Human immuno-deficiency virus and Acquired Immune Deficiency Syndrome (HIV and AIDS) is a major public health problem, a socio-economic burden and a serious threat to development particularly in developing countries. Human Immunodeficiency Virus (HIV) causes progressive impairment of the body's immune system, increased susceptibility to infections, tumors and Acquired Immune Deficiency Syndrome (AIDS). Enumeration of CD4+ T cells evaluates the strength of the immune system and is crucial in monitoring of HIV infected persons, as it is the best indicator of immunosuppression. Flow cytometry (FACS count) is the accepted gold standard method for CD4+T cell counting. However the cost of the equipment and reagents of FACS count is often unaffordable for routine use in resource limited settings. This study evaluated the application of Dynabead technique using a light microscope for CD4 enumeration on HIV positive patients. Fifty four (54) EDTA blood samples from HIV positive patients attending Mbagathi District Hospital care clinic were used in the study. Parallel CD4+T cell count was carried out using BD FACS count and Dynabead techniques. The sensitivity, specificity, positive and negative predictive values of Dynabead technique was determined using a 2x2 table. Precision of Dynabead technique, as well as the effect of delay in sample handling was also determined. The results of the study revealed that CD4+T cell counts by FACS count and Dynabead technique were highly correlated r= 0.962, p<0.01. There was no significant difference in CD4+T cell count as enumerated by the two techniques at clinically relevant CD4+ T cell counts ( t=0.085, df 53, p>0.05). The sensitivity and specificity of Dynabead technique at clinically relevant CD4+T cell count (200 cell/ul of blood) was 87.5% and 96.7% respectively. The coefficient of variation for the precision of Dynabead technique varied between 3.4% and 7.5%. CD4+T cell count by Dynabead technique on fresh and four days old blood revealed a significant difference (t=8.694, df =53, p<0.05).The results showed that Dynabead technique is comparable to FACS count in CD4+T cell enumeration on fresh blood sample and therefore can be used as a reasonable substitute to FACS count in resource constrained areas in Kenya. However it was also noted that Dynabead technique was not accurate in CD4 enumeration for samples that had been preserved for four days at room temperature. It is recommended that Dynabead technique be adopted as a method for CD4+ T cell enumeration in resource constrained areas in Kenya.