

Assignment 5: Proposing Your Work

My previous assignments described an approach towards evidence-based medicine and healthcare education; formulating an idea of a search tool that searches clinical research publications by specific PICO (Patient, Intervention, Comparison, Outcome) criteria and present it in a digestible manner for the general public. I have since found a group whose aim is to create a project that fits the criteria for both CS6440 Health Informatics and CS6460 Educational Technology. Fitting the theme of healthcare education, we've chosen to pursue the development track in an effort to address the need to educate patients on their diagnosis to better understand what is happening to their bodies. Often times the average patient is not educated on the specifics of their organs- for the most part, this is knowledge better left to medical professionals. However, visualizing an ill organ is often a better explanation of the disease a patient experiences; reading a paper describing an illness can be quite cumbersome and difficult to understand. Understanding the target audience and their needs is critical to the development of this mini proposal- some nurses and patient education specialists report the need to simplify instructional documents by calculating the reading level of a patient to format the document in an understandable way¹. Additionally, visual representations of anatomy can be beneficial to medical professionals as well as an effective method of teaching their patients, learning and understanding different disease states, and visualizing the knowledge available of the human body.

Thus, we are proposing a 3D organ simulation application using virtual reality techniques, coupled with FHIR (Fast Healthcare Interoperability Resources), to create custom organ simulations according the diseased organ of the patient. More specifically, our deliverable would be a proof of concept application displaying the liver as an exemplary organ that would be customizable based on twenty-five different disease states. The disease simulated could be controlled to visualize different disease states, allowing clinicians to simulate different disease scenarios as defined in medical classification lists such as IDC-10. Most importantly, hooking up FHIR to an electronic health record (EHR) of a patient and creating the ability to simulate their specific disease using the visualization model will give access to more knowledge resources to the patient such as NIH Almanac or others following existing data standards. The patient could select their disease state, populated by their EHR, to visualize their disease and obtain more information if desired.

In general, there exist many technologies that simulate organs and anatomy. However, the purpose of this simulation is to be a resource of medical education, readily available, at no cost, and customized according to the specifics of a person's health record. Our hope is that this

¹ Ravindranath, M. (2013, April 08). Turning medical jargon into plain language. Retrieved January 27, 2018, from https://www.washingtonpost.com/business/on-small-business/turning-medical-jargon-into-plain-language/2013/04/05/3a248fb2-9e37-11e2-a2db-efc5298a95e1_story.html?utm_term=.ae187f256adc

Jennifer Reina
Jreina3
Jreina3@gatech.edu

contributes to the medical community and patient education specialists in a way that makes their need to educate their patients more thoroughly.