

Hospital Blood Transfusion Committee (HBTC)

The composition of the Hospital Blood Transfusion Committee will be as follows:

- | | |
|---|------------------|
| 1. Medical Superintendent | Chairman |
| 2. Physician/Haematologist | Member |
| 3. Gynaecologist/Surgeon/Oncologist/Anaesthesia | Member |
| 4. In charge BTSC | Member |
| 5. Metron/Sister in-charge | Member |
| 6. Representative, Blood Donor Organization | Member |
| 7. Pathologist/Micro-biologist/Medical technologist | Member secretary |

The TOR of HBTC are as follows:

1. Estimate average monthly blood requirement for the hospital.
2. Implement guidelines on rational use of blood as prepared by NSC.
3. Provide training to all clinical staffs on rational use of blood.
4. Oversee that standard operating procedure and protocols for all stages of transfusion of blood and blood products and management of adverse reactions to transfusion are followed.
5. Provide feedback on blood related issues to the blood bank if any.
6. Audit blood transfusions and the clinical outcomes.

"CATEGORIZATION OF BLOOD TRANSFUSION SERVICE-CENTER"

BTSC have been categorized into 5 groups as based on the available resources and services provided;

- A group BTSC
- B group BTSC
- C group BTSC
- D group BTSC
- E group BTSC

TOR for A group BTSC:

1. Availability of physical infrastructure, human resources, kits and reagents, blood collection and supply as per defined requirement.
2. Facility of ABO/Rh serology, TTI screening and cross- matching.
3. Blood storage capacity according to units of blood collected.
4. Collection of blood from voluntary non-remunerated donation. Annual collection target > 50,000 units/year.
5. Supply of blood and blood products to the hospitals maintaining cold chain.
6. Investigate the cause of Blood transfusion reactions whenever required.
7. Comply with quality standard as specified by National Guidelines/NSC/NTAC.
8. Reporting of blood related activities to NBBTS/NTAC.
9. Availability of counseling facility.
10. Capacity for components preparation including factors: VIII & IX. Component preparation should be > 50% of units of blood collected.
11. Active participation with HBTC.
12. Organize NEQAS and participate in IEQAS program.

TOR for B group BTSC:

1. Availability of physical infrastructure, human resources, kits and reagents, blood collection and supply as per defined requirement.
2. Facility of ABO/Rh serology and TTI screening and cross-matching.
3. Blood and blood components storage capacity according to units of blood collected.
4. Collection of blood from voluntary non remunerated donation. Annual collections target $\geq 25,000$ units/year.
5. Supply of blood and blood products to the hospitals maintaining cold chain.
6. Investigate the cause of Blood transfusion reactions whenever required.
7. Comply with quality standard as specified by National guidelines/NSC/NTAC.
8. Reporting of blood related activities to NBBTS/NTAC/CBTSC.
9. Availability of counseling facility.
10. Capacity for components preparation should be >25% of units of blood collected.
11. Active participation with HBTC.
12. Participation in all NEQAS program.

TOR for C group BTSC:

1. Availability of physical infrastructure, human resources, kits and reagents, blood collection and supply as per defined requirement.
2. Facility of ABO/Rh serology, TTI screening and cross-matching.
3. Blood storage capacity according to units of blood collected.
4. Collection of blood from voluntary non-remunerated donation. Annual collection target $\geq 5,000$ units.
5. Supply of blood and blood products to the hospitals by maintaining cold chain.

6. Investigate the cause of Blood transfusion reaction whenever needed.
7. Comply with quality standard as specified by National guidelines/NSC/NTAC.
8. Reporting of blood related activities to NBBTS/CBTSC.
9. Availability of counseling facility.
10. Capacity of component separation should be $\geq 10\%$ of units of blood collection.
11. Active participation with HBTC.
12. Participation in all NEQAS program.

TOR for D- I group BTSC (Hospital based)

1. Availability of physical infrastructure, human resources, kits and reagents and blood collection as per defined requirement.
2. Facility for ABO/Rh serology, TTI screening and cross-matching.
3. Blood storage capacity according to units of blood collected.
4. Collection of blood from voluntary non-remunerated donation. Annual collection target ≥ 2400 units (≥ 200 units/month).
5. Most of the government/private hospitals with such facility may be provided responsibility to collect and store blood as required.
6. Investigate the cause of Blood transfusion reaction whenever needed.
7. Comply with quality standard as specified by National guidelines/NSC/NTAC.
8. Reporting of blood related activities to NBBTS/CBTSC.
9. Capacity of component separation should be $\geq 10\%$ of units of blood collection.
10. Formation of HBTC.
11. Participation in all NEQAS program.

TOR for D-2 group BTSC(Emergency blood bank)

1. Availability of physical infrastructure, human resources, kits and reagents and blood collection as per defined requirement.
2. These are centers with facility for ABO/Rh serology, TTI screening and cross-matching.
3. Blood storage capacity according to units of blood collected.
4. Collection of blood from voluntary non-remunerated donation during emergency or as per required.
5. Most of the government hospitals at remote districts will have such emergency centers.
6. Investigate the cause of Blood transfusion reaction whenever needed.
7. Comply with quality standard as specified by National guidelines/NSC/NTAC.
8. Reporting of blood related activities to NBBTS/CBTSC.
9. Formation of HBTC (optional)
10. Participation in all NEQAS program .

TOR for E group BTSC:

1. Availability of physical infrastructure, human resources, kits and reagents as per defined requirement.
2. Facility for ABO/Rh serology and cross-matching.
3. Blood and blood component storage facilities to be present.
4. Such storage centers should collect blood from nearby NRCS central, Regional or district blood transfusion service center on a weekly/biweekly basis (not involving the patient party in collecting and transporting blood from blood centers to hospital).
5. Most of the government/private hospitals with such facility will store blood and blood components and issue as per requirement.
6. Investigate the cause of Blood transfusion reaction whenever needed.
7. Comply with quality standard as specified by National guidelines/NSC/NTAC.
8. Reporting of blood related activities to NBBTS/CBTSC.
9. Participation in NEQAS program (ABO/Rh serology).

3.2 Improved linkages between A, B, C, D, E groups BTSCs

Though each BTSC are managed independently, the linkages between different BTSCs will be improved and maintained as follows;

1. The policies and decisions of the NBBTS, NSC and the NTAC will uniformly apply to the entire blood transfusion service centers (NRCS and other hospital based centers).
2. A common SOP will be applicable to all blood transfusion service centers so that standards and procedures are uniform in all BTSCs of the country.
3. The Quality Assurance Protocol will be uniform for all blood transfusion service centers and participation in NEQAS program organized by NPHL/CBTSC is mandatory for all BTSCs.
4. Technical assistance will be provided through NTAC and higher BTSCs.
5. Linkages for exchange of blood between different categories of BTSC should be established which would require improved cold chain and transportation facilities.

ANNEX 8: HUMAN RESOURCES REQUIREMENT FOR CBTSC

S. No.	Description of Posts	Number
I.	Medical Director with a basic medical degree, Post graduation in Transfusion Medicine/pathology/Fellowship in transfusion medicine/Laboratory Medicine/with minimum ten years experience in the blood transfusion service or as identified by Government of Nepal.	1
II.	Deputy Director (Technical) Post graduation in Haematology/Pathology/Fellowship in transfusion medicine/M.Sc. clinical/medical Microbiology or as identified by Government of Nepal	1
III.	*Deputy Director (Administrative) with administrative expertise or Blood Bank/Lab management background	1
IV.	*Administrative Officer, graduate in Humanities, Management	1
V.	Medical officer with a basic medical degree and preferably post graduate in pathology/Laboratory Medicine/Transfusion Medicine	5
VI.	Quality Manager (M.Sc. clinical/medical Microbiology/Haematology/Immunology)	1
VII.	Quality Officer (M.Sc. MLT)	2
VIII.	Microbiologist (M.Sc. clinical/Medical microbiology)	2
IX.	Medical Technologist (BMLT)	8
X.	Lab technician (Blood Bank Technician) (CMLT)	15
XI.	Lab. Assistants (TSLC)/Blood Bank Technician	20
XII.	Lab boy	8
XIII.	Nurse In charge (B.Sc. Nursing)	1
XIV.	Staff Nurse (PCL Nursing)	5
XV.	Assistant Nurse Midwife ANM	10
XVI.	Biomedical Engineer (BE – Biomedical)	1
XVII.	Biomedical assistant	1
XVIII.	Public Relations Officer (Humanities graduate)	1

XIX.	Public Relation Assistant	2+2
XX.	Account Officer	1
XXI.	Accountant Assistant	1
XXII.	Store Keeper	1
XXIII.	Receptionist	3
XXIV.	Assistant	2
XXV.	Driver	10
XXVI.	Peon	8
XXVII.	Security Guard	8
XXVIII.	Sweeper/Cleaners	10

ANNEX 8A: HUMAN RESOURCES REQUIREMENT A GROUP BTSC

S. No.	Description of Posts	Number
I.	Medical Director with a basic medical degree/post graduation in Transfusion Medicine/pathology/fellowship in transfusion medicine/Laboratory Medicine/with minimum five years experience in the blood transfusion service.	1
II.	Deputy Director (Technical) Post graduation in Haematology/Pathology/Fellowship in transfusion medicine/M.Sc. clinical/medical Microbiology or as identified by Government of Nepal	1
III.	*Deputy Director (Administrative) with administrative expertise or Blood Bank/Lab management background	1
IV.	*Administrative Officer, graduate in Humanities, Management	1
V.	Medical officer with a basic medical degree and preferably post graduate in pathology/Laboratory Medicine/Transfusion Medicine/M.Sc. clinical/medical Microbiology	3
VI.	Quality Officer, Master's Degree in Laboratory medicine (Haematology/medical/clinical Microbiology/Immunology)	1
VII.	Microbiologists (M.Sc. medical/clinical Microbiology)	2
VIII.	Medical Technologists (BMLT)	7
IX.	Lab. technician (MLT)/Sr. Blood Bank Technician	10
X.	Lab. Assistants/Blood Bank Technician	10
XI.	Lab. boy	4
XII.	Nurse In charge (B.Sc. Nursing)	1
XIII.	Staff Nurse (PCL Nursing)	3+1
XIV.	Assistant Nurse Midwife	8
XV.	Biomedical Engineer (B.E. Biomedical)	1
XVI.	Biomedical Assistant	2
XVII.	Public Relations Officer (Humanities graduate)	1
XVIII.	Public Relation Assistant	1-2
XIX.	Account Officer	1

XX.	Accountant Assistant	1
XXI.	Store Keeper	2
XXII.	Receptionist	1
XXIII.	Driver	8
XXIV.	Peon	2
XXV.	Security Guard	4
XXVI.	Sweeper/Cleaners	8

ANNEX 8B: HUMAN RESOURCES REQUIREMENT B GROUP BTSC, C GROUP BTSC AND D GROUP, E GROUP

Description of posts	No. of Post in B group	No. of Post in C group BTSC	No. of Post in D1 Group	No. of Post in D2 Group	No. of Post in E Group
PG in pathology with fellowship in transfusion medicine/Lab service/medical/clinical Microbiology/Haematology/Immunology	1	-	-		-
Medical Technologist	2	1	1	1	1
Bio medical engineer	1				
Lab technician	4	3	3	2	3
Lab Assistant	4	2	2	1	2
Staff Nurse	2	1	1	-	-
Assistant Nurse Midwife	2	1	1	1	-
Public relation Officer/Adm. Officer	1	1	-	-	-
Office assistant	1	1	-	-	-
Accountant	1	-	-	-	-
Driver	3	2	1	1	1
Security Guard	4	2	2	1	1
Laboratory Cleaner	4	2	1	1	1
Lab boy/Peon	3	2	1	1	1

ANNEX 9: SPACE REQUIREMENT A GROUP BTSC, B GROUP BTSC, C GROUP BTSC ,D GROUP AND E GROUP BTSC.

Surrounding: The BTSC must be located in clean and hygienic surrounding and must be clearly visible and easily accessible to the general public. The BTSC must be preferably being temperature controlled. Minimum requirement for space in square meters is given below based on blood collection.

Space for BTSC based on donor collection.

S.N.	Description	A Group BTSC	B Group BTSC	C Group	D Group Hospital/Emergency	E group
1	Annual blood collection	>50,000	25-50,000	5-25,000	<5000	Store + Cross match
2	Area of BTSC in sq. M	800-1,000	100-300	>30	>20	>10

Different areas of BTSC:

1. Donor Complex: It should consist of a waiting area, registration, medical screening room, donor phlebotomy, rest and refreshment area, donor counseling/donor care, apheresis room, pantry and toilet for donors.
2. BTS Laboratory area: Routine laboratory for grouping, cross-matching, blood issue and receiving counter, blood component laboratory, infection marker screening laboratory, washing and sterilization, blood storage areas.
3. Loading and Unloading Stores for blood/equipment
4. Quality monitoring and training and assessing transfusion reaction laboratory.
5. Administration.
6. Meeting/library room.
7. Vehicle ramp.
8. Donor recruitment unit.
9. Blood/blood component room.
10. Blood and blood component distribution section.
11. Waste disposal and management unit.

The BTS unit should be located close to the Laboratory unit of the hospital separated by a corridor. Fans, air coolers or heaters are some of the basic items necessary in any BTS unit. All rooms should be well lighted and ventilated. There should be continuous water and electric supply.

ANNEX 10: REQRIMENT OF EQUIPMENTS AND REAGENTS

1. List of equipment and reagents for CBTSC

S.No.	Name of equipment	Qty.
1	Blood bank refrigerator (or cold room with similar capacity)	20
2	Component separation capacity for over 80% of blood collected (component separator centrifuge/machine, Aphaeresis machine)	<i>As per SOP for BTS 2011</i>
3	Automated Blood Grouping Machine	1
4	Automated ELISA Reader and washer	4
5	Automatic cell counter	2
6	Platelet shaker	6
7	Gamma radiation chamber	1
8	Ordinary centrifuge	10
9	Balance (electronic)	4
10	Autoclave	4
11	Incubator	4
12	Water Bath	6
13	Deep freezer (-80°C)	4
14	Deep freezer (-20°C)	4
15	Hot Air Oven	4
16	Double Distillation plant	2
17	Computer with printer with BTS info system sever, barcode writer/reader	10-15
18	Microscope	2-4
19	VDRL rotator	2
20	Equipments for donor unit	20 sets
21	Reagents Kits for ABO/Rh serology and TTI screening	As requirement
22	Glass ware & consumables.	as per needs
23	Blood collection Mobile Vans/Ambulance	5
24	Vehicles official use	2
25	Generator 60 KVA (or within other capacity as per need)	1 set
26	Needle destroyer	5
27	Other equipments as per the requirement	

2. List of equipment and reagents for A group BTSC

S.No.	Name of equipment	Qty.
1	Blood bank refrigerator 2 to 4° C	6-10
2	Component preparation sets (component separator centrifuge/machine, Apheresis machine)	<i>As per SOP for BTS 2011</i>
3	Automatic/Semi automatic ELISA Reader and washer	2
4	Automatic/Semi automatic cell counter	1
5	Platelet shaker	2
6	Gamma radiation chamber	1
7	Ordinary centrifuge	5-10
8	Balance (electronic)	2
9	Autoclave	2
10	Incubator	2
11	Water Bath	4
12	Deep freezer (-20°C to -30°C)	3
13	Deep-freezer(-80°C)	2
14	Hot Air Oven	3
15	Double Distillation plant	2
16	Computer with printer with BTS information system server, barcode writer/reader	6-10
17	Microscope	1-2
18	Auto pipettes (20, 50, 100 µl)	2 each
19	VDRL rotator	3
20	Equipments for donor unit (Sealer, blood bag segment joining device, balance with shaker, Ice-pack, Capillary Hb estimation device/CuSo4 solution)	10 sets
21	Reagents Kits for ABO/Rh serology and TTI screening	as per requirement
22	Glass ware & consumables	as per need.
23	Generator 60 KVA (or within other capacity as per need)	1 set
24	Needle destroyer	5
25	Other equipments	as per need

3. List of equipment and reagents for B group BTSC

S.No.	Name of equipment	Qty.
1	Blood bank refrigerator 2 to 4 °C	4-6
2	Component preparation sets (component separator centrifuge/machine, Apheresis machine)	As per SOP for BTS 2011
3	Automatic/Semi automatic ELISA Reader and washer	1
4	Automatic/Semi automatic cell counter	1
5	Platelet shaker	1
6	Gamma radiation chamber	1* Optional
7	Ordinary centrifuge	3
8	Balance (electronic)	2
9	Autoclave	1
10	Incubator	2
11	Water Bath	3
12	Deep freezer (-20°C to -30°C)	1
13	Deep-freezer(-80°C)	1
14	Hot Air Oven	2
15	Double Distillation plant	1
16	Computer with printer with BTS information system server, barcode writer/reader	2
17	Microscope	1
18	Auto pipettes (20, 50, 100 µl)	2 each
19	VDRL rotator	2
20	Equipments for donor unit(Sealer, blood bag segment joining device, balance with shaker, Ice-pack, Capillary Hb estimation device/CuSo4	6 sets
21	Reagents Kits for ABO/Rh serology/TTI screening/cross matching	as per need
22	Glass ware & consumables.	as per need
23	Generator 60 KVA (or within other capacity)	as per need
24	Needle destroyer	5
25	Other equipments	as per the requirement

* If radiation required, can have MOU with institute having the radiation facilities.

4. List of equipment and reagents for C group BTSC

S.No.	Name of equipment	Qty.
1	Blood bank refrigerator 2 to 4 °C	4
2	Component preparation sets (component separator centrifuge/machine, Apheresis machine)	1
3	Automatic/Semi automatic ELISA Reader and washer	1 Optional
4	Platelet shaker	1
5	Gamma radiation chamber	1* Optional
6	Ordinary centrifuge	3
7	Balance (electronic)	1
8	Autoclave	1
9	Incubator	2
10	Water Bath	3
11	Deep freezer (-20°C to -30°C)	1
12	Deep-freezer(-80°C)	1
13	Hot Air Oven	2
14	Double Distillation plant	1
15	Computer with printer with BTS information system server, barcode writer/reader	1
16	Microscope	1
17	Auto pipettes (20, 50, 100 µl)	2 each
18	VDRL rotator	1
19	Equipments for donor unit(Sealer, blood bag segment joining device, balance with shaker, Ice-pack, Capillary Hb estimation device/CuSo4	4 sets
20	Reagents Kits for ABO/Rh serology/TTI screening/cross matching	as per need
21	Glass ware & consumables.	as per need
22	Generator 60 KVA or within other capacity	as per need
23	Needle destroyer	3
24	Other equipments	as per the requirement

* If radiation required, can have MOU with institute having the radiation facilities.

5. List of equipment and reagents for D1 group BTSC

S.No.	Name of equipment	Qty.
1	Blood bank refrigerator 2 to 4 °C	4
2	Component preparation sets (component separator centrifuge/machine, Apheresis machine)	1
3	Automatic/Semi automatic ELISA Reader and washer	1
4	Platelet shaker	1
5	Gamma radiation chamber	1* Optional
6	Ordinary centrifuge	3
7	Balance (electronic)	1
8	Autoclave	1
9	Incubator	2
10	Water Bath	3
11	Deep freezer (-20°C to -30°C)	1
12	Deep-freezer(-80°C)	1
13	Hot Air Oven	2
14	Double Distillation plant	1
15	Computer with printer	1
16	Microscope	1
17	Auto pipettes (20, 50, 100 µl)	2 each
18	VDRL rotator	1
19	Equipments for donor unit(Sealer, blood bag segment joining device, balance with shaker, Ice-pack, Capillary Hb estimation device/CuSo4	6 sets
20	Reagents Kits for ABO/Rh serology/TTI screening/cross matching	as per need
21	Glass ware & consumables.	as per need
22	Generator 60 KVA or within other capacity	as per need
23	Needle destroyer	4
24	Other equipments	as per the requirement

* If radiation required, can have MOU with institute having the radiation facilities.

6. List of equipment and reagents for D2 group BTSC Group D2 (Emergency Blood bank.)

S.No.	Name of equipment	Qty.
1.	Blood bank refrigerator 2 to 4° C	4
2.	Ordinary centrifuge	3
3.	Balance (electronic)	1
4.	Autoclave	1
5.	Computer with printer	1
6.	Microscope	1
7.	Auto pipettes (20, 50, 100 µl)	2 each
8.	Incubator	2
9.	Water Bath	3
10.	Hot Air Oven	2
11.	VDRL rotator	1
12.	Equipments for donor unit(Sealer, blood bag segment joining device, balance with shaker, Ice-pack, Capillary Hb estimation device/CuSo4)	2 sets
13.	Reagents Kits for ABO/Rh serology/TTI screening/cross matching	as per requirement
14.	Glass ware & consumables	as per need.
15.	Generator 60 KVA	as per need
16.	Needle destroyer	2
17.	Other equipments	as per the requirement

**7. Group E: List of equipment and reagents for E groups
(Storage and cross matching facility)**

S.No.	Name of equipment	Qty.
1.	Blood bank refrigerator 2 to 4° C	2-4
2.	Ordinary centrifuge	3
3.	Deep freezer (-20°C to -30°C)	1
4.	Deep freezer (-80°C)	1
5.	Platelet Shaker	1
6.	Autoclave	1
7.	Computer with printer	1
8.	Gamma radiation chamber	1 optional*
9.	Microscope	1
10.	Auto pipettes (20, 50, 100 µl)	2 each
11.	Incubator	2
12.	Water Bath	3
13.	Hot Air Oven	2
14.	Glass ware & consumables	as per need
15.	Generator 60 KVA	as per need
16.	Needle destroyer	as per need
17.	Reagents Kits for ABO/Rh serology/cross-matching requirement	as per need
18.	Other equipments	as per the requirement

* Radiation required, can have MOU with institute having the radiation facilities.

