV, HIV, MP, VDRL screening facility were not available in 17.65%, 5.89%, 64.70%, 5.89% of the private blood banks (among the samples) accordingly. The status of quality control system in private blood banks was neglected but also the important activities like recording of blood sample collection with date, recording of blood sample examination with date were not done properly in 52.94%, 52.94% accordingly in the private blood banks and the percentage of the same status for those activities were Nil and 40.00% accordingly in the public blood banks. The status of lab safety measures was more or less similar for public and private blood banks in respect of disposal of lab waste and the status were unsatisfactory. The other

activities like use of gloves, needle recapping, daily washing with disinfectant, hand washing also poor in the both sector blood banks. The blood transfusion management activities like visual assessment, history taking, medical examination and lab investigation were not done properly in 64.71%, 58.82%, 64.71% and 64.71% of the private blood banks. Moreover 47.06% of the private blood banks cold chain system for blood bag preservation was not proper. Some percentage of negligency still persists in the blood donor recruitment of the public blood banks. Some basic equipment like refrigerator, microscope, weight machine and hot air oven were not available 17.65%, 70.59%, 47.06%, 29.41% accordingly in the private blood banks. At the district level public blood banks the supervision status was poor and similar picture also persist in other private blood banks. The professional donors were more marked in govt. MCH blood banks (33.97%) and also in other private blood banks group (30.29%). The maintenance of donor list was observed only in 17.64% of the private blood banks but the percentage in public blood banks was 90.00%. In the public blood banks, 70.00% campaigned for blood donation but the percentage was only 11.77% in the private blood banks. Donor registration card maintenance is also important but not maintained in 82.23% of the private blood banks. The scenario of the percentage of blood wastage in the both sector blood banks were more or less similar and the wastage percentage were marked more within 0-2% of category for the both type. The user fees charge for blood bag and diseases screening is fixed according to bylaws passed by the MOH&FW and introduced in the public blood banks but highly dissimilar in the private blood banks. For one bag of blood in the private blood banks the user charge ranges from Tk. 400/- up to 600/- or 600/- +. The dissimilarity also persists in the user fees for disease screening and no control mechanism was marked in this respect. The shortage of reagent were observed more in HCV, HIV and Malaria diseases screening in the private blood banks and the percentage of shortage was 58.82%, 35.30%, 58.82% accordingly. The record keeping findings of the public blood banks were not satisfactory and a good number of register and form were not maintained properly. The same type of situation also marked in the private sector blood banks. The prevailing situations in the public blood banks needed to improve for providing better service. To ensure proper service in the public blood banks structured supervision and monitoring by the local authority and national level, continuous capacity building, creation of post and accountability framework is necessary. On the other hand the stewardship role of the MOH&FW also needed to enhance for improving the situation of the private sector blood banks. Simultaneously proper application of blood transfusion law is also necessary in this respect.

Introduction:

Blood Transfusion service is an essential part of the health care system. The priority objective of the Blood Transfusion Service is to ensure safety, adequacy, accessibility, and efficiency of blood supply at all level[4]. The infectious agents like HIV, Hepatitis B and C, Syphilis, Malaria, are transmitted through blood transfusion. The growing problem of transfusion associated infection has been acknowledged globally and as well as in Bangladesh. Provision of safe blood to the community is one of the responsibilities of the government. The support in terms of resources both human and financial is the pre-requisite for ensuring blood safety. In addition to that Government commitment is also essential for fostering blood safety activities of the country. According to WHO the incidence of transfusion associated infection can be reduced by the following strategies. Firstly establishment of an organized blood transfusion service. Secondly careful selection of donor to ensure that blood is collected only from low risk, voluntary non-remunerated donor. Thirdly proper screening of blood for presence of infectious agents such as HIV, HBV, HCV etc. and lastly the appropriate use of blood[9].

In many developing countries like Bangladesh, little importance has been given to the subject of transfusion medicine although the demand for blood and blood component is increasing day by day. The requirement of blood and blood product depends upon the population size, health care structure, prevalence of condition requiring regular transfusion, availability of surgical centres and awareness amongst clinician regarding judicious use of blood. There are many ways to estimate the total need of blood but ideally if 2% of the population donates blood it will be sufficient to meet the need of the developing countries. The need for blood varies from 7-15 units depending upon the type of medical care available. In respect of primary health care unit the need is estimated to be 5-7 units /bed/year whereas in a specialized institution the need may be 25-30/unit/bed/year[1].

The 98 blood centres, established under the safe blood transfusion program are functioning. All the centres were provided basic equipment and furniture which is necessary for running a blood bank. The development of manpower, supply of reagent and mandatory for screening of 5 diseases also included under the program. The blood banks in the private sector with few exceptions are running not within a framework although the legislation in respect of establishment of blood bank is approved / passed by the parliament.

The basic functions of a blood transfusion centre are -

- Organizing the services
- Recruitment of donors
- Collection, processing, storage and distribution of blood and blood component.
- Laboratory investigation.
- Participation in clinical use of blood and blood component.
- Teaching and training
- Research and development.

In the private sector blood banks some of the major functions are missing completely and in the public blood banks some of the major function does not takes place properly.

The scenario of blood donor and blood screening activities are improving day by day in comparison to the past. The percentage of professional blood donor started to fall from 70% to 15.42% in the beginning of the year 2003 in Bangladesh. But safe blood transfusion still remains an important issue to address especially in terms of their capacity for providing quality service. Reviewing the capacity of the public and private blood banks will be helpful for strengthening of blood safety. In this APW the main focus was to review the capacity of blood bank operating in both sector in relation to infrastructure facility, manpower, skill, quality of service and also other some important aspect.

Background:

The emergence of HIV in the 1980's highlighted the importance of ensuring blood safety, as well as the adequacy of national blood supplies. Not only Bangladesh but in a good number of countries, many recipients remain at risk of transfusion transmissible infection (TTIs) as a result of poor donor recruitment, selection practices and also the use of untested unit of blood. The global burden of diseases due to unsafe blood transfusion can be eliminated or substantially reduced by adapting an integrated strategy for blood safety which encompasses

- Establishment of a nationally coordinated blood transfusion service.
- Collection of blood from voluntary blood donor from low risk population.
- Testing of all donated blood including screening for TTI.
- Reduction in unnecessary transfusion through the effective clinical use of blood [5].

Before starting the Safe blood transfusion program there was no structured screening facility available for the blood centre in Govt, & Non-govt. sector and which was a great threat in respect of public health. Considering the disease scenario and the importance of blood safety one project as a TAPP was approved on 25/5/1998 by the MOH&FW in the name" of Implementation of Safe blood Transfusion ". The total budget of the project was TK 1602.82 lakh. Later activities of the project were included in the HPSP as a Safe blood transfusion program. The main objective of the program was -

1) Establishment of a reference laboratory and building up capacity of 97 blood centre for blood screening (53-District hospital, 13-MCH, 5-Specialist hospital, 13-Combined Military Hospital, other 10- Big Hospital, BDR, Red Crescent and BIRDEM) by providing kit reagents and equipment for detection of HIV, Hepatitis B and C , Syphilis and Malaria.
2) Training of doctor and technologist
3) Enhancement of Voluntary blood donation through motivation program and IEC campaign [2].

The expected output of the program:

- Mandatory screening of blood for HbsAg, Anti HIV, Anti HCV, Syphilis and Malaria Parasite (MP) in all blood transfusion services in the country.
- Provide support to management and program development for safe use of blood.
- Improvement of the manpower skill in blood transfusion services for maintenance of SOP and quality control of blood screening for HIV and transfusion transmissible disease.
- Development and reinforcement of the capacity of NGO's for the improvement of voluntary blood donation.
- Development of awareness on voluntary blood donation.
- Organize special national days for blood collection on regular basis [2].

After introduction of the safe blood transfusion program in 97 blood centre of Bangladesh the following are the major achievements:

- Capacity developed in the 97 blood centre for blood screening to prevent TTI , like HIV/AIDS, Hepatitis B and C, Syphilis and Malaria.
- The trend of paid donors is declining.
- Skill in respect of SBT developed among the manpower working in the centre.
- Regular monthly blood screening report from all the centres.
- Availability of national data for prevalence of transfusion transmissible infection in different type of blood donors in Bangladesh.
- Transmission of awareness building by TV spot in BTV.
- Introduction of lab based waste disposable system.
- One law "Safe blood transfusion law-2002" already passed by the parliament and also published in the Gazette for blood safety [3].

The passed law is a regulatory law for setting blood transfusion centre, management, blood collection, blood storage, blood testing and transfusion to prevent unauthorized practices of

human blood transfusion. Establishment of private blood bank, operation, licensing system, inspection committee and punishment for violation of rule etc. is clearly stated in the law [11].

Beside the govt. blood banks a good number of private blood banks operating as blood banks separately or attached with hospital / clinic or pathological lab. The total number is not known because of the absence of licensing system. The quality of blood bank service in the private sector is a big issue to address because regulatory system for ensuring quality is not established properly.

Important information about blood screening collected from SBT Offices [3].

Time period Jan/2001 to May/2003

1. Total unit of blood were screened in 97 centres:

Total unit -		323642 unit
a)	Paid blood donor	18.01%
b)	Voluntary blood donor	26.01%
c)	Relative blood donor	55.98%

Screening Result:

Total Unit of blood discarded **6143**

a)	HbsAg Positive	-	4467	(72.72%)
b)	Hepatitis C	-	466	(7.59%)
c)	Syphilis	-	1120	(18.23%)
d)	Malaria	-	83	(1.35%)
e)	HIV	-	7	(0.11%)

For the application of law, it needs to formulate bylaws. Presently the MOH&FW is formulating the bylaws, which is needed in relation to main law. One bylaw in the name of "Bangladesh blood transfusion fund bylaws", which contains only management committee for running blood bank, user fees rate, maintenance of user fees fund and also directive about the modality and amount permissible for expenditure [12].

Justification for the review of regulated and unregulated blood bank

In Bangladesh one of the major cause of spreading diseases like HIV/AIDS, Hepatitis B and C, Syphilis and Malaria are due to improper screening of blood, existence of professional donor, unsatisfactory professional skill, weak regulatory framework, improper supervision and monitoring, and low quality assurance. So blood safety measures are very much important aspect for the prevention of those diseases. Institutional capacity is highly essential to ensure blood safety and this institutional capacity includes firstly the development of system, secondly the system in place, thirdly capacity development of the manpower to run the system and lastly operationalization of the system. Moreover, supervision and monitoring are also the important aspect of the institutional capacity. So the institution capacity not only includes proper staffing with the skilled manpower but also proper equipment, logistic, quality assurance system, facility and standard operational modality. The basic strategic priorities in the development of BTS program are:

- Education, recruitment and retention of low risk donors
- Testing of donated blood for transmissible agents.
- Rational use of blood.
- Capacity building and training of Staff [8].

Presently the patients are being provided with blood mainly from 2 sources. The first source is from 98 blood centre under SBT program. They were provided with specific guideline, training, equipment, and reagent. These kinds of blood banks are situated at MCH, District Hospital, Private MCH, Armed Forces Hospital, and non-profit NGO. But the non-profit NGO hospitals and private MCH are operating their blood centres according to their own rules and regulation and do not posses any license due to absence of licensing system. Although they were provided with equipment, logistic and reagent, but are classified under the head line unregulated blood bank. The other type of blood banks in the private sector running independently or attached with clinic/hospital, and these type may also be called unregulated blood bank because they are not running within any kind of regulatory framework and not licensed because of the absence of licensing system. Moreover they were not provided any kind of guideline from the govt. side. The numbers of the private blood banks are growing faster and there is no list available to determine the actual number. In accordance with the above mentioned scenario it needs total review especially in respect of the institutional capacity to provide safe blood for the patients. This APW for review of the capacity of regulated and unregulated blood banks will tell us the actual scenario. The finding of the study will not only help the policy maker, planner and service provider to identify the present status including institutional weakness but also will help to formulate future policy, planning and activities needed to improve the capacity for providing safe blood.

General Objective:

To review the capacity of regulated and unregulated blood banks for providing safe blood

Specific objectives:

- To review the infrastructure facility of regulated and unregulated blood banks providing blood transfusion.
- To review the existing manpower strength working in the regulated and unregulated blood banks along with their qualification.
- To identify the type of service delivery offered by the both type of blood banks.
- To review the training need of the personnel working in both types of blood banks.
- To see the status of quality assurance according to standard.
- To explore supervision and monitoring mechanism for ensuring service delivery.
- To review the status of instrument and other logistic, necessary for running blood banks.

Limitation of the study / Review

1. The study / review reflects the comparison of capacity between public blood banks (regulated) and private blood banks (unregulated) but we cannot say the findings as a hundred present representation due to its small sample size.

2. During data collection some time the private blood banks service providers were not interested to co-operate for providing information. For such situation the data were recorded after careful observation, record review and also application of judgment.

3. The study design especially sample size was influenced by the allocated budget of WHO.

4. Data collection schedule was not figured out properly for the data collection of private blood banks in the DCC, because the list of private blood banks was not available.

5. Supporting literature in relation to the study was not properly available.

6. The data collected from the private blood banks are all situated in DCC and for this reason comparison finding with the public sector blood banks may not hundred percent representations, because the status of the private blood banks at district and upazilla level may be poorer.

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 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 and also one ex-consultant of SBT programme. The main areas addressed in the questionnaire were infrastructure facility, manpower strength, type of service delivery, training need, quality assurance, equipment and logistic status, and also supervision and monitoring status of the both public and private sector operating blood banks. The main focus of the questionnaire was to review the institutional capacity of different level and type of blood banks functioning in the public and private sector. The institutional capacity not only means the infrastructural ability but also the ability in respect of quality, proper service delivery, staffing with requisite skill, necessary equipment and logistic and proper blood transfusion management.

The usual step of designing a questionnaire was followed. Firstly the content of the questionnaire was developed considering the objective 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 two group i.e. Regulated and unregulated. In the regulated blood banks, 2 MCH, one 300-bedded GH, seven DH and in the unregulated group 2-private MCH, National Heart Foundation, 2-Non-profit organization and other type blood banks - 12 were included in the sample size. One private blood bank sample was discarded due to non-availability of responsible person for providing data. The selection of Govt. MCH and DH were done by the lottery method. The selection of private blood bank was done by physical searching in the D.C.C. because of the absence of any list and the non-profit NGO blood bank like Red Crescent and Quantum Foundation were selected purposively.

Data collection procedure

Firstly a list of resource person was prepared for data collection and the selected resource persons were oriented about the task, questionnaire and 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.
- Observation of the routine performance
- Review of the documentation used in the blood bank.
- 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.

Operational Definition

Regulated Blood bank:

The regulated blood banks are those blood banks operating in the public sector at different level hospital. They are controlled by govt. mechanism and supported fully by the MOHFW and also operating their blood banks funds according to the bylaws formulated by MOH&FW.

Unregulated blood bank:

All type of blood bank in the private sector and operating by their own rules and regulation.

Results:

In this review of the capacity of regulated and unregulated blood banks the data were collected from 10 public blood bank situated at different level of public hospital and also 17 private blood bank operating independently as blood bank or attached with hospital like private medical college hospitals or as non-profit organization.

Table No. 1.

Type and number of institution where review conducted

The total number of (100%) public blood banks operating as individual section and attached with different type of hospital. 26.67% of the private blood banks operating only as blood bank but 26.67% and 46.66% of the private blood banks are operating with the attachment of hospital and pathological lab. accordingly.

Table No – 2

Type of major facilities in the public and private blood banks

The data on the availabilities of five major (infrastructural) facilities were collected from public and private blood banks. 70% of the public blood banks were not provided with any separate reception room but in case of private blood banks it was 58.82%. The percentage of separate blood collection room, separate office room, donor waiting room and lab facility with proper preservation of blood bag in the public sector were 50.00%, 40.00%, 50.00% and 100% accordingly. On the other hand in the private sector it was only 41.18%, 29.41%, 29.41% and 41.18% accordingly. So, in the private sector major facility like lab facility was only available 41.18% in comparison to 100% of the public sector.

Table No. -3

Type of other facilities in the public and private blood banks:

The proper ventilation, lighting, water supply with basin and patients toilet were present 100%, 100%, 90% and 100% accordingly in the public blood banks but the air conditioning was available only in 20%. On the other hand the percentage was 41.18%, 47.06%, 29.41% and 41.18% accordingly in the private blood banks. The status of the air conditioning was 29.41% in the private blood banks.

Table No.-4

Type of personnel working in the public sector blood banks with their qualification:

The scenario of two MCH, one 300 bedded hospital and seven DH included in the sample size. At the level of MCH 2-Associate Professor, 2-Assistant Professor, having post graduation degree in Transfusion Medicine was working. One consultant holding post graduation degree looking after the blood bank services at district level. The number of MO, Lab Technician, Lab Assistant were 12, 22 and 02 accordingly. All the Lab. Tech. working in blood bank passed the 3 years diploma course.

Table No. - 5

Type of personnel working in the private sector blood bank with their qualification:

The total number of personnel working in the private blood banks was of 15 types. Among them 3 Prof., one Assoc. Prof. having post graduation degree in transfusion medicine was working at private medical college hospital. The number of Consultant and In-charge of blood bank having post graduation degree were 2 and 1 accordingly. The total number of working Lab Tech. were 30 and among them, only 11 passed 3 years diploma course. One Hon. director working in a non profit organization also classified in the post graduation group. The number of Lab Attendant, Manager, Supervisor, Receptionist, Field representative, Nurse, MLSS and Office Assistant were 16, 02, 01, 01, 01, 02, 01 and 02 accordingly.

Table No.- 6

Training need of the personnel working in the public blood banks:

The training need of the personnel working in the public blood banks was ascertained at two levels namely MCH and DH with 300-bedded general hospital. The list of training need of MCH was not so long. They pointed some important areas where they need training and the areas were blood screening, coombs test, Community awareness, Donor retention, CPR and Antibody titre. The respondents were Medical Officer and Lab. Technician. At the district level hospital the respondent were also Medical Officers and Lab. technicians. They wanted training in the following areas like Blood screening and Cross matching, Quality control, Safety precaution, Antibody titre, Blood collection and donor selection, Cell separator operation, ELISA. Cryoprecipitate, Fresh frozen plasma, Community awareness, Record keeping, BTM and Equipment maintenance.

Table No. - 7

Training need of the personnel working in the private blood banks:

The assessment of the training need for the personnel working in the private blood banks were done according to type namely Private medical college hospital, Non-profit organization including National heart foundation and other private blood banks. The Medical Technologist of private MCH wanted training on SBTP and ELISA method. The MO and M.T of non-profit organization including National Heart Foundation mentioned the following areas for training, ELISA method, SBTP, Donor selection and blood screening, Communication, coombs test, Management of SBT, Lab Technique and Refreshers training on SBT. In the last group i.e. other private blood banks, the respondent were mainly Lab Tech. having different type of qualification. They wanted training on Donor selection with blood screening, Blood transfusion management, Lab safety, Lab management, Coombs test and Comprehensive training on SBT. The supporting staff of the private blood banks wanted training on general aspect of the blood transfusion.

Table No. 8

Type of service delivery available in the public and private blood banks:

The blood screening services like HbsAg, HIV, HCV, VDRL, and MP screening were available 100.00% in all Public blood Banks but in the private sector it was 100.00%, 94.11%, 82.35%, 94.11% and 35.30% accordingly. The facility for cross matching and ABO grouping and typing were available 100% in the both sector blood banks. The facility for direct coombs test was not available in 80.00% of the public blood banks and 82.35% in the private blood banks. The status of non availability of service for indirect coombs test was 80.00% and 76.48% accordingly in the public and private blood banks. The facilities for antibody detection, Antibody titre and Rhesus factor in the public blood banks were 10%, 10%, 20% and in the private blood bank the percentage was 5.89%, 5.89% and 11.76% accordingly. The investigation facility like Rhesus genotype and phenotype, Haemolysin test and ABH secretor status was Nil in the public blood banks but in the private blood banks the status was 5.89%, 11.76% and 5.89% accordingly. The auto antibody detection and HLA/Tissue typing facility in public blood bank was Nil but only 5.89% of private blood banks having only the facility of auto antibody detection.

Table No. 9.

Status of the quality control system

The activities of the quality control system like identification of blood sample with documentation, recording of blood sample collection with date and recording of blood sample examination with date were done properly in 70.00%, 100%, 60% of the public blood banks and the status of those activities in the private blood banks were 47.06%, 41.18% and 41.18% accordingly. Not done at all status of those activities was remaining 5.88%, 5.88% and 5.88% of the private blood banks but not done at all status of the same activities within the public blood banks were nil. Recording of reagent in respect of batch no and date of expiry, none of the public blood banks was done properly but 35.30% of private blood banks did properly. The recording of supervision, temperature monitoring was done properly in 20.00% and 50.00% of the public blood banks but in the private blood banks it was 35.30% and 29.41% accordingly. The safe disposal of infected blood with recording was practiced properly only in 10% of the public blood banks but it was 29.41% in private blood banks.

Table No. 10

Status of the safety measures maintained in the blood banks of public and private sector

The activities like Wearing apron, Use of gloves, Needle recapping, Daily cleaning and Hand washing were done properly only 20%, 30%, 20%, 30% and 40% accordingly in the public blood banks and the same activities in percentage were done properly only 35.29%, 35.29%, 35.30%, 29.42% and 47.06% in the private blood banks. The mentioned activities were not practiced at all 10.00% (wearing apron), 10% (needle recapping), 20% (daily cleaning) and 10% (hand washing) of the public blood banks. On the other hand in the private blood banks the percentages of those statuses were 47.06%, 23.52%, 23.52%, and 17.65%. The waste management activities like disposal of general waste, non-infected clinical waste, infected clinical waste and liquid waste were not done properly 90% (each area) for public blood banks. On the other hand in the private blood banks the same status was 76.47%, for each mentioned area.

Table No. 11

Blood Transfusion management activities of public and private blood banks

Under the broad headline Blood donor recruitment, the status of visual assessment, history taking, medical examination and lab investigation was done properly in 90% for each area in the public blood banks and in the private, blood banks the percentage of done properly for those activities were 35.29%, 41.18%, 35.29% and 35.29% accordingly. The percentage of the status done properly for blood bag preservation, temperature monitoring and cold chain was 90% 70% and 100% in the public blood banks and the percentage of the status done properly of the private blood banks for the mentioned areas were 35.29%, 41.18% and 41.18% accordingly.

Table No. 12

Basic equipment / instrument status of the public and private blood banks:

The following equipment / instrument like Bench top centrifuge, Refrigerator, Deep freezer, Light box on white tile, Water bath and saline container were available 100%, 100%, 50%, 60%, 60%, 80% accordingly in the public blood banks and the status of the availably of those equipment/instrument in the private blood banks were 100%, 82.35%, 41.18%, 29.41% 35.29%, 35.29%. The availability of Thermometer, Pasteur pipette, Glass tube for indirect anti-globulin test, water proof marker, Hand lens, Microscope, Weight machine and Hot air oven were 80%, 90%, 100%, 90%, 70%, 100% and 90% accordingly. The availability of those item in the private blood banks were 35.29%, 35.29%, 35.29%, 35.29%, 35.29%, 70.59%, 29.41%, 52.94% and 70.59% accordingly.

Table No. 13

Structured supervision status of the public and private blood banks:

The existence of the structured supervision by the authority was present 100% in MCH including 300-bedded general hospital and 57.14% in respect of District Hospital. 83.33% of the private blood banks do not have any visible supervision but on the other hand 100% visible supervision was marked in private MCH, non-profit organization including National Heart Foundation.

Table No. 14

Source of blood donor in the public and private blood banks:

The sources were mainly classified in to 3 groups namely relative, volunteer and professional. The percentage of relative, volunteer and professional blood donor were 58.73%, 7.28%, and 33.96% in MCH and 63.30%, 33.00% and 3.70% in the District Hospital blood banks. The percentage of professional donor was 30.29% in other private blood banks but totally absent in private MCH, Non profit NGO and National Heart Foundation. The percentage of voluntary donor was the highest 97.50% in non-profit NGO blood banks but 05.00%, 40.00% and 9.63% in private MCH, National Heart Foundation and other private blood banks accordingly. The private MCH having the highest 95% of relative blood donor but the percentage in non-profit NGO, National Heart Foundation and other private blood banks were 2.5%, 60.00%, and 60.08% accordingly.

Table No. 15

Status of Donor list, Retention of Donor registration card, and campaign for voluntary blood donation in both public and private blood banks

The donor lists were available 90% in the public blood banks, but in the private blood banks it was only 17.64%. The status of the retention of donor registration card was 70% in the public blood banks but it was 17.64% only in the private blood banks. The campaign program for encouraging blood donation was 11.77% only in the private blood banks but on the other hand it was 70% in public blood banks.

Table No. 16

Wastage of blood according to public and private blood banks

In the private blood banks the information of wastage of blood was only available in 09 blood banks i.e. 52.94% and not available in 8 private blood banks i.e. 47.06%. On the other hand the information was available only in the 50.00% of the public blood bank sample size. Among the available information the highest percentage 100% of public blood banks experienced 2% wastage of blood. On the other hand the highest percentage 77.78% of private blood banks also experienced 2% wastage of blood. The rest no. private blood banks 11.11% and 11.11% experienced 3-5% and 7%-10% wastage of blood.

Table No. 17

a) Users fees charge for private blood banks

User fees charge for one bag of blood in the private blood banks:

29.41% of the private blood banks use to take Tk. 400/- for one bag of blood, 35.30% are taking Tk. 400 – 500/-, 29.41% are taking Tk. 500 – 600/- and the rest 5.88% more than Tk. 600/-.

b) User fees charge for blood screening

Among the total sample, 04 private blood banks are taking Tk. 450, 100, 1350 and 400 as a whole for screening of 5 diseases. One private blood bank does not take any separate charge for blood screening but use to do only VDRL and HbsAg screening test. Rest of the private blood banks use to take up to Tk. 250/- (91.67%) and up to Tk. 350/- (8.33%) for HbsAg. The highest percentage, 41.67% private blood banks are taking Tk. up to 250/- for HCV screening, 16.67% and 8.33% also are taking Tk. up to 450/- and up to 350/- accordingly. For HIV screening the highest percentage (41.67%) are taking Tk. upto 250/- and the rest 33.33% and 25% are taking Tk. up to 350/- and up to Tk. 450/- accordingly. 91.67% of the blood banks are taking Tk. up to 150/- and the rest 8.33% are taking Tk. up to 250/- for RPR. 33.33% of the blood bank were non-responsible in case of HCV screening.

Table No. 18

Availability status of reagent for blood grouping and blood screening in public and private blood banks

The shortage of supply for the reagent, Anti-A, Anti-B, Anti-D, were 20%, 20%, and 20% in the public blood banks and simultaneously the shortage for those reagent in the private blood banks were Nil., 5.89% and 5.89%. The status of proper supply of the reagent for 5 disease screening in the public blood banks were HBV (90.00%), HCV (80.00%) HIV (90%), Syphilis (90%), Malaria (100%) but on the other hand the status for the private blood banks were 82.35%, 41.18%, 64.70%, 82.35% and 41.18% accordingly for the mentioned reagent.

Table No. 19

Findings of document review available in public and private blood banks

The highest percentage of document maintained properly in public blood banks for Investigation form, Patient register, Blood stock register and Cross match form were 60.00% in each type of document but on the other hand it was 35.29%, 35.29%, 17.64% and 47.06% accordingly in the private blood banks. The percentage of proper record keeping in respect of Blood requisition form, Donor assessment form, Blood grouping register for patient and donor, Blood screening register, Cross match register and Blood supply register were 50.00%, 40.00%, 40.00%, 50.00%, 40.00%, 50.00%, 50.00% accordingly and the scenario of those area in the private blood centers were 47.06%, 29.41%, 35.29%, 35.29%, 17.64%, 23.53%, 17.64% accordingly. The major areas in the private blood banks where the document not maintained were Blood donor assessment record (47.05%), Screening register (52.94%), Cross match register (47.05%), Blood supply register (58.83%) and Blood stock register (58.83%) and the percentage in those areas of the public blood banks were 10.00% 10.00%, 10.00%, 20.00%, and 10.00% accordingly. The partial status were mostly marked in 7 areas of the public blood bank namely Blood requisition form (40.00%), Blood donor form (50.00%), Cross match report form (40.00%), Blood grouping register form for patient (50.00%), Blood grouping register form for donor (40.00%), Screening register (50.00%), and Cross match register (40.00%), but in the private blood centers the percentage were 29.41%, 23.53%, 29.41%, 29.42%, 29.42%, 29.42% and 29.42% accordingly.

Discussion:

Though the review was carried on a small sample of private and public sector blood banks yet the results of this review reflect, the present scenario of the operating private and public blood banks. It also provides us a comparison between the private sector (un-regulatory) and public sector (regulatory) blood banks in respect of their capacity. Data for the study were collected during the period of 18-05-04 to 23-07-04. The total numbers of public blood banks included in the sample were ten and among them two are situated at MCH, one at 300-bedded general hospital and rest at district hospitals. On the other hand the total numbers of private blood banks were 17 in the sample and among them two are situated at private medical college hospital and the rest are 2 non profit and 13 are other private blood banks situated in DCC. The blood banks situated at Red Crescent and Quantum Foundation considered as non-profit organization.

The operating blood banks of the public sector at district hospital level operating as a part of hospital and not operating independently. Among the two non profit blood banks, one is operating as only blood bank but the other is attached with pathological lab. The private sector blood banks operating modality is different from the public sector, 26.67% are operating as only blood bank, 26.67% are attached with hospital and the rest 46.66% are operating with pathological laboratories (Table No.-1).

The requisite facilities to run a blood bank are very important for providing services especially quality service. Infrastructural facility is one of the most important aspects. Separate reception room, blood collection room, office room and donor waiting room were present 30.00%, 50.00%, 40.00% and 50.00% accordingly in the public sector blood banks. The availability of those facilities in the private blood banks was 41.18%, 41.18%, 29.41% and 29.41%. The existences of donor waiting room were marked more in the public blood banks. The major difference between the 2-sector blood banks remains in the lab facility and 100% public hospitals having the lab facility but it was only 41.18% in the private sector. This difference is a major threat for upholding the quality service in the private sector blood banks. There is no govt. guideline available at present which can guide on the requisite minimum infrastructural facility to run a blood bank especially in the private sector (Table No. 02)

In addition to the infrastructural facility, some other facilities like proper ventilation, proper lighting, water supply with wash basin and patient toilet are very much important factor

for creating healthy and minimum environment for the patient / client. The scenario of those facilities was poor in the private blood banks and the percentages of availability were 41.18%, 47.06%, 29.41% and 41.18% accordingly. The mentioned facilities were available 100% in the public blood banks except water supply with wash basin facility and the percentage was 90% i.e. one public blood bank does not have the mentioned facility. The scenario prevailing in the private sector blood banks are not satisfactory because of the non-existence of regulatory system. The owners of the private sector blood banks are focusing more in the commercial side rather than the service quality (Table No. 03).

The strength and category of the personnel working in different type of blood banks was not same. Among the public blood banks, 4 doctors having post graduation degree in blood transfusion medicine were working in the blood bank of 2 MCH as Associate Professor and Asstt Professor. The total number of Medical Officer and Medical Technologist working in 2-MCH, one 300-bedded general hospital and 7-DH were 12 and 22 accordingly. The EMO of Govt. MCH also working in the blood bank to ensure 24 hours service and the number was two. The Medical Technologist working in the public blood banks were 3 years Diploma holder. The staff strength working in the different categories of blood bank in not comfortable in comparison to work load and this type of staff strength can not ensure 24 hours service for providing safe blood especially in emergency situation. In some hospital, pathologist working as in-charge of blood bank and the lab technologist is working in the pathology, also working in the blood bank. So to ensure two important aspect, quality and 24 hours service is a difficult task for the hospital authority. So the creation of new post is necessary for improving the situation (Table No. 4).

Types of personnel working in the private sector blood banks were different from the public sector blood banks. The categories of personnel were 16 in the private blood banks in comparison to 8 categories of the public blood banks. The post like Manager, Supervisor, Field Representative, Nurse, Director, and Office Assistant does not exist in the public sector. The private blood banks except blood banks in 2 private Medical College Hospitals, National Heart Foundation and 2 Non-profit organizations, operated mainly by Lab Technician and Lab Attendant. Among the Lab Technicians working in the private blood banks only 11 Lab Technician passed 3 years Diploma course and the rest 19 does not have any diploma. Their qualification ranges from SSC to graduation. The qualification of the lab attendant also ranges from masters to below SSC and the total number was 16. The major percentages of blood banks were running with no-qualified personnel because of the non-application of passed blood transfusion law. The blood screening qualities were not maintained properly in the private blood

bank due to lack of qualified personnel. The major percentage of private blood banks owner are more interested to earn money rather ensuring quality (Table no- 5).

The Training need of the public blood banks personnel was assed mainly from the medical officer and lab technician working in the public blood banks. The numbers of topics were few for the personnel working in the MCH blood bank but the list of topics were more for the personnel working in the district hospitals. Both the respondent type covers all the important area in relation to safe blood transfusion. The difference on training need may be due to exposure of on-job training status. The training need assessment of the personnel working in public sector is an important activity for developing capacity but not done regularly and without training need assessment the proper capacity development is not possible. The major topics mentioned by the both group were blood screening, coombs test, Quality control, cross matching antibody titre etc. (Table no. 6).

In the private blood banks the training need assessment of the personnel were done on the basis of information collected from medical officer, lab technician, lab attendant and also other categories of personnel. The topics which were mentioned by the personnel of private blood banks as their training need more or less similar with the public hospitals blood bank personnel. In addition to that they mentioned some new areas like comprehensive training on S.B.T, all type of training related to SBT, general aspect of the blood transfusion and lab management. The topic general aspect of the blood transfusion was mentioned by the generalist working in different position of the private blood banks. The striking feature was that 2 lab technicians opined that no training is required because they know every thing about safe blood transfusion. At present no system exists for providing training of the personnel working in the private blood banks and also no initiative was undertaken for regular training need assessment (Table no. 7).

The comparison findings of the type of service delivery available between public and private blood banks focused some important information. Although 5 disease screening (HbSAg, HCV, HIV, VDRL and MP) is mandatory for ensuring safe blood but HCV, HIV, MP and VDRL screening service were not available 17.65%, 5.89%, 64.70% and 5.89% respectively in the private blood banks but the mentioned services were available 100% in public blood banks. The ABO grouping and Rh typing, cross matching services were available in the both type of blood banks. The performing status of some test like direct and indirect coombs test, antibody detection, antibody titre and rhesus factor more or less similar in the both type of blood banks.

The data were collected according to the information provided by the service providers and not by observing performance. So some deviation may exist about the actual scenario (Table no. 8).

Quality Control is the inspection system, which involves specific actions performed to monitor the effectiveness of the system. In the quality control system internal quality control always focuses a set of procedure under taken by the staff of laboratory for continuous assessment [13]. During the reviewing of the quality control system some important activities were considered. The reviewing was done on the basis of 3 statuses namely done properly, not done properly and not done at all for the both sector blood banks. Identification of blood sample with documentation was done 70% properly in the public blood banks and the status not done at all was nil. On the other hand 47.06% of the private blood banks were practicing properly. The status recordings of blood samples collection with date were done 100% properly in the public blood banks but it was only 41.18% in the private blood banks. Recording of reagent in respect of product no, batch no and data of expiry was not done properly in 100% public institution. On the other hand the percentage of done properly was 35.30% and not done at all 17.60% in the private blood banks. The documentation of supervision in the public blood banks were poor and the status of done properly was only 20% in comparison to 35.30% of the private blood banks. The scenario of the not done at all status in respect of recording of supervision, temperature monitoring, safe disposal of waste and proper examination of the used collaboration were 17.64%, 17.64% and 23.52% accordingly in the private blood banks but on the other hand it was zero percentage for all public blood banks. The safe disposal of infected blood with recording was not done properly in 90% of the public blood banks because of the improper knowledge, skill and support. Basically the scenario of private MCH, and Non-profit NGO Hospitals blood banks were more or less good in respect of quality control but the scenario of the rest was poor. The opportunity for improving the quality control system in the public sector blood banks still remains but not improving because of the poor supervision and monitoring. A strong accountability frame work can improve the situation (Table No 09).

Safety measures for all categories of staff working in the blood banks are highly essential. Staff working in the blood transfusion department must be educated and motivated to follow universal safety precaution. Necessary training and facilities need to develop to enable staff to practice safety precaution. The safety measure practiced in the public and private blood banks were reviewed on the basis of three statuses i.e. done properly, not done properly and not done at all. The thing that were reviewed are wearing apron, use of gloves, needle recapping, daily cleaning with disinfectant, hand washing, visitor control, restriction of food and smoking.

The status of not done properly were marked more in the public blood banks in comparison to private blood banks. The performance, status not done at all for the said areas were more marked in the private blood banks in comparison to public blood banks. The service providers of the public blood banks were provided training but not practicing because of the lack of initiation and also weak supervision and monitoring. The service providers of the private blood banks were not properly trained on safety precaution but practicing in good percentage. This difference may be due to the small sample size but in case of larger sample size the result would have been different. The reviewing of lab waste disposal was done on the four areas namely general waste, non infected clinical waste, infected clinical waste and liquid waste. The status of not done properly for the public blood banks in those 4 areas were 90.00% and on the other hand it was 76.47% for the private blood banks in those area. The difference of the findings does not have any significance. The standard clinical waste management system as a whole yet to develop in the different categories of hospitals as a whole and those finding in the blood banks are the reflection of present situation (Table No. 10).

Under the blood transfusion management activities the two major areas, blood donor recruitment and preservation of blood bag were reviewed in the public and private blood banks on the basis of 3-status. In the blood donor recruitment headline four areas, visual assessment, history taking, medical examination and lab investigation were examined on the basis of done properly, not done properly and not done at all. Except the medical examination all the mentioned 3 areas achieved the status done properly 90.00% and the medical examination was only 80.00% in the public blood banks. On the other hand the percentages were 35.29%, 41.18%, 35.29% and 35.29% for the said areas of the private blood banks. The private blood banks depend mostly on the non qualified lab technician and as a result the blood donor recruitment activities standard was not followed properly. The activities under the headline, preservation of blood bag also is a matter of concern in the private blood banks sector because proper blood preservation, temp monitoring and cold chain were maintained properly only 35.29%, 41.18% and 41.18% accordingly. The negligency also was marked in the public blood banks in those areas but still the status of done properly were 90.00%, 70.00% and 100% accordingly. In the private blood banks the cold chain for blood bags were not maintained at all in 11.76% i.e. in 2 blood banks which is a serious concern because the stewardship roles in this respect goes to MOH&FW and DGHS (Table No. 11).

The safe blood transfusion program supplied some basic equipment to 97 centres for providing safe blood. The comparisons were done between the public and private blood banks

on the basis of that equipment list [10]. Some important equipment like Refrigerator, Deep freezer, Water bath, Weight machine and hot air oven were not found during the visit of the private blood banks and non availability percentage were 17.65%, 58.82%, 64.71%, 47.06% and 29.41% accordingly. The owners of the private blood banks were more interested to earn money with minimum establishment cost and thereby compromising the quality (Table No. 12).

The result of the structured supervision status of public and private blood banks were grouped as Govt. MCH and 300 bed general hospital, District Hospital, Private MCH and Non profit organization including Heart Foundation and other private blood banks. The supervision status found good in Govt. MCH, 300-bedded general hospital, private MCH, National heart foundation and non-profit blood banks but poor in district hospital level. 83.33% i.e. the majority of the other private blood banks group, supervision status was poor and it indicates clearly that actually where we need intervention. (Table No. 13).

Voluntary Non-Remunerated Blood Donation (VNRD) has been universally shown to be the cornerstone of safe blood [6]. In the South Asian countries especially in India and Bangladesh the percentage of donation through VNRD is still having low percentage. The authority of SBTP prepared a document for their OP projecting trend of blood source of different public blood banks [7]. They have shown that the percentage of professional donor declining from 70% to 18% and also increases trend of voluntary and relative donor from 10% - 31% and 20% - 53% in comparison to previous time [7]. The source of blood collection from relative, volunteer and professional was 58.74%, 7.29% and 33.97% in the govt. medical college blood banks. The status of professional donor was high in comparison to the statement of the SBTP. The reason may be because of the small sample size and location. The source of blood collection in district hospitals blood banks were 63.30%, 33.00% and 03.70% in respect of relative, volunteer and professional. The percentage of professional donor was low in comparison to SBTP document may be due to small sample size and location i.e. all the DH which were included in the sample located outside the Dhaka City. The status of the professional donor was nil in private MCH, Non-profit NGO and National Heart Foundation but 30.29% in other private blood banks which was also high. The first step towards blood safety is to encourage blood donation that are voluntary, non-remunerated and obtained from low risk and regular donor. So the effort needs to continue for encouragement of the voluntary blood donation (Table No. 14).

The donor list which is necessary for facilitating voluntary blood donation was present in 90% of the public blood banks but on the other hand in 82.36% of the private blood banks, the

list was not available. 70% of the public blood banks were maintaining donor registration card but it was only 17.64% in the private blood banks. The campaign program for blood donation was initiated in 70% of public blood banks but the percentage in private blood banks was 11.77% only. Some activities are necessary to ensure safe and regular blood donation. Among the activities, education and motivation campaign to recruit voluntary blood donor and development of system to retain voluntary and non-remunerated donors are always considered as important activities. The private blood banks authority is not so much concerned for the voluntary blood donation rather more interested for the commercial values. The prevailing scenario in the private sector blood banks in relation to above mentioned activities were not satisfactory (Table No. 15).

The information regarding wastage of blood was available in the 50% of public blood banks and 52.94% of the private blood banks. The picture of the both sector were more or less similar. 77.78% of the private blood banks (according to available information) experienced 0-2% of blood wastage and the same percentage of wastage was also experienced by 100% (according to the available information) of the public blood banks. Whatever may the percentage of the blood wastage it always need to be addressed because blood is very much valuable for saving the life of patient. The national data is required to asses the wastage of blood for future program management (Table No 16).

Ministry of Health and Family Welfare approved and circulated a bylaw in respect of utilization of public blood banks users-fees [12]. There is no provision of user fees in the bylaws for grouping, cross matching including other screening for the patient admitted in the ward except 100 Tk only for a bag of blood. But for the private patient and the patient admitted in the hospital cabin have to pay as user fees according to a chart for different type of examination. So, no variation observed about the amount of user fees in the public blood banks but variation present in the private blood bank. 35.30% of private blood banks are taking Tk. 400-500/- for one bag of blood. Other private blood banks are taking Tk. up to 400/- (29.41%), Tk. 500-600/- (29.41%) and only one private blood bank is taking more than Tk. 600/-. The variation was also observed about taking user fees for different type of screening. Four private blood centres use to take screening charge as a whole for 5 diseases screening and the amount were Tk. 450/-, Tk. 100/-, Tk. 1350/- and Tk. 400/-. One blood centre does not take any money separately for screening charge but they use to do only VDRL and HbSAg screening. 91.67% of the blood banks are taking Tk up to 250/- for HbSAg screening and 8.33% taking upto Tk. 350/-. The highest percentage 41.67%, of the blood centre are taking Tk. up to 250/- for HCV and 16.67%

are taking Tk. upto 450/-. For the HIV screening the highest percentage 41.67% taken Tk. up to 250/- but 25% are taking Tk. upto 450/-. The amount of money are taking for RPR by the blood centre are Tk. upto 150/- (91.67%) and upto 250/- (8.33%). There is no regulatory mechanism existing for controlling the user fees of the private blood banks, so the variation remains. The pricing of service especially in the private sector should depend upon not only the type of service delivery but also the quality and which is a neglected one (Table No.17-a, b)

After introduction of the safe blood transfusion program there is a system to supply screening reagent of 5 diseases to enlisted 97 blood centres. The supply of screening reagent depends upon the release of fund and a bit lengthy procedure also. Simultaneously there is a provision in the bylaws for purchasing of screening reagent from user fees fund. In spite of that small percentage of public blood banks experienced shortage of supply for all kind of screening reagents and it ranges from 10-20%. But in the private blood banks the shortage of screening reagent were marked for HCV (58.82%), HIV (35.30%) and Malaria (58.82%). The public blood banks authority gave statement during review that the shortage of supply they experienced only for a short period of time. The statement from the private blood banks service providers / authority was not clear. Probably due to high price of HCV and HIV screening reagent they were not interested to purchase and awareness properly not developed for MP screening. Screening of 5 diseases although the vital aspect but due to lack of regulatory mechanism it is not followed strictly in the private blood banks (Table No. 18).

The documentation of the public and private blood banks both was not satisfactory because any of the register and form were not maintained properly. The public blood banks service providers were provided specific register, form and guide line, even than the performance was not satisfactory. 60% of public blood banks maintained correctly, cross match report form, request investigation form, patient register and blood stock register. On the other hand 47.06%, 35.29%, 35.29%, 17.64% of the private blood banks maintained the mentioned register/form accordingly. Some of the document which is very much important to run a blood bank but not maintained at all in the private blood banks. Blood donor assessment form, Screening register, Cross match register, Blood supply register and blood stock register were not maintained at all in 47.06%, 52.94%, 47.06%, 58.83%, 58.83% of the private blood banks. Although proper monitoring of the record keeping is a vital issue for a blood transfusion management centre but neglected in the public blood banks and also in the private blood banks (Table No.- 19).

Recommendation

01. Development of structured monitoring and supervision system for the public blood banks performance.

02. Strengthening of the accountability frame work for the performance of the both regulated and unregulated blood banks.

03. Process need to develop for continuous capacity development of the public blood bank service providers and also for the private blood bank service providers.

04. Creation of post according to need in the public blood banks for ensuring 24 hours service.

05. Proper application of safe blood transfusion law including introduction of the licensing system for the private blood banks.

06. Proper staffing with required skill, requisite infrastructure and facility, proper equipment etc. should be prerequisite for giving license and needs to be incorporated in the licensing system.

07. Uniformity of service pricing for the private blood banks.

08. One survey need to conduct only for reviewing the private sector blood banks capacity in Bangladesh having big sample size.

09. MIS need to establish not only for public sector blood banks but also for private sector blood banks.

10. Campaign need to initiate for voluntary blood donation from private blood banks in in addition to government institution.

11. Development of system for regular replacement of the equipment according to the need of the public blood banks.

12. Quality control system and safety measure as a whole need to address meticulously for the both sector blood banks.

13. Regular training need assessment system need to introduce for the service providers of private and public blood banks.

14. Maintenance of the document at different level public blood banks needs to address properly by the concerned authority of national and local level.

15. National plan should be developed for improving infrastructural and other facilities at all level of public blood banks.

Tables:

Table No. 01

Type and Number of Institution (Category wise) where review conducted

Type of Organization	Total	Category of institution					
		Only blood bank		Attached with hospital		Attached with path Lab.	
		Nos.	%	Nos.	%	Nos.	%
Regulated Blood Banks (Public Sector)	10	Nil.	Nil.	10	100%	--	--
Un-regulated Blood Banks (Private Sector) a) Private MCH, National Heart Foundation and other private blood banks	15	04	26.67%	04	26.67%	07	46.66%
b) NGO / Non profit Organization	02	01	50%	--	--	01	50%
	27	**05**		**14**		**08**	

Table No. 2

Type of major facilities (infrastructural) in public and private blood banks

Sl. No.	Type of facilities	Public Blood Bank		Private Blood Bank		Remarks
		Facility Available		Facility Available		
		Yes	No.	Yes	No.	
1.	Separate reception room	03 (30.00%)	07 (70.00%)	07 (41.18%)	10 (58.82%)	
2.	Separate Blood collection room	05 (50.00%)	05 (50.00%)	07 (41.18%)	10 (58.82%)	
3.	Separate office room	04 (40.00%)	06 (60.00%)	05 (29.41%)	12 (70.59%)	
4.	Donor waiting room with sitting arrangement	05 (50.00%)	05 (50.00%)	05 (29.41%)	12 (70.59%)	
5.	Lab. Facility for examination with preservation of blood bag.	10 (100%)	Nil.	07 (41.18%)	10 (58.82%)	

Table No. 3

Type of other facilities in the public and private blood banks:

Sl. No.	Type of facilities	Public Blood Banks		Private Blood Banks		Remarks
		Facility Available		Facility Available		
		Yes	No.	Yes	No.	
1.	Proper ventilation	10 (100%)	Nil	07 (41.18%)	10 (58.82%)	
2.	Proper lighting	10 (100%)	Nil	08 (47.06%)	09 (52.94%)	
3.	Air condition of the lab	02 (20%)	08 (80%)	05 (29.41%)	12 (70.59%)	
4.	Water supply with wash basin	09 (90.00%)	01 (10.00%)	05 (29.41%)	12 (70.59%)	
5.	Patient toilet	10 (100%)	Nil.	07 (41.18%)	10 (58.82%)	

Table No. 4

Type of personnel working in the public sector blood banks with their qualification:

Sl. No.	Type of personnel	MBBS	MBBS with Post Graduation	3 years Diploma	SSC	Below SSC	Remarks
1.	Professor						
2.	Assoc. Professor		02				
3.	Asstt. Professor		02				
4.	Consultant		01				
5.	Pathologist						
6.	Medical Officer	12					
7.	Lab. Tech.			22			
8.	MLSS/Ward boy					01	
9.	EMO	02					
10.	Lab Assistant				01	01	
	Total :	**14**	**05**	**22**	**01**	**02**	

* EMO's are involved for ensuring the service 24 hours.

Table No. 5

Type of personnel working in the private sector blood banks with their qualification:

Sl. No	Type personnel	Education related to medical science			General Education					Remarks
		MBBS	MBBS with Post Graduation	3 years Diploma	Masters	Graduation	HSC	SSC	Below SSC	
1.	Professor		03							
2.	Assoc. Professor		01							
3.	Asstt. Professor		Nil.							Asstt. Prof.- working part time as consultant
4.	Consultant		02							
5.	In-charge		01							
6.	Medical Officer BT	10								
7.	Lab. Tech.			11	Nil.	04	10	05	Nil.	
8.	Lab Attendant				02	01	05	07	01	
9.	Manager						01	01		
10.	Supervisor					01				
11.	Receptionist						01			
12.	Field representative						01			
13.	Nurse			02						
14.	Director		01							Associate Prof. – BSMMU working as honorary service
15.	MLSS/Ward boy								01	
16.	Office Assistant						02			

Table No. 6

Training need of the personnel working in the public blood banks according to institution

1.	MCH (02)	Blood screening, Coombs test Community awareness Donor retention CPR Antibody titre
2.	District Hospital and 300-bedded General Hospital	Coombs test, Blood screening, Quality control Universal safety precaution, Antibody titre, Refreshers training on S.B.T, Platelet segregation Blood safety Blood collection and donor selection Cell separator operation. ELISA, Cryoprecipitate Fresh frozen plasma, Lab. safety Community awareness Screening and cross matching Record keeping Blood Transfusion Management Equipment maintenance Transmissible infection diseases prevention.

Table No. 7

Training need of the personnel working in the private blood banks

1.	Private Medical College Hospital	Safe Blood Transfusion Management ELISA
2.	Non profit and National Heart Foundation	ELISA method, S. B. T. P Donor selection and communication All the aspect of SBT Blood screening Lab. technique Refresher training on S. B. T Management of S.B.T Coombs test.
3.	Other Private Blood Banks	Plasma Separation platelet concentration Blood transfusion Management Blood screening Lab. Safety General aspect of the Blood Transfusion Donor Selection with Blood Screening Comprehensive training on S. B. T All type of training related to S. B. T Coombs test Lab. Management
	Special Comment	02 Lab. Tech made special comment that no training is required because they know every thing about safe Blood Transfusion.

Table No. 8

Type of service delivery available in the public and private blood banks:

Sl. No	Type of Service	Public		Private	
		Service Delivery status		Service Delivery status	
		Yes	No	Yes	No
1	ABO grouping and Rh typing	10 (100%)	Nil	17 (100.00%)	Nil
2	Cross Matching	10 (100%)	Nil	17 (100.00%)	Nil
3	Direct Coombs test	02 (20.00%)	08 (80.00%)	03 (17.65%)	14 (82.35%)
4	Indirect Coombs test	02 (20.00%)	08 (80.00%)	04 (23.52%)	13 (76.48%)
5	Antibody Detection	01 (10.00%)	09 (90.00%)	01 (5.89%)	16 (94.11%)
6	Antibody Titre	01 (10.00%)	09 (90.00%)	01 (5.89%)	16 (94.11%)
7	Rhesus factor C/c/D/E/e	02 (20.00%)	08 (80.00%)	02 (11.76%)	15 (88.24%)
8	Rhesus Genotype and phenotype	Nil	10 (100.00%)	01 (5.89%)	16 (94.11%)
9	Haemolysin test	Nil	10 (100.00%)	02 (11.76%)	15 (88.24%)
10	ABH secretor status	Nil	10 (100.00%)	01 (5.89%)	16 (94.11%)
11	Auto antibody	Nil	10 (100.00%)	01 (5.89%)	16 (94.11%)
12	VDRL/RPR	10 (100.00%)	Nil	16 (94.11%)	01 (5.89%)
13	Hbs Ag (Screening)	10 (100.00%)	Nil	17 (100.00%)	Nil
14	HCV	10 (100.00%)	Nil	14 (82.35%)	03 (17.65%)
15	HIV	10 (100.00%)	Nil	16 (94.11%)	01 (5.89%)
16	MP	10 (100.00%)	Nil	06 (35.30%)	11 (64.70%)
18	CMV	01 (10.00%)	09 (90.00%)	01 (5.89%)	16 (94.11%)
19	HLA / Tissue typing	Nil	10 (100.00%)	Nil	17 (100.00%)

Table No. - 09

Status of the Quality control system in public and private blood banks

Activity to maintain quality	Public Blood Banks			Private Blood Banks		
	Done Properly	Not done properly	Not done at all	Done Properly	Not done properly	Not done at all
Identification of blood sample with documentation	07 (70%)	03 (30%)	-	08 (47.06%)	08 (47.06%)	01 (5.88%)
Recording of blood sample collection with date	10 (100%)	Nil.	-	07 (41.18%)	09 (52.94%)	01 (5.88%)
Recording of blood sample exam with date	06 (60%)	04 (40%)	-	07 (41.18%)	09 (52.94%)	01 (5.88%)
Recording of reagent in respect of product no. batch no and date of expiry	Nil.	10 (100%)	-	06 (35.30%)	08 (47.06%)	03 (17.64%)
Recording of supervision with date	02 (20%)	08 (80%)	-	06 (35.30%)	08 (47.06%)	03 (17.64%)
Temperature monitoring of incubator, water bath and refrigerator	05 (50%)	05 (50%)	-	05 (29.41%)	09 (52.94%)	03 (17.64%)
Safe disposal of infected blood with recording	01 (10%)	09 (90%)	-	05 (29.41%)	09 (52.94%)	03 (17.64%)
Proper exam of the used calibration	08 (80%)	02 (20%)	-	05 (29.41%)	08 (47.06%)	04 (23.52%)

Table No. 10

Status of the Safety measure maintained in the blood banks of Public and Private Sector

Activity to maintain quality	Public Blood Bank			Private Blood Bank		
	Done Properly	Not done properly	Not done at all	Done Properly	Not done properly	Not done at all
a) Wearing apron	2 (20%)	7 (70%)	1 (10%)	6 (35.29%)	3 (17.65%)	8 (47.06%)
b) Use of gloves	3 (30%)	7 (70%)	NIL	6 (35.29%)	8 (47.06%)	3 (17.65%)
c) Needle recapping	2 (20%)	7 (70%)	1 (10%)	6 (35.30%)	7 (41.18%)	4 (23.52%)
d) Daily cleaning with disinfectant of lab and equipment	3 (30%)	5 (50%)	2 (20%)	5 (29.42%)	8 (47.06%)	4 (23.52%)
e) Hand Washing	4 (40%)	5 (50%)	1 (10%)	8 (47.06%)	6 (35.29%)	3 (17.65%)
f) Visitor Control	3 (30%)	6 (60%)	1 (10%)	8 (47.06%)	6 (35.29%)	3 (17.65%)
g) Restriction of food, smoking in lab	5 (50%)	4 (40%)	1 (10%)	7 (41.18%)	7 (41.18%)	3 (17.64%)
h) **Disposal of lab waste**						
i) General waste	1 (10%)	9 (90%)	--	4 (23.53%)	13 (76.47%)	--
ii) Non infected clinical waste disposal	1 (10%)	9 (90%)	--	4 (23.53%)	13 (76.47%)	--
iii) Infected clinical waste disposal	1 (10%)	9 (90%)	--	4 (23.53%)	13 (76.47%)	--
iv) Liquid waste disposal	1 (10%)	9 (90%)	--	4 (23.53%)	13 (76.47%)	--

Table No. 11

Blood Transfusion management activities of different type of blood banks

Activity to maintain quality	Public Blood Bank			Private Blood Bank		
	Done Properly	Not done properly	Not done at all	Done Properly	Not done properly	Not done at all
a. Blood donor recruitment						
• Visual assessment	09 (90%)	01 (10%)	NIL	06 (35.29%)	11 (64.71%)	NIL
• History taking	09 (90%)	01 (10%)	NIL	07 (41.18%)	10 (58.82%)	NIL
• Medical exam	08 (80%)	02 (20%)	NIL	06 (35.29%)	11 (64.71%)	NIL
• Lab investigation	09 (90%)	01 (10%)	NIL	06 (35.29%)	11 (64.71%)	NIL
b. Preservation of blood bag						
• Blood bag preservation	09 (90%)	01 (10%)	NIL	06 (35.29%)	11 (64.71%)	NIL
• Monitoring of temperature	07 (70%)	03 (30%)	NIL	07 (41.18%)	08 (47.06%)	02 (11.76%)
• Cold chain for blood bag	10 (100%)	Nil.	NIL	07 (41.18%)	08 (47.06%)	02 (11.76%)

Table No. 12

Basic Equipment and other logistics status of public and private blood banks

Name of the equipment and logistics	Public Blood Banks		Private Blood Banks	
	Available	not available	Available	not available
Bench top centrifuge	10 (100%)	Nil.	17 (100%)	Nil.
Refrigerator for storing reagent, ABO cell and sample	10 (100%)	Nil.	14 (82.35%)	03 (17.65%)
Deep freezer for storing serum sample	05 (50%)	05 (50%)	07 (41.18%)	10 (58.82%)
Light box on white tile	06 (60%)	04 (40%)	05 (29.41%)	12 (70.59%)
Water bath at 37 degree centigrade on incubator	06 (60%)	04 (40%)	06 (35.29%)	11 (64.71%)
Containers for saline	08 (80%)	02 (20%)	06 (35.29%)	11 (64.71%)
Plastic wash bottle	08 (80%)	02 (20%)	06 (35.29%)	11 (64.71%)
Thermometer	08 (80%)	02 (20%)	06 (35.29%)	11 (64.71%)
Pasteur pipette	09 (90%)	01 (10%)	06 (35.29%)	11 (64.71%)
Glass tube for indirect anti-globulin test (75 X 12 mm)	10 (100%)	Nil.	06 (35.29%)	11 (64.71%)
Tube for grouping (50 X 7 mm)	10 (100%)	Nil.	06 (35.29%)	11 (64.71%)
Rack for test tubes	10 (100%)	Nil.	10 (58.82%)	07 (41.18%)
Glass microscope slide	10 (100%)	Nil.	17 (100%)	Nil.
Wooden applicator sticks	09 (90%)	01 (10%)	06 (35.29%)	11 (64.71%)
Water proof marker for glass and plastic tube	09 (90%)	01 (10%)	06 (35.29%)	11 (64.71%)
Hand Lens (2 X 5)	07 (70%)	03 (30%)	06 (35.29%)	11 (64.71%)
PH indicator paper	10 (100%)	Nil.	06 (35.29%)	11 (64.71%)
Microscope	10 (100%)	Nil.	05 (29.41%)	12 (70.59%)
Weight Machine	09 (90%)	01 (10%)	09 (52.94%)	08 (47.06%)
Hot air oven	09 (90%)	01 (10%)	12 (70.59%)	05 (29.41%)

Table No. 13.

Structured Supervision Status of public and private blood banks:

Sl. No.	Type of Institution	Existence of structured supervision by the authority	
		Yes	No.
1.	MCH and 300 bed General Hospital (Sample 3)	100%	Nil.
2.	District Hospital (Sample 07)	04 (57.14%)	03 (42.86%)
3.	Private MCH and Non-profit organization including Heart Foundation (Sample 05)	05 (100%)	Nil.
4.	Other Private Blood Banks (Sample 12)	02 (16.67%)	10 (83.33%)

Table No. 14

Source of Blood in the public and private blood banks

Sl. No.	Type of Institution	Total Sample No.	Source of Blood Collection			Remarks
			Relative	Volunteer	Professional	
1.	Govt. Institute					
	a) MCH	02 (100%)	58.74%	7.29%	33.97%	
	b) DH and one 300 bedded General Hospital	08 (100%)	63.30%	33.00%	03.70%	
2.	Private Institution					
	a) Private MCH	02 (100%)	95.00%	05.00%	Nil.	
	b) Non-profit NGO	02 (100%)	2.5%	97.50%	Nil.	
	c) National Heart Foundation	01 (100%)	60.00%	40.00%	Nil.	
	d) Other Private Blood Banks.	12 (100%)	60.08%	9.63%	30.29%	

Table No. 15

Status of donor list, Retention of donor registration card and campaign for blood donation

Sl. No.	Type of Institution	Sample size	Donor list status		Donor Registration card		Campaign program for blood donation		Remarks
			Yes	No.	Yes	No.	Yes	No.	
1	Public Blood Banks	10 (100%)	90%	10%	70%	30%	70%	30%	
2	Private Blood Banks	17 (100%)	17.64%	82.36%	17.64%	82.36%	11.77%	88.23%	

Table No. 16

Wastage of blood according to type of Blood Banks:

Type of Institution	Information status			Wastage of Blood				
	Sample size	Information available	Information not available	0 - 2%	3% - 5%	5% - 7%	7% - 10%	above 10%
Private Blood Banks	17 (100%)	09 (52.94%)	08 (47.06%)	07 (77.78%)	01 (11.11%)	Nil	01 (11.11%)	NIL
Public Blood Banks	10 (100%)	05 (50.00%)	05 (50.00%)	05 (100%)	Nil	Nil	Nil	NIL

Table 17

a) User charge for blood (one bag of blood) in private blood banks

Sl. No.	Amount of user fees fixed up	percentage of private blood bank	Remarks
a)	Up to Tk. 400.00	05 (29.41%)	
b)	Taka 400.00 to 500.00	06 (35.30%)	
c)	Tk. 500.00 to 600.00	05 (29.41%)	
d)	More than 600.00	01 (5.88%)	

Table No. 17

(b) User fees charge for blood screening of private blood banks

4 private blood center uses to take blood screening charge as a whole – (5 diseases screening)

Sample no. 1	Tk. 450/-
Sample no. 2	Tk. 100/-
Sample no. 3	Tk. 1350/-
Sample no. 4	Tk. 400/-

One private blood centre use to do only 2 screening test VDRL and HbsAg and are not taking any separate charge for blood screening.

Rest sample size no- 12

Name of screening	up to 150	up to 250	up to 350	up to 450	450+	Remarks
HbsAg	Nil.	11 91.67%	1 8.33%	Nil.	Nil.	
HCV	Nil.	05 41.67%	01 8.33%	02 16.67%	Nil.	non responsive 04 33.33%
HIV	Nil.	05 41.67%	04 33.33%	03 25.00%	Nil.	
RPR	11 91.67%	01 8.33%	Nil.	Nil.	Nil.	

* MP screening charge not shown because most of the private blood bank are not doing M.P screening.

Table. 18

Blood Screening Reagent status of the different type of blood banks

Sl. No.	Name of the Reagent	Sample No	Shortage detected during visit		Shortage not detected		Remarks
			Govt.	Private	Govt.	Private	
1.	Anti-A		02 (20%)	Nil.	08 (80%)	17 (100%)	
2.	Anti-B		02 (20%)	01 (5.89%)	08 (80%)	16 (94.11%)	
3.	Anti-D		02 (20%)	01 (5.89%)	08 (80%)	16 (94.11%)	
4.	HB-V		01 (10%)	03 (17.65%)	09 (90%)	14 (82.35%)	
5.	HC-V		02 (20%)	10 (58.82%)	08 (80%)	07 (41.18%)	
6.	HIV		01 (10%)	06 (35.30%)	09 (90%)	11 (64.70%)	
7.	Syphilis		01 (10%)	03 (17.65%)	09 (90%)	14 (82.35%)	
8.	Malaria		Nil.	10 (58.82%)	10 (100%)	07 (41.18%)	

Table.19

Document Review findings of public and private bloods banks:

Sl. No.	Name of the form and register	Public			Private			Remarks
		Properly	Partial	No.	Properly	Partial	No.	
1.	Blood requisition form	05 (50%)	04 (40%)	01 (10%)	08 (47.06%)	05 (29.41%)	04 (23.53%)	
2.	Official assessment of blood donor	04 (40%)	05 (50%)	01 (10%)	05 (29.41%)	04 (23.53%)	08 (47.06%)	
3.	Cross Match report form	06 (60%)	04 (40%)	Nil.	08 (47.06%)	05 (29.41%)	04 (23.53%)	
4.	Request for investigation form	06 (60%)	02 (20%)	02 (20%)	06 (35.29%)	06 (35.29%)	05 (29.42%)	
5.	Patient registrar	06 (60%)	02 (20%)	02 (20%)	06 (35.29%)	05 (29.41%)	06 (35.29%)	
6.	Blood grouping registrar (Patient)	04 (40%)	05 (50%)	01 (10%)	06 (35.29%)	05 (29.41%)	06 (35.29%)	
7.	Blood grouping registrar (donor)	05 (50%)	04 (40%)	01 (10%)	06 (35.29%)	05 (29.42%)	06 (35.29%)	
8.	Screening registrar	04 (40%)	05 (50%)	01 (10%)	03 (17.64%)	05 (29.42%)	09 (52.94%)	
9.	Cross Match registrar	05 (50%)	04 (40%)	01 (10%)	04 (23.53%)	05 (29.42%)	08 (47.05%)	
10.	Blood supply registrar	05 (50%)	03 (30%)	02 (20%)	03 (17.64%)	04 (23.53%)	10 (58.83%)	
11.	Blood stock registrar	06 (60%)	03 (30%)	01 (10%)	03 (17.64%)	04 (23.53%)	10 (58.83%)	

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. Blood Transfusion Law - 2002, Bangladesh gazette, April-2002.
12. Bangladesh blood transfusion fund bylaws, MOH&FW, January 1995.
13. Quality Assurance and quality control, WHO, 1998.

Annex - I : Questionnaire

Review of capacity of regulated and unregulated blood bank to provide safe blood

Interview date: … … … ..

1. **Name of the institution / Hospital/ Clinics/ NGO :**
   Address:

2. **Type of Organization**: Govt.☐ Non Govt.☐ NGO ☐ Non profit org. ☐

3. **Type of Institution**
   a. Only blood bank ☐
   b. Attached with hospital/ Clinic ☐
   c. Attached with pathological lab ☐

4. **Total number of room**----------

   a. Separate Reception room Yes☐ No ☐
   b. Separate blood collection room Yes☐ No ☐
   c. Separate office room Yes☐ No ☐
   d. Lab facility for examination with preservation of blood bag Yes☐ No ☐
   e. Donor waiting room with sitting arrangement Yes☐ No ☐
   f. If no then what kind of sitting arrangement----------

   ----

5. **Other facilities**

   a. Proper ventilation Yes☐ No☐
   b. Proper lighting Yes☐ No☐
   c. Air condition of the lab. Yes☐ No☐
   d. Water supply with wash basin Yes☐ No☐
   e. Patient toilet Yes☐ No☐

6. Manpower status with Qualification

Category of Manpower	Nos	Qualification and experience

7. Training need of the Service Provider

Category of Manpower	Type of training need	Why the training needed

8. Type of Service delivery offered by the institution

Category	Available		Reason for Non Available
	Yes	No	
ABO grouping and Rh typing			
Cross Matching			
Direct Coombs test			
Indirect Coombs test			
Antibody detection			
Antibody titre			
Rhesus factor C/c/ D / E/ e			
Rhesus Genotype and phenotype			
Haemolysin test			
ABH Secretor Status			
Auto antibody			
VDRL / RPR			
Hbs Ag (Screening)			
HCV			
HIV			
CMV			
HLA / Tissue typing			
Others			

9. Status of the Quality Control System

Activities to maintain Quality	Done properly	Not done properly	Not done at all	Reason
Identification of blood sample with documentation				
Recording of Blood sample collection with date				
Recording of blood sample exam with date				
Recording of reagent in respect of product no, batch no, and date of expiry				
Recording of supervision with date				
Temperature monitoring of incubator , water bath and refrigerator				
Safe disposal of infected blood with recording				
Proper exam of the used calibration				

10. Safety measure maintained in the blood transfusion unit

Name of the activities	Done properly	Not done properly	Not done at all	Remarks
a. Wearing apron				
b. Use of gloves				
c. Needle recapping				
d. Daily cleaning with disinfectant of lab and equipment				
e. Hand washing				
f. Visitor control				
g. Restriction of food, smoking in lab				
h. Disposal of lab waste				
General waste				
Non infected clinical waste				
Infected clinical waste				
Liquid waste				

11. Procedural practice

Name of the test/ Screening activities	Done properly	Not done properly	Not available	Remarks
Preparation of normal saline				
Collection of blood sample				
Cell washing and preparation of cell washing				
ABO grouping				
Rhesus typing				
Cross match				
Emergency cross match				
Coombs test				
Preparation of the red cell concentrate				
HIV screening				
HBV				
HCV				
Syphilis				
Malaria				

12. Blood transfusion management

Activities	Done properly	Not done properly	Not done at all	Reason
a. Blood donor recruitment				
• Visual assessment				
• History taking				
• Medical exam				
• Lab investigation				
b. Preservation of blood bag				
• Blood bag Preservation				
• Monitoring of temperature				
• Cold chain for blood bag				

13. Equipment and logistic state

Name of the equipment and logistic	Available	Not available
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		
Containers for saline		
Plastic wash bottle		
Thermometer		
Pasteur pipette		
Glass tube for indirect anti-globulin test (75 x 12 mm)		
Tube for grouping (50x 7mm)		
Rack for test tubes		
Glass microscope slide		
Wooden applicator sticks		
Waterproof marker for glass and plastic tube		
Hand lens (2x 5)		
PH indicator paper.		
Microscope		
Weight machine		
Grouping rack		
Hot air oven		

14. Supervision and monitoring

Category of supervisee	Category of supervisor	Frequency of supervision	Feedback / On-job training received from supervisor	
			Feed back	On-job

15. Source of blood collection (last one year time period)

Total no of bag collected----------

1. From relative----------
2. Voluntary----------
3. Professional ----------

16. Donor retention

List of donor exist Yes----- No----------

17. Service change for blood transfusion

a. Blood bag with transfusion set----------TK

b. Blood screening----------TK

c. Blood grouping----------TK

d. Cost of blood----------TK

18. a. Is there any institution based campaign programme for development of awareness in respect of blood donation?

Yes---------- **No**----------

If yes then activities 1.

2.

3.

4.

b. Is there any provision of donor registration card

Yes---------- No

19. Information about wastage of blood

Available---------- Not available----------

If available then percentage----------

20. Supply status of Reagent

Name of the reagent	Any shortage supply		Supply shortage time (Month)
	Yes	No	

21. Documentation review

Name of the form and register	Properly maintained	Partially maintained	Not maintained	Remarks
Blood requisition form				
Medical assessment of blood donor form				
Cross match report form				
Request for investigation form				
Patient register				
Blood grouping register (Patient)				
Blood grouping register (Donor)				
Screening register				
Cross match register				
Blood supply register				
Blood stock register				

Annex - II : List of person involved in data collection

1. Dr. W. Zaman, Asstt. Professor, SBT programme
2. Dr. Mir Sayedul Haque, Deputy Director (Hospital-1), DGHS, Mohakhali, Dhaka
3. Dr. Hosneara Begum, Asstt. Professor, SBT.
4. Prof. M. Mosaraf Hossain, Ex-consultant, SBT program.
5. Dr. S.A.J. Md. Musa, DPM (Training), DGHS
6. Dr. Md. Aminul Hasan, Medical Officer (Hospital), DGHS.

Annex -III : Safe Blood Transfusion Law

‡iwR ÷vW bs wW G-1

evsjv‡`k †M‡RU

AwZwi³ msL¨v
KZc¶ KZK cKwkZ

en¯úwZevi, RjvB 15,2004

MYcRvZšx evsjv‡`k miKvi
¯v¯¨ I cwievi Kj¨vY gšYvjq

c¦Ávcb

ZvwiL, 13 RjvB2004/29 Avlvp 1411

Gm,Avi,I bs 214-AvBb/2004| wbivc` i³ cwimÂvjb AvBb, 2002 (2002 m‡bi 12bs AvBb) Gi aviv-1 Gi Dc-aviv (2) G c`Ë ¶gZve‡j miKvi 17kveY, 1411 evsjv †gvZv‡eK 1 AvMó, 2004Bs ZvwiL‡K D³ AvBb KvhKi Kivi ZvwiL wnmv‡e GZ`Øviv wbaviY Kwij|

ivócwZi Av‡`kµ‡g

G Gd Gg miIqvi Kvgvj
mwPe|

‡kL †gvt †gveviK †nv‡mb (Dc-mwPe), Dc-wbhšK, evsjv‡`k miKvix g`Yvjq, XvKv KZK gw`Z|
‡gvt Awgb R‡eix Avjg, Dc-wbqšK, evsjv‡`k dig I cKvkbv Awdm,
†ZRMvI, XvKv KZK cKwkZ|
(4303)

gj¨t UvKv 1.00

evsjv‡`k †M‡RU

AwZwi³ msL¨v

KZc¶ KZK cKvwkZ

eaevi, Gwcj 10, 2002

evsjv‡`k RvZxq msm`

XvKv, 10B Gwcj, 2002/27†k ‰PÎ, 1408

msm` KZK MnxZ wbgwjwLZ AvBbwU 10B Gwcj, 2002 (27†k ‰PÎ, 1408Zvwi‡L ivócwZi m¤§wZ jvf Kwiqv‡Q Ges GZØviv GB AvBbwU memvavi‡Yi AeMwZi Rb¨ cKvk Kiv hvB‡Z‡QtÑ

2002m‡bi 12bs AvBb

wbivc` i³ msMn,msi¶Y Ges †ivMxi †`‡n cwimÂvjb e¨e¯v wbqš¿YK‡í ci¶YxZ AvBb

‡h‡nZ wbivc` i³ msMn,msi¶Y Ges †ivMxi †`‡n cwimÂvjb e¨e¯v wbqšYK‡í weavb Kiv mgxPxb I c‡qvRbxq

‡m‡nZ GZ`Øviv wbgi¡c AvBb Kiv nBj:Ñ

ci_g Aa¨vq

ci¶iw¤¦K

1| msw¶ß wk‡ivbvg I ceZb|Ñ(1) GB AvBb wbivc` i³ cwimÂvjb AvBb, 2002 bv‡g Awfwn Z nB‡b|

(2) miKvi, miKvix †M‡R‡U cÁvcb Øviv ‡hB ZwiL wbaviY Kwi‡e †mB Zwi‡L GB AvBb KvhKi nB‡e|

2| msÁvÑ welq ev cms‡Mi cwicšx wfbi¡c wKQ bv _wK‡j, GB AvB‡bÑ

(K) ÒAbb‡gvw`Z e¨w³Ó A_ i³ msMn ev i³ cwimÂvj‡bi Rb¨ ¯xKZ †hvM¨Zvi AwaKKvix Ges `wqZcvß bb Ggb †Kvb e¨w³;

(L) ÒAwbixw¶Z i³ (Unscreened Blood)Ó A_ †Kvb i³, i‡³i Dcv`vb ev i³ RvZ mvgMx‡Z GBWm (AIDS), †ncvUvBwUm we (hepatitis B), †ncvUvBwUm wm (hepatitns C), wmwdwjm (syphilis), g¨v‡jwiqv (malaria) BZ¨vw` i³ ewnZ †iv‡Mi RxevYg³ nIqv m¤ú‡K cix¶v ev hvPvB Kiv nq bvB Ggb i³, i‡³i Dcv`vb ev i³ RvZ mvgMx;

(M) ÒAbb‡gvw`Z c×wZ‡Z i³ msMn I cwimÂvjb (Bad ordering blood collection and transfusion)Ó ewj‡Z fj c×wZ‡Z i³ msMn Kiv, mwVK fv‡e i³ msi¶Y bv Kiv, mgq DËxY i³ cwimÂvjb Kiv, †Kvi †PBb AbmiY bv Kiv, fj c×wZ‡Z i³ cwimÂvjb Kiv ev i³ cwimÂvj‡bi Rb¨ wewa Øviv wbawiZ Ab¨vb¨ c×wZ ev wbqg AbmiY bv Kwiqv i³ msMn I cwimÂvjb‡K eSvB‡e;

(N) ÒKvDwÝjÓ A_ GB AvB‡bi aviv 4-Gi Øviv MwVZ RvZxq wbivc` i³ cwimÂvjb KvDwÝj;

(O) Ò‡Kvi ‡PBb (Cold chain) Ó ewj‡Z +2⁰ nB‡Z +8⁰ wWMx †mw›U‡MW Zvcgv Îvq i³ ev i³ Dcv`vb msMn, msi¶Y, enb I e¨envi Kvixi wbKU chš †cŠQv‡bv‡K eSvB‡e;

(P) ÒWv³viÓ A_ evsjv‡`k †gwW‡Kj I †W›Uvj KvDwÝj KZK †iwR‡ókb cvß Ab¨b Gg.we.we.Gm ev mggv‡bi †gwWK¨vj wWwMavix e¨w³ ;

(Q) Òwbavwi ZÓ A_ wewa Øviv wbavwi Z;

(R) Òcwi`kb KwgwUÓ A_ GB AvB‡bi aviv 15 Gi Aaxb MwVZ cwi`kb KwgwU;

(S) ÒevQvB KwgwUÓ A_ GB AvB‡bi aviv 11 Gi Aaxb MwVZ evQvB KwgwU;

(T) Òe¨e¯vcÎÓ A_ †ivMxi Rb¨ Wv³vi KZK c‡`q civgk cÎ;

(U) Òevsjv‡`k †gwWK¨vj GÛ †W›Uvj KvDwÝjÓ A_ Medical and Dental Council Act, 1980 (XVI of 1980) Gi Aaxb MwVZ evsjv‡`k †gwWK¨vj GÛ †W›Uvj KvDwÝj;

(V) ÒevWe¨vMÓ A_ i³ `vZv nB‡Z i³, i‡³i Dcv`vb I i³RvZ mvgMx msMn, msi¶Y I weZi‡Yi Rb¨ e¨eüZ Gw›U‡Kvqv¸‡j›U m¤wjZ miKvi KZK ¯xKZ e¨vM;

(W) Òe¨w³Ó A‡_ †Kv¤úvbx, cwZôvb, Askx`vwi Kvievi, msN I mwgwZ Aš f³ nB‡e;

(X) Ò†emiKvix i³ cwimÂvjb †K›`Ó A_ GB AvB‡bi aviv 9Gi Aaxb jvB‡mÝcvß †emiKvix i³ cwimÂvjb †K›`, evW e¨vsK ev Ab¨ †Kvb cwZôvb ev †K›`, †h bv‡gB Awfwn Z nDK bv †Kb;

(Y) Òf j e¨e¯vcÎÓ A_ Wv³vi KZK i³ cwimÂvjb wPwKrmv c`vbKv‡j c‡`q †ivMxi ev i³ MnxZvi i‡³i mwVK Pvwn`v, i‡³i Dcv`v‡bi cKwZ, †ivMx ev i³ MnxZvi we`¨gvb kvixwiK Ae¯v Ges i³ cwimÂvj‡bi aiY ev c×wZi D‡jLwenxb e¨e¯vcÎ;

(Z) Ògnv-cwiPvjKÓ A_ ¯v¯¨ Awa`ß‡ii gnv-cwiPvjK Ges Zvnvi AeZgv‡b gnv-cwiPvj‡Ki `wqZ cvjbiZ †Kvb KgKZv;

(_) Òi³Ó A_ cwicb gvbe i³;

(`) Òi‡³i Dcv`vb (blood component)Ó A_ i³ nB‡Z c_KxKZ i³ im (plasma), †jwnZ i³ KwYKv (RBC) †kZ i³ KwYKv (WBC), AbPwµKv (platelet) BZ¨vw` Dcv`vb;

(a) Òi³RvZ mvgMx (plasma product)Ó A_ i³ im (plasma) nB‡Z c_KxKiY c×wZi gva¨‡g c¯ZKZ GjweDwgb (albumin), BwgD‡bv‡MvweDwjb (immunoglobulin), µvBl‡cwmwc‡UU (cryoprecipitate), d¨v±i-8 (factor-VIII), d¨v±i-1 (factor-I), d¨v±i 2, 5, 7, 9, 10 (factor II, V, VII, IX, X) Ges Ab¨vb¨ i³RvZ mvgMx;

(b) Ò‡ivMx ev i³ MnxZvÓ ewj‡Z Wv³v‡ii e¨e¯vcÎ †gvZv‡eK i³ MnYKvix e¨w³‡K eSvB‡e;

(c) Òi³ cwimÂvjb we‡klÁÓ A_ GgwewGm ev mggv‡bi wWMxavix Ges i³ cwimÂvjb ‡gwWwmb wel‡q wW‡cvgv wWweGmGÛwU, GgwUGg, GgwW, wcGBPwW wWMxcvß Wv³vi;

(d) ÒjvB‡mÝÓ A_ GB AvB‡bi aviv 9-Gi Aaxb †Kvb †emiKvix i³ cwimÂvjb †K›`¯vcb I cwiPvjbvi Rb¨ c`Ë jvB‡mÝ;

(e) ÒjvB‡mÝx KZc¶Ó A_ gnv-cwiPvjK, ¯v¯¨ Awa`ßi;

(f) Òi‡³i Pvwn`vcÎÓ A_ i³ ev i‡³i Dcv`v‡bi ¯ívZv ci‡Yi j‡¶¨ Wv³vi KZK †Kvb †ivMxi Rb¨ c‡`q i³ ev i‡³i Dcv`v‡bi Pvwn`vcÎ;

(g) Òwebó‡hvM¨ DcKiY (disposable items)Ó A_ i³ cwimÂvj‡bi Rb¨ i³ msMn, msi¶Y I wewfb cix¶v-wbix¶vq e¨eüZ wmwiÄ, wbWj, †jb‡mU, evW e¨vM, i³ cwimÂvjb †mU, ¯vBW, †UówUDe Ges GKevi e¨envi‡hvM¨ Ab¨vb¨ DcKiY;

(h) ÒwewaÓ A_ GB AvB‡bi Aaxb cYxZ wewa;

(i) ÒmfvcwZÓ A_ GB AvB‡bi aviv 4 Øviv MwVZ RvZxq wbivc` i³ cwimÂvjb KvDwÝ‡j i mfvcwZ;

(j) Òmn-mfvcwZÓ A_ GB AvB‡bi aviv 4 Øviv MwVZ RvZxq wbivc` i³ cimÂvjb KvDwÝ‡j i mn-mfvcwZ;

(k) Ò¯xKZ †hvM¨ZvÓ A_ evsjv‡`k †gwWK¨vj I †W›Uvj KvDwÝj KZK GZ`‡Ï‡k¨ ¯xKZ †hvM¨Zv;

(l) Òi³ cwimÂvjb †mevÓ A_ †Kvb †ivMxi wPwKrmvi c‡qvR‡b i³ msMn, cix¶v-wbix¶v, i‡³i Dcv`vb c_KxKiY, i³RvZ mvgMx ^Zix ev cwimÂvjb msµvš †Kvb Wv³vi ev †emiKvix i³ cwimÂvjb †K›` KZK c`Ë †mev;

3| AvB‡bi cÖvavb¨|- AvcvZZt ejer Ab¨ †Kvb AvB‡b hvnv wKQB _vKK bv †Kb, GB AvB‡bi weavbvejx KvhKi _vwK‡e|

wØZxq Aa¨vq

RvZxq wbivc` i³ cwimÂvjb KvDwÝj

4| RvZxq wbivc` i³ cwimÂvjb KvDwÝj|- (1) GB AvB‡bi D‡Ïk¨ ciYK‡í RvZxq wbivc` i³ cwimÂvjb KvDwÝj bv‡g GKwU KvDwÝj _vwK‡e|

(2) wbgewYZ m`m¨‡`i mgš‡q KvDwÝj MwVZ nB‡e, h_vt

(K) ¯v¯¨ I cwievi Kj¨vY gšYvj‡qi `vwq‡Z wb‡qvwRZ gšx, whwb Bnvi mfvcwZI nB‡eb;

(L) mwPe, ¯v¯¨ I cwievi Kj¨vY gšYvjq, whwb Bnvi mn-mfvcwZI nB‡eb;

(M) miKvi KZK g‡bvbxZ wekwe`¨vj‡qi GKRb DcvPvh;

(N) ‡Pqvicvmb, i³ cwimÂvjb wefvM, e½eÜ †kL gwRe †gwWK¨vj BDwbfwmwU;

(O) ‡Pqvig¨vb, ‡UKwbK¨vj Kwgw U, evsjv‡`k RvZxq GBWm Kwgw U;

(P) KgvÛ¨v›U, AvgW †dv‡mm BbwówUDU Ad c¨v_jRx;

(Q) gnvcwiPvjK, mgvR †mev Awa`ßi;

(R) ‡Pqvig¨vb, evsjv‡`k †iW wµ‡m›U †mvmvBwU;

(S) cwiPvjK, mKj miKvix †gwW‡Kj K‡jR nvmcvZvj;

(T) cwiPvjK, e¶e¨wa BbwówUDU I nvmcvZvj;

(U) cwiPvjK, Rb¯v¯¨ BbwówUDU;

(V) wefvMxq cavb, i³ cwimÂvjb wefvM, mKj miKvix †gwW‡Kj K‡jR nvmcvZvj;

(W) mfvcwZ, evsjv‡`k †gwW‡Kj G‡mvwm‡qkb;

(X) mfv‡bÎx, RvZxq gwnjv ms¯v;

(Y) RvZxq Kwgkbvi, evsjv‡`k ¯‹vDUm;

(Z) RvZxq Kwgkbvi, evsjv‡`k Mvjm MvBW G‡mvwm‡qkb;

(_) ‡RjvMfYi, evsjv‡`k †ivUvix cvewjK;

(`) ‡RjvMfYi, evsjv‡`k jvqÝ Kve B›Uvib¨vkbvj;

(a) miKvi KZK g‡bvbxZ i³ cwimÂvjb wel‡q AwfÁ GKRb Aa¨vcK;

(b) mfvcwZ, evsjv‡`k msev` ms¯v (evmm);

(c) gnv-cwiPvjK, ¯v¯¨ Awa`ßi, whwb Bnvi m`m¨ mwPe I nB‡eb|

(3) KvDwÝj‡ji †Kvb g‡bvbxZ m`m¨ Zvnvi g‡bvbq‡bi ZwiL nB‡Z `B erm‡ii Rb¨ m`m¨ c‡` envj _vwK‡eb;

Z‡e kZ _v‡K †h, miKvi †h †Kvb mgq Zvnvi g‡bvbqb ewZj Kwi‡Z cwi‡e|

(4) miKv‡ii D‡Ïk¨ ¯v¶ih³ cÎ‡hv‡M †Kvb g‡bvbxZ m`m¨ ¯xq c` Z¨vM Kwi‡Z cwi‡eb|

**5| KvDwÝj‡ji `wqZ¡ I KZe¨|-** KvDwÝj‡ji `wqZ I KZe¨ nB‡e wbgi¡c, h_vt

(K) Human Immuno Deficiency Virus(HIV), Hepatitis B Virus (HBV), Hepatitns C Virus (HCV), Malaria Ges Syphilis mn mecKvi i³ evwnZ †ivM nB‡Z gvbe †`n‡K i¶vi Rb¨ bxwZgvjv cYqb;

(L) wbivc` i³ msMn, msi¶Y I cwimÂvj‡bi c×wZ wbaviY;

(M) ‡¯”Qvq i³`vb, ¯Rb‡K i³`vb Ges i‡³i wewbg‡q i³`v‡b i³`vZv‡`i DrmwnZ KiY m¤úwKZ bxwZgvjv cYqb;

(N) ‡emiKvix i³ cwimÂvjb †K›` wbqš‡Yi D‡Ïk¨ bxwZgvjv cYqb;

(O) i³`vZv‡`i cwimsL¨vb msi¶‡Yi c×wZ wbaviY;

(P) ‡ckv`vi i³`vZv‡`i i³`v‡b chvqµ‡g wbi“rmwnZKiY m¤úwKZ bxwZgvjv cYqb;

(Q) wewfb miKvix nvmcvZv‡ji i³ cwimÂvjb †K›`mgn cwiPvjbvi bxwZgvjv cYqb; Ges

(R) Dc-aviv (K) nB‡Z (Q) chš ewYZ welqvejx nB‡Z D™Z Ab¨vb¨ Avbmvw½K wel‡q miKvi‡K civgk c`vb|

6| **KvDwÝ‡ji mfv|**- (1) KvDwÝj Dnvi mfvi Kvhc×wZ wbaviY Kwi‡Z cwi‡e|

(2) KvDwÝ‡ji mfv mfvcwZ KZK wbawiZ mg‡q I ¯v‡b Abwô Z nB‡e|

(3) mfvcwZ KvDwÝ‡ji mKj mfvq mfvcwZZ Kwi‡eb Ges Zvnvi Abcw¯wZ‡Z KvDwÝ‡ji mn-mfvcwZ mfvcwZZ Kwi‡eb|

(4) KvDwÝ‡ji GK-ZZxqvsk m`m¨ mgš‡q KvDwÝ‡ji mfvi †Kvivg MwVZ nB‡e|

(5) KvDwÝ‡ji mfvq Dcw¯Z m`m¨‡`i msL¨vMwiô †fv‡U wm×vš MnxZ nB‡e Ges †fv‡Ui mgZvi †¶‡Î mfvcwZZ Kvix e¨w³i wØZxq ev wbYvqK †fvU c`vq‡bi ¶gZv _vwK‡e|

(6) ïagvÎ †Kvb m`m¨ c‡` kY¨Zv ev KvDwÝj MV‡b Î"wU _vKvi Kvi‡Y KvDwÝ‡ji Kvh ev Kvhaviv A‰ea nB‡e bv Ges Zrm¤ú‡K †Kvb ckI D Ïvcb Kiv hvB‡e bv|

Z.Zxq Aa¨vq

‡emiKvix i³ cwimÂvjb †K›`ª ¯'vcb, cwiPvjbv, jvB‡mÝ, BZ¨vw`

7| **‡emiKvix i³ cwimÂvjb †K›`ª ¯'vcb I cwiPvjbv:** †Kvb e¨w³ GB AvB‡bi aviv 9 -Gi Aaxb jvB‡mÝ MnY Kwiqv †emiKvix i³ cwimÂvjb †K›` ¯'vcb I cwiPvjbv Kwi‡Z cwi‡eb|

8| **‡emiKvix i³ cwimÂvjb †K›`ª ¯'vcb I cwiPvjbvi kZvejx|** - †emiKvix i³ cwimÂvjb †K›` ¯'vcb I cwiPvjbvi kZvejx wewa Øviv wbawiZ nB‡e|

9| **‡emiKvix i³ cwimÂvjb †K›`ª ¯'vcb I cwiPvjbvi jvB‡mÝ|** - (1) †emiKvix i³ cwimÂvjb †K›` ¯'vcb I cwiPvjbv Kwi‡Z B"QK †Kvb e¨w³ jvB‡m‡Ýi Rb¨ jvB‡mÝx KZc‡¶i wbKU wewa Øviv wbawiZ c×wZ‡Z I di‡g Av‡e`b Kwi‡Z cwi‡eb|

(2) Dc-aviv (1)-Gi Aaxb cvß Av‡e`‡b D‡jwLZ Z_¨vejxi mZ¨Zv hvPvB‡qi Rb¨ jvB‡mwÝs KZc¶ Av‡e`b cwßi mvZ w`‡bi g‡a¨ Dnv evQvB KwgwUi wbKU †ciY Kwi‡e|

(3) Dc-aviv (2)-Gi Aaxb Av‡e`b cwßi lvU w`‡bi g‡a¨ evQvB KwgwU Av‡e`‡b D‡jwLZ ¯'vb m‡iRwg‡b cwi`kb Kwi‡e Ges cvß Z_¨vejx cix¶v I hveZxq wel‡q AbmÜvb Kwievi ci Z`wel‡q GKwU cbv½ cwZ‡e`b jvB‡mwÝs KZc‡¶i wbKU `wLj Kwi‡e|

(4) Dc-aviv (3)-Gi Aaxb cvß cwZ‡e`b chv‡jvPbvi ci jvB‡mwÝs KZc¶ -

(K) hw` GB g‡g mšó nq †h, Av‡e`bKvix †emiKvix i³ cwimÂvjb †K›` ¯'vcb I cwiPvjbvi Rb¨ wewa Øviv wbawiZ kZvejx ciY Kwi‡Z m¶g, Zvnv nB‡j jvB‡mwÝs KZc¶ Av‡e`bKvixi wbKU nB‡Z aviv 13-Gi Aaxb wbawiZ jvB‡mÝ wdm Av`vq Kwiqv wÎk w`‡bi g‡a¨ Av‡e`bKvix‡K jvB‡mÝ c`vb Kwi‡e; A_ev

(L) hw` GBi"c AwfgZ †cvlY K‡i †h, wewa Øviv wbawiZ kZvejx ciY Kwievi Rb¨ Av‡e`bKvix‡K m‡hvM c`vb Kiv mgxPxb, Zvnv nB‡j D³ kZvejx ci‡Yi Rb¨ jvB‡mwÝs KZc¶ Av‡e`bKvix‡K AbwaK wÎk w`b mgq c`vb Kwi‡e; Ges

(A) D³ mg‡qi g‡a¨ D‡jwLZ mKj kZvejx cwZcvjb Kwi‡Z Av‡e`bKvix m¶g nBqv‡Q g‡g mšó nBevi ci cieZx c‡bi w`‡bi g‡a¨ Av‡e`b gÄi Kwiqv Av‡e`bKvix‡K jvB‡mÝ c`vb Kwi‡e; ev

(Av) D³ mg‡qi g‡a¨ c‡qvRbxq kZvejx cib Kwi‡Z Av‡e`bKvix e¨_ nB‡j Av‡e`b bvgÄi Kwiqv Av‡e`bKvix‡K AewnZ Kwi‡e; A_ev

(M) hw` GBi‚c AwfgZ †cvlb K‡i †h, Av‡e`bKvix wewa Øviv wbawiZ kZvejxi g‡a¨ AwaKvsk kZ ciY Kwi‡Z m¶g nq bvB Ges Av‡e`bKvix‡K `dv (L)-‡Z D‡jwLZ m‡hvM c`vb Kiv nB‡j D³ mg‡qi g‡a¨ Aewkó kZvejx ciY Kwievi m¤vebv bvB, Zvnv nB‡j Av‡e`bKvixi Av‡e`b mivmwi bvgÄi Kwiqv c‡bi w`‡bi g‡a¨ Ave`bKvix‡K AewnZ Kwi‡e|

(5) GB AvBb KvhKi nBevi Ae¨ewnZ c‡e †Kvb e¨w³ †Kvb ‡emiKvix i³ cwimÂvjb †K›` ¯'vcb Kwiqv _vwK‡j wZwb GB AvBb KvhKi nBevi wÎk w`‡bi g‡a¨ Dc-aviv (1) G wbawiZ c×wZ‡Z I di‡g jvB‡mwÝs KZc‡¶i wbKU Av‡e`b Kwi‡Z cwi‡eb|

(6) Dc-aviv (5) Gi Aaxb Av‡e`b cwßi ci jvB‡mwÝs KZc¶ Dc-aviv (2), (3), Ges (4) Gi `dv (K) I (L)-‡Z ewbZ c×wZ Abmib Kwi‡e|

(7) Dc-aviv (4) Gi `dv (K) G hvnv wKQB _vKK bv †Kb, Dc-aviv (5) Gi Aaxb cvß Av‡e`‡bi †¶‡Î Av‡e`bKvix‡K c‡hvR¨ kZvejx ci‡Yi Rb¨, hw` †Kvb kZ AciYKZ _v‡K, Z‡e GKkZ Awk w`b mgq c`vb Kwi‡Z nB‡e|

(8) GB AvBb KvhKi nBevi Ae¨ewnZ c‡e we`¨gvb †Kvb ‡emiKvix i³ cwimÂvjb cwiPvjbvi jvB‡m‡Ýi Rb¨ Dc-aviv (5) Gi Aaxb Av‡e`b Kiv bv nB‡j jvB‡mwÝs KZc¶ D³ i³ cwimÂvjb †K‡›`i hveZxq Kvhµg AbwZwej‡¤ eÜ ivwLevi wb‡`k c`vb Kwi‡e|

(9) (9)Dcaviv (5) Gi Aaxb jvB‡mÝ cwßi Rb¨ Av‡e`b Kiv nB‡j Ges GB avivi Aaxb wbawiZ mg‡q Av‡e`bKvix jvB‡mÝ cwßi kZ ci‡b e¨a nB‡j, jvB‡mwÝs KZc¶ D³ †emiKvix i³ cwimÂvjb †K‡›`i hveZxq Kvhµg AbwZwej‡¤ eÜ ivwLevi wb‡`k c`vb Kwi‡e|

10| jvB‡mwÝs KZ|c¶ :- GB AvB‡bi D‡Ïk¨ ciYK‡í ¯v¯¨ Awa`ß‡ii gnv-cwiPvjK jvB‡mwÝs KZc¶ nB‡eb|

11| evQvB KwgwU :- GB Aa¨v‡qi D‡Ïk¨ ciYK‡í wewa Øviv wbawiZ e¨w³ †`i mgš‡q cwZwU †Rjvi Rb¨ GKwU Kwiqv evQvB KwgwU _vK‡e|

**12| jvB‡m‡Ýi †gqv` I bevqb :-** (1) †emiKvix i³ cwimÂvjb †K›` ¯vcb I cwiPvjbvi Rb¨ c`Ë jvB‡m‡Ýi †gqv` nB‡e jvB‡mÝ Bm¨i ZvwiL nB‡Z wZb eQi Ges Bnv cwZ wZb eQi Aši bevqb‡hvM¨ nB‡e|

(2) Dc-aviv (1) G ewbZ jvB‡m‡Ýi †gqv` †kl nBevi beŸB w`b c‡e jvB‡mÝ bevq‡bi wbawiZ wdmmn bevq‡bi Rb¨ jvB‡mwÝs KZc‡¶i wbKU wbawiZ d‡g Av‡e`b Kwi‡Z nB‡e|

(3) Dcaviv (2) Gi Aaxb Av‡e`b cwßi wÎk w`‡bi g‡a¨ jvB‡mwÝs KZc¶ mswkó †emiKvix i³ cwimÂvjb †K›`wU m‡iRwg‡b cwi`kb Kwi‡e Ges cwi`k‡bi ci-

(A) jvB‡mwÝs KZc¶ hw` GB g‡g mšó nq †h, i³ cwimÂjb †K›`wU cwiPvjbvi Rb¨ c‡hvR¨ kZvejxi g‡a¨ †Kvb kZ AciYKZ bvB, Zvnv nB‡j jvB‡mÝwU bevqb _vK‡e;

(Av) jvB‡mwÝs KZc‡¶i wbKU hw` GBiƒc cwijw¶Z nq †h, i³ cwimÂvjb †K›`wU cwiPvjbvi Rb¨ c‡hvR¨ kZvejxi g‡a¨ †Kvb †Kvb kZ AciYKZ iwnqv‡Q Ges c‡qvRbxq-m‡hvM mweav envj ivwL‡Z Av‡e`bKvix e¨_ nBqv‡Q, Zvnv nB‡j jvB‡mwÝs KZc¶ Av‡e`b bvgÄi Kwiqv jvB‡m‡Ýi †gqv` AwZµvš nBevi Ab¨b c‡bi w`b c‡e Av‡e`bKvix‡K wjwLZfv‡e AewnZ Kwi‡e|

**13| jvB‡mÝ wdm, BZ¨w` :-** GB AvB‡bi Aaxb c‡`q †emiKvix i³ cwimÂvjb †K›` ¯vcb I cwiPvjbvi jvB‡mÝ wdm nB‡e GKj ¶ UvKv Ges bevqb wdm nB‡e cÂvk nvRvi UvKv t

Z‡e kZ _v‡K †h, miKvi, miKvix †M‡R‡U cÁvcb Øviv, GB wd‡mi nvi ew× Kwiqv cbtwbaviY Kwi‡Z cwi‡e|

14| i³ cwimÂvjb †mev wdm :- (1) i³ cwimÂvjb †mev c`v‡bi Rb¨ †ivMxi wbKU nB‡Z Av`vq‡hvM¨ wd‡mi nvi wewa Øviv wbawiZ nB‡e|

(2) c‡Z¨K †emiKvix i³ cwimÂvjb †K›`-

(K) i‡³i wewfb cKvi cix¶v I i³ cwimÂvjb †mevi Rb¨ wbawiZ wd‡mi ZwjKv mn‡R `wó‡MvPi nq GBiƒc ¯v‡b Ges Af¨_bv K‡¶i †`lqv‡j jUKvBqv ivwL‡e; Ges

(L) i³ cix¶v ev i³ cwimÂvjb †mev eve` MnxZ wd‡mi GKwU iwk` mswkó †ivMx ev Zvnvi cwZwbwa‡K c`vb Kwi‡e Ges Dnvi GKwU Abwjwc msi¶Y Kwi‡e|

**15| cwi`klb KwgwU :-** (1) miKvi, miKvix †M‡R‡U cÁvcb Øviv, †emiKvix i³ cwimÂvjb †K›`mgn cwi`k‡bi Rb¨ GK ev GKwaK cwi`kb KwgwU MVb Kwi‡Z cwi‡e|

(2) Dcaviv (1) Gi Aaxb MwVZ cwi`kb KwgwUi m`m¨ msL¨v Ges m`m¨‡`i †hvM¨Zv miKvi KZK wbawiZ nB‡e|

16| cwi`klb, c‡ek BZ¨w` ¶gZv :- (1) cwi`kb KwgwU, gnv-cwiPvjK Ges gnv-cwiPvj‡Ki wbKU nB‡Z ¶gZvcvß †Kvb KgKZv GB AvBb, wewa ev c`Ë †Kvb wb‡`k mv‡c‡¶, †h †Kvb †emiKvix i³ cwimÂvjb †K›` cwi`kb Kwi‡Z cwi‡e|

(2) cwi`kb KwgwU ev gnv-cwiPvj‡Ki wbKU nB‡Z ¶gZvcvß †Kvb KgKZv Dc-aviv (1) Gi Aaxb cwi`kbKv‡j hw` †`wL‡Z cvq †h, †Kvb †emiKvix i³ cwimÂvjb †K›` GB AvBb ev wewa Øviv wbawiZ kZvejx cvjb Kwi‡Z‡Q bv wKsev jvB‡m‡Ýi kZ f½ Kwiqv‡Q Zvnv nB‡j D³ iƒc cwi`k‡bi c‡ii c‡bi w`‡bi g‡a¨ cwi`kb KwgwU miKv‡ii wbKU Ges †¶ÎgZ, mswkó KgKZv gnv-cwiPvj‡Ki wbKU Z`wel‡q GKwU wjwLZ cwZ‡e`b `wLj Kwi‡eb|

(3) Dc-aviv (2) Gi Aaxb cvß wjwLZ cwZ‡e`b chv‡jvPbvi ci miKvi hw` GBi¡c AwfgZ †cvlb K‡i †h, Rb¨v‡_ mswkó †emiKvix i³ cwimÂvjb †K‡›`i jvB‡mÝ ¯wMZ ivLv ev ewZj Kiv c‡qvRb Zvnv nB‡j Z`vbmv‡i c‡qvRbxq e¨e¯v †blqvi Rb¨ gnv-cwiPvjK‡K wb‡`k w`‡Z cwi‡e|

(4) gnv-cwiPvjK KZK ¯qs cwi`k‡bi ci wKsev Dc-aviv (2) Gi Aaxb cvß wjwLZ cwZ‡e`b chv‡jvPbvi ci Zvnvi wbKU hw` cwijw¶Z nq †h, †Kvb †emiKvix i³ cwimÂvjb †K›` jvB‡m‡Ýi †Kvb kZ ci‡Y wkw_jZv c`kb Kwiqv‡Q Zvnv nB‡j gnv-cwiPvjK D³ †emiKvix i³ cwimÂvjb †K›`‡K AbwaK wÎk w`‡bi g‡a¨ mswkó kZ ciY Kwievi Rb¨ wb‡`k w`‡Z cwi‡eb Ges D³ wb‡`k cvj‡b e¨_ nB‡j mswkó †emiKvix i³ cwimÂvjb †K‡›`i jvB‡mÝ ewZj ev ¯wMZ Kwi‡Z cwi‡eb|

(5) cwi`kb KwgwU, gnv-cwiPvjK Ges gnv-cwiPvj‡Ki wbKU nB‡Z ¶gZvcvß †Kvb KgKZv †emiKvix i³ cwimÂvjb †K‡›`i †h †Kvb ¯v‡b †h †Kvb mg‡q c‡ek Kwi‡Z, †iwRóvi ev i³ cwimÂvjb †mev msµvš hš¿cwZ, i³ cwimÂvjb †mev msµvš KvMRcÎ cix¶v Kwi‡Z cwi‡eb Ges c‡qvR‡b †Kvb †iwRóvi ev KvMRc‡Îi D×Zvsk(extract) msMn Kwi‡Z cwi‡eb|

17| Avcxj :- (1) jvB‡mwÝs KZc‡¶i †Kvb Av‡`k Øviv †Kvb e¨w³ ms¶× nB‡j wZwb D³ Av‡`‡ki wei“‡× Av‡`k Rvixi ZvwiL nB‡Z wÎk w`‡bi g‡a¨ miKv‡ii wbKU Avcxj `v‡qi Kwi‡Z cwi‡eb Ges miKvi, GBi¡c cvß Avcxj beŸB w`‡bi g‡a¨ wb¯úwË Kwi‡e|

(2) Dc-aviv (1) Gi Aaxb `v‡qiKZ Avcx‡ji †¶‡Î miKv‡ii wm×vš Povš nB‡e|

PZ_| Aa¨vq

Aciva I `Û

18| jvB‡mÝ e¨ZxZ †emiKvix i³ cwimÂvjb †K›`ª ¯vcb I cwiPvjbvi `Û :- (1) GB AvB‡bi Aaxb jvB‡mÝ MnY e¨ZxZ †Kvb e¨w³ †Kvb †emiKvix i³ cwimÂvjb †K›` ¯vcb I cwiPvjbv Kwi‡Z cwi‡eb bv|

(2) †Kvb e¨w³ Dc-aviv (1) Gi weavb jsNb Kwi‡j `Ûbxq Aciva Kwiqv‡Qb ewjqv MY¨ nB‡eb Ges wZwb D³ Aciv‡ai Rb¨ AbwaK `B ermi mkg Kviv`Û, A_ev Aba GK j¶ UvKv A_ `Û, A_ev Dfq `‡Û `wÛZ nB‡eb|

19| f·j e¨e¯vcÎ c`v‡bi `Û :- (1) †Kvb e¨w³ i³ cwimÂvjb msµvš wPwKrmvi D‡Ï‡k¨ †Kvb †ivMx ev i³ MnxZvi gvivZ¥K kvixwiK ¶wZ, AsMnvbx, c½Z ev gZ¨i KviY nq wKsev i³ ewnZ msµvgK †iv‡M Avµvš nb GBi¡c fj e¨e¯vcÎ c`vb Kwi‡eb bv|

(2) †Kvb e¨w³ Dc-aviv (1) Gi weavb jsNb Kwi‡j `Ûbxq Aciva Kwiqv‡Qb ewjqv MY¨ nB‡eb Ges wZwb D³ Aciv‡ai Rb¨ AbwaK cvP ermi mkg Kviv`Û, Aaev Aba cvP j¶ UvKv A_ `Û, Aaev Dfq `‡Û `wÛZ nB‡eb|

20| Abb‡gw`Z c×wZ‡Z i³ cwimÂvj‡bi `Û :- (1) †Kvb e¨w³ i³ cwimÂvjb msµvš wPwKrmvi D‡Ï‡k¨ †Kvb †ivMx ev i³ MnxZvi gvivZ¥K kvixwiK ¶wZ, AsMnvbx, c½Z ev gZ¨i Kvib nq wKsev i³ ewnZ msµvgK †iv‡M Avµvš nb GBi¡c i³ cwimÂvjb Kwi‡eb bv|

(2) †Kvb e¨w³ Dc-aviv (1) Gi weavb jsNb Kwi‡j `Ûbxq Aciva Kwiqv‡Qb ewjqv MY¨ nB‡eb Ges wZwb D³ Aciv‡ai Rb¨ AbwaK cvP ermi mkg Kviv`Û, A_ev Aba cvP j¶ UvKv A_ `Û, A_ev Dfq `‡Û `wÛZ nB‡eb|

**21| webó‡hvM¨ DcKiY webó bv Kivi `Û :- (1)** i³ cwimÂvj‡bi `wqZcvß †Kvb e¨w³ i³ cwimÂvjb Kwievi ci Dnv‡Z e¨eüZ webó‡hvM¨ DcKiY webóKiY wbwðZ Kwi‡eb|

(2) i³ cwimÂvj‡bi `wqZcvß †Kvb e¨w³ Dc-aviv (1) Gi weavb jsNb Kwi‡j `Ûbxq Aciva Kwiqv‡Qb ewjqv MY¨ nB‡eb Ges wZwb D³ Aciv‡ai Rb¨ AbwaK Qq gvm mkg Kviv`Û, Aaev Aba cvP nvRvi UvKv A_ `Û, Aaev Dfq `‡Û `wÛZ nB‡eb|

22| webó‡hvM¨ DcKiY cbivq e¨envi Kivi `Û :- (1) †Kvb e¨w³ i³ cwimÂvj‡b e¨eüZ webó‡hvM¨ DcKiY cbivq e¨envi Kwi‡eb bv|

(2) †Kvb e¨w³ Dc-aviv (1) Gi weavb jsNb Kwi‡j wZwb `Ûbxq Aciva Kwiqv‡Qb ewjqv MY¨ nB‡eb Ges-

(K) D³ Aciv‡ai Rb¨ AbwaK GK ermi mkg Kviv`Û, A_ev Aba `k nvRvi UvKv A_ `Û, A_ev Dfq `‡Û `wÛZ nB‡eb|

(L) ‡hB †¶‡Î D³ Aciv‡ai d‡j mswkó †ivMx ev i³ MnxZvi gvivZ¥K kvixwiK ¶wZ, AsMnvbx, c½Z ev gZ¨i KviY nq wKsev i³evwnZ msµvgK †iv‡M Avµvš nb †mB †¶‡Î D³ e¨w³ AbwaK cvP ermi mkg Kviv`Û, A_ev Aba cvP j¶ UvKv A_`Û, A_ev Dfq `‡Û `wÛZ nB‡eb|

**23| Awbixw¶Z i³ cwimÂvj‡bi `Û :-** (1) †Kvb e¨w³ Awbixw¶Z i³, i‡³ i Dcv`vb wKsev i³ RvZ mvgMx †Kvb †ivMx ev i³ MnxZvi †`‡n cwimÂvjb Kwi‡eb bv|

(2) †Kvb e¨w³ Dc-aviv (1) Gi weavb jsNb Kwi‡j `Ûbxq Aciva Kwiqv‡Qb ewjqv MY¨ nB‡eb Ges wZwb -

(K) D³ Aciv‡ai Rb¨ AbwaK GK ermi mkg Kviv`Û, A_ev Aba `k nvRvi UvKv A_ `Û, A_ev Dfq `‡Û `wÛZ nB‡eb; ev

(L) ‡hB †¶‡Î D³ Aciv‡ai d‡j mswkó †ivMx ev i³ MnxZvi gvivZ¥K kvixwiK ¶wZ, AsMnvbx, c½Z ev gZ¨i KviY nq wKsev i³evwnZ msµvgK †iv‡M Avµvš nb †mB †¶‡Î D³ e¨w³ AbwaK cvP ermi mkg Kviv`Û, A_ev Aba cvP j¶ UvKv A_`Û, A_ev Dfq `‡Û `wÛZ nB‡eb|

24| Abb‡gw`Z Dcv‡q i³, i‡³ i Dcv`vb I i³ RvZ mvgMx msMn, Drcv`b I weZi‡Yi `Û :- (1) †Kvb e¨w³ GB AvBb Øviv wbawiZ c×wZ e¨ZxZ Ab¨ †Kvb c×wZ ev Dcv‡q i³, i‡³ i Dcv`vb I i³ RvZ mvgMx msMn, Drcv`b I weZiY Kwi‡eb bv|

(2) †Kvb e¨w³ Dc-aviv (1) Gi weavb jsNb Kwi‡j `Ûbxq Aciva Kwiqv‡Qb ewjqv MY¨ nB‡eb Ges wZwb D³ Aciv‡ai Rb¨ AbwaK `B ermi mkg Kviv`Û, A_ev Aba cÂvk nvRvi UvKv A_ `Û, A_ev Dfq `‡Û `wÛZ nB‡eb|

25| Abb‡gw`Z e¨w³ KZ¦K i³ cwimÂvj‡bi `Û:-(1) †Kvb Abb‡gw`Z e¨w³ Ab¨ †Kvb e¨w³ i †`n nB‡Z i³ msMn Kwi‡Z Ges †Kvb e¨w³ i †`‡n i³ cwimÂvjb Kwi‡eb bv|

(2) †Kvb e¨w³ Dc-aviv (1) Gi weavb jsNb Kwi‡j `Ûbxq Aciva Kwiqv‡Qb ewjqv MY¨ nB‡eb Ges wZwb -

(K) D³ Aciv‡ai Rb¨ AbwaK GK ermi mkg Kviv`Û, A_ev Aba `k nvRvi UvKv A_ `Û, A_ev Dfq `‡Û `wÛZ nB‡eb; ev

(L) ‡hB †¶‡Î D³ Aciv‡ai d‡j mswkó †ivMx ev i³ MnxZvi gvivZ¥K kvixwiK ¶wZ, AsMnvbx, c½Z ev gZ¨i KviY nq wKsev i³evwnZ msµvgK †iv‡M Avµvš nb †mB †¶‡Î D³ e¨w³ AbwaK cvP ermi mkg Kviv`Û, A_ev Aba cvP j¶ UvKv A_`Û, A_ev Dfq `‡Û `wÛZ nB‡eb|

26| i³ `vZvi fqv cwiPq cÎ e¨envi‡ii `Û :- (1) †Kvb e¨w³ Ab¨ †Kvb i³ `vZvi cwiPq cÎ ev fqv cwiPq cÎ e¨envi Kwi‡eb bv|

2) †Kvb e¨w³ Dc-aviv (1) Gi weavb jsNb Kwi‡j `Ûbxq Aciva Kwiqv‡Qb ewjqv MY¨ nB‡eb Ges wZwb D³ Aciv‡ai Rb¨ AbwaK Qq gvm webvkg Kviv`Û, A_ev Aba `k nvRvi UvKv A_ `Û, A_ev Dfq `‡Û `wÛZ nB‡eb|

27| AwZwi³ †mev wdmi Av`v‡qi `Û|-(1) †Kvb e¨w³ wewa Øviv wbawiZ nv‡ii AwZwi³ i³ cwimÂvjb †mev wdm Av`vq Kwi‡eb bv|

(2) †Kvb e¨w³ Dc-aviv (1)Gi weavb jsNb Kwi‡j `Ûbxq Aciva Kwiqv‡Qb ewjqv MY¨ nB‡eb Ges D³ Aciv‡ai Rb¨ AbwaK Qq gvm chš webvkg Kviv`Û, A_ev Aba `k nvRvi UvKv A_ `Û, A_ev Dfq `‡Û `wÛZ nB‡eb|

cÂg Aa¨vq

wewea

28| i³ cwimÂvjb Znwej|- miKvi, miKvix †M‡R‡U cKwkZ Av‡`k Øviv c‡Z¨K miKvix nvmcvZv‡ji Rb¨ i³ cwimÂvjb Znwej bv‡g GKwU Znwej MVb Kwi‡Z cwi‡e Ges D³ i¦c MwVZ Znwe‡ji Avq-e¨q I wnmve msi¶Y c×wZ wewa Øviv wbawiZ nB‡e|

29| i³ cwimÂvjb we‡klÁ KwgwU|- (1) miKvi, KvDwÝ‡ji mwnZ civgkµ‡g, miKvix †M‡R‡U cÁvcb Øviv GB AvB‡bi D‡Ïk¨ ciYK‡í GK ev GKvwaK i³ cwimÂvjb we‡klÁ KwgwU MVb Kwi‡Z nB‡e|

(2) Dc-aviv (1) Gi Aaxb MwVZ †Kvb KwgwU‡K miKvi †hBi“c `vwqZ Ges ¶gZv AcY Kwi‡e D³ KwgwU †mBi¦c `vwqZ cvjb I ¶gZv c‡qvM Kwi‡Z cwi‡e|

30| åvg¨gvb i³ msMn K¨v¤ú|- †Kvb †`kxq ev AvšRwZK †¯”Qv‡mex ms¯v, Rb¯v‡_, miKv‡ii cevb‡gv`bµ‡g, †emiKvix i³ cwimÂvjb †K›` Ges miKvix nvmcvZv‡ji mnvqZvq †¯”Qvq i³ `vb‡K DrmwnZ Kwievi D‡Ïk¨ åvg¨gvb i³ msMn K¨v¤ú cwiPvjbv Kwi‡Z cwi‡e|

**31| ‡Kv¤úvbx BZ¨w` KZ|K Aciva msNVb|-** †Kvb †Kv¤úvbx KZK GB AvB‡bi Aaxb †Kvb Aciva msNwVZ nB‡j D³ Aciv‡ai mwnZ cZ¨¶ mswkóZv iwnqv‡Q †Kv¤úvbxi Ggb c‡Z¨K cwiPvjK, g¨v‡bRvi, mwPe, Askx`vi, KgKZv Ges KgPvix D³ Aciva msNVb Kwiqv‡Qb ewjqv MY¨ nB‡e, hw` bv wZwb cgvb Kwi‡Z cv‡ib †h, D³ Aciva Zvi AÁvZmv‡i msNwVZ nBqv‡Q A_ev D³ Aciva †iva Kwievi Rb¨ wZwb h_vmva¨ †Póv Kwiqv‡Qb|

e¨vL¨v|- GB avivq-

(K) †Kv¤úvbx ewj‡Z †Kvb ewbwR¨K cwZôvb, Askx`vwi Kvievi, mwgwZ, msN Ges msMVb I Aš f³;

(L) ewbwR¨K cwZôv‡bi †¶‡Î ÒcwiPvjKÓ ewj‡Z Dnvi †Kvb Askx`vi ev cwiPvjbv †ev‡Wi m`m¨‡K I eSvB‡e|

32| Aciv‡ai Avgj †hvM¨Zv|- GB AvB‡bi Aaxb msNwVZ mKj Aciva AAvgj‡hvM¨, Rwgb‡hvM¨ I Av‡cvl‡hvM¨ nB‡e|

33| Aciva Avg‡j †bIqvi ¶gZv|- gnvcwiPvjK ev gnvcwiPvj‡Ki wbKU nB‡Z ¶gZvcvß †Kvb KgKZv A_ev ¶wZM¨ †Kvb e¨w³ ev Zvnvi cwZwbwai wjwLZ Awf‡hvM e¨ZxZ †Kvb Av`vjZ GB AvB‡bi Aaxb msNwVZ †Kvb Aciva wePv‡ii Rb¨ MnY Kwi‡e bv|

34| wewa cYq‡Yi ¶gZv :- (1) miKvi KvDwÝ‡ji mwnZ civgk µ‡g Ges miKvix †M‡R‡U cÁvcb Øviv, GB AvB‡bi D‡Ïk¨ ciYK‡í wewa cYqb Kwi‡Z cvwi‡e|

(2) Dc-aviv (1)-G c`Ë ¶gZvi mvgwMKZv ¶b bv Kwiqv wbgewYZ wel‡q wewa cbqb Kiv hvB‡e, h_vt-

(K) miKvix nvmcvZvj I ‡emiKvix i³ cwimÂvjb †K‡›` wbivc` i³ msMn, msi¶b I i³ cwimÂvj‡bi cekZ I c×wZ wbaviY;

(L) i‡³i Pwn`v c`vbKvix Ges i³ cwimÂvjbKvix Wv³v‡ii `wqZ I KZe¨ wbaviY;

(M) i³, i‡³i Dcv`vb I i³RvZ mvgMx Drcv`b, msMn, msi¶Y I weZiY wbqšY;

(N) i³ cwimÂvjb †K‡›`i cwicwkK ¯v‡bi Dch³Zv wbaviY;

(O) i³ cwimÂvjb †K‡›`i Rb¨ ¯v¯¨m¤§Z fe‡bi Dch³Zv wbaviY;

(P) i³ cwimÂvjb †K›` ¯vc‡bi c‡qvRbxq AeKvVv‡gv wbaviY;

(Q) i³ cwimÂvjb †K‡›`i hš cwZ wbaviY;

(R) i³ cwimÂvjb †K‡›`i c‡qvRbxq miÄvgw`, †KwgK¨vjm, KxUm I wi-G‡R›U wbaviY;

(S) i³ cwimÂvjb †K‡›`i eR¨ Acmvib c×wZ wbaviY;

(T) i³ cwimÂvjb †K‡›`i c‡qvRbxq †jvKej Ges Zvnv‡`i †hvM¨Zv wbaviY;

(U) i³ `vZvi †kYx I cwiPq cÎ c`v‡bi c×wZ wbaviY;

(V) i³ `vZv‡`i †kYxIqvix ZwjKv cbqb I msi¶Y c×wZ wbaviY|

(3) GB avivi Aaxb cYxZ †Kvb wewai weavb jsN‡bi Rb¨ D³ wewa‡Z AbwaK GK j¶ UvKv chš Rwigvbvi weavb Kiv hvB‡e|

**35| Bs‡iRx‡Z Abw`Z cvV c|Kvk:-** GB AvBb ceZ‡bi ci miKvi, miKvix †M‡R‡U cÁvcb Øviv, GB AvB‡bi Bs‡iRx‡Z Abw`Z GKwU wbfi‡hvM¨ cvV cKvk Kwi‡e, hvnv GB AvB‡bi Ab‡gw`Z Bs‡iRx cvV (Authorized English Text) bv‡g Awfwn Z nB‡e t

Z‡e kZ _v‡K †h, GB AvBb I D³ Bs‡iRx cv‡Vi g‡a¨ we‡iv‡ai †¶‡Î GB AvBb cavb¨ cvB‡e|

KvRx iwKeDÏxb Avng`
mwPe|

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†gvt mv‡ivqvi"¾vgvb (Dc-mwPe), Dc-wbqšK, evsjv‡`k miKvix g`Yvjq, XvKv KZK gw`Z,
†gvt Awgb R‡eix Avjg, Dc-wbqšK, evsjv‡`k digm I cKvkbx Awdm,
†ZRMvI, XvKv KZK cKwkZ|

Annex -IV : 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‡Zl e¨eüZ nB‡e|

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

03| mfvcwZi Abgw Zµ‡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 - i³cwimÂvjb 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 Abcw¯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 †hŝ_ ¯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¨vw` µq BZ¨vw`|

04| cwZw`b e¨vsK-Gi mg‡qi g‡a¨ K¨vk eB‡qi Hw`b‡bi 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›` †gwW‡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 c‡Z‡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 KwgwUi 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 KwgwUi 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¨ ¯-¯ KwgwUi wbKU †ck Kwi‡Z nB‡e| AwWU wi‡cv‡Ui GK Kwc evsjv‡`k i³ cwimÂvjb KwgwUi 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¶v 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 ÔwmÕ) d¨v±i ..... 50/- (cÂvk) UvKv

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

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

†imvm (‡QvU ÔBÕ) 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 †`Iqv nB‡e Ges Zjbvgjkfv‡e Kg i‡³i Rb¨ Kg UvKv †`Iqv 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|

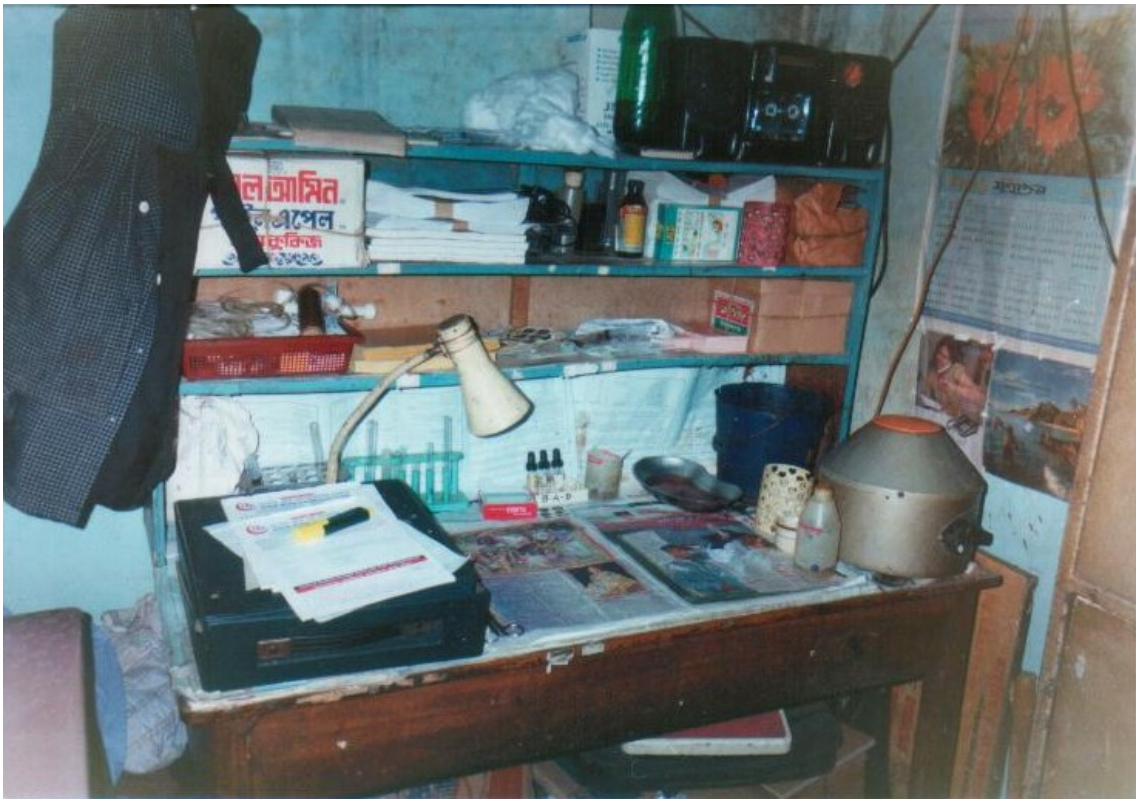
ivócwZi Av‡`kµ‡g
gbmi Avng`
mnKvix mwPe|

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

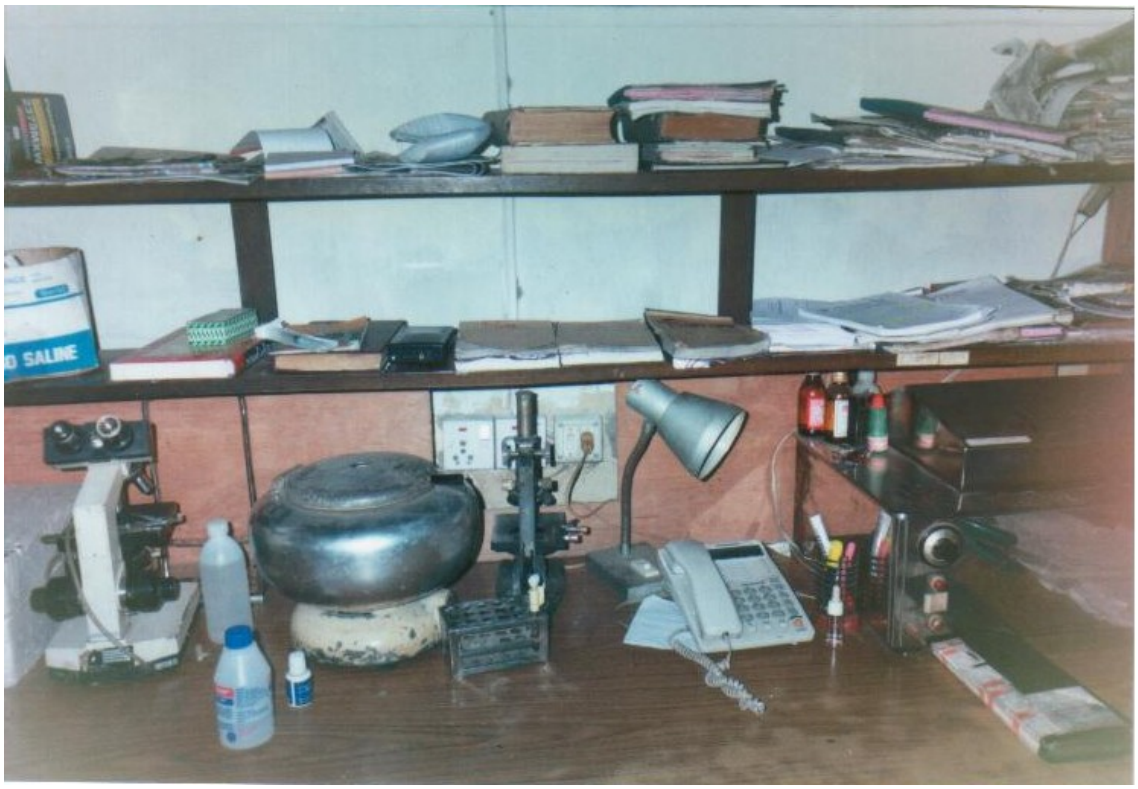
Annex - V: Photographs

Photograph showing a private blood bank running in a single small room.

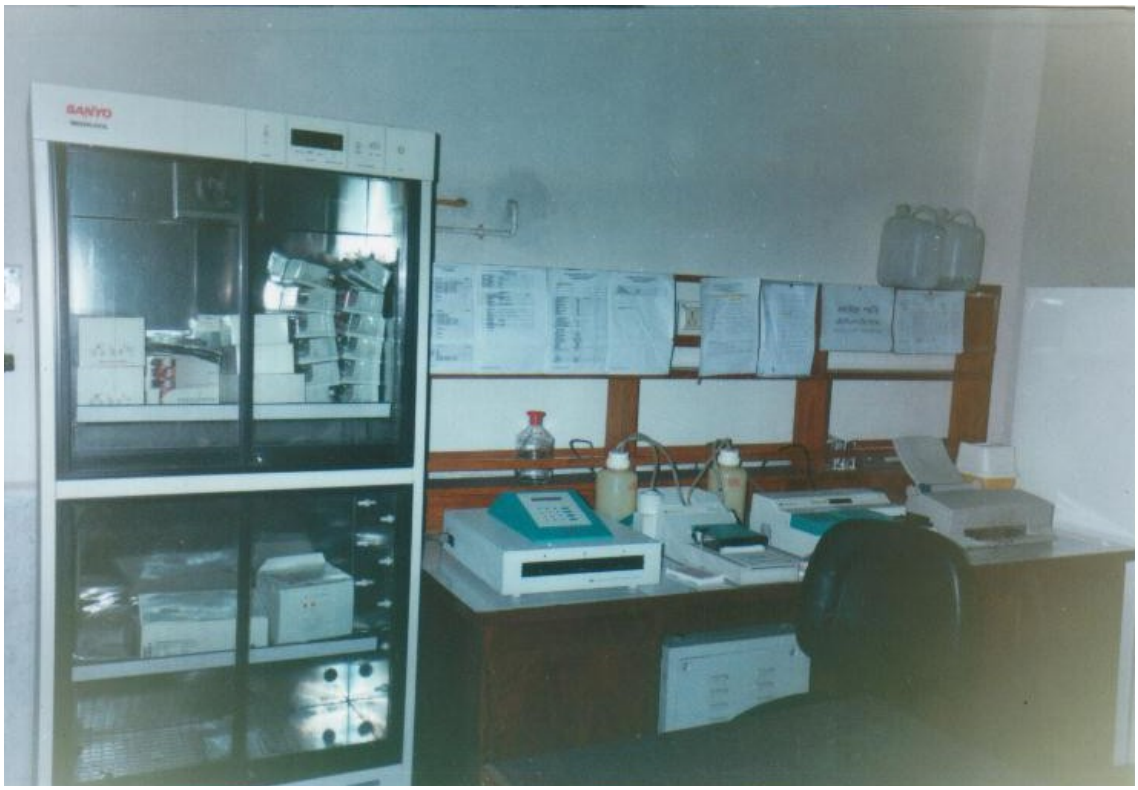
Photograph showing a lab technician working in a govt. MCH blood bank



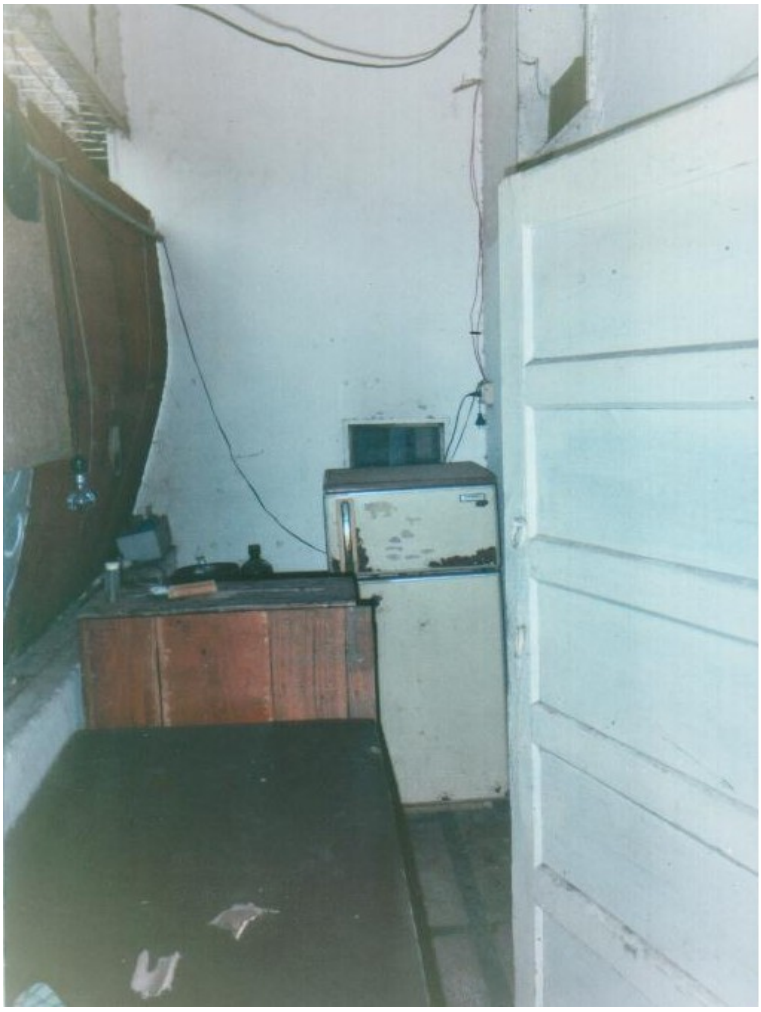
Photograph showing a private blood bank lab serving also as a living room.



Photograph showing inside of a private blood bank



Photograph showing inside of the govt. reference lab for blood banks



Photograph showing the lab of a private blood bank

Photograph showing entrance of a private blood bank