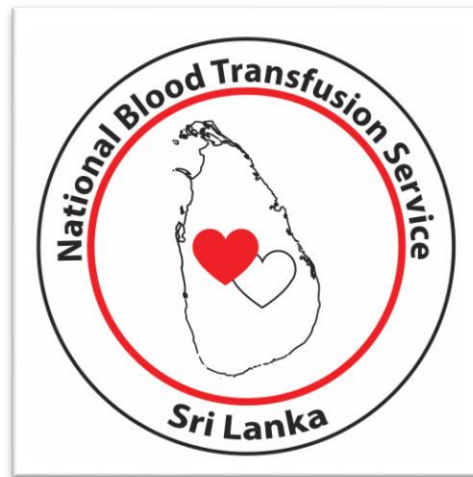


# **ANNUAL STATISTICS REPORT 2020**

**NATIONAL BLOOD TRANSFUSION SERVICE**

**SRI LANKA**



Statistics Unit  
National Blood Transfusion Service

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## **Introduction**

National Blood Transfusion Service (NBTS), Sri Lanka is a special campaign coming under the Ministry of Health. It is the sole supplier of blood and blood products to all government hospitals and majority of private sector hospitals. There are 102 Hospital Based Blood Banks & 2 standalone Blood Centers affiliated to 24 cluster centers depending on the geographic distribution. Out of the 102 Hospital Based Blood banks three blood banks are still not functioning (Kiribathgoda, Deniyaya, Medawachchiya).

### **Vision**

To be a unique model for the world securing Quality assured blood services, through a nationally coordinated system.

### **Mission**

To ensure the quality, safety, adequacy and cost effectiveness of the blood supply and related laboratory, clinical, academic and research in accordance with national requirement and WHO recommendations .

## **National Blood Transfusion Service**

The Director NBTS, being the chief executive officer of the organization, is responsible for implementation and supervision of the common decisions taken by the organization.

Each cluster Centre is headed by a Consultant Transfusion Physician. They also provide clinical guidance to blood banks within the cluster.

This report compiles the consolidated statistics of the performance of blood banks of the National Blood Transfusion Services for the year 2020.

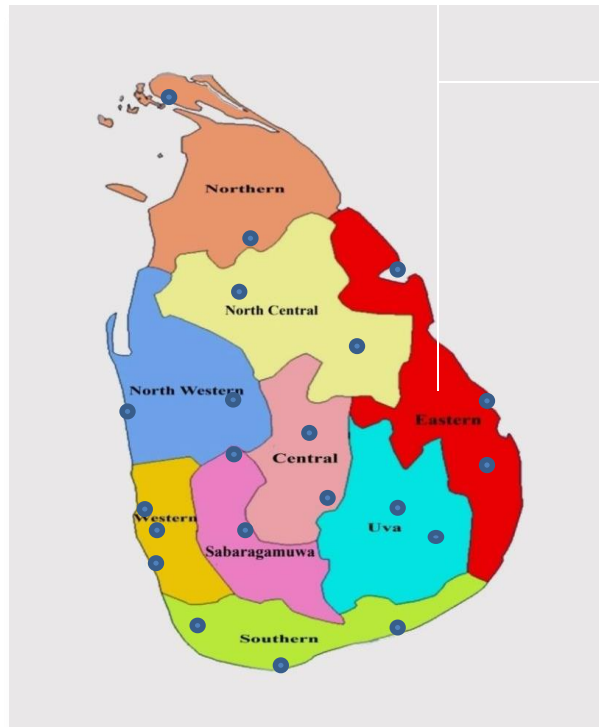
## Cluster System and Blood Bank Distribution of National Blood Transfusion Service - 2020

North Central	
<b>ANURADHAPURA</b>	
Anuradhapura Padaviya Thambuththegama Medawachchiya	
<b>POLONNARUWA</b>	
Polonnaruwa Medirigiriya Dehiattakandiya	

Northern	
<b>VAVUNIYA</b>	<b>JAFFNA</b>
Vavuniya Chettikulam Mannar	Jaffna Kilinochchi Point Pedro Mullativu Thellippalai

Eastern		
<b>BATTICALOA</b>	<b>TRINCOMALEE</b>	<b>AMPARA</b>
Batticaloa Valachchenai Kattankudy Kalawanchikudi	Trincomalee Kantale Kinniya Muththur	Ampara Akkarepattu Kalmunai - North Kalmunai - South Mahaoya Sammanthurai Pothuvil

Central	
<b>KANDY</b>	<b>PERADENIYA</b>
Kandy Theldeniya Matale Dambulla	Peradeniya Gampola Nawalapitiya
<b>NUWARA ELIYA</b>	
Nuwara Eliya Dikkoya Rikillagaskada	



Sabaragamuwa	
<b>RATNAPURA</b>	<b>KEGALLE</b>
Ratnapura Embilipitiya Balangoda Kahawatta	Kegalle Mawanella Karawanella Warakapola

UVA
<b>BADULLA</b>
Badulla Diyatalawa Mahiyanganaya Welimada
<b>MONARAGALA</b>
Monaragala Bibile Wellawaya

North Western	
<b>KURUNEGALA</b>	<b>CHILAW</b>
Kurunegala Dambadeniya Kuliyapitiya Nikaweratiya Galgamuwa	chilaw Marawila Puttalam

Western				
<b>COLOMBO</b>	<b>RAGAMA</b>	<b>GAMPAHA</b>	<b>MAHARAGAMA</b>	<b>KALUTARA</b>
NBC	CNTH	Gampaha	CIM Apeksha	Kalutara
NHSL	Kiribathgoda	Wathupitiwala	Awissawella	Horana
CSHW	Negambo	Meerigama	Homagama	Kethumathi
CSTH	Welisara	Minuwangoda		Panadura
DMH				
LRH				
SJGH				
Accident Ser.				
IDH- Angoda				
CEBH- Mulleriyawa				
NINDT- Maligawaththa				
Army Hospital				
KDU				

Southern		
<b>KARAPITIYA</b>	<b>MATARA</b>	<b>HAMBANTOTA</b>
Karapitiya	Matara	Hambantota
Mahamodara	SRBC Kamburugamuwa	Tangalla
Balapitiya	Kamburupitiya	Tissamaharamaya
Elpitiya	*Deniyaya	Walasmulla
Udugama		

## **Blood Collection**

Table 1: Comparison of Annual Blood Collection

<b>Year</b>	<b>Voluntary Collection</b>	<b>Replacement Collection</b>	<b>Total Collection</b>
2015	395,500	0	395,500
2016	414,175	0	414,175
2017	423,668	0	423,668
2018	450,640	0	450,640
2019	444,515	0	444,515
2020	397,833	0	397,833

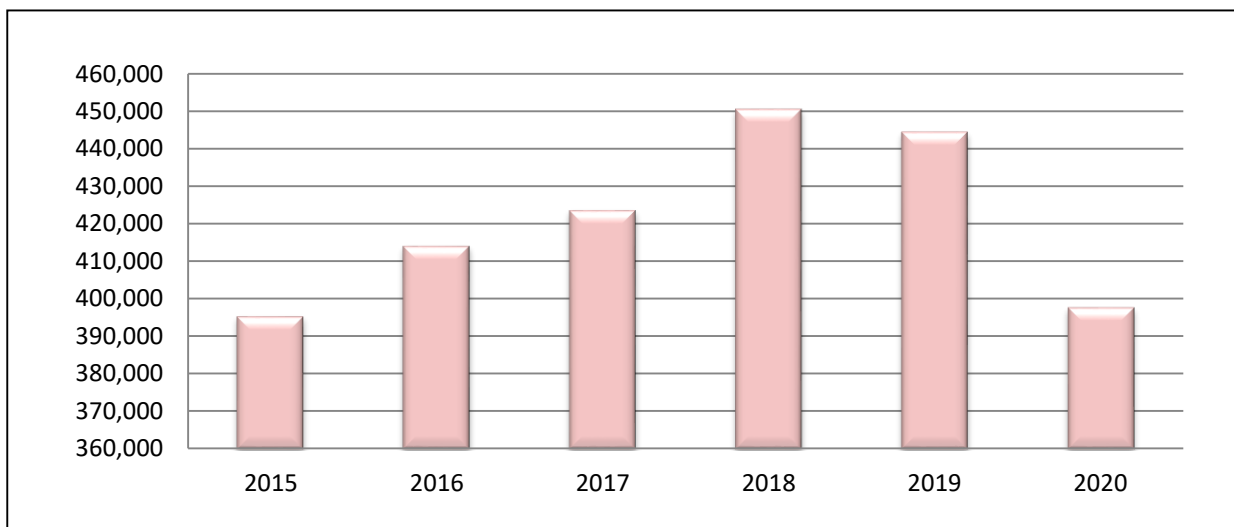


Figure 1: Yearly comparison of blood collection

<b>Month</b>	<b>2019</b>	<b>2020</b>
January	37922	38122
February	40335	38987
March	37043	29335
April	32587	17550
May	35864	33403
June	38975	40557
July	37868	30730
August	38425	38512
September	33901	37989
October	35513	27203
November	34894	32536
December	41188	32909
<b>Total</b>	<b>444515</b>	<b>397833</b>

Table 2: Comparison of Monthly Blood Collection in 2019 and 2020

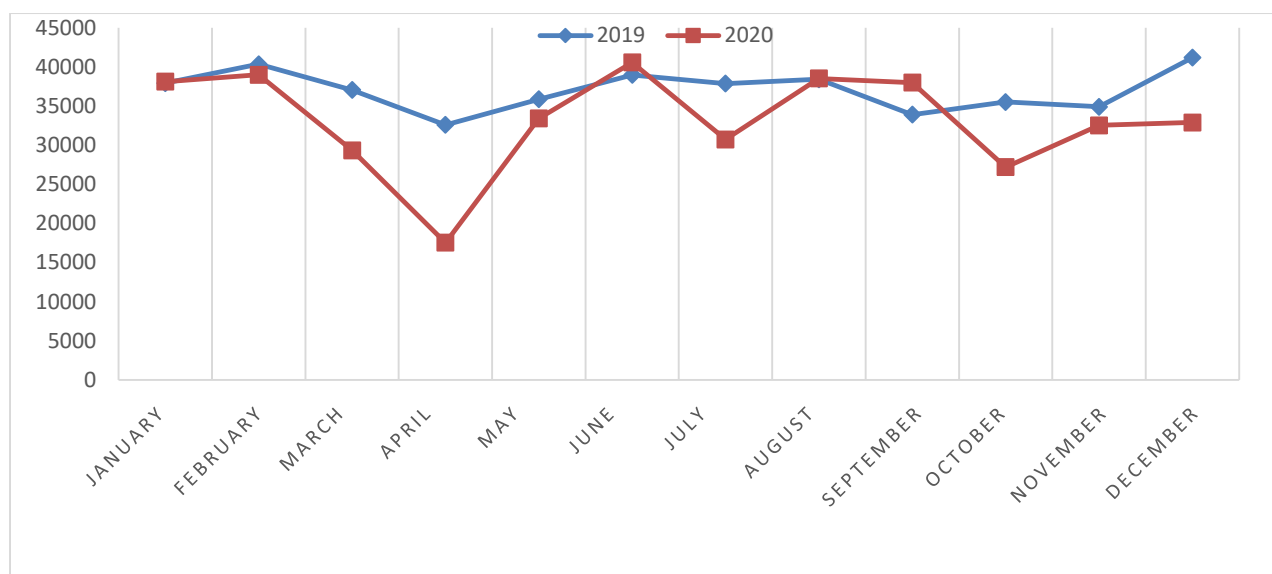


Figure 2: Comparison of Monthly Blood Collection in 2019 and 2020

### **Blood Collection Cluster wise**

Table 3: Total blood collection cluster wise

Cluster	Number of Mobiles	In-house Donations	Mobile Donations	Total Donations
Ampara	180	2322	9138	11460
Anuradhapura	278	2431	22948	25379
Badulla	217	2093	14962	17055
Batticaloa	60	932	3627	4559
Chilaw	168	1130	10216	11346
CIM	186	4644	16877	21521
CNTH	194	1557	15654	17211
Colombo	636	12124	50465	62589
Gampaha	132	1938	8657	10595
Hambantota	120	850	7350	8200
Jaffna	245	3121	7916	11037
Kalutara	183	1459	11753	13212
Kandy	279	3569	22415	25984
Karapitiya	208	1987	18882	20869
Kegalle	108	1111	6763	7874
Kurunegala	378	4475	35213	39688
Matara	208	2110	19849	21959
Monaragala	127	917	8520	9437
Nuwara Eliya	97	1216	5482	6698
Peradeniya	175	1689	11716	13405
Polonnaruwa	148	1319	9931	11250
Ratnapura	230	2200	16099	18299
Trincomalee	56	944	3592	4536
Vavniya	53	970	2700	3670
<b>Total</b>	<b>4666</b>	<b>57108</b>	<b>340725</b>	<b>397833</b>

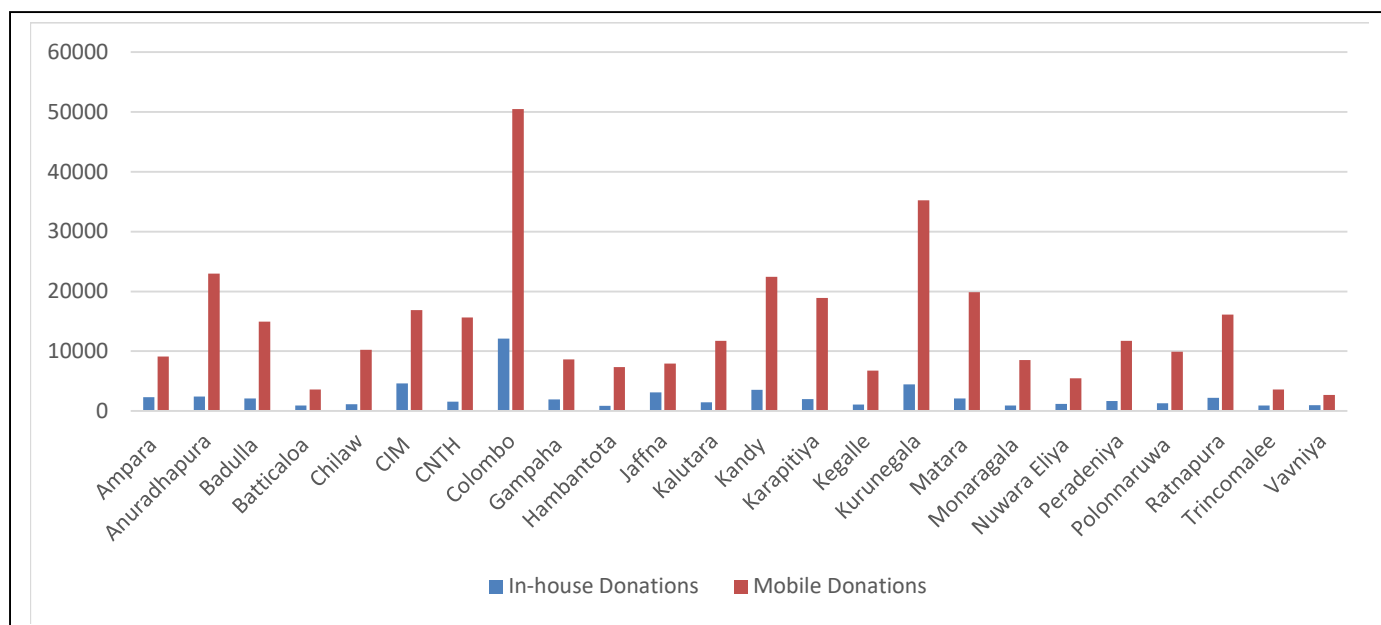


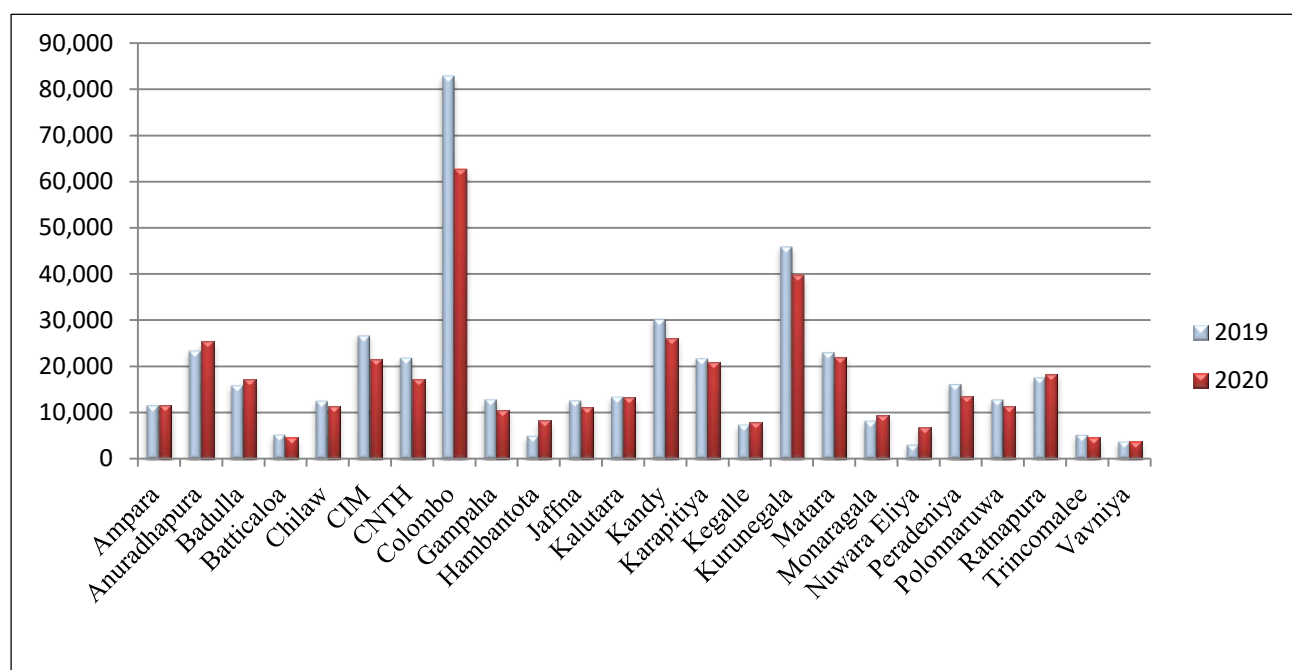
Figure 3: Total blood collection cluster wise

### **Comparison of Cluster collection with previous year**

Table 4: Comparison of cluster blood collection with previous year

Cluster	2019	2020
Ampara	11,814	11,460
Anuradhapura	23,696	25,379
Badulla	16,173	17,055
Batticaloa	5,384	4,559
Chilaw	12,778	11,346
CIM	27,031	21,521
CNTH	22,208	17,211
Colombo	82,965	62,589
Gampaha	13,104	10,595
Hambantota	5,094	8,200
Jaffna	12,793	11,037
Kalutara	13,668	13,212
Kandy	30,587	25,984
Karapitiya	22,019	20,869
Kegalle	7,559	7,874
Kurunegala	46,158	39,688
Matara	23,361	21,959
Monaragala	8,401	9,437
Nuwara Eliya	3,205	6,698
Peradeniya	16,429	13,405
Polonnaruwa	13,024	11,250
Ratnapura	17,860	18,299
Trincomalee	5,340	4,536
Vavniya	3,864	3,670

Figure 4: Comparison of cluster blood collection with previous year



## Monthly Blood Collection

Table 5: Monthly variation in total blood collection

Month	Number of Mobiles	Mobile Donations	In-house Donations	Total Donations
January	450	35366	2756	38122
February	481	36717	2270	38987
March	338	23019	6316	29335
April	167	10069	7481	17550
May	346	25884	7519	33403
June	453	35752	4805	40557
July	429	26936	3794	30730
August	410	32838	5674	38512
September	461	34262	3727	37989
October	349	23717	3486	27203
November	399	26819	5717	32536
December	383	29346	3563	32909
<b>Total</b>	<b>4666</b>	<b>340725</b>	<b>57108</b>	<b>397833</b>



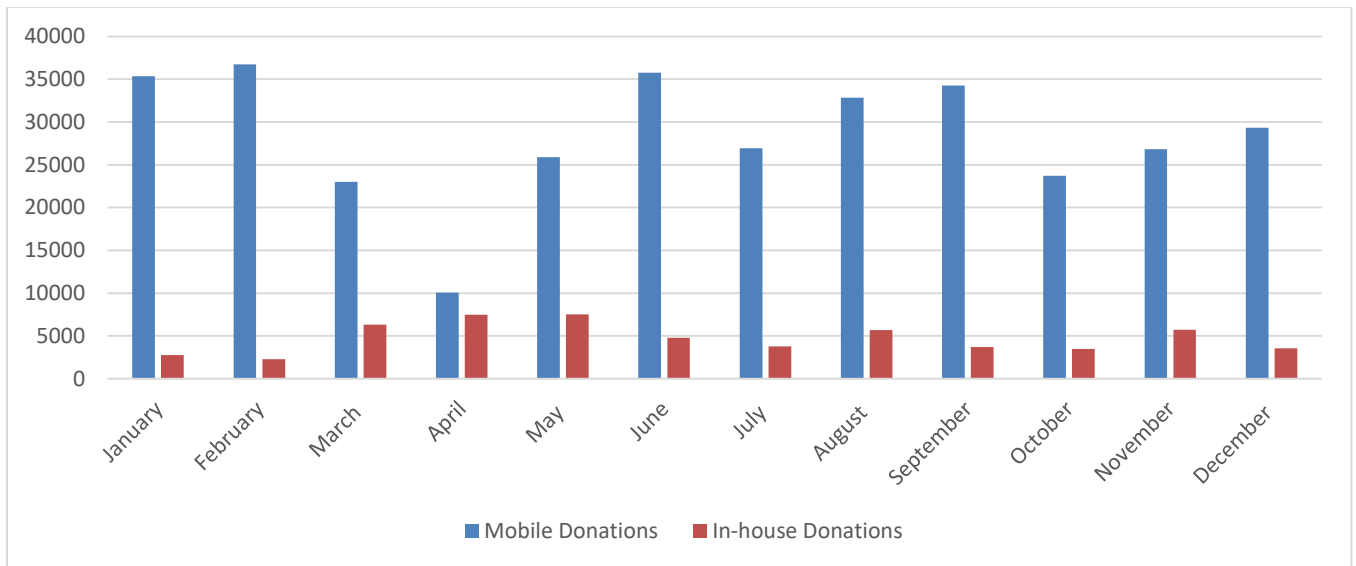


Figure 5: Monthly variation in blood collection

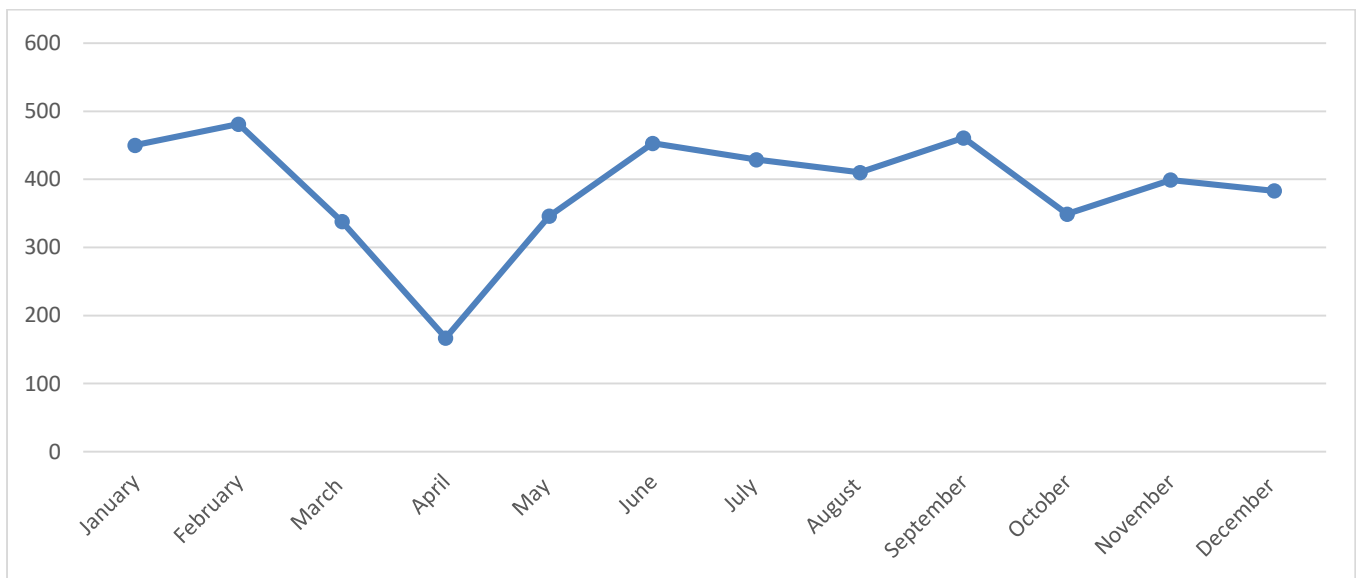
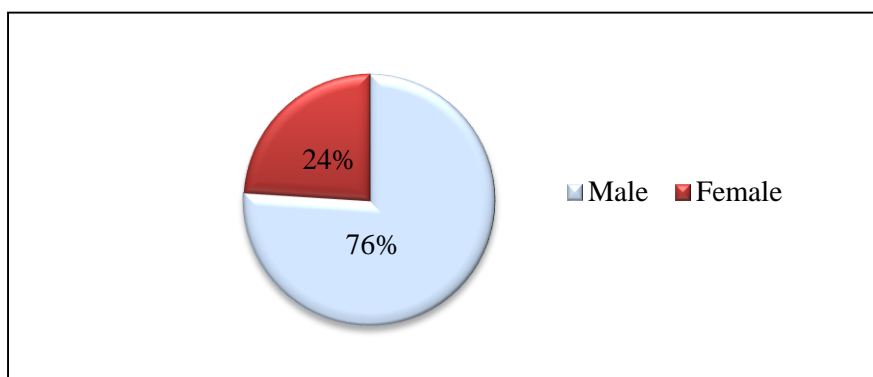


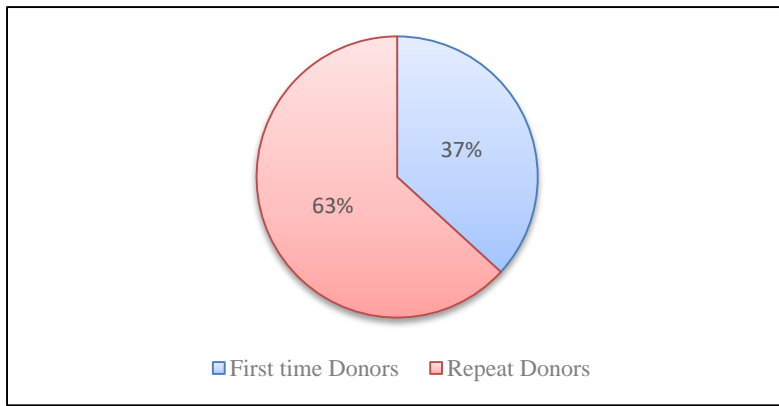
Figure 6: Monthly variation in number of mobiles

**Gender distribution of blood collection**



Male - 303,590 (76%)  
 Female - 94,243 (24%)

Figure 7: Gender distribution of blood donation in Sri Lanka



First time Donors = 146,403 (37%)

Repeat Donors = 251,430 (63%)

Figure 8: Donor population according to their number of donations

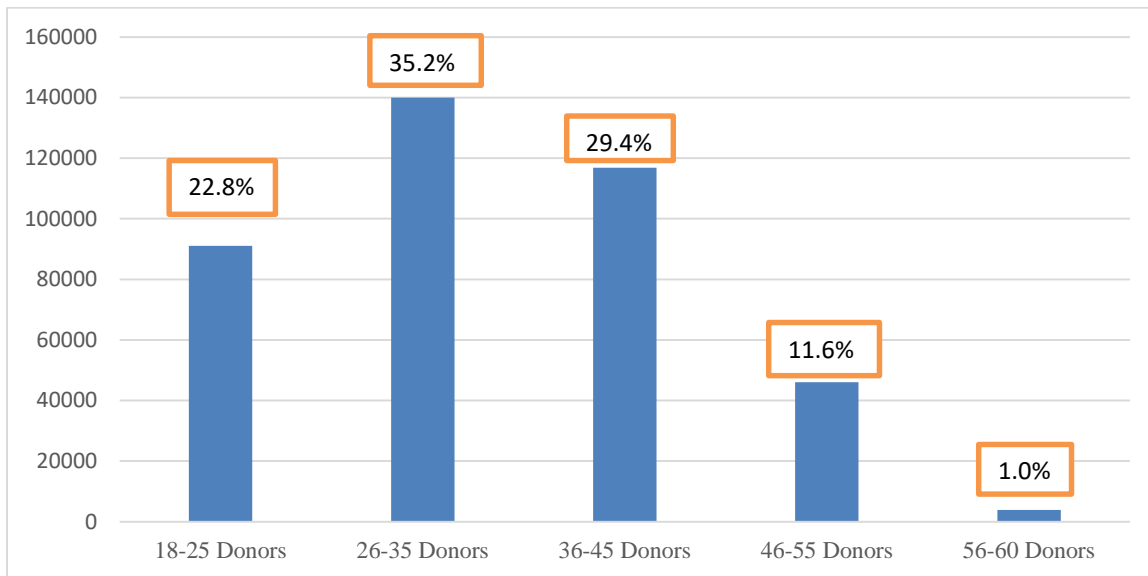


Figure 9: Donor population according to their age category

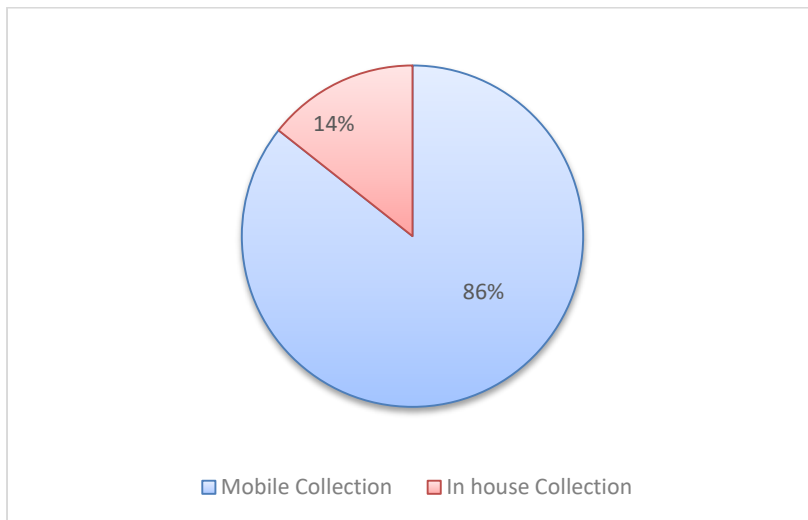


Figure 10: Distribution of total blood collection by mode of collection

## ABO and Rh group distribution of blood collection

Table 6: ABO and Rh group distribution of blood collection

	A	B	AB	O	Bombay O	Other	Total
<b>Rh D Positive</b>	81,772	105,182	21,147	166,784	22	0	<b>374,908</b>
<b>Percentage</b>	20.5542%	26.4388%	5.3157%	41.9231%	0.0056%	0.0%	<b>94.2375%</b>
<b>Rh D Negative</b>	4,978	5,944	1,341	10,621	1	0	<b>22,884</b>
<b>Percentage</b>	1.2512%	1.4941%	0.3371%	2.6696%	0.0003%	0.0%	<b>5.7523%</b>
<b>Weak D</b>	9	5	1	25	0	0	<b>40</b>
<b>Percentage</b>	0.0023%	0.0013%	0.0003%	0.0064%	0.0%	0.0%	<b>0.0102%</b>
<b>Total</b>	<b>86,759</b>	<b>111,132</b>	<b>22,489</b>	<b>177,430</b>	<b>23</b>	<b>0</b>	<b>397,833</b>

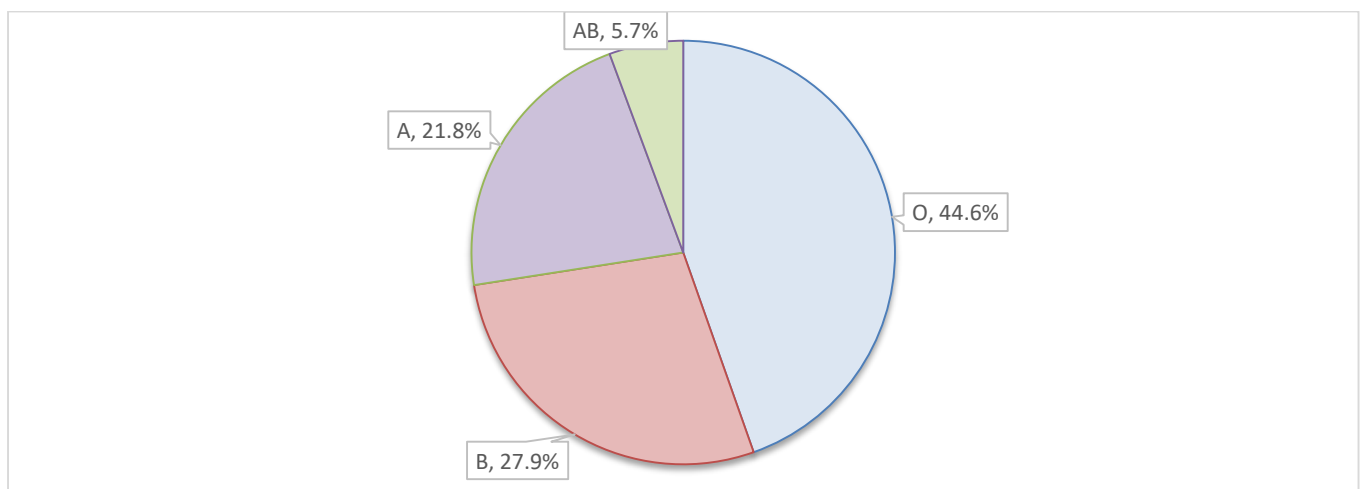


Figure 11: ABO distribution of donor population

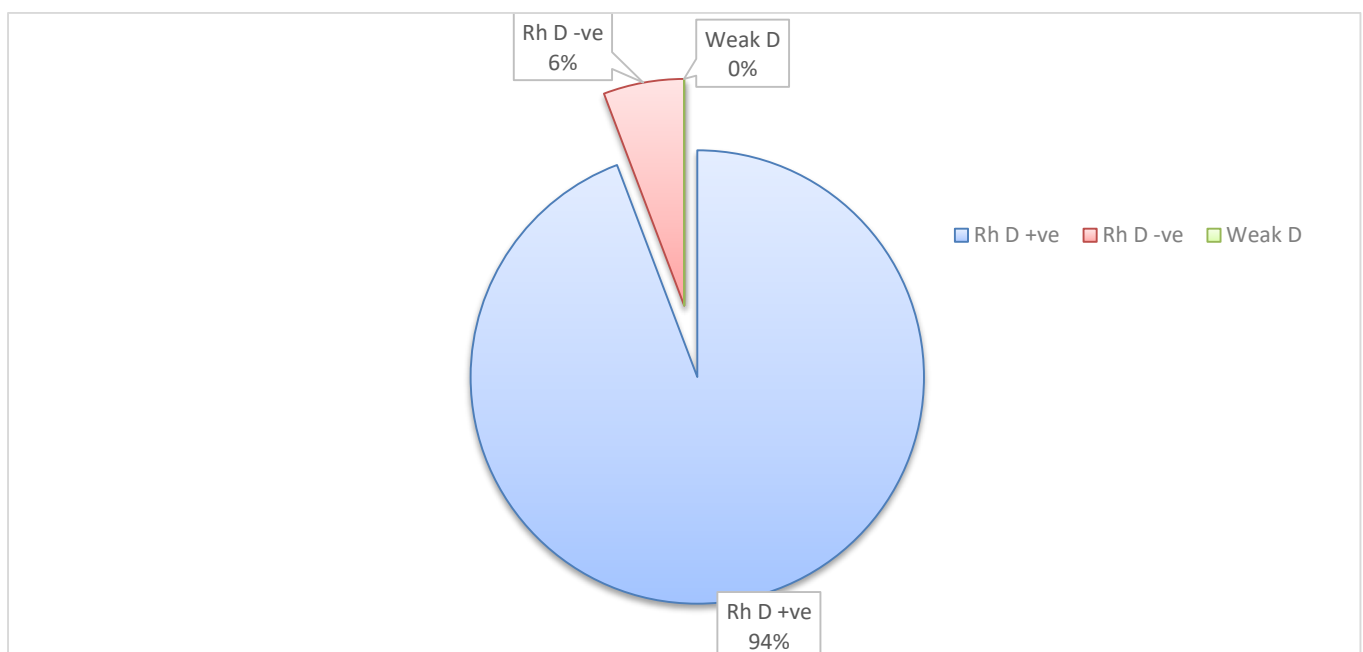


Figure 12: Rh distribution of donor population

Table 7: Comparison of Component preparation with previous years

	2015	2016	2017	2018	2019	2020
<b>RCC</b>	393,348	408,959	417,792	446,098	443,235	395,319
<b>Platelets</b>	244,071	248,644	252,865	263,720	274,499	272,613
<b>FFP</b>	344,788	369,299	378,983	390,671	399,052	344,779

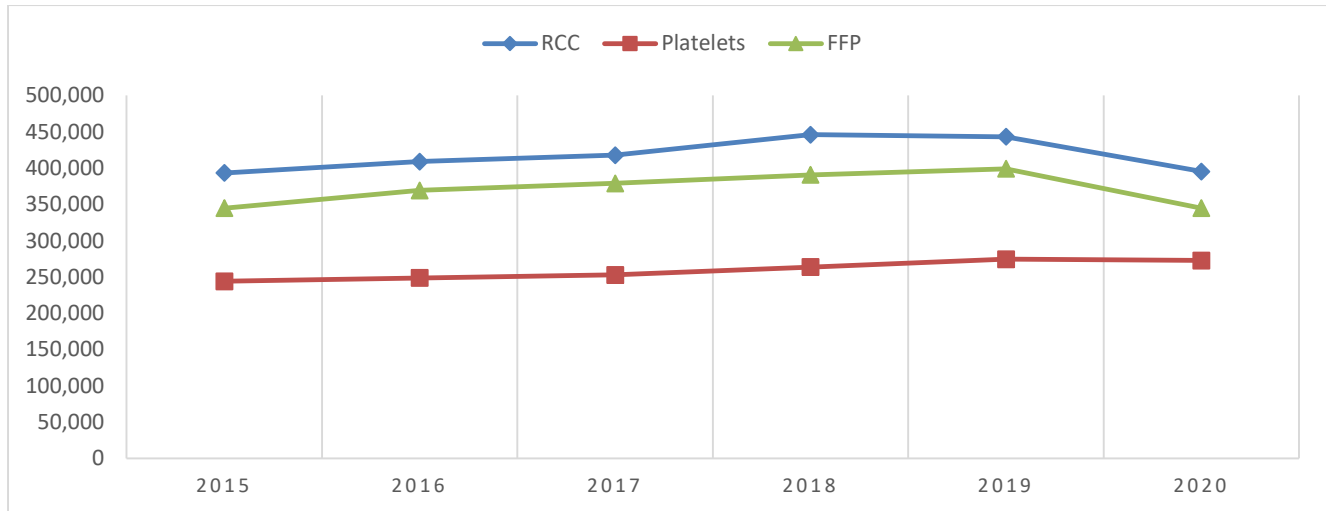


Figure 13: Comparison of blood component preparation

### **Platelet Aphaeresis Donations- 2020**

Table 8: Platelet aphaeresis donations

Blood Bank	No. of procedures	No. of Units collected
Ampara	2	14
Anuradhapura	15	325.8
Apeksha	380	4712
Badulla	8	26.5
Batticaloa	56	438
CNTH	1	10
Jaffna	54	573
Kamburugamuwa	17	141
Kandy	167	2343
NBC	756	10667.1
<b>Total</b>	<b>1456</b>	<b>19250.4</b>

## Statistics of RCC Cross matches & Issues

Table 9: Distribution of red blood cell requests, cross matches and issues

Cluster	Blood Bank	Requests	Cross matches	Issues	C:I ratio
<b>Ampara</b>	Akkarepattu	5118	5015	1524	3.3
	Ampara	12343	8638	6370	1.4
	Kalmunai North	3608	3105	916	3.4
	Kalmunai South	5844	5888	1560	3.8
	Mahaoya	1074	1070	590	1.8
	Pothuvil	201	198	81	2.4
	Sammanthurai	1312	1266	363	3.5
<b>Anuradhapura</b>	Anuradhapura	48495	33259	21356	1.6
	Medawachchiya	-	-	-	-
	Padaviya	362	366	293	1.2
	Thambuttegama	3877	3604	1244	2.9
<b>Badulla</b>	Badulla	21999	10897	8363	1.3
	Diyatalawa	5201	5752	1672	3.4
	Mahiyanganaya	9007	8897	3001	3
	Welimada	4932	4939	1204	4.1
<b>Batticaloa</b>	Batticaloa	20302	19987	7338	2.7
	Kalawanchikudi	12	9	7	1.3
	Kattankudy	56	56	24	2.3
	Valachchenai	437	414	92	4.5
<b>Chilaw</b>	Chilaw	13334	7397	5632	1.3
	Marawila	8156	7727	2723	2.8
	Puttlam	9919	9766	4123	2.4
<b>CIM</b>	Apeksha	30289	27316	17622	1.6
	Awissawella	8346	7714	1954	3.9
	Homagama	4539	3927	1169	3.4
<b>CNTH</b>	CNTH	37047	24390	18130	1.3
	Kiribathgoda	-	-	-	-
	Negambo	12988	6048	3997	1.5
	Welisara	7826	8181	1096	7.5

Cluster	Blood Bank	Requests	Cross matches	Issues	C:I ratio
<b>Colombo</b>	Accident Service	26081	13369	5874	2.3
	Army Hospital	2861	2060	1213	1.7
	CEBH-Mulleriyawa	1762	1827	659	2.8
	CSHW	12200	11791	1772	6.7
	CSTH	28583	10219	8009	1.3
	DMH	9962	9785	1555	6.3
	IDH-Angoda	1416	1650	351	4.7
	KDU	3716	2640	1161	2.3
	LRH	9821	11777	5042	2.3
	NBC	10521	9844	9710	1
	NFTH	680	624	294	2.1
	NHSL	66240	36084	20621	1.7
	NINDT-Maligawaththa	2808	2748	1106	2.5
	SJGH	21138	8404	4976	1.7
<b>Gampaha</b>	Gampaha	14379	7770	4242	1.8
	Meerigama	497	488	313	1.6
	Minuwangoda	69	64	45	1.4
	Wathupitiwala	9781	5958	2827	2.1
<b>Hambantota</b>	Hambantota	14025	11298	5225	2.2
	Tangalle	8645	8557	2918	2.9
	Tissamaharama	4322	4371	907	4.8
	Walasmulla	1639	1637	370	4.4
<b>Jaffna</b>	Jaffna	36042	11136	7428	1.5
	Kilinochchi	4822	2346	1423	1.6
	Mulathiv	1144	1857	529	3.5
	Point Pedro	1907	1997	636	3.1
	Tellippalai	3091	4133	1594	2.6
<b>Kalutara</b>	Horana	8459	7703	2661	2.9
	Kalutara	16513	9718	6415	1.5
	Kethumathie	5105	1202	425	2.8
	Panadura	4061	3813	1604	2.4

Cluster	Blood Bank	Requests	Cross matches	Issues	C:I ratio
<b>Kandy</b>	Dambulla	9646	9331	2304	4
	Kandy	67477	31697	21015	1.5
	Matale	11026	10327	3363	3.1
	Theldeniya	700	916	341	2.7
<b>Karapitiya</b>	Balapitiya	6830	6624	1669	4
	Elpitiya	6463	6632	1677	4
	Karapitiya	49485	45326	15158	3
	Mahamodara	10975	10770	1421	7.6
	Udugama	1735	1727	500	3.5
<b>Kegalle</b>	Karawanella	6912	6703	1724	3.9
	Kegalle	14291	13835	3948	3.5
	Mawanella	5461	5408	1723	3.1
	Warakapola	4703	4657	1295	3.6
<b>Kurunegala</b>	Dambadeniya	4224	4135	948	4.4
	Galgamuwa	1496	1388	646	2.1
	Kuliyapitiya	9996	10482	3162	3.3
	Kurunegala	65278	47333	30664	1.5
	Nikaweratiya	9000	8733	2956	3
<b>Matara</b>	Deniyaya	-	-	-	-
	Kamburugamuwa	0	0	0	0
	Kamburupitiya	4588	4814	1031	4.7
	Matara	18226	10149	5986	1.7
<b>Monaragala</b>	Bibila	3673	3611	1461	2.5
	Monaragala	17878	18207	6079	3
	Wellawaya	369	27	266	0.1
<b>Nuwara Eliya</b>	Dikkoya	3314	5342	1443	3.7
	Nuwara Eliya	6994	6883	2226	3.1
	Rikillagaskada	2689	3363	705	4.8
<b>Peradeniya</b>	Gampola	5813	5822	1967	3
	Nawalapitiya	9101	8581	1430	6
	Peradeniya	26808	11378	8671	1.3

Cluster	Blood Bank	Requests	Cross matches	Issues	C:I ratio
Polonnaruwa	Dehiattakandiya	2085	2103	749	2.8
	Medirigiriya	1585	1527	750	2
	Polonnaruwa	22352	11886	8166	1.5
Ratnapura	Balangoda	9146	9390	2103	4.5
	Embilipitiya	12058	12150	3932	3.1
	Kahawatta	3952	3658	1071	3.4
	Ratnapura	29157	12977	10324	1.3
Trincomalee	Kantale	1384	1169	452	2.6
	Kinniya	1181	1625	379	4.3
	Muththur	662	662	259	2.6
	Trincomalee	10897	4943	2931	1.7
Vavniya	Chettikulam	16	15	14	1.1
	Mannar	3281	3281	1203	2.7
	Vavniya	6497	5928	3387	1.8
<b>Total</b>		<b>1,098,318</b>	<b>798,211</b>	<b>375,848</b>	<b>2.1</b>

Table 10: Comparison of Blood component Issues in 2019 and 2020

	RCC	FFP	PC	AP	Cryo	CSP/ Plasma	Buffy Coat
<b>2019</b>	406,200	148,562	147,627.8		47,776	5,746	1,263
<b>2020</b>	375,848	146,470	155,363	10,215.5	44,454	3,872	662

Table 11: Comparison of RCC discards with previous years

Year	Passed expiry discards	Screening positives	Other	Total Discards	RCC Discard Rate
2015	20,124	3,930	4,350	28,404	5.14
2016	18,545	3,797	3,711	26,052	4.53
2017	18,153	3,966	3,283	25,402	4.34
2018	23,617	3,586	2,192	30,341	5.34
2019	32,838	3,160	1,965	39,065	7.40
2020	21,307	2,250	1,605	26,043	5.27



## Statistics of HLA Laboratory

Presently HLA Testing is carried out in National Blood Centre and Blood Bank-National Hospital Kandy, in the government sector.

Table 12: HLA molecular typing and PRA -2020 (At NBC)

<b>HLA Typing by rSSO</b>	<b>No. of tests</b>
Renal - Patient	738
Renal - Donor	716
BMT - Patient	53
BMT - Donor	129
AP Donors	89
Platelet Refractoriness patients	18
Cadaveric Donor	18
B57 / B51	54
B27	334
<b>Luminex PRA and Antibody Identification</b>	<b>No. of tests</b>
Renal	1137
Platelet Refractoriness patients	08
Others	30

PRA - Panel Reactive Antibodies

Table 13: HLA Serology typing & compatibility testing-2020 (At NBC)

<b>By CDC Method</b>	<b>No. of tests</b>
Class I Typing by CDC	01
B27	304
B57	27
B51	10
B15 / Others	08
Cadaveric Compatibility Tests	91
Total Compatibility Tests (with cadaveric)	666

Table 14: HLA Laboratory Statistics (At Blood Bank/National Hospital Kandy)

Typing and cross matches	2019	2020
Cross match	210	233
PRA (Class I, Class II)	190	160
Single Antigen Bead Assay	-	50
Transplantation		
Kidney (Patients ,Donor)	356	183
Bone Marrow (Patients, Donors)	06	-
AP Donor	276	-
Cadaveric Donor	20	18
Cadaveric Donor Q-PCR	-	04

### **Statistics of Reference Immuno-haematology Laboratory**

Table 15: Comparison of Reference Immuno-heamatology laboratory statistics

Test category	2015	2016	2017	2018	2019	2020
Difficult compatibility testing	2656	2767	3003	3702	3142	409
Antibody Screening	1263	3266	4440	4525	6064	4692
Antibody titrations	394	241	272	399	384	405
DAT profile	603	702	1013	1027	1323	1012
Extended phenotypes	439	414	363	395	362	420
Cold agglutination titration	154	47	42	48	54	50
Iso haemagglutination test	54	97	53	102	72	14
Haemolysin test	55	97	156	132	178	98
Confirmation of Bombay O	22	15	10	14	7	15
Elution studies	26	30	50	82	57	87
Transfusion reaction investigations	49	21	39	48	67	40

Table 16: Reference lab - detailed investigations

Investigations	2018	2019	2020
Blood Grouping (ABO & Rh D)	5755	7353	5817
DAT	4384	5894	5522
Antibody Identification	3356	4034	2792
Enzyme Panels	82	69	19
ABO/Rh Group Confirmation	411	350	292
Donath-Landsteiner Test (DL)	25	13	10
Cross Matching	2127	2082	1203
Rh Phenotyping	5270	4969	1985

## Statistics of Reagent Laboratory

Table 17: Comparison on Statistics of reagent preparation

Reagents prepared	2015	2016	2017	2018	2019	2020
PBS working solution (L)	7785	3965	-	-	-	-
PBS stock solution (L)	810	3965	-	-	-	-
Alsever's solution (L)	172	274	396	328	332	317
Antibody screening cells (mL)	45,650	162,800	188,800	194,580	174,552	194,832
Anti-A1 (mL)	775	1450	906	1281	1734	1374
Anti -H (mL)	475	1125	678	990	669	558
ABO reverse grouping cells (mL)	3,7625	120,200	132,300	147,180	129,648	138,030
Lewis reagent	-	-	-	-	-	200

## Quality Management Unit

Table 18: Quality Monitoring of Blood Components and Reagents

Component	Number
RCC – without AS	169
RCC- BCR-AS	266
Platelets - PRPD	321
Platelets - BCD	288
Platelets -AP	124
FFP	30
Cryoprecipitate	14

Reagent Testing	Number
QC testing of A,B,O cells	12 sets
QC testing antibody screening red cells	12 sets

Table 19: Quality control laboratory performance

### Investigation of Quality Related Incidents

Component/Reagent	No of Units
RCC	73
Platelet	11
FFP	-
Visual checking of platelets	3433
AHG	01
LISS	01
Antibody screening cells	04

### Special Studies

Special Study Type	No. of Units
Long distance mobile- Quality of FFP & Cryo	Cryo - 11 FFP - 19

### Evaluations done

Evaluation done	Number of products evaluated
Khan Tubes	02
Blood bag	07
Anti A,AB,B, D(IgM), D(IgG&IgM),LISS & AHG Antisera	14
Lancet	01

### SL-NEQAS programs conducted

Program	No. Of cycles	No. of test kits prepared
NEQAS Blood Group Serology	02	220 kits(1760 vials)
NEQAS TTI	02	40 kits(520 vials)

### Special Quality Monitoring Tests (HBB Referrals)

Component	No of Units
RCC	05
Platelet	-
FFP	-
Cryo	-

### Summary of tests

	Type of test	No. of Tests
1	Full Blood Count	2853
2	PH	1300
3	Blood Culture	188
4	% Haemolysis	563
5	DAT	36
6	Antibody Screening	108
7	Microscopy testing for Agglutinations	36
8	Factor VIII Assay	44
9	Fibrinogen Assay	44
10	Evaluations	24

## **Statistics of Teaching and Training Unit**

Table 20: Training programs conducted for Staff categories of NBTS

	<b>Staff Category</b>	<b>Number of trainees</b>
1	<b>Medical Officers</b>	Total - 72
	2 weeks	02
	4 weeks	58
	6 weeks	12
2	<b>Nursing Officers</b>	Total - 16
	NO – 6 weeks + NBTSIS	16
3	<b>Medical Laboratory Technologists</b>	19
4	<b>Junior Staff</b>	12

Table 21: Other Staff Categories

	<b>Staff Category</b>	<b>Number of trainees</b>
1	Nephrology MD Trainees	3
2	Haematology Diploma Trainees	8
3	Microbiology MD Trainees	10
4	Medical Students <ul style="list-style-type: none"> <li>• University of Colombo</li> </ul>	265
5	MLT Students <ul style="list-style-type: none"> <li>• MLT Students</li> <li>• MLS Interns</li> <li>• MLS Undergraduates – University of Peradeniya</li> <li>• MLS Students KDU</li> </ul>	3 11 26 31
6	Intern Pharmacists	62

Table 22: CME Programme

	<b>Topic</b>	<b>Participants</b>	<b>Number</b>
1.	Quality management system of Blood transfusion	All staff categories of NBC	200
2.	IT System Review	CTP,MO,PHI,NO,MLT	100
3.	IT System Review	CTP,MO,PHI,NO,MLT	90
4.	IT System Review	CTP,MO,PHI,NO,MLT	35
5.	Immunohaematology	All MOs/ DT section	4
6.	Immunohaematology	All MOs/ DT section	4

## NAT facility at National Blood Centre

### **Introduction:**

Nucleic Acid Testing (NAT) was introduced to the National Blood Centre (NBC) with the Project for the Introduction of State of Art Technology funded by the Netherlands.

Nucleic Acid Testing directly amplifies and detects the genetic material (DNA or RNA) of viruses in order to screen for the existence of transfusion transmitted infections in donated blood ( E.g.: Human Immunodeficiency Virus(HIV), Hepatitis B Virus (HBV) and Hepatitis C Virus (HCV).

### **Advantages of implementing NAT in the National Blood Transfusion Service:**

- Even though there is a high cost for the infrastructure and consumables, NAT provides the following advantages,
- Safeguard the blood safety furthermore by reducing the window period by early detection of viral infections before appearance of antibodies.
- Fulfills an International requirement for the provision of plasma products for Plasma Fractionation Plants.
- Detects mutant, variant viruses that may not be detected by antibody detection methods.

Table 23: Summary of Nucleic Acid Testing

Month	Total Samples	Total WL	Total Invalids	Total Reactive	Serology Reactivity			Serology Non-Reactive
					HBV	HCV	HIV	
<b>January</b>	2496	2795	30	0	0	0	0	0
<b>February</b>	2587	2860	609	0	0	0	0	0
<b>March</b>	0	0	0	0	0	0	0	0
<b>April</b>	0	0	0	0	0	0	0	0
<b>May</b>	0	0	0	0	0	0	0	0
<b>June</b>	996	1139	65	1	0	1	0	0
<b>July</b>	3216	3710	174	2	1	0	0	1
<b>August</b>	6763	7608	843	8	1	0	1	6
<b>September</b>	6609	7376	813	1	0	0	1	0
<b>October</b>	3929	4501	642	1	0	0	1	0
<b>November</b>	59	72	0	0	0	0	0	0
<b>December</b>	0	0	0	0	0	0	0	0
<b>Total</b>	<b>26655</b>	<b>30061</b>	<b>3176</b>	<b>13</b>	<b>2</b>	<b>1</b>	<b>3</b>	<b>7</b>

### **Discriminatory tests**

Serology non-reactive	Discriminative tests reactive	Discriminative tests non-reactive
0	0	0

## **Stem Cell Transplantation**

❖ Hematopoietic stem cell transplantation (HSCT) is the transplantation of multi potent hematopoietic stem cells, usually derived from

- Bone marrow
- Peripheral blood
- Umbilical cord blood

which may be of autologous or allogeneic in origin.

❖ It is most often performed for patients with haematological malignancies, such as multiple myeloma or leukemia and for congenital disorders of the blood and bone marrow such as thalassemia and sickle cell disease.

❖ Advantages of the peripheral stem cell transplant :-

- Less invasive than bone marrow harvesting
- No need of anesthesia

Table 24: Comparison on statistics of Stem cell transplantation

	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>
Number of patients	22	27	25	28
Cryopreservation procedures	29	33	26	30
Infusion procedures	18	28	24	23



## **FROZEN RED CELL (FRC)**

Red Blood Cells (RBC) can be frozen and stored for up to 10 years.

There are two methods for frozen red cell preparation: -

1. High Glycerol method ( frozen red cells are stored at - 86C<sup>0</sup>)
2. Low Glycerol method ( frozen red cells are stored at - 120C<sup>0</sup>)

This technique has many advantages.

- Frozen Red Cells (FRC) have a long shelf life
- A stock of rare blood groups (Such as Bombay O) can be frozen and preserved for future usage.
- Patients with special conditions such as multiple red cell antibodies who require blood will get benefits out of this.

Since 2015, NBTS Sri Lanka also started this practice of freezing Red Blood Cells, like many developed countries.

Both international and local training programs have been conducted on this technology for the staff of NBTS.

Table 25: Statistics of Frozen Red Cell procedure for the year 2020

<b>Blood group</b>	<b>No. of Red Cell Units Frozen</b>	<b>No. of Red Cell Units Deglycerolized</b>	<b>No. of Red Cell Units Transfused</b>
Bombay O Rh D Positive	15	02	01
Bombay O Rh D Negative	01	-	-
A Rh D Positive	-	-	-
A Rh D Negative	04	-	-
B Rh D Positive	02	-	-
B Rh D Negative	03	-	-
AB Rh D Positive	-	-	-
AB Rh D Negative	-	-	-
O Rh D Positive	03	-	-
O Rh D Negative	07	-	-
<b>Total</b>	<b>35</b>	<b>02</b>	<b>01</b>