The AngioTeacher

A 3 Dimensional Interactive Self Learning Program for Coronary Angiography

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Hypothesis

Traditional methods for learning how to interpret coronary angiography require a long and arduous learning curve.

We hypothesize that an interactive self learning method based on a three dimensional model will shorten the learning curve and improve the understanding of the anatomical relationships of the coronary arteries and myocardium.
Goals

- Better understanding anatomical relationship of cardiac structures and vasculature
- More comprehensive understanding of the heart and surrounding structures
- Accelerate learning curve for learning coronary angiography
- More interactive and engaging modality to learn coronary angiography
Method

- Development a three dimensional model based on CT angiography and compare this to standard coronary angiography
- CTA and coronary angiogram will be taken from the same study patient
- CTA images will include all parts of the human torso

Team
- Computer Personnel
- Clinical Personnel
Personnel

- Clinical
  - Physician
- Computer
  - Programmer
  - Supervisor
- Others
  - Graphic Artist
  - Education Specialist
Target Students

- Physicians
  - Medical
  - Surgical
- Medical students
  - Basic anatomy
  - Clinical studies
- Ancillary medical personnel
  - Nurses
  - Technicians
- Medical industry
Medical Schools

- There are 113 medical schools in the USA
- There are 17 medical schools in Canada
- Vast number of foreign medical schools
Medical Schools

- Medical Students
  - First to fourth years

- Residents
  - Internal Medicine
  - Surgery

- Fellows
  - Cardiology
  - Cardiothoracic
Nursing Programs

- There are almost 500 graduate nursing programs in the United States.
Cardiovascular Technicians

- There are 34 accredited programs in the United States
There are 21 VISNs in VA healthcare system
- There are 1,384 VA facilities overall.
  - 90% are clinics or hospitals
- Military hospitals
- Simulation Centers
- Research
Patient and Family Education
Study

- N = 12 medical students
- Group 1 (n=6)  
  - Standard teaching materials
- Group 2 (n=6)  
  - Angioteacher
- Both groups took coronary angiogram pre-test
- 45 minute study period
- Trend though not statistically significant toward better scores in the AngioTeacher grp.
  - Low number of students
Future Development

- Current version
- Library of studies
  - Normal variants
  - CABG
- Improvements in software
  - Dynamic images
  - User friendly changes
### Future Development

**Other models**

- **Cardiac**
  - Echocardiography
  - Electrophysiology
  - Structural heart disease

- **Anatomical**
  - Basic Anatomy
  - Surgical training and testing

- **Other vascular beds**
  - Cerebro-vascular bed
  - Peripheral vascular bed
International Applications
This is the end of the presentation as we move into the software demonstration portion. I am adding this slide and the following slides to send on to Cindy.