Abstract: We evaluated a mobile video system for surgical teleconsultation. A video streaming server in the operating room transmitted video and audio to a hand-held computer (personal digital assistant [PDA]) over a wireless local area network. Two groups of 20 surgeons (each with 12 qualified surgeons and eight surgeons between the 2nd and the 4th year of training) participated in the tests. For voice transmission, correct understanding of numbers was achieved in 100% of the cases ($n = 1000$) and 98% of medical terms ($n = 400$). The quality of the video displayed on the PDA was assessed by the recognition of different operating room scenarios. Only 62% (SD 17) of the structures were identified clearly on the hand-held device ($n = 400$). The accuracy improved to 78% (SD 15) ($n = 400$) if the same scenario was observed on a larger (50 cm) video screen ($p < 0.001$). Accuracy was significantly better if audio conversation was possible. The quality evaluation by the consultants showed that the PDA display size and quality were sufficient for clinical use.