

Technology and Medicine

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I. Medical Education

Web Publications of Medical Resources

Web Publications is the fusion of medical material and web page. This is a collaborative effort by students and physicians to collect valuable medical information on any specific topic, and presenting it in a viewable manner. The benefit of web publication is the release of information in timely fashion as well as providing easy access to this information.

There are two basic types of web publications:

1. Providing useful medical information.
2. A resource for physicians in terms of teaching and training purposes.

Method of the Histochemical Stains & Application (2009)

Students and Physicians	Goal
Students: Thomas Lei, Kaila Cagen	This manual is intended for teaching and training purposes. It is used to show how to gross specimens in surgical pathology. Includes various systems and organs.
Physicians: Dr. Zhenhong Qu, Rhonda P. Ghorbani	

Manual for Histochemical stains:

<http://www.urmc.rochester.edu/path/zqu/StainsManual/index.html>

E-Manual for Gross Examination in Surgical Pathology (2008)

Manual for Gross Examination:

<http://www.urmc.rochester.edu/path/zqu/Emanual/EManual.html>

Pod cast Production of Pathology Videos

Have you ever wondered the rate at which the use of technology is increasing? If you look around you, many individuals carry around an iTouch or iPhone that gives easy access to applications, whether it is games or simple tools. How about medical information at the palm of your hands? Yes, the idea behind Pod cast production is the creation of a user friendly version of iTune videos or audio for medical information. Specifically, our program concentrates on pathology videos/audio that could be incorporated into iTunes. Pod cast production is currently under way by our team of students. Our pod cast production emphasizes quality education material and speed of making information available.



II. Clinical Service

Computerized Speech Recognition (CSR)

Computerized speech recognition (CSR) is a valuable tool that allows an individual to convert spoken words into data that the computer interprets as written words. CSR programs offer incredible utility to the medical field, particularly in medical documentation. In the Student Enrichment Program, students can practice and participate in projects using CSR, while also becoming more familiar with medical terminology. CSR has been utilized for years, but this project is created to validate its use in clinical workflow, specifically in the work of pathology reporting.



Tumor Reporting System (TRS)

The Tumor Reporting System is designed to help physicians be able to configure an appropriate diagnosis for individual cases. This tool accomplishes standardization, facilitation of reporting, and efficiency in tumor reporting. View the University of Rochester Medical Center Pathology Department web site on Tumor Reporting System (<http://dev.mc.rochester.edu/pathology/tumor-reporting/>).

III. The Technology

Web Site Design

The Internet gives users quick and easy access to any information in the form of text, video, audio, etc. In such way, our program emphasizes the importance of creating useful web pages that serves a good purpose. The main function of the web page is to present the idea that the creator wishes to point out. The basic idea is to use simple technology to solve practical problems.

Text-to-Speech (TTS)

Text-to-Speech is a feature or tool that allows users to type in text and the computer will read it out to you. The importance of this tool is to be able to use the computer voice recordings in Pod cast publication for example. The standardized voice will be easier for users to listen to instead of having to listen to a voice that you cannot interpret.

Computerized Speech Technology (CSR)

Computerized speech recognition (CSR) is a valuable tool that allows an individual to convert spoken words into data that the computer interprets as written words. CSR programs offer incredible utility to the medical field, particularly in medical documentation. In the Student Enrichment Program, students can practice and participate in projects using CSR, while also becoming more familiar with medical terminology. CSR is a form of technology that impacts the way we communicate. From writing manually, to typing on a computer, and now to just simply reading off the words, technology has improved over the use. In order to take advantage of such method, CSR has given the opportunity to record voice recognition in the form of words on the computer screen.

Tools that Implement Technology into Medicine

Web site Design	Digital Imaging	Database Basic
Adobe Dream Weaver Fast Help	Nikon Scanner Olympus Microscope (Microscopic Photography)	ThumbsPlus7 Endnote Microsoft Access

In the table shown above, there are three main categories of tool that implement technology into medicine. Web site Design is accomplished through software programs like Dream Weaver and Fast Help. Digital imaging involves digitally capturing gross images or specimens. Lastly, Database Basic teaches one more about organization of medical or clinical information and images through ThumbsPlus7 or Microsoft Access. Endnote allows users to look up medical publications or journals of interest and provides a convenient way to organize collected information.

IV. Opportunities in Medicine

Observations in Pathology and Laboratory Medicine

This program offers excellent opportunity for students to observe physicians in the Pathology Lab. Observations include viewing gross/microscopic examinations, frozen section, or surgical reporting of cases. Clinical Pathology observation is more laboratory type including hematology, microbiology, and cytogenetics. There is also the opportunity to observe an autopsy, surgery, radiology, pediatrics and other specialties.

Laboratory Experiences

Laboratory observation includes part research and interactive learning alongside the physicians. Below are examples of students who have taken advantage of hands-on-lab experience.

Laboratory Information	Background Information
Department of Pathology and Laboratory Medicine Physicians: Archibald Perkins, MD, Ph.D, and Charles Weurtzer Ph.D Students: Chuka Ikpeze	Developing a fluorescent probe to detect the translocation 3q26 in patients with Acute Myeloid Leukemia (AML). Once we detect this chromosomal abnormality in patients with AML, we're looking to develop a novel therapeutic to hopefully treat the disease.
Department of Pathology and Laboratory Medicine Physicians: Archibald Perkins, MD, Ph.D, and Charles Weurtzer Ph.D Students: Brittany Forcione	Performing Structure-Function studies in order to identify the functional domains of a specific gene (Mds1-Evi1) that has been shown to play a critical role in the development of AML.

Research Projects



In today's world, the rapid increase in medical research has been diversified in many areas. The main purpose of conducting research has been able to innovate or improve medical success. In such case, this program also has research opportunities that match the student's interests. We allow the students to explore the medical field and pick up research skills as they work in groups or in collaboration with physicians.