

**Pathology Informatics**  
**Training and Education**  
**Workshop**  
**Shaking the Fruit from the Tree**

# Faculty

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# Workshop Description

- This workshop will explore training and education issues related to the practice of pathology informatics in a healthcare environment and/or health professional training programs.
- Participants will work together to develop an outline of informatics education and training requirements for medical technologist, pathology residents, pathology fellows, practicing pathologists and other allied health professional students by identifying opportunities, areas of excellence and existing programs, outlining curriculum requirements, as well as exploring current deficiencies.
- The program will be facilitated by experts in the field of pathology informatics that have had informatics education and training program development experience.
- The program will consist of short presentations as well as presentation and exchange of didactic material.
- There will be extensive time for open discussion to explore topics of interest to the participants include small group breakout sessions to focus topic on areas of interest to participants.

# Program goals and objectives:

- At the end of this session participants will:
  - Describe the differences between informatics training and education activities
  - Explore and assess the level of expertise and informatics experience in their environment
  - Understand the scope of informatics training and education for pathology and laboratory medicine practitioners
  - Design an informatics training program to meet the participants needs at their home institution
  - Find supporting resources for informatics training in order to support a training and education program
  - Understand requirements and opportunities for advanced informatics training and certification (credentials) as currently exist

# Workshop Plan

## Schedule

- Didactic Lectures 9:00-10:25
  - Tuthill 9:00-9:10
    - Introduction and workshop design
  - Henricks 9:10-9:40
    - Informatics curriculum elements
  - Golightly 9:40-10:10
    - Clinical Laboratory Scientist program
  - Tuthill 10:10-10:25
    - Advanced training in informatics
- Break
  - 10:25-10:45
- Breakouts topics and interactive discussion
  - 10:45-11:45 outline curriculum in small groups
- Summation, Sharing and open discussion
  - 11:45-Noon

# State of Informatics Training in Pathology and Laboratory Medicine

Opportunities

Gaps

# Informatics Training Versus Education

- Education
  - the act or process of imparting or acquiring general knowledge, developing the powers of reasoning and judgment, and generally of preparing oneself or others intellectually for mature life.
  - the act or process of imparting or acquiring particular knowledge or skills, as for a profession.

# Informatics Training Versus Education

- Training
  - the instruction, or discipline of a person or thing that is being trained: *He's in training for the Olympics.*
  - the status or condition of a person who has been trained: *athletes in top training.*
  - intended for use during an introductory, learning, or transitional period: *a training cup for weaning a baby; new driver training*
  - How you specifically do something
    - A component of education *but* specific!



# Informatics Training and Education

- We want to do both:
  - Educate our colleagues and customers as to the discipline of pathology informatics
  - Train our customers and colleagues as to how to use information technologies to:
    - Do their job
    - Improve patient care
    - Improve the laboratory
  - Its important to realize when you're training and when you're educating
    - Digital imaging education
    - How to take digital pictures

# Who We Need to Train?

## Types of programs

- Medical Students
- Allied Healthcare profession
  - Medical Technologists
  - Nurses
  - Others
- Pathology residents
  - other medical specialties relevant as well
- Fellowship training
- Pathologists
- Advanced training

# Why do we need informatics training and education?

- To do our job
  - Medical technologist, pathology residents and pathologist have a vested interest in computing and computer skills
    - Fellows become future leaders in information technology within the healthcare enterprise
- To improve laboratory services
  - Efficient laboratories are dependent on information technology
- To improve patient care
- To provide resources for the future
  - Careers and opportunities in information technology are not well supported or represented
  - Training and education in informatics can lead to new opportunities of pathologists and medical technologists

# Current Gaps

## Formal Degrees, Certification, Credentials

- Training programs are limited in number and in scope
  - Limited time in current training programs
  - Many programs don't really include informatics education, only training on how to use the LIS
- Only recently have credentials become available for healthcare informatics
  - Mainly through masters or PhD programs
  - Recent ASCP program
  - No formal post doctoral certification or boards
- Lack of certification/credentialing may translate to a lack of human resources to support the healthcare IT enterprise
  - AMIA 10 X 10 program
  - Robert Wood Johnson Program
  - Grass root efforts such as this program and effort of the Association of Pathology Informatics

# Overarching Goal of this Workshop:

- To stimulate an increase in informatics training and education by providing examples from the field so that attendees can develop their own programs
  - Pathology resident informatics program and curriculum elements
    - Dr. Henricks
  - Medical technologist training program with well implemented informatics focus
    - Ms. Golightly
  - Advanced training opportunities
    - Dr. Tuthill

# Advanced Training in Informatics

Opportunities, Curriculum

J. Mark Tuthill, MD  
Henry Ford Hospital

# Advanced Informatics Training Pathology and Other

- Pathology Informatics Fellowships
  - For medical graduates (MD's, DO's)
  - Post pathology residency
  - Exist for other medical sub-specialties as well
  - National Library of Medicine Fellowships are generally in medical informatics
    - Have included some pathology informatics trainees
- Elective experiences in Pathology Informatics
- Masters Programs: for undergraduates +/- healthscience background
- PhD Programs
- AMIA 10 X 10 program for practicing physicians or others for whom this is applicable
  - See [www.amia.org](http://www.amia.org) for program descriptions

# Informatics Training and Education Vacuum

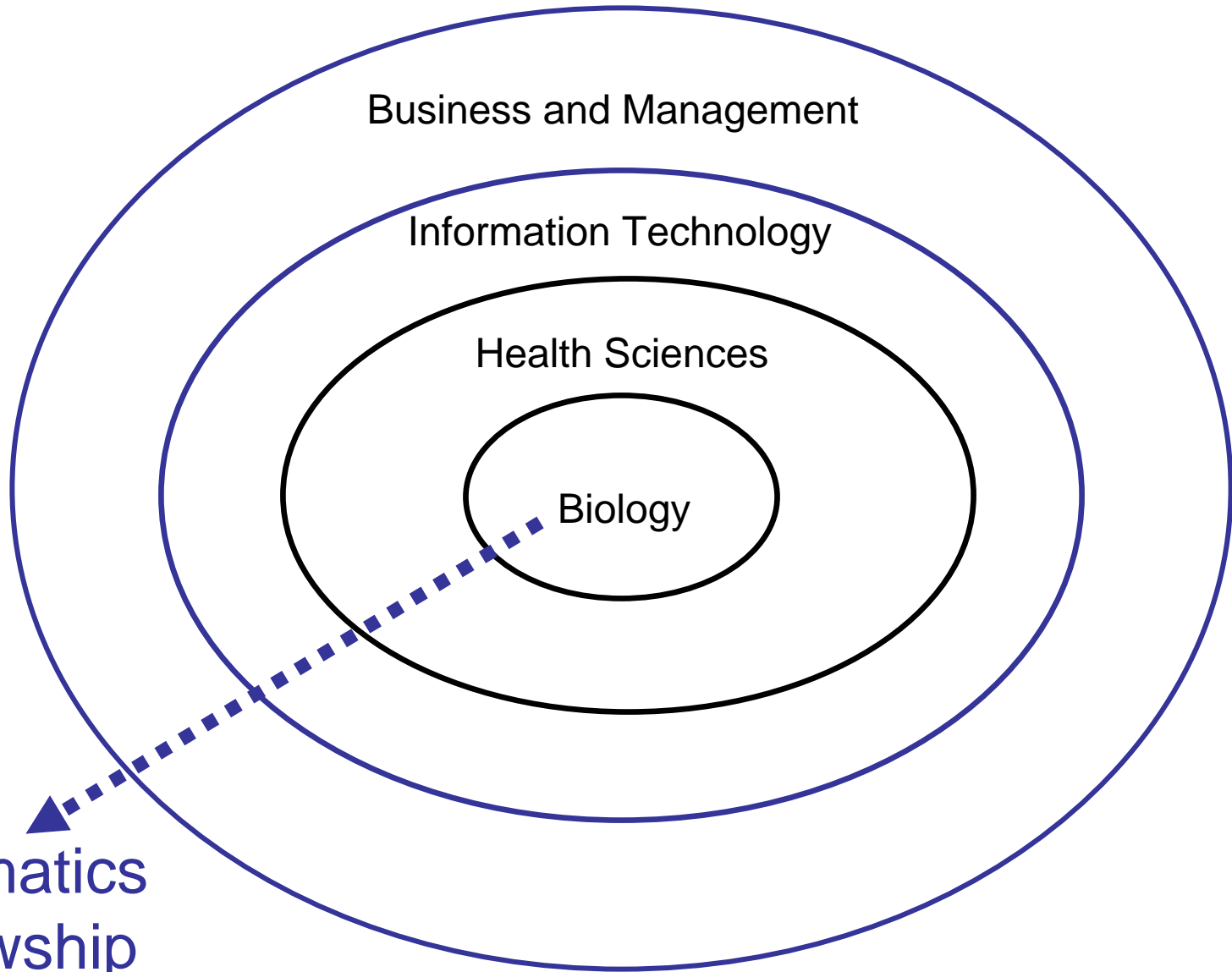
- Despite efforts by the national library of medicine, the AAMC, AMIA, and specialty societies such as the API, the Association of Pathology Chairs etc. :
  - It has been difficult to increase the number of hours devoted to informatics in curricula
  - Undergraduate programs rarely include education
    - Market demand still unmet in my experience
  - The number of pathology informatics fellows is increasing very slowly
    - Again, doesn't meet current demand with informatics jobs remaining unfilled for extended periods
      - Often positions are filled with candidates that lack formal training



# Pathology Informatics Fellowships

- Programs
  - Fewer than 10 programs
    - E.g.'sUPMC, Michigan, Henry Ford Hospital, Minnesota, Johns Hopkins, Stanford
    - <http://www.google.com/search?hl=en&q=fellowship+in+pathology+informatics>
    - <http://www.pathologyoutlines.com/Fellowships/fellowships.html#informatics>
  - Number of applicants is “under-whelming”
  - Positions in Pathology Departments with informatics component remain difficult to fill
  - Relationship to lack of certification?

# Layers of Training



Informatics  
Fellowship  
Projects

# Component of Formal Didactic in Training Programs

Medical School	Hands on	Didactic
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Residency	Hands on	Didactic
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Fellowship	Hands on	Didactic
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# Informatics Fellowship Curriculum

## Program Components

- Mentoring
- Didactic experience
- Projects
- Business and Management Education and Training

# Informatics Fellowship Curriculum

- Mentoring-the “fellowship professor”
  - Key to successful fellowship training experience
  - Mentor should have formal experience and areas of interest that match the fellows interests and desires
  - May need other mentors and intra- or extra-departmental support
    - Managers, pathology faculty, other pathology leadership
  - Formal meeting time for fellow and mentor to allow for:
    - Project management and guidance
    - Didactic supervision
    - Academic guidance
  - 3-5 hours per week in addition to participation in working and administrative meetings

# Informatics Fellowship Curriculum

- Didactic education
  - Needs to be tailored to the trainee
    - Fellowship by definition is a “by experience”, apprenticeship style educational experience
    - Fellow should have didactic core similar to that expected of the pathology resident but with the ***expectation of mastery***
      - Different fellows will have differing needs
  - Didactic education should have an organized framework based on medical informatics textbooks
    - Driven by the fellow, not spoon fed!
    - Lectures used in pathology informatics residency course
    - Outlines of informatics conferences
  - External reading of the primary literature followed by discussion with the mentor is a key component
    - Resources will vary widely based on the fellows interests
    - Project driven
  - Must include business, HR, finance and project management education

# Informatics Fellowship Curriculum

- Projects
  - Key to the fellowship experience
  - Ideally, the fellowship will allow the fellow graduated responsibility for project management
    - Tailored to the individual
  - Allow the fellow to take a primary role in planning, budgeting, communication, design, training, implementation
    - This can be hard for the mentor!
      - Back off and allow the fellow to learn from mistakes
      - Don't back off so far the fellow or project fails
  - Start with simple projects that may be completed in a month
    - Move to larger projects
    - E.g. start with divisional project and progress to departmental, cross departmental and finally cross institutional projects
  - Let the fellow get their hands dirty gaining real world experience!

# Informatics Fellowship Curriculum

- Management training and HR experience
  - May be the key differentiator between fellowship training in informatics versus other didactic experiences such as pathology residency informatics education or even masters or PhD programs
  - Project driven experiences in
    - Budgeting
    - HR: particularly personnel issues and team building
    - Project Management
    - Issues tracking and resolution
    - Communication
  - Let the fellow work with vendors to gain experience in vendor relationship management
  - Leverage external mentors, other department faculty and other leadership staff
  - Emphasize the critical role of Business and Management skills in informatics leadership positions



# Henry Ford Hospital, Detroit

## *Pathology Informatics Fellowship*

**Description:** Located in metropolitan Detroit, Henry Ford Health System is one of the preeminent integrated delivery systems in the United States. Four hospitals and over 20 freestanding medical centers comprise a system with more 2.5 million patient visits and 60,000 inpatient admissions per year. The laboratory examines approximately 50,000 surgical pathology and 100,000 cytopathology specimens per year, and performs approximately 4.5 million clinical tests.

The division of pathology informatics has an aggressive project plan that includes: continuing implementation of the CoPath Plus anatomic pathology information system; development and integration of pathology digital imaging with system wide PACS initiative; Clinical pathology information systems upgrades and operations, automation and sample tracking; Internet application development to support a NIH funded biologic tissue repository; AHRQ funded initiative to study error in pathology; Clinical database development to support education and training; Pathology website development to support the mission of the department; Resident and staff education in informatics. Training is expected to commence July 1, 2003 for a period of two years. Up to two fellows per year will be considered based on available funding.

**Requirements:** Candidates must be an MD, typically, a board certified/board eligible pathologist/resident in good standing who has completed residency training requirements by the start of the fellowship. Consideration will be given to physicians in other subspecialties with relevant interests. Prior computer experience required.

**Applications:** Submit a curriculum vitae, a personal statement of interest, and three letters of reference to: J. Mark Tuthill, MD, Division Head, Pathology Informatics, Henry Ford Health System, K-6 Pathology, 2799 West Grand Blvd, Detroit, MI 48202

# Henry Ford Example

- Activities:
  - 3 hours weekly mentoring/didactic
  - 2 hours weekly administrative meetings
  - Formal project responsibility
  - Active role in LIS management AP or CP
  - Active role in pathologist and pathology residency education and training
    - Participation in residents informatics course
  - Academic efforts
    - Papers, presentations, residency and fellowship research forums

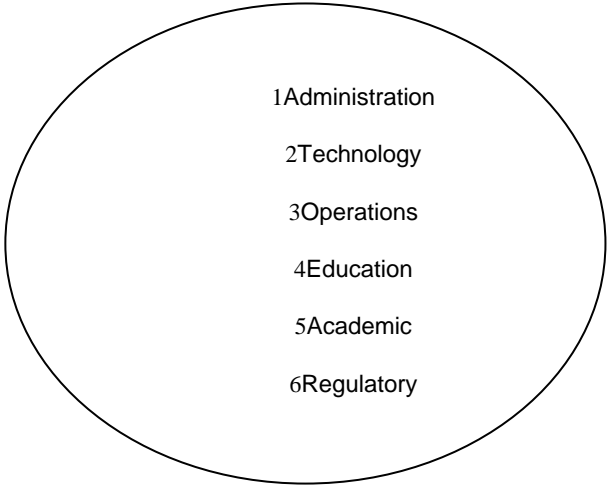
# Pathology Informatics Electives

# Elective Experiences in Pathology Informatics

**ADMINISTRATION**  
 Concept of PI team  
 Structure  
 Who makes the decisions?  
 Budgeting  
 ROI  
 RFP – what and how?

**HARDWARE & NETWORK**  
 Computers  
 Memory  
 Data storage  
 Network switches  
 Other peripheral devices – barcode readers, label printers

**REGULATORY**  
 Confidentiality: HIPAA  
 Accreditation:  
 CAP/ACGME/JACHO  
 Other government: FDA



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**SOFTWARE**  
 LIS – Misys Copath/Lab  
 Middleware - Aqueduct  
 Other tools  
 Imaging: Thumbsplus  
 Change control: PI Tracks  
 Data collection: Teleform  
 SDE/SDR  
 Telepathology  
 Database

**ACADEMIC**  
 Scientific paper  
 Poster  
**Project**  
 Teaching/lectures

**EDUCATION**  
 education  
 Material for residents'  
 APIII boot camp lectures  
 Readings  
 Papers  
 WWW  
 Attend webinars and training sessions

**DATA STORAGE & SECURITY**  
 Access restrictions  
 Network security  
 Individual computer  
 issues  
 HIPAA  
 Data safety  
 Back up facilities

# Other Opportunities

- Master's programs
- PhD programs
- Post doctoral, non fellowship programs
  - AMIA 10 x 10 program
- AMIA informatics training listing
  - <http://www.amia.org/informatics/acad&training/index.asp>
  - No Pathology or Laboratory Informatics on the list!
- Health Informatics Training in Canada Survey
  - [http://hi.uwaterloo.ca/hi/Hi\\_Program\\_Survey\\_2007.pdf](http://hi.uwaterloo.ca/hi/Hi_Program_Survey_2007.pdf)
  - 1 link for pathology program

## **AMIA 10x10™** **10,000 Trained by 2010**



[Prospective Students](#)

[Register Here](#)

[Become a Partner](#)

### **Training Health Care Professionals to Serve as Local Informatics Leaders and Champions**

"Because we are serious about transforming our system of health care to be safe, efficient, timely, patient-centered, equitable, and effective, we must invest not only in technology, but also in the education and training of individuals to ensure our workforce is poised to meet this challenge. One of the factors most important to the success of health care information technology projects is the engagement and participation of clinicians. There must be a cadre of health care professionals (physicians, nurses, and others) who have knowledge and skills beyond their clinical training. Virtually every hospital, clinic, physician office, or other health care provider organization will in some way utilize information technology solutions in the coming years and will need health care professionals versed in informatics to assist with the implementation, use, and success of these systems."

Don E. Detmer, MD, MA  
AMIA President & CEO

### **AMIA 10x10 Program**

The AMIA 10x10 will utilize curricular content from existing informatics training programs and other AMIA educational initiatives with a special emphasis toward programs with a proven track record in distance learning. The content will provide a framework but also cover plenty of detail, especially in areas such as electronic and personal health records, health information exchange, standards and terminology, and health care quality and error prevention.

We anticipate AMIA 10x10 programs to be geared toward three major domains in the field of informatics:

- Clinical or health care including personal health management; electronic and personal health records; health information exchange; standards and terminology; and health care quality and error prevention.
- Public health/population informatics
- Translational bioinformatics

AMIA's 10x10 will involve participants developing solutions to problems in real-world settings (ideally their own) guided by established informatics principles. Participants will have been exposed to a set of competencies that upon completion will enable them to serve as champions in their local hospitals, outpatient offices and clinics, and other health care settings to provide relevant informatics input into health information technology projects.

<http://www.amia.org/10x10/>

# How to find opportunities?

- Go on line!
- Google
  - Pathology informatics
  - Medical Informatics
  - Health information science programs
- Go to health sciences universities and look for informatics training
- Maybe you really want to do a computer science training program!
  - Do you want to be a programmer? Learn multimedia?  
Train in Learning Management Systems?

# Break Time!

Please return at 10:45....