



## Research on HIV and Blood Banks/Donors in Pakistan

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By nature of dealing with blood, blood banks have the potential to be a dangerous source of HIV transmission. In fact, in 2016 there was an HIV outbreak in Larkana, a city in Pakistan. This was in part due to poor practices relating to the handling of blood for donations in some blood banks. This PDF contains a growing list of research articles relating to blood banks in Pakistan and their impact on the nation's HIV crisis.

### **Seroprevalence of Hepatitis B, Hepatitis C, Human Immunodeficiency Virus, Syphilis, and Malaria among Blood Donors at Tertiary Care Hospital Blood Bank**

Qadir, Hira, et al. "Seroprevalence of Hepatitis B, Hepatitis C, Human Immunodeficiency Virus, syphilis, and malaria among blood donors at tertiary care hospital blood bank." *J Pak Med Assoc.* 71(3), 897-899 (2021). ([Link to Full Article](#))

#### **Abstract**

**Objective:** To ascertain the frequency of markers of transfusion-transmitted infections among blood donors in a tertiary care setting.

**Method:** The retrospective cross-sectional descriptive study, was conducted in the Blood Bank section of the Department of Pathology at the Dow University of Health Sciences, Karachi, and comprised data of blood donors from January 2013, to October 2018. All blood donors had been screened for hepatitis B, hepatitis C, human immunodeficiency virus I and II, syphilis through electrochemiluminescence and malaria using immunochromatography. Data was analyzed using SPSS 21.

**Results:** Of the 29,732 donors, 29,712(99.93%) were males and 20(0.06%) were females; 12(0.04%) were volunteers and 29,720(99.95%) were exchange donors. Overall, 2587(8.7%) donors were positive for an infectious disease; 908(3%) hepatitis C virus, 887(2.9%) hepatitis B, 620(2%) syphilis, 168(0.5%) human immunodeficiency virus and 4(0.02%) malaria.

**Conclusion:** Hepatitis C and B were the most frequent infections, followed by syphilis in the sample.

## **A Second Major HIV Outbreak in Larkana, Pakistan**

Altaf, Arshad, et al. "A Second Major HIV Outbreak in Larkana, Pakistan." *J. Pak. Med. Assoc.* 66(12), 1510-1511 (2016). ([Link to Full Editorial](#))

### **Overview**

This editorial discusses the second major outbreak of HIV in Larkana, a city in Pakistan, which occurred in 2016 as a result of the poor practices related to the handling of blood for donations in unregulated labs and blood banks in the area. At the end of the editorial, the authors called for reform in healthcare facilities, pushing for more effective infection control measures.

## **Major Transfusion-Transmissible Infections Among Blood Donors in Rahim Yar Khan, a District of Southern Punjab, Pakistan**

Ghafoor, Muhammad Bilal, et al. "Major Transfusion-Transmissible Infections Among Blood Donors in Rahim Yar Khan, a District of Southern Punjab, Pakistan." *Isra Med. J.* 8(4), 246-248 (2016). ([Link to Full Article](#))

### **Abstract**

**Objectives:** To determine the frequency of major transfusion-transmissible infections (Hepatitis B, Hepatitis C, Human Immunodeficiency Virus and Syphilis) among blood donors in Rahim Yar Khan.

**Study Design:** Cross Sectional Study.

**Place & Duration of Study:** Blood bank of Sheikh Zayed Medical College/Hospital Rahim Yar Khan. Three months, from 5th th November 2015 to 28 January 2016.

**Methodology:** Immunochromatographic technique (ICT) was used to analyze the frequency of HBV, HCV, HIV and Syphilis in all the blood donors.

**Results:** The study included 5.3% females and 94.67% males. Out of 1500 subjects, 3% individuals were within the age of 18-30 years, 16% were 41-50 years and 1% were within 41-50 years. Subjects positive for HCV, HBV, Syphilis and HIV were 4.1%, 1.47%, 0.46% and 0.13% respectively.

**Conclusion:** Current study showed that the most frequent infection was HCV followed by HBV, Syphilis and HIV among the healthy blood donors. To decrease the future burden of these major transfusion transmissible infections in the Pakistani population, awareness programs are suggested.

## **Trends in Human Immunodeficiency Virus Seroprevalence in Blood Donors in Northern Pakistan**

Ghani, E., et al. "Trends in human immunodeficiency virus seroprevalence in blood donors in northern Pakistan." *Public Health* 131, 71-74 (2016). ([Link to Full Article](#))

### **Abstract**

The blood transfusion (BT) system in Pakistan is fragmented, demand-driven and depends on weakly regulated transfusion practices. There is a considerable possibility that transfusion-transmissible infections (TTIs) are contributing to the current epidemic

of hepatitis B virus (HBV) and hepatitis C virus (HCV) (affecting 7.4% of the general population) in the country. To study this issue, we conducted a systematic review to identify articles related to TTIs and transfusion safety in Pakistan from January 1, 2010 to January 31, 2020. A review of 33 articles met the final criteria for qualitative synthesis. Analysis of these studies showed a cumulative frequency of HBV 2.04%, HCV 2.44%, HIV 0.038%, syphilis 1.1% and malaria 0.11%. The frequency of coinfections among blood donors varied from 0.0099% to 0.35%. The highest number of coinfections were HCV and syphilis, followed by HCV and HBV infections. Syphilis and malaria were tested in only 38% and 46% of all the blood donations in one study. The rate of voluntary non-remunerated donations (VNRDs) was less than 13%, and male donors were 95% to 100% in these studies. There was a significant difference in the frequency of HBV and HCV in VNRDs (0.48%) as compared to replacement donors (RDs) (4.15%). In short, this review shows a high frequency of TTIs, especially HBV, HCV and syphilis in the blood donor population in Pakistan. There is a high dependency on RDs, minimal use of healthy voluntary blood donation practices, inadequate screening of high-risk donors, repeated collections of the blood from RDs, poor quality of screening methods and limited knowledge of donor health. Without standardized safe transfusion practices, there will be an ongoing increase in transmission of TTIs, especially HBV, HCV, syphilis, and HIV leading to a significant adverse public health impact.

## **HIV Prevalence in Blood Donors and Recipients in Pakistan: a Meta-Analysis and Analysis of Blood-Bank Data**

Moiz, Bushra, et al. "HIV prevalence in blood donors and recipients in Pakistan: a meta-analysis and analysis of blood-bank data." *WHO South-East Asia J. Public Health* 4(2), 176-183 (2015). ([Link to Full Article](#))

### **Abstract**

**Background:** The first instances of HIV-antibody detection in donated blood in Pakistan were reported in 1988. Since then, documentation of HIV in blood donors and of rates of transmission via transfusion has been limited. Previously assumed to have a low prevalence, HIV is an increasing health concern in Pakistan. Since there is no national, centralized blood-banking system, there are no reliable data on which to base estimated risks of transfusion-associated HIV infection. This study was therefore conducted to estimate the prevalence of HIV in blood donors and recipients in Pakistan between 1988 and 2012.

**Methods:** Meta-analyses were undertaken of reported prevalences of HIV in blood donors and recipients published during 1988–2012. Papers were identified by searching PubMed, Google, CINAHL and PakMediNet and the websites of the World Health Organization, the national HIV/AIDS Surveillance Project and the National AIDS Control Programme of Pakistan. In addition, the 1998–2012 records of the Aga Khan University blood bank were analysed.

**Results:** The 254 abstracts identified at the preliminary search were reviewed and, after removal of duplications, case-reports, editorials and reviews, 32 papers were selected that met the inclusion criteria. All studies that reported on HIV antibodies in blood donors/recipients were included, irrespective of the methodology used. Since seroconversion had only been confirmed through supplemental testing in a few papers,

the results were analysed separately for reports based on screening only and confirmed cases. A total of 142 of 2 023 379 blood donors and 4 of 3632 blood recipients were HIV positive, giving an overall pooled seroprevalence of 0.00111% in blood donors and 0.00325% in blood recipients. The annual prevalences of HIV in donors at the Aga Khan University blood banks were similar, ranging from 0.013% to 0.116%.

**Conclusion:** Very few reports on HIV in blood donors in Pakistan could be retrieved, and the overall pooled prevalence is low. However, the limited data and confounding factors mean that that these results may significantly underestimate the true situation. It is recommended that a complete survey of blood banks should be conducted throughout the country, in order to provide a more reliable estimate of the risk of transfusion-associated HIV infection in Pakistan.

## **Evaluation of blood bank practices in Karachi, Pakistan, and the government's response**

Luby, Stephen, et al. "Evaluation of blood bank practices in Karachi, Pakistan, and the government's response." *Health Policy Plan.* 15(2), 217-22 (2000). ([Link to Full Article](#))

### **Abstract**

**Background:** National legislation in Pakistan regulating blood banks has been introduced several times, but has never been passed. To support provincial-level efforts to develop legislation we conducted a study to evaluate blood-banking practices in Karachi, Pakistan, to identify areas that could be improved.

**Methods:** Thirty-seven blood banks were randomly selected from a list of 87 Karachi blood banks. The research team interviewed blood bank personnel, inspected available facilities and equipment, and observed blood collection using structured questionnaires and observation forms.

**Results:** Of the 37 selected facilities, 25 were operational and 24 agreed to participate. Twelve (50%) of the facilities reported regularly utilizing paid blood donors, while only six (25%) actively recruited volunteer donors. During observation only 8% of facilities asked donors about injecting drug use, and none asked donors any questions about high-risk sexual behaviour. While 95% of blood banks had appropriate equipment and reagents to screen for hepatitis B, only 55% could screen for HIV and 23% for hepatitis C. Twenty-nine percent of the facilities were storing blood products outside the WHO recommended temperature limits.

**Implications:** Practices at most Karachi blood banks fell well below WHO standards. Findings from this study were instrumental in developing and passing legislation to regulate blood transfusion throughout Sindh Province, and suggest a method for improving blood transfusion practices in other developing countries.

## **A Study of 11W-Antibody in Sera of Blood Donors and People at Risk**

Mujeeb, Syed Abdul, and Mir Rehman All Hashmi. "A Study of 11W-Antibody in Sera of Blood Donors and People at Risk." *J. Pak. Med. Assoc.* 38(8), 221-222 (1988). ([Link to Full Article](#))

### **Abstract**

Between November 1986 to November 1987 sera of 1,363 individuals were screened for HIV-antibody, using ELISA technique,<sup>12</sup> in the Blood Bank of Jinnah Postgraduate Medical Centre, Karachi. Eight hundred and eight cases were recipients of unscreened blood, 298 professional, and 225 voluntary blood donors, and 32 homosexual and promiscuous individuals. Sera positive for anti HIV were rechecked and confirmed by Western blots<sup>13</sup> at National Institute of Health, Islamabad. Of 1,363 subjects screened 8 (0.6%) were anti-HIV positive. Of the 6 sera tested by Western blot method, 2 were found to be positive, confirming the presence of AIDS virus in these individuals. Both of which cases were married females aged 30 and 45 years, who gave history of receiving multiple transfusions. Both had bilateral cervical lymphadenopathy and associated visceromegaly. One case had biopsy proven metastatic papillary carcinoma of the liver and died a few weeks later. Both the females denied any risk factor attributed to HIV infection. It seems likely that both contracted the disease through transfusion of un screened blood. Two samples which though, were repeatedly found positive by EUSA but could not be checked on Western blot, belonged to males, one a promiscuous male and the other, a case of carcinoma of anterior nasal fossa. Both the cases were lost to follow up.