Acute respiratory infections (ARI) are known to cause serious respiratory system infections, associated with shocks and respiratory distress syndromes in children. Multidrug resistant ARI's have emerged, and resistance to R-lactams and other antimicrobial agents is rapidly evolving in ARI in developing countries, making the rapid determination of the susceptibility of ARI isolates to antimicrobial agents a clinical priority. Currently, methods available for antimicrobial susceptibility testing are the disc diffusion methods (e.g BSAC, Stokes and Kirby Bauer) and the MIC methods (e.g. the E test, micro and macro dilution methods). BSAC and the E-test are new, recently introduced methods. The BSAC is a more standardized method, which provides a rapid and convenient means of susceptibility testing for various microbe-antimicrobial agent combinations, and can also be applied in antibiotic resistance surveillance studies. In Kenya, disc diffusion methods are commonly used, with the E test being applied in the confirmation of results. The BSAC method compares favourably with other reference MIC methods such as Etest in susceptibility testing for other micro-organisms. However, there have been no studies to evaluate the sensitivity of BSAC and the E test for susceptibility testing for ARI in Kenya. This study compared and validated the BSAC and Etest methods for characterization of Streptococcus pneumoniae and Haemophilus influenzae isolates from blood culture and cerebrospinal fluid using the Etest as a standard test. The sensitivity of detecting resistance for H. influenzae using the BSAC method was 87% - 96% and specificity was 94% - 99%. Sensitivity for S. pneumoniae detection ranged between 80%-94% except for penicillin (59.6%), specificity was between 75%-100%. The predictive value of BSAC for S. pneumoniae and H. influenzae susceptibility ranged between 69%-100% and 67%-100% respectively. Overall rate of major and minor errors for H. influenzae-antibiotic combination were 12% (47/377) and 3.5 % (22/627) respectively. For S. pneumoniae-antibiotic combination, the number of major errors was 15% (33/214) while minor ones were 3% (34/1022). 55% of the H. influenzae strains tested were R-lactamase producers out of these, (98%) were ampicillin resistant under Etest compared to 82% under the BSAC method. The results showed that BSAC susceptibility method has acceptable low rate of minor but high rate of major error for important first line treatment antibiotic-organism combinations such as S. pneumoniae-penicillin and H. influenzae-ampicillin combinations.