

LABORATORY MANAGEMENT AND INFORMATION SYSTEMS: Director: Ralph Grams, M.D., Professor

1. Description of the Rotation: Note: The topic of Laboratory Management and Information Systems is not taken at Shands hospital as a single rotation but is integrated into AP and CP rotations. The training curriculum is marked with the six ACGME competencies (#1- Patient Care, #2-Medical Knowledge, #3-Practice-based Learning and Improvement, #4-Interpersonal and Communication Skills, #5-Professionalism, #6-System-based Practice).

Resident education in management and information systems occurs through the following processes:

- i. Formal didactic/small group sessions are given by the medical directors, administrative directors, financial administrators, information specialists, and section managers during morning report. Introductory topics include QC overview, cost accounting, new equipment purchasing, billing, regulatory issues (CAP, HCFA, CLIA, OSHA, JCAHO), inspections, QA overview, coding, staffing budgets, risk management and laboratory safety (#1-6)
- ii. Additional topics or issues are discussed by the attendings during morning report as they arise; for example, budget reductions, method evaluations, cost-effective use of laboratory technology, billing changes, staff reductions.
- iii. Residents are informed of and encouraged to attend management related audio conferences (#2,3,6).
- iv. Residents are encouraged and expected to attend regularly scheduled management and QA meetings (#2,3).
- v. Residents are asked to participate in mock CAP inspections of laboratories within the Shands system. Residents are invited to participate in off-site CAP inspections. Prior to the mock inspection, residents are given sections of the CAP checklist to review and a brief training session held. Residents participating in their first inspection are paired with an experienced inspector (#3,4,5).
- vi. Residents must use the hospital and the laboratory information systems. The hospital offers specialized systems training to anyone that is having difficulty. Residents also have access to personal computers, all have pathology network accounts and must learn to use E-mail, the Internet, WebCT, and word processing programs. As well, the ethical, socioeconomic, medicolegal, and cost-containment issues are reviewed and discussed. Research design, statistics and critical review of the literature are discussed. By use of the literature, Medline, and textbooks, the resident is trained to become a lifelong learner (#1,3,6).

2. Training Goals: Residents will develop expertise in: QC overview, cost accounting, new equipment purchasing, billing, inspections, QA overview, laboratory safety, disaster preparedness, coding, staffing, budgets, method evaluations, billing charges, and laboratory (JCAHO, CAP, State of Florida, CLIA, OSHA, etc.; note: AABB and FDA are discussed in the blood bank rotation).

Concerning informatics, by the completion of their residency the trainee will be able to use:

- Word processing (e.g., WP 6.1 or Word)
- Spread sheets (e.g., Excell)
- E-mail
- WebCT training platform
- the Hospital Information System, specifically the LCR (the Lifetime Clinical Record)
- A basic graphics program (e.g., Powerpoint)
- Medline via the Pathology network access to the HSC library
- the Internet
- the Laboratory Information System (LIS)

3. Duration of the rotation: The topic of Laboratory Management and Information Systems is not taken at Shands hospital as a single rotation but is integrated into AP and CP rotations.

4. Duties and responsibilities of residents: The resident is expected to acquire the skills required to satisfy the goals of this skill area through their ongoing rotations, interaction with staff and attendings, and via their own independent study.

5. Teaching staff: J. Ken Massey (Director, Computer support), Doug Spinney (computer support), Naomi Williams (computer support, web master); Ralph Grams, M.D.; Pathology faculty.

6. i. Resident Supervision: Via attending and computer support personnel.

ii. Resident Evaluation: Written monthly evaluation is part of their other rotations.
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CORE CURRICULUM: DEPARTMENT OF PATHOLOGY INFORMATICS EXPERIENCE; Ralph Grams, M.D.

GOALS AND SKILLS LIST

1. Each resident should show a working knowledge of the following programs (#2,3,6)

- A. Anatomic pathology computer system.
- B. Clinical pathology computer system.
- C. Hospital information system.
- D. Life-time Clinical Record system.
- E. Medline literature search system.
- F. Quest online data service.
- G. Internet access to current medical data.
- H. Training and education portal such as WebCT

2. We plan four lectures each year in the following format (#1,2,5,6).

- A. LIS/AP system design and operation
- B. Informatics questions and formal review of skills
- C. Medical malpractice review and pathology administration
- D. WMD training and disaster preparedness skills orientaton

3. Demonstration of skills (#1,2,3,4,5,6)

- A. The resident will present at least one clinical case each year using a hospital patient in which the case data comes from the following systems:
 - 1). AP/CP data is taken from the LCR.(show printed data)
 - 2). The LIS and AP computers are compared with the LCR for data integrity.(show printed data)
 - 3). The Quest information service is used to show the test file information related to any sendouts ordered on the patient. (Show printed data)
 - 4). Medline is used to do a literature search in English for the last two years. The literature is reviewed online and selected abstracts printed to accompany the case presentation.
 - 5) The Internet is used to search medical data sources for relevant new diagnostic/treatment information.(Show printed data)

This project is based on the actual experience of most general pathologists who are asked to do a clinical case study for the hospital staff. If they can use these tools in our hospital they should be able to do the same job in any hospital setting.

Curriculum for Laboratory Informatics

Ralph Grams, M.D.

The informatics curriculum is not a specific rotation but integrated into the pathology residency program by individual rotations that use the generalized skills for clinical application. The topics covered in lecture during the four years of study and the conferences provided supply the basic materials for specific clinical rotations.

Informatics subjects and technology needed for clinical practice:

1. Anatomical computer system operation and troubleshooting;
2. Clinical pathology computer system operation and troubleshooting;
3. Logistical support and system flow for operations;
4. Hospital information system operation and troubleshooting;
5. Online medical record analysis and Internet access;
6. Offsite access to computer based medical data--Quest data flow and retrieval;
7. Internet access and use for clinical problem solving;
8. Online library skills and reference analysis.

Lecture objectives and general topics covered:

1. LIS system design and operation
2. LIS and AP system evaluation and capabilities.
3. HIS, LCR, LIS system operation with hospital training facilities.
4. Internet skills and future applications in pathology (teleconferencing, telepathology, EMR capabilities, diagnostic search engines, etc.).

The lecture series is mixed with practical exams using today's technology to challenge independent thinking.

1. Selection of Point-of-Care technology to solve a hospital problem.
 - A. Analysis of tools and modes of application.
 - B. Recommended method of application.
 - C. Cost analysis of change.
 - D. Alternative solutions.
2. Analysis of hospital laboratory automation and selection of vendor options.
 - A. Available tools
 - B. Methods of application
 - C. Proposal analysis
 - D. Decisions for management.

The analysis of relevant case material taken from our own hospital setting is used to stimulate critical thinking and problem solving skills. The residents are divided into teams to analyze their approach and critique competing ideas. The end result is both an understanding of the subject and a basic strategy for future application.