



## Original Research Article

# Donor notification and impact of counselling of reactive blood donors in the blood centre of a tertiary care teaching hospital of Odisha in eastern India

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## ARTICLE INFO

## Article history:

Received 19-04-2023

Accepted 17-07-2023

Available online 13-03-2024

## Keywords:

Donor notification

Counselling

Seroreactive donors

## ABSTRACT

**Objectives:** To ensure blood safety in blood transfusion service, the practice of donor screening, donor notification and counselling is essential. The aim of the study was to analyse the response rate of notified reactive donors to counselling and to see the impact of donor notification on reactive donors.

**Materials and Methods:** A observational descriptive cross-sectional study was conducted in the blood centre of department of Transfusion Medicine, MKCG Medical College and Hospital Berhampur, Odisha during the time period from January 2022 to December 2022. Data was collected from reactive blood donor counselling register. Sero-reactive donors were contacted telephonically. Those who turned up into blood centre were counselled again and referred to appropriate centre for further management. The statistical analysis was done using percentages based on descriptive analysis.

**Results:** Out of total 32700 donations over a period of one year, 726 (2.22%) were reactive donors. Out of the total 726 donors, 496 (68.31%) donors could be notified telephonically, rest 230 could not be notified due to several reasons. Out of 496, 352(48.48%) were responders, who were counselled and referred to higher centres for further management. The response rate was 48.48%. Only 24 sero-reactive donors could be followed up.

**Conclusion:** Pre-donation counselling, appropriate TTI screening test, donor notification and post donation counselling all together form a vital link between blood donors and blood safety, however the gap still exists.

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## 1. Introduction

Blood transfusion is a life saving procedure but is not free from the risk of transmission of several infectious agents collectively called TTIs (transfusion transmissible infections). Blood transfusion services should provide the right blood to the right patient at right time and that should be safe. According to World Health Organization (WHO), safe blood is a universal right, which indicates blood that

will not cause any harm by transmitting infections like Hepatitis, malaria, HIV or syphilis to the recipient.<sup>1</sup> As per the recommendations of WHO, all donated blood should be fully screened for Hepatitis B virus (HBV), Hepatitis C virus (HCV) and Human immunodeficiency virus (HIV) and syphilis.<sup>2</sup> As per the Drugs and cosmetic act, 1945, it is mandatory to screen all the donated blood for HIV1 and 2, HBV, HCV, malaria and syphilis.<sup>3</sup>

The National Blood Transfusion Council (NBTC), Government of India, had formulated a strategy under which, disclosure of viral TTIs reactivity to the blood donor

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was not permitted until December 2004.<sup>4</sup> So, the blood banks used to discard HIV- seropositive blood without informing donors about their status, to prevent HIV stigma among the donors and to maintain confidentiality. But now, NBTC advocates the disclosure of results of TTIs to blood donors. At the time of donation, blood banks have to obtain a written consent from the donors, declaring their wish to be informed about a reactive test result or not.<sup>5</sup>

One of the efficient methods to retrench TTIs now a days is implementing strict donor screening guidelines, pre and post donation counselling and notification of reactive donors.

According to Objective 4.16 of the Indian Action Plan for Blood Safety, donors are counselled about TTIs prior to donation and are offered the option of knowing their infective status, provided they have given prior consent. Blood donors with reactive screening test results are requested to come for counselling and repeat testing either at a blood centre or at an integrated counselling and testing centre (ICTC).<sup>6</sup>

The newer sensitive methods of detection of TTIs markers along with increased prevalence of false positive cases leads to unnecessary anxiety in donors when they are notified about their reactive results. Alternatively, it is seen that most donors who are notified of their results either do not respond at all or do not present for first follow-up visit to the blood centre. These donors are at risk to themselves and their family as they continue to donate blood, which is a challenge to recipient's blood safety if they get accidentally transfused.<sup>7</sup>

During pre-donation counselling, donor education and a comprehensive pre-donation risk assessment is done which ensures safe blood supply. During this time, the donors can defer themselves, if they have any risk factors. If they are aware of a reactive test result, they can start early treatment and take preventive measures for self and others in family.<sup>8</sup>

TTI-reactive donor notification is essential for early clinical intervention to minimize their disease and the risk to the partners/close contacts. So, this study was conducted with the aim to analyse the response rate of notified reactive donors to counselling, to elicit hidden risks factors and to see the impact of donor notification on reactive donors.

## 2. Materials and Methods

An observational, descriptive, cross-sectional study was conducted in the blood centre of Department of Transfusion Medicine, Maharaja Krushna Chandra Gajapati Medical College and Hospital (MKCGMCH), Berhampur, Odisha from January 2022 to December 2022. Ethical committee approval was taken from the Institutional Ethical Committee, MKCG MCH, Berhampur.

Blood donors were selected and registered as per departmental protocols and as per Drug and Cosmetics Act,1945.<sup>3</sup> Registered blood donors were counselled,

screened and requested to fill up the donor questionnaire as per guidelines. Consent for communication of information about the reactive screening test results was being taken before blood donation. 5 ml of clotted blood and 3 ml ethylene diamine tetra acetic acid blood were collected from post donation samples for five mandatory TTIs tests namely for anti-HIV 1 and 2, anti-HCV, HBsAg, syphilis and malarial parasite antigen.

The blood bags collected from the donors who were reactive were discarded. The counsellor verified the donor records of the reactive samples and contacted those donors telephonically without any breach of confidentiality. As per guidelines, donors were notified thrice in an interval of 2 weeks. Those who could be contacted were designated as notified donors, and those who could not be contacted even after third notification were designated as non-notified donors. While notifying, after reconfirmation of donor identity, they were asked to revisit the blood centre as the tested samples showed some discrepant results. Those notified donors who revisited blood centres were designated as responders and the rest as non-responders.

Keeping in view of the confidentiality and the emotional state of mind of the responder, their identity was verified again. A detailed repeat history of the responder was elicited and associated risk factors were noted. Then they were explained about the interpretation of test results which are just screening tests and need for reconfirmation and follow up. They were made aware of various TTIs, their mode of transmission, precautions to be taken etc. Syphilis reactive donors were referred to sexually transmitted disease (STD) clinic. HIV reactive donors were referred to ICTC centres and other reactive donors were referred to a physician for further management. All were issued with the referral slips as per NBTC 2017 guidelines.<sup>5</sup>

## 3. Results

During the study period from January 2022 to December 2022, 32700 blood units were collected in the blood centre of MKCG MCH, Berhampur, out of which 19604 (60%) were voluntary donors and 13096 units (40%) were replacement donors. Out of all the donors 31447(96%) were male donors and 1253(4%) were female donors. [Figure 1]

Out of the total blood donations of 32700, 726 blood donors (2.22%) were reactive for one or more of the TTIs. All the reactive donors were male. 397(54.6%) were voluntary donors and 329(45.3%) were replacement donors. Among the 726 sero-reactive units, HIV 31(0.09%), HBV 668(2.04%), HCV 27(0.08%), malaria 0(0%), syphilis 0(0%) and coinfection 2(0.006%) were found [Table 1].

The blood centre counsellor could communicate over telephone 496 (68.3%) donors out of 726 reactive donors who were regarded as notified donors. Non-notified donors who could not be contacted over telephone constitute remaining 230(31.7%). Among them, 50 donors did not pick

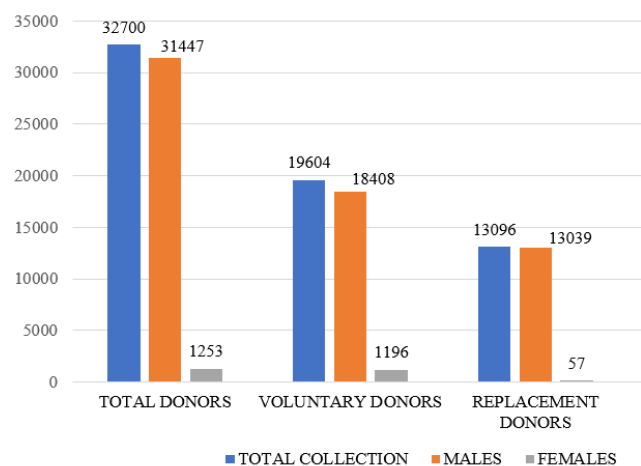


Figure 1: Shows the distribution of blood donors

Table 1: Showing the seropositive rates of various TTIs

TTIs	No. of sero-reactive donors (Out of total 32700 donors)	TTI sero-reactive rate (%)
HBV	668	2.04
HCV	27	0.08
HIV	31	0.09
Malaria	0	0
Syphilis	0	0
Co-infection (HBV+HCV)	2	0.006

up their call and phone no of 180 donors was not reachable. Response to phone calls among reactive donors is depicted in [Figure 2 ].

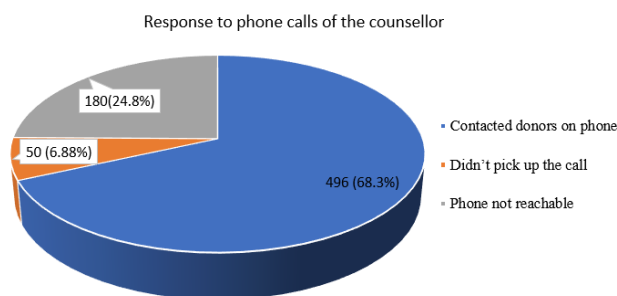


Figure 2: Response of sero-reactive donors to phone calls of the counsellor

Out of the 496 notified donors, 343 were initial responders. Out of the 153 non- responders, on repeat communication after 72 hrs, another 9 reactive donors responded, taking the total number of responders to 352. [Figure 3 ] The counselling rate was 70.96% (n = 352) among the 496 notified donors. Out of the 144 non responders who did not turn up to blood centre for

counselling gave several reasons like some were busy, some out of towns and some expressed their staunch unwillingness to be counselled.

Out of the 352 responders who were counselled and sent to referral centre for further management, on follow up telephonically, only 17 donors informed that they were taking treatment while 7 donors got themselves tested in private clinic and were stamped negative. Since they didn't have any symptoms, they didn't opt for further management. Rest of the sero-reactive donors could not be followed up.

#### 4. Discussion

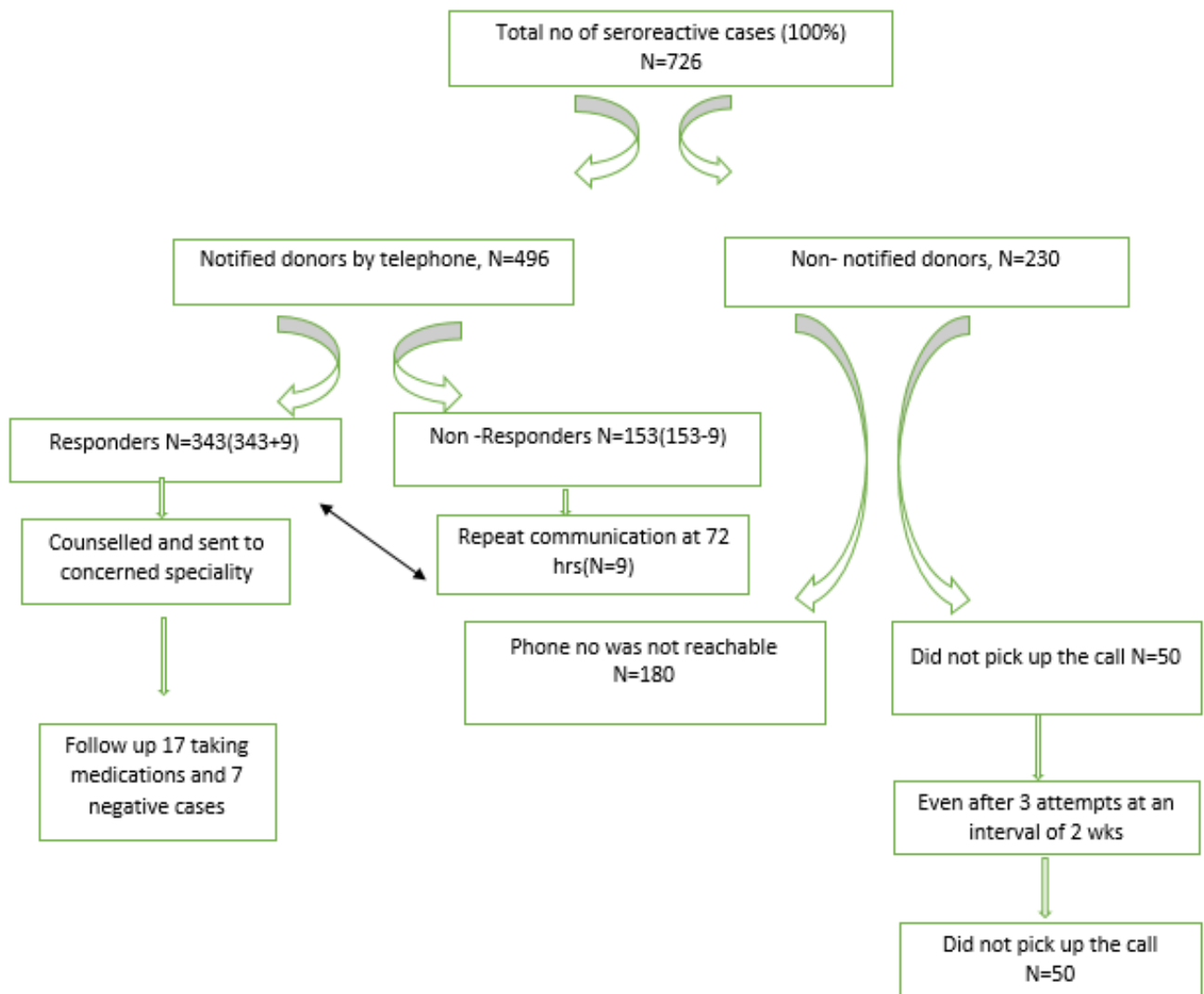
Donor notification is an ethical duty and responsibility of the blood centre towards the donors. A thorough and proper donor notification to sero-reactive donors can help in removing them from the donor pool. It is essential for early clinical intervention to minimise the risk of disease transmission to close contacts.<sup>7</sup> In the post donation counselling session, the counsellor informs the donor regarding their serological status, provides mental support, aware the donors regarding all possible modes of disease transmission, future precautions to be taken and then refers the donor to designated referral centres as per the NBTC 2017 guidelines.<sup>9</sup>

But in our country, there is gap of information regarding donor counselling and referral follow up.<sup>8</sup> Due to lack of resources and manpower, most blood centre fail to notify the reactive donors properly, they only discard the reactive units.<sup>10</sup> It is difficult to follow up the notified donors as they sometimes do not respond at all to phone calls and even if they are informed about the precautionary measures to be taken in the future, they continue to donate blood.<sup>11</sup> So, in order to achieve the goal of blood safety, proper pre-donation counselling, TTIs screening, post donation counselling and notification is the need of the hour.<sup>12</sup>

In our study the rate of seroreactive donors is 2.22% which is similar to study of Kumari et al<sup>9</sup> in which it was 2.70%, however it is much lower in study of AK Tiwari et al<sup>13</sup>, Bhasker et al<sup>14</sup>, Patel SG et al.<sup>11</sup> where the rates are 0.91%, 1.07% and 1.41% respectively. [Table-2]

In our study, the response rate of donors who came for counselling after being notified was 48.48% which was similar to the study of AK Tiwari<sup>13</sup> and Bhasker et al.<sup>14</sup> in which it was 41.3% and 45.7.3% respectively. However, the response rate is high in the study of Patel SG et al.<sup>11</sup> attributing to 81.5%. The reason behind low response rate in our study is due to unawareness among donors regarding TTIs, preference to consult the local doctors than referral centres. So, it is important to reconsider the policy of pre-donation screening and to raise the awareness among donors about TTIs and post donation counselling.

In the present study 230(31.68%) seroreactive donors could not be notified about their abnormal test results due to the fact that 50(6.88%) did not pick up the call and the



**Figure 3:** Flow chart of donor notification in our centre

phone no of 180(24.79%) serore active donors were not reachable. Similar was the finding of Bhasker et al<sup>13</sup> whose non notifiable rate was 41.53%. This is a matter of concern as the serore active donors are potential donors for spreading TTIs if they continue to donate blood.

In the present study, only 4.8% of seroreactive donors after being counselled are undergoing treatment, 1.98% are not taking any treatment as they came out to be negative on repeat testing in local labs and 93.1% could not be followed up. So, a big gap exists between the desired goal and target achieved. A comparison between the study of Sayal N et al<sup>15</sup> and Sachdev et al<sup>16</sup> has been given in [Table 3 ].

This can be due to unawareness in donors regarding TTIs. Moreover, during pre-donation counselling, donors are being explained that the tests done in blood centres are screening tests and need to be confirmed in the referral centres. But irony of the matter is that tests done in blood

centres are at least ELISA and/or NAT while most private labs are preferring rapid tests. Also, the duty of a blood centre is to detect, refer and report to government regarding sero-reactive cases but further tracing of such cases is not being done. So now the steps should be taken to trace those cases so that transmission of TTIs through blood transfusion can be curtailed. If the blood centres are provided with a centralised data system containing data of all blood donors, so that a donor found sero-reactive in one blood centre can be deferred from another blood centre on this basis.

## 5. Conclusion

Pre-donation counselling, appropriate TTI screening test, donor notification and post donation counselling all together form a vital link between blood donors and blood safety, which is one of the important goals of blood transfusion

**Table 2:** Comparison of studies on donor notification among various studies

Study	Duration of study	Total donations	Seroreactive donors n (%)	Notified donors n (%)	Respondersn (%)
Present study	2022	32700	726(2.22%)	496(68.31%)	352(48.48%)
Bhasker et al	2015-2018	17205	183(1.07%)	107(58.4%)	49(45.7%)
AK Tiwari et al	2015-2016	52427	481(0.91%)	351(72.9%)	145(41.3%)
Kumari et al	2014-2015	4281	116(2.70%)	116(100%)	41(35.3%)
Patel SG et al	2012-2014	25020	353(1.41%)	320(90.6%)	261(81.5%)

**Table 3:** Comparison of impact of notification on donors

Outcomes	No. of donors (n=352)	Sayal N et al (%)	Sachdev et al (%)
Taking treatment	17(4.8%)	50	30.5
Not taking treatment	7(1.98%)	35.7	48.3
Could not be followed	328(93.1%)	14.2	20.9

services. Gap still exists in blood safety and so also loopholes in the system. To fill up the gap, a close interlinking between the blood centre and government agencies is the need of the hour.

## 6. Limitations

All notified donors could not be followed up in the present study.

## 7. Source of Funding

None.

## 8. Conflict of Interest

None.

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**Cite this article:** Palai S, Misra P, Swain SK, Upadhyay R. Donor notification and impact of counselling of reactive blood donors in the blood centre of a tertiary care teaching hospital of Odisha in eastern India. *Panacea J Med Sci* 2024;14(1):46-50.