Brucellosis is a zoonotic disease caused by organisms in the genus *Brucella*, and has a worldwide distribution. *Brucella abortus*, *B. ovis*, *B. suis* and *B. melitensis* are pathogenic to man, and human infection occurs through contact with infectious blood, urine, placenta and or aborted foetus and consumption of raw contaminated animals products such as milk, cheese and blood. Diagnosis of brucellosis is difficult because clinical manifestations can be misleading, culture lack sufficient sensitivity and require prolonged incubation leading to excessive delay in diagnosis while serological tests are difficult to interpret. This leads to misdiagnosis and the need to evaluate the performance of laboratory diagnostic methods (Slide test, 2-Me and ELISA) in terms of sensitivity, specificity and predictive values. Factors that predisposes humans to *Brucella* infection as well as the level of awareness about the disease particularly symptoms, treatment and prevention in the study population need to be known for public health appraisal. The study population comprised of all who were residents of Nyandarua district and a sample size of 180 studied. The prevalence of human brucellosis was 3.9%. While 2-Me and ELISA had the same sensitivity, there was a statistically significant difference in sensitivity of Slide test compared to both 2-Me and ELISA; \( Z_{\text{actual}} (20.05) > Z_{\text{expected}} (2.33 \text{ at } P = 0.01) \). A statistically significant difference existed between specificity of Slide test compared to 2-Me \( [Z_{\text{actual}} (3.81) > Z_{\text{expected}} (2.33 \text{ at } P = 0.01)] \) and ELISA \( [Z_{\text{actual}} (3.54) > Z_{\text{expected}} (2.33 \text{ at } P = 0.01)] \). 2-Me had a statistically significant higher positive predictive value compared to Slide test \( [Z_{\text{actual}} (10.7) > Z_{\text{expected}} (2.33 \text{ at } P = 0.01)] \) as was ELISA compared to Slide test \( [Z_{\text{actual}} (18.73) > Z_{\text{expected}} (2.33 \text{ at } P = 0.01)] \). There was no statistically significant difference between negative predictive value of Slide test compared to both 2-Me and ELISA; \( Z_{\text{actual}} (0.53) < Z_{\text{expected}} (2.33 \text{ at } P = 0.01) \) and \( Z_{\text{actual}} (0.47) < Z_{\text{expected}} (2.33 \text{ at } P = 0.01) \) respectively. Consumption of contaminated animal products was found out to be the major route of transmission in Nyandarua district while awareness pertaining brucellosis symptom, prevention and treatment in the district was found to
be low. It is recommended that Slide test be only used for screening while SAT, 2-Me and ELISA may be used as confirmatory tests and 2-Me test be incorporated in routine diagnosis. Further it is recommended from the findings of this study that the government through the Ministry of Public Health creates awareness of brucellosis to the public to strengthen its control and possible eradication.