

Preface



Brian R. Smith, MD
Guest Editor

Laboratory medicine (clinical pathology) education, at the level of medical students, residents, fellows, or postgraduate practitioners, represents a difficult challenge for faculty and trainees alike. The breadth of the discipline, the rapid changes occurring in technology and biomedical knowledge relevant to the specialty, and, importantly, the diverse career pathways of physicians in this field, all combine to create a need for innovation and flexibility in approaching this task. Moreover, in the past 10 years, there have been fundamental changes in how medical education in general is perceived and evaluated. In the United States, the Accreditation Council for Graduate Medical Education has developed an outcomes-based paradigm that expects institutions to base their training programs on explicit curricula that emphasize the acquisition of core competencies by residents and fellows in all specialties. The Liaison Committee on Medical Education similarly emphasizes the need to move on from a relatively stagnant model of preclinical and clinical medical student education to a more robust and outcomes-based process. In this issue of *Clinics in Laboratory Medicine*, we have taken this timely opportunity to gather a group of authors who themselves represent a cross-generational selection of faculty and, in some cases, residents and to ask them to review the status of clinical pathology training in the United States, to better define curricula and teaching methodologies that may prove useful in the educational process, and to speculate on future directions and improvements. Of note, the amount of material published previously in this educational area is somewhat sparse compared with what has been investigated in other

medical disciplines. Therefore, many of the contributors to this issue have performed original research, in addition to reviewing the literature, to meet the goals of this issue.

The issue begins with a concentration on residency training in Laboratory Medicine. Alan Wells and myself review the challenge of training in a discipline that is practiced by physicians with widely varying career goals. The underlying principles and goals on which Laboratory Medicine training is based are reviewed with an attempt at focusing these objectives into a coherent whole. Ellinor Peerschke, Yashpal Agrawal, Bruce Alexander, Edwin Bovill and Michael Lapasota next review the critical role that research plays in the training of clinical pathologists and take on the task of defining a research curriculum that has the flexibility to meet the varying needs of different career paths, including both physician-scientist and community pathologist. Henry Rinder then presents a synopsis of the effectiveness and popularity of different teaching modalities that are employed in the education of clinical pathology residents, with an eye toward understanding how these methodologies compare to training procedures in other disciplines. Turning to the issue of evaluating the effectiveness of our training programs, Bruce Alexander brings us up to date on the progress made in graduate medical education from a “process” emphasis to an “outcomes” focus, placing this in the context of the history of pathology resident training and with a vision to what the future holds. Finally, Barbara McKenna reviews one of the major self- and program- evaluation tools in our educational arsenal, the Resident In-Service Examination, dissecting what this program may have to teach us regarding our teaching.

Following these articles that focus on broad themes in Laboratory Medicine resident education, we next turn to a series of contributions that specifically address the teaching of the major core Laboratory Medicine subspecialties. In some cases where recent curriculum outlines are not prominently represented in the literature, the authors have proposed outlines of such curricula for further consideration. In all cases, major issues in the teaching of these subspecialties are addressed, often by a combination of well-established educators working with current or recent trainees. YanYun Wu, Christopher Tormey, and Gary Stack use this approach to outline the continuum of education in Transfusion Medicine from resident to fellow, touching on virtually all aspects of process and content. Jonathan Genzen and Matthew Krasowski take on the task of examining where we are in Clinical Chemistry training, utilizing the very interesting results of a survey they conducted for this article and outlining the challenges that we face. Sandeep Gurbuxani and Jonathan Miller critically examine the principles and the design needs for training in Hematology/Hematopathology at various levels of expertise and in all of its subdisciplines. This is followed by Barbara Haller’s thoughtful review of Microbiology training for residents.

An area of training that we all agree is critical for our pathology and laboratory medicine residents is that of management. This is, of course, an area that is generally not extensively addressed in medical school but nevertheless

represents an increasingly greater component of practice in all settings. Ronald Weiss presents an erudite and comprehensive review of this area, including both traditional resident training and the status of combined degree and combined certification programs. We conclude this section devoted to residency education with expansion into another growth area of the discipline, point of care testing. Sheldon Campbell and Peter Howanitz review the current status of both this area of Laboratory Medicine and the possibilities and challenges for educating our trainees in this growing segment of Laboratory Medicine practice.

While much of the emphasis in this issue of Clinics in Laboratory Medicine is devoted to training at the medical residency level, we do not neglect our medical students nor do we miss the opportunity to also better examine the training of PhD laboratory professionals. Yara Park and Marisa Marques outline the key issues involved in inculcating basic principles of laboratory medicine, needed for medical practice by all physicians, into the medical school curriculum. Samuel Santoro, Claudio Mosse, and Pampee Young return to one aspect of the central role of research and development in the discipline, discussing the natural fit of MD/PhD student training with a career in academic laboratory medicine. While perhaps this option is under-recognized by some MD/PhD candidates, the bridge discipline of laboratory medicine is a logical career choice for these trainees and the authors look to the future for this student population. Finally, we conclude this volume with a contribution by Mitchell Scott, Wm. Michael Dunne, and Ann M. Gronowski on the status of training PhD chemists and microbiologists in laboratory medicine.

I have been extremely fortunate in being able to work with a superb group of Laboratory Medicine physicians, trainees, and PhD laboratorians in the production of this volume. The contributors to this issue are not only well-recognized educators but also well-established clinicians and, in most cases, equally well-established scientists. The bridge discipline of Laboratory Medicine is a natural home for these traditional “triple-threat” clinician-scientist-educators. I would be remiss if I did not recognize the most important group of contributors to this volume, both explicit and implicit, that is, the next generation of Laboratory Medicine physicians currently in training who are the inspiration for, and the future of, our discipline. The possibilities for diagnostics and therapeutics rooted in the clinical laboratory are expanding at an unparalleled rate - the next generation must, and will, be superbly prepared for the upcoming challenges.

Brian R. Smith, MD

Department of Laboratory Medicine

Yale University School of Medicine

333 Cedar Street, PO Box 208035

New Haven, CT 06520-8035

E-mail address: brian.smith@yale.edu