Ongoing surveillance of Pseudomonas aeruginosa resistance against antimicrobial agents is fundamental to monitor trends in susceptibility patterns and to appropriately guide clinicians in choosing empirical or directed therapy. The in vitro activity level of eight antimicrobial drugs was assessed against 97 clinical isolates of P. aeruginosa collected consecutively for three months in 2007 from a Malaysian hospital. Antimicrobial susceptibility was determined using the E-test method in addition to the hospital’s routine diagnostic testing by the disk diffusion method. Respiratory and wound swab isolates were the most frequently encountered isolates. The E-test and disk diffusion methods showed high concordance in determining the in vitro activity of the antimicrobial agents against the P. aeruginosa isolates. Piperacillin-tazobactam was the most active antimicrobial agent with 91.8% susceptibility, followed by the aminoglycosides (amikacin, 86.6% and gentamicin, 84.5%), the quinolone (ciprofloxacin, 83.5%) and the beta-lactams (cefepime, 80.4%, ceftazidime, 80.4%, imipenem, 79.4% and meropenem, 77.3%). Incidence of multidrug resistance was 19.6% (19 out of 97 isolates). Periodic antibiotic resistance surveillance is fundamental to monitor changes in susceptibility patterns in a hospital setting.