2015 Diagnostic Error in Medicine
8th International Conference
27-29 September 2015 | Washington, D.C. Area
Hilton Alexandria Mark Center

Keynote Presentations:

Sunday, 27 September
1:15 PM - 2:15 PM
The Changing Landscape of Diagnostic Safety
Tejal K. Gandhi, MD, MPH, CPPS
National Patient Safety Foundation

Monday, 28 September
8:45 AM – 9:45 AM
Improving Diagnostic Performance: A Funding Agency’s Perspective
Richard Kronick, PhD, U.S. Agency for Healthcare Research and Quality

Tuesday, 29 September
8:45 AM – 9:45 AM
Potential Policy Approaches to Improving the Accuracy of Diagnosis
Francis J. Crosson, MD, MedPAC
Thank You to Our 2015 Organizational Members

The Society to Improve Diagnosis in Medicine recognizes the leading organizations that support our Society and its mission of attaining better outcomes through better diagnosis.

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**Silver Members**

CRICO
MMIC

**Bronze Members**

COVERYS
MCIC
Medical Interactive
ProAssurance Corporation

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Healthcare Performance Improvement
Isabel Healthcare
VisualDx

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Interested in joining the cause?
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Contact info@demconference.org.

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Join the DEM conversation online by following @ImproveDX tweets. Use hashtags #DEM2015 / #DXerror / #ImproveDx for your posts.

Stay connected with the healthcare community dedicated to improving diagnostic error. Visit www.improvediagnosis.org today.
The theme of this year’s conference asks a very important question: After the IOM report – What’s Next? Following more than 18 months of deliberation and study, the IOM will soon release a major report on diagnostic error prompted by SIDM. This report will be the third in the series that includes To Err is Human and Crossing the Quality Chasm. We hope the report will be released before our event, but regardless, it is time to move beyond the creation of the report towards the utilization of it. Over the next few days we will explore important dimensions described in the report task statement and we will hear from experts including many who served on the IOM committee. This is our chance to start down the path of making diagnosis safer and I ask each of you to take an active role. Beyond your participation, we hope you will take home insights gleaned from researchers, educators, patients, clinicians, and payers. We believe that convening such diverse stakeholders will produce new solutions to complex problems.

The Society to Improve Diagnosis in Medicine (SIDM) Board of Directors would like to thank the committee members who worked so hard to assemble this year’s stellar program. The Board also wishes to thank the Agency for Health Care Research and Quality (AHRQ) for their continuing interest in and support for this meeting. Finally, we welcome each of you.

Paul Epner, MBA, MEd
Chairman, Diagnostic Error in Medicine International Conference, Executive Vice President, Society to Improve Diagnosis in Medicine

Our young organization will celebrate its 4th birthday this coming fall, and we’ll be receiving a very special present – the Report on Diagnostic Error in Health Care from the Institute of Medicine. The IOM Committee, whose members reflect a wide range of perspectives and expertise, has been working on this report for over a year. The Committee has held 5 face-to-face meetings and has received over 100 suggestions and comments, many presented in person at the Committee meetings, and others in writing.

I don’t know if you remember your 4th birthday, and I certainly don’t remember mine, but this occasion will be a landmark both for SIDM and for the growing movement focusing on diagnostic quality and safety. The report will summarize everything we know to this point about the problem of diagnostic error and will present recommendations on next steps for each of the major stakeholders. Although interest in diagnostic error has been steadily increasing over the past decade, the IOM report is expected to propel this issue into the national spotlight. Every provider and health care organization will have the opportunity and expectation to consider the report, and how they can participate in efforts to improve diagnosis. SIDM is particularly proud to announce our sponsorship of a new group, the “Coalition to Improve Diagnosis”, which commits leading medical organizations to take both individual and collective action to begin addressing diagnostic error. We look forward to formally announcing the Coalition and its members at the 2015 meeting.

The annual Diagnostic Error Meeting is the most important event our Society sponsors, and has the goal of advancing the SIDM vision to make diagnosis timely, accurate, efficient and SAFE. This year’s conference will focus on the IOM report and its implications for education, research and practice.

The Diagnostic Error in Medicine Conference energizes all of us and provides us with a unique opportunity to interact with our colleagues and other stakeholders who share our vision. With the momentum that the IOM report will generate, this is the perfect time to join the discussion.

Mark L. Graber, MD
Founder and President, Society to Improve Diagnosis in Medicine Senior Fellow, RTI International
The Society to Improve Diagnosis in Medicine

The Society to Improve Diagnosis in Medicine (SIDM) was founded with the goals of making diagnosis timely, accurate, cost-conscious, reliable and safe. SIDM’s goal to improve medical diagnosis includes:

Leadership – Elevating diagnostic error to the forefront of healthcare quality and public awareness.

Intervention – Identifying and creating interventions to reduce the likelihood of harm from diagnostic error.

Exchange – Providing a forum that promotes both scholarly and practical cross-disciplinary dialog to find timely solutions.

Diagnostic Error in Medicine Conference

Conference Objectives

As a collaborative event to find solutions to diagnostic error, leaders, practitioners and patients gather at the Diagnostic Error in Medicine 8th International Conference for a meaningful discussion including:

- Describing the epidemiology and impact of error in medical diagnosis.
- Analyzing the factors contributing to error and provide prevention strategies.
- Sharing research methods and identifying ways to measure diagnostic error.
- Participating in the development of research, education, technology and practice strategies to reduce diagnostic error.
- Developing a community of advocates from across the healthcare spectrum.

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 and by 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.
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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.

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The School of Medicine, State University of New York at Stony Brook designates this live activity for a maximum of 20.75 AMA PRA Category 1 credits™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

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OVERALL CONFERENCE EVALUATION
Your feedback is essential for planning future Diagnostic Error in Medicine Conferences. Please take the time to complete the online survey that will be emailed to you following the completion of the conference. In addition, you will be given the opportunity to provide feedback during the conference through daily evaluations.

ADDITIONAL NEEDS
If you require any additional services due to a physical challenge or you have any special needs or dietary requirements, please let a member of our staff know, and we will do our best to accommodate you.

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DEM Conference Chair, Society to Improve Diagnosis in Medicine

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

Art Papier, MD  
University of Rochester School of Medicine

P. Divya Parikh, MPH  
Physician Insurers Association of America

Hardeep Singh, MD, MPH  
Michael E. DeBakey VA Medical Center and Baylor College of Medicine, Houston, TX

Robert L. Trowbridge, MD, FACP  
Maine Medical Center and Tufts University School of Medicine

Divvy Kant Upadhyay, MBBS, MPH  
The Urban Institute

Peggy Zuckerman, MS in Ed  
Kidney Cancer Patient, Patient Advocate

Laura Zwaan, PhD  
Institute of Medical Education Research Rotterdam, Erasmus MC

Networking Events

Networking Reception
Sunday evening’s networking reception in the Lower Foyer offers additional time to network with colleagues and enjoy light appetizers and drinks.

Sponsored by

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

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Timothy J. Mosher, MD  
Penn State University College of Medicine
# Schedule At A Glance

All sessions take place in the Plaza Ballroom East unless otherwise noted.

## Saturday, 26 September | Pre-Conference

<table>
<thead>
<tr>
<th>Time</th>
<th>CME Credit</th>
<th>Event</th>
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<tbody>
<tr>
<td>12:00 PM – 5:00 PM</td>
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<td>Registration Open — Lower Foyer</td>
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<tr>
<td>1:00 PM – 5:30 PM</td>
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<td>Patient Summit: Participation and Prevention — Beech</td>
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<tr>
<td>1:00 PM – 7:00 PM</td>
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<td>Research Summit (by invitation only) — Juniper</td>
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## Sunday, 27 September | Pre-Conference

<table>
<thead>
<tr>
<th>Time</th>
<th>CME Credit</th>
<th>Event</th>
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<tbody>
<tr>
<td>7:30 AM – 4:45 PM</td>
<td></td>
<td>Registration Open — Lower Foyer</td>
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<tr>
<td>8:00 AM – 12:00 PM</td>
<td>3.50</td>
<td>An Introduction to Diagnostic Errors — Plaza Ballroom East</td>
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<tr>
<td></td>
<td>3.50</td>
<td>Using Cases to Improve Diagnostic Performance: A Workshop for Educators — Beech</td>
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<tr>
<td></td>
<td>3.50</td>
<td>Tools You Can Use: Practical Approaches to Diagnostic Errors — Terrace West</td>
</tr>
<tr>
<td>12:00 PM – 1:00 PM</td>
<td>3.50</td>
<td>Lunch (on own) and Exhibits — Lower Foyer</td>
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## Sunday, 27 September

<table>
<thead>
<tr>
<th>Time</th>
<th>CME Credit</th>
<th>Event</th>
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<tbody>
<tr>
<td>1:00 PM – 1:15 PM</td>
<td></td>
<td>Welcome&lt;br&gt;&lt;em&gt;Paul Epner, MBA, MEd, DEM Conference Chair, Society to Improve Diagnosis in Medicine&lt;/em&gt;</td>
</tr>
<tr>
<td>1:15 PM – 2:15 PM</td>
<td>1.0</td>
<td><strong>Keynote Presentation</strong>&lt;br&gt;The Changing Landscape of Diagnostic Safety&lt;br&gt;&lt;em&gt;Tejal K. Gandhi, MD, MPH, CPPS, National Patient Safety Foundation&lt;/em&gt;</td>
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<tr>
<td>2:15 PM – 3:15 PM</td>
<td>1.0</td>
<td>Getting the Foundation Right: The Definition and Measurement of Diagnostic Errors</td>
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<tr>
<td>3:15 PM – 3:45 PM</td>
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<td>Break and Exhibits — Lower Foyer</td>
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<tr>
<td>3:45 PM – 4:45 PM</td>
<td>1.0</td>
<td>Oral Plenary Abstracts</td>
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<tr>
<td>4:45 PM – 7:00 PM</td>
<td>1.25</td>
<td>Posters — Plaza Ballroom West</td>
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<tr>
<td>4:45 PM – 7:30 PM</td>
<td></td>
<td>Exhibits — Lower Foyer</td>
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<tr>
<td>6:00 PM – 7:30 PM</td>
<td></td>
<td>Networking Reception — Lower Foyer</td>
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## Schedule At A Glance
All sessions take place in the Plaza Ballroom East unless otherwise noted.

### Monday, 28 September

<table>
<thead>
<tr>
<th>Time</th>
<th>CME Credit</th>
<th>Event</th>
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<tbody>
<tr>
<td>8:00 AM – 5:15 PM</td>
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<td>Registration Open — Lower Foyer</td>
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<tr>
<td>8:30 AM – 8:45 AM</td>
<td></td>
<td><strong>Opening Remarks</strong></td>
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<tr>
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<td></td>
<td><em>Paul Epner, MBA, Med, DEM Conference Chair, Society to Improve Diagnosis in Medicine</em></td>
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<tr>
<td>8:45 AM – 9:45 AM</td>
<td>1.0</td>
<td><strong>Keynote Presentation</strong></td>
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<tr>
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<td></td>
<td>Improving Diagnostic Performance: A Funding Agency’s Perspective</td>
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<td></td>
<td><em>Richard Kronick, PhD, U.S. Agency for Healthcare Research and Quality</em></td>
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<tr>
<td>9:45 AM – 10:45 AM</td>
<td>1.0</td>
<td>Improving Practice One Opportunity at a Time</td>
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<tr>
<td>10:45 AM – 11:15 AM</td>
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<td>Break and Exhibits — Lower Foyer</td>
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<tr>
<td>11:15 AM – 12:15 PM</td>
<td>1.0</td>
<td>The Evaluation of Medical Tests – from Information to Consequences</td>
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<tr>
<td>12:15 PM – 1:15 PM</td>
<td></td>
<td>Lunch and Exhibits — Plaza Ballroom West and Lower Foyer</td>
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<tr>
<td>1:15 PM – 2:00 PM</td>
<td>0.75</td>
<td>Improving Diagnostic Safety: Options for Moving Forward</td>
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### Concurrent Sessions

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<tr>
<th>Time</th>
<th>CME Credit</th>
<th>Event</th>
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<tbody>
<tr>
<td>2:00 PM – 2:45 PM</td>
<td>0.75</td>
<td>Technologies Enhancing Diagnostic Accuracy — Plaza Ballroom East</td>
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<tr>
<td></td>
<td></td>
<td>Principles of Conservative Diagnosis — Terrace East</td>
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<td></td>
<td></td>
<td>Moving Diagnostic Error Research Forward</td>
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<td>Research Summit Outcomes — Terrace West</td>
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<tr>
<td>2:45 PM – 3:15 PM</td>
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<td>Break and Exhibits — Lower Foyer</td>
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<tr>
<td>3:15 PM – 4:00 PM</td>
<td>0.75</td>
<td>Technologies Enhancing Diagnostic Accuracy (continued)</td>
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<td>How Can Risk Management Contribute to Improving Safety in Diagnosis?</td>
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<td>— Terrace East</td>
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<td>Moving Diagnostic Error Research Forward</td>
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<td></td>
<td></td>
<td>Oral Abstract Presentations — Terrace West</td>
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<tr>
<td>4:00 PM – 5:15 PM</td>
<td>1.25</td>
<td>Technologies Enhancing Diagnostic Accuracy (continued)</td>
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<td>Diagnosis-related MPL Claims Issues – What Keeps Liability Insurers Up at Night? And What Do They Do to Get to Sleep? — Terrace East</td>
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<td></td>
<td>Moving Diagnostic Error Research Forward</td>
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<td>Oral Abstract Presentations (continued)</td>
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<tr>
<td>6:00 PM</td>
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<td>Meet the Experts Dinner (Optional – at individual's expense)</td>
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## Tuesday, 29 September

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<tr>
<th>Time</th>
<th>CME Credit</th>
<th>Event</th>
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<tr>
<td>8:00 AM – 5:00 PM</td>
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<td>Registration Open — <strong>Lower Foyer</strong></td>
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<tr>
<td>8:15 AM – 8:30 AM</td>
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<td><strong>OPENING REMARKS</strong></td>
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<td><em>Paul Epner, MBA, MEd, DEM Conference Chair, Society to Improve Diagnosis in Medicine</em></td>
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<tr>
<td>8:30 AM – 8:45 AM</td>
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<td>Advancing the Quality Agenda at IOM</td>
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<td><em>Victor J. Dzau, MD, President, National Academy of Medicine, Chair, Institute of Medicine</em></td>
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<tr>
<td>8:45 AM – 9:45 AM</td>
<td>1.0</td>
<td><strong>KEYNOTE PRESENTATION</strong></td>
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<td>Potential Policy Approaches to Improving the Accuracy of Diagnosis in Medicine</td>
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<td><em>Francis J. Crosson, MD, MedPAC</em></td>
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<td>9:45 AM – 10:45 AM</td>
<td>1.0</td>
<td>Diagnostic Errors – Where Do We Go From Here? – Policy, Payer and Practice Implications</td>
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<tr>
<td>10:45 AM – 11:15 AM</td>
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<td>Break and Exhibits — <strong>Lower Foyer</strong></td>
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<tr>
<td>11:15 AM – 12:15 PM</td>
<td>1.0</td>
<td>For Better or Worse: Context Influences Diagnostic Accuracy</td>
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<tr>
<td>12:15 PM – 1:15 PM</td>
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<td>Lunch, Exhibits and SIDM Business Meeting</td>
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<td><em>(Lunch takes place in Plaza Ballroom West, and exhibits take place in Lower Foyer; SIDM Business Meeting takes place in Plaza East Ballroom — please bring lunch)</em></td>
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<tr>
<td>1:15 PM – 2:30 PM</td>
<td>1.25</td>
<td>Diagnostic Error and Clinical Reasoning Case Presentation</td>
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<td>2:30 PM – 3:30 PM</td>
<td>1.0</td>
<td>Diagnosis and Dialogue: Patient Access to Patient Data</td>
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<td>3:30 PM – 3:45 PM</td>
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<td>Break — <strong>Lower Foyer</strong></td>
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<tr>
<td>3:45 PM – 4:45 PM</td>
<td>1.0</td>
<td>Top Diagnostic Error Stories of 2015</td>
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<td>4:45 PM – 5:00 PM</td>
<td>0.25</td>
<td><strong>CLOSING COMMENTS</strong></td>
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<td><em>Paul Epner, MBA, MEd, DEM Conference Chair, Society to Improve Diagnosis in Medicine</em></td>
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Pre-Conference Sessions

Saturday, 26 September

Patient Summit: Participation and Prevention
1:00 PM – 5:30 PM | Beech

Moderator: Peggy Zuckerman, MS in Ed, Kidney Cancer Patient, Patient Advocate

Featured Speakers: Roger Leonard, MD, MMM, FACC, MedStar Health
Leana Wen, MD, MSc, Baltimore City Health Department

Panelists: Helen Haskell, MA, Mothers Against Medical Error, Consumers Advancing Patient Safety
David L. Meyers, MD, FACEP, Sinai Hospital of Baltimore

Facilitators: Kyle Bozentko, MTS, MS, The Jefferson Center
Larry Pennings, D. Min., The Jefferson Center

Nearly 12 million adults receive a misdiagnosis or a delayed diagnosis annually, according to recent studies. These misdiagnoses, most of which occur in an outpatient setting, can have harmful, expensive and time-consuming consequences. And yet patients can play a critical role in improving medical diagnosis by learning to participate in the diagnosis process.

In this session, well-known patient advocates and speakers Leana Wen, Roger Leonard and Peggy Zuckerman provide tools and resources to assist in the diagnostic process and discuss ways in which patients can help improve the system and influence healthcare policy affecting diagnosis. The afternoon will close with a deliberative session, inviting participants to provide input that will inform SIDM’s further work in providing resources and advocating for patient engagement in the diagnostic process.

Kyle Bozentko and Larry Pennings, of the Jefferson Center, facilitate discussion about preliminary results of a current project funded by the Agency for Healthcare Research & Quality (AHRQ) where healthcare consumers are learning about the diagnostic process and recommending roles patients can play in improving diagnosis. Feedback from participants in this session informs the final recommendations which will guide SIDM’s strategic plans regarding how they equip and advocate for patients.

Learning Objectives:

- Learn how patients can interact with clinicians to optimize diagnoses and outcomes
- Understand how prescribed drugs and non-prescription supplements can complicate a diagnosis and how to reduce this risk
- Discover how concerns can become points of advocacy for patients
Sunday, 27 September

An Introduction to Diagnostic Errors
8:00 AM – 12:00 PM | Plaza Ballroom East
CME Credit: 3.50

Moderator: Hardeep Singh, MD, MPH, Michael E. DeBakey VA Medical Center and Baylor College of Medicine, Houston, TX

Featured Speakers: Karen Cosby, MD, Rush University Medical School
Pat Croskerry, MD, PhD, Dalhousie University
Mark L. Graber, MD, Society to Improve Diagnosis in Medicine
Gordon D. Schiff, MD, Brigham and Women’s Hospital and Harvard Medical School

Gain an understanding of the problem of diagnostic error, including what it is and how it impacts patients and health systems. Internationally-recognized experts in the field will share their knowledge and answer questions. This session is recommended as a perfect overview for the first-time attendee.

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

Using Cases to Improve Diagnostic Performance: A Workshop for Educators
8:00 AM – 12:00 PM | Beech
CME Credit: 3.50

Featured Speakers: Gurpreet Dhaliwal, MD, University of California, San Francisco
Andrew Olson, MD, University of Minnesota
Robert Trowbridge, MD, FACP, Maine Medical Center and Tufts University School of Medicine

The case model will be discussed as a means of improving the diagnostic performance of trainees and practitioners. Specific methods that can be incorporated into existing curricula are discussed and demonstrated, including using on-line cases specifically developed to promote clinical reasoning and awareness of diagnostic error, using published cases as a teaching tool, and utilizing real cases to unpack causes of diagnostic error using a diagnostic fishbone diagram.

Learning Objectives:
• Describe how widely available clinical cases may be used to focus clinical education on the reasoning process and improvement in diagnostic performance
• Implement changes in their own teaching that incorporate the case-based model
• Champion the use of cases to improve diagnostic performance at their home institutions

Tools You Can Use: Practical Approaches to Diagnostic Errors
8:00 AM – 12:00 PM | Terrace West
CME Credit: 3.50

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

Featured Speakers: Elisabeth Belmont, Esq., MaineHealth
John Ely, MD, MSPH, University of Iowa (retired)
Barbara Szeidler, RN, CPHRQ, CRICO Risk Management Foundation

This session will present practical information and tools which can be taken home and implemented into everyday practice with relative ease and limited cost. Experts from the clinical, risk-management and professional liability perspectives will describe evidence-based bedside guidelines, risk stratification/scoring tools, algorithms and administrative approaches which can assist in reducing diagnostic errors in a variety of settings.

Learning Objectives:
• Provide tools for reducing diagnostic errors that can be implemented fairly quickly, easily and inexpensively in different settings – hospital, outpatient/office practice and others
• Offer guidance to gaining clinician buy-in for changing practices
• Describe administrative approaches to implementing strategies
Cognitive Psychology of Diagnostic Error
8:00 AM – 12:00 PM | Dogwood
CME Credit: 3.50

Featured Speakers:
- Geoffrey R. Norman, PhD, McMaster University
- Sandra Monteiro, PhD, McMaster University
- Laura Zwaan, PhD, Institute of Medical Education Research Rotterdam, Erasmus MC

This session provides a broad overview of cognitive psychology of diagnostic reasoning. The intended audience involves physicians or researchers who want to learn more about the cognitive psychology underlying diagnostic reasoning and diagnostic decision making. Discussion includes the main theories of diagnostic reasoning and diagnostic decision making developed in psychology (e.g. dual process thinking, the use of heuristics, cognitive biases). Potential ways to reduce cognitive error are also discussed (e.g. reflective practice). Furthermore, the latest developments discussed and the results of some recent studies are presented.

Learning Objectives:
- Outline the main psychological models that apply to the diagnostic reasoning process
- Describe the strengths and vulnerabilities of human reasoning and the effects on the diagnostic reasoning process
- Describe (recent) research findings from the field of cognitive psychology of diagnostic reasoning
Sunday, 27 September

Welcome
1:00 PM – 1:15 PM
Paul Epner, MBA, MEd, DEM Conference Chair, Society to Improve Diagnosis in Medicine

Keynote Presentation
The Changing Landscape of Diagnostic Safety
1:15 PM – 2:15 PM
CME Credit: 1.0
Featured Speaker: Tejal K. Gandhi, MD, MPH, CPPS, National Patient Safety Foundation

Dr. Gandhi describes the current state of diagnostic error and new directions in patient safety that increase progress in prevention, such as transparency and patient engagement.

Learning Objectives:
• Describe key areas where diagnostic safety has focused since 1999
• Identify key new areas of focus for your healthcare institution patient safety
• List strategies to implement each of the five areas

Getting the Foundation Right: The Definition and Measurement of Diagnostic Errors
2:15 PM – 3:15 PM
CME Credit: 1.0
Moderator: Hardeep Singh, MD, MPH, Michael E. DeBakey VA Medical Center and Baylor College of Medicine, Houston, TX

Featured Speakers: Karen Cosby, MD, Rush University Medical School
Tejal K. Gandhi, MD, MPH, CPPS, National Patient Safety Foundation
Mark L Graber, MD, Society to Improve Diagnosis in Medicine
Sue Sheridan, MIM, MBA, DHL, Patient-Centered Outcomes Research Institute
Robert Trowbridge, MD, FACP, Maine Medical Center and Tufts University School of Medicine

Panelists discuss perspectives on the definition and measurement of diagnostic error. Issues related to real-world operational definition of a diagnostic error as well as strategies for measuring diagnostic error will also be addressed. The aim of this interactive session is to create a shared understanding of these errors among patients, providers, researchers, healthcare organizations, quality measurement stakeholders, educators, and other policy and patient safety professionals.

Learning Objectives:
• Obtain a shared understanding of foundational concepts related to defining and measuring diagnostic error in real-world clinical practice
• Identify key challenges related to defining and measuring diagnostic error in real-world clinical practice

Oral Plenary Abstracts
3:45 PM – 4:45 PM
CME Credit: 1.0
See pages 23-25 for more information.

Submitted abstracts have been through peer review. The top ranked abstracts will be presented by their authors.

Learning Objectives:
• Describe new and innovative research related to diagnostic error in medicine
• Identify potential interventions to apply to reduce diagnostic errors

Posters
4:45 PM – 7:00 PM | Plaza Ballroom West
CME Credit: 1.25
See pages 30-32 for more information.

Posters of submitted abstracts, scored by peer review, are on display and discussed by their authors.

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 Monday, 28 September
CONFERENCE SESSIONS

All sessions will be held in Plaza Ballroom East unless otherwise noted.

MONDAY, 28 SEPTEMBER

OPENING REMARKS
8:30 AM – 8:45 AM
Paul Epner, MBA, MEd, DEM Conference Chair, Society to Improve Diagnosis in Medicine

KEYNOTE PRESENTATION
IMPROVING DIAGNOSTIC PERFORMANCE: A FUNDING AGENCY’S PERSPECTIVE
8:45 AM – 9:45 AM
CME Credit: 1.0

Featured Speaker: Richard Kronick, PhD, U.S. Agency for Healthcare Research and Quality

Dr. Kronick discusses improving diagnostic performance and the role that AHRQ can serve. AHRQ has an evolving mission to generate evidence that makes healthcare safer, higher quality, more accessible, equitable and affordable. Diagnostic performance is central and closely linked to AHRQ’s patient safety portfolio. The presentation addresses some of the challenges that underlie diagnostic performance, initiatives that AHRQ has undertaken and the potential impact of concurrent national healthcare reform initiatives.

LEARNING OBJECTIVES:
• Describe the mechanisms by which a research agency can influence health system performance
• Define potential outcomes from AHRQ activities on healthcare reform

IMPROVING PRACTICE ONE OPPORTUNITY AT A TIME
9:45 AM – 10:45 AM
CME Credit: 1.0

Moderator: Paul Epner, MBA, MEd, DEM Conference Chair, Society to Improve Diagnosis in Medicine

Featured Speakers: Pascale Carayon, PhD, University of Wisconsin
Christine Goeschel, ScD, MPA, MPS, RN, FAAN, MedStar Health

Research into the causes of diagnostic error and possible solutions provide hope for the future, but today’s patients can’t wait. This panel discusses current efforts in hospitals, clinics and offices to improve diagnostic safety. Important considerations in designing quality improvement initiatives will be shared.

LEARNING OBJECTIVES:
• Identify practices currently used in clinical settings to reduce diagnostic error
• Define challenges in implementing diagnostic error quality improvement programs
• Determine strategies for overcoming barriers to implementing these changes
The Evaluation of Medical Tests – From Information to Consequences

11:15 AM – 12:15 PM
CME Credit: 1.0

Featured Speaker: Patrick M. Bossuyt, PhD, Academic Medical Center, University of Amsterdam

Healthcare professionals rely on medical tests to support diagnostic judgment and clinical decision making. Like all other interventions, these medical tests should be properly evaluated before they are introduced into clinical practice. Overall, the evaluation of medical tests is changing, from an exclusive focus on the “trueness” of test results to a more global appraisal of the consequences of testing itself. This includes diagnostic error from inappropriate ordering of tests to misinterpretation of test results. Payers, regulators and other decision-makers increasingly emphasize that effective testing should help improve health outcomes. This shift comes with several challenges to researchers, decision-makers and clinicians.

Learning Objectives:
• Define difference between analytical performance, clinical performance and clinical effectiveness in evaluating medical tests
• Describe how test results typically affect patient outcome including how they lead to or prevent diagnostic error
• Explain why there are few randomized trials of testing compared to trials of pharmaceuticals

Improving Diagnostic Safety: Options for Moving Forward

1:15 PM – 2:00 PM
CME Credit: 0.75

Featured Speaker: Mark L. Graber, MD, Society to Improve Diagnosis in Medicine

Diagnostic error is emerging as one of the central issues in patient safety today. As individuals and organizations are starting to consider how to address the problem, it is worthwhile to highlight the broad challenges that exist, the range of recommendations being developed, and early programs being launched in the US and abroad.

Learning Objectives:
• Understand the different informatics approaches to diagnostic clinical decision support
• Describe the role of the online communities and the patient in improving diagnosis
• Develop knowledge of diagnostic surveillance systems and mobile based solutions to diagnostic accuracy

Concurrent Sessions

Technologies Enhancing Diagnostic Accuracy

2:00 PM – 5:15 PM (Break 2:45 PM – 3:15 PM) | Plaza Ballroom East
CME Credit: 2.75

Featured Speakers:
Stephen Claypool, MD, Wolters Kluwer
Andrew Le, Qur, Inc.
Stephen A. Martin, MD, EdM, Barre Family Health Center, University of Massachusetts Medical School
Jason Maude, Isabel Healthcare
Sally Okun, RN, MMHS, PatientsLikeMe
Art Papier, MD, University of Rochester School of Medicine

We are living through a transition from physician memory-based clinical practice of the 20th century, to a new era of desktop mobile-based professional information to guide clinical decision-making. Internet-accessible professional information for patients is now commonplace, as are tools at the point of care. However, adoption of point-of-care tools by professionals is not uniform. This profound shift to the information-empowered patient challenges the traditional role of the doctor. While the most recent generation of physicians are more readily embracing technology, many of their senior colleagues are having difficulty making this transition. This session focuses on assisting both professionals and patients to adopt new technologies.

Learning Objectives:
• Gain perspective on the challenges of diagnosis internationally
• Be able to describe how interventions have been grouped according to specific stakeholder interests
• Based on early trials elsewhere, take away concrete suggestions for intervention programs that they could apply themselves
Concurrent Sessions

All sessions will be held in Plaza Ballroom East unless otherwise noted.

Monday, 28 September

Moving Diagnostic Error Research Forward
2:00 PM – 5:15 PM (Break 2:45 PM – 3:15 PM) | Terrace West
CME Credit: 2.75
Selected abstract submitters
Moderator: Laura Zwaan, PhD, Institute of Medical Education Research Rotterdam, Erasmus MC
Expert Panel: David Newman-Toker, MD, PhD, Johns Hopkins University School of Medicine
Hardeep Singh, MD, MPH, Michael E. DeBakey VA Medical Center and Baylor College of Medicine, Houston, TX

During the first part of the session, a review of the outcomes of the Research Summit (held before the conference begins) is discussed. During the second part of this session, authors selected through peer review present submitted abstracts, followed by an interactive discussion with the presenters, experts and the audience.

Learning Objectives:
• Describe new and innovative research related to diagnostic error in medicine
• Identify methodological strengths and limitations in diagnostic error research

Principles of Conservative Diagnosis
2:00 PM – 2:45 PM | Terrace East
CME Credit: 0.75
Featured Speaker: Gordon D. Schiff, MD, Brigham and Women's Hospital and Harvard Medical School

Although most of the efforts to understand and decrease diagnostic error have focused on missed, delayed, and misdiagnosis, the other side of the curve—inappropriate over-diagnosis and diagnostic testing and labeling—is also important. Based on a widely used set of 24 principles of conservative medication prescribing, a set of principles for more thoughtful, rational and conservative diagnoses are presented. These principles guide trainees and practitioners toward approaches that can be standardized.

Learning Objectives:
• List four principles that can guide more conservative diagnosis and diagnostic testing processes
• Explain why reframing uncertainty is essential for better diagnosis, and ways to create a "new science of uncertainty" for caring for patients
How Can Risk Management Contribute to Improving Safety in Diagnosis?
3:15 pm – 4:00 pm | Terrace East
CME Credit: 0.75

Moderator: Mark L. Graber, MD, Society to Improve Diagnosis in Medicine
Featured Speaker: Daniel P. Groszkruger, JD, MPH, CPHRM, DFASHRM, rskmgmt.inc

Everyone wants to improve the safety of diagnosis. But, describing and understanding the problem is a threshold challenge. Information about the frequency and severity of errors is insufficient and unreliable. Risk managers bring a unique set of skills and tools to help understand why error in diagnosis occurs and learn how to reduce the misdiagnoses that harm patients.

Learning Objectives:
• Appreciate the importance of understanding and articulating known facts related to errors in diagnosis, while identifying knowledge gaps and poorly-understood dynamics
• Appreciate methods to design and implement investigations that are capable of yielding missing information or helping to better understand contributory factors
• Appreciate the need to perform risk-adjustment in order to identify true errors in diagnosis, as distinguished from difficult diagnoses which are not errors, at all

Diagnosis-Related MPL Claims Issues – What Keeps Liability Insurers Up at Night? And What Do They Do to Get to Sleep?
4:00 pm – 5:15 pm | Terrace East
CME Credit: 0.75

Moderator: P. Divya Parikh, MPH, Physician Insurers Association of America
Featured Speakers: Mary Elizabeth Knox, Medical Mutual Insurance Company of Maine
Alan Lembitz, MD, MMM, COPIC
Hayes Whiteside, MD, FACS, ProAssurance Corporation

In this session, the major causes of diagnostic error in medical professional liability claims are highlighted. Strategies to mitigate these errors are discussed, with an emphasis on issues frequent to MPL claims for practice improvement and handling failure to diagnose. Identifying such cases and post-event management are also discussed.

Learning Objectives:
• Illustrate current diagnostic error in medical professional liability claims
• Describe strategies to mitigate these errors, with an emphasis on programs on practice improvement
• Discuss issue surrounding handling failure to diagnose cases, as such issues are frequent in MPL claims
• Describe post-event management when diagnosis-related issues do occur
Conference Sessions

All sessions will be held in Plaza Ballroom East unless otherwise noted.

Tuesday, 29 September

Opening Remarks
8:15 am – 8:30 am
Paul Epner, MBA, MEd, DEM Conference Chair, Society to Improve Diagnosis in Medicine

Advancing the Quality Agenda at IOM
8:30 am – 8:45 am
Victor J. Dzau, MD, President, National Academy of Medicine, Chair, Institute of Medicine

Keynote Presentation
Potential Policy Approaches to Improving the Accuracy of Diagnosis
8:45 am – 9:45 am
CME Credit: 1.0
Featured Speaker: Francis J. Crosson, MD, MedPAC

Dr. Crosson discusses the potential feasibility and effectiveness of several policy approaches to reducing diagnostic error in clinical practice. These include addressing sources of cognitive bias in medical education, advances in the utility of electronic medical records through the use of decision support functionality, professional liability reform, delivery system reforms, and public and private payment reforms.

Learning Objectives:
- Understand the relationship between the current American health care system and the accuracy of clinical diagnosis
- Gain knowledge about the potential feasibility and effectiveness of several public and private policy approaches to improving diagnosis in medicine
Diagnostic Errors – Where Do We Go from Here? – Policy, Payer and Practice Implications
9:45 AM – 10:45 AM
CME Credit: 1.0
Moderator: David L. Meyers, MD, FACEP, Sinai Hospital of Baltimore
Featured Speakers: David W. Baker, MD, MPH, FACP, The Joint Commission
Francis J. Crosson, MD, MedPAC
Kathryn M. McDonald, MM, Stanford University

Leading experts discuss diagnostic error from their various perspectives as policy-makers, regulators and payers. Using current market dynamics and trends, they seek to predict how these forces shape our ability to address the problem of diagnostic error. Time is reserved for questions and comments from attendees.

Learning Objectives:
• Learn how policy-makers, regulators and payers plan to drive the reduction of diagnostic errors
• Understand how these efforts will impact practice
• Take home guidance for how to respond to these forces

For Better or Worse: How Context Influences Diagnostic Accuracy
11:15 AM – 12:15 PM
CME Credit: 1.0
Featured Speaker: Robert Trowbridge, MD, FACP, Maine Medical Center and Tufts University School of Medicine

Physicians share the belief that diagnostic expertise is largely an issue of knowledge and skill: the more experience a physician has, the better his or her diagnoses. While this belief has a basis in fact, it underestimates the extent to which physicians are also influenced by psychological processes or events. This presentation discusses three sources of influence on diagnostic reasoning: (1) Contextual factors such as time pressure, and contradictory information provided by colleagues; (2) Patient characteristics and behaviors such as what a patient wears and how he presents himself and his problem; and (3) Factors related to the physician him- or herself, such as previous traumatic experiences with particular patients. Strategies to counteract these obstacles to diagnostic accuracy are discussed.

Learning Objectives:
• Describe the contextual factors influencing diagnostic accuracy
• Outline possible ways to counteract the effect of contextual factors on diagnostic accuracy

Diagnostic Error and Clinical Reasoning Case Presentation
1:15 PM – 2:30 PM
CME Credit: 1.25
Moderator: Karen Cosby, MD, Rush University Medical School

Discussants are selected following case selection

Diagnostic failures are often difficult to understand once the final outcome is known. In this session, an expert in diagnosis error, panelists and audience members review 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 have the opportunity to demonstrate effective clinical reasoning as well as to 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 error, system flaws and teamwork factors.

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
**CONFERENCE SESSIONS**

All sessions will be held in Plaza Ballroom East unless otherwise noted.

**TUESDAY, 29 SEPTEMBER** (continued)

**DIAGNOSIS AND DIALOGUE: PATIENT ACCESS TO PATIENT DATA**

2:30 PM – 3:30 PM  
CME Credit: 1.0

**Panelists:**  
John Ely, MD, MSPH, University of Iowa (retired)  
Christine Goeschel, ScD, MPA, MPS, RN, FAAN, MedStar Health  
Helen Haskell, MA, Mothers Against Medical Error, Consumers Advancing Patient Safety  
Peggy Zuckerman, MS in ED, Kidney Cancer Patient, Patient Advocate

The impact of greater patient access to data in the diagnostic process is explored. Whether session notes or lab findings, imaging results or pathology reports, patient access to diagnostic data may shape the patient/clinician relationship. Some patients require greater education, while others may challenge the diagnosis. Physicians learn how to leverage this interest to improve the diagnostic process, while engaging patients in greater self-care.

**Learning Objectives:**

- Describe the role patients play in their diagnosis as they describe their health conditions and family history in light of greater internet access
- Understand the impact of the engaged/activated patient in the diagnostic process, as patients expect greater access to their data directly from other providers; pathology, radiology or laboratory.
- Anticipate the increased requests for education from patients as they seek to understand their diagnosis, risks of testing and treatments.

**TOP DIAGNOSTIC ERROR STORIES OF 2015**

3:45PM – 4:45 PM  
CME Credit: 1.0

**Moderator:** Laura Zwaan, PhD, Institute of Medical Education Research Rotterdam, Erasmus MC

**Featured Speakers:** Mark L. Graber, MD, Society to Improve Diagnosis in Medicine  
Gordon D. Schiff, MD, Brigham and Women’s Hospital and Harvard Medical School

Experts review advances in diagnostics, the most significant developments in diagnostic error research and innovations of the last twelve months.

**Learning Objectives:**

- Portray the main findings of recent developments in the field of diagnostic error
- Describe the current directions of diagnostic error research and innovations as reflected in key articles

**CLOSING COMMENTS**

4:45 PM – 5:00 PM  
CME Credit: 0.25

Paul Epner, MBA, MEd, DEM Conference Chair, Society to Improve Diagnosis in Medicine
Faculty

Keynote Speakers

Tejal K. Gandhi, MD, MPH, CPPS
The Changing Landscape of Diagnostic Safety
Tejal K. Gandhi, MD, MPH, CPPS is President and Chief Executive Officer of the National Patient Safety Foundation. She is a board certified internist, Associate Professor of Medicine at Harvard Medical School, and a certified professional in patient safety. She won the 2009 John M. Eisenberg Patient Safety Award for her contributions to understanding the epidemiology and possible prevention strategies for medical errors in the outpatient setting.

Richard Kronick, PhD
Improving Diagnostic Performance: A Funding Agency’s Perspective
Richard Kronick, PhD, is the director of the U.S. Agency for Healthcare Research and Quality (AHRQ); his work, and that of the Office of Health Policy under his leadership, was integral to the implementation of the Affordable Care Act. AHRQ is an important funder of diagnostic error research, a sponsor of the IOM report on diagnostic error and grant provider for the DEM conference.

Francis J. Crosson, MD
Potential Policy Approaches to Improving the Accuracy of Diagnosis
Dr. Crosson is the Chairman of the Congressional Medicare Payment Advisory Commission (MedPAC). MedPAC advises Congress on ways to promote high quality coordinated care for beneficiaries and preserve the fiscal integrity of the Medicare program. He previously served on MedPAC from 2004-2010. He also serves on the National Advisory Committee of the Agency for Healthcare Research and Quality (AHRQ). Previously, Dr. Crosson was the founding Executive Director of The Permanente Federation, the national organization of the Permanente Medical Groups, the physician component of Kaiser Permanente. He also served as a Senior Fellow in the Kaiser Permanente Institute for Health Policy, where in 2010, he co-authored a book entitled Partners in Health: How Physicians and Hospitals Can Be Accountable Together.

Additional Faculty

David W. Baker, MD, MPH, FACP, The Joint Commission
Elisabeth Belmont, Esq., MaineHealth
Patrick M. Bossuyt, PhD, Academic Medical Center, University of Amsterdam
Kyle Bozentko, MTS, MS, The Jefferson Center
Stephen Claypool, MD, Wolters Kluwer
Pascale Carayon, PhD, University of Wisconsin
Karen Cosby, MD, Rush University Medical School
Pat Croskerry, MD, PhD, Dalhousie University
Gurpreet Dhaliwal, MD, University of California, San Francisco
John Ely, MD, MSPH, University of Iowa (retired)
Paul Epner, MBA, MEd, DEM Conference Chair, Society to Improve Diagnosis in Medicine

continued on next page (22)
Additional Faculty (continued)

Christine Goeschel, ScD, MPA, MPS, RN, FAAN, MedStar Health

Mark L. Graber, MD, Society to Improve Diagnosis in Medicine

Daniel P. Groszkruger, JD, MPH, CPHRM, DFASHRM, rskngmt.inc

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

Mary Elizabeth Knox, Medical Mutual Insurance Company of Maine

Andrew Le, Qur, Inc.

Alan Lembitz, MD, MMM, COPIC

Roger Leonard, MD, FACC, MedStar Health, Inc

Stephen A. Martin, MD, EdM, Barre Family Health Center, University of Massachusetts Medical School

Jason Maude, Isabel Healthcare

Sandra Monteiro, PhD, McMaster University

Kathryn M. McDonald, MM, Stanford University

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

David Newman-Toker, MD, PhD, Johns Hopkins University School of Medicine

Geoffrey R. Norman, PhD, McMaster University

Sally Okun, RN, MMHS, PatientsLikeMe

Andrew Olson, MD, University of Minnesota

Art Papier, MD, University of Rochester School of Medicine

P. Divya Parikh, MPH, Physician Insurers Association of America

Larry Pennings, D. Min., The Jefferson Center

Gordon D. Schiff, MD, Brigham and Women's Hospital and Harvard Medical School

Sue Sheridan, MIM, MBA, DHL, Patient-Centered Outcomes Research Institute

Hardeep Singh, MD, MPH, Michael E. DeBakey VA Medical Center and Baylor College of Medicine, Houston, TX

Barbara Szeidler, RN, CPHRQ, CRICO Risk Management Foundation

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

Leana Wen, MD, MSc, Baltimore City Health Department

Hayes Whiteside, MD, FACS, ProAssurance Corporation

Peggy Zuckerman, MS in Ed, Kidney Cancer Patient, Patient Advocate

Laura Zwaan, PhD, Institute of Medical Education Research Rotterdam, Erasmus MC
Reducing Diagnostic Errors in a Diabetic Retinopathy Screening Program: Implementation of a Centralized Reading Center

M. Kanter¹, D. Fong², S. Hudson¹ and S. Munz³

¹Southern California Permanente Medical Group, Pasadena, CA
²Southern California Permanente Medical Group, Baldwin Park, CA
³Southern California Permanente Medical Group, Yorba Linda, CA

Statement of problem: Screening for diabetic retinopathy (DR) is standard of care for diabetic patients, but visual diagnostic errors in reading these images are common. For over a decade, the literature has identified diagnostic error as a quality problem in DR screening and called for systematic improvements. However, few systematic approaches to identify these errors in a large population have been reported; even fewer studies delineate methodologies to reduce them. With over 29 million diabetics in the United States, the number of people impacted by errors in diagnosing DR is huge. We identified potential diagnostic errors in our screening when comparisons to published data revealed our DR prevalence was substantially lower, and when we identified substantial variation in DR prevalence between medical centers.

Description of the intervention or program: The program was implemented across all 13 medical centers in the Southern California region of Kaiser Permanente, an integrated delivery system managing 4 million members. Until 2010, DR screening was performed with retinal photos graded by medical center-based ophthalmologists and optometrists, using standardized definitions that combined “minimal” and “moderate” retinopathy in a single category. To reduce diagnostic error, ophthalmologists agreed upon grading criteria that included distinct categories for minimal, moderate, and severe retinopathy. We then instituted a centralized reading center staffed by dedicated Certified Ophthalmic Assistants (COAs) and Technicians (COTs). The reading center required rigorous, standardized training for COAs/COTs, who worked under the supervision of retinal reading center required rigorous, standardized training for COAs/COTs, who worked under the supervision of retinal specialists and within strict quality control guidelines. All sites received feedback on ungradeable photos and instructions on how to reduce this.

Findings to date: DR prevalence increased from 10.1% prior to implementation to 22.1%, a level consistent with national averages. The variation between medical centers measured using the coefficient of variation (standard deviation divided by mean) decreased for all groups: 0.08 to 0.04 for “no retinopathy” (p=.02), 0.43 to 0.14 for “minimal/moderate” (NS), 0.53 to 0.32 for “severe” (p<.01), and 0.76 to 0.27 for “ungradable” (p<.01). The rate of ungradeable photos decreased from 7.5% to 4.0%. Revising the grading scheme allowed for more accurate, specific diagnosis and treatment. Patients with any retinopathy are counseled about diabetes control.

Lessons learned: Errors in DR diagnosis can be identified in a large population and reduced. Key elements include creating standard criteria for interpretation, and using a centralized reading center with dedicated and properly trained COAs/COTs. This model may be generalizable to other areas where visual diagnostic errors occur.

Missing the Diagnosis of Early Cancers in Primary Care: The Role of First Diagnostic Impressions

O. Kostopoulou¹, B. Delaney¹, M. Sirota² and T. Round²

¹Imperial College London, London, United Kingdom
²King’s College London, London, United Kingdom

Background: Delays in cancer diagnosis are a common problem in primary care both in the USA and Europe. Physicians’ cognitive processes are thought partly responsible. Psychology research and physicians’ own accounts suggest that initial diagnostic impressions are paramount for the outcome of the diagnostic process. We aimed to demonstrate and measure the association between physicians’ initial diagnostic impressions and subsequent diagnosis and management of potential cancers.

Methods: Ninety UK family physicians diagnosed and managed six detailed patient scenarios online, while on the phone with a researcher. Three of the scenarios depicted possible cancers (colorectal, lung, myeloma), while the other three could not be cancers. The latter three scenarios were employed to get participants used to the study methodology, and as decoys, to avoid giving the impression that the study was about cancer. The cancer scenarios contained no alarm symptoms for cancer (e.g. hemoptysis, rectal bleeding). All scenario patients presented twice, the second time with no improvement of their main symptom and some new symptoms. After reading the introductory patient description and presenting problem, physicians could ask for more information, which was displayed online by the researcher. In two scenarios, participants thought aloud. Two independent raters coded the physicians’ first impressions, i.e. their verbalizations immediately after they read the introductory information and before asking further questions, as either acknowledging the possibility of cancer or not. We measured the associations of first impressions with information search, diagnosis, and referral.

Results: First impressions were strongly associated with both diagnosis and referral decisions: when cancer was not acknowledged initially as a possibility, the odds of subsequently giving it either as the working diagnosis or in the differential were reduced on average by 74% (odds ratio 0.26 [95% CI 0.16 to 0.45]); the odds of urgent referral (within two weeks) were reduced on average by 74% (OR 0.43 [0.23 to 0.80]); and of any referral by 44% (OR 0.56 [0.32 to 0.99]). The number of cancer-related
questions that participants asked mediated the relationship between first impressions and diagnosis, explaining 28% of the total effect.

Conclusion: The study established the strong association between family physicians’ first diagnostic impressions and their subsequent diagnosis and referral of possible cancers, as a potentially important reason for delay in cancer diagnosis. Interventions to reduce missed cancers in primary care, such as decision support or educational strategies, should target the early, hypothesis generation stage of the diagnostic process.

**Cognitive Bias and Diagnostic Error: Is Bias in the Eye of the Beholder?**

*S. Monteiro¹, L. Zwaan², J. Sherbino¹, J. Ilgen³, E. Howey¹ and G. Norman¹*

¹McMaster University, Hamilton, ON, Canada
²Institute of Medical Education Research Rotterdam/ Erasmus MC, Rotterdam, Netherlands
³University of Washington, Seattle, WA

**Background:** It is widely accepted that cognitive biases contribute to diagnostic errors. While experimental studies suggest that cognitive biases exist, there is little prospective evidence of these biases in clinical practice. Analyses of causes of diagnostic errors are usually based on retrospective reviews (e.g. of patient records, or incident reports) where the reasoning processes of practitioners are inaccessible and the reviewer is aware of the case outcome. If identifying biases can minimize diagnostic error, then prospective identification of these biases should be independent of outcomes that are unknowable at the time. The aim of this study was to determine whether experts in clinical reasoning could reliably identify and agree upon the presence of cognitive biases independent of case outcomes.

**Methods:** Thirty-nine clinician members of the SIDM listserv volunteered to participate in the study. The participants were asked to read 8 clinical vignettes online, then 1) indicate whether a diagnostic error had occurred and 2) identify cognitive biases present in the case description. Cases contained history and exam findings suggesting two approximately equiprobable diagnoses, and described the “clinician” ordering a definitive test for one of the two diagnoses. The experimental manipulation was that the test result came back either positive (confirming the diagnosis) or negative (disconfirming the clinician’s diagnosis and suggesting the alternative). Each participant encountered 4 cases with a confirming test and four with a disconfirming test, all counterbalanced. There was no attempt to include or exclude specific biases, as this would presume the conclusion. The primary measure was the number of biases identified under the two conditions.

**Results:** When the test confirmed the diagnosis under consideration, participants indicated a diagnostic error in 8% of cases; when it disconfirmed the diagnosis, they indicated an error in 62% of cases. When the test confirmed the diagnosis, participants identified 1.7 biases per case; when the test disconfirmed the diagnosis they identified 3.4 biases (F = 71, p < .0001). Agreement among participants about presence of specific biases, using a generalized kappa coefficient, ranged from 0.0 to 0.04.

**Conclusion:** Clinicians versed in recognizing cognitive biases did not agree on the presence or absence of specific biases. Twice as many biases were identified when test results disconfirmed a diagnosis. Since the case descriptions were identical other than the outcome, these judgments appear vulnerable to hindsight bias. These findings suggest that reliable prospective identification of bias as a means to reduce diagnostic error is difficult.
A State-Wide Approach to Minimising Diagnostic Error: Take 2 — Think, Do

A. Walker and T. Clarke
Clinical Excellence Commission, Haymarket, Australia

Statement of problem: There is an increasing awareness of errors relating to diagnostic processes across the New South Wales (NSW) Health System. This is supported by analysis of our state-wide incident information system and reportable mortality database. Strategies that encourage clinicians to switch from a rapid diagnostic decision to a more detailed review when necessary are required to improve diagnostic processes.

Description of the intervention or program: “Take 2 – Think, Do” is a framework to support accurate diagnostic decision-making in complex clinical environments. It is designed to improve awareness and recognition of the potential for errors across a broad clinical arena, and reduce the morbidity and mortality associated with wrong, missed or delayed diagnosis in the NSW Healthcare system. The program consists of three components:

- **Take 2 minutes to deliberate the diagnosis** – promotes a quick reflection for each clinical presentation. While deliberating the diagnosis:
  - Document the differential diagnoses
  - Detect any deviations
  - Debate the diagnosis at handover
  - Decide on the final diagnosis

- **Take a closer look when** – provides clinicians with insight into clinical situations in which it may be appropriate to think twice and take a closer look
  - There are patient, system and cognitive factors present that may impact diagnostic decision making;
  - Double check at specific patient journey checkpoints (e.g. Rapid Response Calls)
  - Take 2 for you (locally specific high risk presentations)

- **Take a closer look using** – strategies that enable clinicians to take action:
  - Diagnostic Time-out
  - Red Team / Blue Team Challenge promoting dialogue around diagnostic clinical decision making
  - Seek a second opinion, refer or escalate

Findings to date: The Framework is currently undergoing clinician testing. This is highlighting the need for further development of supportive resources for successful implementation across diverse clinical environments (e.g. in smaller, rural facilities as opposed to larger, tertiary referral centres). State-wide implementation will require significant culture change, and supporting Junior Medical Officers to challenge the authority gradient is a key to success.

Lessons learned: Framing the problem in a positive manner is less confrontational and enhances clinician engagement. Having a catchphrase that can be adopted in clinical practice is useful to encourage uptake (e.g. – Wait, we need to Take 2 on this one…). Measuring diagnostic processes and diagnostic error remains difficult, however reviewing documentation of differential diagnoses is facilitated in the electronic medical record setting and allows recognition of delays and changes to provisional diagnoses.
Recording Diagnostic Uncertainty in Outpatient Settings

V. Bhise, A. N. D. Meyer, S. Menon and H. Singh
Center for Innovations in Quality, Effectiveness and Safety, Michael E. DeBakey Veterans Affairs Medical Center and Baylor College of Medicine, Houston, TX

Background: Errors of diagnosis affect about 1 in 20 US adults annually in outpatient settings. Because providers often make decisions in the midst of uncertainty, appropriate management and documentation of diagnostic uncertainty could potentially avert harm from an error. We conducted a secondary analysis of the nationally representative and publically available National Ambulatory Medical Care Survey (NAMCS) dataset to examine how physicians recorded diagnostic uncertainty in the medical record.

Methods: We pooled NAMCS datasets from years 2006-2010 and identified two visit-based cohorts of patients whose primary diagnoses were likely uncertain. Cohort 1 consisted of visits with primary diagnoses coded using ICD-9-CM codes 780-799 (signs, symptoms, and ill-defined conditions; SSIDs). The rationale for considering these diagnoses “uncertain” was that ICD-9-CM coding guidelines recommend reporting “clinical condition(s) to the highest degree of certainty for that encounter/visit.” Thus, we considered the diagnosis uncertain when the primary ICD-9-CM code reflected absence of a relevant definitive diagnosis. Cohort 2 consisted of visits for which the physician, office staff, or NAMCS staff reported the diagnosis as a “probable, questionable, or rule-out diagnosis” on the NAMCS survey instrument (NAMCS-defined uncertainty). Patient visits without primary diagnoses (0.65%) were excluded. We compared the weight-adjusted percentages of visits with diagnostic uncertainty and their overlap in the cohorts using STATA 12.1 (Stata Corp).

Results: Over the 5-year period, 153,133 un-weighted physician office visits with a primary diagnosis were recorded in NAMCS, representing 4.86 billion outpatient visits. Of these, 12,578 met definitions for diagnostic uncertainty (Cohort 1 or 2). Extrapolating to the NAMCS sampling frame, we estimated that Cohort 1 criteria applied to 325.3 million visits (6.7%), whereas Cohort 2 represented 47.3 million visits (0.97%). In total, we extrapolated both definitions of diagnostic uncertainty to 370.2 million visits (7.62%; 95% CI 7.33-7.92%). Physicians coded an estimated 44.95 million visits (0.92%) using a specific diagnosis code (instead of SSIDs) despite being defined as uncertain in NAMCS.

Conclusion: We found evidence of diagnostic uncertainty in approximately 8% of outpatient visits. In nearly 1% of visits (approximately 9 million visits/year), definitive diagnoses were coded despite the presence of diagnostic uncertainty. Diagnostic uncertainty, while common, is inadequately addressed by the current coding and billing structure (ICD-9 CM and ICD-10). A code for uncertain diagnosis could be one way to ensure that patients are not labelled incorrectly with diagnoses they don’t have. Our findings call for new strategies to ensure accurate recording of diagnostic uncertainty in outpatient settings.
Journal of General Internal Medicine's Exercises in Clinical Reasoning: From Print to Rounds

R. Sedighi Manesh1, D. Connor2, D. Hames1, G. Dhaliwal1 and J. Kohlwes2

1Johns Hopkins, Baltimore, MD
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Statement of problem: Cognitive mistakes by physicians lead to 30% of diagnostic errors. Currently, few curricula exist to teach diagnostic reasoning skills and metacognition to students and residents. There are few on-line resources available for motivated faculty to teach clinical reasoning (CR) concepts with cases. This creates a barrier for attendings interested in teaching CR concepts to their students and residents.

Description of the intervention or program: In 2010 the Journal of General Internal Medicine (JGIM) created the Exercises in Clinical Reasoning (ECR) series. This series presents complex cases in a sequential fashion to expert clinicians who share their thinking in a typical clinical problem solving format. The innovation in the ECR series is the inclusion of a running commentary that deciphers the clinical reasoning process of the discussant. This parallel process allows the reader to understand the framework used to solve the case, and lays the groundwork for a didactic model that can be used as a teaching guide for clinical faculty. We are creating a website which will make it easy for faculty to quickly grasp key CR concepts and to then utilize JGIM’s cases in teaching conferences. Each CR concept will have its own webpage that includes downloadable teaching points, a case-based teaching guide, and teaching slides. The website will also feature a link to the Society to Improve Diagnosis in Medicine’s Clinical Reasoning Toolkit for course participants interested in reviewing more in depth material.

Findings to date: This educational innovation is a work-in-progress. We are prioritizing four CR concepts: dual process theory, illness scripts, problem representation, and heuristics. One or two published cases from the JGIM ECR series has been selected to illustrate each concept. Teaching guides (text and slides) for each CR concept are being developed. Figure 1 illustrates the webpage for problem representation.

Lessons learned: We chose to target clinical faculty because we believe they can effectively introduce clinical reasoning concepts to their learners, utilizing a ‘train the trainers’ approach to widely disseminate a CR framework. We decided to emphasize key reasoning vocabulary such as “problem representation,” “illness scripts,” and “anchoring bias” to familiarize learners with these terms. Future work involves launching the website, surveying users, expanding the number of CR concepts based on material published in the ECR series, and creating an interactive interface in which faculty utilizing the site can share their experiences and offer teaching tips.

Evidence of the Predominant Use of Disease Prototypes over Individual Case Exemplars Prior to and Following Diagnostic Training Among Early Year One Medical Students

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Background: One of the primary impediments to diagnostic accuracy is that most diseases are ill-defined (i.e., lack a criteria meeting set of signs and symptoms which are either necessary and/or sufficient for confidently conferring a diagnosis at the bedside). Dual Processing Theory’s (DPT) System I constructs (Exemplars and Prototypes) provide educators and researchers a framework with which to both design training approaches, and explore the cognitive factors, likely to improve diagnostic performance against ill-defined diseases. This investigation utilized these two System I constructs to: 1) create an instructional activity intended to improve diagnostic capabilities, and 2) determine whether any observed diagnostic performance improvements were primarily driven by Exemplars or Prototypes.

Methods: Following IRB approval, 117 third month, year one medical students volunteered to participate in a two hour instructional activity involving nine common and important ill-defined disease differentials for the problem of Acute Chest Pain. Evidence of diagnostic improvements were based upon a pre and post training assessment instrument containing the same 27 test case vignettes with each of the nine diseases represented in turn by three vignettes (one most typical, one mid-typical and one least typical portrayal). Stratification of these 27 cases into three sets of vignettes representing the nine most typical, mid typical, and least typical portrayals, enabled determination of the correlation between performance and the typicality of these three sets of vignettes. As typicality was defined in this investigation, a positive correlation between performance and typicality would suggest the students’ predominant use of System I Prototypes while no correlation between performance and typicality would suggest predominant use of System I Exemplars.

Results: A pre vs post training performance comparison revealed a highly significant improvement in diagnostic capabilities; t=14.04, p<0.001, Cohen’s d=1.32. Following assignment of all 117 subjects into three performance groups (low, middle and high; N = 39 subjects per group), the post-training correlation between performance and the typicality of the test cases was positive for each group (low, 0.29; middle = 0.34; high = 0.33). Evidence of a positive correlation across all three performance groups suggests that disease prototypes more likely served as the primary driver of the observed performance improvements than disease exemplars.

continued on next page (28)
Conclusion: DPT is a useful framework for both designing improved approaches to diagnostic training and a means of investigating the cognitive factors driving improvements in the diagnostic capabilities of early medical students in dealing with ill-defined diseases.

Do Delays in Diagnosis Influence the Patient Experience of Subsequent Care? Evidence from 73,000 Respondents to the English Cancer Patient Experience Survey

Y. Lyratzopoulos¹, S. Mendonça² and G. Abel²

¹University College London, London, United Kingdom
²University of Cambridge, Cambridge, United Kingdom

Background: It is often thought that delays in diagnosis and missed diagnostic opportunities may negatively affect patient experience, but evidence about this assertion is sparse. We conducted a study to explore this question empirically using patient-reported data.

Methods: We analysed data from 73,462 respondents to two English Cancer Patient Experience Surveys to examine whether patients with three or more (3+) pre-diagnostic (pre-referral) consultations with a family doctor were more likely to report negative experiences of subsequent care compared with patients with 1 or 2 consultations in respect of 12 a priori selected survey questions. For each of 12 experience items, logistic regression models were used, adjusting for prior consultation category, cancer site, socio-demographic case-mix and response tendency.

Results: There was strong evidence (p<0.01 for all) that patients with 3+ pre-diagnostic consultations reported worse care experience for 10/12 questions, with adjusted odds ratios compared with patients with 1-2 consultations ranging from 1.13 (95% confidence intervals 1.08-1.19) to 1.68 (1.60-1.77), or between +1.5% and +10.6% greater percentage reporting a negative experience. Associations were stronger for processes involving primary as opposed to hospital care; and for evaluation than report items. Considering 1, 2, 3-4 and ’5+’ pre-diagnostic consultations separately a ‘dose-response’ relationship was apparent.

Figure: Odds ratios (and 95% CIs) for negative experience for patients with ‘three or more’ pre-diagnostic consultations with a general practitioner, compared with patients with 1-2 consultations (reference). Questions ordered by effect size with evaluative questions on the left and report questions on the right.

Conclusion: We provide large scale evidence documenting the presence and size of negative associations between multiple pre-diagnostic consultations with a family doctor and the experience of subsequent care.
‘Big Data’ Insights into Missed Diagnostic Opportunities for Cancer: Evidence from 0.67 Million Patients with 35 Cancers

Y. Zhou1, G. Abel1, S. Mendonca1 and Y. Lyratzopoulos2

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Background: It would be ideal if family doctors were able to suspect a malignancy when patients subsequently diagnosed with cancer first present to them with symptoms. However, current limitations in diagnostic technology and medical knowledge prevent us from achieving this ideal. For example, in countries such as England and Denmark, only a minority of all cancer patients is diagnosed through the ‘suspected cancer’ referral pathways that shorten diagnostic intervals to rapid specialist assessment. Studying variation in ‘suspected cancer’ referrals between patients with different cancers and characteristics can elucidate factors contributing to delayed diagnosis, and inform targeted diagnostic quality initiatives and research.

Methods: We examined anonymous data from about 0.76 million cancer patients diagnosed 2006-2010 following either a ‘suspected cancer’ or ‘routine’ family doctor referral to hospital specialists. We used data from the English population-based ‘Routes to Diagnosis’ project – a linked healthcare data resource. We used logistic regression to examine variation (by cancer type, age, sex, socioeconomic group and year of diagnosis) in the odds of ‘suspected cancer’ (as opposed to ‘routine’) referral.

Results: Patients with cancers with a symptom signature characterized by the presence of ‘alarm’ (or ‘red flag’) presenting symptoms in most patients (such as testicular, breast, esophageal, and melanoma cancers) were more likely to be referred through the ‘suspected cancer’ pathways (and consequently be subject to minimal delay). In contrast, patients with cancers where most patients present with non-specific symptoms at presentation were least likely to be referred through a ‘suspected cancer’ pathway – these included patients with brain cancer, multiple myeloma and Cancer of Unknown Primary. Younger patients were less likely to be referred via the ‘suspected cancer’ pathway, without notable variation by sex or socioeconomic status.

Conclusion: Patients with cancers with clear symptom signatures are much more likely than average to benefit from faster referral. As clinical guidelines, by their nature, focus on ‘alarm’ symptoms, their effectiveness in accelerating diagnosis is concentrated on few symptomatic presentations and, as our data suggest, on some cancers only. Therefore other interventions, beyond simple implementation of ‘red flag’ focused clinical guidelines, are needed to improve diagnostic timeliness and safety in primary care. These may include the development of new diagnostic (ideally point-of-care) tests, electronic health record embedded interventions (such as ‘triggers’) to support decision-making both during and after the clinical encounter, greater use of ‘active monitoring’ approaches and patient empowerment interventions.

Using Mobile Technology (and Big Data) to Understand Medical Errors

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1The George Washington University, Washington, DC
2Duke University, Durham, NC

Background: Academic radiology and cognitive psychology research have helped reveal the underlying causes of certain types of medical image search errors; however, several sources of these errors have remained elusive. In the current presentation, we will discuss how data collected from millions of searchers across billions of trials can inform specific medical image search problems that have been especially hard to address in laboratory or clinical settings. Specifically, we will present data that informs search errors related to satisfaction of search—an increased risk of missing a target (e.g., an abnormality in an X-ray) after having already found another target.

Methods: We have partnered with Kedlin Co., the makers of a smartphone app called Airport Scanner, to obtain “big data.” Airport Scanner is a game where the player serves as an airport security officer and searches for contraband in simulated carry-on bags. The game contains numerous elements that are ideal for research endeavors—a variable number of targets per bag, a variable number of distractors per bag, multiple levels with varying difficulty, hundreds of different target types and distractor types, a secondary distraction task, etc. We have access to over 2 billion trials from over 7 million devices, and we have used this unique dataset to address questions that have been previously intractable.

Results: Multiple-target visual search errors contribute to diagnostic errors related to X-ray image reading, cytology, pathology, etc., and it is critical to understand the core causes of the problem to improve medical image searches and diagnostic performance. We will present a number of findings, include data that suggest that satisfaction of search is partially caused via a ‘perceptual set’ mechanism—after finding a target, you are more likely to find other targets that are perceptually and conceptually similar. Likewise, we will show how target frequency (how often a specific target appears across all searches) can greatly affect diagnostic performance.

Conclusions: It is vital to minimize medical image search errors, but this can only be done by understanding the causes of each error type. We will present a novel technique for investigating the general search behaviors that can underlie search errors. This approach complements and expands current research endeavors, and most importantly, can address previously intractable problems.
**Poster Presentations**

Sunday, 27 September  |  4:45 PM – 7:00 PM  |  Plaza Ballroom West

**Scientific Abstracts**

1. Utilizing Electronic Health Record Data to Model Diagnostic Error  

2. Can We Improve Diagnosis in Medicine with Better Assessments? an Integrative Review.  
   **J. M. Castillo and M. Clark**

3. Evaluation of a Diagnostic Checklist for Use in Internal Medicine Resident Education  
   **D. DiNardo, S. Tilstra, M. McNeil, W. Follansbee, S. Zimmer and A. Barnato**

4. Diagnostic Error in Idiopathic Intracranial Hypertension (IIH)  
   **A. Fisayo, B. Bruce, N. J. Newman and V. Biousse**

5. Quantitative Investigation about Correlation Between Success of Medical Interview and Adequacy of Question/Answer By Doctor/Patient through Discrete-Stochastic-Process Simulative Experiment  
   **S. Fujita**

6. Public Reactions to Diagnostic Error Burden in US Outpatient Care  

7. Utilizing Physician and Patient Complaints As a Quality Assurance Marker in Emergency Medicine  
   **K. Gurley, R. Wolfe, S. Grossman, J. Edlow and J. Burstein**

8. Absent Confidence Intervals and Persistent Use of Relative Risk: Lessons from the Nurse Practitioner Clinical Literature  
   **G. Harkless**

9. A Naturalistic Evaluation of a Diagnostic Support System for Family Physicians  
   **O. Kostopoulou, T. Porat, S. Mahmood, D. Corrigan and B. Delaney**

10. Use of a Modified Fishbone Diagram to Analyze Diagnostic Errors in Emergency Medicine  
    **C. S. Lin, C. C. Feng, C. F. Su, S. L. Chao and C. C. Peng**

    **Y. Lyratzopoulos and G. Abel**

12. Using Public Deliberation to Define Patient Roles As Partners in the Diagnostic Process  
    **T. Nabatchi and K. Bozentko**

13. Developing a Criterion to Explore Treatment As a Deductive Process during Diagnosis in Primary Care  
    **D. Nystrom, A. Almutairi, M. Smith and H. Singh**

14. Diagnostic Evaluation of Patients Presenting with Hematuria: An Electronic Health Record-Based Study  
    **K. Richards, D. Murphy and H. Singh**

15. Pediatric Primary Care Practitioners' Interest in Diagnostic Error Reduction  

16. Team Analysis of Clinical Thinking (TACT) for Better Outcomes through Better Diagnosis.  
    **A. Soudagar, G. Singh, A. Kulkarni and P. Foster**

17. Diagnostic Vulnerabilities and Patient Safety in the Ambulatory Setting  
    **B. Szeidler, D. Siegal, K. Bergquist, G. Ruoff, J. Hoffman, A. Anderson and M. Janes**
18. Reporting Wisely - Trigger Signals” for Early Detection of High Risk Patients to Avert Diagnostic Adverse Events
   E. M. Travers

19. Graded Sentinel Indicators of Risk for Complex Care Patients Most Vulnerable to Adverse Diagnostic Events
   E. M. Travers

20. Identifying Error Types in Radiological Image Interpretation of Learners
   A. van der Gijp, C. Ravesloot, M. van der Schaaf, J. Huige, O. ten Cate, K. Vincken, C. Mol and J. van Schaik

21. Performance, Uptake and Evolution of Multiplex PCR Testing for Acute Diarrhea
   J. Wofford and E. Palavecino

22. Identifying the Issues: A State-Wide Evaluation of Reported Delayed and Missed Diagnoses
   T. Clarke and A. Walker

**Applied Innovations**

23. Minimising Diagnostic Error – the Red Team / Blue Team Challenge
   A. Walker, T. Clarke and S. Della-Fiorentina

24. Dynamic Checklists for Diagnosis That Learns from Collective Wisdom
   V. Chengat and G. Vengayil

25. The Identification and Follow-up of Clinically Relevant Radiologic Findings at One Institution
   A. P. Gupta, C. Wilkes and D. Liebovitz

26. Intraoperative Protocol for Microscopic Examination of Small Biopsies to Reduce Diagnostic Error
   M. Gusack

27. A Modelelectronic Compendium of Clinical Laboratory Tests to Reduce Diagnostic Error
   M. Gusack

28. Integrated Synoptic Based Diagnostic Criteria to Reduce Surgical Pathology Diagnostic Error
   M. Gusack

29. Improving Diagnostic Reasoning through Structured Peer Feedback
   K. Lane and A. Olson

30. Improving Diagnostic Accuracy through Mandatory Chart Reviews
   D. Meyer and R. Trowbridge

31. Use and Perception of a Computerized Diagnostic Decision Support Tool in the Inpatient Setting
   R. Trowbridge, M. Roy and J. Botler

32. Check: A Mobile App for Better, Safer Diagnosis from the Human Diagnosis Project
   S. Nundy

33. The Cognitive Boot Camp for Accelerated Learning and Formation of a Repertoire of Illness Scripts

34. Reflections on a Longitudinal Curriculum on Diagnostic Error at Two Years
   E. Ruedinger, M. Olson and A. Olson

35. Return on Investment for Quality Initiatives to Improved Cancer Diagnosis
   J. Schwartz and M. Priebe

36. Patient Centric Quality Assurance Tracking System for Pathology
   S. Smith

37. Real Time Liability "SNAP SHOT" Assessment Model for Malpractice Underwriting and Competitive Market Differentiation
   S. Smith

38. Using Cloud-Based Simulated Patients to Teach a Problem Based, Systematic Approach to Diagnostic Reasoning
   S. Stern

39. What Are We Talking about? Discussion of Error in Medicine Morbidity and Mortality Conference
   R. Thorson, A. Olson and J. Nixon

40. Using Mobile Applications to Support the Management of Patients with Coagulation Disorders
   K. Wilson

**Clinical Vignette**

41. Unusual Clinical Course of Pyelonephritis: Think Renal Abscess!
   N. Ando, K. Kamata and Y. Tokuda

42. "There Is Nothing More Deceptive Than an Obvious Fact.”
   K. Dolan, J. Akhtar and W. E. Shamsi

43. A Japanese Young Male Patient with Fever and Neutropenia in October 2014.
   R. Ito, E. Tanaka, M. Urayama, E. Kanbe and Y. Tamai

44. Hide and Seek: Abruptly Spreading Silent Killer Under the Skin.
**Clinical Vignette**

45. Anchored to an Uncomfortable Diagnosis  
   *I. Kitagawa, J. Branch, S. Nishiguchi, H. Sugimoto and S. Sato*

46. Diagnostic Pitfall Evaluating Leg Ulcers in Patients with Multiple Atherosclerotic Risk Factors  
   *N. Honda*

47. Fatal Nonchalance  
   *S. Howell*

48. An Insidious Presentation of Apap Poisoning  
   *J. Lund III, J. Lu and R. Feldman*

49. The Strength of the Clinical Thinking  
   *D. Mineva*

50. Legionella Pneumonia Mimicking Acute Gastroenteritis  

51. Diagnostic Delay of Graves’ Disease Due to Faulty Data Gathering  

52. EBV-Positive Diffuse Large B Cell Lymphoma in a Young Patient Can be a Clue to Diagnosis of HIV Infection  
   *M. Morise and H. Yanagi*

53. A Case of Systemic Lupus Erythematosus with Negative Antinuclear Antibody Titer Test  
   *K. Nakano and K. Akazawa*

54. Pseudo Acute Kidney Injury in a Patient with Past History of Pelvic Radiotherapy, Sudden Onset Abdominal Pain and Ascites: Consider Bladder Rupture!  
   *S. Omata, K. Kamata, Y. Tokuda, F. Terauchi, A. Morikawa, A. Fujisaki, T. Morita and D. Nagata*

55. Catching the Culprit Flagrante Delicto By Gram Stain Exam  
   *M. Ono and Y. Tokuda*

56. Key Facts Are Not Key Facts.  
   *V. Patel, J. Akhtar and W. E. Shamsi*

57. Faulty Information Synthesis, Distracted By Co-Existing Adnexal Incidentaloma  

58. Fever of Unknown Origin but Unknown to Whom?  
   *T. Segerson, J. Akhtar and K. Dolan*

59. The Curious Case of a Missing Left Shoe.  
   *A. Sidlak, J. Akhtar and F. Subhani*

60. Everything That Wheezes Is Not Asthma : A Case of Early Closure.  
   *G. Singh*

61. The Imperfect Observer  
   *F. Subhani and J. Akhtar*

62. Hypopituitarism in an Intellectually Disabled Man with “Psychotic Features”  
   *N. Takamatsu*

63. All That Glitter Is Not Gold  

64. Anchoring Bias during Season of Influenza Outbreak  

65. Negative Sign for Peritonitis Does Not Rule out Fulminant Colonic Ischemia.  
   *Y. Tomoda, K. Kamata and Y. Tokuda*

66. Hidden Cause of Severe Recurrent Rhabdomyolysis  
   *S. Watanuki and Y. Tokuda*

67. Utility of Lactic Acid As a Marker for Mesenteric Ischemia  
   *A. Zewde*
Thank you to our 2015 Diagnostic Error in Medicine 8th International Conference exhibitors

Visit our exhibitors in the Lower Foyer. Please see the Schedule At A Glance for detailed exhibit times.

Exhibit Times

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Complete your Passport to Prizes card, and submit it to the registration desk by 1:15 PM on Tuesday. The winner will be announced during the Closing Remarks.
After the IOM Report — What’s Different?

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