ANNUAL STATISTICS REPORT 2018

NATIONAL BLOOD TRANSFUSION SERVICE

SRI LANKA

Statistics Unit
National Blood Transfusion Service

Contents

List of Tables

List of Figures

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 101 Hospital Based Blood Banks & 2 standalone Blood Centers affiliated to 19 cluster centers depending on the geographic distribution.

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.

NBTS staff are affiliated to 103 blood banks, which are grouped in to 19 clusters across the country. Each cluster centre is headed by a Consultant Transfusion Physician or a senior medical officer. Consultant Transfusion Physicians 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 2018.

Geographical distribution of blood banks -2018

North Central
ANURADHAPURA
Medirigiriya
Padaviya
Polonnaruwa
Thambuttegama
Medawachchiya

Northern	
VAVNIYA	JAFFNA
Mannar	Killinochchi
Chetticulam	Mulathiv
	Point Pedro
	Thelippalai

Eastern		
BATTICALOA	TRINCOMALEE	AMPARA
Valachchenai	Kantale	Akkarepattu
Kattankudyi	Kinniya	Dehiattakandiya
Kalawanchikudi	Muththur	Kalmunai North
		Kalmunai South
		Mahaoya
		Sammanthurai
		Pothuvil

North Western
KURUNEGALA
Dambadeniya
Kuliyapitiya
Nikaweratiya
Galgamuwa

Southern	
KARAPITIYA	KAMBURUGAMUWA
Balapitiya	Kamburupitiya
Elpitiya	Matara
Mahamodara	Walasmulla
Udugama	Deniyaya
	HAMBANTOTA
	Tangalle
	Tissamaharama

Central
KANDY
Dabulla
Gampola
Matale
Nawalapitiya
Rikillagaskada
Theldeniya
PERADENIYA
Warakapola
Kegalle
Mawanella
Dikkoya
NuwaraEliya

Uva
BADULLA
Bibila
Diyathlawa
Mahiyangana
Monaragala
Welimada
Wellawaya

Sabaragamuwa
RATNAPURA
Balangoda
Embilipitiya
Kahawatta

Western				
NBC	CNTH	CHILAW	CIM	KALUTARA
NHSL	Gampaha	Marawila	Awissawella	Horana
CSHW	Wathupitiwala	Negambo	Homagama	Kethumathi
CSTH	Welisara	Puttlam	Karawanella	Panadura
DMH	Meerigama			
LRH	Minuwangoda			
SJGH	Kiribathgoda			
Accident Service				
IDH-Angoda				
CETH-Mulleriyawa				
NINDT-Maligawaththa				
Army Hospital				

Blood Collection in 2018

Table 1: Details of Blood Collection *(in 450ml Units)*

Cluster		Blood bank	No. of mobiles	Total In-house collection	Total Mobile collection	Total Collection
Ampara	1.	Ampara	106	680	6610	7290
	2.	Dehiattakandiya	28	313	1980	2293
	3.	Sammanthurai	9	51	746	797
	4.	Kalmunai North	17	200	823	1023
	5.	Kalmunai South	19	379	1103	1482
	6.	Mahaoya	20	255	1330	1585
	7.	Pothuvil	2	9	50	59
	8.	Akkarepattu	16	207	932	1139
Anuradhapura	9.	Anuradhapura	290	1466	22129	23595
	10.	Padaviya	20	179	1623	1802
	11.	Medirigiriya	0	206	0	206
	12.	Polonnaruwa	156	699	10558	11257
	13.	Medawachchiya	-	-	-	-
	14.	Thambuttegama	0	0	0	0
Badulla	15.	Badulla	224	726	14088	14814
	16.	Diyatalawa	40	155	2111	2266
	17.	Mahiyanganaya	11	199	736	935
	18.	Welimada	0	116	0	116
	19.	Bibila	0	0	0	0
	20.	Wellawaya	1	0	44	44
	21.	Monaragala	128	584	8499	9083
Batticoloa	22.	Batticaloa	97	683	5110	5793
	23.	Kattankudy	8	87	643	730
	24.	Valachchenai	0	0	0	0
	25.	Kalawanchikudi	-	-	-	-
Chilaw	26.	Chilaw	84	391	5955	6346
	27.	Negambo	67	241	5114	5355
	28.	Puttlam	50	192	3149	3341
	29.	Marawila	37	138	2582	2720
CIM	30.	Apeksha	188	2130	20569	22699
	31.	Awissawella	20	721	1459	2180
	32.	Homagama	25	165	1696	1861
	33.	Karawanella	0	0	0	0

Cluster		Blood bank	No. of mobiles	Total In-house collection	Total Mobile collection	Total Collection
CNTH	34.	CNTH	206	700	16729	17429
	35.	Gampaha	85	350	5470	5820
	36.	Kiribathgoda	-	-	-	-
	37.	Meerigama	6	33	266	299
	38.	Minuwangoda	39	29	2734	2763
	39.	Wathupitiwala	61	290	3863	4153
	40.	Welisara	0	0	0	0
Hambanthota	41.	Hambantota	44	182	2452	2634
	42.	Tangalle	26	65	1297	1362
	43.	Tissamaharama	0	71	0	71
Jaffna	44.	Jaffna	143	2046	6938	8984
	45.	Kilinochchi	17	373	632	1005
	46.	Mulathiv	13	200	918	1118
	47.	Point Pedro	21	163	449	612
	48.	Tellippalai	46	121	1504	1625
Kalutara	49.	Kalutara	121	265	7363	7628
	50.	Horana	31	111	2197	2308
	51.	Kethumathie	36	31	2198	2229
	52.	Panadura	13	99	830	929
Kamburugamuwa	53.	Kamburugamuwa	197	151	18612	18763
	54.	Kamburupitiya	0	37	0	37
	55.	Matara	56	185	2963	3148
	56.	Walasmulla	0	0	0	0
	57.	Deniyaya	-	-	-	-
Kandy	58.	Kandy	217	1933	22476	24409
	59.	Dambulla	36	366	2445	2811
	60.	Matale	45	221	3187	3408
	61.	Rikillagaskada	16	225	1273	1498
	62.	Nawalapitiya	35	154	2827	2981
	63.	Theldeniya	-	-	-	-
	64.	Gampola	36	86	2381	2467
Karapitiya	65.	Karapitiya	223	668	18661	19329
	66.	Balapitiya	19	99	1405	1504
	67.	Elpitiya	10	75	542	617
	68.	Mahamodara	13	15	763	778
	69.	Udugama	0	0	0	0

Cluster		Blood bank	No. of mobiles	Total In-house collection	Total Mobile collection	Total Collection
Kurunegala	70.	Kurunegala	323	1761	32153	33914
	71.	Dambadeniya	30	154	1849	2003
	72.	Kuliyapitiya	50	269	3762	4031
	73.	Galgamuwa	0	0	0	0
	74.	Nikaweratiya	64	112	2163	2275
Colombo	75.	NBC	825	5744	68755	74499
	76.	Accident Service	0	0	0	0
	77.	Army Hospital	3	292	202	494
	78.	CEBH-Mulleriyawa	0	0	0	0
	79.	CSHW	0	0	0	0
	80.	CSTH	51	277	2875	3152
	81.	DMH	0	0	0	0
	82.	IDH-Angoda	0	0	0	0
	83.	LRH	0	0	0	0
	84.	NHSL	75	443	4380	4823
	85.	NINDT	0	0	0	0
	86.	SJGH	46	145	3451	3596
Peradeniya	87.	Peradeniya	169	842	11091	11933
	88.	Nuwara Eliya	48	107	2773	2880
	89.	Mawanella	18	86	1122	1208
	90.	Kegalle	80	278	4650	4928
	91.	Dikkoya	0	0	0	0
	92.	Warakapola	0	0	0	0
Ratnapura	93.	Ratnapura	188	549	12471	13020
	94.	Balangoda	24	171	1370	1541
	95.	Embilipitiya	50	142	3365	3507
	96.	Kahawatta	0	77	0	77
Trincomalee	97.	Trincomalee	73	567	4562	5129
	98.	Kantale	0	93	0	93
	99.	Kinniya	0	20	0	20
	100.	Muththur	0	0	0	0
Vavuniya	101.	Vavniya	42	750	3011	3761
	102.	Mannar	3	92	134	226
	103.	Chettikulam	-	-	-	-
		Total	**5,636**	**33,487**	**417,153**	**450,640**

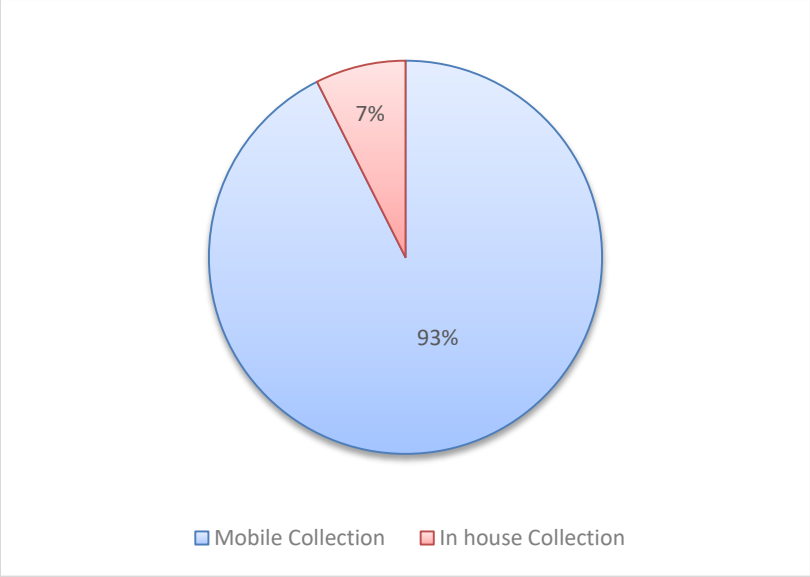


Figure 1: Distribution of total blood collection by mode of collection

Yearly Improvement of blood collection

Table 2: Comparison of Annual Blood Collection

Year	Voluntary collection	Replacement collection	Total collection
2014	380,367	0	380,367
2015	395,500	0	395,500
2016	414,175	0	414,175
2017	423,668	0	423,668
2018	450,640	0	450,640

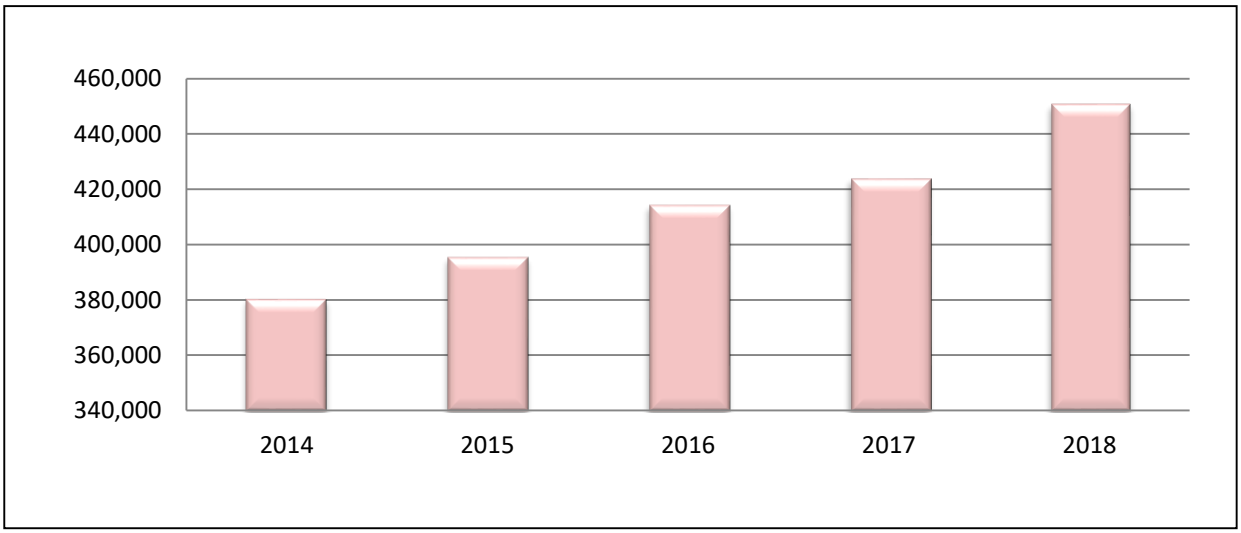


Figure 2: Yearly improvement of blood collection

Blood Collection Cluster wise

Table 3: Total blood collection cluster wise

Cluster	No. of mobiles	Total In- house collection	Total mobile collection	Total Collection
Ampara	217	2,094	13,574	15,668
Anuradhapura	466	2,550	34,310	36,860
Badulla	404	1,780	25,478	27,258
Batticoloa	105	770	5753	6523
Chilaw	238	962	16,800	17,762
CIM	233	3,016	23,724	26,740
CNTH	397	1,402	29,062	30,464
Colombo	1000	6,901	79,663	86,563
Hambanthota	70	318	3,749	4,067
Jaffna	240	2,903	10,441	13,344
Kalutara	201	506	12,588	13,094
Kamburugamuwa	253	373	21,575	21,948
Kandy	385	2,985	34,589	37,574
Karapitiya	265	857	21,371	22,228
Kurunegala	467	2,296	39,927	42,223
Peradeniya	315	1,313	19,636	20,949
Rathnapura	262	939	17,206	18,145
Trincomalee	73	680	4,562	5,242
Vavuniya	45	842	3,145	3,987
Total	5,636	33,487	417,153	450,640

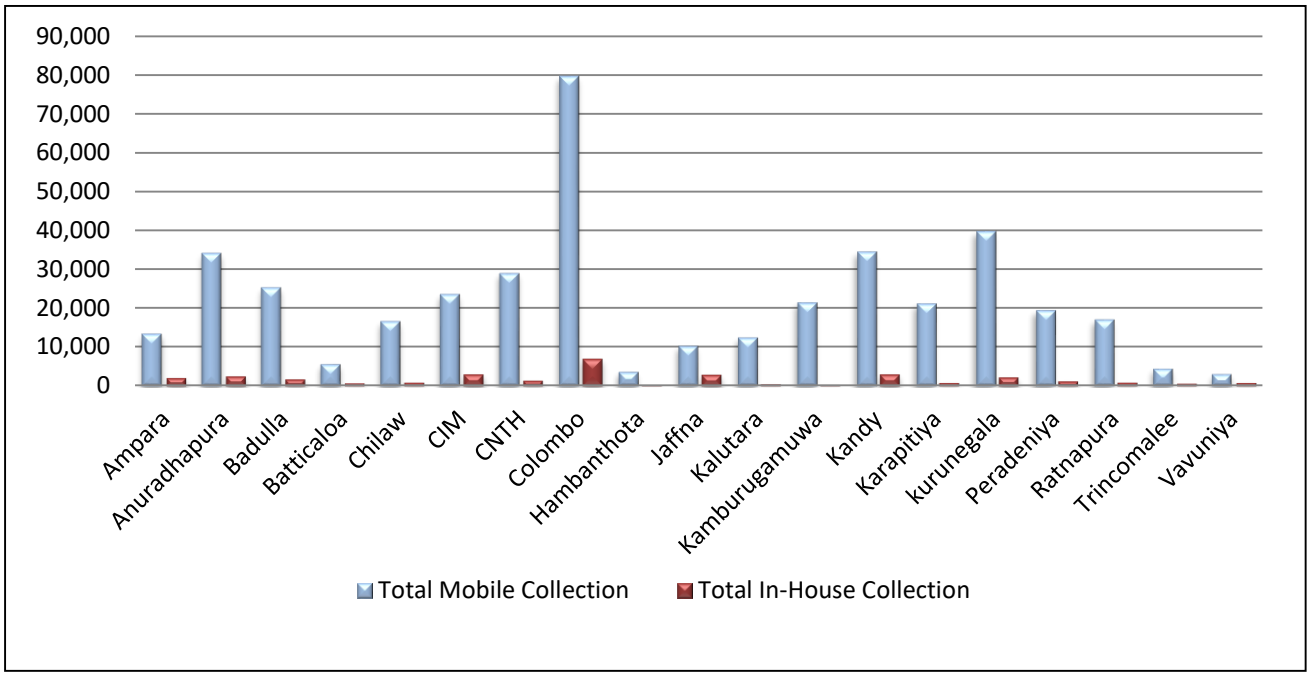


Figure 3: Total blood collection cluster wise

Comparison of Cluster collection with previous year

Table 4: Comparison of cluster blood collection with previous year

Cluster	2017	2018
Ampara	15,063	15,668
Anuradhapura	35,965	36,860
Badulla	26,240	27,258
Batticaloa	6,393	6,523
Chilaw	17,094	17,762
CIM	25,661	26,740
CNTH	28,643	30,464
Colombo	79,793	86,563
Hambanthota	3,446	4,067
Jaffna	12,075	13,344
Kaluthara	12,144	13,094
Kamburugamuwa	21,309	21,948
Kandy	34,700	37,574
Karapitiya	20,457	22,228
Kurunegala	40,270	42,223
Peradeniya	19,226	20,949
Rathnapura	16,257	18,145
Trincomalee	4,887	5,242
Vavuniya	4,045	3,987
Total	**423,668**	**450,640**

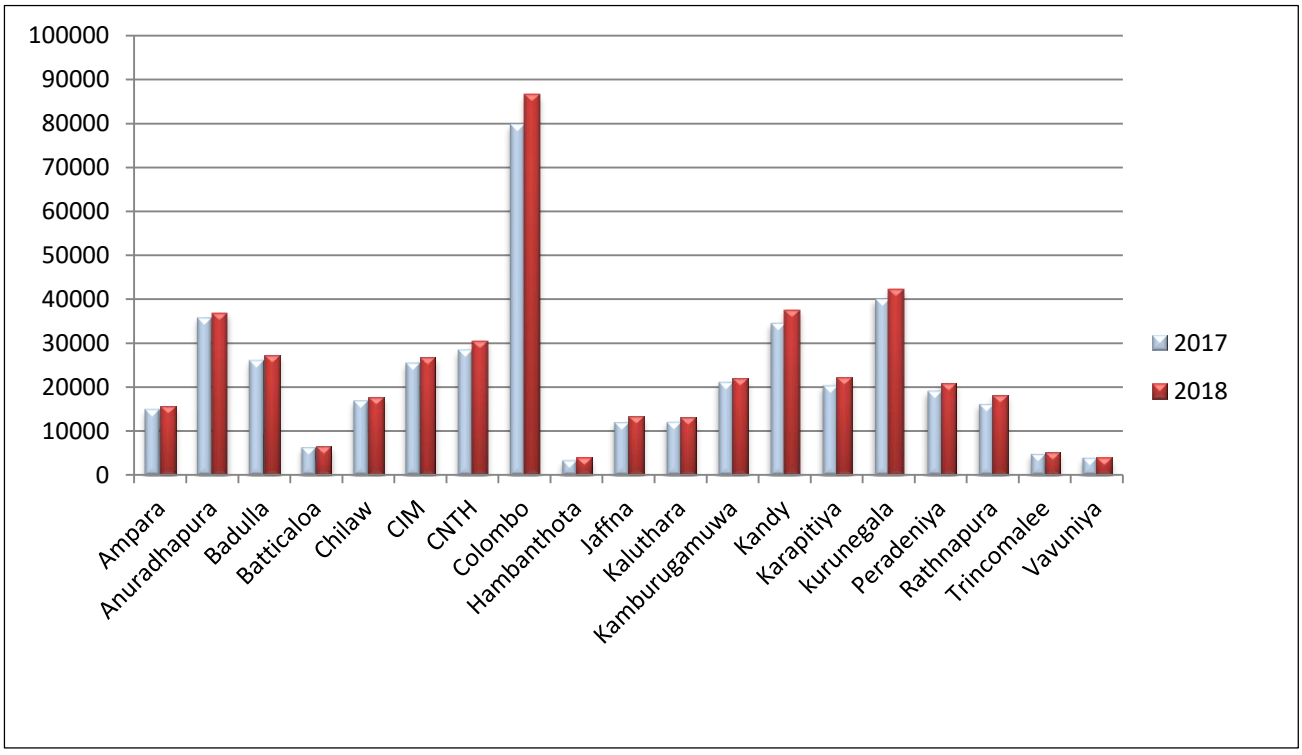


Figure 4: Comparison of cluster blood collection with previous year

Monthly Blood Collection

Table 5: Monthly variation of total blood collection

Month	No of mobiles	Mobile collection	In house collection	Total Collection
January	438	32541	3559	36100
February	450	35258	2695	37953
March	535	37307	2536	39843
April	406	31681	3110	34791
May	470	32483	2914	35397
June	503	37257	3001	40258
July	500	36596	2581	39177
August	443	33921	2652	36573
September	494	34430	2579	37009
October	478	33376	2753	36129
November	473	36379	2486	38865
December	446	35924	2621	38545
Total	**5636**	**417153**	**33487**	**450,640**

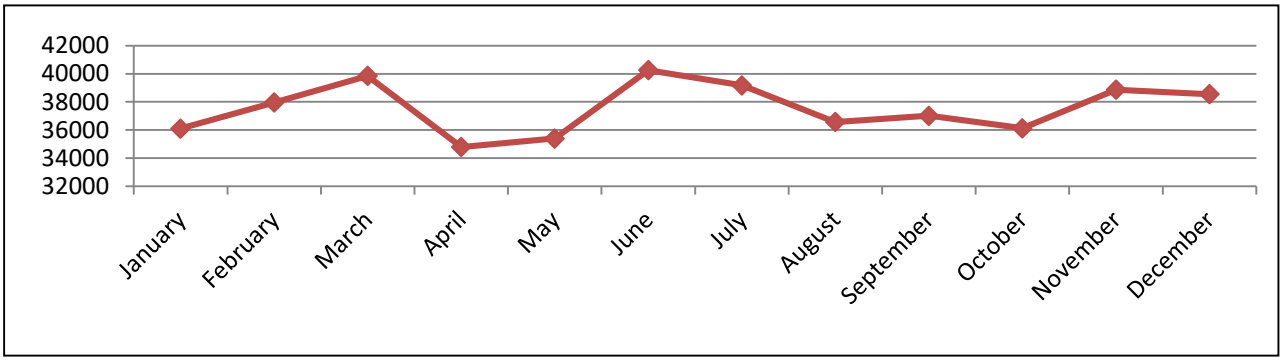


Figure 5: Monthly variation of blood collection

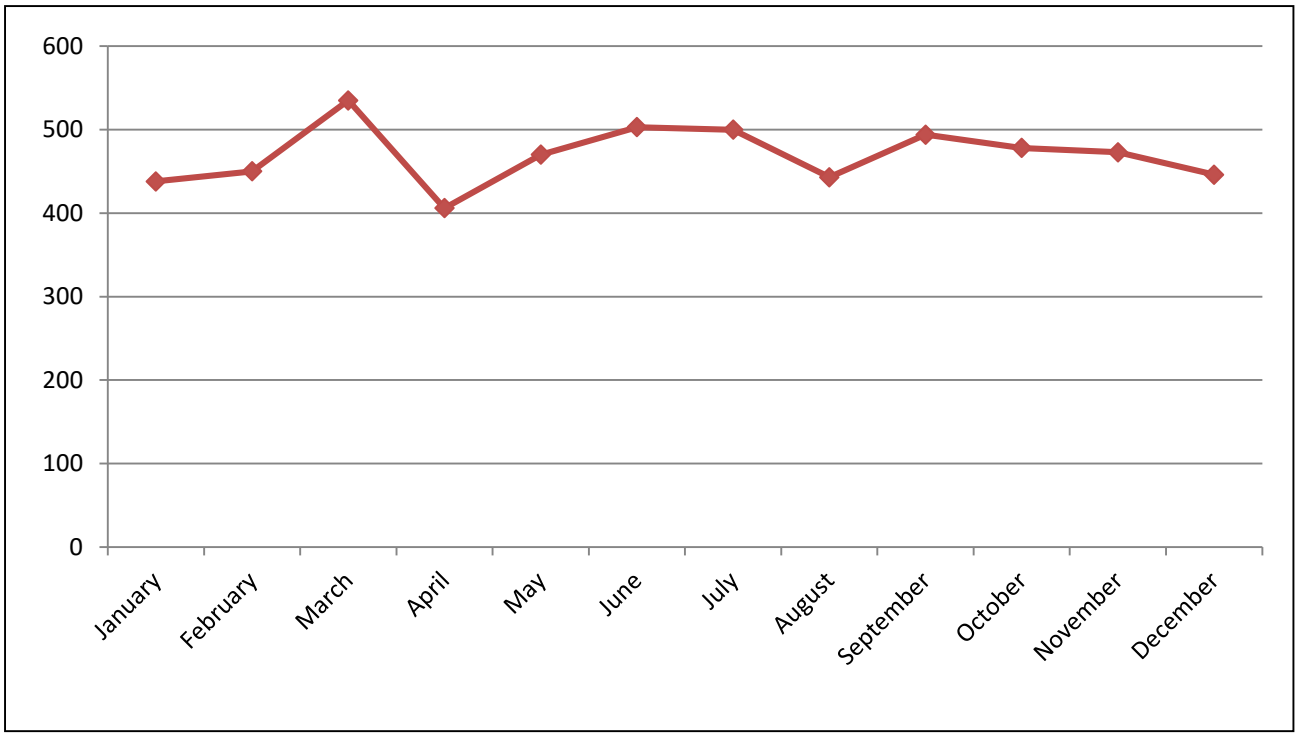
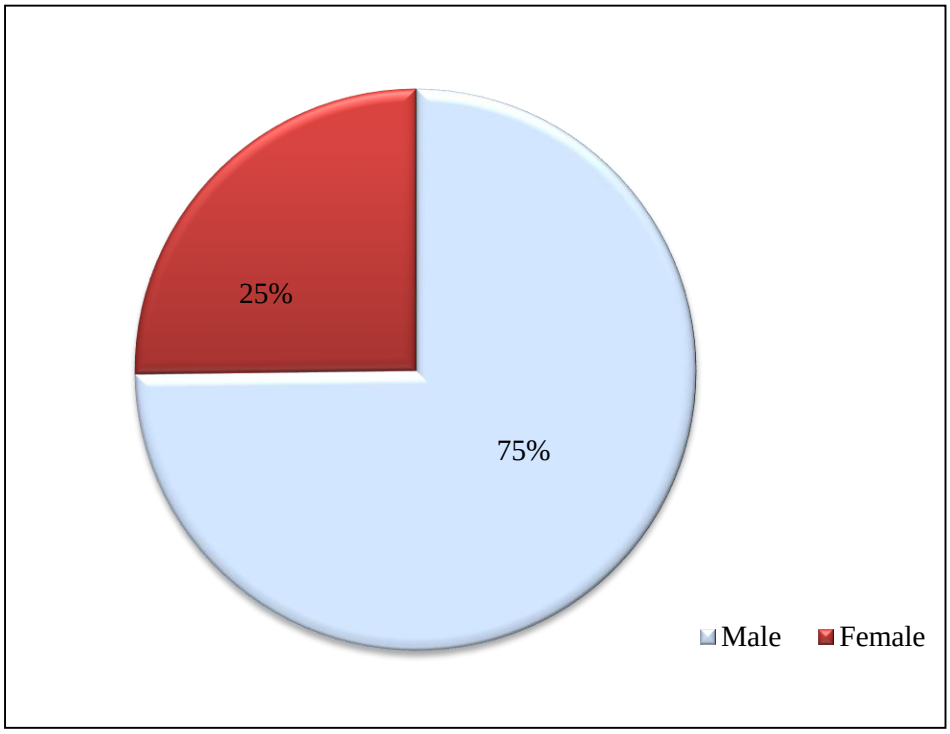


Figure 6: Monthly variation of number of mobiles

Gender distribution of blood collection



Male - 337,079(75%)
Female- 113,561(25%)

Figure 7: Gender difference in blood donation in Sri Lanka

ABO and Rh group distribution of blood collection

Table 6: ABO and Rh group distribution of blood collection

	A	B	AB	0	Bombay O	Other	**Total**
Rh D Positive	92,727	121,087	23,857	188,156	20	0	**425,847**
Percentage	20.5768%	26.8700%	5.2940%	41.7530%	0.0045%	0	**94.4983%**
Rh D Negative	5,400	6,753	1,347	11,254	1	0	**24,755**
Percentage	1.1982%	1.4986%	0.2989%	2.4974%	0.0002%	0	**5.4933%**
Weak D	4	12	0	22	0	0	**38**
Percentage	0.0008%	0.0027%	0%	0.0049%	0%	0	**0.0084%**
Total	**98,131**	**127,852**	**25,204**	**199,432**	**21**	**0**	**450640**

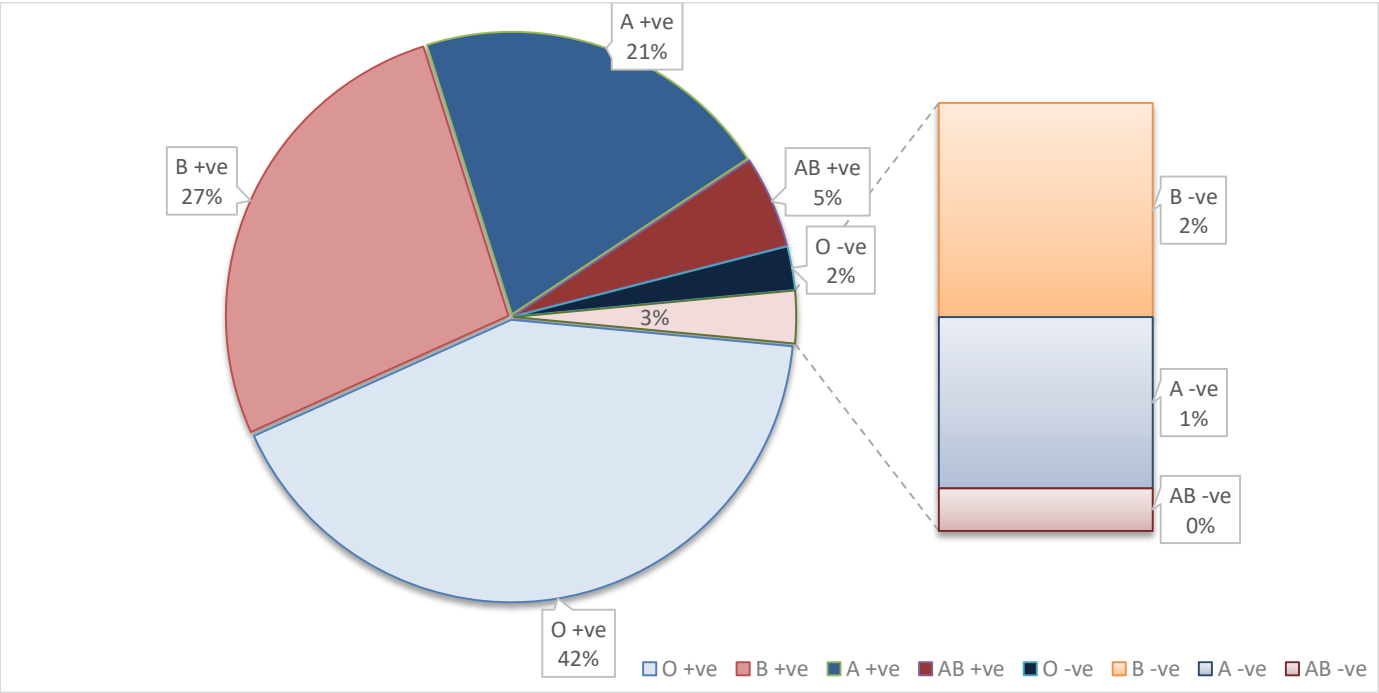


Figure 8: ABO and Rh distribution of donor population

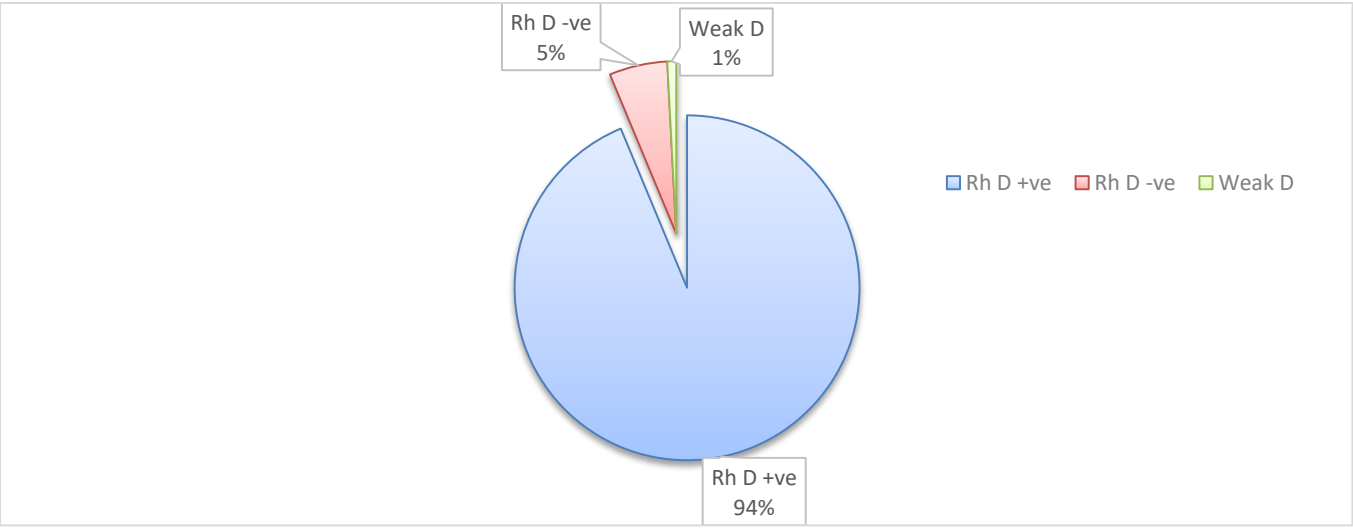


Figure 9: Rh distribution of donor population

Preparation of Components

Table 7: Details of Component Production

Cluster		Blood Bank	RCC	PLT	FFP	CRYO	Stored Plasma	CSP
Ampara	1.	Ampara	14799	5584	14716	5329	3	4623
	2.	Dehiattakandiya	215	0	2	0	34	0
	3.	Kalmunai North	295	0	0	0	295	0
	4.	Kalmunai South	157	0	0	0	157	0
	5.	Mahaoya	259	0	40	0	19	0
	6.	Sammanthurai	30	0	0	0	1	0
	7.	Pothuvil	0	0	0	0	0	0
	8.	Akkarepattu	109	0	0	0	33	0
Anuradhapura	9.	Anuradhapura	28586	14151	28546	5263	0	5263
	10.	Padaviya	1015	0	0	0	0	0
	11.	Medirigiriya	201	0	0	0	6	0
	12.	Polonnaruwa	11063	5382	10407	433	0	492
	13.	Thambuttegama	0	0	0	0	0	0
	14.	Medawachchiya	-	-	-	-	-	-
Badulla	15.	Badulla	18053	11476	18025	1033	22	329
	16.	Mahiyanganaya	240	0	0	0	230	0
	17.	Welimada	31	0	47	0	0	0
	18.	Monaragala	8981	5758	8126	318	0	281
	19.	Diyatalawa	0	0	0	0	0	0
	20.	Bibila	0	0	0	0	0	0
	21.	Wellawaya	0	0	0	0	0	0
Batticaloa	22.	Batticaloa	6241	3871	5516	57	625	4
	23.	Valachchenai	0	0	0	0	0	0
	24.	Kattankudy	0	0	0	0	0	0
	25.	Kalawanchikudy	-	-	-	-	-	-
Chilaw	26.	Chilaw	11966	2116	11758	280	0	238
	27.	Negambo	186	0	24	0	162	0
	28.	Puttlam	127	0	127	0	0	0
	29.	Marawila	118	0	119	0	19	0
CIM	30.	Apeksha	25586	25385	25586	0	0	0
	31.	Awissawella	668	0	631	0	37	0
	32.	Homagama	157	0	133	0	0	0
	33.	Karawanella	0	0	0	0	0	0
CNTH	34.	CNTH	18628	8446	16108	5320	6	5252
	35.	Wathupitiwala	11651	1347	9669	1527	0	1604
	36.	Minuwangoda	18	0	0	0	15	3
	37.	Gampaha	370	0	269	0	13	0
	38.	Kiribathgoda	-	-	-	-	-	-
	39.	Welisara	0	0	0	0	0	0
	40.	Meerigama	0	0	0	0	0	0

Cluster		Blood Bank	RCC	PLT	FFP	CRYO	Stored Plasma	CSP
Colombo	41	NBC	89367	70391	68211	18638	0	11011
	42	SJGH	3217	1865	2823	555	0	555
	43	CSTH	205	0	205	0	0	0
	44	Army Hospital	120	120	120	0	0	0
	45	Accident Service	0	0	0	0	0	0
	46	CEBH-Mulleriyawa	0	0	0	0	0	0
	47	CSHW	0	0	0	0	0	0
	48	DMH	0	0	0	0	0	0
	49	IDH-Angoda	0	0	0	0	0	0
	50	LRH	0	0	0	0	0	0
	51	NHSL	0	0	0	0	0	0
	52	NINDT	0	0	0	0	0	0
Hambanthota	53	Hambanthota	1537	606	1315	207	12	207
	54	Tangalle	52	0	49	0	0	4
	55	Tissamaharama	71	0	0	0	69	0
Jaffna	56	Jaffna	13585	7803	11473	1647	140	1675
	57	Kilinochchi	194	0	194	0	0	0
	58	Mulathiv	185	0	143	0	6	0
	59	Point Pedro	294	0	135	0	0	0
	60	Tellippalai	0	0	0	0	0	0
Kalutara	61	Kalutara	11841	4070	10287	1212	0	1155
	62	Horana	98	0	98	0	0	0
	63	Kethumathie	32	0	32	0	0	0
	64	Panadura	604	0	524	0	0	0
SRBC	65	Kamburugamuwa	24147	13753	24060	4610	94	4610
	66	Kamburupitiya	0	0	0	0	0	0
	67	Matara	0	0	0	0	0	0
	68	Deniyaya	-	-	-	-	-	-
	69	Walasmulla	0	0	0	0	0	0
Kandy	70	Kandy	28796	18044	25072	3733	0	584
	71	Dambulla	1940	0	346	0	1229	0
	72	Matale	3325	2223	3285	379	0	380
	73	Gampola	330	0	223	0	107	0
	74	Nawalapitiya	797	0	738	0	0	0
	75	Rikillagaskada	173	0	0	0	173	0
	76	Theldeniya	-	-	-	-	-	-

Cluster		Blood Bank	RCC	PLT	FFP	CRYO	Stored Plasma	CSP
Karapitiya	77.	Karapitiya	19158	11164	17764	1284	13	1511
	78.	Balapitiya	1270	0	0	0	1258	35
	79.	Elpitiya	452	0	0	0	346	0
	80.	Mahamodara	673	0	0	0	673	0
	81.	Udugama	0	0	0	0	0	0
Kurunegala	82.	Kurunegala	41479	25302	34665	3421	0	3213
	83.	Dambadeniya	154	0	0	0	154	0
	84.	Nikaweratiya	584	0	574	0	10	0
	85.	Kuliyapitiya	1355	0	1300	0	77	0
	86.	Galgamuwa	0	0	0	0	0	0
Peradeniya	87.	Peradeniya	11193	11088	11335	1702	0	622
	88.	Kegalle	5233	3996	4610	666	0	666
	89.	Nuwara Eliya	2586	2118	2586	0	0	0
	90.	Mawanella	63	0	0	0	10	0
	91.	Dikkoya	0	0	0	0	0	0
	92.	Warakapola	0	0	0	0	0	0
Rathnapura	93.	Ratnapura	16260	6078	16168	1586	0	727
	94.	Embilipitiya	0	0	0	0	0	0
	95.	Kahawatta	0	0	0	0	0	0
	96.	Balangoda	0	0	0	0	0	0
Trincomalee	97.	Trincomalee	4622	2661	2656	1124	0	929
	98.	Muththur	0	0	0	0	0	0
	99.	Kinniya	0	0	0	0	0	0
	100.	Kantale	0	0	0	0	0	0
Vavniya	101.	Vavniya	200	0	43	0	157	0
	102.	Mannar	156	0	57	0	6	0
	103.	Chettikulam	-	-	-	-	-	-
Total			**446,098**	**264,798**	**390,940**	**60,324**	**6,211**	**45,973**

Table 8: Component preparation and comparison with previous years.

	2014	2015	2016	2017	2018
RCC	379,774	393,348	408,959	417,792	446,098
Platelets	220,335	244,071	248,644	252,865	263,720
FFP	344,091	344,788	369,299	378,983	390,671

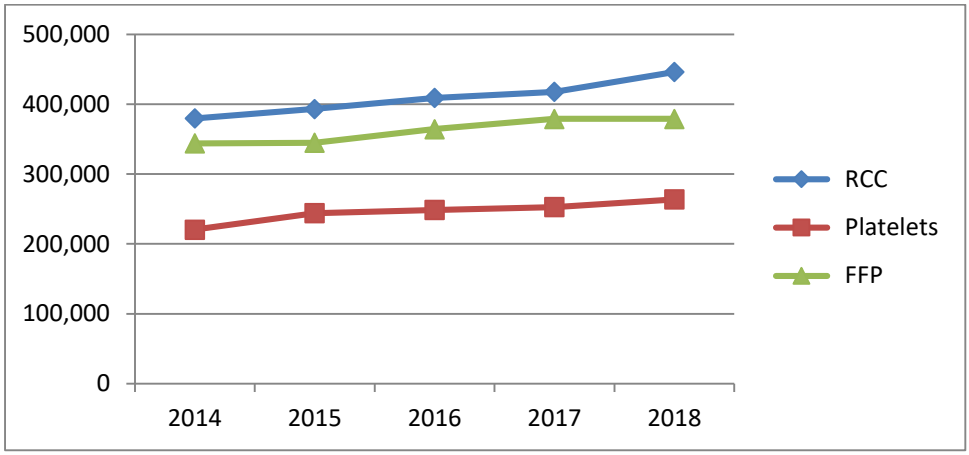


Figure 10: Comparison of blood component preparation

Platelet Aphaeresis Donations- 2018

Table 9: Platelet aphaeresis donations

Blood Bank	No. of procedures	No. of Units collected
Ampara	23	164
Anuradhapura	9	86.5
Apeksha	415	3939
Badulla	7	66
Batticaloa	122	872
CNTH	7	79
Jaffna	29	294
Kalutara	12	84
Kamburugamuwa	7	72
Kandy	218	2907
NBC	749	10,014
Total	**1598**	**18,577.5**

Statistics of RCC Cross matches & Issues

Table 10: Distribution of red blood cell requests, cross matches and issues

Cluster		Blood Bank	Requests	Cross match	Issues	C:I ratio
Ampara	1.	Ampara	11738	7975	6186	1.3
	2.	Akkarepattu	4695	4659	1188	3.9
	3.	Dehiattakandiya	2167	2208	803	2.7
	4.	Kalmunai North	4183	3124	1320	2.4
	5.	Kalmunai South	4121	3971	1638	2.4
	6.	Mahaoya	1291	1377	642	2.1
	7.	Sammanthurai	1334	1352	382	3.5
	8.	Pothuvil	29	25	17	1.5
Anuradhapura	9.	Anuradhapura	47890	32870	20463	1.6
	10	Medirigiriya	1362	1315	747	1.8
	11	Polonnaruwa	23638	16079	9713	1.7
	12	Padaviya	338	309	288	1.1
	13	Medawachchiya	-	-	-	-
	14	Thambuttegama	4154	3993	1478	2.7
Badulla	15	Badulla	22396	14383	10310	1.4
	16	Monaragala	16786	17186	7541	2.3
	17	Bibila	3150	1294	968	1.3
	18	Diyatalawa	6063	6063	1873	3.2
	19	Mahiyanganaya	7090	10337	3633	2.8
	20	Welimada	4568	4563	1197	3.8
	21	Wellawaya	641	585	370	1.6
Batticaloa	22	Batticaloa	21097	20310	8983	2.3
	23	Kattankudy	95	90	17	5.3
	24	Kalawanchikudi	-	-	-	-
	25	Valachchenai	500	692	161	4.3
Chilaw	26	Chilaw	16657	9535	6827	1.4
	27	Negambo	15324	6197	4146	1.5
	28	Puttlam	9686	9379	3920	2.4
	29	Marawila	7732	7548	2384	3.2
CIM	30	Apeksha	32650	30217	19800	1.5
	31	Awissawella	12711	12516	3053	4.1
	32	Homagama	9131	7945	2084	3.8
	33	Karawanella	6565	6444	1817	3.5
CNTH	34	CNTH	45231	27838	19409	1.4
	35	Gampaha	19374	10200	5001	2
	36	Wathupitiwala	12770	12567	3624	3.5
	37	Meerigama	497	491	265	1.9
	38	Minuwangoda	237	224	140	1.6
	39	Welisara	7214	6828	1708	4
	40	Kiribathgoda	-	-	-	-

Cluster		Blood Bank	Requests	Cross match	Issues	C:I ratio
Jaffna	41	Jaffna	34741	12179	8209	1.5
	42	Mulathiv	1774	1863	650	2.9
	43	Tellippalai	3475	4839	2243	2.2
	44	Kilinochchi	4897	4695	1766	2.7
	45	Point Pedro	1446	1585	659	2.4
Kaluthara	46	Kalutara	14604	9470	5002	1.9
	47	Horana	12431	10580	3655	2.9
	48	Kethumathie	3920	1397	655	2.1
	49	Panadura	5858	5361	2301	2.3
Kamburugamuwa	50	Kamburugamuwa	0	0	0	0
	51	Kamburupitiya	4635	4643	1166	4
	52	Matara	21466	9600	6756	1.4
	53	Deniyaya	-	-	-	-
	54	Walasmulla	508	495	233	2.1
Hambanthota	55	Hambantota	16776	16480	5374	3.1
	56	Tangalle	10702	10708	3676	2.9
	57	Tissamaharama	3316	3296	816	4
Kandy	58	Kandy	80095	32663	23452	1.4
	59	Matale	12537	11824	3662	3.2
	60	Dambulla	9729	24678	2909	8.5
	61	Nawalapitiya	10577	9888	2116	4.7
	62	Gampola	7085	7638	2466	3.1
	63	Rikillagaskada	2245	1935	490	3.9
	64	Theldeniya	-	-	-	-
Peradeniya	65	Peradeniya	24179	17890	9590	1.9
	66	Kegalle	15589	17461	5197	3.4
	67	Nuwara Eliya	7440	7532	2208	3.4
	68	Dikkoya	2160	3487	1496	2.3
	69	Mawanella	5147	5199	1695	3.1
	70	Warakapola	2291	2115	1044	2
Karapitiya	71	Karapitiya	53317	46799	15522	3
	72	Mahamodara	11526	15697	1680	9.3
	73	Elpitiya	6239	6236	1916	3.3
	74	Balapitiya	9038	9060	2415	3.8
	75	Udugama	1118	987	533	1.9

Cluster		Blood Bank	Requests	Cross match	Issues	C:I ratio
Colombo	76.	NBC	6846	6823	6873	0.99
	77.	NHSL	79756	46446	24599	1.9
	78.	NINDT-Maligawaththa	3175	3095	1131	2.7
	79.	SJGH	20148	9444	4993	1.9
	80.	LRH	13979	14890	6077	2.5
	81.	Accident Service	35750	28320	9146	3.1
	82.	CSHW	14284	14357	1973	7.3
	83.	CSTH	35981	10981	9774	1.1
	84.	CEBH	2752	2975	884	3.4
	85.	Army Hospital	4184	3172	1202	2.6
	86.	DMH	9398	9605	934	10.3
	87.	IDH-Angoda	4721	4666	963	4.8
Kurunegala	88.	Kurunegala	77423	62123	33963	1.8
	89.	Kuliyapitiya	10001	10465	3930	2.7
	90.	Dambadeniya	4468	4293	871	4.9
	91.	Nikaweratiya	6772	6569	1659	4
	92.	Galgamuwa	330	270	188	1.4
Rathnapura	93.	Ratnapura	31250	13458	10815	1.2
	94.	Balangoda	6338	6731	1346	5
	95.	Embilipitiya	13047	13093	3831	3.4
	96.	Kahawatta	4524	4467	1545	2.9
Trincomalee	97.	Trincomalee	6495	5551	3369	1.6
	98.	Kantale	2879	3134	772	4.1
	99.	Kinniya	1082	1082	424	2.6
	100.	Muththur	1289	1289	422	3.1
Vavuniya	101.	Vavniya	7377	6784	3701	1.8
	102.	Mannar	3176	3364	1121	3
	103.	Chettikulam	-	-	-	-
Total			**1,193,391**	**918,416**	**412,154**	**2.23**

Table 11: **Total issues of other blood components**

	FFP	PC (WBD/APH)	Cryo	CSP/ Plasma	Buffy Coat
Issues	**156,512**	**151,741**	**48,622**	**7,032**	**1,254**

Screening of donated blood for Transfusion Transmitted Infections (TTI tests)

Table 12: Prevalence of TTI and comparison with previous years

Year	2013	2014	2015	2016	2017	2018
Total Collection	380,808	380,367	395,500	414,175	423,668	450,640
HIV (scr.+ve)	625	648	646	696	764	797
Prevalence	0.16%	0.17%	0.16%	0.17%	0.18%	0.16%
HIV (Conf. +ve)	16	26	21	25	28	29
Prevalence	0.004%	0.007%	0.005%	0.006%	0.006%	0.006%
Hepatitis B (rpt. +ve)	273	394	409	505	618	513
Prevalence	0.07%	0.10%	0.10%	0.12%	0.14%	0.11%
Hepatitis C (rpt. +ve)	953	657	800	847	905	898
Prevalence	0.25%	0.17%	0.2%	0.20%	0.21%	0.20%
VDRL +ve	1,016	1,265	1,125	1,027	1411	1577
Prevalence	0.27%	0.33%	0.28%	0.25%	0.33%	0.35%
TPPA +ve	180	152	175	152	152	107
Prevalence	0.05%	0.04%	0.04%	0.04%	0.03%	0.02%
MP +ve	0	0	0	0	0	0
Prevalence	0%	0%	0%	0%	0%	0%

(Scr.+ve) - Screening positive; (conf.+ve) – confirmed positive; (rpt.+ve) – repeat positive; MP- Malaria parasites; VDRL – Venereal Disease Research Laboratory ; TPPA- *Treponema pallidum* particle agglutination

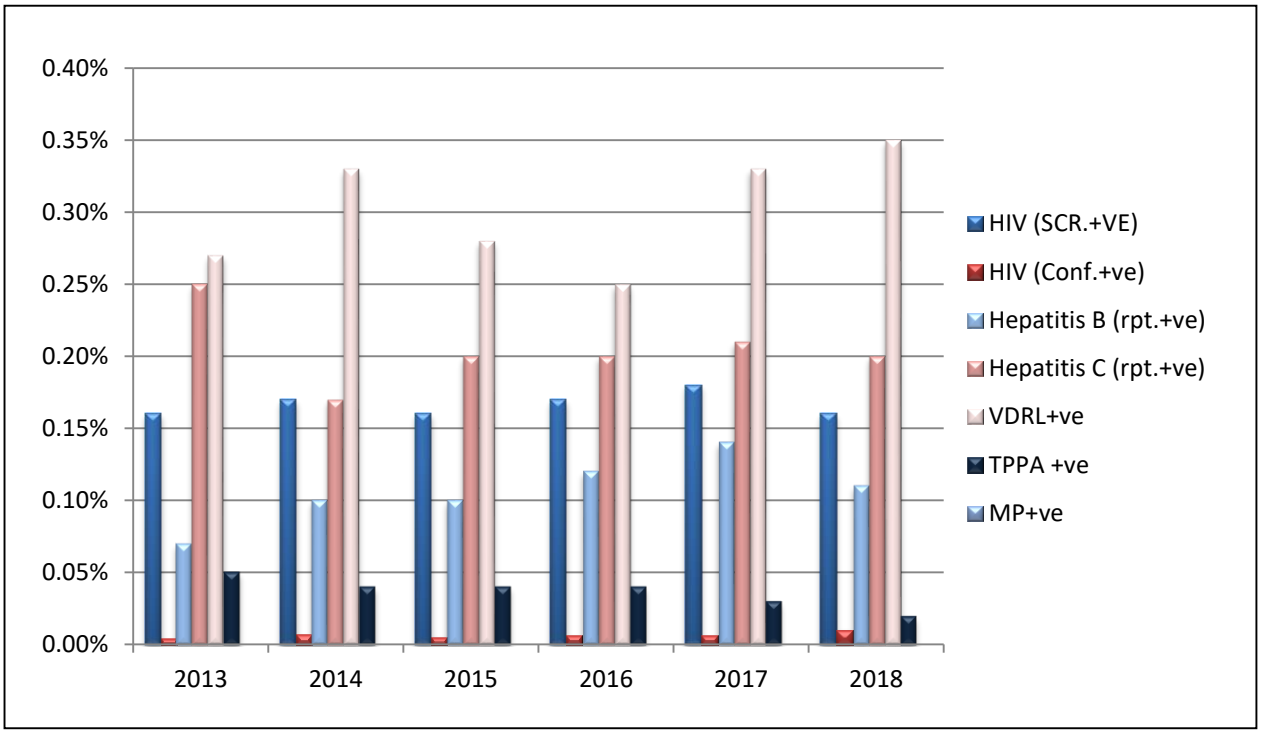


Figure 11: Prevalence of TTI and comparison with previous year

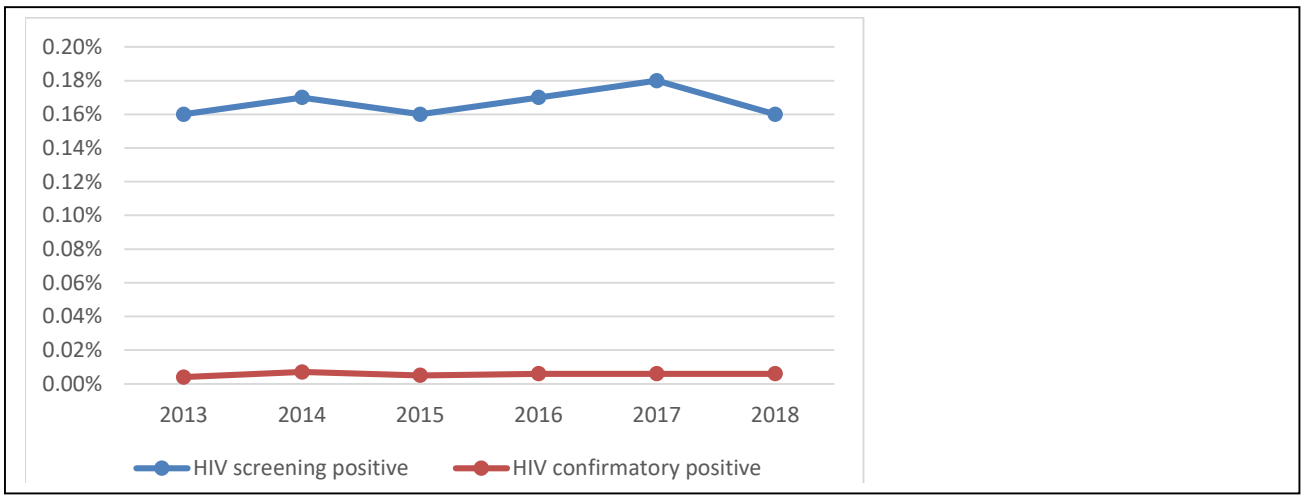


Figure 12: HIV screening positive and confirmed positive prevalence in total collected blood

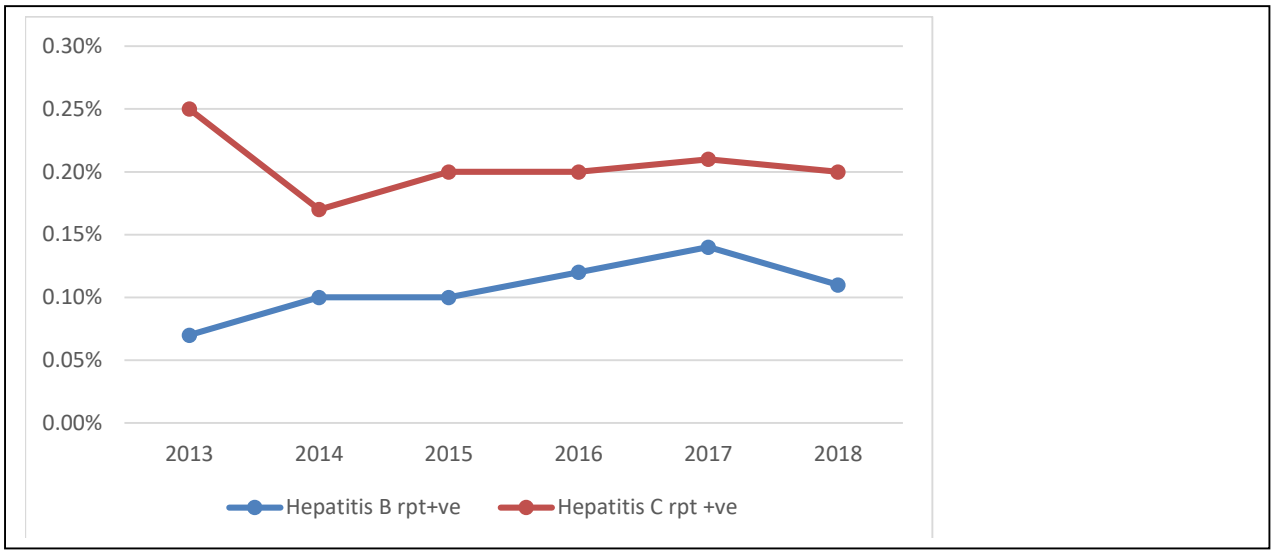


Figure 13: Hepatitis prevalence in donated blood

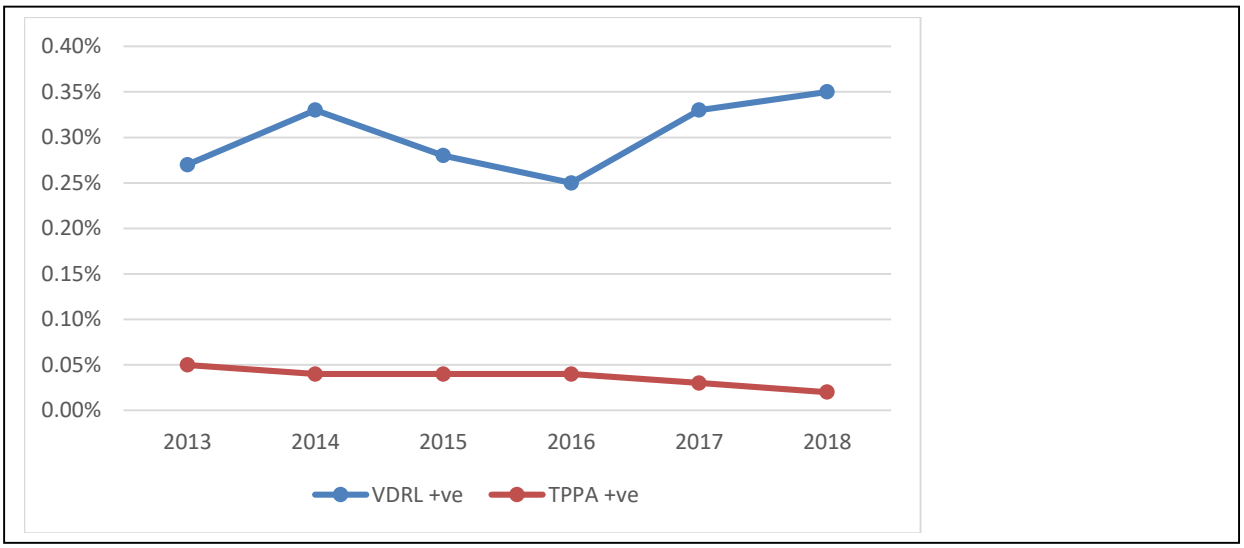


Figure 14: Comparison of VDRL, TPPA and MP positive prevalence

Red Cell Concentrate (RCC) discards

Table 13: RCC discards by blood banks

Cluster		Blood Bank	Screening Positive	Past expiry	Insufficient	High risk	Pack damage	Other	Total Discards
Ampara	1.	Ampara	293	254	14	0	19	174	754
	2.	Akkarepattu	0	15	1	0	0	2	18
	3.	Dehiattakandiya	0	12	0	0	0	0	12
	4.	Kalmunai North	0	13	0	0	0	1	14
	5.	Kalmunai South	0	4	0	0	0	0	4
	6.	Mahaoya	0	0	0	1	0	0	1
	7.	Pothuvil	0	40	0	0	1	0	41
	8.	Sammanthurai	0	0	0	0	0	0	0
Anuradhapura	9.	Anuradhapura	171	305	3	0	4	12	495
	10	Polonnaruwa	192	49	0	0	8	37	286
	11	Medirigiriya	2	57	4	0	3	14	80
	12	Padaviya	3	37	1	0	0	0	41
	13	Medawachchiya	-	-	-	-	-	-	-
	14	Thambuttegama	0	4	0	0	0	0	4
Badulla	15	Badulla	137	188	0	0	3	10	338
	16	Monaragala	109	123	0	0	11	0	243
	17	Diyatalawa	34	138	33		3	10	218
	18	Bibila	0	3	0	0	0	3	6
	19	Mahiyanganaya	19	75	12	0	0	0	106
	20	Wellawaya	0	81	0	0	0	3	84
	21	Welimada	0	13	0	0	0	2	15
Batticaloa	22	Batticaloa	11	305	0	60	0	33	409
	23	Kattankudy	0	4	0	0	0	3	7
	24	kalawanchikudy	-	-	-	-	-	-	-
	25	Valachchenai	0	30	0	0	0	2	32
Chilaw	26	Chilaw	52	221	0	0	6	20	299
	27	Marawila	27	200	29	0		10	266
	28	Negambo	2	141	0	26	4	32	205
	29	Puttlam	27	37	12	0	0	0	76
CIM	30	Apeksha	143	528	0	0	7	140	818
	31	Awissawella	9	192	6	0	4	2	213
	32	Homagama	6	12	0	2	3	4	27
	33	Karawanella	0	126	0	0	6	9	141
CNTH	34	CNTH	141	1129	14	1	6	49	1340
	35	Gampaha	0	219	0	56	0	6	281
	36	Wathupitiwala	20	367	4	2	1	2	396
	37	Welisara	0	142	0	0	0	0	142
	38	Meerigama	1	7	0	0	0	0	8
	39	Minuwangoda	0	2	0	0	0	0	2
	40	Kiribathgoda	-	-	-	-	-	-	-

Cluster		Blood Bank	Screening Positive	Past expiry	Insufficient	High risk	Pack damage	Other	Total Discards
Jaffna	41	Jaffna	98	16	11	2	7	49	183
	42	Kilinochchi	8	17	0	0	0	0	25
	43	Mulathiv	0	14	0	0	1	11	26
	44	Point Pedro	0	57	0	4	0	0	61
	45	Tellippalai	0	37	0	0	3	7	47
Kalutara	46	Kalutara	85	95	6	6	3	39	234
	47	Kethumathie	14	21	0	4	8	2	49
	48	Panadura	0	45	3	0	0	0	48
	49	Horana	0	111	20	3	1	17	152
SRBC	50	Kamburugamuwa	304	1600	0	2	4	329	2239
	51	Kamburupitiya	0	249	0	0	0	0	249
	52	Matara	0	128	1	0	3	0	132
	53	Deniyaya	-	-	-	-	-	-	-
	54	Walasmulla	0	0	0	0	0	3	3
Hambantota	55	Hambantota	0	267	0	34	4	50	355
	56	Tissamaharama	2	483	0	0	1	1	487
	57	Tangalle	0	139	0	0	0	2	141
Kandy	58	Kandy	17	186	0	0	4	0	207
	59	Dambulla	25	166	5	0	0	15	211
	60	Gampola	10	431	11	1	2	48	503
	61	Matale	32	266	0	0	0	15	313
	62	Nawalapitiya	4	256	9	0	1	58	328
	63	Rikillagaskada	6	55	0	0	0	0	61
	64	Theldeniya	-	-	-	-	-	-	-
Peradeniya	65	Peradeniya	3	301	0	2	1	96	403
	66	Nuwara Eliya	2	544	0	0	1	0	547
	67	Mawanella	0	36	6	0	1	0	43
	68	Kegalle	0	21	0	7	0	12	40
	69	Dikkoya	0	50	0	0	1	7	58
	70	Warakapola	0	34	0	0	4	59	97
Karapitiya	71	Karapitiya	112	931	0	6	5	46	1100
	72	Mahamodara	3	172	5	0	1	0	181
	73	Balapitiya	13	101	1	1	1	2	119
	74	Elpitiya	0	99	0	0	0	1	100
	75	Udugama	0	4	0	0	0	4	8
Kurunegala	76	Kurunegala	469	167	43	0	93	66	838
	77	Dambadeniya	11	69	0	0	1	15	96
	78	Kuliyapitiya	28	14	6	0	3	0	51
	79	Nikaweratiya	14	78	0	0	0	1	93
	80	Galgamuwa	0	2	0	0	0	0	2

Cluster		Blood Bank	Screening Positive	Past expiry	Insufficient	High risk	Pack damage	Other	Total Discards
Colombo	81.	NBC	631	7301	0	5	3	474	8414
	82.	NHSL	0	1136	0	0	0	99	1235
	83.	Accident Service	0	1034	0	0	0	3	1037
	84.	Army Hospital	2	64	0	0	1	0	67
	85.	CEBH	0	195	0	0	0	0	195
	86.	CSHW	0	9	0	0	1	10	20
	87.	CSTH	5	43	1	0	1	0	50
	88.	DMH	0	5	0	0	0	7	12
	89.	IDH-Angoda	0	6	0	0	2	0	8
	90.	LRH	0	15	0	0	11	3	29
	91.	NINDT	0	77	0	0	0	0	77
	92.	SJGH	45	317	0	0	11	1	374
Rathnapura	93.	Ratnapura	126	285	15	0	4	51	481
	94.	Balangoda	0	152	0	0	1	3	156
	95.	Embilipitiya	8	276	16	0	8	0	308
	96.	Kahawatta	0	2	0	0	0	0	2
Trincomalee	97.	Trincomalee	90	175	60	0	27	4	356
	98.	Kantale	0	1	0	0	0	0	1
	99.	Kinniya	0	0	0	0	0	0	0
	100.	Muththur	0	0	0	0	0	0	0
Vavuniya	101.	Vavniya	17	156	48	2	1	2	226
	102.	Mannar	3	33	2	0	3	0	41
	103.	Chettikulam	-	-	-	-	-	-	-
		Total	**3586**	**23617**	**402**	**227**	**317**	**2192**	**30341**
		Percentage	**11.82**	**77.84**	**1.32**	**0.75**	**1.04**	**7.23**	

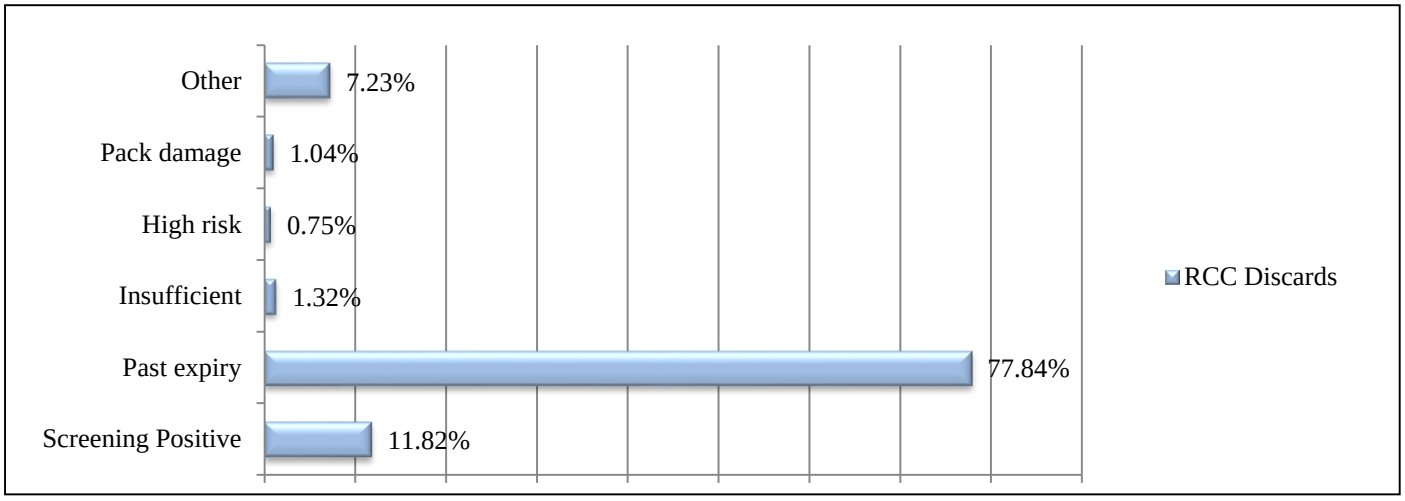


Figure 15: Distribution of RCC discards in percentage

Table 14: Comparison of RCC discards with previous years

Year	Passed expiry discards	Screening positives	Other	Total Discards	RCC Discard Rate
2014	22,703	3,287	6,116	32,106	5.98
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

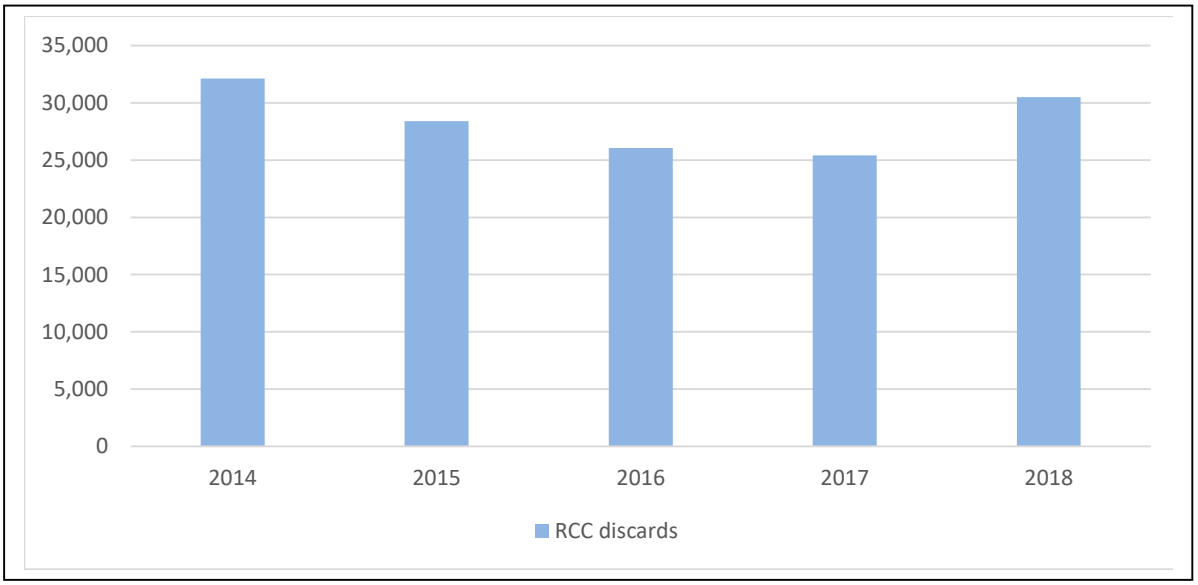


Figure 16: Comparison of total RCC discards with previous years

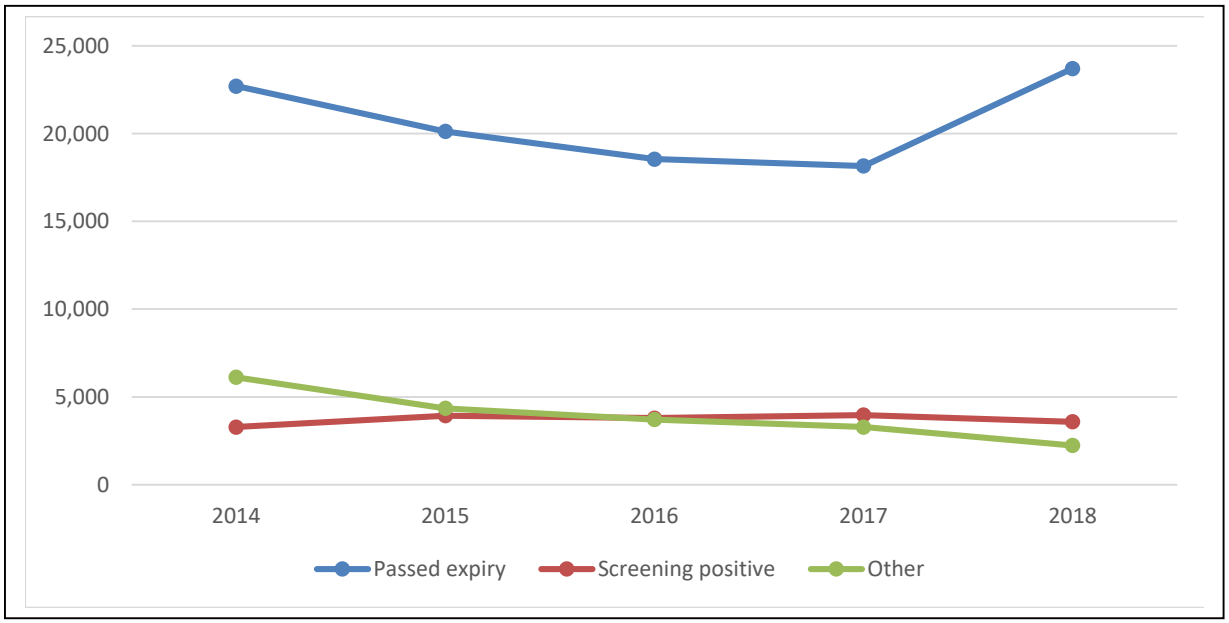


Figure 17: Comparison of RCC discards with previous years

Statistics of HLA Laboratory

Table 15: Comparison of HLA Laboratory Statistics

Typing and cross matches	**2014**	**2015**	**2016**	**2017**	**2018**
Class 1	2293	2288	2015	1253	2415
Class 11	2297	2214	1777	1099	2415
Cross match	1365	1471	2490	1954	828
B27	352	194	319	492	602
PRA (Class I , Class II)	179	295	484	475	2456
Transplantation					
Kidney (Patients ,Donor)	2455	2094	1589	1027	2017
Bone Marrow (Patients, Donors)	192	108	167	163	264
AP Donor	11	32	171	7	0
Cadaveric Donor	7	15	11	34	30

PRA - Panel Reactive Antibodies

Statistics of Reference Immunohaematalogy Laboratory

Table 16: Comparison of Reference Immunoheamatology laboratory statistics.

Test category	2014	2015	2016	2017	2018
Difficult compatibility testing	2413	2656	2767	3003	3702
Antibody Screening	1640	1263	3266	4440	4525
Antibody titrations	243	394	241	272	399
DAT profile	637	603	702	1013	1027
Extended phenotypes	303	439	414	363	395
Cold agglutination titration	38	154	47	42	48
Iso haemagglutination test	80	54	97	53	102
Haemolysin test	26	55	97	156	132
Confirmation of Bombay O	111	22	15	10	14
Elution studies	30	26	30	50	82
Transfusion reaction investigations	14	49	21	39	48

Table 17: Reference lab - detailed investigations

Investigations	2017	2018
Blood Grouping (ABO & Rh D)	4995	5755
DAT	3715	4384
Antibody Identification	3358	3356
Enzyme Panels	53	82
ABO/Rh Group Confirmation	315	411
Donath-Landsteiner Test (DL)	15	25
Cross Matching	1544	2127
Rh Phenotyping	5156	5270

Statistics of Reagent Laboratory

Table 18: Comparison of Statistics of reagent preparation

Reagents prepared	2014	2015	2016	2017	2018
PBS working solution (L)	5565	7785	3965	-	-
PBS stock solution (L)	620	810	3965	-	-
Alsever's solution (L)	148	172	274	396	328
Antibody screening cells (mL)	39,255	45,650	162,800	188,800	194,580
Anti-A1 (mL)	482.5	775	1450	906	1281
Anti -H (mL)	327.5	475	1125	678	990
ABO reverse grouping cells (mL)	28,275	3,7625	120,200	132,300	147,180

Quality Management Unit

Table 19: Quality Monitoring of Blood Components and Reagents

Component	Number
RCC (BCR) AS	353
RCC- PS	510
Platelets (RDP)	870
Platelets (AP)	104
FFP	10
Component Culture	146

Reagent Testing	Number
QC testing of A,B,O cells	12 Sets
QC testing antibody screening red cells	19 Sets

Table 20: Quality control laboratory performance

Evaluations

Evaluation done	Number of products evaluated
Kahn Tubes	12
Test Tube Brushes	03
Beakers	04
Minor Blood Group Antisera	40
Anti A,AB,B & D Antisera	18
AHG	04
LISS Additive solution	02
Triple Blood Bags	03
Quadruple Blood Bags	03
Transfusion sets	02

SL-NEQAS programs conducted

Program	No. Of cycles	No. of test kits prepared
NEQAS Blood Group Serology	2 cycles	107x2
NEQAS TTI	2 cycles	20x2

Investigation of Quality Related Incidence

Component	No of Incidence
RCC	41
Platelet	9
Others	1

Summary of tests

	Type of test	No. Of Tests
1	Full Blood Count	3266
2	PH	2115
3	Blood Culture	146
4	% Haemolysis	1005
5	DAT	54
6	Antibody Screening	162
7	Microscopy testing for Agglutinations	54

Statistics of Teaching and Training Unit

Table 21:
A: Training programs conducted for Staff categories of NBTS

Staff Category	Duration	No of Trainees
Medical officers	4 Weeks	88
	3 days(orientation)	1(KDU)
	Total	**89**
Nursing officers	6 Weeks	73
	2 Weeks	26
	Total	99
Medical Laboratory Technicians	12 Weeks	16
Public Health Laboratory Technicians	1 week	5
Laboratory Orderly	2 Weeks	6
Junior Staff	1 Week	6

B: Other Staff Categories

Staff Category	No of Trainees
1. Post graduate Hematology diploma trainees.	12
2. Post graduate Microbiology Trainees	1
3. Post graduate Physiology Trainees	8
4. Medical Students	356
5. Foreign Student Training	2
6. Nursing graduates	5
6. MLS students	81
7. Nursing students	32
8. PHI students	103
9. Health assistants- Welisara Naval	54

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 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 22: Summary of Nucleic Acid Testing

Month	Total Samples	Total WL	Total Invalids	Total Reactives	Serology Reactivity			Serology Non Reactive
					HBV	HCV	HIV	
January	12840	14034	803	7	3	1	2	1
February	11392	12393	577	14	2	2	1	9
March	7401	8038	320	7	0	0	0	7
April	30	56	0	0	0	0	0	0
May	5480	6156	347	18	1	0	1	16
June	7523	8407	23	7	2	0	1	4
July	6496	7224	106	5	1	0	1	3
August	5642	6394	84	4	1	1	1	1
September	5853	6581	24	2	0	0	0	2
October	6034	6755	133	5	3	2	0	0
November	6773	7566	305	2	0	1	1	0
December	6549	7290	132	3	3	0	0	0
Total	**82013**	**90894**	**2854**	**74**	**16**	**7**	**8**	**43**

Discriminatory tests

Serology non-reactive	Discriminative tests reactive	Discriminative tests non-reactive
43	HBV - 1	27

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 some 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

A team from the National Cancer Institute (Apeksha Hospital) (including blood Bank staff) was trained at the St. Vincent's Hospital, Sydney, Australia on stem cell transplantation. Additional training for NBTS staff was provided in the Netherlands.

First stem cell collection from a patient diagnosed with Multiple Myeloma was carried out at the Blood Bank of Apeksha Hospital on 24th October, 2016. Processing of the collected unit and cryopreservation was carried out at the National Blood Centre. First patient was transplanted on 5th of December 2016. First two collections as well as the first transplantation were done by the local team under supervision of experts from St. Vincent's.

Table 23. Statistics of Stem cell transplantation for the year 2018

Number of patients	27
Cryopreservation procedures	33
Infusion procedures	28

PATHAOGEN INACTIVATION of Platelets:

The possibility of transmitting infectious organisms via blood products and plasma derivatives (donor derived or contaminated microorganisms) is a major public health concern worldwide.

Ability to ensure the safety of the blood supply with donor screening and laboratory testing is limited because it requires prior knowledge of the possible infectious agents, and development of effective laboratory tests for each agent. In addition to that there is no method to prevent transmission of infections during window period.

Pathogen Inactivation is a proven method for preventing risk of Transfusion Transmitted Infection and bacterial contamination.

There are two main techniques for pathogen inactivation

A. Chemical Inactivation
   E.g.: Solvent Detergent Treatment (SDT): -
   Used on plasma products, this method results in the lysis of cell membranes and viral envelopes leading to more than 5.4 to 6.0 log reductions of sensitive pathogens.

B. Photo Chemical Treatment
   This is applicable to plasma and platelet products. Currently available methods include Intercept & Mirasol.

Pathogen Inactivation at NBC currently uses Intercept technology on pooled platelets.

Table 24: Statistics of PI platelets for 2018

Duration	PI Platelets production
01/01/2018 – 31/12/2018	266

Advantages of Pathogen Inactivation-

1. Reduce the risk of TTI
2. Increase the shelf life of platelets up to 7 days
3. There is evidence that it prevents Transfusion Associated Graft Versus Host Disease.

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 - $86C^0$)
2. Low Glycerol method (frozen red cells are stored at - $120C^0$)

This technique has many advantages.

- Frozen Red Cell (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 2018

Blood group	No of Red Cell Units Frozen	No of Red Cell Units Deglycerolized	No of Red Cell Units Transfused
Bombay O Rh D Positive	06	-	-
Bombay O Rh D Negative	01	-	-
A Rh D Positive	02	-	-
A Rh D Negative	04	-	-
B Rh D Positive	-	-	-
B Rh D Negative	22	-	-
AB Rh D Negative	03	-	-
O Rh D Positive	02	20(for QC purposes)	-
Total	**40**	**20**	**-**