

Design and Evaluation of International Video Teleconference (iVTC) for Orthopedic Trauma Education

Danny Ho, MS¹; Peter Hu, MS¹; David Carmack, MD¹; Roman Hayda, MD²; Anthony Pohl, MD³; Robert Dunbar, MD⁴; Robert Harris, MD⁵; Harold Frisch, MD⁶

¹Program in Trauma, University of Maryland, MD, USA; ²Brooke Army Medical Center, TX, USA; ³Royal Adelaide Hospital, Adelaide, Australia; ⁴Naval Medical Center, VA, USA; ⁵Atlanta Medical Center, GA, USA; ⁶Walter Reed Army Medical Center, Washington, D.C., USA

Summary. This poster describes the design and evaluation of an International Video Teleconference (iVTC) system for orthopedic trauma case studies. Three medical facilities in the United States and one in Australia participated in monthly sessions where past and ongoing military and civilian cases were discussed. Participant feedback indicated that iVTC fully met their expectations as an educational tool and that remote participation did not adversely impact their ability to engage in discussion.

Introduction. Surgical case studies provide valuable opportunities to reinforce training and share experiences. While sessions are often held in single settings, can iVTC effectively replicate this experience for remote audiences with minimal impact on their ability to participate? To answer this question, we evaluated participant perceptions of iVTC for supporting case discussions and continuing medical education (CME) for an international audience.

Method. ISDN network connections have been shown to deliver reliable video and voice data (1). The iVTC network utilized single ISDN (128 kbps) -based VTC to connect facilities. Each facility was equipped with a camera to broadcast video of the audience, a TV monitor to view other audiences, and built-in VTC microphone and speakers to provide full duplex two-way audience communication. Furthermore, a computer and projector displayed locally stored presentation files for the relevant cases, which were distributed via email prior to each session. This setup allowed any number of facilities to present their case studies in a single iVTC session. Technical setup and support was the responsibility of respective audio-visual departments at each facility, and each audience group was chaired by a designated moderator. Participants and site moderators completed surveys from September 2004 through March 2005. Probing questions assessed the educational value gained through iVTC and the overall utility of sharing orthopedic cases with an international audience.

Results. Survey responses were received from 268 general participants and 21 moderators. We used 5-point Likert scale and comment boxes to solicit perceptions of each iVTC session. 95% of participants agreed that iVTC is effective for communicating ideas, while 20% of participants felt iVTC discouraged normal participation in discussions.

Interestingly, Australian participants felt more discouraged than their American counterparts ($p < .05$) but also had highest average attendance (34 per session versus 10 per session). All moderators agreed iVTC was effective for communicating ideas and 94% of them agreed iVTC met expectations as an educational tool. They felt iVTC allowed them to “truly get to hear [and] see other experts’ theory [or] plan on real life cases”.

Discussion and Conclusion. From observed attendance levels and feedback, our findings suggest that iVTC is a promising tool for enriching the quality of orthopedic trauma education, since it encourages dynamic interaction and information exchange between orthopedic professionals from a variety of specialties. The data may indicate a possible relationship between audience size and participant perception which warrants further study.



iVTC session: U. MD Shock Trauma Center, MD, Royal Adelaide Hospital, Australia, and Brooke Army Medical Center, San Antonio TX.

REFERENCES

1. Demartines, N., Battegay, E., Liebermann, J. et al. Telemedicine: perspectives and multidisciplinary approach. *Schweizerische Medizinische Wochenschrift*. 130(9):314-23, 2000.