Test of Multisite Endoscopic Video Streaming with Conference XP

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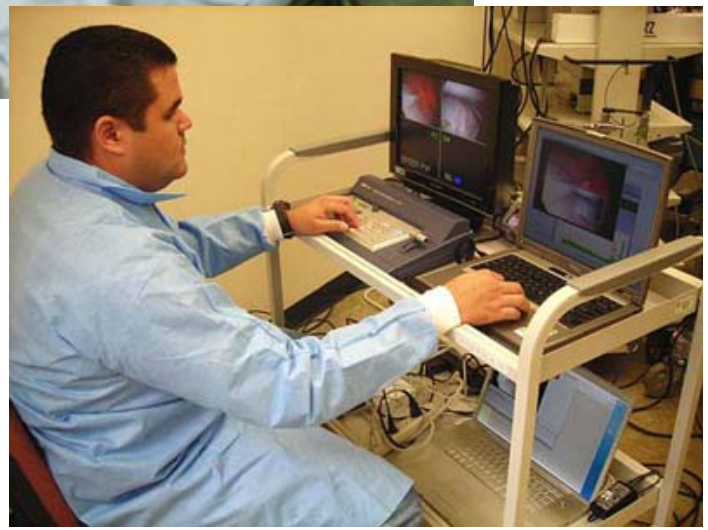
UPR Medical Sciences Campus to Johns Hopkins Hospital
November 13, 2007



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Pollock. He has been particularly gratified by comments from children diagnosed with diabetes who appreciated being able to "see" the disease and asked him when stem cell therapies would be available.

Pollock hopes to distribute "Our Cells, Our Selves" to other museums this spring. He also is considering developing a DVD version of the movie that could be distributed to rural communities that may not have access to a museum.

The show builds on an earlier project, the Tissue Engineering Show and Education Partnership, also funded by a SEPA grant. Similar to that project, "Our Cells, Our Selves" includes a movie and accompanying educational resources, such as classroom workbooks as well as online and outdoor activities.

Pollock credits many individuals who contributed to the success of the current project, including Creative Director Laura Lynn Gonzalez, who worked with Pollock to develop the topic and approach to the show. Students from both Duquesne and Carnegie Mellon universities contributed to the digital animation.

—AMBER BOEHM

NCRR RESOURCES: NCRR's Science Education Partnership Awards are designed to improve life science literacy throughout the nation. Educators can receive free copies of the movies and workbooks developed by the Regenerative Medicine Partnership in Education at www.sepa.duq.edu/education/index.html.

Connectivity Enables Collaborations

In November 2007, physician-scientist Priscilla Magno practiced new procedures at the Experimental Surgery Laboratory of the University of Puerto Rico (UPR) School of Medicine. One thousand five hundred miles away, her former mentor, Anthony N. Kalloo, chief of the Division of Gastroenterology and Hepatology at the Johns Hopkins Hospital in Baltimore, Md., followed her progress.

Kalloo watched as Magno performed a procedure on an animal model using an endoscope, an instrument used to view organs inside the body. Kalloo was able to observe the same images Magno was seeing in real time and in perfect detail.

The successful long-distance collaboration was made possible by high-resolution video streaming using Internet2, a nonprofit consortium that develops and deploys advanced network applications and technologies for education and high-speed data transfer.

The equipment for Internet2 connectivity and staff positions to operate it were made possible by Research Centers in Minority Institutions (RCMI) funding to the Center for Information Architecture in Research at the UPR Medical Sciences Campus. Additional funding through an NCRR Institutional Development Award provides for an Internet2 network engineer, a key player in the transmission process both before and during the endoscopy procedure.

Anthony N. Kalloo watched researchers at the University of Puerto Rico perform an experimental surgical procedure from his office at the Johns Hopkins Hospital in Maryland. The long-distance collaboration was made possible by high-resolution video streaming using Internet2 connectivity.

The high-resolution, real-time video allowed Magno, who recently returned to UPR from Johns Hopkins, to continue her collaboration with Kalloo in a very tangible way. "We were able to communicate during crucial moments in the procedure," says Magno. "It was as if he were in the room."

José G. Conde, director of the Center for Information Architecture in Research, and Aníbal Vega, systems programmer at the center, coordinated the project that made this collaboration possible. Conde hopes that more UPR researchers will utilize the wired surgical suite for collaborative operations and that the use of Internet2 connectivity will expand beyond surgery and be used to promote collaborations for a myriad of research projects.

The establishment of Internet2 connectivity is an ideal example of the mission of the RCMI-funded center: to foster collaborative research and minimize the effect of Puerto Rico's geographical isolation from major research centers. Conde hopes that this connectivity will bridge the geographical gap and facilitate more training and research to increase and enhance global collaborations at the UPR Medical Sciences Campus.

—AMBER BOEHM

NCRR RESOURCES: The Research Centers in Minority Institutions program provides grants to institutions that award doctoral degrees in health-related fields and that have a 50 percent or greater enrollment of students from minority communities underrepresented in the biomedical sciences. Through the Institutional Development Award program, NCRR fosters health-related research and improves the competitiveness of investigators in states that historically have not received significant levels of competitive research funding from NIH. For more information, visit www.ncrr.nih.gov/ri.

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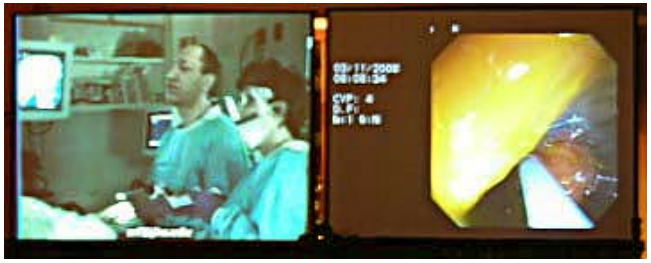
Viva-Endoscopic Imaging and Therapies for Gastrointestinal Neoplasias: Today and Tomorrow

San Juan, Puerto Rico, March 10th and 11th, 2008



September 18, 2008

Objectives

- Share high-quality live video of endoscopic procedures simultaneously with several medical/scientific institutions over a secure connection
- Provide an interactive environment for participants during the session
- Optimize network utilization

Components

- Endoscope image processor
  - Olympus Exera CV-160
- Endoscopic light source
  - Olympus Exera CLV-160
- Converter of analog video source from endoscope to DV
  - Canopus ADVC 110

Components

- Conference XP for streaming of endoscopic video:
  - Multicast
  - Unicast reflector
  - Encription (Triple DES with 192 bit key)
  - DV quality
- Codian MCU Model4205
  - H.323 environment for interaction
- H.323 endpoints
  - Low bandwidth
  - Easy to deploy in OR including echo cancellation

Components

- Conference XP clients to transmit from our lab and to receive at each participating site
- Conference XP reflector for unicast participant
- Conference XP venue server
- Internet2 connectivity

Sites

- Transmitting
  - Experimental Surgery Lab, UPR School of Medicine
- Receiving
  - Office of High-Performance Computing and Communications Collaboratory, National Library of Medicine, NIH
  - ICELab, Rochester Institute of Technology
  - Digital Media Group Studio, Johns Hopkins Hospital
  - Office of Enabling Technologies, University of Michigan School of Medicine - unicast
  - UPR High-Performance Computing facility - and reflector host