

Progress Toward Improved Leadership and Management Training in Pathology

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• **Context.**—Competency gaps in leadership and laboratory management skills continue to exist between what training programs deliver and what recent graduates and future employers expect. A number of recent surveys substantiate this. Interest in delivering content in these areas is challenged by time constraints, the presence of knowledgeable faculty role models, and the necessary importance placed on diagnostic skills development, which overshadows any priority trainees have toward developing these skills.

Objectives.—To describe the problem, the near-future horizon, the current solutions, and the recommendations for improving resident training in laboratory management.

Data Sources.—The demands of new health care delivery models and the value being placed on these skills by the Pathology Milestones and Next Accreditation System initiative of the Accreditation Council for Graduate Medical Education for training programs emphasizes their

The future for pathology is bright, but that optimism does not come with a guarantee nor will it come without significant changes to our health care systems and practice models. Those models are already undergoing change. Adaptation to change does not come easily for most people, and pathologists are no different. Change requires an open mind, a willingness to consider and develop new behaviors, and underlying knowledge and skill sets that embrace change, invite innovation, and respond to, or provide, effective leadership. This is true at multiple levels within an organization or medical practice. Pathology practice is not unique in its pressure to change.

The future also belongs to those we are training today. Our obligation to them and to the health care systems in which they will practice, is to help lay a foundation that is fertile enough to accept the seeds of change and to nurture them to grow.

importance. This initiative includes 6 milestone competencies in laboratory management. Organizations like the American Society for Clinical Pathology, the American Pathology Foundation, the College of American Pathologists, and the Association of Pathology Chairs Program Directors Section recognize these competencies and are working to create new tools for training programs to deploy.

Conclusions.—It is our recommendation that (1) every training program develop a formal educational strategy for management training, (2) greater opportunity and visibility be afforded for peer-reviewed publications on management topics in mainstream pathology literature, and (3) pathology milestones-oriented tools be developed to assist program directors and their trainees in developing this necessary knowledge and skills.

(*Arch Pathol Lab Med.* 2014;138:492–497; doi: 10.5858/arpa.2013-0288-RA)

Pathology training programs continue to evolve and adapt, with prudence and due deliberation. In addition, new initiatives like the “Pathology Milestones Project,” supported by the Accreditation Council for Graduate Medical Education (ACGME), the American Board of Medical Specialties, and the American Board of Pathology (ABP), will focus greater attention on specific competencies, accomplished at specific points during a residency, rather than simple time-based service to better ensure patient safety and outcome.¹

One documented aspect of pathology-training competence is a gap between training and practice expectation in management and leadership skills. The goal of this brief review of the current state of this gap is to articulate this problem, describe the near-future horizon in pathology training, portray the current solutions, and close with a set of recommendations for closing this gap.

PROBLEM

Numerous pathology and laboratory medicine societies have, individually and collectively, repeatedly identified training gaps and proposed solutions to narrow them. These have included the Graylyn Conference Report of the Conjoint Task Force on Clinical Pathology’s “Recommendations for Reform of Clinical Pathology Training” in 1995.² This was followed by the Association of Directors of Anatomic and Surgical Pathology’s “Curriculum Content and Evaluation of Resident Competency in Anatomic Pathology” in 2003, and the Academy of Clinical Laboratory

Accepted for publication August 16, 2013.

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The authors have no relevant financial interest in the products or companies described in this article.

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Physicians and Scientists' "Curriculum Content and Evaluation of Resident Competency in Clinical Pathology (Laboratory Medicine)" in 2006.^{3,4} Each of these organizations included management knowledge and skill sets as part of their curriculum recommendations.

A number of surveys of training expectations for recent trainee graduates emphasized the continuing gap in these knowledge and skill sets. In a 2005 survey,⁵ 559 employers and 247 recent graduates of pathology residency training programs cited preparedness in clinical laboratory management as very low. In a subsequent white paper by the College of American Pathologists (CAP) and the Association of Pathology Chairs,⁶ the authors stated, "Newly trained pathologists should have basic understanding of the medical director role of the pathologist in the laboratory. Necessary skills include strategic planning, budgeting, and management operations of the laboratory; personnel management issues; practice management issues such as coding, billing, collecting, and contract negotiations; the pathologists' role in the medical staff and medical community; and interacting with hospital or health care system administrators. ... [T]raining programs must be structured to provide experiences in laboratory direction and management."

In preparation for a workshop on resident laboratory management training for program directors at the 2009 Annual Association of Pathology Chairs Meeting, one of the authors (R.L.W.) was part of a work group of the American Pathology Foundation (APF), the American Society for Clinical Pathology (ASCP), and the Program Directors Section that developed and distributed a survey on management training practices to the Program Directors Section listserv. The results of that survey identified resource needs and constraints and led to the development of a consensus curriculum for laboratory management training for pathology residents.⁷

Briefly, that survey found that 48% of pathology training programs devoted more than 20 hours to practice and laboratory management topics. Most programs (57%) provided that exposure on a weekly basis, primarily through the use of teaching tools like real or mock laboratory inspections, didactic lectures, textbooks/manuals, defined projects, and rotation ("shadowing") with a faculty member. The responsibility for this experience fell most often to the laboratory medical director, the administrative laboratory director, and/or the program director. The biggest hurdles to delivering effective management training were lack of faculty time, lack of resident interest, and lack of evaluation tools. When asked about desired improvement to their existing training in management, program directors cited the need for more practical experience on all rotations; for real, graduated responsibility opportunities; for more interaction with laboratory supervisors/managers; for a more-comprehensive curriculum; for better access to supplemental materials; and for more-effective and informed teachers (including not only faculty but also other relevant health care professionals).

The ASCP, in conjunction with the APF, conducted an unpublished survey (June 15, 2012) of 29,244 laboratory medical directors, laboratory managers, residency program directors, and laboratory supervisors. A total of 1840 responded to the survey for a 15% response rate. The survey had a margin of error of 2.21. In the survey, laboratory physician leaders rated staff, residents, and self in perceived confidence in 6 competency areas (leadership,

Table 1. Physician Leaders Rate Confidence in Laboratory Management Competencies^a

Competency Areas	Weighted Score
Staff	
Compliance	3.56
Operations management	3.42
Informatics	3.19
Leadership	3.17
Staff management	3.17
Financial management	2.77
Resident	
Informatics	3.12
Leadership	3.00
Compliance	2.85
Operations management	2.56
Staff management	2.51
Financial management	2.32
Self-confidence	
Leadership	3.86
Compliance	3.80
Operations management	2.85
Staff management	2.56
Informatics	2.51
Financial management	2.32

^a Survey included 1840 respondents; scale, 1 to 5 with weighted score; margin of error, 2.21; the weighted score describes the level of confidence that the physician leaders surveyed had for each competency, within each subset (staff, resident, and self).

staff management, operations management, financial management, informatics, and compliance). The survey results are reported in Table 1. On a 1–5 scale, using weighted scores, physician laboratory leaders ranked financial management competencies as lowest. For residents and the nonmanager pathologists, laboratory leaders ranked staff management second lowest. These findings confirm the perception of business competency gaps that are reported in the literature. In comparison, the informatics competency rated high for pathology residents (3.12), low for physician leaders (2.96), and moderate for laboratory staff (3.19).

One aspect that the data and gap analyses have not fully addressed, but which may be important, is resident motivation to learn the skills in those area. For most trainees entering pathology (and probably for most students entering medicine, generally) the issues of managing resources and leading people and organizations pale in comparison to the challenge (and attraction) of mastering scientific concepts and pathophysiologic mechanisms and learning diagnostic criteria, anatomy, and morphology. The learning curve for these nonmanagement skills seems so steep, particularly for pathology trainees who may find the discipline so different from the history-taking and physical diagnosis skills emphasized in medical school, that the task becomes a consuming one, easily dwarfing other priorities like management or leadership skills. Additionally, faculty who successfully function in management or leadership positions often perform those tasks relatively hidden from the routine duties of residents, further delaying the awareness of the need in their educational development. Residents thus get little direct exposure to the "thrill" of solving an administrative or management issue, in comparison to the excitement of making a "home run" diagnosis from a slide or laboratory value.

HORIZON

The CAP launched the “Transformation of the Specialty of Pathology” in 2008. Prompted by the evolution of America’s health care system, this multifaceted initiative is focused on strengthening the pathologist’s value proposition as an important member of the health care team. In its “Promising Practice Pathways” report,⁸ released in 2012, the CAP has emphasized:

“The Promising Practice Pathways describes new pathologist-driven services and programs that add clinical value outside of the laboratory by improving downstream clinical quality and outcomes and generating downstream clinical cost savings.”

This emphasis outside of the “traditional” practice of anatomic pathology and laboratory medicine underlies the need to refocus training programs on those skills sets, in addition to competency in anatomic and clinical pathology, needed to fully realize this promise of value—leadership and management training.

The ACGME and the ABP developed a joint initiative, the Pathology Milestone Project, for use in evaluating pathology trainees in their ACGME-accredited residency or fellowship programs.¹ The milestones are intended for use as part of a semiannual review of trainee performance and include knowledge, skills, and attitudes as part of the attributes of developing competency. The milestones will become one element of the Next Accreditation System being developed by ACGME.

Trainee levels of competency start at level 1 (commensurate with experiences present on the first day of residency) and may culminate in level 5, a measure of exceptional performance expected to be attainable by only a few trainees before they graduate. Level 4 is intended to serve as the graduation target.

Leadership and laboratory management competencies are included in the milestones (Table 2). The 6 milestone competencies serve to focus the importance of these activities not only in successfully completing resident (or fellowship) training but also in preparing graduates to be effective and productive members of the health care teams of the future. These milestones will be a component of the Next Accreditation System in pathology training anticipated to go live in July 2014.

CURRENT SOLUTIONS

To address the competency gaps as reported in the literature, the ASCP, in conjunction with the APF, founded the Laboratory Management University in November 2011 through the signing of a Memorandum of Understanding. Leveraging the work of the APF/ASCP/Program Directors Section workgroup on improving management training, a laboratory management curriculum is under development targeting documented laboratory management competencies. Each course includes a prereading assignment, online multimedia module, a posttest, and performance-support tools to permit transfer of learning to the job. Participants are required to complete a minimum of 25 courses across the defined 6 core-competency areas. The curriculum is provided online and in a blended format, which includes selected live settings, permitting open entry and open exit for flexible completion.

The CAP Practice Management Committee has created a host of resources directed at filling the gaps in management and leadership skills, both for residents and for practicing

Table 2. Leadership and Management-Specific Milestone Competencies in the Pathology Milestone Project

ICS1: Intradepartmental Interactions and Development of Leadership Skills Displays attitudes, knowledge, and practices that promote safe patient care through team interactions and leadership skills within the laboratory (AP/CP)
SBP2: Laboratory Management: Regulatory and Compliance Explains, recognizes, summarizes, and is able to apply regulatory and compliance issues
SBP3: Laboratory Management: Resource Use (Personnel and Finance) Explains, recognizes, summarizes, and is able to apply resource use (AP/CP)
SBP4: Laboratory Management: Quality, Risk Management, and Laboratory Safety Explains, recognizes, summarizes, and is able to apply quality improvement, risk management, and safety issues (AP/CP)
SBP5: Laboratory Management: Test Use Explains, recognizes, summarizes, and is able to apply test use (AP/CP)
SBP6: Laboratory Management: Technology Assessment Explains, recognizes, summarizes, and is able to apply technology assessment (AP/CP)

Abbreviations: AP, anatomic pathology; CP, clinical pathology; ICS, interpersonal communication skills; SBP, systems-based practice.

pathologists. The “Career Stage” resource listing on the CAP Web site includes hyperlinks to an array of educational and reference sources.⁹ When viewed from the resident stage of learning, the resources are grouped into professional growth, human resources, and laboratory medical director categories (Figure).

First among the professional growth group is the Virtual Management College, a series of audio conferences covering a wide range of management topics, which was originally broadcast to subscribing individuals or programs between 2004 and 2010. Many residency programs use them on a subscription basis for resident didactic management education and as a springboard to discussion of the issues.

Another notable project of this group has been the Laboratory Medical DirecTIPS series¹⁰ of e-newsletters sent to all CAP members between 2008 and 2011. These provided short insights into common director-level issues and offered suggestions on how to approach the potential problems that might exist, both on the surface and on “digging deeper.” The content was also linked to pertinent elements of the director’s Clinical Laboratory Improvement Amendments of 1988–defined duties and CAP accreditation standards, as well as providing significant references.

The CAP inspection and accreditation audio conference archives from 2007 to 2010 are also accessible to trainees and others interested in hearing experienced and expert inspectors provide training on a wide array of topics that are important for achieving success in medical direction.¹¹ These conferences are not specifically directed to resident-level trainees, but could be useful resources for residents to complement general management training and, perhaps, to explore the specific management issues associated with a given area of the laboratory as they spend time in that realm. Organizing the best of these into a curriculum would require some effort because they were created more to serve the needs of inspectors than trainees.

Practice management content, as delineated in the fairly comprehensive document outlining the scope of content

PROFESSIONAL GROWTH

- Virtual Management College - The VMC is a series of audioconference sessions designed to improve the professional management skills of pathology residents, practicing pathologists, and laboratory professionals.
- Management – How and why pathologists fail as managers - This 1962 article covers a variety of management concepts that still apply today.
- POET – Perspectives on Emerging Technologies Reports
> View complete list.

HUMAN RESOURCES

- Career Development – New Pathologists - Articles, book recommendations and web sites
- Employment Contract by a Group Sample (PDF, 145 K) - Sample agreement with annotations
> View complete list.
- National Provider Identifier (NPI)
Apply or update your NPI on the National Plan & Provider Enumeration System.
- Position Openings
Find position openings in the Online Career Center.
- Privileging – Sample Form (Word, 128 K)
Word format sample privileging form associated with "CAP Considerations for Delineation of Pathology Privileges", *Arch Pathol Lab Med*. April 2009

LABORATORY MEDICAL DIRECTOR

- CDC Lab Director Responsibilities Brochure (PDF)
Summary of CLIA Laboratory Director Responsibilities
- Gene Testing—Human Genome Projection Information
Government web page offering a variety of information on gene testing.
- Lab Director Responsibilities (High Complexity)
Federal Register listing of Lab Director responsibilities under CLIA for high complexity laboratory
- Lab Test Complexity FDA Download
Lists of the complexity level the FDA has assigned to in vitro test systems.
- Laboratory Medical DirecTIPS
- LabTestsOnline.org
Reference site for information regarding lab tests that is sponsored by CAP and various other laboratory organizations.
- Lab Accreditation (LAP) Upcoming Training
Audioconferences - Stay current with accreditation requirements through these upcoming audio conferences
- LAP Virtual Library of Audioconferences
Get updated or refreshed on Laboratory Accreditation topics using these archived audioconferences.
> View complete list.
- PT (Proficiency Testing) Dos and Don'ts
A brochure produced by CMS.
- Report Guidelines – Formatting Design
- Report Guidelines – Molecular Pathology
- Report Guidelines – Surgical Pathology

Screenshot of practice management resources available on the College of American Pathologists' Web site, as organized for resident-level interest.

areas pertinent to the CAP Practice Management Committee, have also been regularly incorporated into the content of the CAP annual meetings since 2003, although those presentations are not readily linked from the practice management Web pages.¹² Because access to those materials is limited to meeting attendees, resident trainees' ability to access those materials may be limited, although astute program directors do use these kinds of resources in adapting management training materials for their residents.

RECOMMENDATIONS

In the spirit of continuing the momentum of fostering increased focus on pathology practice and clinical laboratory

management principles during residency training, the authors make the following 3 recommendations:

1. Every residency training program should have a formalized program in management training as part of its curriculum. That program should be driven not only by the future needs of effective pathology and laboratory medicine practice but also by the compliance requirements of the ABP and the ACGME pathology milestones and the need to effectively prepare trainees for the annual ASCP Resident In-Service Examination. Such a program could take on one or more complimentary forms, including, but not limited to, a series of didactic presentations by faculty and other appropriate experts (eg, guest lectureships), formally integrating principles of management into anatomic pathology and clinical pathology rotations in appropriate ways to emphasize their contributions to effective practice, and/or the use of commercially available programs (eg, the Laboratory Management University of the ASCP and APF or the offerings of the Practice Management Committee of the CAP) as scheduling and department financial considerations allow.
2. Reinforce the importance of pathology practice and clinical laboratory management as a component of our specialty's body of peer-reviewed literature and commentary. This would include the formal designation, as appropriate to each journal, of section editors in this subspecialty (eg, similar to the section on Administrative and Regulatory Affairs in the *Archives of Pathology & Laboratory Medicine*). Additionally, pathology societies should consider expanding the scope of management and quality-improvement poster or platform presentations at their meetings and recognizing superior performance in this arena through awards or other recognition, particularly for resident-led projects.
3. Engage professional pathology and laboratory medicine organizations in the codevelopment of a common tool set for use by residency program directors to comply with the management-specific competencies outlined in the ACGME's Pathology Milestones initiative and to provide a more-uniform framework for teaching these knowledge and skill sets to residents.

RATIONALE

Formal Management Curriculum

Our reasoning in recommending the formalization of curricula in this topic area is based on opinion rather than solid scientific evidence. We do not have firm proof that those programs that incorporate formal management training produce residents who either score higher on examination content in those areas either on the Resident In-Service Examination or on ABP exams, as reported in a conversation with R. Johnson, MD (May 2013) or enter practice better prepared to offer leadership and to easily assume roles directing laboratories. In fact, the very limited existing data on the Resident In-Service Examination appears contradictory to that conclusion, as presented by B. R. Smith, MD, at the Association of Pathology Chairs Annual Meeting (July 2012).¹³ Nevertheless, it seems evident that those topics that are talked about, modeled, and tested, result in learner attention to, consideration of, and practice in learning and applying. We feel it is especially important, however, that, in addition to didactic material,

trainees gain hands-on experience on a regular basis in applying the tools and skills we need them to acquire. This would seem to mandate that they have some recurring and early exposure to dealing with such problems, beginning with some of their first rotations and incorporated significantly into many or most of those rotations.

There are a variety of ways to accomplish the modeling and practical exposure needed to overcome the motivation barrier that exists for many current residents. For example, at the University of Oklahoma, Oklahoma City, residents and faculty attend a weekly on-call conference to review the issues that have come to the resident and faculty members on call. Although many of these discussions center around solving acute, patient-care problems, there is also time allotted to more-general discussions of issues related to compliance, accreditation, human resources management, leadership, health care economics, policy and procedure management/development, and the art of interpersonal communication and collaboration. From these conferences have come a host of projects, often crossing departmental boundaries, which have engaged residents and faculty in solving recurring problems. This sort of behavior modeling, emphasizing proactive problem-solving involving teams, complements the didactic presentation of material in our management lecture sessions.

We further attempt to model behaviors and promote mentor-mentee relationships in this arena by engaging residents in Lean Project Management, performance improvement teams, interim accreditation inspection teams, and other leadership activities. Our intent is to see that pertinent elements of those topic areas migrate as much as possible into each required curriculum block that residents complete. Residents should see and practice the application of the principles and tools they learn in management and leadership, just as they practice dissection and consultation skills.

Current generations of medical students at the University of Oklahoma are also required to participate in a long-term quality improvement project during their third year of training. Although still in its early phases, such projects are expected to bring experiences that enhance the satisfaction of participating in such management activities and increase motivation to continue to apply those skills as they enter residency, in pathology or elsewhere. These projects are often presented in public forums, either institutional or regional/national, and recognition is provided for superior projects. Adding similar awards in this category of work for posters and presentations by pathology residents at national pathology meetings would further elevate the value of this work in the residents' minds.

At the University of Utah, Salt Lake City, the format for laboratory and practice management trainings is a required 2-week didactic rotation, usually in the third or fourth year (for combined anatomic pathology/clinical pathology trainees). Opportunities to more practically reinforce many of these principles and competencies are spread, albeit unevenly, across anatomic pathology and clinical pathology rotations.

Ensuring that pathology residency programs have sufficient and appropriate resources to carry out their curriculum and to enable residents to reach the appropriate milestones, either in management and leadership, or any other discipline, is the responsibility of the ACGME and is accomplished through their exhaustive accreditation process. We encourage ACGME's scrutiny of this critical aspect

of training as it carries out its responsibilities to ensure that faculty and facilities can offer appropriate and current education and experience in laboratory and practice management.

Elevate the Academic Published Record in Laboratory and Practice Management

Quality content has long existed in this area of pathology, but little of it has been published, much less published in the mainstream pathology literature. The expansion of the *Archives of Pathology & Laboratory Medicine* editorial board to include associate editors in administrative and regulatory affairs has been a significant step forward but remains still an isolated good example. Of course, excellent resources are found in the business journals and elsewhere, but the search and the process of sifting through those resources, coupled with the gauging of proper application methods in the pathology-specific problem set, means residents and most program curriculum designers will not access them. Opening more printed-page space to proceedings or case studies from settings such as APF annual meetings, or management course content from major pathology meetings, would serve the profession well. The live offerings of the Laboratory Management University, which result in enduring content presentations, represent another manner in which this quality of content can be made more publically available, acknowledge the importance of this field of study, and enhance the education of future pathologists.

Codevelop a Milestones-Oriented Management Tool Set

The authors encourage the ACGME and the ABP, either alone or by enlisting subject matter experts from other organizations like the ASCP, the APF, and the CAP, to develop practical tools for use by pathology chairs, residency/fellowship program directors, and trainees that facilitate the effective attainment of those milestones related to leadership and laboratory management. Such things as sample implementation plans, rotation outlines, project examples, position descriptions for residents functioning as understudy laboratory section directors, expanded reading lists beyond traditional pathology literature, and so forth, could help jump-start the transition dramatically.

We thank Stephen G. Ruby, MD, MBA, of 4path Ltd (Justice, Illinois), and Douglas Knapman, MBA, of the College of American Pathologists, for their review and comments on this manuscript.

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