

Approach for Safe Transfusion Practices during COVID-19 Pandemic: Observation of an Indian Rural Blood Bank

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ABSTRACT

Introduction: Focus of blood transfusion services is continuous, judicious and well-timed supply of safe blood. The Severe Acute Respiratory Syndrome-Coronavirus 2 (SARS-CoV-2) pandemic has caused the major disruption throughout the world and declaration of nationwide lockdown by Government of India from 25th March 2020 to 31st May 2020 to halt the spread of virus has afflicted the blood bank services enormously.

Aim: To keep the focal point on approaches implemented for safe blood transfusion services during Coronavirus Disease-2019 (COVID-19) pandemic in rural blood bank and to observe how COVID-19 pandemic has affected blood transfusion services in year 2020 with regards to blood collection, supply and organisation of camps as compared to year 2019.

Materials and Methods: A retrospective study was done in the Blood Bank in a rural tertiary care hospital in Southern India, from January 2019 to December 2020. Various measures were implemented to increase the donor safety and prevention of spread to community and to increase the number of voluntary donors. Statistical analysis performed using Statistical Package for Social Sciences (SPSS) software version 21.0. All data was entered and tabulated in excel sheet. A two sided t-test was

utilised for comparing dual variables and one sided Analysis of Variance (ANOVA) for multiple variables. The p-value <0.05 was considered significant.

Results: Mean number of units received during pre-COVID-19 year were significantly higher (4468±4127.2) as compared to COVID-19 year 2020 (2282±1856.4) with significant p-value <0.001. Overall utilisation of Packed Red Blood Cell (PRBC) (0.001), Human Platelets (Single Donor Platelets (SDP)/Random Donor platelets (RDP)) p-value 0.003, Fresh Frozen Plasma (FFP) (p-value 0.001) was significantly higher in pre-COVID-19 year as compared to COVID-19 year 2020. Total number of camps conducted in pre-COVID-19 year was 41 as compared to 23 in COVID-19 year 2020. Patients deferred for blood donation were much higher in COVID-19 year 2020 (n=400) with maximum (32.5%) under category of self-deferral due to clinical illness as compared to year 2019 (n=200).

Conclusion: As a result of our strict and effective implementation of COVID-19 safety protocols, no donor had complained of post donation COVID related symptoms and none of our blood bank staff had developed any COVID-19 related illness. Hence during the COVID-19 pandemic, our blood bank maintained 100% attendance (with staggered duty hours).

Keywords: Blood components, Blood donation, Coronavirus disease-2019, Donor safety, Voluntary donors

INTRODUCTION

The goal of Blood Transfusion Services (BTS) is prompt and continuous supply of safe blood [1]. The continuing COVID-19 pandemic, attributable to Severe Acute Respiratory Syndrome-Coronavirus 2 (SARS-CoV-2), is causing major disruption throughout the world. Nationwide lockdown was declared by Government of India from 25th March 2020 to 31st May 2020 to halt the spread of virus, affected blood bank services extensively [2]. Decrease in blood donations due to scarcity of outdoor blood donation camps, restricted social gatherings and stringent social distancing policies in accordance to guidelines laid by the government of India caused paucity of blood. Other reasons which affected blood bank services were sickness of essential staff and sickness in community due to COVID-19 infection. A crucial pursuit for transfusion organisations during this period of pandemic, either in a hospital or separate BTS, is to assess the demand and supply for maintaining adequate blood stocks during critical situations for instances such as major trauma.

In a resource constraint rural set-up like ours significant challenges encountered were recruitment of healthy blood donors, ensuring safety of staff, maintenance of blood stock and management of consumables. In this study, evaluation was done to observe how COVID-19 pandemic affected the BTS from January 2019 to December 2020 in regard to supply of blood, blood collection with organisation of voluntary blood donation camps in a rural setup located in Karnataka state in India. So, policies were strategised for prioritising the patients in the event of expected shortage.

Surveillance of demand and supply was done to sustain adequate blood stocks to aid during emergency situations [1]. The present study was conducted with the aim to keep the focal point on approaches for safe BTS during COVID-19 pandemic in rural blood bank and to observe how COVID-19 pandemic has affected BTS in year 2020 with regards to blood collection, supply and organisation of camps as compared to year 2019.

MATERIALS AND METHODS

The present retrospective study was conducted at RLJH blood bank, Department of Pathology, Sri Devaraj Urs Medical College, Sri Devaraj Urs Academy of Higher Education and Research (SDUAHER), Kolar, Karnataka, India, for two years from January 2019 to December 2020. The study has been carried out as per ethical guidelines of the institute with IEC NO: DMC/KLR/IEC/46/2021-2022. Data related to issue of blood/blood components which were affected in the COVID-19 pandemic was retrieved, analysed from January 2019 to December 2020. Collection of data was done from the RLJH hospital Blood transfusion registers. Study data was retrieved for the following blood components issued to the patients: Packed Red Blood Cells (PRBCs), Random Donor Platelets (RDPs), Single Donor Platelets (SDPs) and fresh frozen plasma (FFPs).

Inclusion criteria: All these blood components have been included based on their respective clinical requirements and the respective components fulfilling the quality criterias as per Directorate General of Health Services (DGHS) standard [3].

Exclusion criteria: Whole blood and cryoprecipitate issued were excluded from the study as they were very few in number in comparison to other components.

Study Procedure

Donor Selection criteria was strictly followed and in any suspicious case blood was not collected for processing and was advised to go for voluntary deferral. As per Standard Operating Procedure (SOP), all Whole Blood (WB) units was separated into blood components that included PRBC, FFP, RDP.

General measures implemented in present study as approach for safe transfusion practices during COVID-19 pandemic:

1. Measures to increase safety of donors.
2. Measures executed to increase the number of voluntary blood donors.
3. Decrease spread to community and management of staff.
4. Maintenance of blood stock.
5. Management of consumables.

Measures to increase safety of donors: Strict donor only policy was applied to decrease the crowding around the blood donor area. Donors were examined for body temperature by a handheld infrared thermometer before entering into the blood donor area. Rearrangement of waiting area as coloured circles were drawn or fixed on floor which helped to maintain social distancing more effectively. Alternate seats/donor beds were kept vacant with proper signage in understandable languages for maintaining social distance protocol [Table/Fig-1]. Donors were kept at a distance of atleast one meter in respective blood bank couches. Each donor was provided with hand-rub sanitiser and a face mask, if they were not wearing. Utilisation of additional COVID-19 related donor health questionnaire as per National Blood Transfusion Council (NBTC) protocol [4]. The supplement consisted of questions related to donors and their close contacts, symptoms of active infection, history of travel to abroad (especially to china, South-east Asia, history of travel from the neighboring states (Kerala), history of contact with case suspicious of COVID-19 or with confirmed case of COVID-19) and COVID-19 vaccination status.



[Table/Fig-1]: Donors kept at a distance of atleast one meter in respective Blood Bank couches.

Donors with positive history, history of travel to abroad or neighboring states or with donor with symptoms was deferred and followed by referral to medicine clinic. The BTS staff was enlightened about COVID-19 crisis and its vital preventive measures for example hand hygiene, cough etiquette, social distancing etc. All donors were

educated and advised to contact the BTS in case of any postdonation illness including signs and symptoms of COVID-19 or in case of close contact with COVID-19. To enhance blood safety all blood donors on the 14th day of donation were personally contacted over telephone asking their well-being and health status. All such communication was documented in the donor card and signed by the BTS doctors. The BTS Staff members were advocated to follow the World Health Organisation (WHO) document regarding the safety of the healthcare personnel's [5]. The Voluntary Blood Donor Organisers (VBDOs) were advocated to ensure self-deferral of any donor with symptoms of fever, cough or cold or deferral for donors who were in close contact with the person having these symptoms or who had a history of travel abroad within the last 28 days. Donors with age group more than 55 years accompanied by underlying medical condition for example diabetes or hypertension was advocated to elude blood donations.

Measures executed to augment the number of voluntary blood donors: Regarding logistical issues, police and local civil authorities were approached and blood donor movement pass were issued mentioning the date of the donation for smooth commutation of blood donors. Prior donor appointment was made and transport was arranged by us without violating COVID-19 protocol and ensuring donor safety. To alleviate the apprehensions in the rural population with respect to process of blood donation was a challenging scenario for that Information Technology (IT) services was utilised for creating Whatsapp group, Short Message Service (SMS) were delivered to various local Non-Governmental Organisation (NGO) requesting for donor motivation. Our donor outreach program with help of local NGO's was successful and satisfactory donor response was noted inspite of Kolar being rural and backward area. Responding to our messages, donor came to donate blood. No insistence or compulsion was utilised for the blood donation.

Decrease spread to community and management of staff: Blood banks have to decrease staff, sustain hygiene of the areas. Forefront blood bank staff and volunteers were provided with basic Personal Protective Equipment (PPE). The BTS staff was told to continuously sanitise and wash hands. Staggering of duties for the BTS Staff was implemented: a weekly roster was prepared to keep only half of the staff for continuous duties for seven days, then to isolate them at home for the sequential seven days. For commutation arrangement of special bus was done by the administrative officials. The staff was advocated to get homemade food. Staff members were requested to avoid overcrowding and maintaining social distancing during lunch hour.

Indian way of greeting (Namaste) was the preferred mode of greetings instead of using handshake. Maintenance of social distance while at blood donations. The grouping of donors was avoided, eluding over four donors at a time, was executed in consultation with the VBDOs. Donor area sanitisation was done for atleast four times in a day after every three hours and flowing water availability, sanitiser, hand soap and colour coded dustbins according to biomedical waste management guidelines were made accessible in blood bank for proper and efficient disposal of COVID-19 specified consumables. After every blood donation, couches were cleaned utilising a 1% sodium hypochlorite solution. All the door handles/knobs in the blood bank were cleaned daily after every one hour. We advised the blood bank staff including doctors as well as technicians to be updated regarding recent norms for COVID-19 from WHO [5].

Maintenance of blood stock: In view of countrywide lockdown due to COVID-19 pandemic and consequently decrease in voluntary blood donors hospital administration was requested for:

- a) Postponement of elective surgeries;
- b) Requested for performing only emergency surgeries;
- c) Using the social platform (whatsapp): Bharat scouts, National Service Scheme (NSS and other NGO were contacted to come forward by prior appointment;

d) More in-house blood donation drives were conducted on a weekly basis ensuring COVID-19 safety protocols.

Management of consumables: For management of consumables, following approaches were implemented:

- Sharing of near expiry reagents (ABO Blood grouping) with other blood banks as exchange mechanism to minimise wastage;
- Placing of indent for consumables including reagents at weekly intervals;
- Maintaining regular contact with vendors so that extra reagents if needed can be procured at a short notice. Whole exercise was designed to maintain a satisfactory level of buffer stock of blood bags, masks, gloves, donor refreshments, donor certificates so that any exigencies can be met.

STATISTICAL ANALYSIS

All data obtained was entered, segregated and tabulated in micro excel software as per mentioned variables. Statistical analysis was performed using SPSS software version 21.0 for windows. Tables were prepared in Microsoft excel sheet. A independent t-test was utilised to assess the difference in mean and Standard Deviation (SD) between Pre-COVID-19 year (2019) and Post COVID-19 year (2020). The p-value <0.05 was considered as significant.

RESULTS

[Table/Fig-2] demonstrates comparative evaluation of total blood collection month wise during Pre-COVID-19 year 2019 and COVID-19 year 2020 along with gender distribution. A total of 53,625 units were collected during the pre-COVID-19 year 2019 whereas 27,384 units were collected during COVID-19 year 2020. Mean number of units received during pre-COVID-19 year were significantly higher (4468 ± 4127.2) as compared to COVID-19 year 2020 (2282 ± 1856.4) with significant p-value <0.05 (0.001). As seen commonly in the developing countries, 90% of donation is by male. Male donation is common in the developing societies including India because of various socio-economic and socio-cultural factors. In India most of females have low haemoglobin, are underweight and undernourished, undergo multiple pregnancies along with pregnancy related complications. The present study reflects same underlying conditions and hence female constituted

Blood collection	Pre COVID year 2019	Blood collection	COVID year 2020		
Month	Units of blood	Month	Units of blood		
January 2019	3584	January 2020	2567		
February 2019	5481	February 2020	4286		
March 2019	4265	March 2020	1869		
April 2019	3443	April 2020	1005		
May 2019	5065	May 2020	1262		
June 2019	4222	June 2020	2287		
July 2019	4236	July 2020	2437		
August 2019	4642	August 2020	2623		
September 2019	4896	September 2020	2645		
October 2019	4732	October 2020	2081		
November 2019	4781	November 2020	2047		
December 2019	4278	December 2020	2275		
Total	53,625	Total	27,384		
Mean±SD	4468 ± 4127.2	Mean±SD	2282 ± 1856.4		
p-value	0.001	p-value	0.001		
Gender distribution	Male	Female	Gender distribution	Male	Female
Total number donors	52946 (96.9%)	679 (1.24%)	Total number of donors	26948 (98.5%)	436 (1.5%)

[Table/Fig-2]: Comparative evaluation of total blood collection month-wise during Pre-COVID year 2019 and COVID year 2020 along with gender distribution. COVID-19: Coronavirus disease-2019

1.24% and 1.5% of donation in year 2019 and year 2020 respectively [Table/Fig-2].

Overall utilisation of PRBC, Human Platelets (RDP/SDP) and FFP was significantly higher in pre-COVID-19 year as compared to COVID-19 year 2020 with significant p-values (<0.05). p-values noted were 0.001, 0.003, 0.001 for PRBC, RDP/SDP and FFP respectively [Table/Fig-3]. A comparative evaluation of transfusion details across the various hospital departments shows a marked decrease and this reflects the sincere efforts of blood bank staff to communicate and convince the various clinicians including the physicians, surgeons and pediatrician to postpone all elective surgeries and therefore perform only emergency surgeries and to promote use of various alternatives of blood and blood components. During the pandemic our Hospital Transfusion Committee (HTC) was very active and initiated several measures including few innovative measures as Maximum Surgeries Blood Ordering Schedule (MSBOS), Patient Blood Management (PBM) and performing transfusion audit at regular intervals along with sensitisation of medical/paramedical staff regarding judicious use of blood and blood components. The results of all such efforts are fruitful as reflected in the present study results as mentioned in [Table/Fig-3]. Unnecessary transfusion, performing only emergency surgeries which is based on avoiding and postponement of elective surgeries as a consequence of the co-ordinated efforts of blood bank staff and clinicians as a result we could meet the challenge successfully. Comparative evaluation of blood camps in pre-COVID-19 year 2019 and COVID-19 year 2020 is reflected in [Table/Fig-4].

Blood utilisation	PRBC		Human Platelets (RDP/SDP)		FFP	
	Pre-COVID year 2019	COVID year 2020	Pre-COVID year 2019	COVID year 2020	Pre-COVID year	COVID year 2020
January	3384	2000	1110	456	3210	859
February	5400	4000	2000	896	4156	959
March	4065	988	3100	998	3968	789
April	3200	567	2100	814	2147	987
May	4967	823	2467	961	1967	856
June	4000	1516	2487	854	2478	852
July	3936	1529	2454	746	2487	952
August	4246	2147	3432	847	2196	756
September	4579	1867	3414	987	3518	998
October	4425	1876	3445	982	3256	859
November	4587	1975	3571	856	2148	959
December	4100	1678	2586	798	3147	1010
Total	50,889	20,966	32,166	10195	34,678	10,836
Mean±SD	4240±3946.2	1748±1448.1	2505±2242.4	849.5±212.2	2889.3±2256.6	818.3±256.2
p-value	0.001		0.003		0.001	

[Table/Fig-3]: Comparative evaluation of total blood utilisation month-wise during Pre-COVID year 2019 and COVID year 2020. RDP: Random donor platelets; PRBC: Packed red blood cells; SDP: Single donor platelets; FFP: Fresh frozen plasma

Pre-COVID year 2019	Total number of blood donation camps	COVID year 2020	Total number of blood donation camps	Types of donation
January 2019	04	January 2020	02	In-house camps by local NGO's
February 2019	02	February 2020	01	Walk-in donations
March 2019	02	March 2020	01	Donation by appointment
April 2019	03	April 2020	01	Donation from college NSS (National service scheme) units

May 2019	04	May 2020	02	Donation from college YRC(youth red cross) units
June 2019	03	June 2020	02	Donation by faculties
July 2019	02	July 2020	01	In-house camps by local NGO's
August 2019	02	August 2020	01	In-house camps by local NGO's
September 2019	04	September 2020	03	Donation from college NSS (National service scheme) units
October 2019	05	October 2020	02	In-house camps by local NGO's
November 2019	06	November 2020	04	In-house camps by local NGO's
December 2019	04	December 2020	03	In-house camps by local NGO's
Total	41		23	

[Table/Fig-4]: Comparative evaluation of blood camps in pre-COVID year 2019 and COVID year 2020. COVID: Coronavirus disease; NGO's: Non-governmental organisation

Total number of camps conducted in pre-COVID-19 year was 41 as compared to 23 in COVID-19 year 2020. Marked reduction in camps in COVID-19 year was noted due to various reasons as national lockdown, public fear, lack of transport and communication etc. So, blood bank under guidance of HTC took certain special initiatives to mitigate the challenge and fulfill the demand for blood requirement. Special initiatives included: walk-in donations, donation by appointment by utilising social media network and services of local NGO's. Comparative evaluation of donor deferred along with the causes in pre-COVID-19 year 2019 and COVID-19 year 2020 is discussed in [Table/Fig-5]. The reasons for deferral in pre-COVID-19 year 2019 were history of underlying medical condition (diabetes): 60 cases(30%) followed by history of drug intake 50 cases (25%) followed by history of tattooing (15%), history of epilepsy (10%), history of endoscopy (10%), history of dental extraction (5%) and immunisation (5%). Reason for deferral in COVID-19 year 2020 included maximum cases of self-deferral if suspicious of COVID-19 130 cases (32.5%), followed by diabetes 84 cases (21%), history of travel to abroad/neighboring states 70 cases (17.5%), history of drug intake (10%), history of tattooing (7.5%), history of immunisation (5%), history of endoscopy (2.5%), history of epilepsy and dental extraction (2%).

Reason for deferral	No of donors deferred in pre-COVID year 2019	Number of donors deferred in year 2020
History of dental extraction	10 (5%)	08 (2%)
History of epilepsy	20 (10%)	08 (2%)
History of endoscopy	20 (10%)	10 (2.5%)
History of immunisation	10 (5%)	20 (5%)
History of travel to abroad/ neighboring states in last 4 weeks 28 days)	Nil	70 (17.5%)
History of drug intake	50 (25%)	40 (10%)
History of tattooing	30 (15%)	30 (7.5%)
Self deferral if clinical illness of COVID-19 was suspected (fever, cough, cold)	Nil	130 (32.5%)
Underlying medical condition (diabetes)	60 (30%)	84 (21%)
Total	200	400

[Table/Fig-5]: Comparative evaluation of donor deferred along with the causes in pre-COVID year 2019 and COVID year 2020.

Comparative evaluation of units discarded along with their causes in pre-COVID-19 year 2019 and COVID-19 year 2020 is discussed in

[Table/Fig-6]. The annual discard rate was 2% for pre-COVID-19 year with 1,072 units discarded out of total 53,425 units due to various reasons such as insufficient volume, leakage from bag, breakage from needle, bacterial contamination, short shelf life etc. Maximum discard rate (75%) was noted in platelets due to short shelf life. In COVID-19 year 2020 discard rate was decreased to 1% due to several innovative and proactive measures initiated by blood bank under guidance of HTC with proper emphasis on blood inventory management based on principle of "First-in-First out" along with co-operation and co-ordination of clinicians. In both pre-COVID-19 and COVID-19 years maximum discard rate was of platelets (75%) due to their extremely short shelf life. Hence, efforts must be made to increase the shelf life of platelets. After approaches implemented for safe transfusion practices the results showed no donors had post donation COVID-19 infection, no staff had post donation COVID-19 infection. On analysis of donor feedback form 90-95% of donors were satisfied with the COVID-19 protocols followed for blood donation.

Units	Causes for discard	Total units discarded in pre-COVID year 2019	Total units discard COVID year 2020
RBC	Insufficient volume	20	09
	Leakage from bag	30	04
	Breaking of the needle	04	04
Total		54 (5%)	17 (6%)
Platelets	Bacterial contamination	91	12
	Leakage	89	20
	Insufficient	223	18
	Short shelf life	400	154
Total		803 (75%)	204 (75%)
FFP	Breakage	86	30
	Insufficient	129	22
Total		215 (20%)	52 (19%)
Grand total		1072	273

[Table/Fig-6]: Comparative evaluation of units discarded along with their causes in pre-COVID year 2019 and COVID year 2020.

DISCUSSION

Globally, around 19 million cases of COVID-19 have been confirmed and not a single case of transfusion-transmitted COVID-19 has been reported till date however, theoretically there is risk of COVID-19 transmission by blood transfusion [6]. Hence, blood bank needs to maintain strict COVID-19 safety protocols Severe Acute Respiratory Syndrome-Coronavirus 2 (SARS-CoV-2) is a novel virus, its ability to cause transfusion transmission even by an asymptomatic blood donor is not known [7]. Data in present study showed there was substantial reduction in total Blood collection as total of 53,625 units were collected during the pre-COVID-19 year 2019 whereas 27,384 units were collected during COVID-19 year 2020 [Table/Fig-2] and overall utilisation of PRBC, Human Platelets (RDP/SDP) and FFP was significantly higher in pre-COVID-19 year as compared to COVID-19 year 2020 [Table/Fig-3]. Total number of camps conducted in pre-COVID-19 year was 41 as compared to 23 in COVID-19 year 2020 [Table/Fig-4]. The decline in voluntary donation has been observed globally.

Various strategies were implemented in current study to augment the blood collection. Recruitment of donor was a major challenge. In a rural set-up donors were apprehensive of getting COVID-19 infection from hospital or blood bank. Special measures were implied to motivate donors through social media and telephonically to augment blood donations. In case of blood shortage, donor movement passes were issued for the ease of movement during lockdown. For maintenance of blood stock demand based strategies were implied for collection of blood and appropriate planning was done to elude shortage and to

prevent the expiry of the collected blood units. The challenges faced towards maintaining regular uninterrupted blood supply for regular hospital use in Rural Blood Center. As the present blood bank is situated in a rural backward region where ignorance, illiteracy is high so the authors were forced to implement several innovative ways and means to ensure the blood supplies for emergency services are not hampered. Some of the effective measures implemented were: postponement of elective surgeries, performing of only emergency surgeries. Minimising unnecessary blood transfusion in case of borderline anaemia (Haemoglobin 10-12 g/dL) with use of Injection erythropoietin, hematinics wherever feasible. Clinicians were encouraged to practice concept of "Alternative Blood groups" as approved by WHO so that transfusion demands are successfully met without comprising patient safety [5]. Performing in few selected cases, autologous blood transfusion (mainly for day care surgeries). The concept of Pharmacy Benefit Managers (PBM) was shared with the surgeons and they were encouraged to minimise transfusion wherever feasible. As a consequence, transfusion threshold for PRBC was decreased for example 6 g/dL for aplastic anaemia and 8 g/dL for chronic anaemia in an effort to have more equitable and judicial distribution of blood products particularly in crisis period [8]. So strict observation should be kept on blood stock and its products, in view to take judgment ensuring import of blood and its products in a timely manner.

Measures can be taken to decrease the apprehension, myths about COVID-19 infection especially in rural population by implying awareness activities and blood supply can be maintained by encouraging voluntary blood donors [9]. Clinicians were informed about the shortage of blood during pandemic and were told about utilising transfusion alternatives for example: Iron, erythropoietin (EPO), Intravenous immunoglobulin (IVIG), albumin etc., [10]. Sharing of consumables which are about to get expired with other blood banks having scarcity of consumables because of lockdown. The National Blood Transfusion Council (NBTC) advocates that blood and its components if they are about to be expired or if particular blood group are in surplus, it is recommended to dispense the blood group units to nearest blood bank with special consent from government authorities to transport the units during lockdown period. For optimum hospital transfusion services during crisis period, blood bank developed a system of "Haemovigilance" where various challenges faced by blood bank were discussed with surgeons, clinicians and other stake holders so that hospital transfusion services are maintained at a optimum level [11]. After implementation of these strategies no donor or staff had post donation infection and in case of emergency there was no shortage of blood requirements.

Limitation(s)

Failure to perform comparative evaluation of various other blood centres regarding their strategies of blood bank management during COVID-19 pandemic along with our non-participation regarding COVID-19 convalescent plasma therapy. The present study was

a unicentric study conducted in a rural area with limited donor population and a variable vaccination status. Hence, the authors are constrained to have an elaborate and conclusive opinion regarding blood bank management in pandemic times. However, present study can definitely provide vital inputs for implementing various strategies and measures for blood bank management during COVID-19 pandemic.

CONCLUSION(S)

As a result of strict and effective implementation of COVID-19 safety protocols, no donor had complained of post donation COVID-19 related symptoms and none of the blood bank staff had developed any COVID-19 related illness. Hence, during the COVID-19 pandemic, present blood bank maintained 100% attendance (with staggered duty hours). Given by the proven track record with regards to COVID-19 safety measures and stringent precautions taken regarding blood bank donation procedure and also as a measure of trust and faith of the general community on the blood bank management, voluntary blood donors from various walks of life came shedding their prejudice and inhibitions to donate blood and helped the blood bank in fulfilling health and societal responsibilities.

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AUTHOR DECLARATION:

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PLAGIARISM CHECKING METHODS: [Jan H et al.]

- Plagiarism X-checker: Aug 18, 2021
- Manual Googling: Feb 25, 2022
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