Creating Usable Health IT for Physicians - The Smart Point of Care system

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Abstract

The major objective of health IT should be to subtract work, not to add work or make our work harder. Most health professionals do not use available health IT systems because current systems fail to offer value. The recent National Academy of Science study concluded that the current health IT efforts may even set back the vision of 21st century health care [2]. Here we describe features of a point of care architecture that supports patient care.

Discussion

Imagine a "Physician Support system" at the point of care (POC) that:

- knows and uses your context; where you are, what patient you are seeing, what set of tasks you need to perform – based on locally relevant outcomes and measures
- supports all the coordination and scheduling tasks that you must 'orchestrate' for your patients
- is customized based on what you enter, what you need to see and what you do - to closely replicate the way you think

The fusion of efficient, best clinical practices and patient information at the point of care will directly support improved quality of care, and produce cost savings that have not been realized by current health IT systems. "Savings" and "improved quality of care" can never be realized if clinicians won't put the data in

A conceptual architecture for Smart POC has been described [2]. Three components operate within a services-oriented architecture and exchange health data within the Smart POC and to external information sources (such as local HIS, health information exchanges and knowledge sources) using standardized messages.

The Context / Task Manager monitors user's activity to determine context, uses models of user's tasks and current/expected context to anticipate activities, tasks and necessary data exchanges with the User Interface Manager (UIM) and the Information Broker (IB) components. The IB component is the data/information cache and the connection point to external systems. The set of services required by the IB are available in many commercial HIE or SOA offerings. Imbedded analytic engines monitor the efficacy and efficiency of user and system tasks versus outcomes to continuously enhance best practices and system performance. The UIM component presents relevant data, information and medical knowledge to clinicians and gathers data from them. This context-aware Smart POC implements a systems engineering approach for the collection, distribution and maintenance of best practices, clinical data and system performance. It uses clinician-specific and continuously-adapting practice patterns that have the potential to dramatically enhance the quality and efficiency of health service delivery. The systems approach addresses the very thorny and expensive issue of how to make practice guidelines/best practices relevant to local context and, at the same time, solves the "how can we maintain and evolve the practices that we have implemented" question. The built-in business intelligence and analytic tools provide clinicians and managers the "What's Been Done" versus "What Should be Done" based on context and outcomes. This near real-time feedback loop simultaneously provides analyses for informed decisions about: what is best for "my" patients; what is best for our community, our state and our nation (population-level); and best practices. Thus, the Smart POC enables an integrated evaluation framework that supports continuous feedback of outcomes, cost and benefit directly to the point of care - where treatment decisions are made by the clinician and the health care consumer.

This cybernetic system seems to be just what is needed to implement comparative effectiveness research (CER). Since the diffusion of clinical practice guidelines into clinical practice has been notoriously slow and updating and evolving them very difficult, the authors believe that CER functions must be embedded into daily clinical processes at the point of care in a way that it is used continuously by all participants. This information continuously informs decisions by all participants so they can adjust their local practices and behaviors to improve individual and overall clinical performance.

References

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