Final Program

Diagnostic Error in Medicine
7th International Conference

14-17 September 2014 | Atlanta, Georgia | dem2014.org
Atlanta Marriott Buckhead Hotel & Conference Center

Featuring Keynote Presentations:

Monday, 15 September
Lucian Leape, MD, Harvard School of Public Health
“It’s a Culture Problem”

Tuesday, 16 September
Robert A. Berenson, MD, FACP, Urban Institute
“Placing Diagnosis Errors on the Policy Agenda”

Wednesday, 17 September
Otis Webb Brawley, MD, FACP, Emory University
“Cancer Diagnosis in the 21st Century”
WELCOME TO ATLANTA

The theme of this year’s conference weaves together three strands critical to improving diagnosis in medicine: policy, clinical practice, and technology. Over the next few days we will explore each theme separately and then examine how technology and policy can enhance clinical practice. As always, attendees are encouraged to actively participate in each session, and take home with them insights gleaned from researchers, educators, patients, clinicians, and payers. We believe that convening such diverse stakeholders will produce new solutions to perplexing problems. That is why we are unwilling to leave serendipity to chance.

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### Schedule At a Glance

#### Sunday, 14 September  |  Pre-Conference

<table>
<thead>
<tr>
<th>TIME</th>
<th>CME CREDIT</th>
<th>EVENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>8:30 a.m. – 6:00 p.m.</td>
<td></td>
<td>Registration Open Heritage Ballroom Foyer, Atrium Level</td>
</tr>
<tr>
<td>9:00 a.m. – 1:00 p.m.</td>
<td>3.50</td>
<td>Short Courses</td>
</tr>
<tr>
<td>1:00 p.m. – 2:00 p.m.</td>
<td></td>
<td>Lunch (on your own)</td>
</tr>
<tr>
<td>2:00 p.m. – 6:00 p.m.</td>
<td>3.50</td>
<td>Short Courses</td>
</tr>
</tbody>
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#### Monday, 15 September  |  Day 1

<table>
<thead>
<tr>
<th>TIME</th>
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<tbody>
<tr>
<td>7:30 a.m. – 6:30 p.m.</td>
<td></td>
<td>Registration Open Heritage Ballroom Foyer, Atrium Level</td>
</tr>
<tr>
<td>7:30 a.m. – 8:00 a.m.</td>
<td></td>
<td>Exhibits &amp; Coffee Refresher Buckhead Ballroom, Atrium Level</td>
</tr>
<tr>
<td>8:00 a.m. – 8:30 a.m.</td>
<td></td>
<td>Opening Remarks</td>
</tr>
<tr>
<td>8:30 a.m. – 9:30 a.m.</td>
<td>1.0</td>
<td>Keynote Presentation: It's a Culture Problem</td>
</tr>
<tr>
<td>9:30 a.m. – 10:30 a.m.</td>
<td>1.0</td>
<td>Underdiagnosis vs. Overdiagnosis: Which Should We Be More Worried About?</td>
</tr>
<tr>
<td>10:30 a.m. – 11:00 a.m.</td>
<td></td>
<td>Break &amp; Exhibits Buckhead Ballroom, Atrium Level</td>
</tr>
<tr>
<td>11:00 a.m. – 12:00 p.m.</td>
<td>1.0</td>
<td>Measuring Diagnostic Error in Real-World Clinical Practice: Insights from Multidisciplinary Research</td>
</tr>
<tr>
<td>12:00 p.m. – 1:00 p.m.</td>
<td></td>
<td>Lunch &amp; Exhibits Buckhead Ballroom, Atrium Level</td>
</tr>
<tr>
<td>1:00 p.m. – 2:00 p.m.</td>
<td>1.0</td>
<td>Error, Overconfidence, Inadequate Feedback: Prospects for Systems Improvements</td>
</tr>
<tr>
<td>2:00 p.m. – 3:15 p.m.</td>
<td>1.0</td>
<td>&quot;Deep&quot; Root Cause Analysis: Patient and Professional Dialogue on Diagnostic Errors</td>
</tr>
<tr>
<td>3:15 p.m. – 4:45 p.m.</td>
<td></td>
<td>Break &amp; Exhibits Buckhead Ballroom, Atrium Level</td>
</tr>
<tr>
<td>4:45 p.m. – 6:00 p.m.</td>
<td>1.25</td>
<td>Diagnostic Error and Clinical Reasoning Case Presentation</td>
</tr>
<tr>
<td>6:15 p.m.</td>
<td></td>
<td>Meet the Experts Dinners (optional — at individual's own expense)</td>
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#### Tuesday, 16 September  |  Day 2

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<thead>
<tr>
<th>TIME</th>
<th>CME CREDIT</th>
<th>EVENT</th>
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<tbody>
<tr>
<td>7:30 a.m. – 4:15 p.m.</td>
<td></td>
<td>Registration Open Heritage Ballroom Foyer, Atrium Level</td>
</tr>
<tr>
<td>7:30 a.m. – 8:00 a.m.</td>
<td></td>
<td>Exhibits &amp; Coffee Refresher Buckhead Ballroom, Atrium Level</td>
</tr>
<tr>
<td>8:00 a.m. – 9:00 a.m.</td>
<td>1.0</td>
<td>Keynote Presentation: Placing Diagnosis Errors on the Policy Agenda</td>
</tr>
<tr>
<td>9:00 a.m. – 10:00 a.m.</td>
<td>1.0</td>
<td>Behavioral Economics - Is Biology Really Destiny? Evolution, Survival Skills and Diagnostic Reasoning</td>
</tr>
<tr>
<td>10:00 a.m. – 10:30 a.m.</td>
<td></td>
<td>Break &amp; Exhibits Buckhead Ballroom, Atrium Level</td>
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<tr>
<td>10:30 a.m. – 12:15 p.m.</td>
<td>1.75</td>
<td>Oral Abstracts</td>
</tr>
<tr>
<td>12:15 p.m. – 1:15 p.m.</td>
<td></td>
<td>Lunch and SIDM Business Meeting Buckhead Ballroom, Atrium Level</td>
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<tr>
<td>1:15 p.m. – 4:00 p.m.</td>
<td>2.25</td>
<td>Concurrent Sessions</td>
</tr>
<tr>
<td>1:15 p.m. – 4:00 p.m.</td>
<td>2.25</td>
<td>Implementing Diagnostic Decision Support Systems: Barriers and Strategies to Overcome Them Suwanee, Atrium Level</td>
</tr>
<tr>
<td>2:30 p.m. – 3:00 p.m.</td>
<td>2.25</td>
<td>Understanding and Misunderstanding Diagnostic Testing: A Source of Diagnostic Error Buckhead Ballroom, Atrium Level</td>
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<tr>
<td>3:15 p.m. – 4:00 p.m.</td>
<td>2.25</td>
<td>Diagnostic Errors: Causes of Heartburn Among Health Care Risk Managers, Malpractice Insurers and Public Policymakers Augusta, Atrium Level</td>
</tr>
<tr>
<td>4:00 p.m. – 5:30 p.m.</td>
<td>1.0</td>
<td>Posters &amp; Exhibits Buckhead Ballroom and Foyer, Atrium Level</td>
</tr>
<tr>
<td>5:30 p.m. – 7:00 p.m.</td>
<td></td>
<td>Networking Reception &amp; Exhibits Buckhead Ballroom and Foyer, Atrium Level</td>
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#### Wednesday, 17 September  |  Day 3

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<td>Registration Open Heritage Ballroom Foyer, Atrium Level</td>
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<tr>
<td>8:00 a.m. – 9:00 a.m.</td>
<td>1.0</td>
<td>Keynote Presentation: Cancer Diagnosis in the 21st Century</td>
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<tr>
<td>9:00 a.m. – 10:15 a.m.</td>
<td>1.0</td>
<td>Top Diagnostic Error Stories of 2014</td>
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<tr>
<td>10:15 a.m. – 10:30 a.m.</td>
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<td>Break Heritage Ballroom Foyer, Atrium Level</td>
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<tr>
<td>10:30 a.m. – 12:00 p.m.</td>
<td>1.0</td>
<td>Closing in Action – Tapping into the Wisdom in the Room to Envision Diagnostic Error Reduction</td>
</tr>
<tr>
<td>12:00 p.m. – 12:30 p.m.</td>
<td>1.0</td>
<td>Wrap-Up and Adjournment</td>
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The Society to Improve Diagnosis in Medicine (SIDM) was founded with the goals of making diagnosis timely, accurate, cost-conscious, reliable and safe. The theme of Diagnostic Error in Medicine 7th International Conference are merging policy, practice and technology: paths to improve diagnosis.

Purpose and Scope

The ultimate goal of this conference is to improve patient safety by reducing the likelihood of diagnostic error in medicine. Minimizing diagnostic error is an essential component of safe patient care, and towards this end, the conference activities are organized to summarize the current state of the field, review active research and consider emerging educational and research themes that should be implemented to minimize diagnostic error.

Objectives and Course Goals

The Diagnostic Error in Medicine Conference is the only event dedicated solely to the problem of diagnostic error, bringing together stakeholders with a shared goal of improving patient safety. The overall objectives include:

- Recognizing the frequency, impact and public health significance of medical misdiagnosis.
- Developing a community of advocates from across the healthcare delivery spectrum.
- Identifying the causes of diagnostic error in medicine and strategies to reduce them.
- Sharing research methods and results relevant to clinical reasoning, diagnostic error and misdiagnosis-related harm.

Grant Funding

Funding for this conference was made possible [in part] by 1R13HS021774-01 from the Agency for Healthcare Research and Quality (AHRQ). The views expressed in written conference materials or publications by and speakers and moderators do not necessarily reflect the official policies of the Department of Health and Human Services; nor does mention of trade names, commercial practices, or organizations imply endorsement by the U.S. Government.

Accreditation and Credit Designation Statement

This activity has been planned and implemented in accordance with the accreditation requirements and policies of the Accreditation Council for Continuing Medical Education (ACCME) through the joint providership of The School of Medicine, State University of New York at Stony Brook and Society to Improve Diagnosis in Medicine. The School of Medicine, State University of New York at Stony Brook is accredited by the ACCME to provide continuing medical education for physicians.

Continuing Medical Education Credits

The School of Medicine, State University of New York at Stony Brook designates this live activity for a maximum of 25.25 AMA PRA Category 1 Credit(s)™. Physicians should only claim the credit commensurate with the extent of their participation in the activity.

Disclosure Policy: All those in control of the content of its CME activities (planners, speakers, authors) provided by the School of Medicine are expected to disclose any real or apparent conflict of interest to the content of the educational program.

All commercial relationships that create a conflict with the planners, speakers and authors control of content must be resolved before the educational activity occurs.

Conference Evaluation

Please submit your completed evaluation surveys before your departure from the Diagnostic Error in Medicine Conference. Your feedback is valuable for future planning and needed for continuing education purposes. For assistance, visit the Registration Desk in the Heritage Ballroom Foyer.

Americans with Disabilities Act

It is important that you enjoy the Diagnostic Error in Medicine 7th International Conference. If you require anything due to a physical challenge or you have any special needs or dietary requirements, please inform us at the registration desk, and the Diagnostic Error in Medicine Conference staff will do its best to accommodate you.

Copyright Information

All rights reserved. No part of this syllabus may be used or reproduced in any manner whatever without written permission except in the case of brief quotations embodied in articles or reviews.

Consent to Use of Photographic Images

Registration and attendance at, or participation in, SIDM events including the Diagnostic Error in Medicine Conference, and other activities constitutes an agreement by the registrant to SIDM’s use and distribution (both now and in the future) of the registrant or attendee’s image or voice in photographs, videotapes, electronic reproductions and audiotapes of such events and activities.

Notice About Accuracy of Content

While these programs are designed to provide accurate information regarding the subject matter covered, the views, opinions and recommendations expressed are those of the authors and speakers, not SIDM. By producing publications and sponsorship of this event, SIDM does not guarantee the accuracy of the information disseminated and is not engaged in rendering professional advice.

Badges and Ribbons

Name badges must be worn at all times to gain access to all education sessions.

Please note the following ribbon categories to identify attendees:

- SIDM Board Members
- Planning Committee
- Faculty
- Exhibitor/Sponsor
- SIDM Supporter

Stars on each ribbon represent the number of Diagnostic Error in Medicine Conference each individual has attended. Attendees can pick up their ribbons and stars at the SIDM Desk.

Exhibit Times

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Visit our Exhibitors in the Buckhead Ballroom during all your breaks.
Society to Improve Diagnosis in Medicine Board of Directors

Mark L. Graber, MD, FACP
President
Senior Fellow, BTI International
Professor Emeritus of Medicine at State University of New York at Stony Brook

Paul L. Epner, MBA, MEd
Executive Vice President
Penrose Paul L. Epner LLC

Ruth Ryan, RN, BSN, MS, CPHRM
Secretary
Senior Risk Management Education Specialist, LAMMICO

David E. Newman-Toker, MD, PhD
Associate Professor of Neurology, Johns Hopkins Hospital

Art Papier, MD
Associate Professor in Dermatology and Medical Informatics at University of Rochester School of Medicine
CEO, Logical Images

Networking Events
Meet The Experts Dinners
Monday evening’s open schedule provides you with the opportunity to attend dinner with DEM Conference faculty members at a variety of nearby Atlanta restaurants. You may sign up to attend upon arrival at the registration desk. Reservations have been pre-arranged, but meal costs are at the attendee’s own expense. Space is only available on a first-come, first-serve basis.

Networking Reception
Tuesday evening’s networking reception in the Buckhead Ballroom offers additional time to network with colleagues, and enjoy light appetizers and drinks.

Short Course Sessions
Sunday, 14 September | Pre-Conference

Training Others to Teach about the Science of Diagnostic Error
9:00 a.m. – 1:00 p.m.
Swanue, Atrium Level
CME Credit: 3.50
Catherine R. Lacey, MD, University of California, San Francisco School of Medicine
Geeta Singhal, MD, MEd, Baylor College of Medicine
Satish Thammasintboon, MD, MHPE, Baylor College of Medicine
Robert Truwitrod, MD, Maine Medical Center and Tufts University School of Medicine

diagnostic error is a patient safety problem that is increasingly a focus of continuing education. "Students" are not only clinicians but include nurses, risk managers, lawyers, patient groups and more. “Teachers” come not only from medical schools but from insurance carriers, malpractice managers, patients, etc. This workshop seeks to broaden the definition of teachers and students and discuss practical strategies for creating and delivering appropriate content. Through small group interaction and lecture, participants receive tangible materials that can be put into use back home.

Learning Objectives:
• Design a tool kit of educational offerings to take to their home institutions.
• Work in interprofessional teams to learn about how to teach different audiences about diagnostic error.
• Review current educational strategies that have been developed nationally.

Clinical Decision Support – Bedside Tools for Better Diagnosis
9:00 a.m. – 1:00 p.m.
Augusta, Atrium Level
CME Credit: 3.50
Moderator: David L. Meyers, MD, FACEP, Sinai Hospital of Baltimore

Gain an understanding of factors to consider in choosing, implementing and using CDS tools. An interactive case-based analysis illustrating the complexity of diagnostic error is shared, followed by a discussion to list systems and cognitive contributory factors. Intended for first-time attendees.

Learning Objectives:
• Describe the problem of diagnostic errors in terms of epidemiology, burden and processes involved.
• Discuss an interactive case-based analysis illustrating the complexity of diagnostic error.
• List systematic and cognitive contributory factors, as well as potential interventions to reduce diagnostic errors.

Planners Committee Members

Paul L. Epner, MBA, MEd (Chair)
Principal, Paul L. Epner, LLC

Hardeep Singh, MD, MPH (Co-Chair)
Chief, Health Policy, Quality and Informatics Program, Houston VA Center for Innovations in Quality, Effectiveness and Safety, Michael E. DeBakey Veterans Affairs Medical Center and Baylor College of Medicine

Karen Cosby, MD
Associate Professor Emergency Medicine, Rush University Medical School, Cook County Hospital (Illinois), Chicago

Robert E. Karch, MD, MPH, MS
Assistant Clinical Professor of Medicine, University of California, San Diego

Devery Howerton, PhD, MS
Deputy Director, Division of Laboratory Programs, Standards and Services, Centers for Disease Control and Prevention

Kathryn McDonald, MM, MBA
Executive Director and Senior Scholar, Center for Health Policy & Center for Primary Care and Outcomes Research, Stanford University

Gary Zimmer, MD, Art Papier, MD, Jeffrey A. Kline, MD, Indiana University School of Medicine

Laura Zwaan, PhD
Principal, Paul L. Epner, LLC

Mark L. Graber, MD, FACP
President
Senior Fellow, BTI International
Professor Emeritus of Medicine at State University of New York at Stony Brook

Paul L. Epner, MBA, MEd
Executive Vice President
Penrose Paul L. Epner LLC

Ruth Ryan, RN, BSN, MS, CPHRM
Secretary
Senior Risk Management Education Specialist, LAMMICO

David E. Newman-Toker, MD, PhD
Associate Professor of Neurology, Johns Hopkins Hospital

Art Papier, MD
Associate Professor in Dermatology and Medical Informatics at University of Rochester School of Medicine
CEO, Logical Images

Networkin
### SHORT COURSE SESSIONS

**SUNDAY, 14 SEPTEMBER | PRE-CONFERENCE (continued)**

**Patient Summit: How to Reduce Chances of Misdiagnosis**
2:00 p.m. – 6:00 p.m.
Chautauqua Ballroom, Terrace Level
CME Credit: 3.50

Moderator: Kathryn McDonald, MM, MBA, Center for Health Policy & Center for Primary Care and Outcomes Research, Stanford University

Helen Haskell, MA, Mothers Against Medical Error, Consumers Advancing Patient Safety

David L. Meyers, MD, FACEP, Sinai Hospital of Baltimore

Armon Neel, Jr., PharmD, CGP, FASCP, Senior Care Consultants, MedicationsXpert, LLC

Velda L. Payne, PhD, MS (RMM), MBA, MS (CIS), Michael E. DeBakey Veterans Affairs Medical Center

Robert A. Swerlick, MD, FAAD, Department of Dermatology, Emory Healthcare

Do you want to protect your health by understanding the potential for misdiagnosis? Do you know what you can do to help ensure correct diagnosis? This training summit includes information on ways patients and their families can prevent or respond to misdiagnosis as well as ways to help ensure a correct diagnosis in the doctor's office. The session ends with the opportunity to talk with healthcare professionals, researchers and other patients about tools and resources available and under development to support patients on their diagnostic journeys.

Learning Objectives:
- Learn general strategies designed for patients to reduce the chance of a misdiagnosis (e.g., informed consent, navigation, rapid response).
- Learn to help ensure a correct diagnosis in the doctor’s office (e.g., how to use the SIDM Patient Toolkit for Diagnosis).
- Learn about common misdiagnosis related to medication use.

### CONFERENCE SESSIONS

**MONDAY, 15 SEPTEMBER | DAY 1**

**Conference Sessions**

**Reducing Diagnostic Error Through Improvement of Laboratory Test Utilization**
2:00 p.m. – 6:00 p.m.
Swanee, Atrium Level
CME Credit: 3.50

Moderator: Julie R. Taylor, PhD, MS, Centers for Disease Control and Prevention

Ramya Arnaout, MD, DPhil, Beth Israel Deaconess Medical Center and Harvard Medical School

John Hickner, MD, MSc, University of Illinois at Chicago School of Medicine

Michael Lapoona, MD, PhD, University of Texas Medical Branch - Galveston

This session explores diagnostic errors related to problems with laboratory test selection and methods to reduce these errors. Presentations address generalist physicians’ uncertainty and challenges in test utilization, test over and under-utilization and errors in test selection that result in diagnostic errors and patient harm. The interactive session encourages discussions of strategies that improve test ordering to arrive at a correct diagnosis more efficiently.

Learning Objectives:
- Characterize generalist physicians’ challenges in clinical laboratory test ordering.
- Describe patterns of over and under utilization of lab testing.
- Identify models of practice and other tools designed to improve appropriate test selection and reduce diagnostic errors.
- Propose new, innovative ways to guide test utilization that could reduce diagnostic errors that cause patient harm.

**Opening Remarks**
8:00 a.m. – 8:30 a.m.
Paul L. Epner, MBA, MEd, Conference Chair, Diagnostic Error in Medicine

CME Credit: 1.0

**It’s a Culture Problem**
8:30 a.m. – 9:30 a.m.

Lucian Leape, MD, Harvard School of Public Health

Dr. Leape explores cultural barriers that can impact medical errors as well as strategies for overcoming the barriers.

Learning Objectives:
- Understand the extent and impact of disrespectful behavior by health professionals.
- Learn methods for reducing disrespectful behavior.

**Opening Remarks**
8:30 a.m. – 9:30 a.m.
Paul L. Epner, MBA, MEd, Conference Chair, Diagnostic Error in Medicine

CME Credit: 1.0

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Learning Objectives:
- Understand the extent and impact of disrespectful behavior by health professionals.
- Learn methods for reducing disrespectful behavior.

**Underdiagnosis vs. Overdiagnosis: Which Should We Be More Worried About?**
9:30 a.m. – 10:30 a.m.

CME Credit: 1.0

Moderator: Paul L. Epner, MBA, MEd, Conference Chair, Diagnostic Error in Medicine

David E. Newman-Toker, MD, PhD, Johns Hopkins Hospital

Daniel B. Wolfson, MHSA, ABIM Foundation

John B. Wang, MD, Tufts University School of Medicine

Last year, a panel discussed the broader implications of different definitions of ‘diagnostic error’ on research, patient safety and public policy. This year, a new panel expands that discussion to explore the relationship between underdiagnosis and overdiagnosis. Both problems have been identified as major public health priorities. This session discusses tradeoffs inherent in choosing to focus on one or the other in the context of an evolving healthcare system, including rapidly evolving diagnostic technology, changing healthcare financing models and a drive to standardize clinical care and prevent test overuse. It highlights implications of these issues for patient safety, health economics and policy.

Learning Objectives:
- Define underdiagnosis and overdagnosis, identifying key similarities and differences.
- Debate the benefits and drawbacks of prioritizing either safety or resource utilization.
- Apply this knowledge to a relevant example from your home institution.

**Measuring Diagnostic Error in Real-World Clinical Practice: Insights from Multidisciplinary Research**
11:00 a.m. – 12:00 p.m.

CME Credit: 1.0

Moderator: Hardeep Singh, MD, MPH, Houston VA Center for Innovations in Quality, Effectiveness and Safety, Michael E. DeBakey Veterans Affairs Medical Center and Baylor College of Medicine

Mark L. Graber, MD, FACP, State University of New York at Stony Brook

Nnemeka Okafor, MD, MS, Health Science Center at Houston, University of Texas

Robert Towbridge, MD, Maine Medical Center and Tufts University School of Medicine

The panelists discuss their experiences and perspectives in using certain research methods and techniques to measure diagnostic errors in real-world clinical practice. Panelists share lessons learned through pragmatic research within their organizations, and discuss implications for future diagnostic error measurement. Rich panel discussion and audience feedback identifies which strategies are ready for potential implementation in different types of practice settings, and discuss barriers to implementation of these methods and techniques in other organizations.

Learning Objectives:
- Identify strategies to measure diagnostic error in real-world clinical practice.
- Discuss which strategies are ripe for use in different types of practice settings.
Diagnostic Error and Inadequate Feedback: Prospects for Systems Improvements
1:00 p.m. – 2:00 p.m.
CME Credit: 1.0
John D. Banja, PhD, Center for Ethics, Emory University

The literature on diagnostic error often discusses the ways that systemic variables encourage the commission of diagnostic error, the development of overconfidence and the paucity of appropriate feedback mechanisms whose implementation might otherwise reduce the incidence of diagnostic errors. This presentation describes organizational mechanisms that might remediate some of these challenges and especially concentrates on psychological and attitudinal changes required to appreciate and encourage such system changes.

Learning Objectives:
- Discuss how the meaning of “reasonable” clinical judgment is influenced by the architecture and organization of health care delivery processes.
- List ways of managing certain psychological variables that can compromise the calibration of feelings of diagnostic certainty with an accurate assessment of the cognitive challenges and limitations a complex diagnosis may present.
- Identify ways of improving the provision of feedback to clinicians such that their diagnostic skill repertoire might improve.

“The Deep” Root Cause Analysis: Patient and Professional Dialog on Diagnostic Errors
2:00 p.m. – 3:15 p.m.
CME Credit: 1.0
Moderator: Kathryn McDonald, MM, MBA, Center for Health Policy & Center for Primary Care and Outcomes Research, Stanford University
John D. Banja, PhD, Center for Ethics, Emory University
Helen Haskell, MA, Mothers Against Medical Error, Consumers Advancing Patient Safety
David L. Meyers, MD, FACP, Johns Hopkins Hospital
Velma L. Payne, PhD, MS (BMI), MBA, MS (CIS), Michael E. DeBakey Veterans Affairs Medical Center
Robert A. Swerlick, MD, FAAD, Department of Dermatology, Emory Healthcare

Patients and healthcare professionals tell the narratives of diagnostic errors differently. Doctors are trained to think horses, not zebras, when hearing hoof beats. For some missed and wrong diagnosis, the zebra was the culprit. For others, the horse. Patients may not know the difference or even care. The horse-zebra challenge is part of the inside world of doctoring. But, should the training grounds of doctors and patients stay so separate? Is there an elephant in the room that needs exposure?

A panel of patients and healthcare professionals reviews several different cases of patients who have suffered from diagnostic problems and bring out issues that might have impeded optimum collaboration between these two roles. This deeper root cause analysis aims at finding issues that contribute to diagnostic errors but seem too hard to resolve.

Learning Objectives:
- Listen to different perspectives on the same case and identify difficult issues contributing to diagnostic errors.
- Develop ideas about how to tackle these deeper issues.
- Consider ways to apply this deeper root cause analysis approach within the health care system.

The Impact of High Value Care on Diagnostic Error: The Educator Perspective
3:45 p.m. – 4:45 p.m.
CME Credit: 1.25
Gurpreet Dhaliwal, MD, University of California, San Francisco School of Medicine

The ACP’s High Value Care Initiative and ABIM Foundation’s Choosing Wisely campaign are two high profile programs that aim to minimize harm and unnecessary costs while assuring optimal health outcomes for patients. How can teachers of medical students and residents teach restraint in treatment and treatment while also emphasizing the important problem of diagnostic errors? Discuss techniques to introduce and foster high value practices among trainees, address trainer concerns about “missing” a diagnosis, and reconcile the core messages of the high value care and diagnostic error movements.

Learning Objectives:
- Describe the psychological barriers to high value care for physicians.
- Describe two strategies for teaching high value care to medical students and residents.
- Describe the balance between avoiding diagnostic error and practicing high value care.

Conference Sessions
MONDAY, 15 SEPTEMBER | DAY 1 (CONTINUED)

Diagnostic Error and Clinical Reasoning Case Presentation
4:45 p.m. – 6:00 p.m.
CME Credit: 1.0
Moderator: Karan Cosby, MD, Cook County Hospital (Stroger)
Gurpreet Dhaliwal, MD, University of California, San Francisco School of Medicine
Jeffrey Fei, MD, University of Pittsburgh (Case Specialist)
Amir Razz, MD, Kaiser Permanente Medical Center (Case Specialist)
David E. Newman-Toker, MD, PhD, Johns Hopkins Hospital

Diagnostic failures are often difficult to understand once the final outcome is known. An expert discussant, panelists and audience members re-live clinical cases as they actually occurred, blind to clinical outcome until the final diagnosis is revealed at the end of each presentation. As the cases unfold, our experts demonstrate excellence in clinical reasoning as well as identify common sources of error. The session involves a cross-disciplinary analysis to identify sources and suggest solutions to diagnostic challenges across the spectrum of care, including cognitive errors, system flaws and teamwork factors.

Conference Sessions
TUESDAY, 16 SEPTEMBER | DAY 2

Keynote Presentation
Placing Diagnosis Errors on the Policy Agenda
8:00 a.m. – 9:00 a.m.
CME Credit: 1.0
Robert A. Berenson, MD, FACP, Urban Institute

This keynote presentation explores the reasons why such an important quality and safety problem has largely been ignored by the public policy community, pointing to the preoccupation of policymakers with performance measurement, which for various reasons cannot readily be used to quantify diagnosis errors. To date, there has not been serious consideration of policies that might address this quality problem. Explore a range of potential approaches that might be pursued, including enhanced research, conditions of participation in public programs, promoting collaborative quality improvement activities and structured follow-up and feedback for other health professionals and patients, fundamental malpractice reform, revised HIT expectations and payment reform.

Learning Objectives:
- Become familiar with a variety of expert approaches to diagnostic reasoning.
- Gain a more nuanced understanding of the complexity of diagnosis and potential sources of diagnostic failure.
- Engage with other professionals to generate new insights into improving the diagnostic process.

Don’t forget to use hashtag #DEM14 when discussing the Diagnostic Error in Medicine Conference on Twitter.
Conference Sessions

Tuesday, 16 September | Day 2 (continued)

All sessions take place in Heritage Ballroom on Atrium Level unless otherwise noted.

9:00 a.m. – 10:00 a.m.
CME Credit: 1.0
Douglas E. Hough, PhD, Johns Hopkins Bloomberg School of Public Health
In recent years, new insights into human behavior and decision-making have come to the fore thanks at least in part to the work of Daniel Kahneman who won the Nobel Memorial Economics Prize for his research with the late Amos Tversky. No longer deemed to rely primarily on rational processes for our decisions in all walks of life, humans are now seen as driven by biases and non-rational influences, many counterintuitive. This session explores the lessons this field offers for diagnostic decision making.

Learning Objectives:
• Understand the applicability of behavioral economics to the diagnostic clinical encounter.
• Understand how skills which evolved for survival in the nasty, brutish and short life span of early humans play a sometimes counterproductive role in doctor-patient encounters.
• Learn skills and approaches to overcome human limitations.

Oral Abstracts
10:30 a.m. – 12:15 p.m.
CME Credit: 1.75
See pages 15-18 for more information.
Moderator: Robert El-Kareh, MD, MPH, MS, University of California, San Diego
Learning Objectives:
• Describe new and innovative research related to diagnostic error in medicine.
• Identify potential interventions to apply to reduce diagnostic errors.

Concurrent Sessions

Implementing Diagnostic Decision Support Systems: Barriers and Strategies to Overcome Them
1:15 p.m. – 4:00 p.m. (includes a break from 2:30 p.m. – 3:00 p.m.)
Swanee, Atrium Level
CME Credit: 2.25
Moderator: Robert El-Kareh, MD, MPH, MS, University of California, San Diego
Charles Baries, MD, FACP, MacNeal Hospital
Steven Honig, MD, MMSc, FACP, Beth Israel Deaconess Medical Center
Dean F. Sittig, PhD, Memorial Hermann Center for Healthcare Quality & Safety - The University of Texas, Houston and The University of Texas, School of Biomedical Informatics
The session begins with a brief overview of common barriers to successful implementation and widespread adoption of diagnostic decision support systems in real-world environments. Following the overview, three speakers provide case studies that describe their own experiences and barriers they encountered (both expected and unexpected) when implementing different systems. It concludes with an interactive panel discussion highlighting the lessons learned and strategies to effectively incorporate diagnostic decision support systems into clinical practice.

Learning Objectives:
• Classify potential barriers to the adoption of diagnostic decision support systems in clinical practice.
• Recognize barriers most likely to be present at his or her local institution.
• Determine possible strategies to overcome specific barriers at his or her local institution.

Understanding and Misunderstanding Diagnostic Testing: A Source of Diagnostic Error
1:15 p.m. – 4:00 p.m. (includes a break from 2:30 p.m. – 3:00 p.m.)
Buckhead Ballroom, Atrium Level
CME Credit: 2.25
Moderator: Robert A. Swerlick, MD, FAAD, Department of Dermatology, Emory Healthcare
John E. Brush, Jr., MD, FACC, Sentara Healthcare
Julie R. Taylor, PhD, MS, Paul Chang, MD, FSIIM, University of Chicago Hospitals
Michael Laposa, MD, PhD, University of Texas Medical Branch – Galveston
This session explores how diagnostic tests can be viewed, what limits they have and how misunderstanding these limits can result in incorrect diagnoses. In addition, it explores how diagnostic support teams and technology can address issues in incorrect test selection and interpretation and improve diagnostic outcomes.

Learning Objectives:
• Provide a framework for understanding the effective use of diagnostic tests.
• Describe weaknesses within the medical community which may lead to the selection of incorrect diagnostic tests and/or to misinterpretation of diagnostic tests.
• Introduce the audience to novel and effective approaches to test selection and interpretation addressing issues with test selection and interpretation.

Diagnostic Errors: Causes of Heartburn Among Health Care Risk Managers, Malpractice Insurers and Public Policymakers
1:15 p.m. – 4:00 p.m. (includes a break from 2:30 p.m. – 3:00 p.m.)
Augusta, Atrium Level
CME Credit: 2.25
Moderator: David L. Meyers, MD, FACP, Sinai Hospital of Baltimore
Robert A. Berenson, MD, FACP, Urban Institute
Jeff Brady, MD, MPH, AHRQ, Center for Quality Improvement and Patient Safety
Divya Parikh, MPH, Physician Insurers Association of America
Dana Siegel, RN, CPHRM, CRICO Strategies

Diagnosis errors as a group make up the most frequent cause of medical malpractice claims, nearly 30% in a recent study, and claims are a crude measure of the actual frequency and severity of these errors; the real numbers are likely significantly larger. Furthermore, certain errors recur with great frequency, e.g., missed or delayed diagnoses of acute myocardial infarction, cancers, ruptured aortic aneurysm and many others. The costs of diagnosis errors can be measured in several ways: dollars paid to resolve claims (~$38 billion over the past 25 years with an average per-claim payout of more than $320,000), years of potential lives lost to families, the workforce and the economy, suffering of harmed patients and families due to death, significant permanent injury, major permanent injury and minor permanent injury and associated disability and medical costs, to name a few. It is no wonder then that reducing diagnosis errors can have huge favorable effects. Experts in healthcare risk management, malpractice insurance and public policy (including Affordable Care Act initiatives) will describe their perspectives on diagnosis errors and approaches to address these problems.

Learning Objectives:
• Learn about the true scope of diagnosis errors and how federal initiatives may impact diagnostic and other medical errors.
• Learn about the concerns of healthcare risk managers and malpractice insurers and the extent of the problem from their perspectives, including cost burden, types of diagnostic errors encountered, approaches to mitigating losses.
• Gain insights and useful ideas and strategies to apply at the institutional and practitioner levels.

Posters Presentations
4:00 p.m. – 5:30 p.m.
Buckhead Foyer, Atrium Level
CME Credit: 1.0
See pages 19-24 for more information.
Learning Objectives:
• Describe new and innovative research related to diagnostic error in medicine.
• Identify potential interventions to apply to reduce diagnostic errors.
• Discuss causes and cases of diagnostic error directly with authors.
Closing in Action – Tapping into the Wisdom in the Room to Envision Diagnostic Error Reduction

8:00 a.m. – 9:00 a.m.  
CME Credit: 1.0  
Moderator: Barbara Bulak, EdD, MS, RN, Afina Partners  
Barbara Zipperer, MA, Zipper Project Management  
Gordon Schiff, MD, Brigham and Women’s Hospital

In this session, experts review key emerging advances in diagnosis, and innovative tools, techniques, and strategies for improving the safety of the diagnosis process. Three key leaders will present, followed by a facilitated Q&A session.

Learning Objectives:
- Assess the success and failure of diagnostic strategies in major cancers.
- Identify key processes and strategies for improving diagnostic accuracy.
- Outline future approaches to improving diagnostic accuracy.

Wrap-Up and Adjournment

12:00 p.m. – 12:30 p.m.  
CME Credit: 1.0  
Paul L. Epper, MBA, MEd, Conference Chair, Diagnostic Error in Medicine Conference

DIAGNOSTIC ERRORS IN MEDICINE: VIEW FROM THE FRONT LINES – THE PATIENT’S PERSPECTIVE

10:30 a.m. – 12:00 p.m.  
CME Credit: 1.0  
Velma L. Payne, PhD, MS (BMI), MBA, MS (CIS), Michael E. DeBakey Veterans Affairs Medical Center  
Varsha Modi, Michael E. DeBakey Veterans Affairs Medical Center and Baylor College of Medicine  
Traber Davis-Giardina, PhD, MA, Michael E. DeBakey Veterans Affairs Medical Center and Baylor College of Medicine

Background: Individuals at the front lines of care can potentially provide valuable insights on diagnostic errors. We sought to ascertain patients’ perspectives on diagnostic error-related contributory factors and prevention strategies.

Methods: We conducted in-depth interviews with 35 participants who either personally experienced (n=22) or witnessed a diagnostic error of a family member (n=13). Participants described their experiences and identified diagnostic error-related contributing factors and prevention strategies. Using grounded theory methodology, two reviewers independently coded transcripts and identified recurring themes. To facilitate analysis, we created graphical timelines for certain interviews to depict diagnostic process breakdowns and illustrate patient and provider actions and key events.

Results: Some of the predominant contributory factors for errors according to patients included providers anchoring on an incorrect diagnosis early in the process; not listening to patients’ complete medical history; lack of investigation despite the presence of symptoms; not viewing the patient holistically; lack of care coordination across multiple providers; disease demographic biases; unfair patient stereotyping and health insurance restrictions.

Some patients indicated not seeking timely healthcare might have contributed to their delayed diagnosis. Many patients researched their symptoms on the Internet and reviewed medical literature and manuals, arriving at a diagnosis determined to be the definitive diagnosis. When presenting their findings, they often felt providers quickly dismissed their views. Patients wanted to participate in the diagnostic process, but often felt unheard and disrespected when asking questions or offering suggestions. Patients reported that diagnostic errors could be prevented if providers “listen to the patient” while taking the medical history and be open to their suggestions regarding tests and potential diagnoses; think outside the box and consider a wider range of possibilities for their symptoms; investigate rather than automatically assume an undiagnosed mental health issue; follow-up on test results promptly and shift to a team-based care paradigm. After the event several providers provided feedback to providers who missed the diagnosis; however, many indicated they were too emotionally laden to do so. Most patients and family members suffered significant and long-lasting emotional and/or financial effects. Patients and their families count accountability and found an apology helped them cope.

Conclusion: Patients and family members who have experienced a diagnostic error can offer valuable insights on the diagnostic process and identify specific contributory factors and preventive strategies. Our findings should encourage health care providers to engage with patients as a source of learning and prevention of diagnostic errors.

VIDEO REVIEW PRODUCES INSIGHT INTO DIAGNOSTIC ERRORS

Lillian Su, MD, Children’s National Medical Center  
Seth Kaplan, PhD, George Mason University  
Mary Waller, PhD, York University

Statement of problem: Current standards in event review and performance improvement utilize retrospective analysis and participant memory to reconstruct events and identify missed opportunities. We know from research in other domains that eyewitness accounts are flawed.

Description of the intervention or program: In December 2011, for quality improvement purposes, video cameras were placed in every room in our 26-bed pediatric Cardiac Intensive Care Unit. Only 1 room (which also functions as a simulation room) has an audio capability. These videos are stored on a password-protected server for 20-30 days (based on available server space) and then automatically deleted. The videos have a privacy mode which family members and staff are empowered to activate when desired. Our video review program has evolved to our current program which involves one on one “coaching sessions” where any staff member can review any event with a “coach” of his/her choosing. Coaches are made up of Critical Care Faculty and Nursing Educators. In addition, all serious events identified by staff for our weekly critical event review are reviewed by a core group of 2 critical care faculty and 2 nurses (1 nurse practitioner and 1 nurse educator). This information is then shared with the team, and the proposed solution or action is obtained from all parties in videos, selected events thought to have especially revealing or insightful behaviors are shown to staff.

Findings to date: Since its inception, we have discovered several trends in human behavior patterns and have changed our educational initiatives to address these: 1. The power of expectation- Unexpected cardiac arrest lead to a delay in chest compressions of up to 7 minutes even when video and monitor evidence of cardiac arrest is clear. Repetitive behaviors such as listening to breath sounds and checking for a pulse are done while mask bag ventilation is started but there seems to be a psychological...
hurdle difficult to overcome when cardiac arrest is unexplained. 2. Rhythms: When other staff enter the room for a non patient related purpose, the primary caregiver is falsely reassured if those staff do not express concern. Staff entering the room do not realize they are providing reassurance. 3. Distinguishing an abnormal rhythm from a baseline abnormal rhythm is difficult for the non-expert. Malignant arrhythmias including ventricular tachycardia are difficult to diagnose when the baseline arrhythmias are not familiar for the staff.

Lessons learned: Video review allows us to gain insights into the behaviors of medical personnel in the midst of a medical crisis. This deserves further investigation.

Internal Medicine and Emergency Medicine Residents’ Perceptions of Outcome Feedback After Handoffs

Edna Shevri, MD, University of California, San Diego Robert El-Kareh, MD, MPH, MS, University of California, San Diego

Background: Learning patient outcomes after formative assessments and plans is recognized as being crucial for calibrating diagnostic and therapeutic decision-making, but handing off patients to other care teams frequently disrupts this process. This lack of feedback may be especially problematic to physicians in training, although resident perspectives on post-handoff outcome feedback are not well understood.

Methods: We conducted a web-based nine-item survey of internal medicine and emergency medicine residents at a major institution to study how often they find out about patients they have handed off. We then had them reflect on how often they find out about patients they have handed off, methods that they use to obtain feedback, their perceptions on the value in learning such outcomes, and the barriers to doing so. The first eight questions were scored on five-point Likert scales and the final item allowed for free comments.

Results: Seventy-eight of 149 residents responded to our survey, for a 52.3% response rate. 73% responded that they only “sometimes” or “rarely” find out about patients they have handed off. Although 95% said learning outcomes was “moderately” or “very important” to both their education and job satisfaction, 84.6% were although 95% said learning outcomes was “moderately” or “very important” to both their education and job satisfaction. 84.6% were

Lessons learned: Pilot group students appreciated the structured, specific feedback from faculty using the tool to allow them to deliberately practice improving their clinical reasoning during case presentations, while faculty found it easy to use.

ORAL ABSTRACTS (continued)

Tuesday, 16 September | 10:30 a.m. - 12:15 p.m. | Heritage Ballroom, Atrium Level

Video-Oculography to Reduce Stroke Misdiagnosis Among Acutely Dizzy Patients: A Cost Effectiveness Analysis of the ‘Eye Egg’

David E. Newman-Toker, MD, PhD, Johns Hopkins Hospital

Gregory Butchey, DO, MS, UMDNJ-Robert Wood Johnson Medical School

Harold Lehmann, MD, PhD, Johns Hopkins University School of Medicine

Eric Aldrich, MD, Howard County General Hospital

Arjan Channamguda, MD, MBA, Johns Hopkins University School of Medicine

Kevin Frick, PhD, Johns Hopkins Bloomberg School of Public Health

Background: Dizziness and vertigo account for over 4 million annual US emergency department (ED) visits at a societal cost of more than $9 billion for ED assessment and post-admission inpatient care. Most have benign vestibular or cardiovascular causes, but ~4% have stroke or transient ischemic attack (TIA). Roughly 55% of these cerebrovascular events are missed, and misdiagnoses often result in disability or death. Recent studies suggest bedside eye exam (‘HINTS’) is more accurate than MRI. Portable video-oculography (VOG) devices measuring these eye movements have been tested for preliminary accuracy. Before conducting large-scale clinical trials of VOG-based diagnosis, we sought to model the cost effectiveness of this approach relative to current practice and other
alternatives for stroke diagnosis in ED patients with acute dizziness.

Methods: Cost-effectiveness analysis from the societal perspective. Combining literature and expert-derived estimates of probabilities and utilities with local hospital variable cost estimates, we constructed a decision model to compare current national ED diagnostic practice with four other hypothetical diagnostic strategies. Our base case was a 65 year-old in average health without disability presenting acute, continuous dizziness (>24hrs, at high risk for stroke). We assessed current practice versus VOG and three non-selective diagnostic alternatives (“CT all”, “MRI all”, “admit all”). Outcome measures were cost, quality-adjusted life-years (QALYs), and incremental cost-effectiveness ratios ($/QALY). We also estimated potential national cost savings from reduced overtesting in patients with benign vestibular disorders.

Results: Applying VOG operating at 99% sensitivity and 97% specificity ($7,273/QALY) or “MRI all” ($12,200/QALY) would improve stroke outcomes and be highly cost effective. “CT all” would be less effective and “admit all” would not be cost effective ($190,000/QALY beyond “MRI all”). Results were sensitive to VOG accuracy, baseline prevalence of cerebrovascular events, and post-event life expectancy. Potential national cost savings from reduced overtesting in benign vestibular disorders would be ~$1 billion per year (half from reducing unnecessary CT, half from reducing unnecessary inpatient admissions).

Conclusion: Bedside VOG (‘eye ECG’) could reduce stroke misdiagnosis and improve clinical outcomes among acutely dizzy patients at minimal societal cost. Improved diagnosis in cost effective but not cost saving with respect to stroke because correct stroke care (hospitalization) to deliver better patient outcomes increases costs, and more strokes are identified by VOG than current care. Implementing such an approach as part of broader diagnostic strategy in acute dizziness, could, however, save approximately $1 billion per year.
**TEST RESULTS FOLLOW-UP**

Health Records for Improving Need to Optimize Electronic Workarounds indicate the

**Hardeep Singh, MD, MPH**

Sylvia Hysong, PhD

Dean Sittig, PhD

Michael Smith, PhD, MS, BA

Shailaja Menon, PhD, MPH

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**FOLLOW-UP**

(EHR)-Based Safe Test Result

Electronic Health Record

Exploring the Context of Electronic Health Record (EHR)-Based Safe Test Result Follow-up

**Tuesday, 16 September**

**4:00 pm. – 5:30 p.m.**

**Buckhead Foyer, Atrium Level**

**POSTER PRESENTATIONS**

Diagnostic Errors Related to Acute Abdominal Pain in the Emergency Department

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Laura Medford-Davis, MD

Elizabeth Park, MD

Gil Shlamovitz, MD

James Suliburk, MD

Ashley N.D. Meyer, PhD

Hardeep Singh, MD, MPH

Exploring the Context of Electronic Health Record (EHR)-Based Safe Test Result Follow-up

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Shailaja Menon, PhD, MPH

Michael Smith, PhD, MS, BA

Dean Sittig, PhD

Nancy Petersen, PhD

Sylvia Hysong, PhD

Hardeep Singh, MD, MPH

Workarounds Indicate the Need to Optimize Electronic Health Records for Improving Test Results Follow-up

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Shailaja Menon, PhD, MPH

Daniel Murphy, MD, MBA

Ashley N.D. Meyer, PhD

Hardeep Singh, MD, MPH

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Calibration of Diagnostic Accuracy and Confidence in Physicians Working in Academic and Non-Academic Settings

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Ashley Meyer, PhD

Partha Krishnamurthy, PhD

Moushumi Sur, MD

Velma L. Payne, PhD, MS (BME), MBA, MS (CMS)

Derek Meeks, MD

Radha Rao, MBBS

Hardeep Singh, MD, MPH

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Ashley Meyer, PhD

Daniel Murphy, MD, MBA

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Frank Papa, DO, PhD

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Diagnosing Error in Diagnosis: A Theory-Driven Approach to the Diagnostic Process

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Daniel Nystrom, MS, AEEP

Linda Williams, RN, MSI

Douglas Pauli, MD

Mark L. Graber, MD, FACP

Using Voluntary Physician Reporting to Learn from Diagnostic Errors in Emergency Medicine

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Velma L. Payne, PhD, MS (BME), MBA, MS (CMS)

Yashwant Chathampally, MD, MS

Sara Miller, MD, ROMS

Pratik Doshi, MD

Hardeep Singh, MD, MPH

Wrong Patient, Wrong Site, Wrong Procedure: A Scoping Review for Prevalence of Error in High Risk Patients

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Andrew Nelson, MPH

Can We Teach Internal Medicine Residents to Recognize and Reduce Diagnostic Errors Using Structured Debiassing Methods and Mindfulness?

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Alexander Bullen, MD

Manuel Lopez, MD

James Hanley, MD

Implementation of the “Final Check” to Reduce Mis-Labeled Lab Specimens

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Gary Ferguson Jr.

Reducing Diagnostic Error Through a Synoptically Based Electronic Health Record (EHR)

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Mark Gusack, MD
**Poster Presentations**

**Tuesday, 16 September | 4:00 pm – 5:30 pm | Buckhead Foyer, Atrium Level**

**Clinical Vignettes:**

**Radiologists Are the New Clinicians**

- Jawaid Akhtar, MD
- Jeffrey Fei, MD
- Jacqueline Roth, MD

**Military Tuberculosis Mimicking Peritoneal Metastasis**

- Naokatsu Anda, MD
- Jun Ushio, PhD
- Tsuneaki Kenzaka, PhD
- Masami Matsumura, PhD

**Anchoring...Do Not Get Stuck, Let It Go**

- Deanna Ford, MD
- Jawaid Akhtar, MD

**Sutton's Slip: All That Flashes Is Not Floaters**

- Lauren Graham, MD
- Jawaid Akhtar, MD

**A Cause of Sudden Onset Drenching**

- Simon Gomi, MD
- Kentaro Matsumoto, MD
- Mieko Kumaga, MD
- Kenji Sekiguchi, MD
- Yasuharu Tokuda, MD, MPH

**Mitral Stenosis Without Opening Snap**

- Kentaro Matsumoto, MD
- Yosuke Kurose, MD
- Yasuharu Tokuda, MD, MPH
- Kenichi Mitsumata, MD

**Subacute Bacterial Endocarditis Associated with Proteinase-3-Antineutrophil Cytoplasmic Antibody Positive Serology**

- Haruka Inada, MD
- Sho Nishiguchi, MD
- Yasuharu Tokuda, MD, MPH
- Joel Branch, MD

**Radiology Misreading Followed by Overconfidence Bias**

- Kazuhiro Kamata, MD
- Yasuharu Tokuda, MD, MPH

**Anchored to an Uncomfortable Diagnosis - Pivot and Cluster Strategy Revisited**

- Izumi Kitagawa, MD, PhD
- Taro Shimizu, MD, MPH, MBA

**Seroology**

- Cytoplasmic Antibody Positive Proteinase-3-Antineutrophil Endocarditis Associated with Subacute Bacterial Endocarditis Despite an Uncertain Diagnosis
- Laura Medford-Davis, MD
- Hardeep Singh, MD, MPH

**Inattentional Blindness: Case of a Missing Tooth**

- Katelyn Moretti, MD
- Jawaid Akhtar, MD
- Margaret Hsieh, MD

**Double-Edged Occam’s Razor**

- Margaret Hsieh, MD
- Jawaid Akhtar, MD
- Katelyn Moretti, MD

**OPENING SNAP**

- Y asuharu Tokuda, MD, MPH
- Kentaro Matsumoto, MD
- Sho Nishiguchi, MD
- Haruka Inada, MD
- Takashi Watari, MD, MS
- Shusaku Tomiyama, MD
- Izumi Kitagawa, MD, PhD
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**Pulseless Electrical Activity**

- A Revised Diagnostic List for Pulseless Electric Activity
- Yasuharu Tokuda, MD, MPH
- Taro Shimizu, MD, MPH, MBA
- Takashi Watari, MD, MS
- Haruka Inada, MD
- Takaaki Nemoto, MD
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- Kentaro Matsumoto, MD
- Izumi Kitagawa, MD, PhD

**Uncertain Diagnosis to Certainty Despite an Antibiotic: Holding On To Certainty Despite an Antibiotic**

- Laura Medford-Davis, MD
- Hardeep Singh, MD, MPH

**Un舒服的诊断**

- Shusaku Tomiyama, MD
- Takashi Watari, MD, MS
- Masahiro Ono, MD
- Masahiro Ono, MD

**Peau d’Orange: Buzzwords Which Incorrectly Framed a Differential**

- Suchita Shah, MD

**A Disclosed Cause with Near-Miss Premature Closure**

- Tomoharu Suzuki, MD
- Hiroki Kobayashi, MD, PhD
- Yasuharu Tokuda, MD, MPH

**Double-Edged Occam’s Razor**

- Yasuharu Tokuda, MD, MPH
- Takashi Watari, MD, MS
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**"She Gets Like This: A Missed Diagnosis of Stroke Due to Underlying Dementia**

- Suchita Shah, MD

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- Izumi Kitagawa, MD, PhD

**Diagnostic Error in Medicine 7th International Conference**
PULMONARY TUBERCULOSIS MASQUERADING AS URINARY TRACT INFECTION IN JAPANESE OLDER ADULT WITH MALNUTRITION

Shusaku Tomiyama, MD
Sho Nishiguchi, MD
Shuku Sato, MD
Takashi Watari, MD, MS
Izumi Kitagawa, MD, PhD
Yasuharu Tokuda, MD, MPH

STEP BEYOND SUTTON’S LAW

Satoshio Watanuki, MD
Yasuharu Tokuda, MD, MPH

NOT SEEING THE FOREST FOR THE TREES

Takashi Watari, MD, MS
Taro Shimizu, MD, MPH, MBA
Kentarou Matsumoto, MD
Shuku Sato, MD
Haruka Inada, MD
Shusaku Tomiyama, MD
Izumi Kitagawa, MD, PhD
Yasuharu Tokuda, MD, MPH

IS IT A DELAYED OR PRUDENT DIAGNOSIS OF KAWASAKI DISEASE?

Li Xiong, MD
Siriporn Phongjitsiri, MD

CELIAC ARTERY COMPRESSION SYNDROME: ABDOMINAL PAIN OF UNKNOWN ORIGIN

Takahiro Terashima, MD
Takashi Watari, MD, MS
Yasuharu Tokuda, MD, MPH

ANOTHER PHARYNGITIS MIMIC: INTRA-ORAL HEMATOMA OF THE SOFT AND HART PLATES IN A PATIENT ON WARFARIN AND DRUG-DRUG INTERACTION

Yu Watanabe, MD
Toshihiko Abe, MD, MPH
Masami Yoshii, MD
Yasuharu Tokuda, MD, MPH

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