Executive Snapshot

With the passage of the American Recovery and Reinvestment Act, $19B in federal money is being invested to scale-up the use of electronic medical record (EMR) software. Unfortunately, current products and implementation approaches are not well suited for the task. Even at the best health systems, implementations take years and hundreds of millions of dollars and seem to produce little improvement in health outcomes or administrative efficiencies. A new model, or EMR 2.0, is needed if we are to lower costs and improve the quality care from a national investment in electronic medical records.

This paper outlines a proposal for an EMR 2.0 based on important advances in computing, healthcare informatics, content management and cognitive science. The new model calls for the collaborative development of on-demand semantic web services to capture, use, share and protect the electronic information we need to manage all aspects of health. Taking a services computing approach to EMR software offers the best way to lower the cost and accelerate the secure delivery of health information into homes, doctor offices, hospitals, pharmacies and everywhere health is managed. Unlike current products, EMR 2.0 will be chiefly designed to provide access, alerts, briefings, training, advice and other knowledge services that support cognition and behavior change across the healthcare continuum.

The battle cry of "automate everything in the patient record" will be put aside in favor of the 80/20 rule that claims automating 20% of the data about health can be used to produce 80% of the value created by improved outcomes, safety and operational efficiency. This approach to value informatics will dramatically streamline current electronic patient records efforts and provide the insights needed to apply incentives for use in a sustainable and equitable way.

The dated assumption that only highly trained professionals know anything about health, will be put aside to enlist motivated citizens, students, amateur scientists and others to participate in the open source development or crowdsourcing of the "common sense" semantic content needed fuel automation for EMR 2.0. This Wikipedia-style effort will break the bottleneck that has kept current approaches from scaling up. It can be done with quality assurance and is essential to capturing and maintaining the enormous amount of computer-readable content needed to lower the cost and improve the quality of health.

EMR 2.0 will be installed once on a large and secure computing cloud or data center on the Internet. Compare this to the cost and effort of installing EMR software thousands of times in healthcare facilities around the US. Consumers, doctors, nurses and anyone involved in health management will access EMR 2.0 via a browser and use only those services they need (or that we all have agreed to use) rather than having to implement large complex software modules. No software capital costs, pay for what you use and get paid to use certain aspects of it. EMR 2.0 will work with any current web-enabled EMR product meaning investments that have been made in the old model will not have to be redone. Instead, the services of EMR 2.0 can be used to fill in the holes and extend the functionality of older versions.

Building EMR 2.0 can happen quickly, incrementally and collaboratively.   Web services for using lab and med information to help avoid safety issues, effectively managing people with high-cost chronic conditions, doing medication reconciliation, getting help making hard behavior changes or even more effectively managing hospital beds to avoid overcrowding, can be developed and implemented quickly and used on-demand under the lowest possible cost structure.

While there are challenges to overcome in realizing this vision there are related initiatives underway to address them. Importantly, with timely investment and focused implementation, EMR 2.0 products can be developed in pace with the schedule of the Economic Stimulus Plan and qualify users for significant incentive payments.