

Introduction

Good Afternoon. My name is David Kreda. I am here on behalf of Dr. Isaac Kohane and the SMART project team at the Harvard Medical School.

SMART refers to Substitutable Medical Applications, Re-Usable Technology. It is one of four ONC-funded advanced research projects. Dr. Kohane, the project's principal investigator, and his colleague, Dr. Kenneth Mandl, championed this project to address the wide gap between the usability of everyday software and clinical software. My role in SMART is that of translation advisor. This means I worry about getting SMART into clinical use so that it may serve as a beacon for clinical IT innovation.

Clinicians are distracted and debilitated by interacting with their software. To get to data they must fumble with navigation. To make sense of data spread over many screens, they must take notes, perversely re-papering what is supposed to be paperless. To enter data, they must dismiss a plethora of clinical alerts that actually jade their attention. Upon reaching pertinent screens, they are compelled to provide responses that do not accord with what they want to write or even know.

Because these problems are widely experienced, we welcome a greater focus on usability of clinical software.

Now I will speak to this panel's five questions:

1. Can transparent reporting improve usability? Will this promote or hamper innovation?

The biggest problem in the industry is that we cannot criticize things publically. Gripes can be expressed, but details remain under wraps because of intellectual property anxieties. This blunts our awareness and our ability to solve problems faster and better.

In much of the software industry, we can see, we can print, and we can criticize. Therefore, we influence what gets fixed. In healthcare, contracts and conventions leave our failures hidden and opportunities unrecognized.

Transparent but detailed reporting – shorn, of course, of patient identity – will permit natural information markets to emerge, which we believe will spur innovation.

2. What other actions/programs can improve usability?

Today, all-or-nothing purchase decisions invite many poor user experiences as well as insurmountable replacement costs. Accordingly, anything that would encourage vendors to offer application programming interfaces (APIs) would be a particular boon for focusing on improving usability. With such APIs, users themselves or third parties can solve pressing problems that may not be urgent for vendors.

Our project, in particular, believes that modularity offers a path toward healing usability woes. With such modularity, whole systems will not have to be adopted or dropped *en masse*. Modularity creates more software choices and competition at many levels of granularity, so we can see usability tackled in a cost-effective, timely, and targeted manner.

3. How can the end user better appreciate the challenge of usability at the time of purchase?

It is impossible today to understand the challenge of using clinical software before it is adopted. If detailed reporting became a fact in the industry, this would change. Nonetheless, choosing any monolithic system would still entail falling on a sword as they involve compromises, that is, not all parts work ideally in all contexts. Our project envisions application substitution as crucial for after-the-fact replacement of the weakest parts of any monolithic approach.

4. What voluntary steps can industry take to create a market around usability?

Vendors do not, as a rule, announce their flaws. However, if a sufficient number of using institutions were routinely disclosing their experiences in detail, including by function, vendors who evaluate software might emerge and create an information market. This would pressure vendors to revise their products to compete more on such things as usability by function. It might also cause them to open and mature their APIs even faster to off-load intractable usability issues to their users. If users built compelling solutions, vendors might absorb some of them – or the ideas behind them – into their products.

5. What uniform information can be provided across all vendor products?

Early disclosure of user experiences may point to types of data that have the greatest utility. We can speculate about some candidates such as click counts, screen counts, information density per screen, navigational depth, to name but a few. Nonetheless, we would expect the most useful ones to emerge naturally from opened information markets.