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Panel 3- Technology Developer Perspective

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Questions for Consideration:

- *What is current industry practice in testing for usability?*
- *What is current industry perspective for designing systems to ensure usability?*
- *What are the biggest usability challenges being experienced?*

The United States healthcare system is plagued with inefficiency, redundancy, waste and quality results that do not correlate to our rate of spending. Most experts, clinicians and policy makers view the widespread adoption of *healthcare information technology (HIT)* as a key component to solving this problem. Much of the data suggests that the efficiency & quality gains alone would equate to more than \$77 Billion dollars in savings for our nation. Everyone's expectations for information technology in healthcare are high. And, as a nation, we simply need this potential to be realized, *clinically, operationally & financially.*

How can we make this potential a reality? As a technology vendor in long term care, we have gained tremendous insights into the recipe for achieving the intended outcomes associated with an HIT solution. The usability experience is a product of multiple factors including the core system design, available capabilities inherent to the system and the extent to which the solution facilitates the optimal workflow for an intended user. Additionally, given the unique environment of healthcare, the implementation approach itself will greatly impact usability, user perception and ultimately, the business value gained from an HIT investment.

The current industry standards for designing & testing system usability include some of the following best practices:

- **Field Data Collection-** Using venues such as focus groups, surveys & interviews to best assess desired capabilities, user preference for design and perception of challenges. Where are the gaps? Where do inefficiencies reside? Why are mistakes made?
- **Observational Research-** Passive observation of how the user performs the specific tasks that make-up a total job. Specifically, how does the end-user interface with data sources and what steps are necessary to retrieve and send information needed to complete a task. How hard is this? How long does this take? What are the impacts to a user's performance level?

- **Contextual Research-** It is extremely powerful for the designers of a system to gain user empathy firsthand. Having design engineers mirror the workflow of a user as part of the early research is critical. At AccuNurse, our early design teams actually went into nursing homes and performed several weeks of role playing to gain this direct experience which could then be translated into more usable system capabilities.
- **Prototypes & Iterative Design Teams-** Releasing frequent code sets via development sprints so that frequent and targeted usability insight can be gained and changes made. Areas of assessment to include user perception, areas of vulnerability for user error, steps to complete tasks and efficiencies gained. Additionally, is the data being produced available in a format that enables accurate & fast decision making?
- **Leveraging Alpha & Beta Partners-** Formalized usability testing with the full system before general release.

While there are multiple facets to the challenges around usability, I believe that *two particular items* create some of the greatest impacts.

The first is *workflow*. The core of usability for a user is based on the feeling of how the particular solution enables me to perform my job. Can I perform my job better and is anything about it easier? Can I do more than I could before? Because of this new “system”, am I now completing 5 more tasks than before for no apparent benefit? What does this actually “feel like” on any given day?

Often times with HIT, we achieve the ability to eliminate stacks of paper, redundant charting steps and information gaps attributed to the lack of on-demand data, but, in doing so, we automate broken processes and don’t consider the workflow of our user. We focus mainly instead on getting data off of paper, and into a computer screen, and that is all. The result is poor compliance, low system adoption and the inability to achieve quantifiable business value. It is critical that we understand the current workflow of our user and create solutions that actually enable a better workflow. This is the core of usability. At AccuNurse, we leverage voice-assisted care capabilities to provide the end user with the ability to actually interact with care plan data, document care and communicate with staff, all using simple voice commands. AccuNurse is like having a “clinical coach” in your ear to guide the caregiver through the shift by prompting for care items & specific clinical alerts. By not requiring the mobile staff member to be reliant on data in a dormant computer screen, we are supporting a realistic workflow that facilitates better performance with desirable outcomes. As technology developers, designing workflow centric systems will help our industry to achieve the performance gains needed & desired with an HIT investment.

The second major challenge around usability is inherent to the *system implementation, expectations and strategies for deployment*. Often times, an organization adopts a system and views the initiative as something that is only about the technology. The focus is solely on the features & functions. Some users and even decision makers mistakenly conclude that now that a system has been installed, the desired outcomes will somehow magically happen- like witnessing electricity with the flip of a light switch! The change management, people dynamics & process aspect of the total change are not effectively & fully considered. As a result, individuals try to automate the same processes that occurred before. People get frustrated and resist the change. And, the same challenges & issues that existed before the new system, continue, but are now much more transparent. This dynamic greatly impacts the *perceived usability* of the system and the extent to which business outcomes can be realized with the investment. It is critical for an organization to view the adoption of HIT in a very holistic manner. Healthcare workers are great at providing patient care. However, the use of newly available data, capabilities, workflows and

technologies are often areas of discomfort for healthcare workers. Nurses often need to be taught how to use this newly available data to make decisions that drive care interventions. Revisiting the whole nursing process in the context of new capabilities will make usability better and easier. Healthcare workers will demonstrate greater proficiency levels with the technology, confidence levels increase and usability becomes far better. It is critical that we view usability from a wider viewpoint and not rely exclusively on the core system design.

Thank you for the opportunity to present this testimony.

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