A Consensus Curriculum for Laboratory Management Training for Pathology Residents

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Abstract

Through the combined efforts of the American Pathology Foundation (APF), the American Society for Clinical Pathology (ASCP), and the Program Directors Section (PRODS) of the Association of Pathology Chairs (APC), a needs assessment was performed via a survey on the PRODS listserv, workshops at the APC/PRODS annual meetings in 2009 and 2010, and a Work Group of representatives of APF, ASCP, and PRODS. Residency program needs and resource constraints common to training pathology residents in practice and laboratory management were identified. In addition, a consensus curriculum for management training was created to serve as a resource for residency training program directors and others. The curriculum was converted into a “wiki” design tool for use by program directors, residents, and faculty.

What is a pathologist, fresh out of training in anatomic pathology (AP), clinical pathology (CP), or both (AP/CP), expected to know about laboratory and pathology practice management when he or she joins a community-based practice, an academic medical center department, or a research laboratory? Does the setting really matter that much? And how well do we prepare residents for this aspect of their future practice?

A combination of anecdotes and survey results during the past 10 to 15 years has defined a gap between training in management principles and skills development and the expectation that employers have for pathologists in their first couple of years in practice. To paraphrase 1 senior pathologist in a large private practice setting, “More often than not, we are now recruiting young pathologists with competency in anatomic pathology but lacking in those good interpersonal and communication skills necessary to be productive members of the group.” In 2 descriptions that spanned approximately 10 years of practice, Horowitz found,1,2 as a result of 3 separate surveys of community-based pathologists, that interpersonal and communication skills were “essential” and that “management and coding/billing” skills were “useful” to successful practice. These so-called nonpathology skills remained, in his experience, the major deficiency for newly trained pathologists. Other authors have added further confirmation of the gap between new pathologist skills and the expectations of their colleagues and employers in subsequent practice.3-6 In their white paper, “Resident Preparation for Practice,” authors from the College of American Pathologists (CAP) and the Association of Pathology Chairs (APC) emphasize the importance of necessary skills in strategic planning, budgeting, operations management, coding and billing, contract negotiations, the role of the laboratory
medical director, and the interaction of pathologists with a variety of other constituents in their institutions and communities.6

Beginning in 1987, with the formulation of the Park City Report of the APC on the core components—including management and informatics—of pathology residency training programs, there have been a series of meetings and reports that have focused on the adequacy of residency training. The Colorado Springs Conference I, in 1989, focused on the “Future Content and Structure of Residency Training in Pathology”; it was followed in 1993 by the Colorado Springs Conference IV “Clinical Pathology Residency: Curriculum Reform.”7,8

As a result of intersociety conferences on pathology training, representatives from the APC, ASCP, CAP, and the Academy of Clinical Laboratory Physicians and Scientists (ACLPS) formed the “Conjoint Task Force on Clinical Pathology.” From the Task Force’s breakout group on management and informatics, a number of conclusions and recommendations were reached. Most important, the Task Force recommended that to meet the objective that a “clinical pathologist should use management and informatics to direct and control the operational effectiveness of the clinical laboratory,” pathology residents should receive training in broad competencies in management and informatics. Furthermore, the group strongly recommended that this training be introduced early in the programs and should be reinforced continuously with graded responsibility. In 1995, the Conjoint Task Force summarized these recommendations in the Graylyn Conference Report, “Recommendations for Reform of Clinical Pathology Training.”9 Subsequently, the Association of Directors of Anatomic and Surgical Pathology and the ACLPS each published “curriculum content and evaluation” proposals for resident competency in anatomic and clinical pathology, respectively.10,11 Both included specific knowledge and skill sets in laboratory management. Several training programs have also published descriptions of their curricula in laboratory management.12–17

Early in 2009, we were invited to conduct a workshop on resident laboratory management training for the program directors group at the APC/Program Directors Section (PRODS) Annual Meeting in Seattle, WA, on July 15, 2009. In preparation for that workshop, a survey was developed for distribution to the PRODS listserv. This report describes that survey, summarizes the discussion and action items agreed to during the workshop, and describes a year-long curriculum design process and the development and deployment of this laboratory management curriculum resource to a “wiki” site.

The Process

To prepare for the workshop, we decided to survey the PRODS to assess whether and how laboratory management training was occurring in residency training programs. To ensure that the issues of most importance were addressed by the survey, a presurvey questionnaire was sent to members of the listserv. By using those responses, combined with our experience, the laboratory management survey was then designed and distributed, also via the listserv using the Internet-based survey tool Zoomerang.

Of the program directors surveyed, 54 responded; 40 were in academic medical centers and 14 were in community hospital–based training programs.

The survey questions addressed program practices, constraints, and resource needs. The responses showed that the time devoted to management and leadership varied considerably, from once a month to a dedicated course. Teaching tools used by program directors included mock laboratory inspections (51%) and elective rotations (15%). Major obstacles included faculty time and interest, resident time and interest, not enough faculty experts, and the lack of evaluation tools. Expressed needs included textbooks, Web resources, and institutional and departmental support and commitment.

The session at the 2009 APC/PRODS Annual Meeting had grown from a workshop into a 3-hour plenary session, which attracted a standing-room-only crowd. The presentations generated intense discussion and many questions, such as, “How do you assess communications skills?” and “How do we teach residents to play well with others?”

Emerging from the hour-long question-and-answer format were several themes and several suggested tools, solutions, and actions. Also as a result of this discussion the Work Group on Laboratory Management was constituted to forward these findings into the development of a draft consensus curriculum for full vetting by the PRODS and for presentation at the 2010 APC Annual Meeting.

Through a series of conference calls, the proposed curriculum was formulated to serve as a resource guide rather than a mandate for all programs. In addition, this curriculum was converted into a prototype wiki format intended to become the vehicle for a dynamic resource for program directors, residents and fellows, and any others in the pathology community interested in contributing to the further development of this resource tool. From October 2009 through June 2010, a series of conference calls was held. The group collected sample curricula, which were then posted at a Google Group site. By using the results of the survey and the discussion of these results during the workshop, a draft curriculum was designed by the APF-ASCP-PRODS Work Group and presented to the PRODS listserv and to the APC/PRODS Annual Meeting attendees for feedback and discussion before and during the July 14-16, 2010, annual meeting. The curriculum was finalized based on the feedback from these sources. A prototype wiki was built by Dane Falkner, Surgeworks, Salt Lake City, UT (http://www.surgeworks.com). This prototype was moved to the ASCP
Results

Following is a brief survey of responses to each of the questions.

Question 1

Over the course of the residency, how much time does your training program dedicate to lectures for residents on practice and laboratory management topics?

The responses were bimodal in frequency, with the largest number of programs (32%) devoted to the least number of contact hours (1-10 hours), and the next most frequent number of programs (28%) devoted to the most number of contact hours (≥40 hours). Of the programs, 52% devoted 20 or fewer hours and 48% devoted more than 20 hours.

Question 2

How much time do residents in your program spend on practice and laboratory management responsibilities (junior laboratory directorship)?

For 31% of the programs, residents were able to spend at least 1 month in this form of graduated responsibility. Of the programs, 17% do not offer this opportunity and 11% offer it only as an elective.

Question 3

How often are your residents exposed to laboratory management topics through your training program?

The majority (57%) of the programs provide at most weekly exposure to management topics, with 30% of programs doing so at least monthly. In 13%, exposure is only through a dedicated management course.

Question 4

At what point in your program are practice or laboratory management topics taught?

Nearly one third of programs expose residents to management topics as soon as their residency starts. A small minority (6%) do so only near the end of their training. Management is integrated into the rotations of 42% of the programs, with the inference from the results that this occurs primarily during CP rotations and not during AP rotations.

Table 1

<table>
<thead>
<tr>
<th>Time and Frequency of Management Training</th>
<th>% of Programs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contact hours</td>
<td></td>
</tr>
<tr>
<td>&gt;40</td>
<td>28</td>
</tr>
<tr>
<td>31-40</td>
<td>9</td>
</tr>
<tr>
<td>21-30</td>
<td>11</td>
</tr>
<tr>
<td>11-20</td>
<td>20</td>
</tr>
<tr>
<td>1-10</td>
<td>32</td>
</tr>
<tr>
<td>None</td>
<td>0</td>
</tr>
<tr>
<td>Frequency</td>
<td></td>
</tr>
<tr>
<td>Monthly</td>
<td>30</td>
</tr>
<tr>
<td>Once every 2 wk</td>
<td>9</td>
</tr>
<tr>
<td>Once per wk</td>
<td>18</td>
</tr>
<tr>
<td>Infrequently</td>
<td>13</td>
</tr>
<tr>
<td>Through a dedicated course</td>
<td>13</td>
</tr>
<tr>
<td>Other</td>
<td>17</td>
</tr>
</tbody>
</table>

Table 2

<table>
<thead>
<tr>
<th>Time Spent by Residents in a “Junior Laboratory Directorship” Role</th>
<th>% of Programs</th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt;2 mo</td>
<td>5</td>
</tr>
<tr>
<td>1-2 mo</td>
<td>26</td>
</tr>
<tr>
<td>&lt;1 mo</td>
<td>19</td>
</tr>
<tr>
<td>Elective time only</td>
<td>11</td>
</tr>
<tr>
<td>None</td>
<td>17</td>
</tr>
<tr>
<td>Other</td>
<td>22</td>
</tr>
</tbody>
</table>

Question 5

What general laboratory management topics does your program cover?

The top 4 responses were quality assurance (51%), laboratory inspections (51%), regulatory affairs and accreditation (48%), and test validation (43%). The topics rounding out the top 10 responses included risk management, a variety of financial topics, and leadership and management.

Table 3

<table>
<thead>
<tr>
<th>When Laboratory Management Is Taught During the Residency</th>
<th>% of Programs</th>
</tr>
</thead>
<tbody>
<tr>
<td>As soon as resident begins program</td>
<td>29</td>
</tr>
<tr>
<td>Toward the end of the program</td>
<td>6</td>
</tr>
<tr>
<td>Integrated with other subjects</td>
<td>42</td>
</tr>
<tr>
<td>In clinical pathology rotations</td>
<td>15</td>
</tr>
<tr>
<td>In anatomic pathology rotations</td>
<td>0</td>
</tr>
<tr>
<td>As an elective rotation</td>
<td>2</td>
</tr>
<tr>
<td>Within other areas or time frames</td>
<td>6</td>
</tr>
</tbody>
</table>
Question 6
What tools are a part of your program’s laboratory management curriculum?

Real or mock CAP inspections (51%) and lecture series (48%) were the 2 most frequent responses [Table 5]. A defined management project was used by 34% of the programs. Textbooks or manuals, question-and-answer sessions, specific rotations with individual evaluations, use of the CAP “Current Procedural Terminology Tutorial,” advanced management electives and rotations at affiliated hospitals or laboratories, and formal case studies rounded out the top 10 responses.

Question 7
Rate the tools that are part of your program’s laboratory management curriculum.

Real or mock laboratory inspections were ranked “highly effective” or “moderately effective” by 96% of the programs [Table 6]. This tool was followed by lectures/didactics for 93% of programs. More than 60% of programs similarly rated the use of textbooks or manuals, defined projects, rotations with individual evaluations, and question-and-answer sessions as effective. Formal case studies, formal examinations, resources outside the program, and the use of a research laboratory setting were less frequently rated as highly or moderately effective.

Question 8
What are the titles and specialties of the faculty members who teach practice or laboratory management education topics in your training program?

The most frequent response [Table 7] was the laboratory medical director/clinical laboratory director (44%), followed by the administrative laboratory director (41%) and the residency program director (33%). Other positions were reported with lesser frequency, including the anatomic pathology director (18%), the department chair (18%), and a variety of hospital staff, other university faculty, outside medical staff, and other regulatory staff.
Question 9

What are the major obstacles your program faces in teaching practice and laboratory management to residents?

Although 1 respondent indicated “no major obstacles,” the most common responses Table 8 could be described as lack of time, lack of interest, and lack of sufficient resources for residents and responsible faculty.

Question 10

In what areas do you want your program to improve teaching practice and laboratory management to residents?

Respondents were asked to supply free-form answers Table 9. The responses emphasized the need for increased focus on practical experiences and activities that are more likely to engage the interest of the residents, such as “apprenticeships” (junior directorship) and graded responsibilities, exercises integrated into rotations, and more meaningful interactions with laboratory supervisors and managers. From the faculty perspective, there was a clear interest in having a better defined curriculum in management, readings and other supplemental teaching materials, more focused teaching methods, and more interactions with others in management, including outside the pathology department. There were no surprises in the topic areas the respondents focused on: financial management, personnel, regulatory and accreditation issues, and leadership.

Question 11

What tools and resources would help your training program to implement these improvements/changes?

This question was also posed in a way to solicit free-form answers. The responses could be lumped Table 10 into needs for better teaching tools and resources (support and commitment) and a consensus curriculum.

Question 12

Describe any unique methods your program utilizes which have been particularly effective in teaching laboratory management and/or engaging residents in the learning process for these topics.

The free-form responses fell into several common themes. They were as follows: participation in CAP inspections and/or inspector training, 6 responses; participation in quality assurance/quality improvement meetings and/or projects, 4 responses; providing a special “management” lecture series, 4 responses; doing a management project, such as a major equipment justification for purchase, 3 responses; spending a 1-month rotation with the laboratory medical director or the administrative director, 2 responses; or serving as a junior medical director or in a management apprenticeship, 2 responses. The remaining responses included rotations to outside community hospital settings, incorporating management topics into every case review, and use of the CAP Virtual Management College online tool, plus several admissions that nothing was particularly unique or effective.

Question 13

How does your program measure and evaluate resident success in learning and applying laboratory management topics?
Weiss et al / Laboratory Management Curriculum

The most common measure of effectiveness was performance on the ASCP RISE (Resident In-Service Examination) examination (85%), followed by an evaluation of the ability to perform assigned management-related responsibilities during a rotation (51%), completion of a project (35%), the use of a follow-up postgraduate survey (23%), follow-up survey of employers (5%), and the use of a dedicated course with a final examination (4%). Of the respondents, 8 indicated that they had no formal evaluation process or tool.

Question 14
Choose the setting(s) which best describes your training program.

Not unexpectedly, the most common training environment is in academic centers (40), followed by community hospital–based training programs (14). One respondent also indicated it had an affiliated independent commercial laboratory. Another respondent also described itself as a university in a large multisite private hospital system.

Question 15
How many accredited residency positions does your program have?

The range in residency program size was from 8 to 38 residents. The mean size was 18, the median was 16, and the mode was 12 residents.

Question 16
How many residents does your program typically have in each of the following tracks?

For respondents whose program has an AP track only, 39% indicated that they had 1 to 5 residents in this track, with 8% indicating 6 or more. Similarly, for programs with a CP track only, 26% indicated 1 to 5 residents in this track, with 8% indicating 6 or more. One could infer from the responses that about 54% and 67% of programs do not have an AP-only or a CP-only track, respectively. Within the AP/CP track, 35% had 16 to 20 residents, followed by 31% with 11 to 15, and 19% with more than 20 residents.

Question 17
What questions would you like us to ask or ideas would you like us to present during the APC/PRODS workshop “Moving Toward Solutions: Lab Management Training for Residents”? Several common themes emerged from this free-form question. The most common request was for help with curriculum development and standardization (9 responses), followed closely by creating interest in/appreciation of management activities (for trainees and faculty) (8 responses), devise meaningful experiential activities in management (5 responses), teaching methods and tools (4 responses), and the creation of assessment tools for measuring effectiveness (3 responses).

Results From the Workshop Discussion and Work Group Efforts

A PRODS workshop discussion was held at the APC meeting on July 15, 2009. Feedback received as a result of the report of this Working Group to the APC/PRODS, July 14-15, 2010, was incorporated into refinement of the curriculum. Hyperlinks in the curriculum are intended to provide access to more detailed content for the curriculum’s subject matter. The wiki was transferred to the ASCP for maintenance, user input designs, and deployment as an accessible Web site endorsed by APF, ASCP, and PRODS (www.lab-management.info).

Discussion

The initial PRODS survey and workshop discussion produced several important, recurring themes. The importance of how best to deliver content, and, in turn, effectively foster needed skills development was a dominant theme. Several participants debated the value of time spent in didactic presentations as compared with meaningful practical exercises and experiences. Providing opportunities as “assistant medical directors” or “junior laboratory directors” was offered by several as examples of complex, longitudinal experiences over a broad array of management issues. These experiences serve to reinforce didactic presentations on management topics. The challenge pointed out in implementing these experiences is the inconsistency between how programs define the responsibilities of these roles and in the mentorship given by the faculty and management staff to facilitate them. Very good communication among the resident, the faculty, and the

Table 11
Evaluation Tools Most Commonly Used

<table>
<thead>
<tr>
<th>Tool</th>
<th>% of Programs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Performance on the ASCP Resident In-Service Examination</td>
<td>85</td>
</tr>
<tr>
<td>Evaluation of ability to perform assigned tasks within a rotation</td>
<td>51</td>
</tr>
<tr>
<td>Completion of a project</td>
<td>35</td>
</tr>
<tr>
<td>Follow-up postgraduate survey</td>
<td>23</td>
</tr>
<tr>
<td>Follow-up survey of employers</td>
<td>5</td>
</tr>
<tr>
<td>Dedicated course with final examination</td>
<td>4</td>
</tr>
</tbody>
</table>
staff is necessary for these arrangements to work effectively. If constructed well and managed effectively, most if not all rotations in the residency can provide management learning opportunities. Finally, a one-size-fits-all approach will not work for every resident. It is critical to match knowledge and skills development to not only resident needs and interests but also program resources, including faculty expertise.

An important outcome of this more than year-long effort was the development and deployment through APC/PRODS, the APF, and the ASCP of a consensus curriculum guideline on laboratory management training. The incorporation of this curriculum into a dynamic tool—the wiki—is intended to serve as an evolving tool and resource set for programs, faculty, and residents in practice and laboratory management training.

Why Today?
The Work Group believed it important for residency program directors to understand why the need for laboratory management training is even more important today than ever. That rationale is presented in a preamble to the curriculum. An excerpt from that document follows:

“If management, communication, and interpersonal skills have been important and lacking for the past few decades, despite efforts of residency program directors to enhance curricula with such training, why does this deserve additional attention now? Every organization that has looked at the future of pathology has reached similar conclusions. Today and in the future, even more than in the past, the profession needs practitioners who can exert their influence beyond the laboratory. The ASCP has conducted two task forces on the future of pathology. Among other things, these task forces have concluded that it is essential for pathologists to change the way in which we relate to patients, physicians, and the wider health care community, establishing ourselves as an indispensable source of information and guidance. In similar language, the CAP’s Transforming Pathologists initiative stresses the importance of repositioning pathologists as the center of the health care team. Clearly, the future of the profession depends on just those skills that pathologists seem to be lacking, at least as they emerge from their graduate medical education.”

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References


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