

Final Progress Report

Reducing Harm to Patients from Diagnostic Errors

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Structured Abstract

Purpose: The purpose of this small conference grant was to conduct a conference on the problem of diagnostic errors, their causes, and methods to mitigate them.

Scope: The conference took place from May 31-June 1, 2008. Proceedings were compiled and published in September 2009.

Methods: The conference was co-sponsored by the American Medical Informatics Association (AMIA) in conjunction with their spring meeting. The organizing committee invited the speakers, all of whom were experts in educational, medical informatics, and patient safety research related to diagnostic errors. There was also a poster session at which participants could display their research. Advertising included the AMIA website and newsletters, newsletters of other relevant professional organizations, and emails from the organizing committee to researchers known to be interested in this topic. Registration fees and vendor support were used to supplement the AHRQ funding to support the conference. CME credits were provided by the University of Alabama at Birmingham.

Results: In total, 128 attendees from six countries attended the conference. Conference attendees were given the opportunity to provide a formal evaluation, which 45 attendees did. Overall, the conference was regarded as an enormous success.

Purpose/Objectives

Diagnostic errors are surprisingly common but have received little attention in much of the patient safety research. There has been research conducted in medical education and medical informatics and, to a limited extent, health services research and patient safety, but these research streams have operated relatively independently without cross-fertilization. The purpose of the conference was to bring attention to this area and to bring together experts from the various research domains to address common issues.

Objectives:

- To summarize the current state of the field and approaches to reducing diagnostic errors
- To identify and discuss ongoing research on diagnostic error
- To stimulate creative thought directed at reducing harm to patients from diagnostic error through changes in practice and medical education
- To establish a community of stakeholders and innovators interested in reducing diagnostic error

Scope

This small conference grant was used to provide partial support for the conference, Diagnostic Error in Medicine, and to support the production of peer-reviewed conference proceedings published in the journal, *Advances in Health Sciences Education*. The remainder of financial support came from registration fees and vendor support. The conference brought together experts and individuals from three research strains: medical education, patient safety/quality improvement, and medical informatics.

The conference had 128 attendees from six countries (USA, Canada, UK, Japan, Russia, and Australia) and featured as faculty many of the world's authorities in this area. Conference attendees represented a wide range of interests and specialty backgrounds in clinical medicine, medical education, health services research, quality improvement, human factors engineering, decision support, medical informatics, and patient advocacy.

Methods

Conference co-chairs were Dr. Eta Berner and Dr. Mark Graber, who were assisted by an organizing committee that included Drs. Gordon Schiff and Pat Croskerry. A larger planning committee also contributed to planning the program, and Ms. Marcie Battles and Ms. Joy Ptacek from the University of Alabama at Birmingham (UAB) provided assistance to the program directors.

The conference was held May 31-June 1, 2008, in conjunction with the American Medical Informatics Association (AMIA) Spring Congress. AMIA was listed as a co-sponsor (in addition to AHRQ) as part of their contractual agreement for providing logistical support, managing registration, and hosting the webpage announcing the conference. The UAB Division of Continuing Medical Education provided CME credits for attendees.

The co-directors, with the assistance of the Organizing and Planning Committees, assembled a cadre of speakers who were leading researchers in diagnostic errors from the fields of medical education, patient safety, and medical informatics. In addition, attendees submitted abstracts for the poster session, which occurred during the first evening.

Residents were invited to present posters of cases of diagnostic error they had encountered.

A formal evaluation questionnaire was distributed to attendees. The questionnaire (evaluation instrument) was developed from similar ones used for other conferences. It included 18 questions, four of which were required by the UAB Division of CME, and other questions specifically were geared to the content and format of this conference.

After the conference, the major presenters were invited to prepare their presentations for publication as a special supplement in the peer-reviewed journal, *Advances in Health Sciences Education*. In total, 14 manuscripts were requested. Drs. Berner and Graber edited the proceedings.

Results

All but one of the invited speakers was able to attend and present at the conference. Weather difficulties prevented that one person from attending. Twenty-two abstracts submitted by the attendees were selected for poster presentation, including eight residents' posters of cases of diagnostic errors they had encountered.

Overall, the conference generally was regarded as an enormous success in terms of the major conference goals – drawing attention to the problem of diagnostic error, presenting ongoing research results, facilitating the formation of a scientific-social community, and beginning to outline the future needs in terms of education and research to reduce diagnostic error.

Of the 18 questions asked, 14 had mean response scores of 4.0 or better (1-5 scale, 5 = most beneficial). The four other questions---on the session on patient vignettes, the value of the breakout format, the value of the poster session, and the value of the closing session---scored in the 3.5-4 range. Forty-three of 45 respondents said they were interested in attending again.

Negative comments pointed out that some of the information presented was dated, that several of the informatics solutions discussed were older ones, and that there was not sufficient time allowed to fully develop some of the discussion topics. Good suggestions included having the PowerPoint presentations available for attendees at the conference, leaving the posters up longer, and increasing the time available for group discussion.

Ten of the 14 requested papers were received, and Dr. Berner also wrote an introduction to the entire supplement, explaining the background and support of the conference and proceedings. Many of the speakers contributed excellent papers that not only summarized their presentations but extended them. The supplement was published in September 2009. The individual papers are listed in PubMed and are available to institutions that include AHSE as part of their institutional subscription to Springer publications. In addition, Springer allowed full open access to the entire supplement for a 3-month period that ended in January 2010. Conference attendees and others interested in this topic were notified via email that the proceedings were available freely online. A second diagnostic errors conference, led by Dr. Graber, occurred in October 2009, and the proceedings were provided to those attendees. The individual papers are included below in the section named List of Publications and Products.

In summary, the small conference grant support from AHRQ supported a successful conference that addressed the important area of diagnostic errors, led to a second conference, and provided support for peer-reviewed published proceedings that made the material discussed at the conference available to a wide audience.

List of Publications and Products

Conference Proceedings: These are the published proceedings of the Conference Diagnostic Error in Medicine, 2008 May 31-June 1; Phoenix, AZ: post-session of the American Medical Informatics Association Spring Congress.

Berner ES and Graber ML, Guest Editors. Diagnostic Error in Medicine. Adv Health Sci Educ Theory Pract. 2009 Sep;14 Suppl 1.

Individual Papers: These are the final published papers based on the presentations at the conference. They are listed in order of appearance in the publication.

Berner ES. Diagnostic error in medicine: introduction. Adv Health Sci Educ Theory Pract. 2009 Sep;14 Suppl 1:1-5.

Elstein AS. Thinking about diagnostic thinking: a 30-year perspective. Adv Health Sci Educ Theory Pract. 2009 Sep;14 Suppl 1:7-18.

Wears RL. What makes diagnosis hard? Adv Health Sci Educ Theory Pract. 2009 Sep;14 Suppl 1:19-25.

Croskerry P. Clinical cognition and diagnostic error: applications of a dual process model of reasoning. Adv Health Sci Educ Theory Pract. 2009 Sep;14 Suppl 1:27-35.

Norman G. Dual processing and diagnostic errors. Adv Health Sci Educ Theory Pract. 2009 Sep;14 Suppl 1:37-49.

Wahls TL, Cram P. Proposed interventions to decrease the frequency of missed test results. Adv Health Sci Educ Theory Pract. 2009 Sep;14 Suppl 1:51-6.

Singh H, Weingart SN. Diagnostic errors in ambulatory care: dimensions and preventive strategies. Adv Health Sci Educ Theory Pract. 2009 Sep;14 Suppl 1:57-61.

Graber ML. Educational strategies to reduce diagnostic error: can you teach this stuff? Adv Health Sci Educ Theory Pract. 2009 Sep;14 Suppl 1:63-9.

Eva KW. Diagnostic error in medical education: where wrongs can make rights. Adv Health Sci Educ Theory Pract. 2009 Sep;14 Suppl 1:71-81.

Greenes RA. Reducing diagnostic error with computer-based clinical decision support. Adv Health Sci Educ Theory Pract. 2009 Sep;14 Suppl 1:83-7.

Miller RA. Computer-assisted diagnostic decision support: history, challenges, and possible paths forward. Adv Health Sci Educ Theory Pract. 2009 Sep;14 Suppl 1:89-106.

Graber ML. Next steps: envisioning a research agenda. Adv Health Sci Educ Theory Pract. 2009 Sep;14 Suppl 1:107-12.