Deployment of Health IT in Small and Rural Settings
Invited Comments at the National eHealth Collaborative Board Meeting
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Thank you for this opportunity to present some observations on the deployment of health information technology in small and rural practices. My comments are made from the perspective of an information technology project manager. Currently I work for Redwood MedNet, a nonprofit health information exchange located in rural northern California. Prior to Redwood MedNet, I worked as the Chief Technology Officer for a consortium of six Federally Qualified Health Centers in rural Northern California.

Briefly, Redwood MedNet, which was launched in 2004, began production delivery of electronic results from our first hospital laboratory in April 2008. We currently deliver results from two laboratories to dozens of providers, and we are pilot testing results delivery from three more hospital laboratories, which we hope to take into production soon. Last month we began a standalone ePrescribing pilot. This month we will launch pilot delivery of radiology reports across the network, and will publicly demonstrate the newly released NHIN Connect gateway. In other words, we are a community network, and our primary service is operating agile, on-the-fly interfaces between EHRs and other health data systems.

The migration from paper to digital clinical charting is a good thing. This is not a question of if, but of when. However, given the plethora of current EHR software titles, the likelihood of substantial health IT vendor consolidation in the near future, the ferment of new technologies for acquisition, storage and sharing of data, and the lack of standardized clinical terminologies, we run the risk of prematurely adopting primitive electronic data silos that will be cumbersome to retrofit for interoperability in the future. For example, one of the EHRs that Redwood MedNet flows data into is incapable of correctly handling preliminary, final and amended lab results; specifically, these results are treated as separate tests, which clutter up the patient record and annoy the provider, who finally requested that

no preliminary results be loaded into his EHR. So we now deliver the preliminary and amended results to his printer, which is a hassle inserted into the business process by a local EHR functionality gap.

Micky Tripathi recently circulated an excellent critique of the ARRA reimbursement incentives. His analysis shows that a provider who qualifies for the maximum Medicare reimbursement of $44,000 under ARRA may be out as much as $21,000 in unrecoverable EHR costs at the end of five years. Micky reminds us that we can quibble over the exact dollar amount, but the important point is that it is not zero, and that it is a net loss to the provider. My point in mentioning this is to ask how many providers will sit out this round of EHR adoption incentives? And when the penalties begin in 2015 will they be better off than their peers who adopted early?

Redwood MedNet recently surveyed local physicians and midlevels on their use of technology, and their attitudes towards EHR. Responses were received from 49 providers, out of 208 practicing providers in our 5,000 square mile rural region. Eight respondents, or 16%, already use EHR; however only three of the installed EHRs, or 6%, import electronic lab results. This EHR automation gap is consistent with the DesRoches, et al. survey published last year in the New England Journal of Medicine. The startling local change from earlier local surveys by Redwood MedNet, however, is that in this survey 16 providers, or 33% of the local cohort, plan to adopt EHR within the next two years. If this happens, local adoption among small practices in our neighborhood will surge to 49%, which is a huge change. However, there is still a large amount of frustration. In response to the survey question, "Are EHRs ready for widespread adoption?" the following comments were returned.

- It depends on the specialty; for mine it is not ready
- They are cumbersome to use and not reliable enough
- There are too many vendors; I'm waiting for marketplace consolidation
- Infrastructure not ready to support EHR
- Too intrusive in patient-doctor interview

- Lack of uniformity and cross-platform compatibility
- Too time consuming to use
- More rapid data entry is needed
- They are canned and obfuscate relevant data

These negative comments are important because they were submitted by the 50% of survey respondents who do not currently use EHR and who do not plan to install EHR. It shows a strong residual pushback from small providers despite the subsidies and the high profile policy imperatives to adopt EHR by 2014. It raises the question of premature optimization in our current rush to adopt EHR.

Some of HRSA's "Health Center Controlled Network" disbursements look like a new version of the legacy health IT silos we are now seeking to break open via health information interoperability. In my region these HRSA investments are creating a new digital divide between technology haves and have nots. Specifically, in my neighborhood the funding is used by randomly aggregated clusters of safety net clinics to build new network data centers. While I admire their initiative, and while this is great employment for network consultants, as an IT manager I am bothered by some fundamental issues.

- First, I see clinics that are hundreds of miles apart spending seven figure budgets to create a shared EHR hosting solution with no prior EHR hosting experience and without adequate planning for interfaces with their major clinical trading partners across the parking lot or across the street, such as labs, pharmacies and radiology; in other words, when the budget is spent, these will be stranded EHRs which lack full functionality. This is the kind of deployment that Blackford Middleton refers to as the "level three investment" that will raise the cost of health care without delivering the benefits of clinical decision support and patient centered care.
- Among the clinics that seek to build interfaces, most build one-off interfaces rather than leveraging a community data exchange service. This is an expensive and unsustainable approach to interoperability that will, in the long run, be abandoned in favor of a more agile network centric interface topology.

- In my region half of the community clinics are sitting out the current rush to build HRSA networks. As a group they tend to be the more tech savvy clinics, so I believe their current trajectory will serve them well. Redwood MedNet works with both sets of clinics, and as a general observation, the new HRSA technology ghettoes are less efficient than the stand alone facilities.

The best indicator of EHR adoption in my region is the level of health IT staffing at each facility. As the tech staffing level approaches zero, the likelihood of EHR adoption also approaches zero. This is both a workforce and an infrastructure issue for rural and small practices.

It is important for health policy leaders to understand that standard best practices for IT in urban areas do not translate well into rural or low resource areas. For example, the Software as a Service model (SaaS) is tough to sell to independent health facilities in remote rural areas who do not trust others with their data. A hosted service can also be unattractive in a region where broadband penetration is weak or unreliable.

My final point is that rural and solo clinicians are very tech savvy. Our survey shows 94% using broadband at their office, and 64% with remote access to their office networks. One reason they are not rushing to adopt EHR is because they see software that will increase their costs and slow down their patient care process. As an IT manager, I don't blame them. In fact, I openly encourage providers to wait, because as I look across the community and imagine agile patient centered health data, I see the current crop of EHRs as new silos that are future barriers to the free flow of data. I believe health data agility in the form of health information exchange does not necessarily require EHR software silos to provision a patient centric health care system.

Thank you for this opportunity to share some observations with you.