SUMMIT ON CERTIFICATION & DIAGNOSTIC ACCURACY

ABMS and its Member Boards are in a unique position to help focus attention on diagnostic accuracy through Maintenance of Certification.

The majority of diagnostic errors relate not to lack of knowledge or inadequate data but to faulty synthesis of the data at hand.

The majority of diagnostic errors occur in ambulatory settings where there is less social and technical support.

Cognitive processes are both conscious and unconscious, and both have tendencies to err; so we therefore need strategies for each.

Physicians are not generally aware when they make an error – they need mechanisms for feedback and follow up.

Electronic health records promise to improve diagnosis and decision making, but as currently implemented they can be distracting and error-inducing.

Patients need to be informed and empowered to participate in the diagnostic process.

The work environment is as important as the workflow; physicians must be able to speak openly and listen keenly to patients, colleagues and patient caregivers.

Executives and health care professionals should prioritize safety and improvement programs.

Diagnosis should be viewed as an ongoing process of communication, clarification and correction.
The 2015 report from the Institute of Medicine (IOM), Improving Diagnosis in Health Care, the third in its landmark Quality Series, called national attention to the prevalence of diagnostic error, estimating that errors play a role in roughly 10 percent of patient deaths, and 6-17 percent of adverse events in the hospital setting. Defining diagnostic error as “the failure to (a) establish an accurate and timely explanation of the patient’s health problem(s) or (b) communicate that explanation to the patient,” the report casts diagnosis as a process in which every patient and health care professional must be an active and engaged participant.

Recognizing the significance of the IOM’s findings, in December 2015 the American Board of Medical Specialties (ABMS) and the National Patient Safety Foundation (NPSF) convened ABMS Member Board leaders, educators across the continuum of medical training, nationally recognized researchers, policy analysts and patient safety experts to discuss their experience and insights, create a shared understanding of the challenge, and explore ways their communities might work together to improve diagnostic accuracy.

Participants at the gathering—the Summit on Certification & Diagnostic Accuracy—explored the causes of diagnostic error; the competencies essential to quality patient care; and ways that certification, by engaging physicians in assessment and learning, can further reduce the risk of error.

Throughout the day participants considered the challenges facing physicians and patients, recognizing the respective roles and responsibilities of individuals and systems in the diagnostic process. Whether practicing in ambulatory or inpatient settings, in large practices, small groups or integrated systems, clinicians find themselves increasingly time-constrained and professionally isolated, with diminishing opportunities for reflection, consultation, and informal and open dialogue with colleagues, patients and patients’ caregivers.

Participants stressed clinicians’ need for ready access to accurate and meaningful information, time to engage with patients and understand their concerns, and opportunities to consult with colleagues and other members of the health care team.

Attendees also raised the need for strategies that address both the conscious and unconscious dimensions of cognition and clinical judgment.

Participants noted that synthesizing multiple information streams to arrive at the correct diagnosis relies not only on the cognitive and reasoning abilities of the clinician, but also on the flow of accurate and timely information through the care system. As with any human endeavor, this complex web of individual decision-making within the context of a much broader structure may be vulnerable to error - and with it potentially devastating consequences.

Summit participants identified ways to reduce diagnostic risk, which fall broadly into three domains: 1) Education and Training; 2) Assessment and Improvement; and, 3) Practice Environment and Culture.

“Patient safety and diagnostic error are critical issues in which physicians need to be more engaged and involved,” said Tejal K. Gandhi, MD, MPH, CPPS, President and Chief Executive Officer, the National Patient Safety Foundation. “The fact that this conversation is happening is a great start.”
Not only is it possible to improve diagnosis, we must do it. As the IOM emphasized, this is a moral, professional and public health imperative.

Mark L. Graber, MD, FACP, Founder and President, Society to Improve Diagnosis in Medicine

Malpractice insurance carriers have a responsibility to utilize data to glean insights from the contributing factors that lead to malpractice claims. Analyzing and sharing data with the provider community can engage providers in helping to develop solutions that can address the drivers of risk. There are real opportunities to create safe learning environments, particularly through the engagement of Patient Safety Organizations, to bring providers together to develop best practices aimed at mitigating risk and improving patient safety.

Carol Keohane, MS, RN, Assistant Vice President, Patient Safety, Controlled Risk Insurance Company/Risk Management Foundation, Harvard Medical Institutions
Understanding the Diagnostic Process

Every time a physician makes a diagnosis, he or she may need to consider more than 10,000 diseases and 5,000 clinical tests before coming to a decision, estimated Mark L. Graber, MD, FACP, Founder and President, Society to Improve Diagnosis in Medicine. This is a daunting task, even with years of training and experience. While physicians cannot control every aspect of the healthcare system, they play the central role in the diagnostic process and have the responsibility to ensure that systems produce the best and safest result for patients.

Hardeep Singh, MD, MPH, a patient safety researcher at the Michael E. DeBakey Veterans Administration Medical Center and Baylor College of Medicine in Houston, noted that diagnosis is not something that occurs just within a physician’s head, but is a dynamic process that involves and takes place across five interrelated dimensions:

• The patient
• The patient-clinician encounter and the initial diagnostic assessment
• The performance and interpretation of tests
• Consultations or referrals with subspecialists
• The follow-up and tracking of diagnostic information

Efforts to reduce diagnostic error must measure how a given organization or practice is performing with regard to each of these dimensions. Singh called for more research to determine how best to improve diagnosis in each of these dimensions and to understand how each of these fits in as a piece in a larger diagnostic puzzle.

Attendees noted that much of the opportunity to improve diagnostic accuracy lies in the ambulatory setting, where most errors occur, and delayed diagnosis is a common problem. In those settings, clinicians may be more isolated and have less access to clinical support, reinforcing the need for education, training, and improved systems.

Carol Keohane, MS, RN, Assistant Vice President of Patient Safety for the Controlled Risk Insurance Company/Risk Management Foundation of the Harvard Medical Institutions (CRICO), reported that CRICO has worked with the ambulatory community to develop programs to support patient safety in the outpatient setting. CRICO is using malpractice data and working with the primary care community to develop key safety principles to serve as a foundation for targeting and reducing risk in this area. Review of malpractice data benchmarked by specialty can help clinicians recognize and reduce the likelihood of error, and deter precautionary “over-diagnosis.”
It is humanly impossible to know everything about every patient in a medical record and all the information in textbooks and journals. Cognitive computing leads us to “Augmented Intelligence,” where the combination of clinicians and technology convert big data to big insights and better health outcomes.

Kyu Rhee, MD, MPP, Chief Health Officer and Vice President, IBM Corporation

We have to engage patients. A great doctor is not one who says I am certain I know the right diagnosis, but instead works together with their patient. A great physician should share uncertainties and contingencies and reliably follow up with patients to ensure respectful care. They should employ careful listening, sufficiently broad and differential diagnosis, as well as needed diagnosis safety nets in order to determine what is right. We have to figure out how we work together.

Gordon Schiff, MD, Associate Director, Brigham and Women’s Center for Patient Safety Research and Practice

We underestimate how nervous people are when they see the doctor. The more we partner with patients and families to get their advice about how to reduce their anxiety, the better.

Susan Edgman-Levitan, PA, Executive Director, John D. Stoeckle Center for Primary Care Innovation, Massachusetts General Hospital

It’s critical for radiologists to be members of the health care team [in making diagnoses]. We need to be consultants to help other physicians with issues that are difficult to approach.

Valerie Jackson, MD, Executive Director, American Board of Radiology
Graber estimated that physicians reach an accurate diagnosis 90 percent of the time, and that the vast majority of these diagnoses are made using pattern recognition. When a diagnostic error does occur, there is a cognitive contribution to the error in three out of every four cases.

While medical training has historically prepared physicians to be competent in diagnosis, we can do better, said Graber. The science behind clinical decision-making has advanced substantially over the past few decades and needs to incorporate these advances in medical training. Clinicians need to know how to avoid the pitfalls of diagnoses that are derived intuitively, and also need to apply ‘normative’ approaches in the other cases. This involves making a complete differential diagnosis, appropriate testing, and using Bayesian calculations to choose the best path forward.

Participants also explored the role of health information technology and electronic health records (EHRs) in aiding diagnosis. Kyu Rhee, MD, MPP, Chief Health Officer and Vice President, IBM Corporation, noted the ability of IBM’s Watson computer to read 80 million pages of data in one second, offering an opportunity for physicians to access updated, evidence-based, clinical knowledge at the point of care that might not have been considered.

However, other participants noted that not all physicians have access to up-to-date clinical decision-making tools and many find EHRs to be more of a hindrance than support. Moreover, many physicians question the veracity of EHR data, suspecting that data entry shortcuts may have been taken and wonder whether the underlying patient history was thorough and accurate. Attendees identified access to health information tools that are user-friendly and provide timely access to accurate, clinically relevant patient data as a system improvement priority.

Reducing diagnostic risk also requires more effective teamwork among health care professionals, patients, and their families.

Readily sharing their own experiences with the diagnostic process, participants agreed that even highly educated individuals often have difficulty communicating their concerns and asking questions. Susan Edgman-Levitan, PA, Executive Director, John D. Stoeckle Center for Primary Care Innovation, Massachusetts General Hospital, pointed out that patients fear being labeled as “difficult,” afraid that being so labeled will be detrimental to their overall care.

Edgman-Levitan and Rosemary Gibson, Senior Advisor, The Hastings Center, both noted the risk of the “silent misdiagnosis,” which may occur when clinicians do not elicit and consider the patient’s preferences regarding their treatment choices. To reduce this risk, participants agreed that greater emphasis should be given to building communication skills throughout training, certification and maintenance of certification that focus on how to clearly explain risks and benefits, as well as assist physicians to accurately interpret and communicate statistical information to their patients.

Valerie Jackson, MD, Executive Director, American Board of Radiology, said radiologists play a critical role in helping other physicians make decisions and understand test results. She said radiologists should see their specialty, which sometimes can be isolated, as an integral part of the care team. Radiologists are skilled in recognizing patterns and using data and information. Many participants noted the importance of emphasizing communication throughout the clinical encounter and across the care team.

Similarly, physicians who are able to engage other members of the health care team in their decisions may prove more adept
"We need new competencies for a new technology-based diagnosis era. We need to create new approaches to engage the overburdened frontline physicians and devise ways to disseminate best practices, innovations and tools that can facilitate a correct and timely diagnosis.

Hardeep Singh, MD, MPH, Chief, Health Policy, Quality and Informatics, Michael E. DeBakey Veterans Administration Medical Center and Baylor College of Medicine

Meaningful maintenance of board certification is necessary to assure the public that physicians are keeping-up to-date and improving their diagnostic performance in practice.

Rosemary Gibson, Senior Advisor, The Hastings Center

Patients who come to the emergency department don’t come with a diagnosis. They come with symptoms and signs. Translating that into a diagnosis is extremely important in our specialty.

Earl Reisdorff, MD, Executive Director, American Board of Emergency Medicine"
at reaching successful diagnoses. Singh cited a November 2013 study in JAMA Internal Medicine, “Physicians’ Diagnostic Accuracy, Confidence, and Resource Requests: a Vignette Study,” which found that physician confidence in their own diagnostic decisions remained about the same for simpler versus more complicated cases, even when their accuracy plummeted from about 60 percent to six percent, respectively. The study found that physicians with higher confidence levels did not seek more resources such as diagnostic tests or consultations even for complicated cases, suggesting that physicians may not recognize their need for help in instances where it would be most beneficial.

In other studies, Singh finds that due to several factors physicians overlook critical information documented in the EHR or miss clearly significant signs or symptoms mentioned by patients. He also finds lack of teamwork amid overreliance on technology as a risk for error, such as what happened in the highly publicized Dallas emergency department (ED) Ebola misdiagnosis in 2014.

The Role of Certification

The IOM’s 2015 report recognized that health care professional certification and accreditation organizations play a role in improving diagnostic accuracy and recommended that they ensure that health care professionals have and maintain the competencies needed for effective performance in the diagnostic process.

ABMS President and Chief Executive Officer Lois Margaret Nora, MD, JD, MBA, observed that ongoing education and training are critical in improving cognitive accuracy. These opportunities, she noted, can come in the form of continuing medical education, ABMS Member Boards’ Maintenance of Certification (MOC) activities, and quality improvement initiatives within institutions.

Participants agreed that the MOC process provides an important opportunity for physicians in practice to learn about advances in their areas of medical specialty, familiarize themselves with new tools, technologies and practices, recognize the diagnostic challenges and pitfalls of their practice domains and strengthen competency in the areas specifically identified by the IOM’s recommendations, including clinical reasoning, teamwork, communication with patients, their families and other health care professionals; appropriate use of diagnostic tests and the application of these results on subsequent decision making; and use of health information technology.

Sharing his Board’s experience, Earl Reisdorff, MD, Executive Director of the American Board of Emergency Medicine (ABEM), noted that specialists in emergency medicine are continually diagnosing patients who come to the ED with limited or even conflicting information in a time-compressed environment.

Through MOC, ABEM annually disseminates articles on high-risk diagnoses that are relevant to patient safety to its diplomates, creating a “National Journal Club” for over 33,000 physicians. Dr. Reisdorff noted that the distribution of those materials represents an important opportunity to prioritize key sources of diagnostic error in EDs, which represent roughly 10 percent of all diagnostic errors. In addition, he noted that nearly half of the ABEM MOC exam requires physicians to engage in diagnostic processing to answer questions.

To reduce the risk of error in the diagnostic process, participants encouraged greater emphasis on clinical reasoning in training, and assessment of those skills on an ongoing basis through certification. Participants viewed MOC as an opportunity to engage physicians in efforts to improve patient care safety and diagnostic accuracy, cautioning that physicians and patients will be best served by programs that are specialty-specific and practice relevant.

Participants encouraged leveraging MOC to better involve physicians in learning collaboratives, establish non-pejorative opportunities to provide and receive feedback, conduct and learn from root cause analyses on diagnostic successes, participate in research partnerships, strengthen communication skills, effectively use health information technologies, and identify and implement individualized assessment and improvement efforts.

Expanding on program innovations and collaborative activities underway across the ABMS Member Boards community, participants encouraged identification of specialty-specific concerns and expanding registries to make it possible to provide physician specific performance feedback on the identified issues and areas of diagnostic uncertainty.
DISCUSSION THEMES AND THOUGHTS

- Communication
- Feedback
- Heuristics
- Identifying vulnerabilities
- Informatics
- Learning communities
- Lifelong learning
- MOC
- Over diagnosis
- Overconfidence
- Patient engagement
- Physician burn-out
- Positive deviance
- Premature closure
- Process
- Reflection
- Safety culture
- Shared decision-making
- Silent misdiagnosis
- Synthesis
- System factors
- Team-based care
- Time and space
- Uncertainty
- Wrongology
Summit participants agreed that reducing the risk of error requires a shared commitment from physicians, other healthcare professionals, patients and families, medical specialties, hospitals and health systems, credentialing organizations and other institutions focused on quality improvement and patient safety. Above all, patient engagement is seen as a central part of efforts to ensure physicians fully understand their patients’ histories and situations which can help improve diagnostic accuracy.

Initial suggestions for improving diagnosis are intended to engage all of these groups to tackle the dual challenge of improving physician abilities through training and education and creating systems that support diagnostic accuracy. Together, these ideas can create an environment that enables accurate diagnoses, safer patient care, and a better treatment experience for patients, their families and the clinicians who care for them.

RECOMMENDATIONS TO ENABLE IMPROVEMENT IN DIAGNOSIS

Training and Education
Emphasize both diagnostic reasoning and the science of diagnosis in medical school, residency and inter-professional training.
Develop simulations to heighten awareness of diagnostic processes and to improve team-based practice, communication, and reasoning skills.
Teach physicians how to engage patients to understand and discuss diagnosis.
Acknowledge the uncertainty inherent in diagnosis and provide physicians with an understanding of diagnosis as a process.

Assessment and Improvement
Embed assessment of clinical judgment in certification and recertification examinations.
Enable engagement in improvement by encouraging participation in MOC activities that are specialty-specific and practice relevant. Prioritize efforts that support competencies associated with reducing the likelihood of error.
Increase attention to diagnostic skills through MOC by developing simulations to heighten awareness of diagnostic processes and to improve team, communication, and reasoning skills; spread the practice of disseminating select articles on error and improvement to physicians participating in MOC; offer credit for shadowing or participation in morbidity and mortality conferences or peer-to-peer case review and coaching; encourage training in informatics, emphasizing learning about diagnostic reasoning and strategies for reducing error; and encourage physicians to record “near misses” as part of their MOC participation.
Provide resources and programs to foster effective communication with colleagues and patients, including strategies to address patient literacy and health engagement.
Identify the most common diagnostic errors specific to each specialty and ways to measure and improve each area of need.

Practice Environment and Culture
Re-introduce peer-to-peer case review and coaching to provide feedback to clinicians on specific diagnoses.
Create online “virtual spaces” where physicians can collaborate across institutions regarding diagnostic problems and share learnings.
Conduct Root Cause Analysis to identify and reduce risk.
Establish non-punitive mechanisms to encourage clinicians to report errors and near misses.
Increase attention to diagnostic processes in quality improvement initiatives.
Reduce clinician isolation and create space for physicians to receive feedback on difficult cases and share insights with their entire care team.
Improve how physicians communicate and collaborate with all members of the care team during the diagnostic process and encourage physicians to solicit consultations and second opinions.
Create a culture where feedback is valued and regularly solicited.
Provide opportunities for open communication and consultation among clinical colleagues.
Improve clinicians’ access to relevant clinical data through the development of registries and new platforms dedicated to improving the diagnostic process.
Engage physicians in testing and designing effective electronic health records that support diagnostic accuracy.
Provide patients with access to their health records.
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Dr. Gandhi is the President and Chief Executive Officer of the NPSF and its Lucian Leape Institute. Dr. Gandhi was formerly the Executive Director of Quality and Safety at Brigham and Women’s Hospital, and Chief Quality and Safety Officer at Partners Healthcare. Dr. Gandhi is an Associate Professor of Medicine at Harvard Medical School and is a Certified Professional in Patient Safety. Dr. Gandhi is Board Certified by the American Board of Internal Medicine.

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Ms. Gibson is a Senior Advisor to The Hastings Center, the principal author of the critically acclaimed book, *Wall of Silence*, and an editor for the *Journal of the American Medical Association (JAMA) Internal Medicine*. At the Robert Wood Johnson Foundation for 16 years, she led national health care quality and safety initiatives, including a decade-long strategy that established palliative care in hospitals nationwide.

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Dr. Graber is a Senior Fellow at RTI International, Professor Emeritus of Medicine at the State University of New York at Stony Brook, and President of the Society to Improve Diagnosis in Medicine. A national leader in the field of patient safety, Dr. Graber founded the Society to Improve Diagnosis in Medicine. In 2014, he launched a new journal, *Diagnosis*, devoted to improving the quality and safety of diagnosis, and reducing diagnostic error. Dr. Graber is Board Certified by the American Board of Internal Medicine.

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