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On-line video telecommunication between cardiac catheterization laboratories: A new technology to facilitate clinical trials

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# Abstracts of Original Contributions: Computer Applications

1250-1

## On-line Video Telecommunication Between Cardiac Catheterization Laboratories: A New Technology to Facilitate Clinical Trials

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A randomized trial of intravascular ultrasound (IVUS) versus angiographic guided stent deployment was performed in 50 patients. To provide expertise in IVUS interpretation and QCA measurements on-line, the cardiac cath lab at Kaiser Hospital in Los Angeles was connected by a V-TEL BK220 digital tele-communication system with Blue Chip compression to the core laboratory at UC Irvine, 40 miles away. Live video images, audio, cine-angiograms, fluoroscopy and IVUS images were transmitted in real time at 768 Kbits/second on a switched T1 line through the local phone system. The procedures were monitored on-line by the core laboratory to provide greater uniformity in procedure performance, agreement that the patient and lesion met inclusion criteria, and that an optimum result was achieved according to the established protocol. *Results:* Image quality was rated as excellent for on-line interpretation of angiograms and ultrasound images. There were no differences in the assessment of lumen diameter on angiography or lumen CSA and plaque area on IVUS between telecommunicated images versus the direct images from cineangiograms or IVUS videotapes. The core laboratory on-line interpretation of images affected the procedure in 50% of cases.

	Original Angiogram or Ultrasound	Tele-transmitted Image
Angio Mean Diameter:	2.2 ± 0.7 mm	2.3 ± 0.8mm
US Mean Lumen CSA:	6.9 ± 2.0 mm <sup>2</sup>	6.9 ± 2.0 mm <sup>2</sup>
US Mean Vessel CSA:	15.3 ± 3.4 mm <sup>2</sup>	15.3 ± 3.2mm <sup>2</sup>

*Conclusion:* Telecommunication of angiograms and IVUS studies provide excellent image quality for quantitative measurements by an independent core laboratory. This facilitates real time interpretation and should be applicable to link up multiple laboratories such that multi-centered studies, review of cases, and education of new techniques can be facilitated.