Abstract

OBJECTIVES: To determine the prevalence of malaria in donor units in a low and a high endemic region in Kenya and evaluate the cost effectiveness of recipient anti-malarial prophylaxis and pre-transfusion screening (using an automated method) as options to prevent post transfusion malaria. DESIGN: A descriptive cross-sectional study. SETTING: Two regional blood banks, Nairobi and its environs (National Blood Transfusion Services, Nairobi) a low malaria endemic region and western region (National Blood Transfusion Services, Kisumu) high malaria endemic region. SUBJECTS: All the donated units were included in the study for analysis, during the duration of study, from the two study sites. MAIN OUTCOME MEASURES: Prevalence of malaria in donor units in low endemic area (Nairobi) and high endemic area (Kisumu). Cost per case prevented for the two options, Option I Prophylactic administration of anti-malarial (sulfadoxine pyrimethamine SP) drugs to recipients, and Option II pre-transfusion screening using an automated technique. RESULTS: A malaria prevalence of 0.67% was found in Nairobi and its environments (low endemic) and 8.63% for Kisumu and its environments (high endemic area). The cost analysis showed a cost per case prevented of Ksh.105 (US$1.4) adult, Ksh.52.5 (US$0. 69) and paediatric for the option of recipient prophylaxis using an SP based drug. The cost escalated to Ksh.592 (US$7.79) adult Ksh.444 (US$5.84) paediatric if the prophylaxis was upgraded to the recommended artemisinin derivative (ACT-artemisinin based combination) and for the option of pre-transfusion screening using an automated technique the cost was Ksh.2.08 (US$0.03). CONCLUSION: The prevalence of malaria in donors showed the expected regional variation in the low and high endemic areas and was comparable to data obtained elsewhere. If malaria positive donor units were to be excluded from the national blood supply, an estimated 5% (compared to 1.3% for human Immunodeficiency virus, 3.6% for hepatitis B virus and 1.3% for hepatitis C virus) would be wasted. The cost per case prevented of transfusion-associated malaria is considerably higher for recipient antimalarial prophylaxis than pre-transfusion screening using an automated technique. The cost escalates by five to seven times if the newer artemesinin based combination antimalarial drugs are adopted.