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Autor(en) des Beitrags: Schneider, A; Wilhelm, D; Bohn, U; Wichert, A; Feussner, H

Titel des Beitrags: An evaluation of a surgical telepresence system for an intrahospital local area network.

Abstract: We evaluated a digital telepresence system in an operating theatre (OR) environment which enabled a consultant to join the surgical team from a remote site by audiovisual communication. The system is based on video transmission using a streaming technique, with a server and a client connected via a local area network (LAN). Two cameras can be remotely controlled: one camera is built into the OR lamp and a second, laparoscopic camera is mounted on a robotic arm. Another feature of the system is teledemonstration, which permits the remote consultant to demonstrate points of particular interest. We evaluated the system clinically in 237 cases. In 28 cases (12%), telepresence could not be established for various reasons, mainly human failure. In 42 cases (18%), the full potential of telepresence was used. Technical evaluation showed that a data rate of 2 Mbit/s provides sufficient audio and video quality, as well as reliable teledemonstration. The data transmission delay was acceptable for clinical purposes (video 0.92 s, audio 0.6 s from OR to client, audio 0.7 s from client to OR). The study showed that telepresence is a promising means of providing highly specialized expertise within the OR.

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