

**The heterogeneity and distribution patterns of ABO and RH D phenotypes in the voluntary blood donors of Kenya**

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Blood groups (antigens) are proteins, glycoproteins or glycolipids inherited surface markers on the red blood cell membranes, which determine the blood phenotypes of human beings. There are 36 blood group systems with over 300 antigens. Among them, ABO and Rh are of clinical significance. For safe transfusion, blood donor and recipient should be ABO and RhD compatible. The heterogeneity of ABO and RhD blood groups systems shows variations in different parts of the world. In Kenya, there is limited study done on ABO and RhD blood groups heterogeneity among blood donors. The aim of this study is to determine the heterogeneity and prevalence of ABO and RhD blood groups among voluntary blood donors in Kenya, which is fundamental for compelling management of blood bank stocks.

The study sites were

Nairobi, Mombasa, Kisumu, Nakuru, Eldoret, Embu, Meru, Garrisa, Nyeri, Machakos, Thika, Voi, Malindi, Kericho, Kisii, Narok, Bungoma, Kitale, Lodwar, and Busia.

The presence of blood groups was determined by serological techniques both microtitre and tube methods. Commercial monoclonal antisera (anti-A, anti-B, anti-D and Anti human globulin) were used. Descriptive statistics and Chi-square were applied in data analysis and the results were presented in tables. The results showed that there was a statistical significance difference  $p < 0.01$  between the positive and negative blood types in both the ABO and RhD systems. This study recommends an extended study with a large sample size and to include heterogeneity of other blood groups of clinical significance.

**Key words:**

ABO, RHD, weak, Microtitre, anti-human globulin (AHG) monoclonal antibodies, heterogeneity, prevalence.

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