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Special Communication

Health IT vendors and the academic community: The 2014 ACMI debate

Alexa T. McCray^{a,*}, John Glaser^b, Ross Koppel^c, Curtis P. Langlotz^d, Jonathan Silverstein^e^a Department of Biomedical Informatics, Harvard Medical School, Boston, MA 02115, USA^b Health Services Division, Siemens Healthcare, Malvern, PA 19355, USA^c Department of Sociology and Perelman School of Medicine, University of Pennsylvania, Philadelphia, PA 19104, USA^d Department of Radiology, Stanford University School of Medicine, Stanford, CA 94305, USA^e Center for Biomedical Research Informatics at NorthShore University HealthSystem, Evanston, IL 60201, USA

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ABSTRACT

The American College of Medical Informatics (ACMI) periodically hosts a debate at the American Medical Informatics Association (AMIA) fall symposium on a timely topic in biomedical informatics. In 2014 a panel of ACMI fellows debated the following proposition: “The lack of interaction and collaboration between health IT vendors and academic clinical informatics units is stifling innovation and will continue to have a detrimental effect on the evolution of commercial products.” Debaters disagreed on the level of interaction and collaboration between the health IT sector and academia and disagreed on whether and by whom innovation was actually taking place. While collaboration between industry and academia was seen as desirable by all of the debaters, there was an acknowledgment that these groups have notably different roles and responsibilities. There was consensus that a path forward should be found, and that AMIA itself has an important role to play in effecting this.

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1. Introduction

The American College of Medical Informatics (ACMI) periodically hosts a debate at the American Medical Informatics Association (AMIA) fall symposium on a timely topic in biomedical informatics. The topic for the 2014 debate concerned the relationship between the commercial health information technology (HIT) sector and the academic clinical informatics community – with a view to the impact that the nature of this relationship has on innovation and evolution of commercial HIT systems. This year's debaters were ACMI fellows Ross Koppel, PhD, University of Pennsylvania, Curtis Langlotz, MD, PhD, Stanford University, John Glaser, PhD, Siemens Healthcare and Jonathan Silverstein, MD, MS, NorthShore University HealthSystem. Alexa McCray, PhD, Harvard Medical School, the current ACMI President, served as moderator for the debate.

Several themes arose during the debate and in the ensuing discussion. Recognizing the transformational power of information technology in our modern society and seeing its potential in the health care field, the Federal government enacted the Health Information Technology for Economic and Clinical Health (HITECH) Act in 2009 [1–3]. The debaters discussed both the positive and nega-

tive impact that this legislation, and, in particular, its ‘meaningful use’ provisions and what impact these provisions have had on innovation in the development of HIT systems [4,5].

Industry, likewise, has recognized the potential of information technology, with the debaters noting the sharp rise in the amount of venture capital funds expended on health IT innovation, and the large number of patents that have been granted to health IT firms. There was, however, concern that although there are numerous health IT startups, with some evidence of successful collaboration between these innovative companies and academia (see, e.g., [6]), that the successful integration of the technologies developed by these small emerging companies with the large electronic health record (EHR) vendors was uncertain.

A significant part of the debate involved the technical aspects of large-scale EHR systems, and, in particular, issues related to usability, standards, and interoperability – topics that have been discussed widely in the literature, but with no clear resolution as of yet. See, for example, [7–11].

Debaters disagreed on the level of interaction and collaboration between the health IT sector and academia and provided examples of suboptimal interaction, and the consequences thereof, as well as examples where there was interaction with benefit to both groups. While collaboration and interaction between industry and academia was seen as desirable by all of the debaters, there was an

* Corresponding author.

E-mail address: alexa_mccray@hms.harvard.edu (A.T. McCray).

acknowledgment that these groups have notably different responsibilities, incentives, and roles.

These different roles have an impact on whether and what types of collaboration are possible. Vendors are working in a rapidly evolving industry and are subject to governmental regulations that require modifications to their systems according to a specified timeline. The debaters noted that this has led to some short-term thinking, with little attention paid to the longer-term vision for well-functioning, interoperable systems that are designed according to recognized and community developed standards. Academics are researchers with the attendant pressures of publishing, teaching, and seeking grants. In addition, while informatics researchers have built EHRs for entire hospital systems, many are now faced with using commercially designed systems that leave little room for the innovation that has characterized the field.

Given these different roles and incentives, there are, nonetheless, approaches that can be taken for bridging these communities. Related fields where collaborations between academia and industry have been successful may provide valuable insights and new models for moving forward. For example, vendors might, as they have done in other fields, provide fellowships and grants to academics to develop new ideas that will lead to the improvement of health care IT systems. Vendors should now also be in a better position to open up their software architectures for innovative development by others, and they should do so. Academics, for their part, can ensure that the students who graduate from their programs have the training and background to engage across the vendor and academic communities. Academics should leverage their leadership roles in professional societies to influence the development of transparent and standards-based systems, and they should take advantage of their society meetings and other forums to foster open dialog among all segments of the Health IT community. Concrete steps in this direction have already been taken by AMIA, which regularly brings members of each of the communities together at conferences and in other venues. AMIA task forces, comprising members of both sectors, as well as members of the Federal government, have recently published white papers on the status and future of electronic health record systems [12,13].

There was consensus that we need a path forward, in spite of the challenges in doing so, and that the tensions between the academic informatics community and the commercial sector must be put behind us. There is great opportunity for the two communities to learn from each other and to find new and effective ways of working together.

In the following, while we have edited the debate transcript for clarity and added references where appropriate, we have attempted to maintain the informal, conversational, and lively style of the discussion.

2. Introductory remarks

Dr. McCray: I will be your host this morning for our ACMI debate. As is customary for all ACMI debates, this year's debate treats a timely topic in informatics, namely, the interaction or lack thereof between health IT vendors and the academic community. The proposition for the debate is:

Resolved: The lack of interaction and collaboration between health IT vendors and academic clinical informatics units is stifling innovation and will continue to have a detrimental effect on the evolution of commercial products.

Our debaters will be Ross Koppel of the Department of Sociology and Perelman School of Medicine at the University of Pennsylvania and Curtis Langlotz of the Department of Radiology at the Stanford University Medical Center. They will be speaking for the

resolution. John Glaser of the Health Services Division of Siemens Healthcare and Jonathan Silverstein of the Center for Biomedical Research Informatics at NorthShore University HealthSystem will be speaking against the resolution.

In the tradition of debating practices, the debaters will take strong opposing positions in order to stimulate discussion. There will be ample time for audience questions and comments, and at the conclusion of the session, I will ask you to vote for or against the resolution with a show of hands.

3. Statement in support of the proposition

Dr. Koppel (RK): In terms of history it's very clear that academics were intimately involved in the development of HIT and EHRs [14]. So, we're not going to debate that part. However, in terms of the current focus on innovation, it is pretty clear that if vendors have been benefitting from academics, then as a lifelong academic I am profoundly disappointed with my own profession because there's very little innovation that I see out there. If our contribution has been seminal, then I should pick another job. If the vendors have not been listening to us, then shame on them and shame on us because we academics should have done a better job of explaining what it is we think could be better, and they should have perhaps been listening to us.

Let's take a look at some specific examples. I was one of the only academics who briefed the JASON task force. (JASON is a think tank commissioned by the ONC to address problems with EHRs and lack of interoperability.) This is not the joint task force with ONC, but the actual JASON folk out in California, and I know the report that they wrote [15]. Look at what happened when the task force, which was composed of mainly vendors and some ONC regulators and academics met. They gutted the JASON report, which called for data standards and interoperability, and they accepted the part that said we need workarounds, which are APIs. APIs, as most of you know, are "application programming interfaces," sets of requirements that govern how one application can talk with another. In our case of EHR data, APIs might reconfigure how data are listed in one EHR so that they can be transferred correctly into another EHR. Alas, APIs are not all created equal, and many EHRs have remarkably arbitrary ways of recording and displaying data. Thus, relying on APIs – instead of just requiring clear data standards – is often an act of faith. In fact, ONC's solution was to use APIs and a limited number of variables to be placed in a C-CDA (Consolidated-Clinical Document Architecture) that would allow transfer of EHR information. However, a recent study by John D'Amore and colleagues on C-CDA's [16] examined some ninety-one different types of C-CDAs from scores of EHRs. And what did the authors find? They found that there were six hundred and fifteen transfer errors in the C-CDAs. C-CDAs are a workaround required by the lack of interoperability and the lack of accepted data standards. So even that workaround failed repeatedly. And by the way, look at the number of vendors who came to John D'Amore and his colleagues at Harvard. Some vendors were involved in the work with him at first, but the number of vendors who came and said help us improve our C-CDAs was zero. Zero vendors came to John to seek help with their C-CDAs.

The key point here is that, once again, the industry was offered academics' insights but they ignored the hard parts and went for the easy parts that kept their IP intact.

Speaking of vendors and openness, as you know, there's the nondisclosure clause in vendor contracts. I have in my bag the report to the FDA, funded by the FDA, written by my colleagues at Harvard and me and some others at other universities. The study involved four or five different EHR vendors, involving six world-class institutions – Penn, Harvard, Montefiore, New York and the

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