Study Project

SGPGI

IIHMR UNIVERSITY

AN AUDIT OF BLOOD DONOR'S PERCEPTION ABOUT BLOOD COLLECTION PROCESS IN A TERTIARY CARE INSTITUTE

The rationale behind the study is an attempt to gain knowledge on the process of blood collection and donors perception of the donation facilities in a tertiary care hospital, identify and implement new processes to improve quality of care, which has a association with donors willingness to return as a voluntary non –remunerated donor.

The aim of this audit was to assess the current status of blood collection process in the institute.

PROBLEM STATEMENT AND THEORETICAL FRAMEWORK:

Despite of adequate infrastructure and trained manpower at the blood collection centre the return rate of donors especially voluntary is low at the tertiary care health institute, which factors contribute to willingness of return of a donor?

OBJECTIVES:

GENERAL OBJECTIVE:

To find out measures aimed at process improvement at the blood collection centre services in a tertiary health institute.

SPECIFIC OBJECTIVES:

1. To study the process of donor recruitment in a tertiary care institute.
2.To determine the relationship between waiting period and willingness to donate in future.
3.To determine the critical process affecting the quality of care from donor registration,to blood collection to provision of refreshments when the blood collection is completed.
4.To use the findings to make recommendations for process improvement at the blood collection centre

RESEARCH HYPOTHESIS

·Socio demographic variables like age and gender has an impact on their willingness to donate blood again
·Physical conditions of the donation room in terms of(light-waiting area-cleanliness of the blood bank)has an impact on the blood donor willingness to donate blood again.
·Behaviour of the employees(staff and medical officer on duty)has an impact on donor willingness to donate blood
·Shortening waiting time for blood donation has a postive impact on blood donor's willingness to donate blood again.

RESEARCH METHODOLOGY: *Area of study: Blood Centre Services at S.G.P.G.M.I.S,Lucknow.*

STUDY TYPE: *Quantative study. and qualitative, Type of audit:prospective*

STUDY DESIGN: *It is descriptive study-analytical and exploratory.*
Qualitative-observation

STUDY POPULATION: *Donors comprising of voluntary ,replacement ,directed,autologous categories.*

SAMPLE UNIT: *Donors who visited the blood bank to donate blood during the month of may between 11 a.m to 4 p.m from Monday to Friday.were included in the survey.*

SAMPLING METHOD: *Simple random sampling*

QUALITY CONTROL: *"Quality is a dynamic state associated with products, services, processes, people and environment that meets or exceeds expectation and helps produce superior value."*

In today's international environment, Statistical Process Control(SPC) and situational analysis are fundamental elements of any organisation"s quality master plan. Quality can mean different things for different people and can be interpreted in a variety of ways by an individual. Quality may be thought to have two main divisions. The quality of a manufactured product and quality of service received. From the manufacturing stand point quality is simply conformance to specification. The ultimate customer could define the quality as fitness to use.

The methods in Statistical Process Control (SPC) are collection of data, Organization of data, Analysis of data and Interpretation of data. The SPC is a system which emphasis on the prevention of failure. The basic tools of SPC are :

1. Flow Chart: 2. Pareto Chart: 3. Check Sheets: 4. Cause and Effect Diagram:
5. Histogram: 6. Control Chart:
2.1 Quality Improvement
1. Machine: 2. Material: 3. Manpower: 4. Method 5. Environment:
SECTION 2.DATA COLLECTION
Structured Questionnaire-based samples were collected from 345 participants and 300 questionnaires (comprising of closed ended questions)were analyzed. An exit interview for donors was designed.
1.a)Availability of facilities= Scores to be added are Waiting area+Light+Refeshments+Newspapers+cleanliness of blood centre+charts displayed on the walls+provision of leaflets pamphlets at the blood centre(information educative material)=Maximum score of 6
b)Phlebotomy services=Scores to be added are Veni Puncture(VP)+Double Puncture(DP)hematomal +Faint+ Donor Couch Comfort(DC)=Maximum Score of 5

SECTION 3.ANALYSIS OF DATA AND FINDINGS:

The primary data collected for the study was sorted ,classified and tabulated in a format and analyzed by using statistical package of social sciences(SPSS 16.0).
a)Men outnumbered women among donors(82% vs 18%).The age distribution among donors 228 (76%) were <40 years and 72(24 %)were > 40 years of age.

DONOR DEMOGRAPHICS:

FIGURE 1: AGE DISTRIBUTION OF DONORS

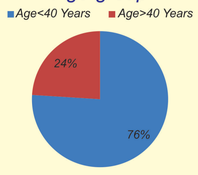


FIGURE 2: GENDER DISTRIBUTION OF DONORS

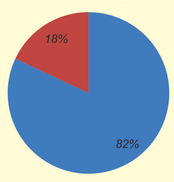


FIGURE 3: MARITAL STATUS OF DONORS

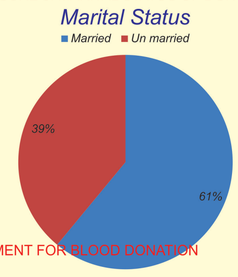


FIGURE 4: EMPLOYMENT STATUS OF BLOOD DONORS

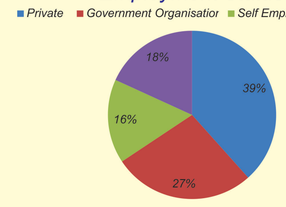
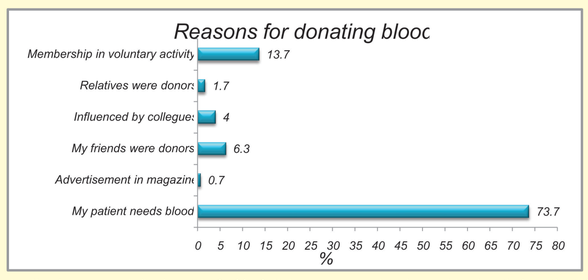
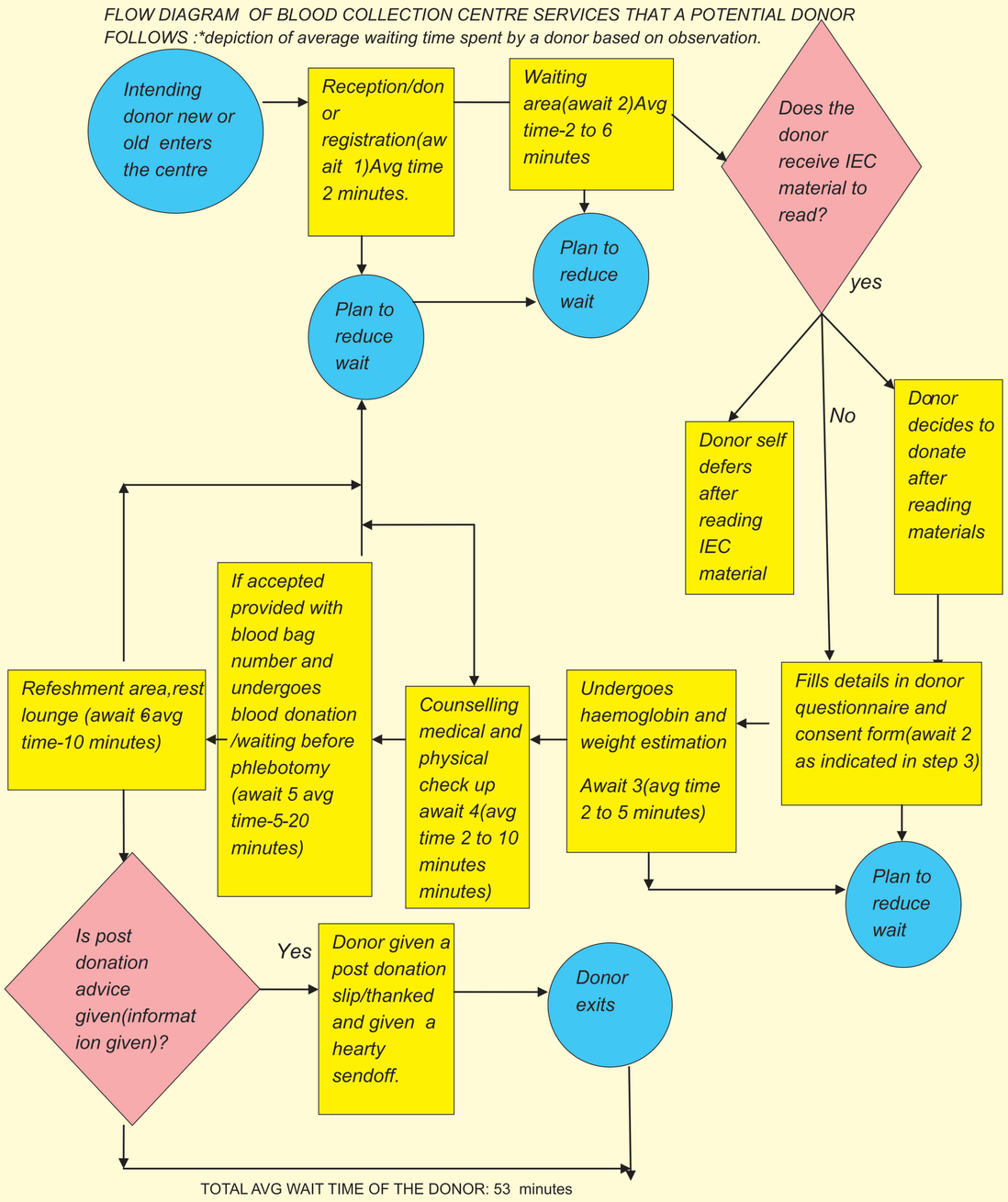


FIGURE 5: SOURCE OF CHANNEL FOR RECRUITMENT FOR BLOOD DONATION



The institute witnesses a large section of blood replacement blood donors at the blood collection centre, daily ,in total 73.7% of all donors reported to donate blood as their patient ,friends, relatives needed blood for various surgical and medical procedures scheduled. In total 13.7%(graph) represented voluntary ,non remunerated donors, they had a history of more than 5 donations and were called by the institute in of need of saving a life .This small section voluntary donors had some empathic and altruistic reasons to donate blood

*FLOW DIAGRAM OF BLOOD COLLECTION CENTRE SERVICES THAT A POTENTIAL DONOR FOLLOWS :*depiction of average waiting time spent by a donor based on observation.*



TOTAL AVG WAIT TIME OF THE DONOR: 53 minutes

A donor on average spents 53 minutes at the blood collection centre

TABLE 1: PERCENTAGE SATISFACTION OF BLOOD DONORS CASE SUMMARY

CHARACTERISTICS	Variables	No%
AGE	<40	228(26%)
	>40	72(24%)
SEX	Male	246(82%)
	Female	53(17.8 %)
Marital	Married	182(60.7%)
	Not married	118(39.3%)
Vegetarian	Yes	117(39%)
	No	118(60.7%)
Smoker	Yes	127(42.3%)
	No	123(57.7%)
Alcoholic	Yes	106(35.3%)
	No	193(64.3%)
Parking	Yes	148(49.3%)
	No	152(50.7%)

The study revealed that all the 300 donors were satisfied with donor packet and hospital facilities

TABLE 2: MEAN QUALITY SCORE AND DONOR SATISFACTION LEVEL ON THE AVAILIBILTY OF FACILITIES DONORS COVENIENCE

	N	Range	Minimumin score	Maximum score	Mean	Std. Deviation
NEWSPAPER	300	5	1	3 6 0	2.1433	1.0294
IECMATERIALREADING	299	5	1	3	2.4247	1.23301
IECMATERIALCHARTS	300	4	1	2	3.22	0.94935
LIGHTARRANGEMENT	300	4	2	6	4.1933	0.96906
DONOR COUCH COMFORT	300	4	2	6	4.11	0.95618
REFRESHMENTSGIVEN	300	5	1	6	3.6033	1.1181
CLEANLINESS	300	5	1	6	3.8767	1.09794
WAITINGAREA	300	5	1	6	3.78	1.08421
Valid N (listwise)	299					

***Maximum total score=44**
Mean total score= 23

TABLE 3: MEAN QUALITY SCORE OF THE PHLEBOTOMY SERVICES

	N	Minimum score	Maximum score	Mean	Std. Deviation
VENIPUNCTURE	300	1	4	1.3533	0.61352
DOUBLEPUNCTURE	300	1	4	1.1533	0.4802
SWELL	300	1	4	1.1567	0.4803
FAINT	300	1	3	1.1933	0.5198
Valid N (listwise)	300				

Maximum total score:4
Mean total score:4

Chi square test were used for bivariate associations and following analysis based on the structured null hypothesis were found to be statistically significant based on the p-value:-
1 In the first hypothesis test sig=0.002 obtained less than 0.05 so that can be said that at 95% confidence that hypothesis is confirmed and age of blood donors has an impact on donor willingness and intention to return again

TABLE 4: CHI –SQUARE TEST FOR FIRST HYPOTHESIS

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	14.572 [a]	3	0.002
Likelihood Ratio	13.534	3	0.004
Linear-by-Linear Association	0.002	1	0.967
N of Valid Cases	300		

In the second test sig=0.00 that is less than 0.05 so that can be said that at 95% confidence the hypothesis is confirmed and that gender of blood donors has impact on donor willingness to donate blood again. Table5.

Table 5:

	Gen	INTENTIONTORETURN
Chi-Square	1.229E2 [a]	116.667 [b]
Df	1	3
Asymp. Sig.	0	0

3.In the second hypothesis sig=0.00 that is less than 0.005 so that at 95% confidence the hypothesis is confirmed and that physical conditions of the donation room in terms of light, cleanliness, waiting area has an impact on donor willingness to donate blood again.

Table 6: CHI-SQUARE TEST FOR THIRD HYPOTHESIS

	RBMEDICALOFFICER	INTENTIONTORETURN
Chi-Square	161.233 [a]	116.667 [b]
Df	4	3
Asymp. Sig.	0	0

5.In the fourth test sig=0.00 obtained less than 0.05 (p value), so can be said that with 95% confidence that hypothesis is confirmed and shortening waiting time for blood donation has an impact on blood donor willingness to donate blood again.

Table 7: CHI-SQUARE TEST FOR FOURTH HYPOTHESIS

	RWTC	INTENTIONTORETURN
Chi-Square	2.527E2 [a]	116.667 [b]
Df	6	3
Asymp. Sig.	0	0

a. So does the sig = 0.00 obtained that whether overall satisfaction of a blood donor plays a role for intention to return as a voluntary non-rumnerated blood donor is confirmed.

TABLE 8: CHI-SQUARE TEST FOR SECOND HYPOTHESIS

	WAITINGAREA	NEWSPAPER	IECMATERIAL READING	LIGHTARRAN GEMENT	DONORCOUCH COMFORT	REFRESHMENTS GIVEN	CLEANLI NESS	INTENTIONTOR ETURN
Chi-Square	175.880 [a]	229.920 [a]	135.640 [a]	122.567 [b]	146.100 [b]	161.720 [a]	171.880 [a]	116.667 [c]
Df	5	5	5	4	4	5	5	3
Asymp. Sig.	0	0	0	0	0	0	0	0

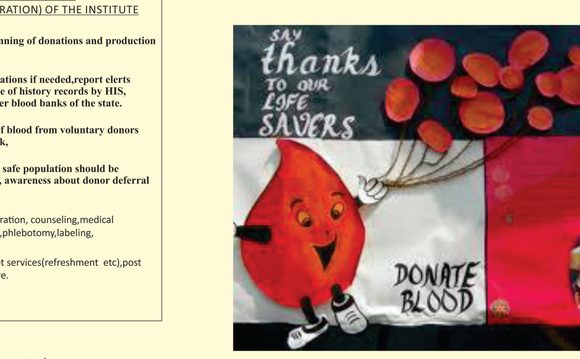
4.In the third test sig=0.00 obtained less than 0.05 so that can be said that with 95% confidence that the hypothesis is confirmed that behavior and professionalism of employees(staff and medical officer at the blood centre)has an impact on donor willingness to donate blood.

TABLE10. CHI-SQUARE TESTS

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	29.858 [a]	9	0
Likelihood Ratio	29.824	9	0
Linear-by-Linear Association	7.795	1	0.005
N of Valid Cases	300		

In the study intention to return had a positive association with male donors belonging to age group(>40 years),married donors. Majority of blood donors in the study agreed to return for a donation in future on humanitarian grounds. The researcher measured the intention to return rather than the actual return. The association of intention to return with socio demographic variables measured on the Lickert's scale on the basis of ratings given by the 300 blood donors is shown in Table11.

TABLE 11.ASSOCIATION OF SOCIO –DEMOGRAPHIC VARIABLES AND INTENTION TO RETURN



SECTION 4.CONCLUSIONS AND RECOMMENDATIONS:

The results of the testing hypothesis show that effective factors like gender,age,physical condition of the donation room, practical skills of employees, waiting time have association with donor willingness to donate blood again .Thus results and recommendations of research is expressed as follows

The result of the first hypothesis that gender of the blood donors has an impact on their willingness to donate blood ,so given that most of the donors were male,it is recommended that training classes ,as well as advertising and support ,women may be more motivated to donate blood. Education on 'safe donation' and that blood donation turn out to be charitable work can work in their minds to increase their motivation to further reference.

Also large number of women donor deferrals is accountable for less females donating blood. Education by IEC reading material, leaflets about a being healthy female blood donor could be beneficial to educate regarding deferral rules. On arrival new donors can be shown power point presentations regarding deferral rules and reasons.

The second hypothesis that age of the blood donors has an impact on willingness to donate bloods ,it is indicated that younger people demonstrated less willingness to donate blood than older donors.

The result of the fourth hypothesis showed that good physical condition of the donation room and donor packet and services has an impact on donor willingness to donate blood again. Therefore, it is recommended that provision of blood donation clean environment and required facilities for donors so that donor do not feel uncomfortable and encourages them to further reference. The result of the fifth hypothesis that practical skills and behavior of employees have an impact on donor willingness to donate blood again .Therefore it is recommended that trained and competent personal to learn the necessary skills and provide the necessary services to blood donors increases service quality.

The result of the seventh hypothesis that shortening waiting time for blood donation has an impact on blood donor willingness to donate blood again, so as the blood donor is he waiting period can be streamlined by giving token numbers to donors ,the average wait time can thus be minimized by calling them only when their respective token numbers are displayed .
Institute may formally put in some use statistical methods for simulating future use of blood products(based on history records of database) while sending alerts to departments in need of blood for various surgical and medical procedures

The institute should develop a better tool for evaluating blood donor recruitment and retention.
Making donations by appointments, training staff to be service minded, appointments for next donation by phone, introduction of electronic questionnaire avoids frustrating waiting time.

MANAGEMENT OF BLOOD CENTRE(TRANSFUSION DEPARTMENT&HOSPITAL ADMINISTRATION) OF THE INSTITUTE

Careful planning of donations and production activities

Using simulations if needed,report elerts ,systemic use of history records by HIS, alerting other blood banks of the state.

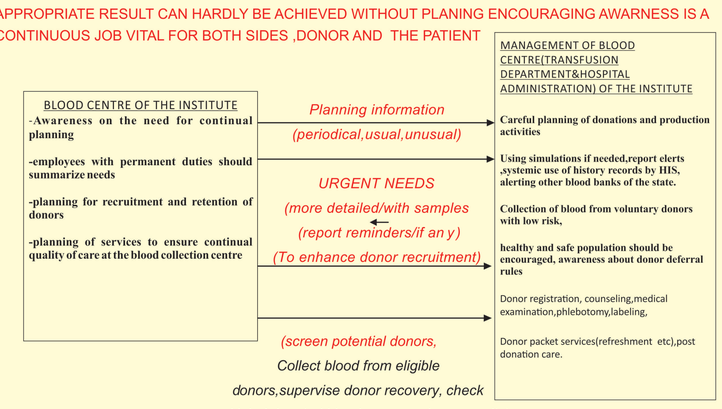
Collection of blood from voluntary donors with low risk,

healthy and safe population should be encouraged, awareness about donor deferral rules

Donor registration, counseling,medical examination,phlebotomy,labeling,

Donor packet services(refreshment etc),post donation care.

PLANNING IS A CONTINUOUS JOB OF THE MANAGEMENT AT THE BLOOD COLLECTION CENTRE ANY APPROPRIATE RESULT CAN HARDLY BE ACHIEVED WITHOUT PLANING ENCOURAGING AWARNESS IS A CONTINUOUS JOB VITAL FOR BOTH SIDES ,DONOR AND THE PATIENT



Key elements of a donation planning and blood collection centre process improvement

DESIGN OF EXPERIMENTS (DOE) QUALITY IMPROVEMENT FOR DONOR MANAGEMENT AND BLOOD COLLECTION CENTRE PROCESS IMPROVEMENT AFTER BRAINSTORMING SESSION :-

CONTROL X (INPUT) TO CONTROL Y(OUTPUT) →

INPUT →	PROCESS →	OUTPUT
Factor 1. Trained staff at the registration desk	Prompt courteous services	Donor satisfaction of inter personal behavior with the staff
Factor2. Adequate waiting area with sufficient number of chairs and minimal wait time during the donation process.	Planning for minimal wait time	Access and availability/excess movement of non donors and donors in waiting area controlled.
Factor 3.Hospital information database for donor registration	To know about the units of blood required by the various departments ,establishment of a loyal donar database for regular donors, to assess needs and blood inputs for future demand	Reduction in morbidity and mortality of the patients by contacting loyal donors during requirement.*Loyal donors are voluntary ,healthy and safe donors,decrease in the length of stay of patients.
Factor 4.Creation of information educative material (bilingual)	Information, to educate new donors for various deferral rules.	Education activities on blood donation results in increase in voluntary donations in future/enhance new donor recruitment.
Factor 5. Provision ofseparate rooms for medical Examination	History taking. Physical examination any risk assessment for donation process	Confidential recording of history of male and female donors, counseling of donors before pre-donation
Factor6.Giving token numbers to donors	Calling for counseling,medical examination,phlebotomy etc	Stramlining the average wait time of the donor.
Factor 7.Phlebotomy Services	Venipuncture, Double puncture,episodes of fainting ,swelling etc noticed. during blood collection process.	Donor satisfaction with correct blood collection procedure.
Factor 8 Proper and correct labelling (donation and blood sample bar codes)	Test samples are labeled and units of blood unit collected are barcoded./sent for lab processing and testing	To prevent phlebotomy errors in labeling accountable for mis transfusion(Reduction in mortality)
Factor9. Adequate stock of medicines and drugs for emergency	To meet the requirement of post donation adverse events.	Reduction in morbidity by identification and management of donor adverse reactions
Factor 10Refreshment area (donor canteen)/donor comfort lounge	Rest after the donation /monitoring of donors for sometime to ensure a safe donation	Post donation care./supervision of donor recovery.
Factor 11 Adequate light arrangement, cleanliness, water facilities at the centre	Donor packet services	Donor satisfaction and willingness to return again.

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