At the ASCP 2014 Annual Meeting in Tampa, Fla., more than 150 educational sessions were offered over the course of only a few days. That means that the thousands of attendees had more than 150 opportunities to advance their knowledge about pathology and laboratory medicine. These sessions, events, and occasions created the quintessential environment for participants to meet and collaborate on how to better reinforce their position as the leading voice in laboratory medicine.

The learning that goes on during our Annual Meetings doesn’t end when the three days are over. If pathology and laboratory professionals are anything, they are lifelong learners who take the knowledge they’ve gained and put it into practice to improve and provide better patient care.

The practical and innovative spirit is what this Society thrives on, and what pushes us to constantly revise and reimagine the opportunities we create for the pathology and laboratory community. We strive to continually elevate the depth and quality of the knowledge we provide to our members. We do this through our products that assist with Maintenance of Certification, and our continuing education workshops and educational courses. We offer programs like Lab Management University, and initiatives such as STEM and What’s My Next?, which help build a solid workforce that makes us StrongerTogether.

In this issue of Critical Values, authors delve deep into the topic of education and the workforce, and look at how they affect the many aspects of a pathologist’s or laboratory professional’s career. Take a look at the centerspread, and the second annual 40 Under Forty, featuring the rising stars and future leaders of the profession. You can get to know these honorees more on ONElab.

In his article, “Ten Ways to be an Effective Leader in Pathology and Laboratory Medicine,” Patrick Reese, HTL(ASCP)℠QIHC, a 2014 40 Under Forty Top Five Honoree, discusses the essential strategies and values needed to be a leader in the profession. Take a look at the centerspread, and the second annual 40 Under Forty, featuring the rising stars and future leaders of the profession. You can get to know these honorees more on ONElab.

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Emphasizing the importance of education to the workforce isn’t just a national issue—it’s also a global one. In recent years, the country of Qatar has seen tremendous economic growth. That in turn has translated into an enormous expansion of investment in the country’s healthcare sector. Hassan Aziz, PhD, MLS(ASCP)℠, shows us what Qatar is doing to increase its knowledge base in laboratory medicine and strengthen its workforce to better provide patient care for its citizens.

Last fall I had the opportunity to interview Jennifer Hunt, MD, MEd, FASCP; Virginia LiVolsi, MD, MASC; and special guest Barbara Pierce Bush on stage at the 2014 ASCP Annual Meeting. The three women discussed leadership and mentorship, and those people who have influenced their careers. In the digital version of Critical Values, senior editor Molly V. Strzelecki follows up with Dr. Hunt, who speaks candidly about her longstanding relationship with friend and mentor Dr. LiVolsi. Dr. Hunt also provides insight on how to pursue a mentoring relationship, and how to ensure that it is beneficial to both mentor and mentee.

As the guiding voice of the community, it is our responsibility and our intention to be change agents for the local and global future of laboratory medicine. Part of that future means our continued advocacy and promotion of cutting-edge, evidence-based science with a multidisciplinary focus to current and future professionals. By impacting the quality of laboratory medicine locally and globally, we help create an unceasing workforce that will help improve patient care around the world.

Thank you for your continued support of ASCP. Please send me your comments and suggestions at Blair.Holladay@ascp.org. My very best to each of you.

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Dr. Holladay is CEO of ASCP.
About Critical Values
E. Blair Holladay

Leadership Messages

Intellectual Leadership
William G. Finn

In Addition to Technical Expertise: Equipping the Laboratory Workforce With Leadership Skills
Diana Kremitske

The End of Residency Brings a Time for Reflection and Some Helpful Hints
Maria Hintzke

Ten Ways to be an Effective Leader in Pathology and Laboratory Medicine

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Like Aspirin for Pain: ASCP(irin) for Maintenance of Certification

Health Care and Education in Qatar

in this issue

Education and the Workforce

18 The Impact of Time Lapse on ASCP Board of Certification Medical Laboratory Scientist (MLS) and Medical Laboratory Technician (MLT) Examination Scores

20 40 Under Forty

24 Ten Ways to be an Effective Leader in Pathology and Laboratory Medicine

Patrick Reese

28 Like Aspirin for Pain: ASCP(irin) for Maintenance of Certification

Melissa Upton

32 Health Care and Education in Qatar

Hassan A. Aziz

36 Mentoring Throughout Your Career: A Q&A With Jennifer Hunt, MD

Molly V. Strzelecki

40 Choosing Wisely Recommendations Highlight Foundational Role of Pathology in Health Care

Andrea Bennett

48 Building a Pipeline for Pathology Informatics

S. Joseph Sirintrapun

52 ASCP News
Each of us has been influenced by a mentor. The numerous forks in the road we face in the course of a career would be unnavigable without the guidance of trusted advisers. Effective education in pathology and laboratory medicine requires not just that we master the substance of our specialty, but that this domain content expertise be applied in the context of core values in order to fulfill a directional purpose. It is in this context, in this spirit of directionality, that a mentor can prove essential. In the digital issue of Critical Values, Jennifer Hunt, MD, FASCP, chair of the Department of Pathology at the University of Arkansas, shares with us her insights on the value of mentoring. She points out that in pathology and laboratory medicine, “...we translate a lot of our knowledge and experience to others through mentoring relationships.” She describes our specialty as inherently collaborative—a field in which sharing is a part of working through our challenges intellectually. When we apply our scientific expertise with relentless devotion to our patient-centric mission, we begin to embody the essence of intellectual leadership.
Intellectual leadership—analytical thinking combined with moral purpose—has brought our community creative, disruptive, paradigm-shifting ideas. Unfortunately, our societal discourse from time to time degenerates into a debate between ideologues and intellectuals—those whose opinion is guided by rigid adherence to dogma and those who develop opinion through processes of what John Rawls referred to as *reflective equilibrium*. The evolution of these opposing forces has at times pushed thoughtfulness out of favor. However, innovation is most potent when it is intellectually driven. When the language of innovation becomes ideological, it ceases to be innovative. James MacGregor Burns, a leading expert on leadership and author of the classic book on the subject, described intellectuals as those with the ability to unite analytical and normative ideas through a process of "disciplined imagination." He also described intellectual leadership as a form of *transforming* leadership—the type of leadership that "converts followers into leaders, and may convert leaders into moral agents." This is as opposed to the more common *transactional* leadership that describes the majority of leader-follower interactions in day-to-day life: Vote for me and I will build a school in your district; support my cause and I will support yours.

Intellectual vigor produces fresh, innovative ideas. But Patrick Reese, HT, HTL (ASCP)®(CMQIHC, also writing in this issue of *Critical Values*, reminds us that "poor leadership risks leaving even the greatest ideas very little chance of success or sustainable growth." In that spirit, intellectual leaders serve as translators—combining the introspective, analytical engine of intellectual process with the drive of moral purpose, based on a foundation of solid values. At ASCP our core mission—excellence in education, certification, and advocacy on behalf of our members and our patients—is built on a foundation of values: knowledge, advancement of the profession, collaboration, and global outreach. Our leadership is driven by data, forged through best practices, and guided by our values—from industry-leading education and assessment programs, to the nationally and internationally recognized marquis brand in credentialing of laboratory professionals, to formal collaborative relationships with other organizations, to patient-centered advocacy and global humanitarian outreach.

The practice of pathology and laboratory medicine depends on the disciplined interplay of the pragmatic and the visionary—meticulous attention to detail and process combined with a vigorous and creative exchange of ideas. Assuring a sound future for our field will require that we develop and maintain a future workforce through the transforming power of education and mentoring built on a directional foundation of values and purpose. In short, it will require intellectual leadership.

**References**

Around ASCP Journals

The American Society for Clinical Pathology offers information and education that can aid your practice as pathologists or laboratory professionals. Whether you read the printed journals or get your information online, the American Journal of Clinical Pathology (AJCP) and Lab Medicine provide the latest research, reports, and studies. Here are some highlights from recent issues.

AJCP
The May issue of AJCP contains two articles—one by Dr. Gary Procop and colleagues, the other by Dr. Matthew Greenblatt and colleagues—that grapple with the issue of laboratory test use and the demands of cost containment and quality care. An accompanying editorial by Dr. Michael Wilson gives further insight into the matter. In the June issue, Dr. Varsha Podduturi et al describe a fascinating series of cases in which hematopoietic neoplasms were found at autopsy that were not otherwise diagnosed clinically. The July issue begins a series of articles culled from the 2013 Society for Hematopathology/European Association for Haematopathology workshop sessions. There will be 11 in all published in the July, August, and September 2015 issues. The July issue contains articles on AML with recurrent cytogenetic abnormalities, AML with myelodysplasia-related changes, and erythroleukemia and megakaryoblastic leukemia. These articles and others can be accessed at www.ajcp.ascpjournals.org, as part of your ASCP membership.

Lab Medicine
The Spring 2015 issue of the journal features a case study by Dr. Jinous Saremian and colleagues on the cytological features of metanephric adenoma, a rare and benign tumor of the kidney that can mimic malignancy. Dr. Brian Dixon et al offer a Laboratory QA article, “Learning from the Crowd in Terminology Mapping: The LOINC Experience.”

LabMedicine.com
What’s the best way to do a particular lab procedure? Sometimes it’s hard to know, and the Lab Medicine website is here to help. Visit the Best Practices page on www.labmedicine.com to learn about preparing your blood bank for inspection, lab test support for patients infected with the Ebola virus, and creating a molecular diagnostics department.

From our archives, “A 13-Question Approach to Resolving Serological Discrepancies in the Transfusion Medicine Laboratory” (http://labmed.ascpjournals.org/content/45/3/193.full) covers a question-based approach that helps transfusion medicine technologists resolve serological problems.

Lablogatory
The blog for medical laboratory professionals features educational content for pathology residents and bench technologists. Blogger Dr. Betty Chung’s passion is pathology resident education, and she blogs on this topic frequently. You can read the archive of her posts here: http://labmedicineblog.com/tag/resident-education/.

Several bloggers contribute short case studies highlighting interesting cases or unique presentations. Visit the Case Studies collection to test your knowledge: http://labmedicineblog.com/tag/case-studies/.

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Biomarkers in Pediatric Diabetes and Obesity

Cytology
Diagnostic Pitfalls in Effusion Cytology: The Usual, the Unusual, and the Mimickers

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In Addition to Technical Expertise:

Equipping the Laboratory Workforce With Leadership Skills

There is no doubt that technical expertise is a critical qualification for laboratory professionals. Performing the job carefully and precisely helps ensure that a patient’s test results are accurate and reliable. However, more than just technical expertise is required to succeed at work. What other professional skills might be universally recognized as critical to success for both seasoned and new laboratory professionals? What leadership skills are in demand in present laboratory practices? To begin to answer this question, let’s consider typical experiences of laboratory professionals in today’s healthcare environments.

By Diana Kremitske, MHA, MS, MT(ASCP)
Laboratory professionals are collaborating on teams, managing change, and influencing people, systems, or a process to bring about improvements to laboratory services or the patient experience. We are being called upon at times to participate in exciting opportunities, such as cross-functional teams within the laboratory or multidisciplinary teams outside the laboratory. Workforces are restructured for greater efficiencies through cross-training or workstation consolidation that requires the utmost attention to change management. Participation in LEAN improvement methodology, patient satisfaction, and test utilization committees are a few specific examples of collaboration among various segments of the laboratory and beyond, which are so important today for efficient and effective service.

Laboratory professionals are overseeing point-of-care testing performed by healthcare professionals such as nurses, physicians, perfusion specialists, and respiratory therapists. With expert knowledge, laboratory professionals ensure quality and reliability of procedures performed by healthcare testing personnel and realize the importance of sustaining effective interprofessional working relationships to carry out this critical responsibility.
Laboratory professionals are evaluators and presenters of quality improvement statistics to assess and demonstrate performance of processes or systems. Explaining the overall performance of the laboratory service in a clear and concise manner and demonstrating value in terms of test turnaround time, patient waiting times, reduced errors, and equipment uptime are just some of the ways laboratory professionals evaluate and show evidence of process and systems internally to the laboratory audience and externally to various stakeholders.

Paying attention to effective interpersonal and communication skills, managing change, mastering team building, and participating in cross-functional and cross-institutional collaboration are requirements to effectively function in these varied aspects of laboratory practice. Therefore, mapping a process to develop or refine leadership skills in these areas is crucial in equipping the workforce for success.

Putting a Leadership Plan into Action

A leadership skills development process should be thoughtfully and deliberately crafted in order to begin an educational plan uniquely tailored to meet needs. A practical approach can be broken down into several steps. Start with a self-assessment, then identify educational needs as well as work experience needed on specific topics; discover and participate in educational options; develop an action plan; seek feedback by checking in periodically with someone who has an interest in developing others and can be relied upon to give constructive feedback—for example, a manager, mentor, or colleague; be open-minded about revising an action plan as needed, based on feedback, and select a mentor (or mentors) who is a good fit.

Conducting a self-assessment can be as simple as obtaining performance feedback, or participating in a number of tools, each designed for a specific purpose. A few examples are 360-degree evaluations, the Conflict Dynamics Profile, and the DiSC assessment. The resulting information is useful for becoming more self-aware and gaining knowledge of strengths, opportunities for improvement, and enlightenment on ways to better communicate with others.

When thinking about the educational component for a personalized leadership development process, consider other ways to gain education in addition to online courses or live classroom sessions. Choosing specific work experiences to stretch professional growth is another, different educational avenue. An educational plan that is designed with different learning modalities and also one that includes the opportunity to practice and refine skills should ultimately yield a rich learning experience.

Once educational components are chosen and underway, begin to create an action plan or plans incorporating newly learned concepts or refreshed knowledge. Keep the action plan simple and achievable. Note the skill to be developed or refined, actions (steps) to put the concepts into practice, who or what is needed to support the steps, and the time frame for completion.1 Being accountable to an action plan will help you become disciplined about applying what has been learned and to stay on track.

It is important to seek feedback as a checkpoint on progress toward leadership development goals and to enlist support. Periodically, sharing the action plan with your manager, for example, will serve to build that support and may lead to discovering more opportunities to practice and refine skills that will promote even greater growth.

Finally, to ensure a productive mentoring engagement once a mentor is selected, initiate practical steps such as setting up a mutually agreed-upon communication process and discussing the specific goals desired to be accomplished during the agreed-upon time frame. Mentoring relationships are invaluable for confidentially sharing experiences, hearing about the failures or successes of similar endeavors, and gaining additional insight from another perspective. If mentoring is not an available option, join a more experienced colleague to get involved in a project that requires leadership skills. Discuss with your colleague development goals and ways to contribute to the project aimed at advancing your skills.

Charting a personalized leadership skills development process is an example of education intentionally designed to better equip you with the skills to be more fully engaged in or leading activities where success depends on effectively managing change, collaborating, improving communications, or building positive and strong professional relationships. What laboratory can afford to be inattentive to these essential skills in its workforce?

ASCP’s Laboratory Management University (LMU) offers online laboratory management educational content including 47 titles, 11 of which are focused on leadership topics. Visit www.ascp.org/lmu to learn more about these offerings.

I invite others to engage in the discussion on leadership skills development in the laboratory workforce. Comments on this topic are welcome at clpchair@ascp.org.

References


Ms. Kremitske is Vice President, Lab Operations, for Geisinger Health System in Danville, Penn.
Highlights in the July Digital Issue of Critical Values

The digital issue of Critical Values offers bonus content and is available for both Apple and Android devices. ASCP members who select the “Journals App” option can access the journal on their tablet or phone, stay connected with current and past issues, and search for articles and content.

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…a Q&A with Dr. Jennifer Hunt, MD, FASCP, on the benefits of mentorship, and how to be a good mentor or mentee
…a look at educational needs to help develop a strong multidisciplinary pathology informatics workforce
…a review of the latest set of Choosing Wisely recommendations from ASCP and other healthcare organizations

For more info please visit: www.ascp.org/gettheapp

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A Comprehensive Guide to Prostate Diagnosis is an A to Z overview of diagnostic prostate pathology. The full online course includes just over 3 hours of webcasts subdivided into six stand-alone modules for convenience.

Building from the very basic to the more complex issues, the course begins with a discussion of normal prostate anatomy and histology in order to provide a baseline to recognize the diverse histology of the prostate gland components.

Donna E. Hansel, MD, PhD
Chief of the Division of Anatomic Pathology & Professor of Pathology at the University of California San Diego

User Comments

Good course applicable to current practice.

Exceptionally good CME module. Love the format! Very comprehensive also. Would love to see more like this!

This was a great course!

ascp.org/ProstateDx
The End of Residency
Brings a Time for Reflection and Some Helpful Hints

As I approach the end of residency and the impending doom otherwise known as boards, I find myself surrounded by countless notecards, what seems like every pathology book ever written, more highlighters than anyone needs to own in a lifetime, and peanut butter M&Ms—you know, the crucial study materials—and I occasionally trail off into thought about the last four years.

Residency has been an amazing journey, and it seems unreal that the time has passed so quickly. It’s hard to believe that once this issue of Critical Values hits the press, I’ll be in the midst of starting fellowship. This time of transition seems like a natural point for residents to reflect upon the last three to four years (or more) of our lives and training.

While commiserating with the graduating residents I know, I have found that many of them, both those in my program as well as members of the ASCP Resident Council who are moving onto fellowship very shortly, have repeatedly brought up several topics for discussion while looking back on their
residency training experience. After hearing so many similar thoughts arise, I’ve compiled a brief list focusing on things we either wish we had known at the beginning of residency or advice we wish we had followed more closely ourselves:

1. **Study every day.** This may seem so obvious and simple, but with the daily responsibilities of signout, calls to answer, and life outside of training, it’s easy to fall behind on additional reading after hours. This suggestion was by far the most common one I heard, not only going into residency, but also when I was gathering tips for this article, especially from those in the peri-boards cohort. As one resident told me, “It would have been so much easier had I studied for an hour each day while I was on each rotation, rather than cramming right now.”

In the same spirit, Adeola Tomi-Olugbodi, MD, a second-year resident at Drexel University in Phila-
Philadelphia and a member of the Resident Council, says: “Every activity should be seen as a time to learn. Be an active learner.” Dr. Tomi-Olugbodi recommends treating every call, lecture, unknowns session, grand rounds, etc., as an opportunity to learn. She suggests taking notes to stay focused and then reviewing these notes afterward rather than adding to the giant pile of similar notes on your desk. This last part is often easy to skip, as we get caught up in the next task or case of the day. And, as most senior residents know, that pile gets rather large when it is four years in the making. It is this daily review that aids in cementing the knowledge presented in these various educational venues.

2. **Know that it’s okay to be wrong sometimes.** One of my graduating fourth-year co-residents, Lauren Parsons, MD, told me: “I wish I had known that it’s okay to be wrong sometimes and that people don’t expect you to know everything from Day One. I spent so much time agonizing over being worried about being wrong and looking stupid; some of the best teaching I’ve gotten has stemmed from wrong answers or from saying, ‘I don’t know!’ Turns out the attendings don’t know everything either, which is okay too.” Lauren’s comments reflect the fact that the learning process is ongoing, both during training and while working in the field of pathology, and this ultimately leads us back to tip number one.

3. **Engage your clinicians.** Resident Council member Matthew Miller, MD, a fourth-year resident at Cedars Sinai Medical Center in Los Angeles, states, “We should be taught to be more aggressive and proactive in patient care.” So many of the pathologists and pathology trainees I know, myself included, entered the field because of the amazing impact we have on patient care, albeit often “behind-the-scenes.” As we understand the great clinical implications of our daily diagnostic decisions, we need to step beyond the stereotypic pathologist signing out cases in seclusion and truly “engage our clinicians,” as Matt suggests. Doing so ultimately improves patient care, and what better time to learn this skill and incorporate it into your practice than during residency?

4. **Engage in organized pathology.** This suggestion comes from yours truly, but has been voiced by many of my colleagues. I would be remiss if I didn’t mention this, especially with this being the last Critical Values article I’m writing as the Chair of the Resident Council. I am truly thankful for the opportunities and activities that I have had the privilege to have participated in via my role in ASCP. No matter what role you decide to take, whether as a resident representative at your institution, as a member of one of the many committees or councils, or as someone submitting case reports, the experiences you gain will be invaluable in your own training experience.

5. **Appreciate the process (or at least the result).** I believe that H. Clifford Sullivan, MD, a fourth-year resident at Emory University in Atlanta and incoming Chair of the Resident Council, ultimately has the best overarching comment. Cliff states: “Most of all, I wish someone would have conveyed how great and diverse our field is. From clinical service to research, from AP to CP, from one subspecialty to the next. After four years, I am so thankful that I chose pathology. And I try to convey my passion to others, and I think that’s what our field needs—enthusiastic pathologists to inspire the next generation.” Training can be stressful at times, but the crazy moments of preparing for boards, as well as days jam-packed with frozen sections and seemingly endless trays of cases, will pass, and we hopefully will be left with the appreciation for the field that Dr. Sullivan mentions. Residency truly is what you make of it, and the training process gives us the unique privilege of playing such a critical role in patient care all while benefiting from the remarkable diversity of the field. I implore you to reflect on just how special that role is.

I hope these tips will be useful to you as you progress in your training. I would like to thank all the residents who provided input for this article and taught me so much over the past four years. Most of all, I would like to thank you for your attention and for your comments over the last year. It has been a privilege to write these articles and I hope that you have enjoyed reading them. As always, please feel free to email me at ResidentCouncil@ascp.org.

Dr. Hintzke is a fourth-year Pathology Resident at the Medical College of Wisconsin in Milwaukee, Wis.
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OCT. 20-22 2015
Diagnosis and Management of Breast Disease:
A Practical and Multidisciplinary Approach
Location: Chicago, IL
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For more information and to register for courses visit www.ascp.org/pathmeetings
Impact of Time Lapse on Certification Examination Performance

In the United States, 13 states and/or territories require licensure for laboratory personnel and many facilities in non-licensure states require either certification for employment or simply prefer to hire certified professionals. A recent study that analyzed examinee performance on the American Society for Clinical Pathology Board of Certification Medical Laboratory Scientist (MLS) and Medical Laboratory Technician (MLT) certification exams shows a correlation between delaying taking the exam after program completion and poor exam performance.

Significant decreases in mean scaled scores (MSS) and pass rates were observed in both MLS and MLT examinations for applicants who delayed taking their examination until the second, third, or fourth quarter after completing their training programs.

The full study will be jointly published in July 2015 by ASCP and ASCLS on ASCP’s Lab Medicine website at www.labmedicine.com and in Clinical Laboratory Science, the journal of the American Society for Clinical Laboratory Science.

By the Numbers

- The study looked at first time examinees who graduated from MLT and MLS NAACLS training programs
- The minimum passing score (MPS) for all BOC examination is 400
- Examination data taken from April 2013 through December 2014
Conclusions

Those who take the ASCP BOC MLS and MLT examinations are encouraged to do so shortly after completion of their educational training programs. Delays in taking an examination are generally not beneficial to the examinee and result in poorer performance on the examination.
For the second year, the American Society for Clinical Pathology (ASCP) 40 Under Forty program recognized the top 40 pathologists, laboratory professionals, and residents under age 40 with outstanding achievements and a drive to impact the future of pathology and laboratory science.

The 2014 launch of 40 Under Forty was a vibrant success. Honorees spanned across the states and overseas, with an honoree in Bahrain. The honorees quintupled the activity on ONE Lab with their enthusiastic blogging. Positive attention surrounded the 40, ranging from one honoree being recognized by the Quest Board of Diagnostics to another being featured on “Albuquerque This Morning” on KASA-TV (FOX) in New Mexico. With the fanfare continuing to the ASCP 2014 Annual Meeting and beyond, all signs point to the same level of excitement rising out of the 2015 40 Under Forty honorees.

This year, the selection committee expanded from council members and staff review to include input from the 2014 40 under Forty honorees to select the final 2015 honorees. Accomplishments, leadership, diversity of experience, and innovation were evaluated for each candidate. Decisions were also influenced by a 500-word essay, with a choice of topics including how they stay connected with the clinical care team, how they see themselves as future healthcare innovators, and what they find the most rewarding aspect of pathology and laboratory medicine. 40 Under Forty winners receive discounted registration to the ASCP Annual Meeting in Long Beach, Calif.; enrollment in Lab Management University; a press release to their employer regarding the honor; a comprehensive DISC profile workplace personality assessment; the chance to help select the 2016 40 Under Forty recipients; and a personal blog platform on the ONE Lab Online Community. Visit ONE Lab at http://labculture.ascp.org to find out more about these young professionals, read their blogs, and help select the Top Five 40 Under Forty participants.

If you’d like to nominate yourself or another exceptional professional for next year’s 40 Under Forty, please contact 40under40@ascp.org.

Alexa D. Siddon, MD, FASCP
Age: 32
West Haven, CT

Heather Signorelli, DO, FASCP
Age: 31
Park City, UT

Whitney B. Smith, MT(ASCP)SH
Age: 39
Aurora, CO

Jonathan E. Stanford, MHA, MLS(ASCP)EM
Age: 32
Chapel Hill, NC

Geoffrey A. Talmon, MD, FASCP
Age: 38
Omaha, NE

Sameer S. Talwalkar, MD, FASCP
Age: 37
Louisville, KY

Mark Valasek, MD, PhD, FASCP
Age: 38
San Diego, CA

Timothy VandenBoom, MD
Age: 30
Maywood, IL

Amanda E. Wehler, DO
Age: 36
Danville, PA

Christina Wojewoda, MD, FASCP
Age: 35
Burlington, VT
Ten Ways to be an Effective Leader in Pathology and Laboratory Medicine
The profession and practice of laboratory medicine continue to change rapidly. New testing technologies, staff models, and financial strategies are appearing with consistent frequency, and a growing global patient population is increasingly relying on pathology test results and interpretations. The need for highly productive laboratories is greater than ever before.

Like any successful business operation or venture, a productive laboratory requires effective and strong leadership. Leadership in the laboratory is vital for remaining profitable while shaping innovative workflows and staffing designs to produce the highest quality diagnostic material possible. Numerous responsibilities and actions are required from leaders for successful execution of ideas and goals. These actions serve as the model and support for the entire laboratory and management teams. Poor leadership risks leaving even the greatest ideas very little chance for success or sustainable growth.

While not all leaders guide with a similar style, the great ones share many commonalities. With a new generation of laboratory and medical professionals poised to take steps into leadership, it is important to identify the methods of becoming an effective leader. Here are 10 ways to make sure you’re on the right path.

1. **Facilitation of change:** A consistent trait of successful leaders is the ability to enable positive changes to operations and processes. Change is often necessary to produce continuous improvement, development, and excellence. Strong leadership can usher in exciting and positive changes for a laboratory or medical staff, enhancing products for making clear and accurate diagnoses. Proper planning, preparation, and execution are essential for effectively bringing about positive changes within an organization and team.
2. **Honesty and values:** As a leader, it is your responsibility to set the standard for the vision and core values of your organization. By setting expectations high through your actions and communications, you have the ability to directly and profoundly influence the laboratory environment and allow your team to flourish. Establishing these core values allows for a greater sense of direction for the team and transparently sets the expectation standard. Clarity in these expectations further facilitates effective collaborative achievement of team goals.

3. **Learning from past failures or mistakes:** Virtually every leader who has made a decision in his or her tenure has made mistakes at times. Some projects fail while others succeed. To become a leader, at times bold decisions must be made and strong actions must be taken. Not every idea is perfect, and with each small failure comes the ability for greater recognition of underlying causes of missed goals and opportunities. Leaders have the ability to use these lessons as cornerstones of future successes. Rather than allowing failure to slow your team’s momentum, understand these mistakes and use them as beneficial learning experiences to support future accomplishments. Understanding what will not work often can be as valuable as knowing what ultimately will be successful.

4. **Leading by example:** Your level of investment in the pursuit of the goals and ideals of your laboratory makes clear the expectations you have for your team. Your actions and perceived efforts to accomplish the goals you share with the group should make clear the level of effort required to achieve these ideals. As a leader, your goal should be to inspire others to reach the high expectations you have for the team, yourself, and the organization. A great leader encourages the team to perform to the best of their individual and collective abilities at all times. These expectations must extend beyond quantified metrics and include human qualities such as discipline and demeanor. Team members will often gauge their performance and actions in comparison to leadership.

5. **Confidence:** Displaying a positive and optimistic attitude at all times is an important quality of leaders. The importance of this quality is magnified in times of struggle or crisis. Remaining calm and providing reassurance to your team members is vital. Let them know that problems are natural in any process and that everyone’s collective efforts help mitigate such occurrences. Focus on accomplishing the broader goals at hand by successfully and confidently dealing with unexpected problems.

6. **Coaching:** To be an effective leader, it is necessary to relate to your team members on a personal basis. Coaching and mentoring your subordinates is a key ingredient in this type of relationship. It involves teaching, encouraging, and taking corrective actions when needed. Making yourself available to personally support the team allows for each member to learn and grow as an individual with concurrent pursuit of team-oriented goals.

7. **Communication:** The staple of any leadership initiative is communication. Ideas and goals are effective only if the team clearly understands them. Frequent and appropriate communications and updates serve to keep the team motivated, involved, and aware of any variation in the organizational objectives. Do not overburden the team with unnecessary details, but provide enough clarity and guidance to ensure all efforts are applied to a uniform goal. In the modern workplace, these communications span a variety of delivery systems—from staff meetings to text messages.

8. **Delegation of responsibilities:** Having faith in others to accomplish your ideas and goals can be difficult for first-time leaders. However, the ability to delegate responsibilities with trust is one of the most important skills a leader can develop for the long-term success of their tenure and the organization. This prevents leaders from burning out or becoming too thinly stretched, but also allows for team members’ talents and strengths to be used to full capability. A sense of involvement and contribution often fosters a more productive environment with increased morale.

9. **Flexibility:** More often than not a leader will encounter unforeseen problems related to process implementation or as a result of a difficult decision. Such events require leaders to deviate from an established plan and develop alternative solutions. Your team is dependent on you to figure out a solution and instruct them on how to proceed, which can be challenging at times. A leader must be flexible in thoughts and actions. Making a rushed decision to temporarily “fix” a problem can often lead to long-term difficulties for the team. An effective leader must be able to analyze and evaluate the consequences of a newly established course of action.

10. **Respect:** Earning respect in a leadership role can be a challenging but rewarding pursuit. As important, however, is treating your work and your team with respect. Employees who are valued and respected respond well to challenges and take initiatives that underappreciated counterparts may not. Good leaders understand that all team members play a vital role in the execution and successful achievement of the organizational goals and initiatives, and must recognize their achievements accordingly. It is often said that leaders are born and not made. Although individuals may exhibit natural leadership and communication skills, leadership can certainly be developed and improved with time and experience. Taking the necessary and appropriate strides to ensure you facilitate positive growth as a leader is essential. Continuously identifying areas of improvement assists new leaders in shaping and developing a leadership style that will prove effective for themselves and the team as a long-term approach. With the increased development of and need for laboratory testing, leadership in the lab will remain in high demand throughout the coming decades.

Mr. Reese is Histology Laboratory Director for PathGroup: Atlanta Dermatopathology in Atlanta. He was a Top Five Honoree in ASCP’s 40 Under Forty in 2014.
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ascp.org/ascp2015
By Melissa P. Upton, MD, FASCP

Like Aspirin for Pain: ASCP(irin) for Maintenance of Certification
After spending years in school preparing for a career and months of studying to pass the boards and certification exams, most new professionals aren’t eager to start thinking about continuing education. But furthering your education is a benefit on multiple fronts: learning the latest technologies, keeping up with best practices, acquiring new skills that will help you provide better patient care. And continuing education isn’t something that is simply good to have—it’s necessary for your licensure and to remain in good status.

Navigating the road to Maintenance of Certification (MOC) can be tricky, though. Requirements have changed in recent years, and different parts of certification require reporting of varying numbers of credits. So we’ve put together a primer for some of the most frequently asked questions about MOC, which hopefully will help ease the pain that this twisting, turning journey can take.

**1) What are the American Board of Pathology requirements for Maintenance of Certification and how can ASCP help?**

The American Society for Clinical Pathology (ASCP) responded early to the requirements for Maintenance of Certification to create products and an online transcript system to reduce the pain of MOC. ASCP has designed education and a transcript to help you meet requirements for three of four parts required for MOC, Parts II through IV, as defined by the American Board of Pathology (ABP). The ABP website has excellent resources online to assist pathologists who want detailed information about who must enroll, how to enroll, and what activities must be included for successful Maintenance of Certification.

Each MOC cycle is a 10-year process, and every two years, pathologists enrolled in MOC must report information for Parts I, II, and IV to the ABP:

**Part I) Professional Standing and Professionalism: Every two years, each pathologist must:**

a) Hold a full and unrestricted license to practice medicine in the U.S., in Canada, or in the jurisdiction in which he or she practices

b) Document medical staff membership and privileges or submit a detailed description of practice
Part II) Lifelong Learning and Assessment: Every two years, each pathologist must provide:

a) Documentation of 70 AMA PRA Category 1 Credits™ (continuing medical education, or CME), at least 20 comprising Self-Assessment Modules (SAMs). Documentation must specify which credits are SAM credits, and which are non-SAM CME credits. Not all CME credits meet the standard for SAMs, but all SAMs are CME activities.

b) Physicians in a Fellowship or Physician Scientist training track may provide, instead, documentation of time spent in a training program following the date of certification.

Part III) Cognitive Expertise:

To maintain certification, during each 10-year cycle pathologists must pass an examination in each area of certification to be maintained. This exam must be passed by the end of year 10 of the 10-year MOC cycle, but pathologists may sit for the exam beginning in year seven. This timing allows pathologists multiple opportunities to pass the exam and to maintain certification; however, passing early does not reset the timing of the 10-year cycle. Thus, a pathologist who passes the exam in year seven will continue to have a second 10-year MOC cycle timed to begin in year 10.

To help pathologists prepare for the examinations and to maintain expertise in their specialties, ASCP created the PRISE exam modules in parallel with the areas of pathology covered by the general AP and CP examination modules, and the specialty examination modules (such as Pediatric Pathology, GI and Liver Pathology, Breast Pathology, Cytopathology, etc.) developed by the ABP. The PRISE exams are written by a select committee of volunteer members who are subspecialty experts, and each module of 25 questions can be used for SAM or CME credit. The exams are also designed to test current and new concepts in pathology, and participants receive detailed information about the test items, including references for further study. More information on PRISE can be found at www.ascp.org/prise.

Part IV) Improvement in Medical Practice:

a) Each pathologist must provide documentation that his or her laboratory is engaged in quality assurance (QA) and inter-laboratory performance improvement (PI) activities.

b) Each diplomate must participate in at least one PI or QA activity per year. ASCP CheckPath, GYN/NonGYN Assessment, and GYN Proficiency Testing are examples of activities that meet this requirement.

c) References must be provided in the fourth and eighth years for peer attestations regarding professionalism, communication skills, effectiveness in clinical practice, and ethics.
In addition to the four parts, all diplomates are required to complete an American Board of Medical Specialties (ABMS) or ABP Component I Patient Safety Course (PSC). For the first 10-year cycle only, diplomates board certified in 2006 through 2011 must complete the course by the 10th year of the cycle. For each consecutive cycle after the first, the course must be completed within the first two reporting periods. Currently, ASCP offers the only Component I PSC designed specifically for pathologists with options of either a five-hour course or a 12-hour course. This course can be used to meet both part II and part IV requirements.

2) History: What is Maintenance of Certification and why should you care about it?

Before 2006, pathologists who passed the American Board of Pathology certification exams received lifelong certificates. In 2000 the ABMS mandated that each of its 24 member specialty societies move away from lifelong certification and limit board certification to 10 years. The stated goal of the ABMS was to focus on lifelong learning and engagement of physicians in different types of educational and professional activities geared toward continuous self-assessment and improvement of medical knowledge and quality of practice, rather than depending solely on a single, fact-based examination for recertification.

The ABMS website states, “The Program for MOC incorporates the six ABMS/ACGME Core Competencies of Practice-based Learning & Improvement; Patient Care & Procedural Skills; Systems-based Practice; Medical Knowledge; Interpersonal & Communication Skills; and Professionalism. The Program for MOC has an integrated four-part framework that addresses 1) Professional Standing and Professionalism; 2) Lifelong Learning and Self-Assessment; 3) Assessment of Knowledge, Skills, and Judgment; and 4) Improvement in Medical Practice. The standards for ABMS Programs for MOC are common across the ABMS Member Boards while permitting relevant distinctions in programs among the specialties.”

Each specialty board has designed and mandated a MOC program to replace recertification with a multifaceted set of requirements, and this was implemented in pathology in 2006.

3) Who must enroll in Maintenance of Certification?

All pathologists certified by the American Board of Pathology after January 1, 2006, are required to enroll in its MOC program and to report progress every two years for each 10-year period. ABP certificates are time-limited but considered valid for 10 years, as long as the certified pathologist is enrolled in MOC and meeting all requirements during the 10-year period, including reporting to the board every two years.

4) How does MOC differ from Maintenance of Licensure?

Licensing requirements are made at the state level; however, the Federation of State Medical Boards has supported the concept of MOC and has discussed requiring MOC for relicensure at the state level. In five states—Idaho, Minnesota, North Carolina, Oregon, and West Virginia—participants can inform their state licensing organizations that they are enrolled in MOC, and this exempts them from the state requirement to report CME credits when renewing their licenses. There are also some hospital organizations that have implemented, or are considering implementing, requirements for enrollment in MOC for physicians with lifelong certification as part of maintenance of privileges.

- ASCP has hundreds of options for CME and SAM credits, including live meeting and online educational programs. Specific ASCP courses offering CME and SAM credits can be found at www.ascp.org/Pathologists/Maintenance-of-Certification-MOC/Products.html#.
- ASCP has a membership option that provides unlimited online CME and SAM education.
- ASCP has an online transcript where educational credits and activities can be recorded and organized in one place, and it can be easily printed for submission to the ABP for each period when documentation must be provided.

For more information, please visit www.ascp.org/moc.

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In mid-2011, I received an invitation from the Biomedical Sciences program at Qatar University to serve as an external reviewer. Recognized as an expert in medical laboratory science education and accreditation, I was asked to critically evaluate the curriculum and provide comprehensive feedback on various aspects of the program, such as its goals, study plan, learning outcomes, sequence of the content, and assessment methods. This voluntary evaluation was part of the self-assessment conducted by the College of Arts and Sciences to enhance teaching and learning in its programs. I immediately accepted the invitation.

Qatar may be an unknown country to many Americans. However, with the release of its elegant national airline carrier, Qatar Airways, and the extreme growth, development, and modernization of its capital, Doha, Qatar has become more than just a place of transit—it has turned itself into a modern state, a thriving economy, an exciting tourist destination, and the home of the immensely successful Al Jazeera Satellite News Network.

Before oil production began 60 years ago, Qatar’s population was around 25,000. Now it is over 2.1 million and is expected to increase as the nation gears up to host the FIFA World Cup in 2022. With significant oil and gas reserves, Qatar enjoys the world’s highest per capita income.

Doha is currently booming and although skyscrapers and ultra-luxury hotels are available throughout the city, it has managed to maintain an air of tradition and its subtle local...
architecture pleases the eye. Qatar is still a conservative society, with Islam the dominant influence on day-to-day life. This rich cultural tradition is present in what people wear, eat, and drink. Qatars are known for their generosity and friendliness, thus making Qatar a very welcoming country.

Rumailah Hospital, Qatar’s first hospital, opened its doors in 1957. With a 200-bed capacity, it provided general practice, ambulance service, and large outpatient facilities. Soon after, the hospital was unable to fulfill the area’s growing medical needs. In 1979, Hamad Medical Corporation (HMC) was formed, comprising Hamad General Hospital, Rumailah Hospital, and Women’s Hospital, with 621-, 200-, and 334-bed capacities, respectively. HMC, which provides state-of-the-art diagnosis and treatment, has become Qatar’s leading nonprofit healthcare provider powered through its network of Primary Healthcare Centers and highly dispersed specialized hospitals. Alongside that, Qatar’s government encouraged the opening of private hospitals to offer a wide range of healthcare services to the public, thus easing the burden on HMC and the primary healthcare centers.

The healthcare sector has come a long way since then. Hospitals today are in pursuit of advanced medical equipment, highly qualified staff, and a network model of hospitals and healthcare centers situated countrywide. Qatar has invested a lot of money in its healthcare system, both government and private, doubling its expenditure over the last two years. In recent years, HMC was accredited by the Joint Commission.
International and the medical laboratory at Hamad received the prestigious College of American Pathologists accreditation. Health care in Qatar is driven by a comprehensive program of reforms known as the National Health Strategy 2011-2016. This strategy, with far-reaching and fundamental changes across Qatar’s entire healthcare system, is aligned to the Qatar National Vision 2030 (QNV 2030) that will advance Qatar’s goal of creating a world-class, patient-centered healthcare system. The Health Strategy is intended to propel Qatar toward the objectives contained in QNV 2030.

A Need for Educational Advancement

Along with developing and accelerating its healthcare efforts, Qatar has witnessed an educational renaissance movement in the past decade with the strategic goal of instituting national reform throughout its educational system. At the national university level, the administration has been working diligently to transform Qatar University into a leading regional institution of higher education. Major academic reforms have already been initiated in the areas of curricula, programs, and infrastructure.

It is well known that no country can compete and thrive without an educated and skilled citizenry equipped to handle increasingly complex developments, including the global economic crisis, political conflicts, and environmental threats. Indeed, the need for an education system that is efficient, effective, and responsive to a society’s specific requirements seems greater now than ever before.

The Qatari education system had been, until recently, a product of its regional environment, similar in many ways to the education systems of surrounding countries. Learning was teacher- rather than student-centered, and dependent on rigid rote memorization, with little attention to the research, communication, and analytical thinking skills that are indispensable in today’s labor market. By the early 1980s, the education system had become an issue of national concern and discussion. In 2001, the government launched a systemwide assessment of education. The K-12 system was not preparing students adequately for post-secondary education or for work. Problems with the curriculum were identified, including its being outdated, rigid, and unchallenging. Also brought to light were problems within the system delivering education, including lack of vision and goals, unclear lines of authority, hierarchical structures, and poor allocation, compensation, and training of teachers. In short, a lack of educational standards was identified as a primary reason for the system’s weakness.

As part of this reform, training future professionals in the field of medical science has become increasingly important to establishing a strong workforce for Qatar’s prospering healthcare system. Qatar University’s Biomedical Sciences program, which received accreditation from the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS) in 2008, is the only program outside the United States to gain that designation. In April 2013, the program received an official notification from NAACLS that it had been approved for its maximum seven-year accreditation renewal after a thorough self-study and a site visit by the accrediting agency.
The program provides students with a high-quality academic and professional environment that allows for the development of their intellectual and manipulative competencies and attainment of professional values and characteristics. It reflects the emphasis of the College of Arts and Sciences on rigorous academic standards, creative and diverse scholarship, and appropriate and relevant service to the community, region, and profession. Upon completion of the program, graduates are eligible to take the certification examination of the Board of Certification of the American Society for Clinical Pathology.

In June 2012, a graduate program in Biomedical Sciences offering Advanced Clinical Practice and Laboratory Management concentrations was launched. It is the first of its kind in the region and is designed according to the needs and competencies of the workforce due to the fast advancement in healthcare services in Qatar.

The desire to import “best practices” was one of the main drivers in opening Qatar Education City in 1995. Education City is part of the Qatar Foundation for Education, Science and Community Development, a private, chartered, nonprofit organization in the state of Qatar. A cluster approach model with the aim of “having the best in each field” and “bringing the best expertise from around the world” was the motive behind the creation of the education city.

Education City comprises universities and several academic and training programs. Weill Cornell Medical College in Qatar was established in 2001 as a partnership between the Qatar Foundation and Cornell University in Ithaca, New York. It was the first medical college in Qatar with a mission of providing excellence in education, patient care, and research. Other universities with a health-related mission are University of Calgary Qatar (UCQ) and College of North Atlantic–Qatar (CNAQ).

Opened in 2007, UCQ came to replace the Nursing Technical Secondary School and offer a bachelor’s degree as well as a diploma and a master’s degree in nursing. UCQ’s objectives were to produce nurses who are able to work in a variety of settings (i.e., hospitals, other health institutions, and homes); provide the best care using knowledge, critical thinking, and clinical skills; and promote diversity in health care by raising cultural awareness and sensitivity.

On the other hand, CNAQ, started in September 2002, offers programs that cover a wide array of fields and disciplines, including the School for Health Sciences, which provides training in emergency medical science, food safety and inspection, occupational health and safety, public health, medical radiography technology, pre-nursing, and respiratory therapy, as well as programs for dental assistants and pharmacy technicians. CNAQ’s objectives were to produce graduates who are highly competent and professional to serve the community with high-quality services; are able to have effective communication with healthcare teams; and are aware of the significance of maintaining up-to-date knowledge in the profession.

Gaining Knowledge, Changing Communities

The facts outlined above illustrate the Qatar government’s commitment to achieving the National Health Strategy goals guided by the Supreme Council of Health. The strategy demonstrates Qatar’s drive and genuine desire for reforming the healthcare system to serve the best interest of the country.

One of the health sector’s fundamental goals is to recruit, retain, and educate a high-quality workforce both from Qatar and from outside of the country to help overcome the constraints posed by a shortage of healthcare professionals. The number of Qatari citizens working in health care is not sufficient to manage the complex systems, infrastructure, and other requirements for the rapidly growing, diversifying, and technologically sophisticated economy that is essential to achieving its vision. Qatar decided to make up for this shortage by recruiting experienced expatriate workers. Bearing in mind the necessity of attracting and retaining the right mix of skills, Qatar continues to assess the economic benefits of employing expatriates compared to the costs of serving their health, education, housing, and public service needs. To aid its transformation from an oil- and gas-based community toward a knowledge-based one, Qatar continues to encourage its citizens to pursue training and educational opportunities in the health sector.

Personal Journey

My visit to Qatar University and the Hamad Medical Corporation lasted two weeks, during which I had the chance to meet laboratory professionals, educators, and students. The structure of the non-academic part of the university was slightly different, but the accredited program at the university strived to mirror those of its counterparts in the U.S. The similarities between the Qatari and the American systems were astonishing. Laboratory professionals in Qatar share the same aspirations and goals, but struggle through similar frustrations and obstacles. The laboratory community in Qatar is committed to delivering the best care for local patients in a safe and state-of-the-art fashion. Nonetheless, like their counterparts in the U.S., they struggle to gain the well-deserved recognition from the medical and public communities.

On a personal level, my short visit to Doha turned out to be a major deciding moment for me. Upon my return to my usual life, I received an offer to join Qatar University as a director for the very same Biomedical Sciences program I had visited a few months before. The informative visit to the school and to the hospitals made it easier to make a decision to start a new journey in Qatar.

Dr. Aziz is Director of the Biomedical Sciences program and Associate Dean for Academic Affairs at the College of Arts and Sciences at Qatar University, Doha, Qatar.
At the 2014 ASCP Annual Meeting in Tampa, Fla., Jennifer Hunt, MD, MEd, FASCP, chair of the Department of Pathology at the University of Arkansas for Medical Sciences, had the opportunity to discuss with curious audience members the influence her mentor has had on her since she started her career. What made the experience even more special was that her mentor, Virginia LiVolsi, MD, MASCP, professor of pathology and laboratory medicine at Penn Medicine, sat right next to her and provided her own view of their mentoring relationship.

The session, which also featured an interview with special guest Barbara Pierce Bush, was out of the norm for a scientific meeting, but the topic is an engaging one, and crucial for pathology and laboratory professionals as they advance in their careers. Here, Dr. Hunt talks to Critical Values about her experience as both a mentor and a mentee, as well as how pathology and laboratory professionals can develop such relationships for themselves.

Critical Values (CV): When did you start mentoring others, and what are some characteristics a good mentor should have?

Jennifer Hunt (JH): As a mentor, I think it started rather early on, mentoring people who were junior to me—for example, when I was a chief resident and talking to first-year residents, or talking to junior faculty members and working with fellows. No matter where you are in your career, you’re probably a mentor to someone, whether you know it or not. Sometimes people don’t see the role as a mentor; they see the role as a friend. But if there are generational differences or differences in your status, then you’re probably mentoring as well as being a friend.

The mentor role varies based on the relationship, and what you’re mentoring the person for. I think it’s important to remember that no one mentor will be everything to you, as a mentee. You can’t have just one person and have them teach...
you everything. More than likely you’ll need multiple mentors at any given time in your career. And that mentor needs to recognize his or her limitations, and be able to send that mentee off to other people rather than trying to be everything to one person.

Great mentors share willingly—not just their opinions, but their opportunities, their professional interests, and the culture of their profession. They connect people. Dr. LiVolsi is the best person at that I have ever known—at meetings she would introduce me to everybody. And that becomes very important. Mentors are generous with their time, even though they are busy, and they’re wise in the areas you need them to be.

Good mentors don’t need credit for what they do. The credit is appreciated, and the mentee needs to recognize what mentors have done for them, but that’s not why mentors do what they do. There’s a lot that goes on behind the scenes. Often, my best mentors have done things that I never knew about, and I may still not know the extent. I am sure that so many of the opportunities that have come my way in life are because Dr. LiVolsi recommended me or suggested my name.

CV: Is it better to let mentorship evolve naturally, or seek it out specifically?

JH: It’s a combination of both. My relationship with Dr. LiVolsi was a very natural evolution, but I’ve had other mentors I approached about being my mentor for something specific. For example, in one of my jobs I wanted to learn lean process improvement, and to explore Six Sigma. So I went to someone in the institution who was pretty senior, and not a physician, and was in charge of those elements, and asked for his help. And he became a mentor not just for those subjects, but for many things.

I think seeking people out in situations like that is very practical and reasonable. And it’s not as awkward as it can sometimes be to seek out a general mentor—you’re approaching a person with a specific skill set and a specific goal in mind. It’s good for both people in the potential mentorship to understand what you’re looking for, or what the skill set is you’re trying to gain, or what the area is you need help with, and to start off with a narrow focus rather than a broad one. It’s easier for you to ask for that, and it’s easier for the other person to say yes when there are well understood limits to the relationship.

Getting to know each other is part of the process, too, whether the mentorship evolves naturally or is asked for specifically. It can be a little clunky, getting to know your mentee and vice versa. It is usually a little bit social, not all professional, and involves figuring out what makes people tick.

CV: Once you’ve found a mentor, how can you make sure you are getting the most out of the mentoring relationship?

JH: Good mentees ask the right questions. One of the things I often see as a problem for mentees is they ask “yes or no” questions, when what they really want is someone to think through an issue with them, and talk through the pros and cons. You don’t want a one-word answer or guidance, because you, as the mentee, may decide differently, which could put you at odds with your mentor. Ask questions that are more open-ended or opinion-based and thought provoking. Not, “Should I write this paper?” Rather, “What would be the benefit to my career if I write this paper?”

Good mentees don’t wait until it is too late for meaningful assistance—they reach out early and they don’t wait until decisions are made and paths are created, when things are harder to turn around. They ask early and touch base and connect while they’re going through things.

Good mentees don’t demand too much. There is a fine line between touching base frequently and bothering your mentor. And I think good mentees follow through and take advantage of opportunities that their mentors create for them. I’ve encountered people for whom you’d find an opportunity, and in response they’d tell me they were too busy. That’s not a good answer. I am “too busy,” too, most of the time but if I find time to present a career enhancing opportunity for a junior faculty member, let us say, the least that person can do is express some interest and enthusiasm even if that person does not feel that way.

CV: How does mentoring benefit pathology and laboratory medicine overall?

JH: If you’re talking about clinical mentoring, we transfer a lot of our knowledge and experience to others through mentoring relationships. We share cases—pathologists are never shy about sharing cases with each other, ever, and I don’t know a lot of surgeons who call each other into the operating room to ask a colleague for help. They tend to be more independent. But in pathology, we share cases; it’s part of the culture. And that’s mentoring. You share a case, you hear people’s opinions, you gather from them, and it’s in many ways mentoring, even though it’s also education.

And it never stops. I still show cases to people. Sharing is part of the process of working through it intellectually—we’re in an extremely collaborative profession. And it also makes for really excellent patient care that way, because we know we have many people to tap into for the best diagnosis.

Ms. Strzelecki is Senior Editor of Critical Values.
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Choosing Wisely Recommendations Highlight Foundational Role of Pathology in Health Care
According to the Johns Hopkins Primary Care Policy Center, primary care “provides person-focused care over time, provides care for all but very uncommon or unusual conditions, and coordinates or integrates care, regardless of where the care is delivered and who provides it.” Anyone trying to make the case for the inclusion of pathology as a primary care specialty need only look to the American Board of Internal Medicine (ABIM) Foundation’s Choosing Wisely recommendations for evidence that pathology and laboratory medicine meets this definition.

Choosing Wisely is an initiative of the ABIM Foundation that seeks to promote patient-centered care by informing patients and physicians about inappropriate utilization of medical resources. The American Society for Clinical Pathology (ASCP) was invited to join the Choosing Wisely campaign in 2012, as the sole representative of pathology and laboratory medicine, to develop recommendations for the specialty.1

While ASCP was the only pathology organization in Choosing Wisely, it was far from the only Choosing Wisely partner with recommendations on laboratory testing. In a review of the recommendations from the more than 70 medical specialty organizations partnering with the ABIM Foundation on the campaign, nearly half listed at least one recommendation with a focus on laboratory testing, and many listed more than one. The prevalence of pathology-related Choosing Wisely recommendations reveals the integral role that labo-
Some of the recommendations put forth by other organizations mirror those of ASCP:

**American Academy of Family Physicians**
- Don’t perform Pap smears on women younger than 21 or who have had a hysterectomy for non-cancer disease.
- Don’t screen women younger than 30 for cervical cancer with HPV testing, alone or in combination with cytology.
- Don’t screen women older than 65 for cervical cancer who have had adequate prior screening and are not otherwise at high risk for cervical cancer.
- Don’t routinely screen for prostate cancer using a prostate-specific antigen test or digital rectal exam.

**American Academy of Ophthalmology**
- Don’t perform preoperative medical tests for eye surgery unless there are specific medical indications.

Many organizations recommended avoiding tests where the likelihood of a false positive is high and the benefit is low:

**American College of Surgeons**
- Avoid colorectal cancer screening tests on asymptomatic patients with a life expectancy of less than 10 years and no family or personal history of colorectal neoplasia.

**American Gastroenterological Association**
- Do not repeat colorectal cancer screening (by any method) for 10 years after a high-quality colonoscopy is negative in average-risk individuals.

**American Society of Clinical Oncology**
- Don’t perform surveillance testing (biomarkers) or imaging (PET, CT, and radionuclide bone scans) for asymptomatic individuals who have been treated for breast cancer with curative intent.

**Commission on Cancer**
- Don’t perform surgery to remove a breast lump for suspicious findings unless needle biopsy cannot be done.

**Society of General Internal Medicine**
- Don’t perform routine general health checks for asymptomatic adults.
- Don’t perform routine pre-operative testing before low-risk surgical procedures.
- Don’t recommend cancer screening in adults with life expectancy of less than 10 years.

**Society of Hospital Medicine**
- Don’t perform repetitive CBC and chemistry testing in the face of clinical and lab stability.

**Many of the recommendations put forth by other organizations addressed women’s health issues:**

**American Academy of Clinical Toxicology**
- Don’t order heavy metal screening tests to assess non-specific symptoms in the absence of excessive exposure to metals.

**American Congress of Obstetrics and Gynecology**
- Don’t perform routine annual cervical cytology screening (Pap tests) in women 30–65 years of age.
- Don’t screen for ovarian cancer in asymptomatic women at average risk.

**American College of Rheumatology**
- Don’t test ANA sub-serologies without a positive ANA and clinical suspicion of immune-mediated disease.
- Don’t test for Lyme disease as a cause of musculoskeletal symptoms without an exposure history and exam findings.

1. Initially, ASCP was the only organization representing pathology and laboratory medicine. Since then, ASCP has been joined in the campaign by the American Society of Hematology and the AABB (formerly called the American Association of Blood Banks).
ratory medicine plays in many clinical decisions, providing both primary care providers and specialists with often pivotal information for prevention, diagnosis, treatment, and management of disease.

The pathology-related Choosing Wisely recommendations fell into three categories: those directed specifically at test ordering; those directed at therapies or other types of treatment or procedures as determined by laboratory testing, and laboratory testing done by the patient for the purpose of self-monitoring. Several testing areas received attention from multiple campaign partners in their recommendations, among them pre-operative testing, cervical cancer screening, and prostate-specific antigen (PSA) and testosterone testing. The transfusion of blood and blood products was also a focus for several organizations in their recommendations.

Earlier this year, ASCP released a new set of Choosing Wisely recommendations. The recommendations expand on the first list released in February 2013, and again focus on outdated or inappropriately ordered laboratory tests.

The following are ASCP’s five new recommendations:

- Don’t order an erythrocyte sedimentation rate to look for inflammation in patients with undiagnosed conditions. Order a C-reactive protein to detect acute phase inflammation.
- Don’t test vitamin K levels unless the patient has an abnormal international normalized ratio and does not respond to vitamin K therapy.
- Don’t prescribe testosterone therapy unless there is laboratory evidence of testosterone deficiency.
- Don’t test for myoglobin or CK-MB in the diagnosis of acute myocardial infarction. Instead, use troponin I or T.
- Don’t order multiple tests in the initial evaluation of a patient with suspected thyroid disease. Order thyroid-stimulating hormone and, if abnormal, follow up with additional evaluation or treatment depending on the findings.

The new recommendations were developed by ASCP’s Choosing Wisely Ad Hoc Committee, under the leadership of its Chair and Past ASCP President Lee Hilbone, MD, MPH, FASCP, DLM(ASCP)CM. Subject matter and test utilization experts across the fields of pathology and laboratory medicine were included in this process for their expertise and guidance. The recommendations, based on an extensive review of pathology practice and literature, were developed to promote higher-quality care and more effective use of laboratory resources and personnel, and result in lower costs.

Examples of inappropriate and overutilized tests are pervasive throughout both anatomic and clinical pathology and laboratory medicine. The medical laboratory tests targeted in the new ASCP recommendations were selected because they are tests that are performed frequently; there is evidence that the tests either offer no benefit or are harmful; use of the tests is costly and they do not provide higher-quality care; and eliminating them or changing other tests is within the control of the clinician.

“At its heart, ASCP is a patient- and member-centered organization, and our main role in the Choosing Wisely program is to make sure the laboratory is well-represented in the appropriate utilization of medical resources, said ASCP President William G. Finn, MD, FASCP. “The clinical lab is involved in an extraordinarily high percentage of medical decisions and as such plays a fundamental role in every patient’s health care. Choosing Wisely enables ASCP to be part of reforming how resources are used to help patients in the most efficient and effective ways.”

Ms. Bennett is Director, Center for Public Policy, at ASCP.
## Pathology-Related Choosing Wisely Recommendations

### RECOMMENDATIONS DIRECTED SPECIFICALLY AT TEST ORDERING

<table>
<thead>
<tr>
<th>TYPE OF TEST</th>
<th>TEST-RELATED RECOMMENDATION</th>
<th>RECOMMENDING ORGANIZATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immunology</td>
<td>Don't perform unproven diagnostic tests, such as immunoglobulin G (IgG) testing of an indiscriminate battery of immunoglobulin E (IgE) tests, in the evaluation of allergy.</td>
<td>American Academy of Allergy, Asthma &amp; Immunology (AAAAI)</td>
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<td>Don't perform food IgE testing without a history consistent with potential IgE-mediated food allergy.</td>
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<td>Don't routinely do diagnostic testing in patients with chronic urticaria.</td>
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<td>Don't test ANA sub-serologies with a positive ANA and clinical suspicion of immune-mediated disease.</td>
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<td>Don't test for Lyme disease as a cause of musculoskeletal symptoms without an exposure history and appropriate exam findings.</td>
<td>American College of Rheumatology – Pediatric Rheumatology</td>
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<td>Don’t order autoantibody panels unless positive antinuclear antibodies (ANA) and evidence of rheumatic disease.</td>
<td>American College of Rheumatology – Pediatric Rheumatology</td>
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<td>Don’t repeat a confirmed positive ANA in patients with established juvenile idiopathic arthritis (JIA) disease activity or systemic lupus erythematosus (SLE).</td>
<td>American College of Rheumatology – Pediatric Rheumatology</td>
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<td>Don’t perform screening panels for food allergies without previous consideration of medical history.</td>
<td>American Academy of Pediatrics</td>
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<td>Don’t perform immunological testing as part of the routine infertility.</td>
<td>American Society for Reproductive Medicine</td>
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<td>Chemistry</td>
<td>Don’t perform population based screening for 25-OH-Vitamin D deficiency.</td>
<td>ASCP</td>
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<td>Don’t test for myoglobin or CK-MB in the diagnosis of acute myocardial infarction (AMI). Instead, use troponin I or T.</td>
<td>ASCP</td>
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<td>Don’t order multiple tests in the initial evaluation of a patient with suspected non-neoplastic thyroid disease. Order thyroid-stimulating hormone (TSH), and if abnormal, follow up with additional evaluation or treatment depending on the findings.</td>
<td>ASCP</td>
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<td>Don’t routinely measure 1,25-dihydroxyvitamine D unless the patient has hypocalcemia or decreased kidney function.</td>
<td>American Association of Clinical Endocrinologists and The Endocrine Society</td>
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<td>Don’t order a total or free T3 level when assessing levothyroxine (T4) dose in hypothyroid patients.</td>
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<td>Don’t order creatinine or upper-tract imaging for patients with benign prostatic hyperplasia (BPH).</td>
<td>American Urological Association</td>
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<td>Don’t routinely screen for prostate cancer using a prostate-specific antigen (PSA) test [or digital rectal exam].</td>
<td>American Academy of Family Physicians (AAFP)</td>
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<td>Don’t obtain follicle-stimulating hormone (FSH) levels in women in their 40s to identify the menopausal transition as a cause of irregular or abnormal menstrual bleeding.</td>
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<td>Don’t perform prolactin testing as part of the routine infertility evaluation in women with regular menses.</td>
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<td>Toxicology</td>
<td>Don’t administer a chelating agent prior to testing urine for metals, a practice referred to as “provoked” urine testing.</td>
<td>The American College of Medical Toxicology and the American Academy of Clinical Toxicology</td>
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<td>Microbiology</td>
<td>Don’t obtain a urine culture unless there are clear signs and symptoms that localize to the urinary tract.</td>
<td>AMIDA – The Society for Post-Acute and Long Term Care Medicine</td>
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<td>Hematology</td>
<td>Don’t perform a C. difficile toxin test to confirm “cure” if symptoms have resolved.</td>
<td>American Academy of Pediatrics</td>
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<td>Blood Banking &amp; Transfusion Therapy</td>
<td>Avoid the use of surveillance cultures for the screening and treatment of asymptomatic bacteruria.</td>
<td>Infectious Diseases Society of America</td>
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<td>Coagulation</td>
<td>Avoid testing for a Clostridium difficile infection in the absence of diarrhea.</td>
<td>American College of Emergency Physicians</td>
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<td>Avoid (antibiotics and) would cultures in emergency department patients with uncomplicated skin and soft tissue abscesses after successful incision and drainage and with adequate medical follow-up.</td>
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<td>Don’t administer packed red blood cells (PRBCs) in a young healthy patient without ongoing blood loss and hemoglobin of 26g/dL unless symptomatic hemodynamically unstable.</td>
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<td>Cytology</td>
<td>Don't perform Pap smears on women younger than 21 or who have had a hysterectomy for non-cancer disease.</td>
<td>American Academy of Family Physicians (AAFP)</td>
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<td>Don't screen women older than 65 years of age for cervical cancer who have had adequate prior screening and are not otherwise at high risk for cervical cancer.</td>
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<td>Don't screen women younger than 30 years of age for cervical cancer with HPV testing, alone or in combination with cytology.</td>
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<td>Don't perform routine annual cervical cytology screening (Pap tests) in women 30-65 years of age.</td>
<td>The American College of Obstetricians and Gynecologists</td>
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<td>Don't perform Pap tests for surveillance of women with a history of endometrial cancer.</td>
<td>Society of Gynecologic Oncology</td>
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<td>Molecular Pathology/Genetic Testing</td>
<td>Don't screen for ovarian cancer [with CA-125] in asymptomatic women at average risk.</td>
<td>The American College of Obstetricians and Gynecologists</td>
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<td>Don't repeat hepatitis C viral load testing (highly-sensitive quantitative hepatitis C RNA assays) outside of antiviral therapy.</td>
<td>American Association for the Study of Liver Diseases</td>
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<td>Don't screen low risk women with CA-125 [or ultrasound] for ovarian cancer.</td>
<td>Society of Gynecologic Oncology</td>
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<td>Don't perform surveillance testing (biomarkers) or imaging (PET, CT, and radionuclide bone scans) for asymptomatic individuals who have been treated for breast cancer with curative intent.</td>
<td>American Society of Clinical Oncology (ASCO)</td>
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<td>Don't offer noninvasive prenatal testing (NIPT) to low-risk patients or make irreversible decisions based on the results of this screening test.</td>
<td>Society for Maternal-Fetal Medicine</td>
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<td>Don't perform low risk HPV testing.</td>
<td>ASCP</td>
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<td>Only order Methylated Septin 9 (SEPT9) to screen for colon cancer on patients for whom conventional diagnostics are not possible.</td>
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<td>Pre-Op Battery</td>
<td>Don't perform preoperative medical tests for eye surgery unless there are specific medical indications.</td>
<td>American Academy of Ophthalmology</td>
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<td>Don't obtain baseline laboratory studies in patients without significant systemic disease (ASA I or II) undergoing low-risk surgery – specifically complete blood count, basic or comprehensive metabolic panel, coagulation studies when blood loss (or fluid shifts) is/are expected to be minimal.</td>
<td>American Society of Anesthesiologists</td>
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<td>Avoid routine preoperative testing for low-risk surgeries without a clinical indication.</td>
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<td>Don't perform routine pre-operative testing before low-risk surgical procedures.</td>
<td>Society of General Internal Medicine (SGIM)</td>
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<td>Non-Pre-Op Battery</td>
<td>Don't order diagnostic tests (arterial blood gases, blood chemistries, blood counts) at regular intervals (such as everyday), but rather in response to specific clinical questions.</td>
<td>Critical Care Societies Collaborative – Critical Care</td>
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<td>Screening Tests</td>
<td>Don't perform routine cancer screening for dialysis with limited life expectancies without signs of symptoms.</td>
<td>American Society of Nephrology</td>
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<td>Don't perform routine general health checks for asymptomatic adults.</td>
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<td>Don't recommend cancer screening in adults with life expectancy of less than 10 years.</td>
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</tr>
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<td></td>
<td>Don't recommend cancer screening in adults without significant symptoms of the disease when they are expected to live less than 10 years.</td>
<td>American Geriatrics Society (AGS)</td>
</tr>
<tr>
<td></td>
<td>Don't recommend screening for breast or colorectal cancer, nor prostate cancer with the PSA test, without considering life expectancy and the risks of testing, overdiagnosis and overtreatment.</td>
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<tr>
<td></td>
<td>Don't recommend screening for breast, colorectal or prostate cancer if life expectancy is estimated to be less than 10 years.</td>
<td>AMDA – The Society for Post-Acute and Long Term Care Medicine</td>
</tr>
<tr>
<td></td>
<td>Don't routinely perform PSA-based screening for prostate cancer.</td>
<td>American College of Preventive Medicine</td>
</tr>
<tr>
<td></td>
<td>Don't perform screening for cervical cancer in low-risk women aged 65 years or older and in women who have had a total hysterectomy for benign disease.</td>
<td>American Academy of Family Physicians</td>
</tr>
<tr>
<td></td>
<td>Don't routinely screen for prostate cancer using a prostate-specific antigen (PSA) test or digital rectal exam.</td>
<td>American Academy of Family Physicians</td>
</tr>
<tr>
<td></td>
<td>Don't offer noninvasive prenatal testing (NIPT) to low-risk patients or make irreversible decision based on the results of this screening test.</td>
<td>Society for Maternal-Fetal Medicine</td>
</tr>
<tr>
<td></td>
<td>Avoid colorectal cancer screening tests on asymptomatic patients with a life expectancy of less than 10 years and no family or personal history of colorectal neoplasia.</td>
<td>American College of Surgeons</td>
</tr>
<tr>
<td></td>
<td>Do not repeat colorectal cancer screening (by any method) for 10 years after a high-quality colonoscopy is negative in average-risk individuals.</td>
<td>American Gastroenterological Association</td>
</tr>
<tr>
<td>Biopsy</td>
<td>Don't perform sentinel lymph node biopsy or other diagnostic tests for the evaluation of early, thin melanoma because they do not improve survival.</td>
<td>American Academy of Dermatology (AAD)</td>
</tr>
<tr>
<td>Fertility</td>
<td>Don't perform advanced sperm function testing, such as sperm penetration or hemizona assays, in the initial evaluation of the infertile couple.</td>
<td>American Society for Reproductive Medicine</td>
</tr>
</tbody>
</table>
### RECOMMENDATIONS DIRECTED AT THERAPY OR OTHER TREATMENT AS DETERMINED BY LABORATORY TESTING

<table>
<thead>
<tr>
<th>TYPE OF TEST</th>
<th>TEST-RELATED RECOMMENDATION</th>
<th>RECOMMENDING ORGANIZATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biopsy</td>
<td>Don’t perform surgery to remove a breast lump for suspicious findings unless needle biopsy cannot be done.</td>
<td>Commission on Cancer (COC)</td>
</tr>
<tr>
<td></td>
<td>Don’t perform axillary lymph node dissection for clinical stages I and II breast cancer with clinically negative lymph nodes without attempting sentinel node biopsy.</td>
<td>American College of Surgeons</td>
</tr>
<tr>
<td></td>
<td>Do not repeat colonoscopy for at least five years for patients who have one or two small (&lt;1 cm) adenomatous polyps, without high-grade dysplasia, completely removed via a high-quality colonoscopy.</td>
<td>American Gastroenterological Association</td>
</tr>
<tr>
<td></td>
<td>For a patient who is diagnosed with Barrett’s esophagus, who has undergone a second endoscopy that confirms the absence of dysplasia on biopsy, a follow-up surveillance examination should not be performed in less than three years as per published guidelines.</td>
<td>American Society of Gastroenterology and Endoscopy (ASGE)</td>
</tr>
<tr>
<td>CBC (WBC)</td>
<td>Don’t use white cell stimulating factors for primary prevention of febrile neutropenia for patients with less than 20 percent risk for this complication.</td>
<td>American Society of Clinical Oncology (ASCO)</td>
</tr>
<tr>
<td>Cardiac Markers</td>
<td>Don’t perform stress cardiac imaging or advanced non-invasive imaging in the initial evaluation of patients without cardiac symptoms unless high-risk markers are present.</td>
<td>American College of Cardiology</td>
</tr>
<tr>
<td>Coagulation</td>
<td>Don’t perform chest computed tomography (CT angiography) to evaluate for possible pulmonary embolism in patients with a low clinical probability and negative results of a highly sensitive D-dimer assay.</td>
<td>American College of Chest Physicians (ACCP)</td>
</tr>
<tr>
<td></td>
<td>Avoid CT pulmonary angiography in emergency department patients with a low pre-test probability of pulmonary embolism and either a negative Pulmonary Embolism Rule-Out Criteria (PERC) or a negative D-dimer</td>
<td>American College of Emergency Physicians (ACEP)</td>
</tr>
<tr>
<td></td>
<td>Don’t recommend bed rest following diagnosis of acute deep vein thrombosis (DVT) after the initiation of anti-coagulation therapy, unless significant medical concerns are present.</td>
<td>American Physical Therapy Association (APTA)</td>
</tr>
<tr>
<td>Platelets</td>
<td>Don’t treat patients with immune thrombocytopenic purpura (ITP) in the absence of bleeding or a very low platelet count.</td>
<td>American Society of Hematology (ASH)</td>
</tr>
<tr>
<td>Hemoglobin</td>
<td>Don’t administer erythropoiesis-stimulating agents (ESAs) to chronic kidney disease (CKD) patients with hemoglobin levels ≥ 10 g/dL without symptoms of anemia.</td>
<td>American Society of Nephrology (ASN)</td>
</tr>
<tr>
<td>Hemoglobin A1c</td>
<td>Avoid using medications to achieve hemoglobin A1c&lt;7.5% in most adults age 65 and older; moderate control is generally better.</td>
<td>American Geriatrics Society (AGS)</td>
</tr>
<tr>
<td>Microbiology</td>
<td>Don’t treat asymptomatic bacteruria with antibiotics.</td>
<td>Infectious Diseases Society of America (IDSA)</td>
</tr>
<tr>
<td>Testosterone</td>
<td>Avoid prescribing antibiotics for upper respiratory infections.</td>
<td>American Thoracic Society (ATS)</td>
</tr>
<tr>
<td>PSA</td>
<td>Don’t use antibiotic therapy for stasis dermatitis of lower extremities.</td>
<td>Society for Academic Emergency Physicians (SAEP)</td>
</tr>
<tr>
<td>Pap Test</td>
<td>Don’t perform colonoscopy in patients treated for cervical cancer with Pap tests of low grade squamous intraepithelial lesion (LSIL) or less.</td>
<td>Society of Gynecologic Oncology (SGO)</td>
</tr>
<tr>
<td>PSA</td>
<td>A routine bone scan is unnecessary in men with low-risk prostate cancer (patients with newly diagnosed prostate cancer who have a PSA &lt; 20.0 ng/ml and a Gleason score of 6 or less unless the patient’s history or clinical examination suggests bony involvement).</td>
<td>American Urological Association (AUA)</td>
</tr>
<tr>
<td>Testosterone</td>
<td>Don’t treat an elevated PSA with antibiotics for patients not experiencing other symptoms.</td>
<td>American Society of Clinical Oncology (ASCO)</td>
</tr>
<tr>
<td>Testosterone</td>
<td>Don’t perform PET, CT, and radionuclide bone scans in the staging of early prostate cancer at low risk for metastasis (Stage T1c/T2a, PSA &lt;10 ng/ml, Gleason score less than or equal to 6).</td>
<td>American Society of Clinical Oncology (ASCO)</td>
</tr>
<tr>
<td>Thyroid Function Tests</td>
<td>Don’t routinely order a thyroid ultrasound in patients with abnormal thyroid function tests if there is no palpable abnormality of the thyroid gland.</td>
<td>The Endocrine Society and American Association of Clinical Endocrinologists (AACE)</td>
</tr>
</tbody>
</table>

### RECOMMENDATIONS DIRECTED AT PATIENT SELF-MONITORING LABORATORY TESTING

<table>
<thead>
<tr>
<th>TYPE OF TEST</th>
<th>TEST-RELATED RECOMMENDATION</th>
<th>RECOMMENDING ORGANIZATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glucose</td>
<td>Don’t recommend daily home finger glucose testing in patients with Type 2 diabetes mellitus not using insulin.</td>
<td>Society of General Internal Medicine (SGIM)</td>
</tr>
<tr>
<td>Testosterone</td>
<td>Avoid routine multiple daily self-glucose monitoring in adults with stable Type 2 diabetes on agents that do not cause hypoglycemia.</td>
<td>American Association of Clinical Endocrinologists and The Endocrine Society (AACE)</td>
</tr>
</tbody>
</table>
Education and the Workforce

By S. Joseph Sirintrapun, MD

Building a Pipeline for Pathology Informatics
As a pathology resident in the early to mid 2000s, I witnessed a new, exciting stage of pathology disruption—the digitization of physical glass slides. By then, I was already enamored with the application of technology in medicine. Prior to my pathology residency, as a urology resident, I witnessed the power of digitization of endoscopic and laparoscopic images and the beginnings of robotics in surgery. Moreover, as paper charts were being converted to electronic medical records, I experienced the beneficial impact of accessibility on patient care. As a pathology resident, I became further impressed with the type of technological advances that enabled the physical and virtual flow in daily operations, along with all the automation developed for the intricate processes of the laboratory.

It was the disruptive technology to digitize physical glass slides, however, that propelled me into the field of informatics, where I could help further develop and implement even broader enabling technologies. Going from urology to pathology and eventually to practicing surgical pathologist and informatician, I never could have envisioned myself pursuing a career in pathology informatics back then. Certainly my path toward informatics was not linear.

Curiously, this winding path toward informatics seems commonplace among my informatics colleagues. Such a winding path is not surprising, considering that standard medical education and training does not delineate an easily definable
linear pathway and seldom provides mentorship for pursuing informatics as a long-term career. One can only imagine the creative minds lost because of the lack of enthusiastic promotion of informatics to students and residents.

I do feel, however, that there are ways to spark interest in the field and better recruit the creative minds needed in informatics. Doing so requires creating a formalized pipeline for talent to enter the field or, at the very least, empowering people with the necessary informatics skills and mindsets. It also requires commitment from those already in the field to focus on educating students and professionals alike and creating a path that people will want to follow.

**Informatics—The Art and Science of Connecting**

Paving that path has to start with determining what informatics really is. There are many formalized definitions, but they are sometimes so broad that they become too vague to create enthusiasm for the field. Reading the lengthy definition of “informatics” in Wikipedia, it is hard to imagine anyone getting excited or feeling empowered by the field. So rather than repeating a formal definition, perhaps it is better to begin by conveying what informatics is not: it is not, as commonly thought, only for people who are 1) technologically savvy (what I term “technophiles”), or 2) good at troubleshooting (for example, IT technical support).

In essence, informaticians are “connectors.” They strive to connect disparate manual workflow processes in the laboratory through automation and tracking. With digitizing of physical glass slides, informatics work has effectively bridged a chasm between the immense raw analog data residing in glass slides and computational opportunities for image processing. In the past, the accumulation of data occurred in separate silos previously thought not to have any connection to each other and/or deemed not of any importance to even try to connect. Now, in the age of “big data,” informaticians aspire to connect all types of disparate data and to go even further to conceptualize and visualize the data into something meaningful.

As connectors, informaticians must use a broad knowledge base and foster an interdisciplinary perspective. Much of this acquired knowledge and experience is not taught in medical school, or acquired during medical training, or described in medical literature. Thus, being effective in pathology informatics means one should be open to venturing beyond the comfort zone of medicine and pathology. One must maintain a curiosity and hunger to familiarize oneself with a great many unfamiliar disparate domains, such as operations, administrative structures, information flows, IT frameworks, governance, and change management principles.

In my practice as a surgical pathologist and informatician, I apply all this along with my experience in anatomic pathology, image digitization, and advanced molecular testing toward informatics projects. These projects stretch the full breadth of what I know and involve my being able to shift back and forth seamlessly between the various domains. Even though there are few, if any, roadmaps on how to proceed, forging new paths is what makes practicing informatics exciting.

“Creativity under constraints” is how I describe informatics work in today’s era of health care. Informaticians must construct connections and develop creative solutions, even while constrained by finite resources and rigid administrative, institutional, and regulatory frameworks.

Coming from a clinical background, I found it natural to anticipate what clinicians require and expect. This proved helpful when working on informatics projects in which there is convergence between pathology and direct patient clinical care—think pathology reporting and decision support. With the reporting of anatomic pathologic findings in the age of ancillary testing for predictive and prognostic information, there is pressure for results from advanced molecular testing and next-generation sequencing to be integrated in the initial anatomic pathology report. This involves overcoming the current constraints of data movement between information systems that normally do not “talk” with each other. It involves an understanding of human cognitive processes to take in such a complex report and determine if the data in the report is satisfying both from a computational and intuitive standpoint.

To employ decision support for electronic order entry for ancillary advanced molecular testing on anatomic pathology specimens, informaticians must collaborate with multiple IT teams to create an intuitive system that connects clinicians with pathology and enables them to find and select the right test. The challenge involves understanding the clinical workflows to provide in real time the least disruptive and intuitive mechanisms in the electronic medical record and ensure that the wrong test or duplicate testing do not occur.

As the volume of health-related data continues to grow at unprecedented rates and new information systems are deployed to those already overrun with too much data, clinicians are expected to integrate and parse through this immense amount of data, a task that has arguably grown to exceed the cognitive capabilities of the human mind. We as pathologists are poised to contribute and exponentially amass more data from the throughput of our various diagnostic tiers of “omic” testing and image digitization. As “tissue gatekeepers,” pathologists will assume another role as “information gatekeepers” for the vast amount of data associated with the tissues.

For informaticians, new methods must be explored in order to avoid the information overload that can occur with advanced reporting and decision support. It’s important to streamline...
the assimilation of information by breaking down, simplifying, and/or intuitively presenting the information in ways that are readily grasped by the human mind. In addressing this problem, one promising field of study in informatics is visual analytics.

Human minds are adapted for visualizations (e.g., graphs, charts, and visual aids) rather than narrative texts or strings of data. Visual analytics is the science of analytic reasoning facilitated by advanced interactive visual interfaces in order to facilitate reasoning over and interpretation of complex data. Visual analytics techniques combine concepts of data mining, machine learning, human computer interaction, and human cognition. Current clinical information systems, including our laboratory information systems, are embarrassingly behind in implementing visualizations, particularly for reporting. And for decision support, visualizations are nonexistent. Because even the brightest human minds soon will have difficulty parsing the deluge of information, insights into enabling better visualizations in information systems will become more critical in the near future.

To tackle this near future, pathologists who practice informatics will have to connect and bring medical and pathology domain expertise to data scientist teams (aka “quants,” often made up of programmers, data analysts, and mathematicians). In an ideal future framework, the team of pathologists who practice informatics and “quants” create the necessary architecture and frameworks to tackle the complexities of big data.

### Envisioning Human Capital Pipelines for Informatics

Any successful informatics project must have a support team in place. And as any informatics director knows, finding support personnel with the right talent is not easy. Many institutions start internally with recruitment of IT technical support staff. If a pathology department is fortunate to have “quants,” those few are often recruited directly from business domains without prior medical experience in the hopes of translating their insights into informatics. This understates the steep learning curves involved in acquiring pathology domain knowledge and learning about operations, administrative structures, information flows, IT frameworks, and governance.

It is hard to train oneself to think from multiple perspectives and put oneself in the role of multiple stakeholders and end users when undertaking an informatics project. This chasm can and must be overcome by recruiting more minds involved with informatics via broad exposure through more numerous formalized mechanisms. Several institutions have pathology informatics fellowships and/or offer curricula in pathology informatics. And it is especially encouraging to see a large organization like the American Society for Clinical Pathology creating a curriculum in informatics. This may prove a great leap forward in empowering more pathologists with informatics skills—in other words, in bringing out the “inner informatician” in everyone.

Additionally, encouraging and recruiting undergraduate and graduate students to utilize their computational skills in pathology domains would help fill the human capital pipeline for skilled informatics nonphysician personnel. Imagine training medical technologists, who have strong pathology domain knowledge, to expand into subspecialized computational skills in informatics. Likewise, attracting “quants”—who might otherwise apply their talents in Silicon Valley or on Wall Street—into pathology by introducing them to the problems and challenges and nurturing them into a medical context would benefit the overall informatics team in enhancing patient care. One can only envision the progress that could be made when every pathologist and laboratory professional utilizing their “inner informatician” works in synchrony with such diverse talent.

### Bringing Out the Inner Informatician in Everyone

Many people in informatics, like me, possess more quantitative and analytical mindsets. Some even come from programming or engineering backgrounds, which certainly can be an advantage. But having or not having these qualities should not dissuade anyone from being involved in informatics. To reiterate, technology is just one component of informatics, and it could be argued that understanding of the human/social factors of people and processes is more vital. Informatics still needs input from people familiar with operations, administrative structures, information flows, IT frameworks, and governance—and all while considering how such changes will advance healthcare. Furthermore, informatics still needs input from people who can contribute to better visualizations for handling big data and who understand such human cognitive components of taking in information.

For pathologists, however, pursuing informatics does not necessarily mean one must dedicate the majority of one’s career to pathology informatics or be boarded in clinical informatics. Practicing informatics in pathology is a mindset. To be effective in integrating advanced molecular testing results in anatomic pathology reporting, one must not only work with computational teams, but also guide what is the most intuitive layout to conceptualize the results. When influencing decision support, one must consider how many popups will cause alert fatigue, or how easy or difficult it is for the clinician to get the answer he/she needs. A pathologist who has brought out the “inner informatician” can provide this insight to an informatics team without being a hardcore “technophile,” and all while maintaining a balanced perspective on what is achievable from the computational end. For it is maintaining an intuitive sense of what technology can do in the current age, factoring constraints, and considering the impact on people and processes that are at the heart of practicing pathology informatics.

### References:


Dr. Sirintraphun is Director of Pathology Informatics and Assistant Attending Physician in the Department of Pathology at Memorial Sloan Kettering Cancer Center in New York.
Global Change Agents Address Health Care’s Hot Topics at ASCP 2015 Long Beach

ASCP 2015 Long Beach, to be held Oct. 28-30 in Long Beach, Calif., will bring together globally recognized change agents to address critical issues and emerging trends affecting the healthcare industry. Sanjay Gupta, MD, CNN’s chief medical correspondent, assistant professor of Neurosurgery at Emory University School of Medicine, and associate chief of Neurosurgery at Grady Memorial Hospital, both in Atlanta, will speak on Medicine and the Media during the general session on Oct. 30. Dr. Gupta’s advocacy and work in the global public health arena aligns with ASCP’s initiatives to advance patient care worldwide. Dr. Rajesh Panjabi, CEO of Last Mile Health, who has been on the front lines in Liberia to fight Ebola, will also take part in the conversation, which will examine how the Ebola crisis was handled and what public health officials have learned to improve their response to future pandemics.

On Oct. 29, documentary director/producer Barak Goodman, who worked with Ken Burns to create the recent PBS documentary series “Cancer: The Emperor of All Maladies,” will share his unique perspective on advancing the practice of medicine and the vital role pathologists and laboratory professionals play in the global fight against cancer. Over the course of 20 years and more than 30 films, Goodman has become one of the most prolific and acclaimed nonfiction filmmakers in America. His films regularly appear on PBS and on network and cable outlets such as the History Channel and A&E.

Over three memorable days, the 2015 ASCP Annual Meeting will gather the foremost experts in pathology and laboratory medicine to share their knowledge about cutting-edge scientific discoveries in the diagnosis and treatment of cancer and other challenging diseases.

Collaboration with other specialty medical societies, such as the Society for Hematopathology (SH), the American Pathology Foundation, and the Association for Pathology Informatics, will enable ASCP to present leading-edge scientific knowledge on a broad scope of topics within the field of pathology. ASCP 2015 Long Beach will kick off on Oct. 28 with

Dr. Gupta
SH/ASCP Day, which will offer a dynamic series of specialized education focusing on the latest breakthroughs in the diagnosis and treatment of often-deadly diseases, such as T-cell lymphoma and Myelodysplastic Syndromes (MDS). The MDS curriculum presents a comprehensive, case-based discussion of the clinical approach, diagnosis, classification, and treatment of MDS by the interdisciplinary MDS clinical care team. Participants will engage in interactive small-group activities, including case-based tumor board discussions; assessing low- or high-grade MDS; acquiring morphologic mimics; applying the prognostic scoring system to cytogenetics; and identifying the new role of molecular testing.

**Multidisciplinary Approach Leads to Better Care**

“Interdisciplinary, team-based education solves one of the most important problems,” says Eric Parks, PhD, ASCP director of Education Design and Technology. “Many healthcare disciplines are taught in silos. Yet, healthcare decisions involve the entire care team to maximize patient outcomes. Sessions such as this are designed to help eliminate the silos and facilitate communication that will improve the diagnosis and treatment.”

While staying on top of today’s hottest topics, participants will also have the opportunity to meet all of their certification needs in just one place. In three days, pathologists under Maintenance of Certification (MOC) can earn more than 20 Self-Assessment Module (SAM) credits, meeting their entire two-year SAM credit requirement, and laboratory professionals under the Credential Maintenance Program can choose from sessions covering every topic area needed to meet their three-year recertification requirement. An outstanding array of distinguished experts will highlight critical areas of value for the field, including global patient-centric care, cancer prevention and detection, and appropriate test utilization. Education highlights include:

**Molecular versus Conventional Microbiology: The Role of Pathologist in Optimal Test Selection**, presented on Oct. 29 by Amy L. Leber, PhD, SM(ASCP)MB™, and Styliani Antonara, PhD, will use a case-based approach to review the proper test selection for diagnosis of infectious diseases with an emphasis on nucleic acid amplification tests.

**Papillary Neoplasms of the Breast: Clinical, Histological and Immunohistochemical Aspects of a Diagnostically Difficult Group of Lesions**, presented on Oct. 30 by Syed Hoda, MD, FASCP, will offer an interactive presentation with ample illustrations of each type of papillary neoplasm of the breast, including intraductal papilloma, atypical papilloma, non-invasive papillary carcinoma, solid-papillary carcinoma, so-called encysted papillary carcinoma, and intracystic papillary carcinoma.

**Interpretation and Reporting of Prostate Needle Biopsy Material: A Contemporary Update**, presented on Oct. 29 by Omar Hameed, MD, FASCP, and Peter A. Humphrey, MD, FASCP, will provide both pathologists in practice and those in training with an effective and practical approach to the evaluation of prostate needle biopsy material.

**Maintenance of Certification Update 2015–American Board of Pathology (ABP)**, presented on Oct. 28 by ABP chief executive officer Rebecca L. Johnson, MD, FASCP, will review ABP’s current MOC program requirements. The four parts of MOC will be discussed and examples of how the requirements can be met will be provided. New ABP MOC requirements and policies and the American Board of Medical Specialties’ 2015 Proposed MOC Standards will also be presented.

**Lean Quality Improvement: A Practical Approach**, presented on Oct. 28 by Amy Wendel Spiczka, MS, MB, SCT, HTL(ASCP); Maxwell Smith, MD, FASCP; and Stephen S. Raab, MD, FASCP, will feature three parts: 1) an introduction to lean techniques and simulation-based education, followed by a hands-on activity where participants will use their new knowledge; 2) an overview of lean implementation focused on patient safety, productivity, and failures in lean implementation; and 3) a focus on cognitive aspects of lean and how to use lean approach to decrease cognitive bias.

**Basic Molecular Pathology of Cancer and Standard Nomenclature in Genomic Medicine**, presented Oct. 29 by Michael O. Idowu, MD, MPH, FASCP, will review basic molecular mechanisms of carcinoma as a backdrop to discussing basic standard nomenclature of gene, gene products, and variant description. Practical examples of standard nomenclature in cytogenetic and molecular pathology will be discussed.

**Supporting Digital Pathology Across the Enterprise** will be presented Oct. 28 by Mark Tuthill, MD, FASCP, in collaboration with the Association for Pathology Informatics. This session will explore the requirements and opportunities for supporting digital pathology across the healthcare enterprise based on examples and experiences at Henry Ford Health System in Michigan. Included will be a discussion of the deployment of a vendor-supplied, pathology-based multimedia media storage solution that is integrated with AP and CP for image management as well as reporting.

**Robust Education for Residents**

The Annual Meeting provides robust educational offerings for residents, including a two-day Resident Review Series track that will offer 7.5 hours of high-yield education to help them prepare for their board exams. On Oct. 30, the Michele D. Raible Lecture for Residents, “How Do We Deal with Information Overload in Pathology?” will be presented by Henry Rinder, MD, FASCP, professor of Laboratory Medicine and associate director of the Pathology Residency Program at Yale School of Medicine in New Haven, Conn.
On Oct. 31, Richard Haspel, MD, PhD, FASCP, who is on the faculty of Deaconess Beth Israel Medical Center and assistant professor of Pathology at Harvard University, Boston, will present a full-day Genomics Workshop for Residents. Using a case-based, interactive small-group approach, workshop participants will learn principles related to the development of genomic assays and interpretation of results. The session was developed by the Training Residents in Genomics Working Group, chaired by Dr. Haspel. On Oct. 30, he will also present a session on molecular medicine and genomics designed specifically for pathologists.

All three days of this year’s meeting offer time to relax and network with colleagues from all over the globe. The popular Mixology Lab takes place on Friday night and features the poster winners’ closing awards ceremony, presentation of the Top Five 40 Under Forty honorees, and more opportunities for networking.

As part of its commitment to building the laboratory workforce of the future, ASCP will launch its inaugural NEXTPO event in conjunction with its annual “Building the Laboratory Workforce for the Future Day” on Oct. 30. NEXTPO is part of ASCP’s exciting nationwide initiative designed to elevate awareness of careers in the medical laboratory profession. Students from a local high school will be invited to take part in a full day of activities led by ASCP Career Ambassadors, who are part of an outreach program sponsored by Roche. ASCP President William G. Finn, MD, FASCP, will present the Third Annual ASCP STEM Student Scholarship to a talented high school student who is interested in pursuing a career in the medical laboratory profession. The website www.whatsmynext.org will feature an interactive educational tool, “Lab Hero Challenges,” to show students how laboratory professionals are changing the world by understanding disease states.

ASCP 2015 Long Beach will present all of this scientific knowledge in a unique, fun, and exciting atmosphere where pathologists and laboratory professionals can come together to interact and prepare for the evolving needs of the medical laboratory.

ASCP Expands Choosing Wisely® List

ASCP has expanded its list of specific tests or procedures that are commonly ordered but not always appropriate in pathology and laboratory medicine as part of the Choosing Wisely® campaign, an initiative of the ABIM Foundation. The new list of five targeted, evidence-based recommendations expands the original list released in February 2013 and is designed to support conversations between patients and physicians about what care is really necessary. Read more about this expanded list of recommendations in an article in the digital July issue of *Critical Values*.

New CRC Guideline Advances Personalized Care

ASCP is collaborating on a draft clinical practice guideline on the use of biomarkers testing for patients with primary or metastatic colorectal carcinoma. This evidence-based “Guideline on the Evaluation of Molecular Markers for Colorectal Cancer Workgroup Draft Recommendations Summary,” drafted by ASCP in collaboration with the College of American Pathologists, the Association for Molecular Pathology, and the American Society of Clinical Oncology, will help establish standard biomarkers testing, guide targeted therapies, and advance personalized care for these patients.

This collaborative guideline brings together the expertise of four major medical organizations to provide guidance for pathologists and oncologists on the selection of appropriate molecular tests in colorectal cancer patients. The testing reveals information about the genetic makeup of a patient’s cancer, allowing doctors to create personalized medicine treatment protocols, customized to each patient’s needs.

According to Wayne W. Grody, MD, PhD, FASCP, of the UCLA School of Medicine, who is a project co-chair and an ASCP member: “By bringing together four key organizations, all with substantial interest in patient treatment of colorectal cancer, we have addressed multiple elements of the patient care continuum. While we didn’t focus on a selected set of biomarkers, we considered the overall plan of care from collection of tissue samples to diagnostics, treatment, and follow-up.”

The co-chairs, one from each of the four organizations, utilized the expertise of more than 25 specialists in a variety of disciplines, including pathologists and oncologists, as well as patient advocates, to draft
the guidance document. The multidisciplinary perspective has resulted in a thorough set of draft recommendations that streamline processes and contribute to improving patient outcomes.

Other colorectal cancer molecular marker guidelines have tended to focus on one marker or a small panel of markers for one specific clinical use, unlike the collaborative, multidisciplinary approach for this guideline. This guideline addresses all current molecular markers that can impact treatment decisions for patients with colorectal cancer. The organizations have sought input from stakeholders, including scientists, clinicians, government agencies, other non-profit organizations, patients, patient advocates, and members of the public, before the release of a final set of recommendations for the care of patients with colorectal cancer in October. The guideline will be jointly, concurrently published by the participating organizations in electronic format, followed by print in the American Journal of Clinical Pathology, the Archives of Pathology & Laboratory Medicine, the Journal of Molecular Diagnostics, and the Journal of Clinical Oncology.

SGR Repealed: Now What?

Nearly two decades after it was first put in place and more than a decade after it began calling for drastic cuts to physicians’ reimbursement rates, Medicare’s flawed Sustainable Growth Rate (SGR) payment formula has been repealed by Congress. On March 26, the U.S. House of Representatives passed H.R.2, the “Medicare Access and CHIP Reauthorization Act,” by a vote of 392 to 37. Immediately upon return from April recess, the U.S. Senate followed suit and adopted H.R.2 by a vote of 98 to 2 on April 14. Two days later, President Obama signed the bill into law, authorizing permanent repeal of Medicare’s malignant and outdated payment formula and thus securing the program’s long-term sustainability for many years to come.

Passage of this landmark legislation is a major victory for both the patient and provider community. In addition to repealing and replacing Medicare’s flawed SGR with stable payment updates for five years, the bill contains a number of policies aimed at transitioning Medicare’s broken fee-for-service (FFS) reimbursement system to pay-for-performance. In particular, H.R.2 consolidates and streamlines the Physician Quality Reporting System, Value-based Payment Modifier program, and Meaningful Use program into one compulsory quality reporting and improvement program under the Centers for Medicare and Medicaid Services. The bill then authorizes a fourth performance improvement activities module to be included in the all-encompassing Merit-based Incentive Payment System (MIPS) program. The MIPS program is to go into effect in 2019, following the discontinuation of current program penalties in 2018. Double-sided risk will be reintroduced upon MIPS program establishment. However, it will be based on prospective performance thresholds rather than on a tournament model. Moreover, the program will employ sliding scale performance assessment rather than an “all-or-nothing” measurement approach.

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In addition to allocating $15 million each year from 2015 through 2018 to fund quality measure development, H.R.2 also allocates significant dollars to encourage and aid participation in Alternative Payment Models (APMs). The legislation has made available $20 million each year from 2016 through 2019 for small practices that need assistance in participating in either the FFS quality performance programs or the APMs. Of note, providers participating in APMs will be exempt from participating in MIPS once it is established. The bill also provides annual 5 percent bonus payments for APM-participating providers from 2019 to 2024 as well as a 0.75 percent update (+0.50 percent), beginning in 2026.

Despite these significant policy changes, the most impactful piece of this legislation remains the long-anticipated repeal of the SGR. Without securing the financial sustainability of the Medicare program via SGR repeal, payment and delivery system reform via many of the policies contained in H.R.2 would not be feasible or lasting. ASCP President William G. Finn, MD, FASCP, said, “Through passage of this bill, physicians will regain the financial security necessary to support substantial long-term investments in improving patient care.”

Not only will this bill provide a foundation of security for physicians’ independent investments, but it will also support additional federal investments to help the provider community continue to serve an aging and low-income patient population through the extension of the Children’s Health Insurance Program, Community Health Center funding, and additional programs that provide coverage assistance to Medicare and Medicaid beneficiaries.
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