Blood screening for infectious diseases before transfusion is a crucial process, which is mandatory. It is aimed at preventing the transmission of the infectious micro-organisms to susceptible recipients. So far there is no cure for the viral infections; Human Immunodeficiency virus (HIV), Hepatitis B virus (HBV) and Hepatitis C virus (HCV) and therefore these remain a major public health challenge. The objectives of this study was therefore to determine the seroprevalence and the subtypes of HCV in circulation compared to that of other common transfusion transmissible viruses; HIV and HBV and to assess the risk of co-infection between these viruses in donated blood. A total of 1883, plasma samples from donated blood were collected from the 6 Regional Blood Transfusion Centres in Kenya. The samples were screened using serological assays for HIV, HBV and HCV, using 4th generation ELISA, Vironostika HIV Uni-Form II Ag/Ab (Bio-meriex, Boxtel, Netherlands), an immunoassay ELISA Hepanostika HBsA, UNIFORM 11 (Bio-meriex, Boxtel, Netherlands), and anti-HCV 3rd generation ELISA (Murex anti-HCV Version 4.0) respectively. For Hepatitis C virus genotyping assay, real-time PCR assay was used to determine the presence of circulating HCV subtypes in the antiHCV reactive samples. Among 1883 donated blood samples, serological reactivity was 30 (1.6%), 65 (3.5%), and 29 (1.5 %) for HIV,HBV and HCV respectively. The prevalence was higher among males than females in all the three infections: HIV ( 1.8% males /0.6% females), HBV ( 4.0 % males / 1% females ) , and HCV ( 3.1 % males / 1.2% females ). The age group most affected was 30 yrs and above. Co-infection was observed for HIV-HBV in 2 (0.02 %), HIV-HCV in 1 (0.01%) and HCV-HBV in 2 (0.02 %). Among the 29 reactive HCV samples, The genotyping assay was able to differentiate HCV genotypes based on sequence differences into genotype la and 2b, where subtypes 2b was the most prevalent (90%). The study indicates low rates of prevalence of HCV RNA among anti-HCV positive donors 10/29. The circulating HCV subtypes observed in this study were Ia and 2b with 2b being more predominant. In conclusion, the high seroprevalence of Transfusion Transmissible Infections in donated blood at Regional Blood Transfusion Centres, call for strict selection criteria of donors, with emphasis on getting young voluntary donors (15-30 years). The study indicates low rates of prevalence of HCV RNA among anti-HCV positive donors (29 positive compared to PCR 10 positive) and thus emphasizes the need for a more sensitive and specific serological WV test kit and a stringent testing algorithm for HCV in blood donations. Expansion of immunization against HBV is recommended to reduce its prevalence and also HBV and HCV should also be incorporated in the HIV campaigns as they share same mode of transmission. Based on the HCV subtypes observed in this study (Ia and 2b), there is need to incorporate the circulating subtypes in the kits as antigens for diagnosis and vaccine development.