Developing Multidiscipline Clinical Laboratory Educational Programs to Meet the Needs of Delivering Personalized Care Medicine

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Objectives:

- **Utilize Existing School/Program Curriculum**
- **Develop Multidiscipline Student Conference**
- **Overlap Program Curriculum**
- **Expose Students to Multi-ASCP BOC Certification Opportunities**

Multidiscipline Lab Personnel

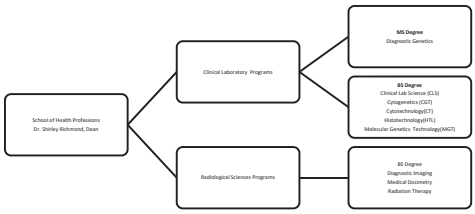
Getting Students Ready For Today and Tomorrow

School of Health Professions

SHP-PIH Organization

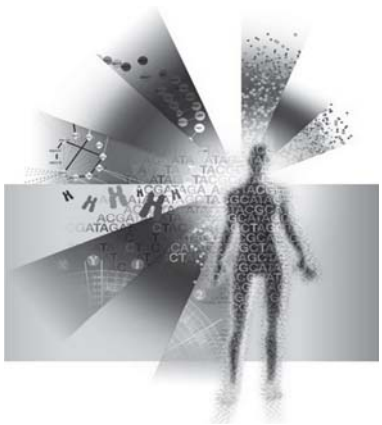
Funding

State of Texas ⇨ MDACC & Div of Academic Affairs ⇨ School of Health Professions ⇨



What is Interdisciplinary Education in Personalized Medicine?

1. Combined Curriculum
2. Interdisciplinary Activity



About the School

- Clinical laboratory science
- Cytogenetic Technology
- Cytotechnology
- Histotechnology
- Molecular Genetic Technology
- Diagnostic Imaging
- Diagnostic Medical Sonography
- Medical Dosimetry
- Radiation Therapy

School of Health Professions

Degree Programs

Bachelor of Science Degrees
- Clinical Laboratory Science
- Cytogenetic Technology
- Cytotechnology
- Diagnostic Imaging
- Diagnostic Medical Sonography
- Histotechnology
- Medical Dosimetry
- Molecular Genetic Technology
- Radiation Therapy

Master of Science Degree
- Diagnostic Genetics

Combined Curriculum

Fall Semester

- HS 3101 Basic Techniques Lab (1)
- HS 3210 Laboratory Mechanics (2)
- HS 3330 Pathology of Body Fluids (3)
- HS 4100 Ethics in Health Care Ethics (1)
- HS 4111L Medical Microbiology Lab (1)
- HS 4300 Pathophysiology (3)
- HS 4310 Medical Microbiology (3)
- HS4320 Critical Thinking (3)

Spring Semester

- HS 3300 Immunology (3)
- HS 3310 Quality Control/Quality Assurance (3)
- HS 3320 Medical Genetics (3)
- HS 3333 Statistics (3)
- HS 3340 Research Methods (3)
- HS 4101 Diversity and Cultural Competence (1)

Quality Enhancement Plan (QEP)

- Necessary for continued SACS accreditation

Faculty initial view of QEP =

http://www.dreamstime.com/royalty-free-stock-photos-happy-woman-lot-work-image29702928

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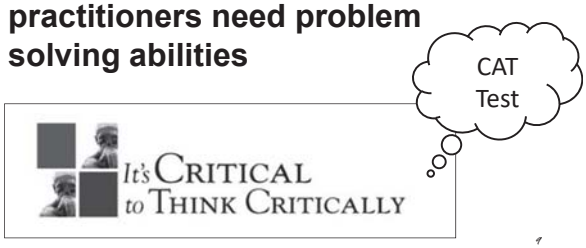
Quality Enhancement Plan (QEP)

- Focus on critical thinking
  - Effective health care practitioners need problem solving abilities



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To Enhance Student Critical Thinking Skills

- Interdisciplinary learning
  - Benefits students, faculty, and patients
- Integrate technology into classroom
  - Create an interactive allied health case study to be uploaded to virtual classroom as an HTML

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Interdisciplinary Learning

- Improve students' knowledge, respect, and appreciation of other professionals
- Enhance communication
- Encourage students' learning through active participation
- Increase students' critical thinking skills

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http://www.svsu.edu/academicaffairs/curriculumcommittees/graduatecommittee

STUDENT OBJECTIVES

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Goals for Student Learning

- Facilitate interdisciplinary collaboration between SHP students from all nine programs
- Install an understanding of each program's unique role in the detection, diagnosis, and treatment of cancer

Goals for Student Learning

http://www.china.org.cn/china/2011-06/15/content_22787587.htm

STEPS TO SUCCESS

Construction and Execution of an Interdisciplinary Case Conference Through a HTML Website

http://www.adobe.com/products/dreamweaver.html

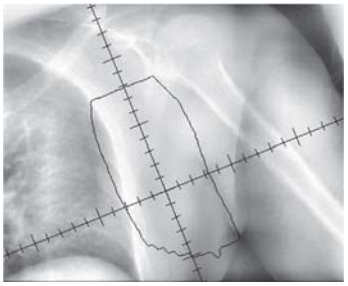
Interdisciplinary Learning

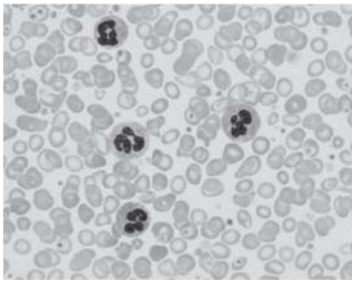
- **Faculty used Adobe Dreamweaver CS6 to create an HTML website that modeled a virtual comprehensive cancer center to be loaded onto a course management system (Sakai)**
  - **Develop a fictional patient that students would follow through his/her cancer diagnosis and treatment**
  - **Students make decisions concerning test interpretation and treatment administration**
  - **Allows students to develop critical thinking, receive peer feedback, and offer critiques in a protected environment**

Fictional Patient

- **Female cancer patient with a diagnosis of breast cancer and secondary lymphoma**
- **Had to gather:**
  - **Patient demographic data**
  - **Laboratory reports with significant markers**
  - **Diagnostic tests and images**
  - **Radiation treatment prescriptions**
  - **Radiation treatment plans**

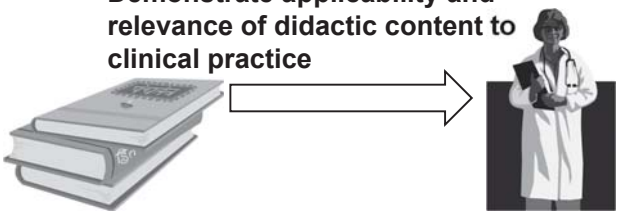
Interdisciplinary Learning HTML: Creating a Fictional Patient





Interdisciplinary Learning HTML: Creating a Fictional Patient

- Could place links to relevant past lectures, current journal articles, and topical websites in the virtual clinic exercise at appropriate points
  - Demonstrate applicability and relevance of didactic content to clinical practice



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SETTING A TIMELINE (2X)

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Logistics of Timelines

- Patient timeline
  - Clinical visits
  - Associated tests, treatments, and clinical decisions to be made
- Workflow timeline
  - Delegate faculty responsibilities
  - Set deadlines and milestone points
  - Testing…
    - And retesting…
      - And retesting…

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LEARNING METHODS & STRATEGIES

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Making Cancer History®

Interdisciplinary Case Study

Patient Demographics

Mrs. Smith is a 63 year old female who was seen at MD Anderson Cancer Center after an abnormal screening mammogram.

Past Medical History

Patient denies a history of smoking, alcohol, or drugs. First pregnancy at the age of 21 and has two living children. Menarche at the age of 12. Menopause at the age of 57. Never used hormone replacement therapy or oral contraceptives.

Family History: Significant for mother with ovarian cancer, sister with breast cancer and maternal grandmother with breast cancer. Father was a long time smoker and had lung cancer.

Physical Exam: Mass on the mammogram not palpable by clinical breast examination. No dimpling, pea d'orange, nipple discharge, or nipple retraction noted on physical examination.

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Making Cancer History®

Interdisciplinary Case Study

October 2 2001

Mrs. Smith presents at MDACC following an abnormal screening mammogram.

CLS reports
CGT reports
CYT reports
DI reports
HT reports
MD reports
MGT reports
RT reports

Student groups must decide what diagnostic tests or treatments are required at that stage in the patient's care

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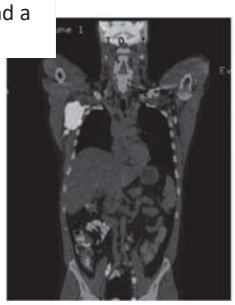
MD Anderson ~~Cancer~~ Center

Making Cancer History®

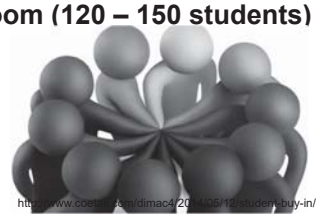
Used rich visual graphics and a variety of formats



Correct answer. A PET scan will allow the radiation oncologist to visualize areas within the body with increased metabolic activity, such as areas of residual tumor.

Logistics of Delivery

- **Senior student attendance was mandatory**
  - **Active participation was worth 5% of a course grade**
- **Single day event was held in a large conference room (120 – 150 students)**



http://www.coe.uga.edu/dimac4/2007/05/12/student-buy-in/

Interdisciplinary Learning

- **One student group is selected randomly to present the role of each healthcare discipline in the diagnosis or treatment of this fictional patient.**

The Good, The Bad, And The Ugly

Not So

- **Students**
  - **Enjoyed working in the virtual clinical environment through Sakai**
  - **Communicated well with other disciplines to diagnose and treat the patient**
  - **Applied critical thinking skills to follow a patient's care plan**
  - **Demonstrated respect and appreciation for other health practitioners**

Faculty Feedback

- **Increased use of HTML and the online course management system by instructors following interdisciplinary case conference**
- **Renewed commitment to include critical thinking skills i curriculum**

QEP

Measure of Success

Histotechnology

- **Students' Improvement in Critical Thinking**

- **Skills Measured by CAT Pre-and Post Exam**

Cohort 1	• 13.8% increase
Cohort 2	• 18.4% increase
Cohort 3	• 21.68% increase
Cohort 4	• 31.4% increase

Summary

- **SHP faculty created an interdisciplinary case conference HTML on our course management system**
- **Student groups collaborated to diagnose and treat a fictional cancer patient**
- **Goals:**
  - **Increase professional communication and interdisciplinary collaboration**
  - **Develop critical thinking skills in future health care practitioners**

How Can You Use Technology for Interdisciplinary Learning

- **Identify a problem/topic that your students routinely struggle with and solve**
- **Determine the root cause of the problem**
- **Revise current teaching techniques to incorporate:**
  - **Technology**
  - **Interdisciplinary learning**

ASCP Board of Certification

- **Molecular Biology, MB(ASCP)**
- To be eligible for this examination category, an applicant must satisfy the requirements of at least one of the following routes:
- **ROUTE 1:** ASCP certified as a technologist (MT/MLS, CG, CT, HTL, BB, C, H, I or M) or specialist (SBB, SC, SCT, SH, SI, SM or SV), AND a baccalaureate degree from a regionally accredited college/university.

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Medical Dosimetry Program

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School of Health Professions

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