White Paper

Silicon Valley and Smart Health:

A Final Report to the Community

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Joint Venture
SILICON VALLEY NETWORK

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Silicon Valley and Smart Health:

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In 2005 Joint Venture: Silicon Valley Network convened local stakeholders in a "Smart" Health project to find ways information technology can be used to improve the quality and reduce the cost of healthcare in Silicon Valley. One of our principal goals was to capture medical records in the electronic medium and have them universally available to authorized medical professionals.

After more than two years, we have concluded that while individual stakeholders are making significant internal progress toward this goal, Valley-wide solutions cannot move forward within the current environment.

This is a report to the community explaining:

- The basis for the project and the benefits we hoped to achieve
- The actions we took and the lessons we learned in the process
- Our conclusions and recommendations for the future

BACKGROUND

"American medical technology may be the envy of the world, but the US healthcare system is downright backward when it comes to running its own business. While banks, airlines and other service businesses long ago embraced automation to perform routine tasks, technology has been slow to take hold in healthcare. The US medical system of mostly independent doctors is highly fragmented. Administrative and clinical procedures are rarely standardized. And insurers have different rules for everything."

—THE WALL STREET JOURNAL

Healthcare in the United States is highly fragmented. Records and processes are largely paper-based, and exist independently in many unconnected information technology silos. Even when the information is electronic, a patient's record at a doctor's office is often not electronically available to that patient's local hospital when there is a scheduled admission, let alone when the patient requires emergency care.

As a result, patient care is often inefficient. Unnecessary layers of administrative and financial overhead add cost to the system, and the lack of timely information and controls can lead to error and redundancy. Providers of health services are rewarded for performing or using services; payers are rewarded for keeping utilization in line with premiums.

Because necessary information is often unavailable to healthcare practitioners and consumers, the market for healthcare services is inefficient. Even when motivated, patients and providers rarely have the right data they need to make informed choices about the cost and quality of care. Few consumers really understand the economic, health and quality-of-life implications of lifestyle and end-of-life decisions. Employers and, increasingly, consumers end up paying the bill without much visibility into what is driving their costs up, at sometimes dramatic rates. At best these shortcomings create annoyance and waste; at worst they pose a threat to patient health.

Imagine what could happen if we took all the information that was available for any patient from all sources and put all of it into a single electronic record.

One way to address this problem is to use technology to create linkages that do not currently exist in the system. Imagine what could happen if we took all the information that was available for any patient from all sources and put all of it into a single electronic record, including:

- Clinical records from doctors and hospitals
- Prescription data from pharmacies
- Immunization records
- Lab tests
- Radiological images
- E-mail correspondence between patient and physicians
- Home monitoring information
- Insurance records
- Personal patient input regarding exercise and diet

Then, consider what could be achieved if that information, appropriately organized and packaged, was readily available over the Internet, controlled by appropriate security, to any authorized person who needs it to make decisions about care—the patient, a doctor or nurse, a pharmacist or a professional caregiver. This simple idea has exploded into nearly every area of commerce over the last 10 years, but has not taken hold in healthcare.

The benefits of such a system could be substantial. At a time when healthcare costs are soaring and shifting increasingly to individual consumers, studies show that an interoperable system could reduce the total cost of healthcare in the United States by $77-$130 billion annually (approximately 3-6% of the total annual US healthcare budget) by automating processes and reducing duplication.

There would also be direct benefits that improve patient safety and quality of care. The immediate availability of current information about patient allergies, medications and presenting medical conditions could substantially reduce the tens of thousands of injuries and deaths due to medical errors each year.

Beyond these direct benefits, the aggregation of data would enable substantial additional indirect benefits that could transform healthcare:

- Collective data on price and quality would support the operation of healthcare as a more efficient market, allowing consumers and providers to act in cost-efficient ways.
- The quality of public health could be improved if agencies were able to pinpoint and treat community health issues in general and to act immediately in cases of pandemic, natural disaster or terrorist attack.
- Consumers could learn and be motivated to adopt healthier lifestyles because they have access to timely personal information and feedback on how their own behavioral choices impact their personal health and longevity.

Joint Venture convened a Smart Health Task Force of representatives of three major stakeholder groups—healthcare providers, employers and insurers—to try to overcome the barriers inherent in applying information technology to healthcare, and to develop solutions that would make a difference in the Valley and beyond.

The idea is simple and the potential benefits great, yet the implementation is not at all straightforward. While individual healthcare organizations, particularly in Silicon Valley, are investing heavily in the advancement of their own internal electronic data systems, the sharing of data between institutions in a community is still a rarity.

The biggest barrier to change is that healthcare is delivered in organizational silos, and these silos have little incentive—and often profound disincentives—to share information with each other. Many healthcare organizations have competitively differentiated themselves based on their information systems and patient data; sharing it threatens their market position. And financial incentives are often mismatched–everyone agrees that reducing duplicated services would reduce the cost of care, but it would also reduce revenue for organizations currently providing those services.

It is within this context that Joint Venture: Silicon Valley Network started Smart Health in 2005.

JOINT VENTURE'S SMART HEALTH EFFORT: WHAT WE DID AND LESSONS LEARNED

Joint Venture is a 15-year-old public benefit corporation whose mission is to mobilize people from business, labor, government, education and the community to identify and act on regional issues. Joint Venture has a long history of acting as a neutral convener of disparate stakeholders to solve difficult regional problems.

Joint Venture convened a Smart Health Task Force of representatives of three major stakeholder groups—healthcare providers, employers and insurers—to try to overcome the barriers inherent in applying information technology to healthcare, and to develop solutions that would make a difference in the Valley and beyond.

Participants in the Task Force meetings represented most major healthcare providers, many large employers and the major health insurers. Co-chairs of the group were Richard Levy, chairman of Varian Medical Systems and Eric Benhamou, chairman and CEO of Benhamou Enterprises.

Smart Health Task Force
Convened by Joint Venture: Silicon Valley Network

Healthcare Providers	Employers	Payers
Daughters of Charity Health System/O'Connor Hospital	Cisco Systems	Aetna
El Camino Hospital	CommerceNet	Blue Shield
Kaiser Santa Clara	Oracle	Wellpoint
Lucile Packard Children's Hospital	IBM	Santa Clara Family Health Plan
Palo Alto Medical Foundation	Intel	
San Jose Medical Group	Palm	
Santa Clara County IPA (SCCIPA)	Agilent	
Veterans Administration	Sun Microsystems	
	Varian Medical Systems	
	AT&T	
	Con-way	

The stated objective of the Task Force was to demonstrate and disseminate new healthcare models, using information systems to facilitate cost-effective healthcare decision making for all Silicon Valley residents.

Initially, the group looked at models of information sharing in other communities, since regional health information organizations (RHIOs) have sprung up throughout the country. Created at both local and state levels, the goals of these RHIOs vary:

- Increasing patient and consumer access to patient medical records
- Aggregating patient data to improve safety and quality of care
- Making communication more efficient
- Lowering administrative costs
- Increasing the use of technology, especially electronic medical records (EMRs)

RHIOs are diverse in the reasons for their formation as well. They can be the result of regulation, receipt of a grant or other external funding source, or the outcome of a local collaborative process.

Our group also observed that RHIOs, particularly at the local level, frequently fail because they are unable to get local healthcare providers to adopt a RHIO model or to develop a sustainable funding model.

The Task Force next identified common attributes of successful RHIOs (defined as those which had achieved longevity and were accomplishing measurable changes in the behavior of their participants).

The successful models had three key common attributes:

- **A collaborative culture among IT professionals.** Where RHIOs succeed, there is a tradition of providers working together for a variety of purposes. For example, in the New England Health Exchange Network (NEHEN), where healthcare providers have been sharing data for nearly 30 years, IT directors from hospitals and physician groups meet and work together on a regular basis. The collaborative culture has been built slowly over time, based on significant regional successes. NEHEN leaders believe collaboration is possible largely because most hospitals in the Boston area are nonprofit and have independent IT leadership with the freedom to act and commit their organizations.

- **An infusion of funding or a legislative mandate.** In a number of the more successful initiatives, an external source of funding or a legislative mandate served as a catalyst to move the RHIO forward. This point underscores the difficulty of achieving success at the local level as opposed to the state level, where healthcare legislation usually occurs.

- **A clear business model that enables all participants to justify participation.** One of the major difficulties in implementing data sharing initiatives is that even when broad community benefits are great, the costs fall disproportionately on healthcare providers. One of the hospital executives in the Smart Health Task Force frequently commented, "This idea sounds great, but I can't identify which specific line items in my budget are going to improve if we participate."

None of these attributes are present in Silicon Valley.

- Silicon Valley's healthcare market is highly competitive, and lacks a strong culture of collaboration among the major providers.

- Smart Health was not instigated by any infusion of funding, nor by legislative mandate.

- Smart Health had no bias toward the type of project we would undertake; each project would have to develop its own sustainability.

Hospitals are now using their proprietary systems to link patient data across their internal departments or between hospitals in large systems, but they are not linking to each other.

As a result, we identified several criteria that are necessary for Smart Health projects:

- **Every project must have, or have the promise of developing, a sustainable business model.** This is consistent with the Joint Venture approach. We were willing to seek startup funding for projects if necessary, but only if the project had a chance to stand on its own in the future.
- **Pick projects and solutions in which all stakeholders gain.** In our early meetings, it became clear that many ideas would not be accepted because incentives were misaligned. Some participants might be eager to implement because they would achieve a financial or quality benefit, but others would have to pay the cost without seeing a direct benefit. We needed to strive for solutions in which there were winners and no losers.
- **Be opportunistic—identify projects that solve a real business need for participants.** We were open to supporting relationships that met the needs of individual participants and that we could build into larger Valley-wide collaborations.
- **Work to build a collaborative IT culture over time.** The group recognized that Smart Health could only achieve broad success if stakeholders developed comfort in working collaboratively over time. The idea was to start small and build on small successes.
- **Design networks and information systems for future growth.** We recognized that for some projects it might be expedient to develop technological solutions that met a simple business need, but for which there would be no future broad benefit for the community.

SMART HEALTH PROJECTS

On this basis, Smart Health undertook a number of projects between 2006 and 2008, which we summarize here in tabular form. Each was considered against the criteria we developed. The projects were diverse and covered a broad range of RHIO activities: some involved the processing of administrative, financial and claims data; others were based on the sharing of clinical data. Some business models involved cost and benefits to healthcare providers; others imposed costs on employers and consumers. Some projects were conceived by a small group of stakeholders to meet their individual needs, while others were designed for Valley-wide implementation.

Smart Health Projects: Administrative/Financial		
Description	**Actions**	**Outcomes and Observations**
Claims Transmission Network		
Problem to solve: Most parties to healthcare claims transmission pay a third-party cost **Solution:** Establish claims transmission network to replace current vendors with a nonprofit network that would replace the current per-transaction and licensing fees with a smaller annual membership fee **Smart Health role:** Third-party nonprofit broker of claims transmission services **Business model:** Replace current transmission fees with a membership fee of $50-$75,000 per year; membership fees pay for annual operations of Smart Health network; members keep savings above their membership fee	• Lucile Packard Children's Hospital, El Camino Hospital and Stanford Hospital committed $50,000 each to pay startup costs of network if remaining costs could be identified • Evaluated potential network models; determined development cost of $750,000 and six months to implement network • Presented business plan to all major hospitals, large physician groups and insurance companies in Silicon Valley	• Business model did not work for majority of hospitals. In the New England Health Exchange Network (NEHEN), which was a model for the network, claims transmission costs were $5 per transaction when NEHEN was formed. Today these costs have been reduced to under $0.25, and are gradually reaching zero. Many hospitals have contracted licensing agreements that are less than the proposed network membership fees • Major insurance companies agreed to support the technical requirements of the network, but not to contribute financially because they have their own transmission offerings • Additional savings attributable to reduced overhead not recognized by participants

The competitive provider market in our region makes collaboration among providers very difficult, particularly when it comes to sharing clinical records.

Description	Actions	Outcomes and Observations
Health Transaction Services		
Problem to solve: The administrative cost of the complicated process of handling healthcare claims creates administrative waste in the form of overhead and bad debt for all parties **Solution:** Reduce administrative overhead by establishing a health transaction network that would provide real-time eligibility checking, real-time claims adjudication and real-time payment of patient portion of bill through predetermined accounts **Smart Health role:** Set up pilot, partner in developing business model **IBM role:** Develop Health Transaction Services program that would enable: • Real-time eligibility checking • Real-time claims adjudication • Real-time payment processing	• Met with IBM to develop pilot • Recruited multiple participants, including two employers, two hospitals and one large physician group • Developed business plan for potential business models	• IBM changed scope of project; pilot did not occur

The CEOs of local health-care providers can do it, by agreeing to put their competitive interests aside for the benefit of the community. This will require financial investment and sharing data about their customers, but their leadership would ultimately pave the way to improved quality and lower costs.

Smart Health Projects: Clinical

Description	Actions	Outcomes and Observations
Health Data Exchange		
Problem to solve: 48% of physician referrals to El Camino Hospital come from Camino Medical Group (~10K/yr); current exchange system has high error rate, which imposes high cost on both parties **Solution:** Develop exchange model that could be scaled and replicated in organizations across Silicon Valley **Smart Health role:** Third-party nonprofit broker of exchange data for scalable health information exchange **Business model:** Build scalable health information exchange and record locator service that enables two-way exchange between parties. Create universal patient identifier and record locator service; structure exchange so that other institutions could join. Future business model TBD	• Worked with CIOs of El Camino Hospital and Camino Medical Group to develop project plan • Hired consultant to support project management	• Project fell apart for two reasons: Initially, El Camino had to withdraw because of changes in personnel and unavailability of IT department due to installation of internal Eclypsys EMR system. When El Camino was ready, Camino Medical Group made the decision not to pursue the project as a two-way exchange • El Camino Hospital and Camino Medical Group have continued working on direct exchange independently
Image Exchange		
Problem to solve: El Camino Hospital and Lucile Packard Hospital have a business need to share images because Packard has 20 pediatric beds at El Camino. Current method of exchange is courier, causing delays in availability of images **Solution:** Develop image exchange that could be scaled and replicated for other participants across Silicon Valley **Smart Health role:** Broker pilot, assist in development of scalable business model for image exchange so that additional parties could join	• Brokered meetings with hospitals and vendors	• Hospitals solved business problem by deciding not to build a scalable solution, but to build a less-expensive direct connection between them

Description	Actions	Outcomes and Observations
O'Connor RHIO		
Problem to solve: Daughters of Charity Health System is implementing an EMR system for its six hospitals; it wants to find a way to extend the network to physicians in its referral network **Solution:** Provide financial incentives for physicians to adopt EMRs; develop network for data exchange between physician offices and O'Connor that could be scaled to include other participants **Smart Health role:** Take lead role in bringing in outside resources to support this effort; identify other hospitals to extend exchange **Business model:** Develop model as other hospitals/ physician groups are added	• Smart Health identified grant opportunity through Misys Center for Community Health Innovation; applied for and received $400,000 grant to cover electronic medical record software for physician groups in the O'Connor Hospital EMR network • Smart Health identified potential South Bay information exchange partners and sought additional grant funding to expand the network	• Physicians currently applying for grants through online resources; O'Connor has installed internal system and is supporting grantees

Smart Health Projects: Employer-Based

Description	Actions	Outcomes and Observations
Personal Emergency Health Record		
Problem to solve: Accurate health information is not available at the point of care, resulting in medical errors and costly duplication of services **Solution:** Open source personal health record that could incorporate data from any source. Business model would be driven by consumer/ employers instead of health-care providers **Smart Health role:** Nonprofit third-party developer and provisioner of emergency personal health records for consumers **Business model:** Smart Health provides emergency PHRs for employees of Silicon Valley companies at a cost of $3/employee/month. Revenues pay for development, hosting, administration and open source communication to insurance companies, third-party data aggregators and healthcare providers	• Developed business plan • Recruited Palm as participant of technology and customer • Presented opportunity to many other companies	• PHR generated much interest, but had to compete with other national services (Intel, Google) for local customers • Self-insured businesses had interest, but, as global employers, looked to less-regional services • Business model did not work for other employers, because savings would be brokered by insurers

Smart Health Projects: Data Warehousing		
Description	**Actions**	**Outcomes and Observations**
CMS Project		
Problem to solve: Lack of aggregate healthcare data **Solution:** Establish data warehouse/exchange that would provide value for providers, insurers and employers **Smart Health role:** Nonprofit third-party developer and provisioner of emergency personal health records for consumers **Business model:** Smart Health provides emergency PHRs for employees of Silicon Valley companies at a cost of $3/employee/month. Revenues pay for development, hosting, administration and open source communication to insurance companies, third-party data aggregators and healthcare providers	• Brokered meeting between Secretary of HHS Michael Leavitt and 18 Silicon Valley CEOs • With Pacific Business Group on Health and Cisco Systems, developed a proposal and a set of recommendations for transparency, much of which was adopted by CMS • Developed a business plan for data warehousing services with Applications Working Group	• Pacific Business Group on Health developed contract with HHS to receive CMS data for analysis • Data not available for transparency at individual physician level due to pending federal lawsuits

While there have been some small victories, and while some projects continue to show ongoing potential, the barriers to outright success are significant and seemingly insurmountable using collaborative approaches. Some of these difficulties are inherent in the nature of healthcare, while some are peculiar to the Silicon Valley healthcare environment. As a result, we were unable to assemble two of the basic building blocks necessary for successful RHIOs:

1. **Collaboration among competitors.** While Silicon Valley IT leaders know each other well, and though they were willing participants in Smart Health meetings, a collaborative IT culture has never developed here. The competitive provider market in our region makes collaboration among providers very difficult, particularly when it comes to sharing clinical records. The competitors in the market are each aggressively pursuing an internal EMR strategy and competing hard to make electronic medical records a competitive differentiator:

- Kaiser Permanente has made a corporate investment of over $3 billion in electronic medical records, which are an essential part of their competitive plan.
- Sutter Health, which includes Palo Alto Medical Foundation (PAMF), is battling to build a "Kaiser lite" network of tightly integrated medical groups spanning the San Francisco Bay Area. An award-winning element of this plan is an online EMR that is available to patients.
- Stanford Hospital is in the middle of a 10-year, $250 million plan to integrate electronic records and streamline operations and workflow.

These core business strategies are designed to use patient data to build consumer loyalty and establish incentives for consumers to stay within their systems. As a result, collaborative approaches to patient data conflict with core business strategies.

Additionally, IT management in Silicon Valley is most often outsourced or is part of a larger corporate structure, and this makes it difficult find local IT leaders willing and able to promote change. This is true in three of the largest providers in the Valley:

- Stanford Hospital has outsourced IT to Perot Systems
- Palo Alto Medical Foundation is a part of Sutter Health
- Kaiser Santa Clara is a part of the larger Kaiser system

A compounding factor was that even providers who were more open to considering data sharing were engaged in the consuming task of implementing EMR strategies within their own organizations. These implementations are consuming—they involve significant process and workflow changes that create the need for high levels of training and support, and the implementations are technically difficult.

2. **Sustainable business models.** Consistent with the Joint Venture model, each Smart Health project was required to develop its own sustainable business plan. Startup funding had to be identified and enough participants had to be signed up to pay ongoing operational costs.

   In some of the projects, commitments to pay for startup funding were achieved. For the administrative claims transmission network, for example, three hospitals agreed to pay $50,000 each toward $750,000 in startup costs. However, no other hospitals followed suit.

   The model for the personal health record (PHR) project was based on employers' willingness to pay for their employees to have online personal health records. Palm committed $50,000 if enough companies could be signed up. We were unable to reach the required level of 50,000 records.

CONCLUSIONS

Despite a collaborative process, Smart Health was unable to sustain any projects in which there was broad stakeholder participation. This is consistent with issues faced by regional RHIOs across the country. There are important systemic reasons why shared medical records have not broken down silos of information in very many communities in the United States; they exist as part of the disjointedness of the US healthcare system:

- In reality, the healthcare *system* is not a system at all. It is fragmented and disjointed, with disconnected insurers, doctors, hospitals, specialty departments, pharmacies and labs, all at different stages in the implementation of their own electronic records. They use different proprietary standards, different protocols and different terminology. Smart Health's audit uncovered well-meaning initiatives within most of these constituencies.
- There are many vendors developing and selling proprietary information systems for all of these providers. To build competitive advantage, these systems are usually designed to make interoperability difficult.
- It is expensive in both time and organizational effort to implement electronic records. Hospitals and the largest medical groups have felt justified in making substantial investments in their own organizations, but smaller providers have not. A Valley-wide interoperable records system would take a similar level of investment.
- EMR technology is evolving rapidly, which threatens to render current and past investments in EMRs obsolete. Integrating rapidly evolving systems is extremely difficult.
- There is a wide variety of viewpoints on how to get this done, and viewpoints vary by the perspective of each organization. In a system in which incentives often conflict, collaboration can be problematic.

Smart Health's successes have therefore been modest. We have convened stakeholders for a frank discussion of the benefits and opportunities of sharing data and considered many potential solutions. We obtained some grant funding to support the implementation of EMRs in physician offices and their potential connectivity to local hospitals. However, based on our experience we do not believe that Silicon Valley will make significant progress in the exchange of health data within the current environment.

Beyond the structural and systemic barriers in the healthcare system, market conditions particular to Silicon Valley add still more difficulty:

- The healthcare provider market in the Valley is too highly competitive, and information technology is at the center of the competitive battleground.

Collaborative solutions built around data sharing—particularly clinical data—have been impossible to develop because there is no culture of collaboration among providers. In addition, the commitment required to install electronic records internally is consuming, and it is difficult for large systems to divert from their focused internal efforts to devote resources outside their networks. In the case of Kaiser, most patients stay within the network and have their own insurance products, so connecting outside the Kaiser system has not been a high priority.

- Large Valley employers have been willing participants in the process and are genuinely interested in improving care and reducing costs, but our large employers have global footprints and most have been reluctant to invest in local projects. For several, even those with a corporate headquarters in the Valley, healthcare leadership is located in other regions.

- While payers have participated in our meetings and have expressed a willingness to support Smart Health, they have focused their major support on statewide initiatives, such as CalRHIO, and on their own internal initiatives.

Despite our pride in Silicon Valley's ability to solve tough technology problems or to create new business models, it would appear that portable electronic medical data will depend on some outside stimulus instead of our own leadership.

This is not to say that substantial progress affecting Valley consumers has not been made. During the course of the Smart Health project, providers and insurers have made significant advances in utilizing electronic medical records to enhance the quality of care. All have made large investments in electronic records, and the sheer number of physicians using electronic records has increased substantially during that time.

But the basic impediments remain. Data, even when it is electronic, continues to exist in silos. Hospitals are now using their proprietary systems to link patient data across their internal departments or between hospitals in large systems, but they are not linking to each other. More physicians are using electronic patient records, but they are infrequently integrated with the hospitals to which they refer patients. Pharmacy records, lab data and images from outside a system are not integrated into patient records. In an environment in which many patients have dual insurance, see healthcare providers in multiple systems and travel frequently, this is not sufficient to realize the potential benefits of a unified record system.

A breakthrough in Silicon Valley will require one or more stakeholder groups to come forward:

- The CEOs of local healthcare providers can do it, by agreeing to put their competitive interests aside for the benefit of the community. This will require financial investment and sharing data about their customers, but their leadership would ultimately pave the way to improved quality and lower costs.

- The largest Valley employers, particularly those that are self-insured and stand to gain the most direct benefits from cost-reduction initiatives—

Sun Microsystems, Cisco Systems, Hewlett-Packard, IBM, Intel, Oracle—could take collective leadership to fund a data-sharing initiative. Such an initiative could provide incentives to providers to share data, but could also use a stick—their collective large numbers of employees—to get providers to move. In addition, these companies have the economic clout to bring insurers along as participants, and would benefit from the development of a system that is scaleable and replicable to other regions.

There is precedent for collective employer action. In January 2006 Cisco Systems, Oracle and Intel committed funding for a three-year pay-for-performance initiative that encouraged local providers to adopt electronic records. The program is ongoing, although the amount of funding provided was limited and Oracle has dropped out of the program.

If local leadership does not emerge, outside forces might impose change in Silicon Valley:

- The federal government has the market power to transform the use of medical records. Our two largest federally funded medical entitlement programs, Medicare and Medicaid, account for nearly half the total market for healthcare services. If the government required and supported the utilization of electronic records and the sharing of data for participation in these programs, the market would have to move quickly. To date, the federal government has pushed the market in this direction but has not made EMRs and the sharing of electronic data a requirement.

- Regulation, either at the state or federal level, could *require* shared medical records. This is unlikely in the short term. Current healthcare proposals being offered by presidential and gubernatorial candidates focus on universal coverage and do not include shared electronic data as a central element of reform. However, rapidly increasing financial demands on the Medicare system caused by the large baby boomer age cohort could push the federal government to move in the future.

- A public health emergency—a major earthquake, pandemic or terrorist attack—could provide the impetus necessary to enable shared emergency medical records and other public health services. This happened in Louisiana in the wake of Hurricane Katrina.

- An initiative such as CalRHIO, which seeks to build a statewide health information exchange, could successfully build an infrastructure and self-sustaining business model to which Silicon Valley providers could attach. CalRHIO has successfully attracted the right stakeholders to the table, but it remains to be seen if it can attract necessary financing and support for its business model.

The difficulty of moving forward in Silicon Valley does not mean we should be complacent. Even though Smart Health is closing its doors, there are several important steps we can take locally to continue to move forward.

The strategic investment in internal IT systems by the largest healthcare providers in the Valley creates an opportunity for community and nonprofit hospitals to compete by sharing data among themselves and thereby extending their reach. The EMR grant awarded to Daughters of Charity/O'Connor Hospital is a potential wedge to build such a linkage in a network that could include community hospitals such as El Camino and Valley Medical Center, the county public hospital.

In addition, we must keep encouraging physicians in Silicon Valley to adopt electronic medical records. We estimate the percentage of doctors using electronic medical records in the Valley is much higher than the national average, which was 25% in 2005. This is true largely because such a high percentage of local physicians are affiliated with Sutter Health, Kaiser, Stanford and the Veterans Administration, all of which adopted system-wide EMRs years ago. However, large numbers of physicians practicing in small groups continue to use paper-based systems because the cost of implementation—both in terms of return on investment and operational workflow changes—is perceived to be greater than the return on investment. This "last mile" problem must be addressed by a combination of incentives and requirements in order to push us toward integrated records.

The federal government can play a lead role in making this happen, but physician groups and other local healthcare organizations should continue to seek grants and other financial incentives to help doctors get over the financial hurdle of shifting to electronic records.

Consumers can also play a role by selecting only doctors who have adopted electronic records.

It is difficult to imagine a future environment in which critical health information will not be broadly available at any time to anyone who needs it in Silicon Valley. Whether this occurs because of technological innovation, government legislation or local initiative, significant change is on the horizon. Insurance reform remains at the top of the political priority list at the state and federal level, healthcare costs continue to rise sharply as our population ages and the federal Medicare/Medicaid burden increases and consumer demand for price and quality transparency is growing as it becomes readily available in every other sector of commerce.

It is ironic—tragic even—that we can't solve this problem in Silicon Valley, of all places. But despite our pride in Silicon Valley's ability to solve tough technology problems or to create new business models, it would appear that portable electronic medical data will depend on some outside stimulus instead of our own leadership.

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Established in 1993, Joint Venture: Silicon Valley Network provides analysis and action on issues affecting our region's economy and quality of life. The organization brings together established and emerging leaders—from business, government, academia, labor and the broader community—to spotlight issues, launch projects and work toward innovative solutions.

Credits

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