

National Web-Based Teleconference on Findings from Evidence-Based Practice Centers for Health IT

Question and Answer

Q1. For Dr. Gibbons, it was interesting that your report highlighted promise in using consumer health informatics tools for the treatment of mental illness. Were issues of privacy or trust highlighted or mentioned in the studies either in designing to enhance the trustworthiness of the tool or as a barrier to adoption?

A1. Yes. A handful of studies (five) evaluated if privacy was a barrier, and four of these studies found evidence that this was true. These studies also found that “lack of control” and/or “lack of trust” were barriers.

Q2. Our physicians are concerned with alert fatigue based on their experience with drug-drug interaction and drug-allergy alerts. Did you review any studies pertaining to drug-interaction alerts and any outcomes related to these alerts? (As a result of their concerns, we are encountering pushback when introducing clinical decision support (CDS) in our computerized provider order entry system to promote ordering appropriate labs tests, etc. Hopefully, your findings will help to justify moving forward with CDS).

A2. The EPC report on *Medication Management and Health IT* has some data. However, those who are interested in this topic should go to PubMed® directly at <http://www.ncbi.nlm.nih.gov/pubmed?term=%22alert%20fatigue%22>. This provides some summaries that better address the alert-fatigue issue; some of these summaries include information about CPOE systems.

Q3. Are mental health and behavioral health included in the national planning of health informatics applications?

As written, this question can be interpreted differently.

A3.1 Mental health is an important aspect of healthcare. AHRQ, the National Institutes of Health, and others have supported and are interested in such research. Yet, there are few published findings of how health IT can be used to improve either process or clinical outcomes with respect to mental health. This fact is highlighted in “Table 20. Number of studies that evaluated the effects of MMIT on clinicians” (the clinicians were the major focus of the outcomes of the articles) on page 105 of the EPC report on *Medication Management and Health IT* (<http://www.ahrq.gov/downloads/pub/evidence/pdf/healthit/medmgt.pdf>).

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A3.2 It is well-recognized and echoed in these EPC reports that final users' workflow, type of information needed, and the means to share that data are critical dimensions of appropriate design and use of health IT applications. Consideration of nuances associated with actionable management of mental health data in the development or evaluation of health IT functionality was beyond the scope of these EPC reports.

A3.3 Our study of consumer health informatics tools did find work that evaluated the potential efficacy of these tools in the area of mental health. Approximately 90 percent of these studies showed evidence of significant health impact. Although these studies were encouraging, much more work is needed in this area.

Q4. How do you think that generational and age differences impact the uptake of health care IT for both clinicians and consumers? Are there any strategies being used to make technology more acceptable to and easier to learn for older clinicians and consumers and patients?

A4.1 Generational and age differences undoubtedly impact uptake, utilization, outcomes, and satisfaction with health IT for both clinicians and consumers. For example, the President's Council of Advisors on Science and Technology in a December 2010 report indicated that "the current structure of health IT systems makes it difficult to extract the full value of the data generated in the process of healthcare. Most electronic health records resemble digital renditions of paper records. This means that physicians can have trouble finding the information they need, and patients often wind up with poor access to their own health data and little ability to use it for their own purposes...market innovation has not yet adequately addressed these challenges to usability ...". (p.10) Poor usability of health IT applications has a substantial negative effect on clinical efficiency and data quality, presents a continuing risk to patients, and may even impact healthcare disparities.

Usability is defined as "the extent to which a product can be used by specified users to achieve specified goals with effectiveness, efficiency, and satisfaction in a specified context of use." In the International Organization for Standardization's most recent standards (i.e., ISO 25010), usability is explicitly included as one of eight attributes of software quality.

In several recent reports, the National Institute of Standards and Technology (NIST), on behalf of the Office of the National Coordinator for Health IT, has taken the lead in

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developing evidence-based guidance on how to improve the usability of health IT (NIST Report #7741, #7742 and #7769). These reports provide guidance to the vendor/developer community on user-centered design, reporting of usability testing results, and improving usability as one mechanism to reduce the potential of exacerbating healthcare disparities with the use of health IT. These guidelines are however voluntary, and there is some resistance within the vendor/developer community to adopting these principles. The FDA has been very active in producing similar guidance (and regulations) for medical devices and, most recently, mobile medical devices. As such, in the area of health IT (e.g., nonmedical devices, consumer health informatics), much more work is needed.

A4.2 With regard to the age and usability question, I feel that we have come a long way and are making good progress (i.e., we are maturing) in our design methods for new systems and use of much more and better usability studies on our existing systems, especially when implementing new versions. Many years ago, age and gender did predict computer use, but in recent years these factors have become much less important.

Q5. Have there been studies of the effectiveness of decision support systems that would allow one to select one system on the basis of effectiveness on health outcomes?

A5. Unfortunately, there are no studies that would enable a perspective user to identify one specific system as the most effective. However, from the EPC report, we are able to identify features of decision support systems that are associated with effectiveness. Accordingly, one could look for these nine features in a system to find one that has the best chances of being effective.