Broadband networks can support multiple high quality video and audio channels – fine enough to show subtle facial expressions and body gestures and fast enough to track the ultrasound image of a beating heart.

The challenge in broadband telehealth is to design and implement the communication and data channels needed to support the high levels of interpersonal interaction needed for delivering advanced levels of health care, and to evaluate the resulting telehealth systems in their clinical setting.

A pilot trial of a broadband telehealth system to support outpatient consultations for paediatric surgical patients was conducted within the Royal Children’s Hospital in Melbourne during September 2007. The trial covered four surgical specialties and conducted 44 outpatient consultations.

The implementation made extensive use of:
• Multiple fixed video links for communication between the surgeon’s office and the patient’s clinic
• A range of examination cameras to allow the surgeon to examine the patient
• Tablet-based display of video, images and X-ray data shared among all participants and annotatable with electronic pens
• A trained clinic assistant located with the patient and working under the remote direction of the surgeon.

The research question asked about dimensions of acceptability of this way of delivering high-end healthcare. The hospital has a large geographic catchment (Victoria, Tasmania and parts of NSW) and for patients requiring long-term treatment the burden of distance falls heavily on them and their families.

This research focused on human factors evaluation – on how the participants interacted with the telehealth system, with the patient’s on-line and real-time data and with each other via the video and audio connections.

During this trial the clinicians learned to map their specialist clinical practice onto the capabilities of the research telehealth system and learned to work with each other in this new mode of interacting with their patients. They were pleased to discover that they could indeed conduct outpatient consultations with these patients, even though they could not actually touch the patients. The patients were very supportive of the concept, especially those who had traveled from country areas or from interstate. Much was learnt about how this concept for high-level telehealth care could be extended to a full clinical trial.