

**Using Web Streaming for Pre-Operative Teaching of  
Prospective Patients for Gastric Bypass Surgery**

[raymond.p.kulig@hitchcock.org](mailto:raymond.p.kulig@hitchcock.org)

Contact: Raymond P. Kulig

Videoconference Services

Dartmouth-Hitchcock Medical Center

1 Medical Center Drive

Lebanon, NH 03756-0001

[raymond.p.kulig@hitchcock.org](mailto:raymond.p.kulig@hitchcock.org)

[www.dhvideo.org](http://www.dhvideo.org)

**Abstract:**

Using Web Streaming for Pre-Operative Teaching of Prospective Patients for Gastric Bypass Surgery by [raymond.p.kulig@hitchcock.org](mailto:raymond.p.kulig@hitchcock.org)

The Dartmouth-Hitchcock Medical Center in Lebanon, New Hampshire, USA, requires prospective patients to attend three 1.5 hour lectures before being considered for this major surgery. We have been using Two-Way Interactive Videoconferencing (TWIV) for several years with success but many people still find it difficult to attend. In November 2003, we began to stream the video, audio and PowerPoint via the web. This relatively new technology has, to the best of our knowledge, never been used to teach pre-operatively and has not been studied. Each viewer must fill out a post-test for credit. These tests are being used to both grade the patient, and determine whether or not prospective patients can learn the complex information regarding the surgery, their physical rehabilitation, dietary changes, mental health challenges and social implications. At the same time, we

have learned better ways to design our web sites for the non-medical public and are making changes to our program to ease their burden.

Raymond P. Kulig has worked in the television production and videoconference field for 27 years and has produced over 100 training videos for the Dartmouth-Hitchcock Medical Center as well as other businesses and institutions. In the field of videoconferencing he has designed networks for two-way video, and operated and managed the medical center's distance learning system and personnel. Currently, over 3000 hours of lectures, training and informational vignettes are transmitted yearly over the medical center's TWIV, web and streaming servers.

He is a two term past president of the VTEL Users Group Association, two term president and current board member of the Upper Valley Business and Educational Partnership and is on the planning committee of the New Hampshire Telemedicine Association.

## **Using Web Streaming for Pre-Operative Teaching of Prospective Patients for Gastric Bypass Surgery**

[raymond.p.kulig@hitchcock.org](mailto:raymond.p.kulig@hitchcock.org)

Bariatric Surgery, also known as Gastric By-Pass Surgery, is a significant, life-changing operation for both the patient and their family. As the rate of obesity increases, more people are electing to have this surgery performed. The success of their operation and the eventual weight loss is very closely related to the education they receive pre-operatively. This presentation discusses the use of technology, primarily web streaming, and a study by the Dartmouth-Hitchcock Medical Center to determine if such technology is as effective as traditional teaching.

### **History**

Up until the year 2001, teaching prospective patients about Gastric By-Pass Surgery was done in a large auditorium at the Dartmouth-Hitchcock Medical Center in Lebanon, New Hampshire (DHMC) with lecturers using PowerPoint and props. New Hampshire and Vermont are very rural states with inclement weather possible during the winter and spring months. Because of this, the lectures were transmitted via Two-Way Interactive Television to two hospitals; Concord, New Hampshire and St Johnsbury, Vermont. Within a year, Concord Hospital decided to suspend their involvement, although not because of lack of attendance. It was decided that another method was needed to transmit the conference to people who live long distances away from DHMC.

Video streaming was already being used to archive individual lectures for the Bariatric program. These videos included PowerPoint and were intended as a refresher for prospective patients. In November 2003, it was decided to air the monthly conferences "live" using streaming technology. This would allow the viewer to receive credit just like the viewers in St Johnsbury received and to avoid the problem of traveling 1-4 hours to DHMC.

## **The Requirements**

Each pre-operative patient must attend three of the monthly lectures before they are accepted for surgery. The lecture includes;

- 1) Introduction to the program.
- 2) Information on the surgery.
- 3) Discussion with people who have had the operation.
- 4) A lecture on Emotions, Dietary Changes, Physical Therapy, Post-Operative Experience or Plastic Surgery.

## **The Issue**

An issue regarding the use of streaming was whether or not the viewer would actually sit and listen to the 1.5 hour lecture and retain the information. The concern was that people might claim they watched the stream, but not actually pay attention or even be at their computer. This is a common fear with regard to the use of distance learning by streaming and many people within DHMC feel that even if people do watch the stream, they cannot retain such complex information.

It was decided to test this presumption by requiring each web viewer to download and fill out a Post-Test in order to get credit for attending the conference. Over the next 9 months, 37 viewers filled out the test and mailed it back for grading. Tests generally had 12-15 questions along with questions pertaining to their internet viewing experience. The full testing of the technology will be complete in November 2004.

## **The Results**

The results were quite remarkable. The lowest average score was 92.5. Only two people scored below a 75 while several viewers received a score of 100. The average for all participants was 95.

Of all of the correct answers, only 13 answers were categorized as “acceptable”, that is, the answer was not exactly what we were looking for but indicated the viewer understood the concept. In fact, in some instances, such answers ushered changes of the presentation to be more clear and concise, a good indication of the value of the medium and the Post-Test feedback loop.

### **Summary**

As a result of the study, DHMC’s Bariatric Program now allows credit for “Live” viewing of the lecture via the web, credit for the archived “Live” lecture, and will now require the local audience in the DHMC auditorium to complete the same Post-Test. Hopefully, the results of the two audiences can be compared to see if there is any statistical difference between the two learning experiences.