

FINAL PROGRESS REPORT TITLE PAGE (R13HS019252, PI Newman-Toker)

Title: A Multiyear Grant to Support the Diagnostic Error in Medicine (DEM) Annual Conference

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FINAL PROGRESS REPORT COMPONENTS (R13HS019252, PI Newman-Toker)**1. Structured Abstract**

Purpose: Diagnostic errors are frequent but under recognized and under studied. This grant supported 3 years of funding for the Diagnostic Error in Medicine (DEM) conference from 2010-2012. The long-term goal of this conference was to improve patient safety by reducing the likelihood of diagnostic error in medicine.

Scope: Minimizing diagnostic error is an essential component of safe patient care. Conference activities were organized to summarize current scientific knowledge, review active research, and consider new interventions to minimize diagnostic error. The target audience was practicing clinicians, cognition scientists, safety officers, risk managers, informatics professionals, clinical/basic investigators, educators, trainees, and patients.

Methods: Annual DEM conferences from 2010-2012 for an international audience. Conference objectives were to build a scientific and practical understanding of diagnostic error in medicine and foster the development of solutions by (1) focusing attention on the frequency, impact, and public health significance of medical misdiagnoses; (2) developing a core constituency of committed advocates from diverse backgrounds and perspectives; (3) discussing the nature, causes, and remedies for diagnostic error in medicine; and (4) sharing research methods and results relevant to clinical reasoning, diagnostic error, and misdiagnosis-related harm.

Results: The 3rd (2010, Toronto, ON), 4th (2011, Chicago, IL), and 5th (2012, Baltimore, MD) DEM conferences were successfully planned and executed. The conference program offerings expanded each year, and meeting attendance nearly doubled over the 3-year period. The DEM conferences received excellent ratings from participants, and DEM's success helped facilitate formation of a new Society to Improve Diagnosis in Medicine.

Keywords: 1.Diagnosis; 2.Patient Safety; 3.Diagnostic Errors; 4.Education, Medical, Continuing

2. Purpose (Objectives of Study)

Diagnostic errors are frequent but under recognized and under studied. This AHRQ, multi-year, large conference grant (R13HS019252) supported 3 years of funding for the Diagnostic Error in Medicine (DEM) conference from 2010-2012 during the project period from 9/31/2010 to 7/31/2013. The long-term goal of this conference was to improve patient safety by reducing the likelihood of diagnostic error in medicine.

Original Goals: Ongoing support from AHRQ would enable the DEM conference planning committee to build on the success of its 2008 and 2009 meetings by establishing the DEM conference in national and international arenas as the premier meeting focused on reducing diagnostic error. Given that the DEM conference focuses on both the academic aspects and the practical aspects of diagnostic error but is not a professional society, the current proposal is designed to help the DEM conference "gain traction" over the next 3 years and achieve several important goals: (1) strengthen the ongoing partnership with SMDM, a partnership that provides the DEM conference committee with an organizational infrastructure and continuity in its conference preparations; (2) transition the DEM conference from a 12-month conference cycle to a 17-month cycle, which will in turn help the conference gain visibility and raise public awareness of DEM; and (3) expand the conference program offerings to include formal short courses and organized interest groups.

Modified Goals: The first of these three goals was later modified to reflect the fact that the leaders of DEM and SMDM agreed that DEM should seek to develop its own society, given that its mission and target audience was only partially overlapping with SMDM's. The new society was intended to dovetail with the DEM meeting planning/preparation and eventually serve as a future source of support for the DEM conference toward the long-range goal of making DEM and the new society an independent, self-sustaining entity.

3. Scope (Background, Context, Settings, Participants, Incidence, Prevalence)

Background

Misdiagnosis is a major public health problem.¹ In 2000, medical errors were estimated by the Institute of Medicine to account for 44,000-98,000 deaths annually in US hospitals alone.² There is little evidence that this number has declined over time, and some claim it is rising and may be considerably higher.³ Approximately 8-24% of contemporary US autopsies reveal major diagnostic errors, 4-7% of them lethal (i.e., for which a correct diagnosis coupled with treatment could have averted death).⁴ Using autopsy data, Lucian Leape estimated that 40,000-80,000 US hospital deaths result from misdiagnosis annually,⁵ but this figure probably underestimates total mortality associated with diagnostic errors, because it only partially accounts for ambulatory misdiagnoses and diagnostic errors that often go unrecognized or unreported.⁶ Little is known about the aggregate burden of misdiagnosis-related morbidity, but 47% of diagnostic error-related adverse events result in serious disability.⁷ Thus, misdiagnoses represent an enormous source of preventable mortality, morbidity, and costs.⁸⁻¹⁰

Context

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; toward 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.

Settings

DEM Annual Meetings were held in the following cities:

- Toronto, Ontario (3rd Annual, 2010);
- Chicago, IL (4th Annual, 2011); and
- Baltimore, MD (5th Annual, 2012).

Participants

CONFERENCE 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.

Incidence/Prevalence

It is conservatively estimated that diagnostic errors affect at least 12 million Americans each year.¹⁰

4. Methods (Study Design, Data Sources/Collection, Interventions, Measures, Limitations)

Study Design

Medical conference (AHRQ Grant Program for Large or Recurring Conferences, R13, PAR-09-257)

Data Sources/Collection

Evaluations and feedback from conference organizers and attendees (learners)

Interventions

Mixture of lecture, panel, debate, and small breakout group activities for learners

Measures

Meeting expansion; total conference attendance; qualitative and quantitative feedback from learners

Limitations

Measures linked to conference evaluations cannot readily assess the broader social impact of the DEM meeting on the Diagnostic Error Movement, which grew substantially during the study period as a result, including formation of the Society to Improve Diagnosis in Medicine (SIDM, <http://www.improvediagnosis.org/>).

5. Results (Principal Findings, Outcomes, Discussion, Conclusions, Significance, Implications)

Principal Findings

Three DEM Annual Conferences were convened from 2010-2012.

Outcomes

As a result of AHRQ R13HS019252, the DEM conference length was expanded from 1.5 (2009) to 3.5 days, including 2.5 full conference days, breakout groups, and the addition of a full day of pre-conference education courses (with parallel track offerings) and convening of a Diagnostic Error Research Methods Summit.

The planning cycle for the meeting was increased from ~8-10 months for conferences before 2010 and ~11 months for 2011 to ~17 for 2012 and ~20 for 2013, enabling a wider selection of possible meeting locations, recruitment of more prominent keynote speakers, and more in-depth educational programming.

Conference attendance grew from ~115 participants in 2010 to ~170 in 2011 and ~220 in 2012. This included the direct engagement of patients in planning and conduct of the meeting at DEM 2012, where a patient-focused track was developed and a full session was devoted to 'What can providers and patients do?'

We developed a subcommittee devoted to outreach and social networking. We reached out to a variety of potential participants and stakeholders, including large academic and regulatory groups, insurance and risk management organizations, industry partners, and patient advocates and advocacy groups.

Scientific abstract submissions were added to the programming in 2010, with more than 100 abstracts presented as posters or oral platform presentations over the 3-year period from 2010-2012.

Conference participants generally gave overall high ratings to the conference offerings, including education courses (request conference program materials and evaluations from authors for details).

Discussion

The DEM conferences from 2010-2012 were, overall, an enormous success. Conference goals were achieved:

- (1) develop a sustainable organizational infrastructure and continuity in DEM conference preparations;
- (2) increase DEM conference visibility and raise public awareness of diagnostic errors; and
- (3) expand the conference program offerings to include formal short courses and organized interest groups.

Conclusions

AHRQ R13HS019252 made it possible to establish more sustainable meeting planning timelines, to expand DEM conference programming, and to increase conference visibility, attendance, and public awareness. Ultimately, this grant enabled the formation of a new society devoted to diagnostic error (see Implications).

Significance

Although healthcare quality and patient safety are extensively discussed at a number of high-profile national conferences, none focus squarely on diagnostic errors. There remains a critical need for a separate event dedicated to these problems, given their enormous impact, both potential and real. Successful completion of this project has sparked development the DEM movement, raised awareness, and helped bring together a diverse research community interested in developing implementable, real-world solutions to the diagnostic error problem, with the ultimate goal of making medical diagnosis reliable, timely, and efficient.

Implications

AHRQ R13HS019252 enabled and facilitated formation of the Society to Improve Diagnosis in Medicine (SIDM), a new society devoted to reducing diagnostic error and improving diagnostic accuracy. SIDM is now the primary hub for intellectual, scientific, and public policy-related activities linked to diagnostic errors, including research, education, patient outreach, and political advocacy. It is anticipated that SIDM will continue to grow as a critical actor in the struggle to achieve 'better outcomes through better diagnosis' for patients. It is hoped that eventually SIDM will serve as a sustainable source of ongoing support for the DEM conference.

6. List of Publications and Products (Bibliography of Published Works & E-Resources from Study)

Meeting materials from the 2010, 2011, 2012 meetings were available at <http://www.improvediagnosis.org/>. The SIDM website includes links to prior DEM conferences with a combination of meeting schedules, meeting abstracts (poster and oral abstracts), presentation slides, handouts, and recordings for specific keynotes.

Scientific manuscripts developed from the DEM conference content 2010-2012 were published in BMJ Quality and Safety in an open-access supplement, available at http://qualitysafety.bmj.com/content/22/Suppl_2.toc.

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