Background

About KLAS

KLAS is a market research firm that specializes in the measurement of vendor performance through the eyes of their customers. Our interviews with over 2,000 provider contacts each month help us create awareness and transparency that assists providers in making investment decisions and gives direction to vendors on how to best improve their products and services. As an independent firm, KLAS answers to provider needs and concerns and is vendor neutral. Our data is provider-derived and our research is provider driven. KLAS has no opinion but that of the providers we speak with.

About Our Usability Research

KLAS recently published two special reports on EMR usability, one covering acute care EMRs and the other covering the ambulatory setting. In line with our mission, we did not seek to directly assess the usability of EMRs (e.g., counting clicks, forms, key presses, etc.). Rather, we measured the perception of usability through the eyes of providers via nearly 250 interviews that targeted medical leadership such as CMIOs and CMOs. In their roles, these individuals were able to share a broad perspective of usability as seen in the eyes of physicians across their organizations, as well as the part vendors played in achieving it. In fact, the Association of Medical Directors of Information Systems (AMDIS) partnered with KLAS in developing the questionnaire and engaging their members.

As the primary goal was to differentiate vendor performance, KLAS took a practical approach of focusing on current industry leading EMRs rather than attempting to report on the possible hundreds of certified systems that exist. These included:

Acute Care EMRs:

- Allscripts Sunrise Clinical Manager
- Cerner Millennium Powerchart
- Epic EpicCare
- McKesson Paragon
- Meditech v.6
- Siemens Soarian

Ambulatory EMRs

- Allscripts Enterprise
- athenahealth athenaClinicals
- Cerner Millennium Powerchart
- eClinicalWorks EMR
- Epic EpicCare
- GE Healthcare Centricity Practice Solution
- Greenway Medical PrimeSUITE Chart
- McKesson Practice Partner
- NextGen EMR

Practices sizes were in the medium-to large range (generally over 25 doctors), but the research yielded insights applicable to EMRs in general.

Although KLAS cannot speak for vendors in the manner that the panel questions are written, we are happy to share related findings from the perspectives of the provider organizations we spoke with.

What do you see as the major usability issues to be resolved?

One of the most interesting observations from speaking with providers about their EMRs is that there is often a wide variation in satisfaction from provider organizations using the exact same product. This underlines a key theme of the two KLAS reports: usability is about much more than software. The drive towards user-centered design and other improvements will no doubt benefit providers, but amidst the drive towards user interface perfection there is a great deal of low-hanging fruit that vendors can pick from to help providers.

When KLAS asked providers about their EMR's current level of usability, the best vendors had 80% to over 90% of customers report they were successful at achieving a high level of usability. The lowest performers were in the 50% to 60% range. What providers said drove the differences between top and bottom performers is instructive.

High Performers: Vendor Guidance

One of the most frequently mentioned reasons for success was the relationship between the provider and the vendor. Providers that were most satisfied said their vendors took an active role in guiding their efforts toward high levels of usability both during and after implementation. Not only did they provide hand-holding and sharing of best practices that they've gathered from experience with hundreds of customers over the years, but they often came to the table with a best-practice configurations to give providers a head start rather than leaving providers to configure their system from a blank slate.

One of my favorite comments from a provider emphasizes the perception that vendors are not doing their customers a favor when they simply hand over the keys:

> *In retrospect, I think [our vendor] should have been more forceful in telling us not to do certain things… and should have been more proactive about telling us the correct way to build profiles… I think we spent at least a third of our effort just undoing things that [our vendor] should have told us not to do. Never once did they push back on things that had already blown up at other organizations.*

For ambulatory vendors that server smaller practice sizes, this guidance often comes in the form of preconfigured templates that can address various specialties. These are sometimes based on contributions to a library of templates from other customers, but they still represent the delivery of best-practice based on experience.

Low Performers: Code Quality

One of the most frequently mentioned reasons for failure is was poor code quality. Several of the vendors have had difficulty delivering stable upgrades, while others have rushed clinical functionality to the market that has yet to mature. Providers cannot see past these issues. It's nearly impossible to optimize a piece of software that is not functional in a most basic sense.

It was mainly with these providers that we heard comments about poor interface design such as buttons being in the wrong place, having to visit multiple screens, and data not flowing where it should. But these were not rocket science-type issues. They are not the kinds of things that require advanced thinking to solve.

An accompanying issue brings us back to the idea of vendor guidance. These same vendors that are having technical problems are often strapped for knowledgeable resources that can spend time with the providers. They are spread thin by fire-fighting, often leaving providers largely on their own.

Configurability

Other than code quality, a pre-requisite to achieving high usability is that that systems must be configurable. For the most part, providers told us their systems were highly configurable—even some of the lowest performers. What they lacked was the time and expertise to do it all by themselves.

"Self-help" was more realistic in the past. In fact, one of the top performing hospital vendors was rated poorly for usability at go-live. Their customers reported a 92% success rate today, but only 32% felt that way at go live. The difference was an average of 9 years to live, learn, and adjust. With meaningful use and payment reform, that's a luxury providers don't have today.

Describe your efforts to develop products for mobile platforms, and usability challenges and opportunities created by mobile platforms.

KLAS asked providers how well their EMRs supported mobile access. By and large, they had little positive to say. Most vendors offer a mobile component, but even if they have good design elements, they lack functionality. It's frustrating for providers to be able to see patient data, but not be able to submit orders.

As a result, many resort to using their desktop interface through a virtual PC interface on their tablets or phones. They get access to all EMR functions, but at the cost of a very clumsy experience. We have not been able to validate any providers using a mobile EMR interface that was without compromise. Some mention vendor demos that look slick and they are awaiting delivery. We'll validate that as soon as we find live sites.

In the meantime, providers don't seem excited about the prospect. Half aren't doing anything with EMRs on mobile devices. They are still trying to catch up with their desktops and laptops. For now, mobile solutions are a "nice to have".

What requirements of Meaningful Use, or other regulatory requirements, create usability challenges?

We asked providers to rate usability on a number of meaningful use areas and the three lowest rated areas were medication reconciliation, problem lists, and physician documentation.

Specific complaints in these areas varied from one vendor to another. Some vendors obviously spent more time building up the functionality while others provided a token of functionality that was not well thought out.

Regardless of vendor, however, providers laid part of the blame on themselves as they saw many challenges as the result of user actions (or inactions) and could not conceive of how vendors could solve all of those problems.

Medication Reconciliation

The biggest issue with medication reconciliation is the difficulty of getting data from multiple sources, not the least of which is the patient. To some this is more of an HIE issue and until that's solved it's simply a manual process.

Problem Lists

None of the vendors are good at terminology in problem lists, but third party solutions have been successful at helping physicians look up the right terms and codes for documentation.

The major plague of *problem lists* is that they gather so much data over time and across care settings that is difficult to sort through the lists to find information that is most relevant to a physician at the point of care. Providers would like to see vendors add various types of filters, such as tagging problems as temporary/acute vs. long term/chronic problems. But these sometimes prompt complaints about too many toggles and fields and options.

Again, there is a human behavior element: providers also feel that physicians should exercise better judgment about the quality of information they put into the lists and then leave there.

Physician Documentation

When it comes to physician documentation, providers are torn between structured documentation and free text. Structured documentation misses nuance and text documentation takes too long. In many cases, however, they are not choosing between the two. Instead they are offering multiple options to their physicians. Is seems like the most common compromise is voice dictation software. The systems that are more successful with structured documentation offer a fair degree of personalization for physicians to arrange entry forms, build macros, and so forth.

In what ways can ONC and CMS help you improve the usability of your products?

The fact that individuals often feel a need to personalize their systems underscores that there is much more than user interface design at issue. The process of configuration and personalization is not simply to overcome weak UIs—it's to build workflows that are often unique to organizations and individuals. Medicine is far away from a one-size-fits-all solution. Consider this point of view:

> *It is great when [our vendor] builds better modules, removes clicks in an area, creates new functionality, or improves the system's performance, but we really started to make progress with usability once we realized we needed to take responsibility for the process and the workflows.*

This is why it's worthwhile to stress, again, that usability is not all about software. The best user interface will more likely be a facilitator rather than a game changer for providers. If anything, this research suggests that when pursuing software improvements, vendors should make sure they don't take their eyes off their customers' progress.

KLAS is not in a position to advise the ONC and CMS on what help vendors need. We can validate that from a provider perspective, it does seem like the speed of meaningful use comes at a cost in terms of usability. For example, providers often tell us that vendors have been promising fixes and updates and that MU is holding those back. They have some sympathy for their vendors in that regard.

So it can be a speed vs. quality for some vendors. But any kind of progress involves compromise. In the end, it's a value judgment.