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# Management Training for Pathology Residents

## A Regional Approach

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• **Context.**—Success in the practice of pathology demands proficiency in management, but management training for pathology residents is generally inadequate, with little agreement on an appropriate curriculum or competency assessment. Most residency training programs do not have faculty members who are interested and have expertise in management and who are dedicated to and have time available for teaching.

**Objective.**—To develop a didactic management training program for the residents from 6 separate pathology residency programs in Southern California, with a comprehensive curriculum taught by experts in each area without undue burden on any single training program.

**Methods.**—Faculty from the University of California—Los Angeles and the University of Southern California reviewed the literature and the management needs of practicing pathologists and devised the curriculum. Pathologist and non-pathologist speakers were identified who were working in important management positions both regionally and nationally. Seminars were presented in alternate months dur-

ing a 2-year period. Sessions were videotaped, and each session was evaluated by the attendees.

**Results.**—The curriculum consisted of 12 major topics, and seminars were delivered by 15 presenters from 6 institutions. Attendance was highest for residents in postgraduate years 2 and 3. The overall evaluation scores were exceedingly high (4.66 of a possible 5.0), and residents reported a significant increase in subject knowledge. Videotaping of presentations provided flexibility for residents who were unable to attend the seminars.

**Conclusion.**—This program was effective and could serve as a template for other pathology residency training programs to establish curriculum content and develop resident competency. Teaching responsibilities were less burdensome when spread among several programs and when supplemented by nonpathology faculty. Electronic and audiovisual support enhanced flexibility and access to the program.

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Management training is widely recognized as an essential component of pathology residency training. Surveys of program directors have indicated that 64.5% felt that management training should be expanded.<sup>1</sup> Likewise, a recent survey of 75 community hospital pathologists indicated that 96% of those pathologists hiring new trainees considered skills in management and informatics essential or useful.<sup>2</sup> Approximately 15% of the hours worked per week by pathologists involve direction and management of the laboratory, and 20% of pathologists report spending more than 25% of their time in such administrative and organizational activities.<sup>3</sup>

In exploring options for management training, we reviewed several guidelines, including the Graylyn Conference Report, which suggested a “broad-based experience in laboratory administration.”<sup>4</sup> With a new awareness of competency requirements in residency training, we eval-

uated the general competencies required by the Accreditation Council of Graduate Medical Education and reviewed the competencies specific to pathology.<sup>5</sup> In addition, several models for management training were examined, including mentor-based models, separate management rotations, and previously described curricula.<sup>6–10</sup> Unfortunately, the institution sponsoring the training program may not be representative of all possible management and leadership formats and often reflects the bias or special interests of the specific faculty. Nowhere was there consensus about the contents of a management curriculum, and without that consensus there could be no agreement on how to evaluate the competency of pathology residents.

Two of the pathology residency training programs in Los Angeles had rudimentary management programs, and the residents in 2 other training programs had occasional management lectures. Recognizing the limited scope that a single institution can provide for management training and attempting to avoid the redundancy of several parallel programs, we initiated a regional management training program for pathology residents from 6 training programs in the Los Angeles area several years ago. The participating institutions were University of California—Los Angeles (UCLA), Los Angeles County and the University of Southern California, Cedars-Sinai Medical Center, Harbor UCLA Medical Center, University of Cal-

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**Table 1. Topic Synopses\***

1. Management Principles
  - Tasks and tools of management
  - Attributes of the manager
  - Planning (including strategic planning)
  - Leading (leadership models)
  - Communicating (functions, methods)
  - Organizing (operational issues)
  - Controlling (standards, performance measurement, feedback)
2. Interfacing†
  - Within the pathology group
  - With laboratory staff
  - With professional staff (committees, consults, complaint management)
  - With hospital or system administration
  - With hospital services (nursing, radiology, purchasing)
  - Beyond the hospital: medical schools, community, professional organizations
3. Personnel Management
  - Principles of personnel management
  - Job classification and description
  - Interviewing and selection
  - Orientation and indoctrination
  - Performance evaluation and promotion
  - Counseling, discipline, dismissal
  - Compensation, wage hour law
  - Employee conflict resolution
  - Labor relations and labor unions
4. Laboratory Operations
  - Laboratory manual
  - Subsystems of laboratory operation: test ordering, specimen acquisition, test performance, scheduling, result reporting, point-of-care testing, ancillary laboratories
  - Work flow analysis
  - Report formatting (paper, computer)
  - Signs of poor laboratory operations
  - How to change (improve) a laboratory
5. Equipment and Supply Management
  - Technology assessment
  - Equipment acquisition (RFI, RFP)
  - Maintenance
  - Supply management
  - Contract services (courier, reference laboratory)
6. Financial Management of the Laboratory
  - Sources of laboratory revenue
  - Categories of laboratory expenses
  - Who is responsible (CAO, CFO)
  - Budgets (personnel, capital, operating)
  - Cost analysis and rate setting
  - Financial services and statements
  - Billing and collections
  - Financial reporting and variance analysis
7. Financial Management of the Pathology Group
  - Sources of pathology group's revenue
  - Categories of pathology group expenses
  - Group structure for finance (CFO, finance committee)
  - Budgeting for the group
  - Support staff (bookkeeper, accountant, attorney)
  - Coding, billing, collections
  - Banking and investment
  - Pension funds, insurance, tax planning
  - Auditing
8. Contracting and Negotiations
  - Essentials of a contract
  - Contracting with the pathology group for professional services
  - How to find, evaluate, and keep a job

**Table 1. Continued**

- Contracting with the hospital
  - Managed care contracting
  - How to negotiate: strategy and tactics
9. Quality Assurance and Regulations
    - Quality control and quality assurance
    - Quality improvement and management/performance improvement
    - Performance improvement formats for institutions
    - Testing processes, benchmarking, SD, CV
    - Levey-Jennings, acceptance of test runs
    - External quality control and proficiency testing
    - Quality control and proficiency testing in anatomic pathology
    - Government statutes and regulations, lab licensure (federal, state, local, HIPAA)
    - Inspection and accreditation (AABB, CAP, JCAHO)
    - Laboratory and patient safety
  10. Marketing, Education, Research
    - Market research, analysis
    - Product and service planning
    - Advertising, sales
    - Public relations
    - Tooting your own horn: the annual report
    - Education for pathologists and laboratory staff
    - The competent physician (ABMS criteria, CME)
    - Education for medical staff (conferences)
    - How to conduct a meeting (tumor board, tissue committee, etc)
    - Basic principles of research
    - Forms of research
  11. Informatics
    - Pathology: an information specialty
    - Hospital (patient) information systems
    - Laboratory information systems
    - Internet links to physicians and patients
    - Integrated patient-centered support
  12. Risk Management
    - Malpractice
    - Pathologist's effect on the liability of others (pathologist as expert witness)
    - Depositions, court appearance, testimony
    - Record maintenance, risk management

\* RFI indicates request for information; RFP, request for procurement; CAO, chief administrative officer; CFO, chief financial officer; SD, standard deviation; CV, coefficient of variation; HIPAA, Health Insurance Portability and Accountability Act of 1996; AABB, American Association of Blood Banks; CAP, College of American Pathologists; JCAHO, Joint Commission on Accreditation of Health Care Organizations; ABMS, American Board of Medical Specialties; and CME, Continuing Medical Education.

† The Interface section has been expanded into a separate 10-hour seminar series titled "The Real World of Pathology Practice."

ifornia-Irvine, and the Veterans Administration Greater Los Angeles Healthcare System.

### MATERIALS AND METHODS

The curriculum content was developed by the pathology residency program directors (full-time faculty) from the Geffen School of Medicine at UCLA and the Keck School of Medicine at the University of Southern California together with several clinical faculty members. Different types of pathology practices were represented in the curriculum content group, including nonteaching community hospitals (500 000–1 million tests per year, 5000–15 000 surgical specimens per year) and several larger diverse practices such as a community teaching hospital, a public (county) hospital, and a university medical center (performing >5 million tests per year and receiving >30 000 surgical specimens per

**Table 2. Evaluation of the 2001–2002 Management Training Seminar Series**

Lecture*	Overall Rank†	Question 4 Rank†	Question 5 Rank†
Management Principles, 1/17/01, UCLA	4.65	2.95	3.97
Interfaces, 3/21/01, USC	4.87	2.67	4.47
Personnel Management, 5/16/01, Cedars	4.63	3.0	4.5
Patient and Laboratory Safety, 8/15/01, Cedars	4.78	2.5	3.92
Quality Measures and Lab Law, 10/17/01, UCLA	4.32	2.61	3.92
Laboratory Operations, 12/12/01, USC	4.6	2.54	4.0
Finding a Job in Pathology, 1/16/02, UCLA	4.86	3.0	4.3
Contracting in Pathology, 3/20/02, UCLA	4.99	2.56	4.44
Financial Management of the Laboratory, 4/17/02, Cedars	4.60	2.22	3.89
Update on Managed Care Contracts, 7/17/02, UCLA	4.43	2.38	3.63
Legal Affairs for Pathologists, 9/18/02, USC	4.56	2.36	3.93
Overall (from all evaluations)	4.66	2.62	4.10

\* UCLA indicates University of California–Los Angeles; USC, University of Southern California; and Cedars, Cedars-Sinai Medical Center.

† Rankings were from 1 (poor) to 5 (excellent). Question 4 was “Your knowledge prior to the seminar.” Question 5 was “Your knowledge after the seminar.”

year). Both didactic management literature and recently published studies regarding management training for pathology residents were evaluated.<sup>6–15</sup>

We also examined available courses such as the College of American Pathologists (CAP) Virtual Management College (VMC) and programs provided by the Clinical Laboratory Management Association (CLMA) and the American Society for Clinical Pathology (ASCP) for their content. These programs are offered in various conference formats on a monthly basis (VMC audio-conferences) or in annual meetings by the respective professional organizations. Supportive handouts and audiovisual tools are sometimes available at the association Web sites ([www.cap.org](http://www.cap.org), [www.clma.org](http://www.clma.org), [www.ascp.org](http://www.ascp.org)). Twelve topics representing major subdisciplines of management were identified as relevant to the practice of pathology. These topics are summarized in Table 1, with associated subtopics (not inclusive of all possible subtopics).

The topics and their subtopics are continually evaluated and refined. For example, financial management of the laboratory was separated from financial management of the pathology practice group. The Contracting and Negotiation topic was expanded to include an additional discussion of finding and keeping a job, an important focus for pathology residents. Because our evaluations from a previous series indicated significant redundancies in informatics training and because of increased computer skills and sophistication of residents, this topic was deleted per se and its important subtopics were melded into some of the other topics.<sup>16,17</sup>

Based on the topics included in the curriculum, we identified and recruited the best pathologists and nonpathologist professionals. Nonpathologists were the obvious choices for some of the topics. Personnel management was taught by the Cedars-Sinai vice president for human resources, pathologist-hospital relations were discussed by a hospital administrator, managed care contracting was taught by UCLA's director of managed care contracting, an attorney (who is also a pathologist) talked about legal issues and risk management, an accountant for one of the pathology groups in the city discussed financial management, and a nationally known attorney spoke about contracting and negotiation.

Sessions were held during alternate months at one of the 3 major sites (UCLA, Los Angeles County and the University of Southern California, or Cedars-Sinai Medical Center in Los Angeles). Only residents from the sponsoring institution were specifically asked to attend the respective sessions. However, all residents from all programs were invited, and 11 of the 12 sessions had attendees from sites other than the sponsoring health care facility. The residents gathered together (usually on a Wednesday, from 5:30 to 9:00 PM), and a light dinner was followed by the didactic presentation, with case studies and discussion at the end. Fellows and residents from all postgraduate year (PGY) levels were invited to the seminars.

Seminars were evaluated by attendees, using 9 questions that were scored on a scale of 5 (excellent) to 1 (poor). Additional questions were added from our previous evaluation form, which consisted of 5 questions. The evaluation scale was expanded from 1 through 4 to 1 through 5 in the present series.<sup>16</sup> Two new preliminary questions were also asked to assess knowledge before and knowledge after the seminar to determine the value-added knowledge component. These questions, as devised, do not yet meet competency assessment criteria but contribute subjective data for future questionnaire design. The evaluation form questions concerned 1) lecturer's knowledge of the subject, 2) lecturer's ability to communicate information, 3) usefulness of material presented, 4) your knowledge prior to the seminar, 5) your knowledge after the seminar, 6) educational methods used, 7) sufficient time for discussion, 8) value of handouts, and 9) overall evaluation.

## RESULTS

All responses, other than those to the 2 questions regarding the knowledge component, were averaged and achieved an overall score of 4.66 (average of 13 evaluations per session, 141 total evaluations returned; Table 2). One of the sessions had fewer than 5 attendees (Financial Management of the Pathology Practice, May 2002), and evaluations were not recorded for this session. The topics receiving the highest overall scores (>4.8) were How to Find and Keep a Job, Interfaces, and Pathology Contracting. Quality Assurance and Regulations, and Managed Care Contracting received lower scores (<4.5). However, the overall scores were notable for the preponderance of rankings in categories 4 and 5. The value-added increase in knowledge was reflected in an increase in scores by nearly 1.5 points on a scale of 1 through 5 (1 = little to no knowledge; 5 = high knowledge level).

A total of 281 residents attended the sessions (Table 3). All sessions were videotaped, and a videotape copy was forwarded to each of the participating program directors so that all residents could review the session. The seminars were best attended by PGY2 and PGY3 residents among residents in required training years; a total of 120 PGY2 and PGY3 residents attended. The large component of PGY2 and PGY3 attendees agrees with our previous seminar series data collected in 1998–1999, when attendance for PGY2 and PGY3 residents was higher than that for residents of other postgraduate years.<sup>16</sup> The group least likely to attend were PGY4 residents, possibly because of the attendance of senior residents at previous seminar ses-

Table 3. Attendance

Date	PGY1*	PGY2	PGY3	PGY4	PGY5	PGY6+, Faculty, Fellows	Total
1/17/01	7	5	6	1	6	3	28
3/21/01	2	6	5	4	6	8	31
5/16/01	1	6	6	1	1	2	17
8/15/01	6	4	3	3	1	3	20
10/17/01	5	8	3	3	2	8	29
12/12/01	3	6	9	2	6	4	30
1/16/02	3	11	5	2	5	7	33
3/20/02	3	4	6	2	4	9	28
4/17/02	3	2	6	1	2	4	18
7/17/02	3	4	5	4	3	4	23
9/18/02	5	5	5	3	2	4	24
<b>Total</b>	<b>41</b>	<b>61</b>	<b>59</b>	<b>26</b>	<b>38</b>	<b>56</b>	<b>281</b>
Average	3.7	5.5	5.4	2.4	3.5	5.1	...

\* PGY indicates postgraduate year.

sions. Fellows, faculty, and senior residents beyond PGY5 had excellent attendance at all presentations (Table 3).

### COMMENT

Our primary goal was to develop the contents of a management curriculum for pathology residents that would provide the basic knowledge needed for entrance-level practicing pathologists. Some of the sessions, such as Personnel Management, were probably most useful in that the residents were introduced to a new nomenclature, for example, *comp time* and *ERISA*, whereas other sessions, such as Contracting, were of more immediate significance. Two other well-received seminars, Finding a Job in Pathology, and Interfaces, included information on how to directly interact with potential employers and with the variety of professionals and nonprofessionals that are encountered in the practice of pathology.

The results reported here are from the 2001–2002 seminar cycle. The evaluations from the previous cycles and those reported here have allowed us to continually revise and update the curriculum contents. Some topics may require different packaging for appeal (laboratory law and quality measurements) or may become obsolete (some components of informatics). Explicit informatics training is also widely provided at the single training program level, with 93% of program directors reporting some informatics training.<sup>18</sup> Dividing financial management into 2 sessions did not add to its appeal, and there was decreased attendance at the second session. The presentation of the topic of financial management may require a new approach.

There is an obvious need for a standardized management curriculum that is more specific than the Graylyn Conference's suggestion of a "broad based experience in laboratory administration."<sup>4</sup> The program outlined herein may not be ideal, but it may serve as a starting point for discussion that will eventually lead to a standard, yet flexible, curriculum content. However, before we can delineate the competencies that we expect from residents or entry-level pathologists, we must agree on the curriculum.

Ideally, the didactic portion of the management training program described here would be supplemented by a practical and participatory experience, but most training programs do not have the luxury of experienced and dedicated mentors. Directors of some training programs have attempted to provide practical experience by having residents spend time with the chief technologist or the labo-

ratory manager; however, residents often feel in the way and may escape to the library or the research laboratory. In other programs, residents are put in charge of a section of the laboratory; however, because most medical technologists are more knowledgeable (about their section) than residents, this approach often leads to an unsatisfactory experience. Nevertheless, practical exposure in management during residency in addition to a didactic program would be very valuable but would require separate educational standards and separate instruments for evaluation of competency. Practical exposure without the didactic preparation is also probably not ideal; certain elements of management knowledge are required as background material to assist a resident in a hands-on management rotation.

Our second goal was to regionalize management training. We realized early on that none of our individual training programs had all the necessary faculty members that were skilled and experienced in the various aspects of management and had the time and inclination to teach. By this collaborative merging of a portion of the pathology training program and by gathering the residents together for the management lectures, we have been able to devise a comprehensive course that involves experts in each area but does not place a significant teaching burden on any single training program or faculty member.

The residents most likely to attend management training were in the middle years of pathology residency training (PGY2 and PGY3). This finding is somewhat contrary to the expectation that senior residents will have the most interest in these topics. However, senior residents may have already attended lectures at one of the previous three training cycles provided in the Los Angeles region. Senior residents also have other service obligations and often simply did not have the time to attend. In contrast, post-doctoral fellows and faculty clearly value management training, as indicated by their robust attendance record. The videotaping of sessions provided additional support to program directors at distant sites. The use of videotapes by residents who had been unable to attend in person was confirmed by 4 of the 6 participating program directors.

Residents are very interested in well-organized and relevant training sessions in management. In creating management training programs, the program director should look beyond pathologists and include other professionals,

from human resources administrators to managed care contractors and even attorneys. Interesting perspectives on the complexities of health care organizations are provided when nonpathology professionals describe their relationships to the field of pathology. An emphasis in training programs on the immediate skills required of a young pathologist will generate enthusiasm and enhance attendance for a broad array of management topics. The regionalization of management training provides the highest caliber of teachers without placing an excess burden on the faculty of any single training program.

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