



## Seroprevalence of Hiv, Hbv, Hcv and Syphilis in Blood Donors.

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### ABSTRACT

Blood transfusion is an important mode of transmission of infections to recipients. The aim of the study was to assess the prevalence of transfusion-transmissible infections among blood donors. For this, a 9 years retrospective study, from January 2002 to December 2010 was conducted at the blood bank, G.G. Government Hospital & M.P.Shah Medical College, Jamnagar, Gujarat.. Donors were screened for seroprevalence of HIV, HBV, HCV and syphilis. A total of 1,07,560 donors were tested, out of which 33,491 (31%) were voluntary donors from camp. The seroprevalence of HIV was 0.3% in the donors. Decrease in sero-positivity when there is increase in number of donors from camp.. The low sero-positivity among donors is attributed to pre-donation counseling in donor selection. The seroprevalence of HBV, HCV and syphilis was 1.2%, 0.26% and 0.5% respectively in total donors.

**Keywords:** seroprevalence, voluntary blood donors

### Introduction

Transmission of infectious diseases through donated blood is of concern to blood safety as transfusion forms an integral part of medical and surgical therapy. Blood transfusion carries the risk of transfusion-transmissible infections, including HIV, hepatitis, syphilis, malaria and infrequently toxoplasmosis, Brucellosis and some viral infections like CMV, EBV and herpes. With every unit of blood, there is 1% chance of transfusion-associated problems including transfusion-transmitted diseases. [1] Among all infections HIV and hepatitis are the most dreadful. The first case of transfusion-associated AIDS was described in an infant given transfusion for erythroblastosis foetalis. [2] Thereafter, many cases were reported all over the world in which transfusion of blood and its products was the only risk factor. [3],[4],[5] The improved screening and testing of blood donors has significantly reduced transfusion-transmitted diseases in most developed countries. This has not been so in developing nations. Poor health education and lack of awareness result in the reservoir of infections in the population. The aim of the present study was to know the seroprevalence of transfusion-transmitted diseases in donors in this area as the incidence of transfusion-transmitted HIV and hepatitis is increasing in India. [6]

Present study was conducted at the blood bank, G.G.Government hospital & M.P.Shah Medical College, Jamnagar, Gujarat. Tests are routinely done on every blood unit to exclude HIV, HBV, HCV, syphilis and malaria. Data were collected for a period 9 years from January 2002 to December 2010. During these period, 1,07,560 donors were tested. Donors were selected by the standard criteria for donor fitness. The screening for HIV was done by ELISA/Rapid kits. HbSAg was detected by ELISA/Rapid Kits .Anti-HCV test was done by ELISA/ Rapid Kits .Test for syphilis was done by ELISA/RPR /TPHA.

### Results

Yearly distribution of detected seropositivity is given in [Table 1].

Table - 1

Year	Total Collection	Collection from camps	Collection from CAMP in %	HIV %	HbSAg%	HCV %	Syphilis
2002	10753	2970	27.62	0.50	1.79	0.25	0.29
2003	10875	2904	26.70	0.34	1.38	0.36	0.34
2004	12174	3705	30.43	0.25	1.55	0.24	0.31
2005	12360	3894	31.50	0.32	1.19	0.22	0.75
2006	11595	3003	25.89	0.31	1.24	0.44	0.58
2007	11919	3414	28.64	0.28	1.27	0.38	0.57
2008	12148	3788	31.18	0.37	1.33	0.32	1.21
2009	11944	5058	42.34	0.15	0.72	0.08	0.65
2010	13792	4755	34.47	0.19	1.21	0.10	0.18

### Discussion

Blood transfusion is a potentially significant route of transmission, although risk may be reduced by the vigorous screening of donors and donated blood. Acquisition of HIV disease through blood transfusion is a relatively efficient mode of transmission, with rates approaching 100%. [7] In 1989, Cumming and associates estimated the risk of HIV transmission. [8] A WHO report states that the viral dose in HIV transmission through blood is so large that one HIV-positive transfusion leads to death, on an average, after two years in children and after three to five years in adults. Today we know that all countries are joining hands to fight against transfusion-transmissible infections, specially HIV & Hepatitis. Educating people and creating awareness about voluntary blood donation is an important fac-

tor. People are unlikely to become voluntary donors unless they receive accurate information about blood. For this voluntary blood donation camps have to be encouraged.

Moreover, it should never be forgotten that blood donations collected in the latent period of infection may be infectious despite a negative antibody test. [8] Efforts to ensure an adequate and safe blood supply should include striving for optimal use of blood and its products. It should be transfused only when its administration is absolutely essential to the care of the patient.

In our study, as there is increase in number of blood donation from camp in which there is repeat voluntary blood donors, decrease in sero-positivity of all HIV, HBSag, HCV & Syphilis. Sero-positivity for HIV was 0.3% in total donors which is very low as compared to the study done by Ramanamma et al., [9] in Vishakapatnam, Shashikala et al., [10] in North Karnataka and Kulkarni et al., [5] in Mumbai. National data also states that higher incidence of HIV is found in Maharashtra and South India. In comparison to Northern and Western India, seropositivity for HIV in our study was slightly less. [11], [12] Seroprevalence of HBS Ag, HCV and syphilis was 1.2%, 0.26% and 0.5% respectively. This

is less comparable to the study done by Dimple Arora et al. [13, 14] Low sero-positivity for diseases in our study could be attributed to proper counseling of blood donors and donor selection criteria followed by rationale use of blood. In this study, the seroprevalence of hepatitis and HIV is less due to the inclusion of more number of voluntary donors.

### Conclusion

During the period of 9-year period, 1,07,560 donors were tested. Seroprevalence of HIV in total donors was 0.3%. The sero-positivity of HBS Ag, HCV and syphilis was 1.2%, 0.26% and 0.5% respectively. Seroprevalence was less when there is more number of blood is collected from camp. Therefore, it is concluded that repeated voluntary blood donation should be encouraged for prevention of transfusion-transmissible diseases. The time and cost involved in screening donated blood can be reduced by an effective donor education and selection program that promotes self-exclusion by donors at risk of transfusion-transmissible infections.

The present study concludes that motivating voluntary blood donors are the most effective way of ensuring adequate supplies of safe blood on a continuing basis.

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