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Assignment Blood Banking
Submitted To Ma'am HUMA

Blood Components Separation

→ A Method in which a fixed quantity of blood is collected in a bag and the components are separated and collected in the collection bag and other components are returned back to the donor.

∴ Mainly for separating components a machine is used, known as centrifuge, which is a device in which we separate different components of blood through centrifugal force.

→ Red Blood cells, platelets and plasma are separated mainly,

→ Red Blood cells ppt at the bottom of bag or tube, with the platelets are above them & then white blood cells & plasma are very at the top

∴ Main components of Blood are:-

- (i) RBCs
- (ii) Platelets
- (iii) FFP
- (iv) Cryoprecipitated Anti-hemophilic factor
- (v) Granocytes

31	S
30	S
29	F
28	F
27	S
26	S
25	T
24	T
23	W
22	W
21	T
20	T
19	F
18	F
17	S
16	S
15	T
14	T
13	W
12	W
11	T
10	T
9	F
8	F
7	S
6	S
5	T
4	T
3	W
2	W
1	T
31	S

31	S
30	S
29	F
28	F
27	S
26	S
25	T
24	T
23	W
22	W
21	T
20	T
19	F
18	F
17	S
16	S
15	T
14	T
13	W
12	W
11	T
10	T
9	F
8	F
7	S
6	S
5	T
4	T
3	W
2	W
1	T
31	S

31	S
30	S
29	F
28	F
27	S
26	S
25	T
24	T
23	W
22	W
21	T
20	T
19	F
18	F
17	S
16	S
15	T
14	T
13	W
12	W
11	T
10	T
9	F
8	F
7	S
6	S
5	T
4	T
3	W
2	W
1	T
31	S

31	S
30	S
29	F
28	F
27	S
26	S
25	T
24	T
23	W
22	W
21	T
20	T
19	F
18	F
17	S
16	S
15	T
14	T
13	W
12	W
11	T
10	T
9	F
8	F
7	S
6	S
5	T
4	T
3	W
2	W
1	T
31	S

30	S
29	S
28	F
27	F
26	S
25	S
24	T
23	T
22	W
21	W
20	T
19	T
18	F
17	F
16	S
15	S
14	T
13	T
12	W
11	W
10	T
9	T
8	F
7	F
6	S
5	S
4	T
3	T
2	W
1	W
30	S

31	S
30	S
29	F
28	F
27	S
26	S
25	T
24	T
23	W
22	W
21	T
20	T
19	F
18	F
17	S
16	S
15	T
14	T
13	W
12	W
11	T
10	T
9	F
8	F
7	S
6	S
5	T
4	T
3	W
2	W
1	T
31	S

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Importance of Components Separations

→ Separation of Blood into components allows optimal survival of each component

→ It allows transfusion of specific desired component to the patient

→ Transformation of specific component can avoid the use of unnecessary components

→ Avoiding of ~~trans~~ unspecific components, can be treated ^{others} with the blood from one donor

January 2019

27	S
28	M
29	T
30	W
31	T
1	F
2	S
3	S
4	M
5	T
6	W
7	T
8	F
9	S
10	M
11	T
12	W
13	T
14	F
15	S
16	M
17	T
18	W
19	T
20	F
21	S
22	M
23	T
24	W
25	T
26	F
27	S
28	M
29	T
30	W
31	T

February 2019

1	F
2	S
3	M
4	T
5	W
6	T
7	F
8	S
9	M
10	T
11	W
12	T
13	F
14	S
15	M
16	T
17	W
18	T
19	F
20	S
21	M
22	T
23	W
24	T
25	F
26	S
27	M
28	T

March 2019

1	F
2	S
3	M
4	T
5	W
6	T
7	F
8	S
9	M
10	T
11	W
12	T
13	F
14	S
15	M
16	T
17	W
18	T
19	F
20	S
21	M
22	T
23	W
24	T
25	F
26	S
27	M
28	T
29	W
30	T
31	F

April 2019

1	F
2	S
3	M
4	T
5	W
6	T
7	F
8	S
9	M
10	T
11	W
12	T
13	F
14	S
15	M
16	T
17	W
18	T
19	F
20	S
21	M
22	T
23	W
24	T
25	F
26	S
27	M
28	T
29	W
30	T

May 2019

1	F
2	S
3	M
4	T
5	W
6	T
7	F
8	S
9	M
10	T
11	W
12	T
13	F
14	S
15	M
16	T
17	W
18	T
19	F
20	S
21	M
22	T
23	W
24	T
25	F
26	S
27	M
28	T
29	W
30	T
31	F

June 2019

1	F
2	S
3	M
4	T
5	W
6	T
7	F
8	S
9	M
10	T
11	W
12	T
13	F
14	S
15	M
16	T
17	W
18	T
19	F
20	S
21	M
22	T
23	W
24	T
25	F
26	S
27	M
28	T
29	W
30	T
31	F

Preparation of Blood Components

(i) Whole Blood:

→ Consist of RBCs, WBCs, Platelets and plasma

→ 1 unit increases Hgb 1g/dL & Hct 3%.

→ Stored 1-6 c

→ Shipping 1-10c

→ 21-35 days (stored)

→ It is used when a patients are actively bleeding & lost > 25% of total Blood volume

→ Can Exchange Transfusion

(2) Red Blood cells

→ RBCs (Frozen)

→ ≤ 65 c for 10 years

→ RBCs (deglycerolized or washed)

→ 1-6 c for 24 hours

→ RBCs (Irradiated)

→ 1-6 c for 28 days



July 2019
S M T W T F S
1 2 3 4 5 6 7
8 9 10 11 12 13 14
15 16 17 18 19 20 21
22 23 24 25 26 27 28
29 30 31

August 2019
S M T W T F S
1 2 3 4 5 6 7
8 9 10 11 12 13 14
15 16 17 18 19 20 21
22 23 24 25 26 27 28
29 30 31

September 2019
S M T W T F S
1 2 3 4 5 6 7
8 9 10 11 12 13 14
15 16 17 18 19 20 21
22 23 24 25 26 27 28
29 30

October 2019
S M T W T F S
1 2 3 4 5
6 7 8 9 10 11 12
13 14 15 16 17 18 19
20 21 22 23 24 25 26
27 28 29 30 31

November 2019
S M T W T F S
1 2
3 4 5 6 7 8 9
10 11 12 13 14 15 16
17 18 19 20 21 22 23
24 25 26 27 28 29 30

December 2019
S M T W T F S
1 2 3 4 5 6 7
8 9 10 11 12 13 14
15 16 17 18 19 20 21
22 23 24 25 26 27 28
29 30 31

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(3) Plateltes:

- Peoples who need it,
 - Cancer patients
 - Bone-Marrow recipients
 - post-operative bleeding

2 Spins:

(i) Soft: Separates RBCs & WBCs from plasma and platelets

(2) Heavy (PRP): Platelets rich plasma will force to the bottom of satellite bag.

→ Can stored for 5-days → 24°C

(4) Fresh Frozen Plasmas (FFP)

→ Plasma which frozen in 8 hours of donation (18°C → for 1 year)

→ FFP is thawed before transfusion (30-37°C waterbath for 30-45 mins)

→ Needs to be ABO compatible

→ Stored 1-6°C & transfused within 24 hrs

(5) Cryoprecipitate:

protein that ^{AHP} result after ppt thawing
FFP.

→ After can't re-frozen after ^{once it} separation

→ Stored at room temperature (4 hours)

→ Mainly used for

- Factor VIII deficiency, Hemophilia A
- Von-Willebrand's Disease
- FXIII deficiency
- Congenital or acquired fibrinogen deficiency

• "Fibrin Glue" Applied applied to Surgical sites

(6) Granulo-cytes:

→ Mostly involved in phagocytosis of Bacteria / fungi

→ Prepared by hemapheresis

→ $\geq 1.0 \times 10^{10}$

→ Room Temperature for 24 hrs.

31	31	31	31	31	31
24	24	24	24	24	24
17	17	17	17	17	17
10	10	10	10	10	10
3	3	3	3	3	3
S	S	S	S	S	S
M	M	M	M	M	M
T	T	T	T	T	T
W	W	W	W	W	W
T	T	T	T	T	T
F	F	F	F	F	F
S	S	S	S	S	S
24	24	24	24	24	24
17	17	17	17	17	17
10	10	10	10	10	10
3	3	3	3	3	3
S	S	S	S	S	S
M	M	M	M	M	M
T	T	T	T	T	T
W	W	W	W	W	W
T	T	T	T	T	T
F	F	F	F	F	F
S	S	S	S	S	S
26	26	26	26	26	26
19	19	19	19	19	19
12	12	12	12	12	12
5	5	5	5	5	5
S	S	S	S	S	S
M	M	M	M	M	M
T	T	T	T	T	T
W	W	W	W	W	W
T	T	T	T	T	T
F	F	F	F	F	F
S	S	S	S	S	S
28	28	28	28	28	28
21	21	21	21	21	21
14	14	14	14	14	14
7	7	7	7	7	7
S	S	S	S	S	S
M	M	M	M	M	M
T	T	T	T	T	T
W	W	W	W	W	W
T	T	T	T	T	T
F	F	F	F	F	F
S	S	S	S	S	S
29	29	29	29	29	29
22	22	22	22	22	22
15	15	15	15	15	15
8	8	8	8	8	8
1	1	1	1	1	1
S	S	S	S	S	S
M	M	M	M	M	M
T	T	T	T	T	T
W	W	W	W	W	W
T	T	T	T	T	T
F	F	F	F	F	F
S	S	S	S	S	S
30	30	30	30	30	30
23	23	23	23	23	23
16	16	16	16	16	16
9	9	9	9	9	9
2	2	2	2	2	2
S	S	S	S	S	S
M	M	M	M	M	M
T	T	T	T	T	T
W	W	W	W	W	W
T	T	T	T	T	T
F	F	F	F	F	F
S	S	S	S	S	S