

Diagnostic Error in Medicine

4th International Conference



October 23-26, 2011

KEYNOTE SPEAKERS

Gary Klein, PhD

Ian G. Stiell, MD, MSc, FRCPC

FEATURED PRESENTATIONS

Diagnostic Error "Hot Topics" Debate

Critical Misdiagnoses with Common Symptoms

Diagnostic Error Disclosure

How Much Diagnostic Safety Can We Afford?

How Can Computers Best Help Us Avoid Misdiagnosis?

Hyatt Regency ■ Chicago, IL

The thematic image of the conference reflects the uncertainty of understanding the human condition. The image is a commemorative medallion created by the Portuguese artist Irene Vilar (1931-2008) for the 4th National Congress of Medicine, Lisbon, used with permission of her estate.



Diagnostic Error in Medicine 2011

4TH INTERNATIONAL CONFERENCE

OCTOBER 23-26, 2011 | HYATT REGENCY, CHICAGO, IL
www.smdm.org/diagnostic_errors.shtml

DEM Embracing New Technology

Scan the QR codes below with your smart phone to link to the website.

DEM 2011 Conference Main web page, scan the code to the right >
http://www.smdm.org/diagnostic_errors/2011DEM.shtml



WHAT'S A QR CODE?

A QR Code (stands for "Quick Response") is a mobile phone readable barcode that can store phone numbers, URL's, email addresses and pretty much any other alphanumeric data. For your Smartphone to be able to read QR Codes you will need to have barcode reading software installed on it. Most Code Scanning Phone Apps are FREE, you just need to download.

WHERE DO I GET THE SOFTWARE FOR MY SMARTPHONE?

Different countries, networks and phone manufacturers have embraced QR Codes to varying degrees and in different ways. Your phone may already have it pre-installed, but if not you'll need to install a QR Code Scanning Phone App through your App Store or Marketplace.

Top Three Sites

- Barcode Reader (iPhone) , <http://itunes.apple.com/us/app/barcodes-scanner/id417257150?mt=8>
- Barcode Scanner (Android), <https://market.android.com/details?id=com.google.zxing.client.android>
- Neo Reader (Blackberry/iPhone), <http://get.neoreader.com/>

HOW-TO

After you downloaded the App, activate the "Barcode Reader App" on your Smartphone then hover over this code below with your Smartphone camera. This code should then link you to the DEM Conference website.

WHY IS DEM USING QR CODES?

The codes allow the DEM to provide attendees with additional relevant information in a quick, easy, condensed way. Imagine being able to scan a bar code and have the conference agenda at fingertips on your Smartphone!

DEM 2011 Keynote Presentations, scan the code to the right >
http://www.smdm.org/diagnostic_errors/keynote2011.shtml



< **DEM Poster Presentations**, scan the code to the left
Monday, October 24, 2011 3:00 – 5:00 pm
<http://smdm.confex.com/smdm/2011ch/webprogram/Session1468.html>

DEM Oral Abstract Presentations, scan the code to the right >
Tuesday, October 25, 2011 4:00 – 5:30 pm
<http://smdm.confex.com/smdm/2011ch/webprogram/Session1467.html>





Diagnostic Error in Medicine 2011

4TH INTERNATIONAL CONFERENCE

OCTOBER 23-26, 2011 | HYATT REGENCY, CHICAGO, IL
www.smdm.org/diagnostic_errors.shtml

We are pleased to announce the 4th international conference on **DIAGNOSTIC ERROR IN MEDICINE – 2011** to be held in association with the annual meeting of the Society for Medical Decision Making. We hope to build on the past successful meetings by continuing the discussion of diagnostic errors and expanding the constituency of advocates dedicated to addressing this key problem.

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.

AUDIENCE

Practicing clinicians, cognition scientists, safety officers and risk managers, informatics professionals, clinical and basic investigators, educators, and trainees. Patients who may have experienced diagnostic error who wish to contribute to a positive dialogue are especially welcome.

OBJECTIVES

The conference goal is to build a scientific and practical understanding of diagnostic error in medicine and foster the development of solutions by:

- Focusing attention on the frequency, impact, and public health significance of medical misdiagnosis
- Developing a core constituency of committed advocates from diverse backgrounds and perspectives
- Discussing the nature, causes, and remedies for diagnostic error in medicine,
- Sharing research methods and results relevant to clinical reasoning, diagnostic error, and misdiagnosis-related harm

CALL FOR POSTER AND ORAL ABSTRACTS

- Online submission of abstracts begins on Monday, February 7, 2011.
- Deadline for submission of abstracts is Friday, July 29, 2011.
- Poster Presentations are scheduled for Monday, October 24, 2011.
- Oral Presentations are scheduled for Tuesday, October 25, 2011.

Please visit the DEM website to submit your abstract proposal.

We invite poster submissions that address the epidemiology of diagnostic error, factors that predispose to diagnostic error, or strategies to reduce diagnostic error or improve detection. In addition, medical trainees are encouraged to submit case presentations on diagnostic errors they have encountered. Abstracts submitted for the SMDM meeting may also be submitted for consideration for 'Diagnostic Errors in Medicine' and will be considered independently.

IMPORTANT DATES

Tuesday, September 20, 2011 Hotel Reservations, Deadline for Group Rate

Friday, September 30, 2011

Friday, September 30, 2011

Early Bird Registration Deadline
Cancellation Deadline

DEM Conference Dates

Monday, October 24, 2011

Tuesday, October 25, 2011

Wednesday, October 26, 2011

DEM Conference - Day One

DEM Conference - Day Two

DEM Conference - Day Three

REGISTRATION

Registration will open in July. Please see the conference web site for registration fee information. Early bird rates are available up until Friday, September 30, 2011.

For further information on the DEM and SMDM Conference visit:

http://www.smdm.org/diagnostic_errors.shtml and

http://www.smdm.org/smdm_annual_meetings.shtml

For questions, abstract submission, exhibit and sponsorship information, please contact: Shawna Wilker at dem@smdm.org

PLANNING COMMITTEE

David E. Newman-Toker, MD, PhD, 2011 Chair, DEM Executive Committee, Johns Hopkins University School of Medicine, Baltimore, MD

Gordon D. Schiff, MD, 2011 Co-Chair, DEM Executive Committee, Brigham and Women's Hospital, Boston, MA

Mark L. Graber, MD, DEM Executive Committee, RTI International, St James, NY

Cindy L. Bryce, PhD, DEM Executive Committee, University of Pittsburgh Graduate School of Public Health, Pittsburgh, PA

Karen S. Cosby, MD, FACEP, Cook County Emergency Medicine Residency, Rush Medical College, Chicago, IL

Jonathan A. Edlow, MD, Beth Israel Deaconess Medical Center, Harvard Medical School, Boston, MA

Robert El-Kareh, MD, MPH, University of California, San Diego, CA

Paul Epner, MBA, MEd, Principal, Paul Epner LLC, Evanston, IL

Omar Hasan, MBBS, MPH, Brigham and Women's Hospital and Harvard Medical School, Boston, MA

Kathryn M. McDonald, MM, Past President of SMDM, Stanford Health Policy (CHP/PCOR), CA

Kaveh G. Shojania, MD, Sunnybrook Health Sciences Centre, Toronto, ON

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

Laura Zwaan, MSc, VU University Medical Center, Netherlands

Shawna Wilker, Director of Meetings, DEM Headquarters

For general questions, abstract submission, exhibit and sponsorship information, please contact Shawna Wilker at dem@smdm.org. If you wish to be added to the DEM database to receive information on the DEM Conferences please send your complete contact information to dem@smdm.org



Diagnostic Error in Medicine 2011

4TH INTERNATIONAL CONFERENCE

OCTOBER 23-26, 2011 | HYATT REGENCY, CHICAGO, IL
www.smdm.org/diagnostic_errors.shtml

Agenda-at-a-Glance

SUNDAY, OCTOBER 23, 2011

DEM AFTERNOON HALF-DAY SHORT COURSE

Separate registration required for short course

1:00 - 5:00 PM The Role of Testing in Diagnostic Error

MONDAY, OCTOBER 24, 2011

DEM MORNING HALF-DAY SHORT COURSE

Separate registration required for short course

8:30 - 9:00 AM DEM Short Course Attendee Only Continental Breakfast

9:00 - 12:00 PM Diagnostic Error: A State of the Science Overview

12:00 - 12:30 PM Lunch on your own

MONDAY, OCTOBER 24, 2011

CONFERENCE DAY ONE

12:30 - 1:00 PM DEM Welcome and Opening Remarks

1:00 - 2:00 PM Keynote Presentation: "What Physicians Can Learn from Firefighters"
Gary Klein, PhD, is a Senior Scientist at MacroCognition LLC. He was instrumental in founding the field of Naturalistic Decision Making.

2:00 - 3:00 PM Diagnostic Error "Hot Topics" Debate

3:00 - 4:30 PM DEM Poster Presentations and Coffee Break

4:30 - 5:30 PM Trainee "Stump the Professor" Case Session

6:00 - 10:00 PM DEM "Meet the Professor" Dinners. (Dutch treat, everyone pays for her/his own meal.)



Diagnostic Error in Medicine 2011

4TH INTERNATIONAL CONFERENCE

OCTOBER 23-26, 2011 | HYATT REGENCY, CHICAGO, IL
www.smdm.org/diagnostic_errors.shtml

Agenda-at-a-Glance

TUESDAY, OCTOBER 25, 2011

CONFERENCE DAY TWO

7:00 - 8:00 AM	Continental Breakfast
8:00 - 11:00 AM	Critical Misdiagnoses with Common Symptoms
8:00 - 10:00	Part I: What Have We Learned?
10:15 - 11:00	Part II: Where Do We Go From Here? Panel Comments and Open Audience QA
11:00 - 12:00 PM	Keynote Presentation: "The Theory and Reality of Developing Clinical Decision Rules" Ian G. Stiell, MD, MSc, FRCPC, Distinguished Professor and University Health Research Chair, University of Ottawa / Senior Scientist, Ottawa Hospital Research Institute
12:00 - 1:00 PM	Lunch on your own
12:15 - 1:00 PM	DEM Society Meeting
1:00 - 2:30 PM	Concurrent Tracks Track 1 – Clinical Care and Education Track 2 – Research and Methods
2:30 - 4:00 PM	Cognitive Debiasing Workshop
4:00 - 5:30 PM	DEM Oral Abstracts

WEDNESDAY, OCTOBER 26, 2011

CONFERENCE DAY THREE AND CONCLUSION

7:00 - 8:00 AM	Continental Breakfast
8:00 - 9:30 AM	Diagnostic Error Disclosure: Patient, Provider, Legal, and Risk Management Perspectives
9:30 - 10:00 AM	Coffee Break
10:00 - 12:00 PM	How Much Diagnostic Safety Can We Afford?
12:00 - 1:00 PM	Lunch on your own
1:00 - 3:00 PM	21st Century Decision Support How Can Computers Best Help Us Avoid Misdiagnosis?
3:00 - 3:30 PM	Conference Summary and Challenges to Attendees, Let's Get Serious About Solutions

Pre-Conference Short Course

SUNDAY, OCTOBER 23, 2011

DEM AFTERNOON HALF-DAY SHORT COURSE

Separate registration required for short course

1:00 - 5:00 PM

The Role of Testing in Diagnostic Error

Moderator: **Philip E. Castle**, PhD, MPH, Executive Director, American Society for Clinical Pathology Institute and Center for Health Services Research, Washington, DC

Faculty:

Leonard Berlin, MD, FACR, NorthShore University HealthSystem, Skokie Hospital, Skokie, IL

Mark L. Graber, MD, DEM Executive Committee, RTI International, St James, NY

Michael Laposata, MD, PhD, Vanderbilt University Hospital, Nashville, TN

Stephen S. Raab, MD, University of Washington, Seattle, WA and Memorial University of Newfoundland/Eastern Health Authority, St. John's, NL

Welcome

Jennifer F. Rhamy, MBA, MA, MT (ASCP), SBB, HP, Executive Director of the Laboratory Accreditation Program, The Joint Commission, Oakbrook Terrace, Ill

1:00 - 1:15

Introduction of Short Course

Philip E. Castle, PhD, MPH, Executive Director, American Society for Clinical Pathology Institute and Center for Health Services Research, Washington, DC

1:15 - 1:45

Introduction to Diagnostic Errors

Mark L. Graber, MD, DEM Executive Committee, RTI International, St James, NY

1:45 - 2:30

Errors in Test Selection and Result Interpretation: A Major Source of Poor Patient Outcome.

Michael Laposata, MD, PhD, Edward and Nancy Fody Professor, Executive Vice Chair of Pathology, Dept of Pathology, Pathologist-in-Chief, Vanderbilt University Hospital, Nashville, TN

It has long been thought that errors in laboratory tests selection largely result in the performance of additional, inexpensive, and automated laboratory tests. Similarly, errors in test result interpretation have been widely regarded as relatively harmless, and primarily related to a delay in achieving the correct diagnosis. However, recent information has demonstrated that the consequences of errors in test selection and results interpretation can produce outcomes with significant morbidity and mortality. This presentation will present the challenge facing the treating physician in correct test selection and result interpretation and illustrate the not infrequently encountered severity of the clinical consequences.

2:30 - 2:45

Break

2:45 - 3:30

The Impact of Anatomical Pathology on Diagnostic Error

Stephen S. Raab, MD, University of Washington, Seattle, WA and Memorial University of Newfoundland/Eastern Health Authority, St. John's, NL

Errors in anatomic pathology diagnostic interpretation generally are related to system problems and impact the quality domains of safety, efficiency, patient centeredness, and timeliness. For diagnostic anatomic pathology services, errors more frequently are false negative diagnoses that may result in delays in treatment and additional testing. For anatomic pathology diagnostic screening services, errors more frequently are false positive diagnoses that lead to unnecessary treatment and/or testing. Most anatomic pathology diagnostic testing errors are associated with no, minimal, or minor harm and increased inefficiencies manifested in terms of higher costs and the development of technologies to mitigate risk.

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Pre-Conference Short Course

SUNDAY, OCTOBER 23, 2011 *continued*

DEM AFTERNOON HALF-DAY SHORT COURSE

Separate registration required for short course

1:00 - 5:00 PM

The Role of Testing in Diagnostic Error *continued*

Moderator: Philip E. Castle, PhD, MPH, Executive Director, American Society for Clinical Pathology Institute and Center for Health Services Research, Washington, DC

Faculty:

Leonard Berlin, MD, FACR, NorthShore University HealthSystem, Skokie Hospital, Skokie, IL

Mark L. Graber, MD, DEM Executive Committee, RTI International, St James, NY

Michael Laposata, MD, PhD, Vanderbilt University Hospital, Nashville, TN

Stephen S. Raab, MD, University of Washington, Seattle, WA and Memorial University of Newfoundland/Eastern Health Authority, St. John's, NL

3:30 - 4:15

The Impact of Imaging Studies on Diagnostic Error

Leonard Berlin, MD, FACR, Radiology Department, Skokie Hospital, Skokie, Illinois; Professor of Radiology, Rush University and University of Illinois, Chicago, Illinois

More than a half-century ago California radiologist Henry Garland introduced the subject of the accuracy of diagnostic tests and procedures. First commenting on significant error rates relating to clinical diagnoses of such conditions as myocardial infarction, emphysema, malnutrition in children, and others, Garland then turned to radiologic diagnoses. He reported a 30% error rate in radiologists' interpretations of tuberculosis in chest radiographs. In the decades that followed, numerous researchers have documented similar error rates in radiological interpretations of plain radiographs, CTs, MRIs, sonograms, radionuclide studies, and mammograms. Radiologic errors are of two types: cognitive, in which an abnormality is seen but its nature is misinterpreted, and perceptual or the "miss," in which a radiologic abnormality is simply not seen by the radiologist. The perceptual variety accounts for approximately 75% of all radiologic diagnostic errors. None of these studies reflects the degree (if any) to which patient care is jeopardized because of reviewer misinterpretation. "Extrapolation of reviewer error to medical care is complex," stated one researcher. Although some radiologic errors may indeed result in serious injury or mismanagement of a patient, many others are either corrected quickly or, fortunately, not clinically important and thus exert no adverse effect on the management of the patient. While "excuses" for radiologic errors are not acceptable, "reasons" for making them are recognized. These will be discussed, along with measures that can be taken to minimize if not eliminate such radiologic errors.

4:15 - 5:00

Panel Discussion: How Can Testing Services Reduce Diagnostic Error in the Future?



Pre-Conference Short Course

MONDAY, OCTOBER 24, 2011

DEM MORNING HALF-DAY SHORT COURSE

Separate registration required for short course

- 8:30 - 9:00 AM** DEM Short Course Attendee Only Continental Breakfast
- 9:00 AM - 12:00 PM** **Diagnostic Error: A State of the Science Overview**
Moderator: **Hardeep Singh**, MD, MPH, Michael E. DeBakey Veterans Affairs Medical Center and Baylor College of Medicine, Houston, TX
Faculty:
Karen S. Cosby, MD, FACEP, Cook County Emergency Medicine Residency, Rush Medical College, Chicago, IL
Patrick Croskerry, MD, PhD, Dalhousie University, Halifax
Mark L. Graber, MD, DEM Executive Committee, RTI International, St James, NY
Gordon D. Schiff, MD, DEM Executive Committee, Brigham and Women's Hospital, Boston, MA
Geeta Singhal, MD, Chief, Pediatric Hospital Medicine, Baylor College of Medicine and Texas Children's Hospital
Audience: Anyone with interest in understanding and reducing diagnostic errors in health care
- 9:00 - 9:10** Introduction and Objectives, **Hardeep Singh**, MD, MPH
- 9:10 - 9:40** **Epidemiology**
Discuss several landmark papers and other related literature that helped define the field empirically in terms of magnitude of the problem (frequency/prevalence, harm, cost), **Mark L. Graber**, MD
Discuss some special populations and disease conditions where problem identification or understanding has been advanced recently (Pediatrics); this will be a chance to present some updated literature on the topic., **Geeta Singhal**, MD
- 9:40 - 10:25** **Interactive Diagnostic Error M&M: How to Do Them and What Do We Learn**
Karen S. Cosby, MD, FACEP and **Geeta Singhal**, MD
- 10:25 - 10:35** Break
- 10:35 - 11:35** **Contributory Factors and Interventions**
Cognitive: Overview of concepts from clinical reasoning including the use of heuristics & biases and discuss some conceptual models of cognition in this area (e.g. System I/II thinking). *Cognitive Interventions:* Discuss both tested and suggested interventions to improve physician knowledge and experience (simulation training, improved feedback); improve clinical reasoning and decision-making skills (metacognition training); and to "assist" physicians in their diagnosis (such as access to experts, use of decision support interventions), **Patrick Croskerry**, MD, PhD
Systems: Overview of concepts from the systems literature; organization factors, policies, procedures, handoffs, communication and other factors that affect diagnostic error. The unique interaction between the cognition, the system and patients. *Systems Interventions:* Discuss both tested and suggested interventions related to health IT and electronic health records, communication and coordination strategies, patient-focused interventions, feedback systems, incident flags, improving processes of care, etc. Discuss challenges for the field., **Gordon D. Schiff**, MD
- 11:35 - 12:00** **Wrap Up, Putting it all Together**
Hardeep Singh, MD, MPH and **Mark L. Graber**, MD
- 12:00 - 12:30 PM** Lunch on your own



Detailed Agenda

MONDAY, OCTOBER 24, 2011 *continued*

CONFERENCE DAY ONE

12:30 - 1:00 PM

DEM Welcome and Opening Remarks

David E. Newman-Toker, MD, PhD, DEM 2011 Chair, Johns Hopkins University School of Medicine, Baltimore, MD

Gordon D. Schiff, MD, DEM 2011 Co-Chair, Brigham and Women's Hospital, Boston, MA

Mark L. Graber, MD, DEM Executive Committee, RTI International, St James, NY

1:00 - 2:00 PM

Keynote Presentation: What Physicians Can Learn from Firefighters

Moderator: **Mark L. Graber, MD**, DEM Executive Committee, RTI International, St James, NY

Gary Klein, PhD, is a Senior Scientist at MacroCognition LLC. He was instrumental in founding the field of Naturalistic Decision Making.

The field of heuristics and biases (HB) has developed as a critique of intuition. Many HB researchers have shown that intuition results in biases and in errors. Therefore, to reduce diagnostic error we need to carefully monitor and correct for intuitive judgments and promote more critical thinking. However, current models of naturalistic decision making question these views. This research, based on research with firefighters, pilots, healthcare professionals, intelligence analysts, and similar communities, suggests that a lop-sided focus on reducing error can result in worse diagnostic performance. We need to balance our efforts to reduce errors with efforts to build and support expertise.

Dr. Klein received his PhD in experimental psychology from the University of Pittsburgh in 1969. He was an Assistant Professor of Psychology at Oakland University from 1970-1974. He was a research psychologist for the U.S. Air Force from 1974-1978. In 1978 he founded his own R&D company, Klein Associates, which grew to 37 people by the time it was acquired by Applied Research Associates (ARA) in 2005. Dr. Klein developed a Recognition-Primed Decision (RPD) model to describe how people actually make decisions in natural settings. He developed a naturalistic model of sensemaking, the Data/Frame model, to describe the way people interpret situations while simultaneously clarifying what counts as data in ambiguous situations. He has developed methods of Cognitive Task Analysis for uncovering the tacit knowledge that goes into decision making and sensemaking. He was one of the leaders of a team that redesigned the White House Situation Room. He is a Fellow of the American Psychological Association and the Human Factors and Ergonomics Society. In 2008 he received the Jack A. Kraft Innovator Award from the Human Factors and Ergonomics Society. He has written: Sources of Power: How People Make Decisions (1998); The Power of Intuition (2004); and Working Minds: A practitioner's guide to Cognitive Task Analysis (Crandall, Klein, & Hoffman, 2006). Dr. Klein's latest book, Streetlights and Shadows: Searching for the keys to adaptive decision making, was published in October 2009.

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Detailed Agenda

MONDAY, OCTOBER 24, 2011 *continued*

CONFERENCE DAY ONE

2:00 - 3:00 PM

Diagnostic Error "Hot Topics" Debate

Moderator: Kaveh G. Shojania, MD

David E. Newman-Toker, MD, PhD, DEM 2011 Chair, Johns Hopkins University School of Medicine, Baltimore, MD

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

This session will focus on stimulating discussion about some of the contentious issues in the study of diagnostic errors. The session will involve a moderated debate on three "hot topics" within the Diagnostic Safety community. Each session will have a brief, structured point-counterpoint format followed by audience participation.

2:00 - 2:20

Diagnostic Error Definitions: Are we all on the same page?

What is a "diagnostic error"? Definitions for what constitutes a diagnostic error are still debated, and available definitions are not easily operationalized for real-world measurement. This point-counterpoint session will debate critical issues such as whether diagnostic failures that could not have been prevented by the application of best current scientific knowledge should be considered "errors" at all.

2:20 - 2:40

Diagnostic Error Measurement: Where should we focus our attention?

If diagnostic errors occur but no preventable harm results, should we be concerned? Whether to emphasize errors or outcomes is an ongoing controversy. This point-counterpoint session will debate the pro and con of restricting our focus to only errors involving harm or measuring health outcomes rather than care processes.

2:40 - 3:00

Diagnostic Error Solutions: How should we invest our resources?

Are we ready for solutions or should we still focus on defining the problem? Everyone agrees we want solutions, but no one is sure how best to proceed. This point-counterpoint session will debate whether the time for solutions has arrived. If so, how generic or problem-specific must these solutions be to succeed? If not, what type and level of evidence should we demand before solutions are implemented?

3:00 - 4:30 PM

DEM Poster Presentations and Coffee Break

Moderators: Robert El-Kareh, MD, MPH / Omar Hasan, MBBS, MPH / Laura Zwaan, MSc

Poster sessions allow attendees to delve into and discuss the specifics of an abstract with the author in a one-on-one or small group setting. *See list of poster presentations on pages 20-21.*

4:30 - 5:30 PM

Trainee "Stump the Professor" Case Session

Moderator: Karen S. Cosby, MD, FACEP, Cook County Emergency Medicine Residency, Rush Medical College, Chicago, IL.

Two cases will be selected for oral presentation during this session. Trainees (fellows, residents, medical students) are encouraged to submit cases involving diagnostic errors. Trainees who submit cases should be willing to attend the conference to present their case on Oct 24, 2011.

The structure of the oral session includes a brief, succinct summary of the case by the trainee, including pertinent history, physical findings, results of initial testing, and the preliminary diagnosis (without identifying error(s), clinical outcome, or final diagnosis). The case will be discussed by one of our experts who will be mask to the final outcome/final diagnosis. The expert will highlight clinical reasoning, interpretation of data, differential diagnosis, and recommended actions and draw attention to potential sources of errors. The trainee will then summarize the outcome, the diagnostic error(s), and reasons for the errors. Time should allow the opportunity to expand discussion around potential sources of error and strategies to mitigate or avoid errors.

6:00 - 10:00 PM

DEM "Meet the Professor" Dinners. (Dutch treat, everyone pays for her/his own meal.)

Social dinners with Diagnostic Errors in Medicine experts. Enjoy an evening of stimulating discussion with your peers and experts in the field while experiencing the local cultures! Choose from a range of discussion topics and nearby restaurants. Details and sign-up sheets will be sent via email prior to the conference and available at the registration desk.



Detailed Agenda

TUESDAY, OCTOBER 25, 2011

CONFERENCE DAY TWO

- 7:00 - 8:00 AM** Continental Breakfast
- 8:00 - 11:00 AM** **Critical Misdiagnoses with Common Symptoms**
Moderator: Jonathan A. Edlow, MD
- 8:00 - 10:00** **Part I: What Have We Learned?**
- 8:00 - 8:30** **Chest Pain and Acute Coronary Syndromes**
Christopher Ross, MD, FACEP, FAAEM, FRCPC, Cook County Emergency Medicine Residency, Chicago IL
Patients with ACS have a multitude of presentations ranging from classic angina with ECG changes to subtle atypical presentations, making the diagnosis extremely difficult. So how can one minimize patient risk? There are a myriad of risk stratification systems available that are based on historical factors, ECG findings, cardiac markers, and more recently radiologic studies. The speaker will discuss the latest in risk stratification and ways to minimize a misdiagnosis that can literally kill your patient.
- 8:30 - 9:00** **Dizziness and Stroke**
David E. Newman-Toker, MD, PhD, DEM 2011 Chair, Johns Hopkins University School of Medicine, Baltimore, MD
Dizziness leads to 10 million physician visits annually in the US. Most causes are benign, but strokes occur in about 5% and are frequently misdiagnosed. This presentation summarizes the epidemiology of dizziness, frequency of diagnostic error, probable root causes, and possible solutions.
- 9:00 - 9:30** **Headache and Aneurysms**
Jonathan A. Edlow, MD, Beth Israel Deaconess Medical Center, Harvard Medical School, Boston, MA
Patients presenting with acute headache is common; aneurysms occur in ~ 2% of the general population. What have we learned about finding the "needle" (SAH) in the "haystack" (headache patients)? What diagnostic strategies ought physicians apply to correctly diagnose SAH and other "cannot miss" causes of acute headache? This presentation will explore ways of avoiding misdiagnosis.
- 9:30 - 10:00** **Dyspnea Evaluation**
Hardeep Singh, MD, MPH, Michael E. DeBakey Veterans Affairs Medical Center and Baylor College of Medicine, Houston, TX
Laura Zwaan, MSc, VU University Medical Center, Netherlands
Dyspnea is a presenting symptom for a large number of disease conditions. This presentation will use data from two studies to highlight some common diagnostic errors that occur in patients presenting with dyspnea and discuss their causes. Cases relevant to both general/primary care practice and hospital settings will be discussed.
- 10:15 - 11:00** **Part II: Where Do We Go From Here? Panel Comments and Open Audience QA**
Jonathan A. Edlow, MD, Beth Israel Deaconess Medical Center, Harvard Medical School, Boston, MA
David E. Newman-Toker, MD, PhD, 2011 Chair, DEM Executive Committee, Johns Hopkins University School of Medicine, Baltimore, MD
Christopher Ross, MD FACEP FAAEM FRCPC, Cook County Emergency Medicine Residency, Chicago, IL
Kaveh G. Shojania, MD, Sunnybrook Health Sciences Centre, Toronto, ON
Hardeep Singh, MD, MPH, Michael E. DeBakey Veterans Affairs Medical Center and Baylor College of Medicine, Houston, TX
Laura Zwaan, MSc, VU University Medical Center, Netherlands



Detailed Agenda

TUESDAY, OCTOBER 25, 2011 *continued*

CONFERENCE DAY TWO

11:00 AM - 12:00 PM Keynote Presentation: The Theory and Reality of Developing Clinical Decision Rules

Moderator: Jonathan A. Edlow, MD

Ian G. Stiell, MD, MSc, FRCPC, Distinguished Professor and University Health Research Chair, University of Ottawa / Senior Scientist, Ottawa Hospital Research Institute

Clinical decision rules are developed from original data and are designed to assist clinicians with bedside diagnostic and therapeutic decisions and with estimating the likelihood of patient outcomes. Dr. Stiell has 20 years of experience with the derivation, validation, implementation, and dissemination of decision rules for a variety of clinical conditions. He will review the principles of conducting studies to develop these rules and will offer practical advice for both researchers and clinicians. In addition, he will recount lessons learned in the real world of patient care and how clinician behaviour often fails to follow the evidence provided by clinical decision rules.

Dr. Ian Stiell is Professor and Chair, Department of Emergency Medicine, University of Ottawa; Distinguished Professor and University Health Research Chair, University of Ottawa; and Senior Scientist, Ottawa Hospital Research Institute. He is internationally recognized for his research in emergency medicine with a focus on the development of clinical decision rules and the conduct of clinical trials involving acutely ill and injured patients treated by pre-hospital services and in emergency departments. He is best known for the development of the Ottawa Ankle Rules and Canadian C-Spine Rule, and as the Principal Investigator for the landmark OPALS Studies for pre-hospital care. Dr Stiell is the Principal Investigator for 1 of 3 Canadian sites in the Resuscitation Outcomes Consortium (ROC) which is funded by CIHR, NIH, HSFC, AHA, and National Defence Canada. Dr. Stiell is a Member of the Institute of Medicine of the U.S. National Academies of Science.

12:00 - 1:00 PM Lunch on your own.

12:15 - 1:00 PM DEM New Society Meeting

Moderator: Mark L. Graber, MD

Please join us during the lunch break to discuss the future of DEM. We encourage attendees to bring their lunch back and join us for important discussions on where you see the future of DEM and how we want to shape the future.

continued on next page



Detailed Agenda

TUESDAY, OCTOBER 25, 2011 *continued*

CONFERENCE DAY TWO

1:00 - 2:30 PM

Concurrent Tracks

TRACK 1 – Clinical Care and Education

1:00 - 2:20 PM

Clinician's Corner

Moderators: Gordon D. Schiff, MD

Karen S. Cosby, MD, FACEP

Critical thinking and medical decision-making is sometimes easy and clear in hindsight. However, real time decision making is often messy, hampered by bad data and misleading or insufficient information, miscommunication, or system flaws. Or are clinicians inherently flawed? This session is devoted specifically for clinicians to critique flesh and blood decision-making as it takes place in the moment and at the bedside and explore why things go wrong. We will review actual cases before a panel of experts who will analyze the cases through a variety of lens as we seek clarity in understanding better the factors that contribute to diagnostic failures. This session seeks to address the difficulties encountered in actual practice with an aim to understanding how we can improve the diagnostic process.

Our expert panel includes:

Robert L Trowbridge, Jr., MD, Maine Medical Center, Portland, ME

Arthur Elstein, PhD, University of Illinois, Chicago, IL

Stuart Levin, MD, Rush University Medical Center, Chicago, IL

TRACK 2 – Research and Methods

1:00 - 2:30 PM

Researcher's Corner

Moderators: Mark L. Graber, MD / Laura Zwaan, MSc

1:00 - 1:30 PM

Insight in the Brain: Neuroimaging Insight and Intuition

Mark Beeman, PhD, Northwestern University, Evanston IL

Dr Beeman studies how people think, in particular "high-level cognition," such as how people understand whole stories, and solve complex problems. Combining novel insights provided by functional MRI with classic experiments in cognitive psychology, his work has connected the mental realm with the physical, informing them both. His work on intuition, and moments of insight, inspired the New Yorker article "The Eureka Hunt". He will review these experiments, their relevance to the dual process paradigm of clinical reasoning, and provide suggestions on whether and how intuition can be improved.

1:30 - 2:00 PM

Interventions to Improve Clinical Reasoning

Sílvia Mamede, MD, PhD, Erasmus University, Rotterdam, The Netherlands

Flaws in physicians' reasoning have been shown to contribute to a substantial proportion of diagnostic errors. The sources of faulty clinical reasoning are not clear, and their investigation poses several challenges. This presentation will share the findings of a research program aimed at exploring the mechanisms underlying cognitive diagnostic errors and how they could be minimized. A synthesis of studies on the effects of different reasoning modes on diagnostic accuracy, factors that affect physicians' reasoning, and the influence of deliberate, structured reflection on the quality of diagnoses will be presented. The presentation will use examples of experimental studies, which have drawn on research on reasoning and decision-making in non-medical domains, to discuss the potential and drawbacks of different methodological approaches.

2:00 - 2:30 PM

Dialogue and Discussion

continued on next page



Detailed Agenda

TUESDAY, OCTOBER 25, 2011 *continued*

CONFERENCE DAY TWO

2:30 - 4:00 PM

Coffee Break or attendees are welcome to join the 2:30 – 4:00 pm presentation

2:30 - 4:00 PM

Cognitive Debiasing Workshop

Moderator: Mark L. Graber, MD

Patrick Croskerry, MD, PhD, Dalhousie University, Halifax

There is abundant evidence that human reasoning, generally, is vulnerable to a variety of influences that may lead to flawed decision making and there is little reason to believe that this is any different for medical decision makers. The biases that adversely impact medical reasoning predominantly influence the intuitive mode of reasoning and derive from four major sources: (1) Ambient factors: prevailing conditions in the immediate environment in which decisions are being made – team factors, patient factors, resource limitations, physical plant design, ergonomic factors (2) Individual homeostatic factors: cognitive loading, interruptions and distractions, fatigue, sleep deprivation and sleepdebt, affective state (3) Hard-wired dispositions: naturally selected (Darwinian) decision making tendencies that served an adaptive purpose in the ancient environments in which major brain evolution occurred, but which may now be maladaptive in the modern environment of medicine, and (4) Sub-optimal approaches: these are poor decision making habits and strategies that have become embedded in an individual's approach – they may have their origins, in part, in gender, age, intellect and personality but will also be the result of poor training, failure to think critically, coercive non-medical influences, or the adoption of sub-optimal idiosyncratic decision styles. The purpose of the workshop will be to explore the features of these major sources and discuss and develop potential strategies to overcome their adverse impact on medical decision making that might lead to diagnostic failure. Different strategies and solutions will be required, depending on the source of influence. Hogarth's approach, outlined in *Educating Intuition* (2001) will provide a template for the discussion.

continued on next page



Detailed Agenda

TUESDAY, OCTOBER 25, 2011 *continued*

CONFERENCE DAY TWO

4:00 - 5:30 PM

DEM Plenary Presentation of Oral Abstracts

Moderators: Robert El-Kareh, MD, MPH / Omar Hasan, MBBS, MPH / Laura Zwaan, MSc

Session open to all attendees. Oral Presentation will be 10 minutes with 5 minutes for audience Q&A

4:00 – 4:15

20-YEAR SUMMARY OF US MALPRACTICE CLAIMS FOR DIAGNOSTIC ERRORS FROM 1985-2005

Ali Saber Tehrani, MD¹, HeeWon Lee, MD-candidate¹, Simon Mathews, MD¹, Andrew Shore, PhD¹, Kevin D. Frick, PhD², Martin Makary, MD, MPH¹, Peter J. Pronovost, MD, PhD, FCCM¹ and David E. Newman-Toker, MD, PhD¹, (1)Johns Hopkins University School of Medicine, Baltimore, MD, (2)Johns Hopkins Bloomberg School of Public Health, Baltimore, MD

Diagnostic errors probably cause 40,000-80,000 preventable deaths annually in US hospitals alone, and these estimates fail to account for mortality from ambulatory misdiagnosis and non-lethal morbidity due to diagnostic error. Despite their major public health impact, diagnostic errors have received relatively little scientific attention. We sought to further characterize the health outcomes and economic consequences of misdiagnosis in the US through analysis of closed malpractice claims.

4:15 – 4:30

A FOCUS ON SUPPORTIVE FEATURES MEDIATES THE TENDENCY TO ACCEPT DIAGNOSTIC SUGGESTIONS

Kees van den Berge, MD¹, Silvia Mamede, MD, PhD², Tamara van Gog, PhD², Jacqueline de Graaf, MD, PhD³, Jan van Saase, MD, PhD¹ and Remy Rikers, PhD², (1)Erasmus Medical Center, Rotterdam, Netherlands, (2)Erasmus University Rotterdam, Rotterdam, Netherlands, (3)Radboud University Medical Center, Nijmegen, Netherlands

A substantial proportion of diagnostic errors in medicine can be attributed to faults in physician's cognitive processes. Research on medical expertise suggests that physician's reasoning may be susceptible to bias, such as confirmation bias (i.e., the tendency to seek information to support rather than refute a hypothesis). The present study attempts to explore confirmatory tendencies in medical diagnosis. It is hypothesized that physicians tend to focus on and therefore report more clinical features that support a diagnosis that has been suggested to them, while ignoring features that speak against the suggested diagnosis.

4:30 – 4:45

REDUCING COGNITIVE ERRORS BY CAPTURING AND DISSEMINATING EXPERT REASONING

Sandra Kay Tice, BS¹, Robert McNutt, MD, FACP², Paul Tice, MD³, Arthur Elstein, PhD⁴, Alan Schwartz, PhD⁵, Georges Bordage, MD, PhD⁵, Richard Abrams, MD⁶ and Richard J. Stuckey, MBA¹, (1)Management Integration Process Corporation (MIP), Chicago, IL, (2)Rush University Medical Center, Lagrange, IL, (3)Harrison Memorial Hospital, Locum tenens nationally and internationally, Bremerton, WA, (4)The University of Illinois at Chicago, Wilmette, IL, (5)University of Illinois at Chicago, Chicago, IL, (6)Rush Medical College, Chicago, IL

Expert reasoning strategies for identifying and correctly using the right information and knowledge are currently developed over the course of many years of practice. A formal process for capturing and disseminating expert reasoning could significantly shorten the learning curve and change the diagnostic process. We have begun to apply such a process – called Thought Process Optimization[®] (TPO) – which was previously applied in the financial and engineering domains, to medical reasoning.

4:45 – 5:00

THE THINK STUDY: HIGH-FIDELITY SIMULATION TO PROMOTE THE USE OF A DIAGNOSTIC TIMEOUT AND A DIAGNOSTIC CHECKLIST IN PEDIATRIC PRACTICE

Lara G. Kothari, MD, Children's Hospital Boston, Boston, MA

Checklists have been useful in improving safety and reducing error in many arenas. Recent literature suggests that a diagnostic timeout and a diagnostic checklist may reduce diagnostic error. High fidelity simulation has been used to teach critical thinking skills and cognitive forcing strategies. I hypothesize that by educating learners on diagnostic error, teaching them to take a diagnostic time out, use a diagnostic checklist (a novel mnemonic "Investigators THINK") and practice it in a simulated setting, learners will be aware of when to question a diagnosis and apply the novel mnemonic to prevent cognitive errors and improve diagnostic accuracy.



Detailed Agenda

TUESDAY, OCTOBER 25, 2011 *continued*

CONFERENCE DAY TWO

4:00 - 5:30 PM

DEM Plenary Presentation of Oral Abstracts continued

Moderators: Robert El-Kareh, MD, MPH / Omar Hasan, MBBS, MPH / Laura Zwaan, MSc

Session open to all attendees. Oral Presentation will be 10 minutes with 5 minutes for audience Q&A

5:00 – 5:15

DEVELOPING RELIABLE SYSTEMS FOR TRACKING AND FOLLOW-UP OF ABNORMAL TEST RESULTS IN ELECTRONIC HEALTH RECORDS

Michael W. Smith, PhD¹, Daniel R. Murphy, MD, MBA¹, Archana Laxmisan, MD, MA¹,

Brian Reis, BE¹, Dean F. Sittig, PhD² and Hardeep Singh, MD, MPH¹, (1)Michael E. DeBakey Veterans Affairs Medical Center, Houston, TX, (2)University of Texas Health Science Center at Houston, Houston, TX

We developed a 3-part functional software prototype that works with the VA's EHR to prompt and track follow-up actions taken in response to certain critical test result alerts: 1) A Follow-up Action Tracker that monitors electronic documentation to see if critical test result alerts for four cancer-related tests (abnormal chest x-rays, PSAs, FOBTs, and mammograms) have received follow-up. The tracker suggests order sets of appropriate follow-up actions in a separate pop-up window, taking care to fit with provider workflow and minimize disruptions. For example, follow-up actions suggested for an abnormal chest X-ray may include patient notification (letter or call), ordering another imaging test (chest CT), consulting a subspecialist (pulmonologist), hospitalization, or an option indicating no further action is required (e.g., patient already in hospice care). 2) A Critical Alert Monitor that automatically identifies the total number of critical test alerts generated and their status, i.e. acknowledged or acted upon. 3) A Critical Alert Reporting Engine that allows clinic administrators and individual providers to visualize detailed information collected by the other two components.

5:15 – 5:30

REDUCING MEDICAL ERROR: HOW A MAJOR PLAN IMPROVED DIAGNOSTIC ACCURACY

Norman A. Scarborough, MD, DABR, Medsolutions, Franklin, TN

A diagnostic accuracy program implemented for a 120,000-member health plan applies clinical best practice to the diagnostic process. The program uses technology to match individual imaging cases with the most appropriate validated, diagnostic subspecialists. These proven subspecialists deliver more accurate interpretations that assist clinicians in developing a more effective treatment plan. A matched cohort analysis was conducted and validated by the health plan. In the study, patients requiring imaging were directed to accredited facilities where scans were interpreted by subspecialists with proven diagnostic skills. Cohorts were risk adjusted and claims data was analyzed.



Detailed Agenda

WEDNESDAY, OCTOBER 26, 2011

CONFERENCE DAY THREE & CONCLUSION

- 7:00 - 8:00 AM** Continental Breakfast
- 8:00 - 9:30 AM** **Diagnostic Error Disclosure: Patient, Provider, Legal, and Risk Management Perspectives**
Moderators: Omar Hasan, MBBS, MPH / Gordon D. Schiff, MD / Laura Zwaan, MSc
- 8:00 - 8:20** **Patient Perspective**
Linda K. Kenney, Medically Induced Trauma Support Services (MITSS), Chestnut Hill, MA
What is important to the patient after s/he is involved in a diagnostic error. From the patient's perspective, what does the first patient-provider encounter look like after an error has occurred. How can patients effectively communicate relevant concerns to their healthcare provider(s). How should patients and families approach the question of seeking redress.
- 8:20 - 8:50** **Lawyer vs. Doctor: Perspective Wearing Both Hats**
Allen Kachalia, MD, JD, Brigham and Women's Hospital, Boston, MA
What is important to the physician provider after s/he is involved in a diagnostic error. From the physician's perspective, what does the first patient-provider encounter look like after an error has occurred. How do physicians cope with being involved in a medical error. What legal aspects does a physician need to consider. How can patients, physicians, healthcare administrators, and delivery organizations' risk management departments work together to effectively address diagnostic error in medicine.
- 8:50 - 9:10** **Disclosure Protocols**
Laura Zwaan, MSc, VU University Medical Center, Netherlands
How did a university health system (in Europe) develop and implement an error disclosure protocol. How were patient, provider, administrative, and medicolegal perspectives integrated in implementing a meaningful disclosure protocol. Physician and nurse provider experience with using the error disclosure protocol will be discussed.
- 9:10 - 9:30** **Panel Discussion**
- 9:30 - 10:00 AM** Coffee Break
- 10:00 AM - 12:00 PM** **How Much Diagnostic Safety Can We Afford?**
Moderators: Kathryn M. McDonald, MM / David Meltzer, MD, PhD
- 10:00 - 10:20** **Session Introduction**
Kathryn McDonald, MM, Stanford Health Policy, Stanford University, Stanford, CA
What information is necessary to approach the session's overarching question? What cost data is (or is not) available related to diagnosis and diagnostic error? What evidence base is ideally needed about interventions that are purported to reduce diagnostic errors?
- 10:20 - 10:40** **Diagnostic Errors and Malpractice Costs**
Allen Kachalia, MD, JD, Brigham and Women's Hospital, Boston, MA
What do we know about claims for missed and delayed diagnoses? What can we learn from claims from a cost and safety standpoint? Why are these claims difficult to adjudicate? What are the possible options for legal system improvement with regard to these claims?
- 10:40 - 11:00** **Adult Pharyngitis: When to Use a Clinical Prediction Rule; When to Use a Diagnostic Test**
Robert M Centor, MD, Huntsville Regional Campus, University of Alabama at Birmingham School of Medicine, Birmingham, AL
Adult pharyngitis seems simple, but international guidelines differ dramatically. We will impute the rationale behind these differences and the cost implications. We will explore the danger of a purely algorithmic approach, I.e., understanding how the clinical presentation should influence evaluation and treatment decisions.



Detailed Agenda

WEDNESDAY, OCTOBER 26, 2011 *continued*

CONFERENCE DAY THREE & CONCLUSION

- 10:00 AM - 12:00 PM** How Much Diagnostic Safety Can We Afford? *continued*
Moderators: Kathryn M. McDonald, MM / David Meltzer, MD, PhD
- 11:00 - 11:20** Applying Cost-Effectiveness Analysis: Strategies to Reduce Misdiagnosis Among Patients Who Present With Dizziness
David E. Newman-Toker, MD, PhD, DEM 2011 Chair, Johns Hopkins University School of Medicine, Baltimore, MD
This talk will offer an example of using cost-effectiveness analysis for understanding the comparative affordability of different strategies to reduce error in a specific patient population.
- 11:20 - 11:40** Ensuring That Perfect is Not the Enemy of the Good: Framing the Role of Costs in the Study of Diagnostic Error
David Meltzer, MD, PhD, University of Chicago, Chicago, IL
There is increasing interest in understanding the costs of diagnostic error. However, understanding the cost of diagnostic error is not sufficient to determine whether interventions to reduce diagnostic error will either be effective or cost-effective because interventions may or may not be effective and because some level of error is desirable given imperfect and costly diagnostic approaches. Classic tools of program evaluation will be critical to determining the appropriate attention to diagnostic error in medicine.
- 11:40 - 12:00** What Research will be Useful to Decision Makers Committing Resources to Improving Diagnostic Accuracy?
Panel discussion, debate with audience interaction.
- 12:00 - 1:00 PM** Lunch on your own
- 1:00 - 3:00 PM** 21st Century Decision Support - How Can Computers Best Help Us Avoid Misdiagnosis?
Moderators: Cindy Bryce, PhD / Harold Lehmann, MD, PhD
- 1:00 - 1:05** Introductions
- 1:05 - 1:50** DSS: Examples of Almost-Ready-for-Primetime Solutions
- 1:05 - 1:20** Checklists to Prevent Diagnostic Errors
John W. Ely, MD, University of Iowa, Iowa City, IA
Checklists have been demonstrated to reduce errors of omission in the constrained setting of specified procedures in hospital settings. This presentation will address whether, how, and with what impact the checklist approach can be applied to the more diffuse setting of diagnosis.
- 1:20 - 1:35** Automated Interviewing
David E. Newman-Toker, MD, PhD, DEM 2011 Chair, Johns Hopkins University School of Medicine, Baltimore, MD
Workflow sensitivity is essential for effective dissemination and adoption of decision support technologies. One possible strategy is to leverage patient-computer interaction to improve the efficiency of diagnostic decision support. In this session we describe work that has been done in self-administered, computer-assisted interviewing in an effort to facilitate accurate medical diagnosis, using a specific example from emergency department care.
- 1:35 - 1:50** Telemedicine by Smartphone
Beau Bruce, MD, MS, Emory University, Atlanta, GA
Dr. Bruce will discuss the successes and challenges of using a Smartphone for the telemedical review of undilated ocular fundus photographs taken to assist with the care of non-ophthalmologic patients.

continued on next page



Detailed Agenda

WEDNESDAY, OCTOBER 26, 2011 *continued*

CONFERENCE DAY THREE & CONCLUSION

1:00 - 3:00 PM

21st Century Decision Support *continued*

Moderators: Cindy Bryce, PhD / Harold Lehmann, MD, PhD

1:50 - 2:20

Watson and DSS: Are We There Yet?

Martin S. Kohn, MD, MS, FACEP, CPE, FACPE, Chief Medical Scientist, Care Delivery Systems, IBM Research

Josko Silobrcic, MD, MPH, MS, Strategy, IBM Research

Watson's ability to perform natural language processing and consume huge amounts of both structured and unstructured data will be described, as will Watson's potential for clinical decision support. As was demonstrated when Watson successfully played "Jeopardy!" against the most accomplished human champions, Watson can understand complex, arcane language, infer its meaning, and rapidly review millions of pages of text in order to rapidly generate hypotheses for the appropriate response. It develops confidence levels in both its hypotheses and sources of information. Analogously, Watson can couple an understanding of information obtained from the clinician patient interaction, include data from an EMR and review the literature and offer suggestions, with confidence levels, to clinicians to help in making clinical decisions.

2:20 - 2:45

Discussants (Multidisciplinary)

• Cognitive Psychology, **Valerie Reyna**, PhD, Cornell University, Ithaca, NY

• Informatics, **Harold Lehmann**, MD, PhD, Johns Hopkins University School of Medicine, Baltimore, MD

2:45 - 3:00

Audience question and answer session with the speakers

3:00 - 3:30 PM

Conference Summary and Challenges to Attendees, Let's Get Serious About Solutions

Gordon D. Schiff, MD, DEM 2010 Co-Chair, Brigham and Women's Hospital, Boston, MA

Robert A. McNutt, MD, Rush University Medical Center, Chicago, IL



Poster Presentations

DEM Poster Presentations and Coffee Break

MONDAY, OCTOBER 24, 2011 3:00 - 4:30 PM

Moderators: Robert El-Kareh, MD, MPH / Omar Hasan, MBBS, MPH / Laura Zwaan, MSc

Poster sessions allow attendees to delve into and discuss the specifics of an abstract with the author in a one-on-one or small group setting.

1 AUTOMATING THE QUALITY ASSURANCE REVIEW PROCESS

Philip D. Anderson, MD, Marie-France Petchy, MD, Jonathan A. Edlow, MD and Lawrence Mottley, MD, Beth Israel Deaconess Medical Center, Harvard Medical School, Boston, MA

2 NON-MYDRIATIC FUNDUS PHOTOGRAPHY FOR IMPROVED DIAGNOSIS OF ACUTE NEURO-OPHTHALMIC DISEASE IN THE EMERGENCY DEPARTMENT (ED)

Beau B. Bruce, MD, MS, Cédric Lamirel, MD, Antoinette Ward, NP, Nancy J. Newman, MD, David W. Wright, MD and Valérie Biousse, MD, Emory University, Atlanta, GA

3 DIAGNOSTIC ERROR AT THE EMERGENCY DEPARTMENT – MEDICAL IMAGING INTERFACE: AN AUSTRALASIAN SURVEY

Carmel C. Crock, FACEM, Royal Victorian Eye and Ear Hospital, Melbourne, Australia, D. Neil Jones, FRANZCR, Flinders Medical Centre, Adelaide, Australia, Gordon Schiff, MD, Brigham and Women's Hospital, Boston, MA, William B. Runciman, Australian Patient Safety Foundation, Adelaide, Australia, John Slavotinek, Flinders Medical Centre, Adelaide, Australia and Melissa Baysari, Australian Institute of Health Innovation, University of New South Wales, Sydney, Australia

4 HEARTBEATS, WHY DO I MISS WHAT YOU TRY TO SAY TO ME? FOETAL MONITORING AND DECISION MAKING AROUND THE USE OF CARDIOTOCOGRAPHS IN A DAY ASSESSMENT UNIT

Sharon C. Davis, MSc, University of Gloucestershire, Cardiff, United Kingdom, Graham Edgar, MSc, PhD, University of Gloucestershire, GL50 4AZ, United Kingdom and Di Catherwood, PhD, University of Gloucestershire, Cheltenham, United Kingdom

5 HEARTBEATS, WHY DO I MISS WHAT YOU TRY TO SAY TO ME? PATTERN RECOGNITION AND DECISION PROCESSES IN FOETAL MONITORING

Sharon C. Davis, MSc, University of Gloucestershire, Cardiff, United Kingdom, Graham Edgar, MSc, PhD, University of Gloucestershire, GL50 4AZ, United Kingdom and Di Catherwood, PhD, University of Gloucestershire, Cheltenham, United Kingdom

6 IN HER SHOES

Vinodinee L. Dissanayake, MD, Cook County Hospital (Stroger), Chicago, IL

7 FREQUENT FAILURE TO RECOGNIZE WEIGHT LOSS AND DIAGNOSE ITS CAUSE IN THE AMBULATORY SETTING

Robert El-Kareh, MD, MS, MPH¹, Valeria Pazo, MD², Adam Wright, PhD² and Gordon Schiff, MD², (1)University of California, San Diego, San Diego, CA, (2)Brigham and Women's Hospital, Boston, MA

8 A COMMON SURGICAL DIAGNOSIS MASQUERADING AS A COMMON MEDICAL DIAGNOSIS: MULTIPLE CAUSES OF SPONTANEITY IN SPONTANEOUS BACTERIAL PERITONITIS

Senta A. Furman, BS, Saifullah M. Siddiqui, MD and William Galanter, MD, PhD, University of Illinois at Chicago, College of Medicine, Chicago, IL

9 AUDIT OF ESOTERIC COAGULATION LABORATORY TESTING REVEALS 63% ERROR RATE IN TEST SELECTION AND RESULT INTERPRETATION

Jennifer Giltnane, MD, PhD and Michael Laposata, MD, PhD, Vanderbilt University School of Medicine, Nashville, TN

10 DEMONSTRATION OF A BALANCE BEAM AID FOR INSTRUCTION IN DIAGNOSIS

Robert M. Hamm, PhD, University of Oklahoma Health Sciences Center, Oklahoma City, OK and William H. Beasley IV, PhD, Howard Live Oak, Inc., Norman, OK

11 USE OF AN EXPEDITED REVIEW TOOL TO SCREEN FOR DIAGNOSTIC ERROR IN PATIENTS PRESENTING TO AN EMERGENCY DEPARTMENT

James C. Hudspeth, MD, Boston Medical Center, Cambridge, MA, Robert El-Kareh, MD, MS, MPH, University of California, San Diego, San Diego, CA and Gordon Schiff, MD, Brigham and Women's Hospital, Boston, MA

continued on next page



Poster Presentations continued

DEM Poster Presentations and Coffee Break

MONDAY, OCTOBER 24, 2011 3:00 - 4:30 PM

Moderators: Robert El-Kareh, MD, MPH / Omar Hasan, MBBS, MPH / Laura Zwaan, MSc

Poster sessions allow attendees to delve into and discuss the specifics of an abstract with the author in a one-on-one or small group setting.

- 12 EMERGENCY DEPARTMENT DIZZINESS PRESENTATIONS WITH SUBSEQUENT STROKE: CASE DESCRIPTIONS FROM A POPULATION-BASED STUDY**
Kevin Kerber, Darin Zahuranec, Devin Brown, William Meurer, James Burke, Lynda Lisabeth and A. Mark Fendrick, University of Michigan, Ann Arbor, MI
- 13 "BURNED" BY A CHEMICAL EXPOSURE: A DELAYED DIAGNOSIS**
Sean Lindstedt, MD and Robert El-Kareh, MD, MS, MPH, University of California, San Diego, San Diego, CA
- 14 RISKS OF ONLINE DIRECT-TO-CONSUMER SCREENING TESTS**
Kimberly Lovett, MD, Southern California Permanente Medical Group, San Diego, CA, Bryan A. Liang, MD, PhD, JD, University of California in San Diego, California Western School of Law, San Diego, CA and Timothy K. Mackey, MAS, California Western School of Law, San Diego Center for Patient Safety, SDSU-UCSD, San Diego, CA
- 15 THE ASSOCIATION OF DIAGNOSTIC DISCREPANCY AND LENGTH OF STAY, COST OF CARE, AND 30-DAY READMISSION**
Robert McNutt, MD, FACP, Rush University Medical Center, Lagrange, IL
- 16 MEDICAL SELF-DIAGNOSIS AND THE WEB: RESULTS FROM ENTERING PLAIN LANGUAGE SYMPTOMS INTO A SEARCH ENGINE**
Mary Moore, PhD, JoAnn Van Schaik, MLS and Kimberly A. Loper, MLIS, University of Miami Miller School of Medicine, Miami, FL
- 17 DELAYED DIAGNOSIS OF ACUTE PROSTATITIS LEADING TO PATIENT DEATH**
Dragica Mrkoci, MD, Washington DC Veterans Affairs Medical Center, Washington, DC
- 18 TEACHING MEDICAL STUDENTS DIAGNOSTIC ERROR USING THE PROBLEM BASED LEARNING (PBL) METHOD: A CASE OF CELLULITIS MISDIAGNOSIS**
Art Papier, MD and Jagger Koerner, University of Rochester College of Medicine, Rochester, NY
- 19 DEFINING THE ERROR RATE: CARDIAC CATHETERIZATION LABORATORY FALSE ACTIVATIONS**
David W. Schoenfeld, MD, Jonathan Fisher, MD, MPH and Edward Ullman, MD, Beth Israel Deaconess Medical Center / Harvard Affiliated Emergency Medicine Residency, Boston, MA
- 20 EVALUATING THE ROLE OF A WEB BASED DIAGNOSTIC CHECKLIST FOR DIAGNOSTIC DILEMMAS IN PEDIATRICS,**
Paul E. Manicone, MD¹, Jeremy Kern, MD¹, Claire Stewart, MD¹, Katherine Ottolini² and Mary Ottolini, MD, MPH¹, (1)Children's National Medical Center, Washington, DC, (2)George Washington University School of Medicine, Washington, DC
- 21 THE FEASIBILITY OF A PHYSICIAN-BASED DIAGNOSTIC ERROR REPORTING SYSTEM: A PILOT STUDY**
Robert L. Trowbridge, MD and Doug Salvador, Maine Medical Center, Portland, ME
- 22 A RESTRUCTURED ROOT CAUSE ANALYSIS PROCESS FOR SUSPECTED DIAGNOSTIC ERROR**
Robert L. Trowbridge, MD, Doug Salvador, Michael Roy and Joel Botler, Maine Medical Center, Portland, ME
- 23 UMPIRES AND HIERARCHIES: EXPLORING THE REALITY OF UNCHECKED BIAS AND INTERVENTION STRENGTHS TO IMPROVE EVIDENCE TRANSFER FOR DIAGNOSTIC DECISION MAKING**
Lorri A. Zipperer, MA, Zipperer Project Management, Albuquerque, NM and Linda Williams, RN., MSI., Veterans Healthcare Administration, Ann Arbor, MI
- 24 A CONFUSED STATE**
Ghazal Shafiei, MD, John H. Stroger Hospital of Cook County, Orland Park, IL
- 25 AORTIC DISSECTION**
Taro Shimizu, MD, MPH, Bond University, Tokyo, Japan, Kentaro Matsumoto, MD, National Medical Clinic, Tokyo, Japan and Yasuharu Tokuda, MD, MPH, FACP, University of Tsukuba, Mito, Japan





Registration Information

Friday, September 30, 2011 Early Bird Registration Deadline

Friday, September 30, 2011 Cancellation Deadline

SHORT COURSE REGISTRATION FEES

	ONE HALF DAY COURSE	TWO HALF DAY COURSES
Attendee: Early Bird Fee , on / prior to Friday, September 30, 2011	\$145 USD	\$290 USD
Attendee: Regular Fee , after Friday, September 30, 2011	\$180 USD	\$360 USD
Trainee: Early Bird Fee , on / prior to Friday, September 30, 2011	\$120 USD	\$240 USD
Trainee: Regular Fee , after Friday, September 30, 2011	\$155 USD	\$310 USD

REGISTRATION FEES

	THREE DAY FULL REGISTRATION	ONE DAY REGISTRATION
Attendee: Early Bird Fee , on / prior to Friday, September 30, 2011	\$470 USD	\$265 USD
Attendee: Regular Fee , after Friday, September 30, 2011	\$550 USD	\$330 USD
Trainee: Early Bird Fee , on / prior to Friday, September 30, 2011	\$235 USD	\$265 USD
Trainee: Regular Fee , after Friday, September 30, 2011	\$275 USD	\$330 USD

Trainees are considered: Undergraduate, graduate and doctoral students in clinical or non-clinical settings, and post-doctoral students, residents and fellows who are in academic settings qualify as trainees. Faculty and full time research employees do not qualify as trainees.

PAYMENT INFORMATION

All registration fees listed are in US Dollars.
Credit Cards accepted: VISA, MasterCard or AMEX
If you are paying by check, make the check payable (in U.S. funds) to "SMDM." Please write registrant's name on check.

CANCELLATION / SUBSTITUTION POLICY

We all have unforeseen emergencies that may occur. Whenever possible we encourage you to send a colleague as a substitution. If you are having a colleague attend in your place please notify the office so we can make the proper adjustments. Please send your colleague's name and contact information to the office at fax (908) 359-7619 OR email to dem@smdm.org. Note, if the substitute colleague is not a member, the non-member fee will apply.

We will accept notification of cancellations up until Friday, September 30, 2011. All requests must be in writing, faxed to (908) 359-7619 OR email to dem@smdm.org. Cancellations received on or prior to Friday, September 30, 2011 will receive a full refund, less a \$50 administrative fee, after the conclusion of the conference. No refunds will be given after Friday, September 30, 2011, but again you may send a colleague as a substitution.

Reimbursement will be issued in the form that payment was received. Please allow 3-4 weeks for reimbursements to be processed.





General Conference Information

CME CREDIT

CME for US Attendees:

An accredited application for US attendees has been submitted to University of Alabama School of Medicine. This activity has been planned and implemented in accordance with the Essential Areas and Policies of the Accreditation Council for Continuing Medical Education (ACCME) through the joint sponsorship of the University of Alabama School of Medicine and The Society of Medical Decision Making (SMDM).

The University of Alabama School of Medicine is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians. The University of Alabama School of Medicine designates this educational activity for a maximum of 24 AMA PRA Category 1 credit(s)[™]. Physicians should only claim credit commensurate with the extent of their participation in the activity. The University of Alabama School of Medicine is an equal opportunity/affirmative action institution.

There is a \$25.00 CME processing fee which covers the entire conference including the short courses, oral and poster presentations. Attendees who register for CME will need to complete a conference evaluation on-line and then complete a CME request on-line for the number of hours attended. Information on completing the CME request will be provided to registrants prior to and following the conference.

INTERNATIONAL ATTENDEES

Temporary Visa to Attend: DEM is not able to provide financial support to conference participants. Airfare, ground transportation, hotel, meals, travel insurance, and any other meeting related expenses are the responsibility of each participant. If you need to apply for a temporary non-immigrant visa to attend an event in the United States, you are advised to apply for your visa as soon as possible. DEM cannot intervene with, or call or send personal letters to, the State Departments, Embassies or Consulates of the United States or other government on behalf of any meeting participant. However, once you have registered for the DEM conference, DEM will provide you with a registration confirmation that you can use for your visa application or interview. U.S. visa information, including required documentation and fees, can be found on the U.S. Department of State's website at http://travel.state.gov/visa/temp/types/types_1262.html.

CONSENT TO USE OF PHOTOGRAPHIC IMAGES

Registration and attendance at, or participation in, DEM's Conference, and other activities constitutes an agreement by the registrant to DEM'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.

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Hotel Information & Reservations

The Conference will be held at the **Hyatt Regency Chicago**
151 East Wacker Drive,
Chicago, Illinois, USA 60601
Tel: +1 312 565 1234 Fax: +1 312 239 4414

Set within the epicenter of the city, our AAA Four Diamond Hyatt Regency is conveniently connected to Illinois Center and within minutes of the Magnificent Mile. Sway to the electrified beat of Chicago blues and jazz greats, take in a show at Navy Pier, shop on Michigan Avenue or just enjoy a day in the park or on the water; our cosmopolitan downtown Chicago, Illinois hotel is central to it all.

SLEEPING ROOM RATES

ROOM TYPE	US DOLLAR
Single/Double Occupancy	\$265 per night
Triple Occupancy	\$290 per night
Regency Club	\$265+ \$75 per night

The SMDM Group Rate is available for DEM Attendees through **Tuesday, September 20, 2011**, *based on availability*. The guest room rates established for Group's meeting will be offered three (3) days prior and three (3) days after the meeting dates, *subject to availability of guest rooms at the time of reservation*.

ROOM RESERVATIONS

- On-Line Reservations, visit the DEM web site for a web link to the hotel.
- Call 888-421-1442

When calling please refer to this group code in ensure you receive the discounted rate, Group Code: "SMDM 2011" OR "Society for Medical Decision Making 2011"

Check-in Time: 3pm
Check-out Time: 12pm

WHY YOU SHOULD BOOK EARLY:

It has been brought to our attention that the DEM Conference dates, October 24-26, 2011 will overlap with two other city-wide conferences being held in Chicago. During this time Chicago is expecting over 10,000+ conference attendees. SMDM has contracted with the Hyatt for a limited number of sleeping rooms and once our block is filled the hotel most likely will not have additional rooms to offer. The same is true for surrounding hotels as they are being used by these two other city-wide conferences.

Hotel Cancellation Policy: Cancel your reservation at least 72 hours prior to arrival to avoid one night's room and tax penalty

Internet Access: Internet Access is included in your guest room rate for attendees staying in the SMDM block.

GTD/Deposit Policy: A major credit card will be required by the hotel to hold your room reservation.

Fitness Center: The Hyatt has a complimentary state of the art **Stay Fit at Hyatt fitness center**. This facility is available exclusively to hotel guests 24 hours a day. The facility features the latest in Life Fitness® Cardio equipment complete with your own personal integrated LCD television. Headsets are available from the Stay Fit Concierge.





Diagnostic Error in Medicine 2011 4TH INTERNATIONAL CONFERENCE OCTOBER 23-26, 2011 | HYATT REGENCY, CHICAGO, IL www.smdm.org/diagnostic_errors.shtml

DEM Gratefully Acknowledges the Following Organizations for Their Support of the 2011 Conference.

Agency for Healthcare Research & Quality (AHRQ)

Funding for this conference was made possible [in part] by grant number R13HS019252 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.



Society for Medical Decision Making (SMDM)

Support for this conference was made possible (in part) by the Society for Medical Decision Making. The views expressed in written conference materials or publications and by speakers and moderators do not necessarily reflect the official policies of the Society for Medical Decision Making.

ENDORISING ORGANIZATIONS

Center for Patient Safety Research and Practice, Brigham and Women's Hospital
Institute for Healthcare Improvement
National Patient Safety Foundation
National Center for Patient Safety, Veterans Affairs Administration

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REGISTRATION FORM



Diagnostic Error in Medicine 2011

OCTOBER 23-26, 2011 | HYATT REGENCY
CHICAGO, IL

www.smdm.org/diagnostic_errors.shtml

First Name _____ Last Name _____ Degree _____

Title _____

Company _____

Address _____

City/State/Province _____

Postal Code _____ Country _____

Telephone _____ Email _____

Emergency Contact _____
NAME PHONE

This is my first time attending a DEM Conference ADA Accommodations Needed: _____

REGISTRATION FEES

Short Course Fees

EARLY BIRD REGISTRATION:
ON OR BEFORE FRIDAY, SEPT. 30, 2011

REGULAR REGISTRATION:
AFTER FRIDAY, SEPT. 30, 2011

Fees listed below are for one half day course. If you wish to attend both half day courses the fees are doubled.

Regular Attendee (half day) \$145 USD \$180 USD _____

Trainee Attendee (half day) \$120 USD \$155 USD _____

Please indicate the short course(s) you will attend: Sunday Monday Both

Conference Fees

Attendee Three Day Full Registration \$470 USD \$550 USD _____

Attendee One Day Registration \$265 USD \$330 USD _____

Please indicate the day you will attend: Monday Tuesday Wednesday

Trainee Three Day Full Registration \$235 USD \$275 USD _____

Trainee One Day Registration \$265 USD \$330 USD _____

Please indicate the day you will attend: Monday Tuesday Wednesday

CME Processing Fee \$ 25 USD \$ 25 USD _____

Total Registration Fees

PAYMENT METHOD

Electronic Funds Transfers (EFTs) are not accepted.

Visa MasterCard AmEx Check Enclosed (made payable to SMDM in US funds)

Card Number _____ Exp. Date _____

Card Holders Name _____

Card Holders Signature _____

TO REGISTER

By Mail: Diagnostic Error in Medicine
390 Amwell Road, Suite 402, Hillsborough, NJ 08844, USA

By Fax: +1 908.359.7619

By Email: dem@smdm.org

Questions? +1 908.359.1184